

V I B R A T I O N S

NEWSLETTER OF COLORADO SERVICES FOR CHILDREN WHO ARE DEAFBLIND

**Serving Children with Combined Vision and Hearing Loss,
Their Families, and Service Providers**

Winter 1999 EDITION

This is an edited version of the original newsletter. Only the articles related to deaf/hard of hearing issues have been maintained as resource information. If you copy any of this information, please give credit to its original source.

COMMUNICATION CHOICES

One of the most important things to remember when choosing a communication or teaching method for your child who is deaf or hard of hearing is that your choice should be based on what works best for your child and family. There is no one method that is best for everyone. And there is no real way of knowing in advance which method will be right for your unique situation. Knowing what will fit your child's needs, and what your family can and will commit to, is truly an on-going process. A good place to start is by considering these questions:

- Do you know what your options are for communication?
- Do you understand these options?
- Have you examined them in person?
- Have you talked to other families of children with hearing loss as well as with deaf and hard of hearing individuals?
- What are you as parents willing to learn and commit to?
- What are your goals for your child in the future?

The following definitions of the most common communication and teaching methods are designed to give you a general understanding. These communication choices are options for any child regardless of his/her degree of hearing loss.

American Sign Language (ASL)

A visual-gestural-spatial language in which placement, movement, and expression of the hands, face and body are actually a part of the language. Its grammar and syntax are distinct from English. ASL is the native language of the Deaf culture.

Auditory-Oral (AO)

This method of teaching spoken language stresses the use of amplified residual hearing, speech and oral language development. Additionally, it places emphasis on speech reading and visual clues from the face or body. Tactile methods may also be used to encourage the child to feel the sounds of speech.

Auditory-Verbal (AV)

This approach to reaching spoken communication concentrates on the development of listening (auditory) and speaking (verbal) skills. It places emphasis on teaching the child to use his or her amplified residual hearing to the fullest extent possible so that the child develops and uses all five of his/her senses.

Conceptually Accurate Signed English (CASE)

ASL signs are used in English word order, key words are signed; many articles are omitted. This is a continuum system, it can approximate PSE for some, or MCE for others. (See PSE and MCE below.)

Cued Speech

This system is designed to clarify lip reading by using simple hand movements (cues) to indicate the exact pronunciation of any spoken word. Since many spoken words look exactly alike on the mouth (ex: pan, man), cues allow the child to see the difference between them.

Pidgin Signed English (PSE)

A combination method incorporating English signs with American Sign Language. This method is not an invented system, but rather the resulting blend of two distinct languages and cultures (Deaf and hearing).

Signed English

Using English language grammar and syntax but with manually coded or “signed” words. Signs are used in English word order, and are usually accompanied by spoken language. This is a sign system, not a language, and is considered a form of manually coded English.

Signing Exact English (SEE 2)

Users speak when signing, and sign exactly what they are saying. Most of the signs are borrowed from ASL, some from English. This is considered a form of MCE, Manually Coded English.

Total Communication (TC)

This method involves exposing the child to a variety of communication techniques including auditory training, amplification, spoken language, speech training, speech reading (lip reading), sign language, fingerspelling, gestures, and pantomime. The emphasis is on incorporating and combining anything and everything that works to teach language and speech to the child.

EFFECTS OF HEARING LOSS

Degree of Loss Potential Effects

Slight 16 - 25 dB	Can hear faint speech within a close range. May experience no appreciable difficulty with communication. Speech not likely to be affected.
Mild 26 - 35 dB	May have difficulty hearing faint or distant speech. A child with mild loss may miss up to 10% of speech signal when the speaker is at a distance greater than three feet, or if the environment is noisy. Likely to experience some difficulty in communication and education settings.
Moderate 36 - 50 dB	Understands conversational speech at a distance of 3 - 5 feet. Amplification may enable listener to hear and discriminate all sounds. Without amplification, 50% to 100% of speech signal may be missed. Speech may be affected unless optimally amplified.
Moderate/Severe 51 - 70 dB	Conversation must be very loud to be heard without amplification. A 55 dB loss can mean 100% of the speech signal is missed. May have difficulty in settings requiring verbal communication, especially in large groups. Delays in spoken language and reduced speech intelligibility expected without intervention and amplification.
Severe 71 - 90 dB	If loss is pre-lingual, spoken language and speech may not develop spontaneously, or could be severely delayed unless modifications and interventions are taken. With optimal amplification, should be able to detect all the sounds of speech and identify environmental sounds. Without amplification, is aware of loud voices about one foot from ear and likely to rely on vision for communication.
Profound 91 dB or greater	Aware of vibrations more than tonal pattern. Many rely on vision rather than hearing as the primary avenue for communication and learning. Speech and oral language will not develop spontaneously without modifications and intervention. Speech intelligibility often greatly reduced and atonal voice quality likely. Residual hearing can benefit from amplification.

WILL YOU HELP ME HEAR YOU?

Abstracted from an article by Max K. Kennedy, November/December 1986 issue of the SHHH Journal, which is published by Self Help of Hard of Hearing People, Inc., 7800 Wisconsin Avenue, Bethesda, Maryland 20814

You're sensitive to those with a disability. You don't want to say or do anything to cause further hurt or embarrassment. For example, when you encounter a person in a wheelchair, you know to focus your attention on the person, not the chair. However, when you meet a person with a hearing loss, you may be a bit unsure of yourself. What is the best way to respond to a person who is hard of hearing?

As a hearing person, you face three challenges with someone who has a hearing loss. First, the disability is invisible; you may have no prior warning of the condition. Second, because it disrupts communication, you cannot ignore it, and you are faced with the challenge of how to speak effectively to that individual. Third, with the possible exception of raising your voice (which does not help), there are no obvious steps for you to take.

What to do? Please realize that hearing aids don't help everyone, and they will not restore a person's hearing to normal. Therefore, most people who are hard of hearing, whether they wear hearing aids or not, depend to some degree, on speech reading. The following recommendations should help you communicate with a hard of hearing person in a more satisfying way. Give them a try!

FIRST, I'll do my part. I know it will help you to help me if I admit to you that I have a hearing problem. This will lessen your uncertainty about me and your concern about hurting my feelings. As we discuss my hearing loss, we will both learn to understand and accept my limitations. Then, we can focus on the relationship.

SECOND, I must be able to see your face, preferable straight on in reasonable light. Please do not stand or sit with your back to a window. The glare makes it difficult for me to see you clearly. Try to face me when you talk, even when others are present. They can hear you, but I must see you! I know this is hard for you to remember, and I deeply appreciate it when you make a special effort to face me when you are in a group.

THIRD, you may try to talk with me and get no response. I am not ignoring you; I just did not hear you. This is especially true if you approach me from the rear or side. Just touch me gently to get my attention. Once I'm facing you, I will usually be able to understand you.

FOURTH, speak clearly without exaggerating your normal lip and facial movements. Talking a little slower might help. Don't raise your voice, because that will distort your lip movements.

FIFTH, speech reading has its limitations; sounds formed in the throat cannot be seen. Also, some words look the same on your lips. Thus, I must rely on my residual hearing and the context of our conversation to pick-out the right word.

SIXTH, since I do use my remaining hearing, I must eliminate background noise as much as possible, because it is difficult for me to filter out the sounds of other people's voices or music. I appreciate it when someone turns off a TV, CD player or does something else which reduces the noise level.

SEVENTH, as a speech reader, I am at my best in a one-on-one conversation. I may be able to keep up with two people, but rarely more. I simply cannot turn my head fast enough in the right direction; for this reason I avoid large groups.

EIGHTH, please let me know when you change the subject; I have to depend on context to understand. My speech reading skills will enable me to keep up with you more easily when I know which direction you are going.

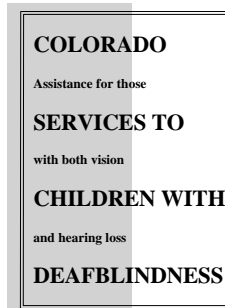
NINTH, if you say something I don't understand, don't repeat it the same way more than once. Rephrase it. If you restate a few key words, I will usually be able to pick up the meaning.

TENTH, numbers and names of people are very difficult for me to comprehend. You can be most helpful by writing them down for me.

YOU WILL HELP ME HEAR YOU!

I realize that some of the above material is new to you and may be unnatural. Yes, you are being asked to make a conscious effort to help me hear you. The more you apply the principles, the easier they will become.

I have only lost my hearing, not my mind or personality, not my thirst for knowledge or my interest in people, especially you! Please remember my understanding depends on your understanding.



Fact Sheet

OTITIS MEDIA

What is Otitis Media? Otitis media is another name for an ear infection. It is one of the most common problems for which a physician sees a child. It is an inflammation of the middle ear space and is usually accompanied by fluid build-up. This fluid may or may not be infected. This build up of fluid in the middle ear space restricts the movement of the ear drum. If the ear drum does not move freely, a hearing loss occurs. This can be compared to plugging your ear with your finger. The child with otitis media does not always show signs such as fever, irritability, tender ears, reddened ears, etc.

There are three general categories of otitis media:

1. otitis media without effusion (fluid)
2. otitis media with effusion
3. otitis media with perforation (hole in ear drum)

What causes it? The Eustachian tube is the tube connecting the middle ear and the upper part of the nasal passages. Eustachian tube dysfunction is a significant factor in the development of otitis media. The purpose of the Eustachian tube is to equalize the pressure on both sides of the eardrum and provide ventilation to the middle ear space. When it does not work properly, the air is trapped in the middle ear space. The air is absorbed and fluid results.

Age plays a factor in the development of otitis media. At birth, the Eustachian tube is in a horizontal position and it is wider and shorter. During the first few years of life it begins to extend downward allowing for easier drainage. Therefore, otitis media is most common during the first 2 years of life. Inflammations of the nasal end of Eustachian tube may produce swelling, thus impairing its function. Such inflammation may result from viral or bacterial infection (a cold) or chemical irritation (tobacco smoke, chlorinated pool water). Allergies have also been known to cause otitis media. Some foods that commonly cause allergic reactions in young children include milk, wheat, eggs, corn, yeast, peanuts, soybean, sugar and citrus.

Skeletal changes play an important part in the development of otitis media. Children with Down syndrome, cranial base problems (cleft palate, atresia, adenoid problems, etc.) and craniofacial

syndrome (Treacher-Collins, Crouzon's or CHARGE Association) have a high incidence of otitis media. Children with upper respiratory problems are also more prone to develop otitis media. Children with upper respiratory problems are also more prone to develop otitis media. Family history, climate, and dietary reasons have also been linked to recurring otitis media.

What are the effects? Recurring otitis media has been shown to have a direct impact on a child's speech, language, and academic development. If a hearing loss is present due to otitis media, a child will experience difficulties in attending and following both formal communication (classroom instruction), and incidental communication (conversation that is on-going throughout the day).

Amplification (e.g., hearing aids) may not be prescribed for the child with otitis media because in the majority of cases, the child's hearing returns to normal after the otitis media is cleared. However, more severe cases, especially when prolonged or left untreated, may result in a perforated ear drum, scar tissue on the ear drum and even a permanent hearing loss. Other, more serious, complications that could occur include facial nerve paralysis, meningitis, encephalitis or brain abscess.

Children that have a known sensorineural hearing loss may experience a decrease in their usable hearing and, in some cases; these children may not be able to wear their hearing aids during an episode of otitis media. The ear must be allowed to breathe and drain. If an ear mold or hearing aid is in the ear, increased condensation may occur or the fluid may drain into the hearing aid causing internal damage to the amplifier. Some children may experience such pain that they cannot tolerate the ear mold or hearing aid in their ear.

What is the treatment? Treatment for otitis media varies according to the severity, the occurrence, and the age of the child. If the otitis media is found to be infectious, antibiotics are usually recommended. Clearance of the liquid is imperative. If the child has a history of recurring otitis media the doctor may choose to perform a myringotomy and place a tympanostomy tube in the ear drum. This is a common procedure in young children that entails the doctor making an incision in the ear drum to drain the fluid. A small tube is then placed in the incision. This tube allows for the air pressure to be equalized on both sides. It also assists in keeping the middle ear space well ventilated.

If you suspect your child may be prone to otitis media consult your physician, pediatrician or ear, nose, and throat specialist (ENT).

GLOSSARY

effusion – The escape of fluid into the middle ear cavity.

perforation – A hole or tear

cranial base anomalies – Pertaining to or involving both the braincase and face.

cleft palate – Nonclosure of all or part of the roof of the mouth.

atresia – Absence of the ear canal.

myringotomy – A small cut in the ear drum.

facial paralysis – Paralyzed face muscles.

meningitis – Inflammation of the membranes covering the brain and spinal cord.

encephalitis – Inflammation of the brain.

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Fact Sheets from the Colorado Services to Children with Deafblindness are to be used by both families and professionals serving individuals with vision and hearing loss. The information applies to children, birth through 21 years of age. The purpose of the Fact Sheet is to give general information on a specific topic. More specific information for an individual student can be provided through personalized technical assistance available from the Colorado Deafblindness Project. For more information call (303) 866-6681 or (303) 866-6605.

Information for the Fact Sheet was kindly supplied by the California Deaf-Blind Services – January 2002

✓✓✓HOW TO DO A DAILY CHECK of HEARING AID FUNCTION✓✓✓

Taken from: *For Families: A Guidebook for Helping Your Young Deaf or Hard of Hearing Child Learn to Listen and Communicate*, Infant hearing Resources, Hearing and Speech Institute, Portland, OR 1998.

WHAT YOU NEED

- * Battery tester
- * Stethoset, or earmold custom-made for parent with 12" of tubing

WHAT TO DO

1. Examine hearing aid for loose connections, dirt, or broken parts.
2. Examine earmold for earwax or moisture in canal or loose tubing.
3. Test battery for appropriate voltage and insert a "good" battery into aid.
4. Attach hearing aid, with child's earmold on, to stethoset OR attach hearing aid, with child's earmold removed, to tubing on parent's earmold.
5. Set hearing aid switches to "microphone" and "on."
6. Hold microphone of hearing aid within 12" of mouth. Talking at conversational level, turn volume up to comfortable setting. (Use the same volume level from day to day. Needing to turn volume higher may indicate failing battery or problem with hearing aid function.)
7. Say the following sounds in the Ling Six Sound Test (these sounds cover the frequency range from low to high pitch speech sounds) as you listen to the aid:
"mmm" "oo" "ah" "ee" "sh" "s"

Listen for weak or intermittent signal, distortion or unusual noise in signal.
8. If you cannot fix the hearing aid, take it to the audiologist or send it to the manufacturer for repair.
9. Attach child's ear mold to the hearing aid and place hearing aid on child's ear. Turn hearing aid on.

A child's hearing aid should be checked by the audiologist or educational specialist at least monthly on an electro-acoustic analyzer, such as the Fonix Hearing Aid Test box. This equipment shows the amount of gain provided by the hearing aid at its use setting throughout the frequency range. It also gives a percentage of distortion introduced into the signal by the hearing aid. It can detect problems in the hearing aid that you may not be able to hear during your daily hearing aid check.

HEARING AID PROBLEMS AND THEIR CAUSES

If the earmold	Battery	Amplifier	Earmold Tubing
Is weak	<ul style="list-style-type: none"> • low voltage • wrong type • leakage occurring 	<ul style="list-style-type: none"> • switches are in incorrect position • microphone opening is clogged 	<ul style="list-style-type: none"> • clogged with wax
Is intermittent	<ul style="list-style-type: none"> • corrosion on battery contacts 	<ul style="list-style-type: none"> • possible shorting* • loose or damaged parts 	<ul style="list-style-type: none"> • tubing collapses or bends • when head is turned
Is dead	<ul style="list-style-type: none"> • is exhausted • inserted in reverse • wrong type • corrosion on battery contacts^o 	<ul style="list-style-type: none"> • T-M switch is in T position • Possible shorting* • Has gotten wet** 	<ul style="list-style-type: none"> • canal clogged with wax • tubing collapsed or clogged • tubing blocked with moisture
Gives feedback whistles	<ul style="list-style-type: none"> • wrong type • corrosion on battery contacts^o 	<ul style="list-style-type: none"> • volume control set too high • microphone too close to a surface 	<ul style="list-style-type: none"> • earmold not inserted fully • earmold too small • excessive wax in ear canal • holes/cracks in tubing or earmold • tubing too short
Is distorted Sounds “bad”; Intelligibility is poor	<ul style="list-style-type: none"> • low voltage • corrosion on battery contacts^o 	<ul style="list-style-type: none"> • incorrect tone setting • microphone opening clogged • volume turned too high 	<ul style="list-style-type: none"> • clogged canal • canal too long • earmold needs venting • tubing too long • tubing collapses when head is turned • excessive wax in ear

^o Rub contacts with eraser of pencil to remove corrosion.

* Return aid to audiologist or hearing aid manufacturer for repair.

** Remove battery, leave battery door open. Put hearing aid in dri-aid kit or in room-temperature spot and let dry out overnight. If not functioning after drying out, return aid to audiologist or hearing aid manufacturer for repair.

Taken from *For Families: A Guidebook for Helping Your Young Deaf or Hard of Hearing Child Learn to Listen and Communicate* Infant Hearing Resources, Hearing and Speech Institute, Portland, OR 1998.

IMPROVING CLASSROOM ACOUSTICS

High noise levels and excessive reverberation of sound in classrooms create educational barriers for children by diminishing their ability to hear and subsequently learn. The following considerations and suggestions specifically target solutions to these problems.

Physical Characteristics of Classroom Design:

- ☞ classroom placement within the building should be away from high noise areas such as the gym, cafeteria, and music rooms.
- ☞ windows that open should be away from busy streets and playground areas
- ☞ heating, air conditioning and ventilation systems should not exceed a noise level of 35 dB
- ☞ walls should be permanent – no moveable partitions
- ☞ disproportionately long or circular shaped rooms should be avoided
- ☞ signal to noise ratio for teacher's voice should be at least +10 dB, for classrooms with children who are deaf/hard of hearing, a +15 dB Signal/Noise ratio should be maintained
- ☞ reverberation in the range of .4-.6 sec; for classrooms with children who are deaf/hard of hearing reverberation should not exceed .4 sec.

Adaptations to improve Acoustics for Classroom:

- ☞ carpet or cork flooring
- ☞ rubber tips on chair legs or desk if carpet is not available
- ☞ drapes for windows and walls
- ☞ cork board for bulletin boards
- ☞ bookshelves as room dividers to create a quiet classroom area
- ☞ cushions in place of chairs
- ☞ mobile bulletin boards position at an angle (not parallel) to walls to reduce reverberation
- ☞ landscaping with trees and berms to reduce outside noise
- ☞ louvered shutters for outside window covers
- ☞ door to hallways closed to reduce noise
- ☞ suspended acoustical tile
- ☞ visual features of classrooms should insure adequate lighting and reduction of reflective surfaces

Classroom Communication Strategies to Enhance Hearing and Listening:

Many classroom teachers' management styles naturally incorporate the strategies identified below. The most critical aspect of these strategies is to promote student hearing and access to information.

Adapted from *Central Auditory Processing Disorders: A Team Approach to Screening, Assessment and Intervention Practices*, The Colorado Department of Education, 1997, pp. 3-34.

STRATEGY

Special seating near teacher or speaker with full face to face view

Obtain student's attention through touch or verbal use of name.

Train student to "look and listen"

Check students comprehend of verbal information

Quiet study areas that are free from visual distractions may be helpful

Monitor student for fatigue and length of attending time, providing breaks when necessary

Use of a personal FM system, a classroom amplification system or other assistive listening device

S= state the topic to be discussed

P= pace your conversation at a moderate speed with occasional pauses to permit comprehension

E= enunciate clearly, without exaggerated lip movements

E= enthusiastically communicate, using body language and natural gestures

CH= check comprehension before changing topics

BENEFIT

- ★ provides louder, less reverberant signal
- ★ provides advantage of visual instruction aids
- ★ helps maintain attention and interest to task

- ★ prepares child for hearing

- ★ student will usually comprehend better if watching person who is speaking

- ★ determine student's level of understanding information
- ★ identifies information that needs to be restated
- ★ verifies when student is ready to move into new material

- ★ helps to minimize problems with auditory and visual distractions, improving concentration and productivity

- ★ permits student to have "downtime" and then redirection of attention

- ★ improved signal to noise level of teacher's voice to provide louder, less reverberant signal
- ★ helps maintain student attention and interest to task
- ★ distributed teacher's voice evenly throughout room (classroom amplification)
- ★ decreases teacher voice fatigue (classroom amplification)

- ★ mnemonic device highlighted basic strategies for dealing with attending, memory, and receptive language deficit

FM Systems for Children Who Are Deafblind

Excerpts from an article by Barbara Franklin and Megan Jones
(Reprinted, with permission, from *Deaf-Blind Perspectives*)

Types of FM Systems

The most typical assistive listening devices are personal FM systems and FM auditory trainers. Both work by providing the user with a constant “sound pressure level” of the speaker’s voice. With a personal FM system, a speaker’s voice is sent through the hearing aid(s). The speaker (e.g., teacher) wears a microphone transmitter that sends his or her voice to a receiver. A loop or cord attaches the receiver to the microphone of the listener’s hearing aid(s). With an FM auditory trainer, the speaker similarly wears a microphone transmitter, and his or her voice is sent to a microphone in a receiving unit that the listener wears on the body. The components for either the personal system or the auditory trainer are contained in a rather bulky case, which is placed on the child’s chest or back.

Children who have Hearing Loss and Other Disabilities

There are some simple, inexpensive ways to modify FM systems for better access by users who have visual impairments. For children who use braille, braille labels identifying components should be affixed to the systems. Large print labels can be used for students with low vision. A rubber band or other tactual cue can be used to help the student distinguish the receiver from the transmitter. Materials such as *Hi Marks*TM, which can be squeezed out of a tube to form a raised line when it hardens, are excellent labeling tools for indicating volume setting.

The use of a “loop” or sound field system may be less cumbersome than personal receivers for individuals with mobility impairments. But one drawback of the loop option is that the telecoil switch on the child’s hearing aid must be turned on and off to access or eliminate the FM signal. It should also be kept in mind that sound field systems do not bring the sound as close to the ear as personal receivers do. A receiver or transmitter can also be strapped to the armrest of a wheelchair for easy access to sounds. In addition, wheelchairs can now be outfitted with speakers for FM systems on either side of the headrest.

Variations in Setting and Speakers

If the child is in an environment where more than one person is speaking (e.g., group discussions), several microphone arrangements are possible. One option is to pass the transmitter microphone and/or corded receiver microphone around to each person as he or she speaks. Such an arrangement requires anticipation on the part of the group, instructor, and consumer. A speaker may have to wait for the microphone before offering comments. Another option is for a main speaker to paraphrase what other group members say. In a large group, it may be beneficial for the main speaker to retain the transmitter while an assistant paraphrases the comments into the microphone of the child’s receiver. A third option, especially helpful when there are two main instructors or speakers, involves the simultaneous use of two FM systems which can provide input into one receiving unit.

Potential Problems in FM System Use

Just because a student uses an FM system does not necessarily mean that his or her hearing loss has improved. If you child or student uses an FM system, you should be aware of several potential problems:

- ⊙ The microphone might be too close or too far from the speaker's mouth. Six inches from the mouth is optimum placement. Make a fist under the chin and attach the microphone to the clothes at the resulting distance.
- ⊙ Be careful that the speaker's jewelry and clothing do not cause static.
- ⊙ A speaker might hold the microphone instead of clipping it onto clothing. Fidgeting with the microphone hand may cause the speech signal to fade in and out.
- ⊙ Many users lack the basic knowledge to troubleshoot the systems or to operate the more complex units.
- ⊙ The type of microphone used can have a significant impact on the FM signal. Omni-directional, conference, or environmental microphones are effective where there is little background noise, such as in classroom lectures or small group discussions. On the other hand, they may not be effective in a noisy classroom, cafeteria, or playground. Uni-directional and "boom" microphones are more effective for noisy environments. It is desirable for the child to have a variety of microphones on hand to provide for environment differences. If only one microphone is to be purchased, the uni-directional type is preferred.

Note: A good general information book on FM usage with children is Facilitating Hearing and Listening in Young Children, by C. Flexer, Singular Publishing Group, San Diego, CA, 1994.

Condensed from **Deaf-Blind Perspectives**, Vol. 5, Issue 3, Spring 1998.