A Resource Guide for Indiana Families
Who Have Children with Hearing Loss

WORKING DRAFT

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Table of Contents

Forward 2
Letter to Families 3
1. Audiological Assessment and the Identification Process 4
2. Early Intervention 11
3. Parent/Caregiver Role in Early Intervention 14
4. Communication Choices 16
5. Technology 19
6. Educational Considerations 23

Appendices:
A. Worksheet for Families 26
B. State Resource Agencies and Parent Resources 34
C. Directory of National Organizations of and for Deaf and Hard of Hearing People 37
D. Internet Sites 38
E. Financial Assistance 41
F. Books, Videotapes, Publishers 42
G. Hearing Aids 48
H. Glossary 54
FORWARD

In the 1999 legislative session, Indiana passed a universal newborn hearing screening law mandating that every baby be screened for hearing loss before going home from a hospital or birthing center. The authors of the bill were Representative John Day, Representative Brian Bosma, Senator Vi Simpson and Senator Theresa Lubbers. These legislators are to be commended for their efforts, which will undoubtedly result in the early identification of, and intervention with, many children with hearing loss. Prior to the passage of this law, the average age of identification was two and one half years of age resulting in missed opportunities for language development and significant language delays.

Full implementation of Public Law 91 (PL 91) was required by July 1, 2000. Indiana hospitals have been equipped with the appropriate equipment and staff to conduct the tests and procedures are in place to implement the new legislation. While the Indiana State Department of Health (ISDH) is responsible for the actual administration of the Newborn Hearing Screening, many other state agencies and professional organizations have worked with the ISDH to coordinate this statewide screening program. An advisory board appointed by Governor Frank O’Bannon will oversee the program’s implementation.

This resource guide was written to assist Indiana families whose children will need specialized services following the diagnosis of a hearing loss. The primary authors include:

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- Susan Sehgal, CCC-SLP, Board Member, HEAR Indiana.

The authors wish to express gratitude to those states that sent copies of their handbooks and resource guides and offered advice. Sample guides from Colorado, Connecticut, Kentucky, Michigan, Minnesota, Rhode Island, South Carolina, and from the Oberkotter Foundation were most helpful. Information from a vast number of sources was tailored to help families and professionals in Indiana. Additionally, many professionals and parents read drafts of this guide and gave suggestions in an effort to produce a resource that helps families make an informed decision. The contributions of all who helped with this effort are appreciated.

This is not a comprehensive document, nor is it intended as such. It will be updated periodically as determined necessary by the Governor-appointed Advisory Board for Universal Newborn Hearing Screening.
Dear Parents and Family members,

The purpose of this resource guide is to give you an overview and a frame of reference as you begin the search for the most appropriate services for your child and family. This guide was compiled by both parents and professionals who want to be sure that children with hearing loss are identified early. It is important that families receive accurate, helpful and unbiased information in order to make decisions that are best for them.

At first, the amount of information here may seem overwhelming. Look at the sections that interest you. You can read the other information later. You have many choices and should review them carefully. Only you will know what is the most appropriate course of action for your family. You know your child best and you are an important member of the team.

Families will find support and information from other families, adults with hearing loss or who are deaf, and professionals in various disciplines. Read books, watch videotapes, visit programs and ask questions. This resource guide could be the start of a notebook, kept for your child. It can be expanded as you find information that is helpful to you as well as when new information becomes available.

Take time to get to know your child. Play together. Enjoy all of the gifts that he or she brings to your family. We wish you and your family the very best as you continue on your journey.
Audiological Assessment and the Identification Process

As of July 1, 2000, every baby born in Indiana will have a hearing screening. For babies who do not pass the hearing screening, a series of hearing tests will need to be completed by an audiologist. Because hearing loss can have a significant impact on communication development, it is important to have your child's hearing thoroughly tested as soon as the possibility of hearing loss is suspected. No child is too young to have his/her hearing thoroughly evaluated. Most children who don’t pass initial hearing assessments are later found to have normal test results or have medically treatable conditions. Other children, however, are born with permanent hearing losses that are not improved with medical treatment. Early detection of hearing loss combined with early intervention provides these children the greatest opportunity to develop language.

What should I know about hearing in general?

Before we talk about hearing loss or how we test for it, it may be helpful to know how the ear works. The very small structures that allow us to hear sound are arranged inside the ear in a space not much larger than a fingernail. There is an eardrum, called the tympanic membrane; three tiny bones, called the ossicles; a snail-shaped structure of hearing, called the cochlea; and nerves. The ear also contains three coils, called semi-circular canals that help us to keep our balance.

When sounds pass through the ear, a chain reaction of vibrations goes through the middle ear. These vibrations set up electrical signals, which are sent by the nerves in the inner ear to the brain. Because we have two ears, the difference between the sounds entering each ear creates a stereo effect. This helps the brain tell where the sound is coming from and what kinds of sounds are being heard.
• **The Outer Ear** is the part that we see and includes the ear canal. The ear canal is like a tunnel and ends at the eardrum or tympanic membrane.

• **The Middle Ear** contains the eardrum and three tiny bones called the malleus (hammer), incus (anvil), and stapes (stirrup). These bones form a small bridge that hangs across the space in the middle ear.

• **The Inner Ear** is made up of the snail-shaped structure of hearing, the cochlea, which is filled with fluid and thousands of little hair cells, which connects to the main nerve.

**What is hearing loss?**

Hearing loss can be permanent or temporary. It may occur anywhere along the outer, middle and or inner ear. Therefore a series of tests will be done to determine the type, degree and possible cause of hearing loss. Hearing loss is described as any one of three general types: conductive, sensorineural or mixed.

**Types of Hearing Loss**

*Conductive hearing loss* is a problem in the outer ear or, most commonly, in the middle ear. An obstruction in the ear canal, such as wax accumulation can cause a mild conductive loss. Fluid in the middle ear space behind the eardrum, or a problem with the three bones of the middle ear can cause a conductive hearing loss. These types of problems are usually medically treatable. A conductive hearing loss, especially one caused by fluid, may come and go. It is important to monitor these conditions regularly.

*Sensorineural hearing loss* is a problem in the inner ear or cochlea. The sensory nerves may not be working properly or missing. This type of hearing loss can range from mild to profound. It is permanent and is generally not responsive to medical treatment. An amplification device, such as a hearing aid, is generally recommended for a person with this type of hearing loss.

*Mixed hearing loss* is a sensorineural loss and a conductive loss occurring at the same time. The conductive component is often medically treatable and should receive prompt attention.
Degree of Hearing Loss

Hearing loss, whether conductive, sensorineural or mixed can range in degree from mild to profound. The audiogram (see next page) is useful for differentiating the severity of hearing loss. Response levels can range in intensity (loudness) from 1 to 120 decibels and in frequency (pitch) from 125 to 8000 Hertz. Results toward the bottom of the audiogram indicate poorer hearing ability. The right and left ears are evaluated separately to determine whether hearing loss is unilateral (one ear) or bilateral (both ears). The following classification system is a general guide to degree of severity of hearing losses:

<table>
<thead>
<tr>
<th>dB</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15</td>
<td>Normal for a child</td>
</tr>
<tr>
<td>0-25</td>
<td>Normal for an adult</td>
</tr>
<tr>
<td>26-40</td>
<td>Mild Hearing Loss</td>
</tr>
<tr>
<td>41-55</td>
<td>Moderate Hearing Loss</td>
</tr>
<tr>
<td>56-70</td>
<td>Moderately-severe Hearing Loss</td>
</tr>
<tr>
<td>71-90</td>
<td>Severe Hearing Loss</td>
</tr>
<tr>
<td>&gt;90</td>
<td>Profound Hearing Loss</td>
</tr>
</tbody>
</table>

The audiogram on the next page also shows the intensity and frequency region of various sounds of speech and different sounds heard in the environment. It will be helpful for you and your audiologist to plot your child’s hearing levels on this audiogram. This should give you a better understanding of how your child’s hearing relates to the variety of speech and environmental sounds.

What are the possible causes? Why does hearing loss happen?

When sensorineural hearing loss is caused by damage to the hearing mechanism before birth, the hearing loss is referred to as congenital. Acquired hearing losses develop anytime after birth. The most common form of congenital sensorineural hearing loss is genetically transmitted hearing loss.

Many times when parents and family members learn that their child has a hearing loss, they want to know why this happened. In some cases your doctor may be able to determine the cause. While 50% of children with congenital hearing loss have genetic bases, 50% of congenital hearing losses occur from other causes (etiologies). In many cases, it is not known why a child is deaf or hard of hearing and we say the cause or etiology is unknown. Hearing loss occurs in three out of every 1000 babies. These are some of the possible causes:

Genetic: For some children, the cause is genetic. This means that hearing loss may ‘run in the family’. Or the combination of the mother’s and father’s genes resulted in a child who is deaf or hard of hearing. Hearing loss is passed on to the baby much like other factors such as hair color, farsightedness, or eye color. Some genetic hearing losses are progressive, and the child looses hearing over time.
Resource Guide for Families Who Have Children with Hearing Loss   11/02/01
**Other causes at birth:** Hearing loss is more common in infants born very premature or who have congenital infections. Cytomegalovirus (CMV) or German measles can be passed on to a child, causing hearing loss. Necessary treatments that can save a baby’s life, such as a strong antibiotic drug can also affect hearing.

**Later causes:** Some children are born with normal hearing but acquire hearing loss later in childhood. Sometimes this is due to trauma, illness or infection.

**What do we do next?**

You may choose to access services through providers in hospitals, clinics or private practice. Some of these providers may also participate in Indiana’s early intervention program, First Steps. First Steps is a family-centered, coordinated system that provides early intervention services to infants and toddlers with disabilities or who are at risk for delays. Evaluations and services are provided with no out of pocket costs to Indiana families who choose to participate in First Steps. You may wish to ask your primary care physician and an intake coordinator from First Steps about potential providers in your area that have experience evaluating hearing. Whether you choose services through First Steps or through private providers, this information is intended to help you find professionals who are competent. You should feel comfortable with the providers working with your family and be confident in them as you learn more about your child’s hearing.

**What professionals may be involved in the evaluation and assessment process?**

**Primary Care Provider:** This medical professional provides your baby’s on going care and is referred to as your child’s medical home. He or she may provide you with appropriate referrals to other medical personnel. All test results and recommendations should be shared with them.

**Otolaryngologist or Otologist:** This professional is a medical doctor who specializes in the problems of the ear, nose and throat, sometimes referred to as an ENT doctor. This doctor will examine your child to see if the hearing loss is medically treatable. If the hearing loss is not medically treatable, this doctor can then sign a medical clearance to obtain hearing aids or another appropriate amplification device.

**Audiologist:** This professional is a licensed healthcare clinician in the field of hearing. He or she specializes in assessing hearing, making recommendations for appropriate amplification devices and providing information to persons with hearing loss and their families. If a child is fit with an amplification device, the audiologist will help you monitor the equipment to be sure it is functioning properly.
**First Steps Intake Coordinator:** If you chose to participate in Indiana’s early intervention program, First Steps, this professional is your initial contact with the program. The intake coordinator will help you enroll in First Steps and inform you of your choices of service providers.

**How do I find an audiologist?**

An audiologist tests hearing and recommends appropriate amplification devices (hearing aids, FM systems, cochlear implants, etc.) to help people hear. Many audiologists work primarily with adults. Adults can tell the audiologist what they are experiencing, compare one sound to another and answer questions. Young babies cannot. Testing an infant or young child is a specialty. At times it can be especially challenging to obtain accurate information about a young child’s hearing or how well he or she is hearing with a particular hearing aid. The audiologist must often look to clues in the child’s behavior, and directly test his or her response to sound.

You may want to find an audiologist who has experience working with infants and children. You will also want to know what kinds of tests are available and what they measure. Not all tests can be done with your child at one time; different tests may be used at different ages or to provide information about a specific aspect of your child’s hearing. You will learn more over time.

Because the audiologist is often a vital part of your child’s and family’s support team, you will want to make sure that he or she will work closely with you and does not mind answering your questions.

Here are some questions you may want to ask the audiologist:

- How much experience do you have testing children?
- How much experience do you have fitting infants with hearing aids?
- How much of your practice is devoted to pediatric audiology?
- How soon do you recommend fitting hearing aids for a deaf or hard of hearing child?
- Will you be able to direct me to community resources and other professionals who work with children who are deaf or have hearing loss?
- Will you help me contact other families with young children who are deaf or have hearing loss?

**What types of tests may be used?**
There are many kinds of hearing tests, and each one serves a different purpose. Each test gives the audiologist specific information. In most cases, many tests will be completed over a period of time. It may take a few months to discover the exact nature and extent of your child’s hearing loss.

The following is an introduction to some of the most commonly used hearing tests. Always feel free to ask to have the tests and the results explained to you.

- **Auditory Brainstem Response**: (ABR) or Brainstem Auditory Evoked Response, (BAER) is an objective test that can be done while a child is asleep. Sensors are placed on the child’s head and can measure changes in the brainwaves when sounds are heard.

- **Behavioral observation audiometry**: This test examines the child’s behavioral response in a sound booth. The audiologist will present a variety of sounds ranging from low pitch to high pitch and from soft to loud, out of the child’s sight.

- **Impedance audiometry (tympanometry)**: This test is used to measure the ability of the middle ear to conduct sound to the inner ear. This information can be useful to the doctor in determining whether a middle ear problem, possibly requiring medical treatment, exists.

- **Otoacoustic emissions (OAE)**: This test is used to determine the function of the cochlea by measuring echoes from the inner ear using a small probe tip placed in the ear canal. It is painless, does not require the child to respond and can give useful information at several frequencies.

Some questions you may want to ask when your child’s hearing is being tested:

- What does this test measure?
- What part of the ear is being tested?
- Will this test be able to isolate specific frequencies my child can hear?
- Will this test tell us the cause of the hearing loss?
- How does this test work?
- Why is this test being completed at this time?
- What are you looking for?
- How do you read the results? What does it mean?
Test results should be explained to you by the examiner who will share them with your child’s primary care provider and ENT (ears, nose and throat) doctor. In addition, early intervention specialists will help you monitor your child in all areas of development. Refer to the developmental checklist in this resource guide for typical developmental milestones. Discuss your concerns. Use the information from the tests to determine your child’s needs and the services that will help meet those needs.
Early Intervention

Indiana fully implemented legislation mandating Universal Newborn Hearing Screening on July 1, 2000. The goals of this program are to identify all infants with congenital hearing loss by three months of age and to begin early intervention for infants with hearing loss by six months of age. Children under three years of age with identified hearing loss are among those eligible to receive early intervention services through the state’s early intervention program at no cost to the family.

Why is early intervention important?

The first years of life are when basic language skills develop and the first two to three years are generally recognized as a critical period for language learning. Without an opportunity to learn language, children who are deaf or hard of hearing will fall behind their peers in language, thinking skills and social emotional development. If hearing loss is detected early, intervention services can begin early and there is a better chance that an infant will develop at the same pace as his/her peers. In order to achieve this outcome, the focus of early intervention must be on assisting the infant in establishing communication.

Research has shown that children who receive early intervention before six months of age perform ahead of children whose hearing loss was identified much later and who did not receive early intervention. Left undetected, a hearing loss, or even a hearing loss in one ear, can result in delays in language acquisition and poor performance in school. Research has also shown that the nature of cognitive development (ability to think and process information) is essentially the same for deaf and hearing children. Differences in academic (school) achievement and intellectual testing reflect deficiencies in language development, not inherent capabilities.

How can I locate early intervention services?

Early intervention services are available through many different programs and systems supported by a number of different funding sources. The service system a family accesses depends on the eligibility requirements for a program and the family’s needs and priorities. Some early intervention and healthcare programs have financial eligibility requirements. To simplify the application process for families, each county has a System Point of Entry (SPOE) where families can access multiple social service options including First Steps early intervention services. Your physician can refer you to the local System Point of Entry in your community or you can contact the state First Steps office at 1-800-441-7837 for the SPOE nearest you.

What is First Steps?
In Indiana, First Steps is the statewide, family-centered, coordinated system to serve children from birth to three years of age who have disabilities or who are at risk for developmental delays. Any family, regardless of income level, with a concern about the development of their infant or toddler is entitled to an evaluation and assessment to determine eligibility. If a child under the age of three has a specified developmental delay or medical condition likely to result in a delay, she or he is eligible for First Steps services. To support families in their natural care giving and nurturing roles, First Steps brings together the parents and health, education and social services professionals. This team writes an Individualized Family Service Plan (IFSP) based on the family’s priorities and the child’s developmental needs. The IFSP becomes the road map for the services the family and their young child will receive.

First Steps is administered by the Bureau of Child Development within the Division of Family and Children of Indiana’s Family and Social Services Administration. The First Steps council in your county works to identify current resources, coordinate available services and develop new resources. First Steps early intervention services are funded through a variety of state and federal programs but are provided at no cost to families.

**How do families get into the First Steps program?**

Since your child has been identified as having a hearing loss, or is at risk of hearing loss, your child and family are considered to be eligible and have a right to early intervention services. Your family will select a Service Coordinator who will assist you by coordinating with all the various agencies who will provide services for your child.

First Steps is “family-centered” and intervention decisions are based on the concerns, resources and priorities of each family. You and the Service Coordinator sit down together to review the results of the assessment, and to consider what services your child and family needs. You will also determine what is available in your community as well as how to access additional resources. You will determine your family’s priorities and concerns for your child, and how you wish to allocate your family’s resources.

This information then becomes the basis for an Individualized Family Service Plan or IFSP. The IFSP is the action plan for the services your child and family receive. The IFSP is written for a year and is reviewed at least every six months. It includes your major goals for your child; how progress will be measured; what and where services will be provided; when they will begin and for how long; methods of payment; and transition upon the child’s third birthday to special education services.

**What services are available?**

While Indiana’s First Steps system includes a long list of potential services, the professionals who have expertise in working with children who have hearing loss include Medical Specialists (Otologists or Otolaryngologists), Pediatric Audiologists, Speech Language Pathologists and Teachers of the Deaf (or teachers of the hearing-impaired).
In the development of your child’s IFSP your service coordinator can help you determine the services that will help you achieve the outcomes.

To provide those services, you will select people from the list of First Step providers. Your service providers may include some or all of the professionals named above. You may prefer to select providers who have experience working with children with hearing loss and their families. You can access more than one service provider. For example, you may choose to have an audiologist who can assess your child’s hearing and possibly fit them with hearing aids, and have a teacher or speech language pathologist who can help you learn how to facilitate communication with your child using speech, sign language or both.

**What if we need other help for our child?**

If additional needs are identified for your child or family through the assessment process, other services are available. To help address outcomes related to these additional developmental needs, some possible services a family could receive include, but are not limited to, Assistive Technology, Diagnostic Medical, Family Education, Health Education, Nursing, Nutrition, Physical Therapy, Psychological Services, Social Work, Special Instruction, Transportation, and Vision Services.

In addition to these identified early intervention services, there are other services that you may find helpful. For families with children who have a hearing loss some helpful services might include support for sign language classes, educational materials (video tapes or books), attendance at conferences, or respite care. If you ask your First Steps Service Coordinator, he or she can help you identify those services to meet your needs at no cost to you.
Parent/Caregiver Role

As parents and caregivers you will become educated about your child’s hearing as well as his/her own unique strengths. You will also be your child’s best advocate. You will have to become familiar with services and opportunities available for your son or daughter to realize his or her full potential. Other parents of children with a hearing loss are available to offer support and information. You will meet many professionals to help you as well. As a parent and caregiver you are the one constant in the midst of all the professionals and service providers you will encounter.

Early language development is very important to a child’s ability to communicate. Language is necessary for any child to interact successfully in his/her environment. Parents play a critical role in this process whether the child has a hearing loss or not. Early intervention services, especially those related to language development, should support the following principles.

• A child needs to be able to communicate with parents as soon as possible. Babies develop communication skills using their eyes, hands and voices. Much of the parent-infant bonding takes place through language.

• Through language, children develop higher level thinking skills. Make sure your child has access to the language you choose.

• Information should be exchanged at a rate that is comfortable for those who are communicating with each other. For children with hearing loss or who are deaf, communication may be in sign language, or spoken language, and sometimes both provided in alteration.

• Knowledge of the world around us is the basis for activities in school and reading comprehension. It is important for a child to have a variety of experiences and this is even more critical for a child with a hearing loss.

• Each child is unique. Some are tall and some are short. Some love to read and some do not. The individual characteristics and abilities of a child are not determined by any degree of hearing loss.

You will find that people have very strong feelings about communication methods. As parents, you are responsible for gathering information, thinking it over and determining the best communication method for your family. Multiple resources are listed in this guide that may be helpful as you research the various options, methods and language choices that are available. The following communication strategies apply to all children, regardless of the language being used in the home or the modality that is most accessible for the child.

• Hold your child and respond to his/her needs.
• Enjoy bonding with your child. Use toys, games, and activities that your child finds fun.

• Make frequent eye contact with your child. Talk or sign about what you’re doing and what they see.

• Position your face at your child’s eye level. Wait for shard attention before naming an object.

• Smile and laugh with your baby.

• Follow your child’s lead. Use words or signs for what the child is communicating.

• Use descriptive words when your child is playing. If your child is playing with a truck, say or sign, “You are pushing a truck. The truck is red.”

• Model correct words or signs and gestures for your child.

• Take photographs of familiar things or family members. Attach the photos to cardboard or paper and print the names beneath them.

• Ask open-ended questions to encourage your child to communicate more complex ideas.

It is always a good idea to ask a question if you do not understand something. All parents are concerned about their children and have questions from time to time. Having a child with a hearing loss is no different. Explaining what your concerns are and asking questions will help everyone working with your family better meet your needs.
Communication Choices

There are successful children and adults using each of the many communication options. Communication between you and your child as well as among other family members will be critical in helping your child acquire language. Two-way communication, responding to your child and encouraging your child to respond to you, is the key to your child’s language development. There are different ways to communicate and different philosophies about communication. As you think about how your family communicates now with your child and how you would like to communicate with him in the future, you are thinking about the communication methodology issues.

The best way to decide on an approach to communication is to decide what will be best for your child and family. Be open about all the methods and language choices. Ask questions. Talk to adults who are deaf and hard of hearing and other families with children who have a hearing loss. Discuss, read, and obtain as much information as you can about the various methods. The worksheet in the Appendix A is designed to help you in the decision making process. It can serve to guide you with sample questions and as a place to document answers and contacts.

Periodically reassess your child’s language skills to determine if the decision is meeting your child’s needs. If needs change, or you discover another path that better helps your child, view this as a positive step toward discovering your child’s best way of communicating. If a method isn’t best for your child, it is neither your nor your child’s fault. You may find it beneficial to blend some communication options.

Multiple communication methods have evolved over the last 200 years. For the purposes of this resource guide six major categories of communication methodology are listed. Some have variations and subcategories so this list and the descriptions are not all inclusive. You should contact people who use these methods for more details about them. The availability of options, and the providers to support them, varies from community to community. Some of these options may not be available in your area. It is always a good idea to assess your child’s progress frequently no matter which communication method you use. Sometimes it is necessary to modify or change to better meet your child’s and family’s needs.

American Sign Language (ASL)

American Sign Language is a visual/spatial language. Like any language, ASL has its own vocabulary, idioms, grammar and syntax. ASL uses space, direction, speed of movement and facial expression to mark grammar and convey meaning.

Auditory-Oral
This method of teaching spoken language requires children to use their aided hearing in combination with lipreading. Although a portion of the speech therapy sessions may be presented using listening alone, this approach permits supplemental visual cues to promote optimal understanding of spoken language. Professionals using this method may also use tactile cues, such as placing the child’s hand on the teacher’s face or neck when a child is unable to understand spoken language through auditory and visual cues.

**Auditory-Verbal**

The primary emphasis of the auditory-verbal approach is on teaching the child to learn to listen and use their hearing to its fullest potential. Sign language is not used and lipreading is not directly emphasized. During individual therapy sessions, a certified auditory-verbal therapist (Cert. AVT) guides the parents in teaching their child to understand sound, to understand spoken language and to develop speech.

**Bilingual Education**

This recent initiative uses both a sign language (ASL) and an oral language in its written and spoken form when possible. This educational philosophy instructs children using ASL and teaches English through reading, writing, lipreading, speaking and listening, depending on the individual child’s potential in each area. Deaf children will be bilingual and bicultural to varying degrees.

**CUED Speech**

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

**Total Communication**

The term Total Communication was first defined as a philosophy that included use of all modes of communication (i.e., speech, sign language, auditory training, lipreading and finger spelling). Today the term Total Communication is commonly interpreted as Simultaneous Communication (signing while talking). This philosophy led to the formation of manual systems (e.g. Signing Exact English, Signed English) that attempt to represent spoken English.
How should we communicate with our child?

Consider the following factors when choosing how to communicate with your child:

- Is the communication option chosen in the best interest of your child and family?

- Does it allow your child to have influence over his/her environment, discuss his/her feelings and concerns and participate in the world of imagination and abstract thought?

- Does the communication enable all your family to communicate with your child? If not, where can you get support for teaching family members how to communicate with your child?

- Does the communication enhance your relationship with other family members? It should promote enjoyable, meaningful communication among all family members and enable your child to feel part of your family and know what is going on.

- How is your child going to be able to communicate with peers and the community?

- Do you and your family understand the commitment this choice will require?

As parents, you have a responsibility to make decisions that are in the best interest of the family as a whole. Some communication options require tremendous commitments in terms of time or financial resources. Clearly a decision to use one particular method over another must be made after careful consideration of all available options and the resulting consequences for the entire family. Appendices B, D and F contain some information you may find useful in making an informed decision about a communication method.
Technology

Improvement in technology has been, and continues to be, advancing at an amazing pace. Today persons who are deaf or hard of hearing have the opportunity to access surprising amounts of information, both visual and auditory.

Your choice of the professionals who work with you and your child is an important one. Choose professionals who are knowledgeable about current technology and are experienced in working with infants and very young children. Many technology options may be available to help enhance your child’s communication abilities. Your goals for your child will help you decide which, if any, technology your child might use. Talk with professionals to learn about your options. Your audiologist can help you with the most current information on technology options. In addition, he/she should review the advantages and disadvantages of each type of technology you are considering. It would also be advisable for you to get a second opinion in order to be sure a particular technology option is best for your child.

**Hearing Aids**

A hearing aid is a device that fits in or behind your ear and makes sounds louder. Hearing aids can be adjusted to increase desired sounds in a particular range depending on the particular hearing loss. The goal is to amplify sounds common in speech while keeping environmental sounds at a comfortable level. Hearing aids, however, are just that -- an aid to hearing. They do not restore hearing or correct the hearing loss; rather they amplify and shape incoming sounds to make them more accessible to the wearer.

Hearing aids may provide benefit for children with all degrees of hearing loss. The goal is to maximize the hearing that a child does have. There are many different brands of hearing aids available for different types of hearing loss. It is important to get the features that are appropriate for your child. Your audiologist will explain available options.

When appropriately fit with hearing aids, some children can be taught to understand speech through listening alone and to talk. Some children may use hearing aids to be aware of sounds in their environment while communicating through sign language. Some may do both. It is important for you to become familiar and comfortable with your child’s hearing aids. Ask your audiologist questions and to explain anything about the hearing aids you do not understand. Please see Appendix G of this resource guide for more detailed information about hearing aids.

**Cochlear Implants**

A cochlear implant is a sensory aid or device for adults and children with severe to profound hearing loss who get only limited benefit from hearing aids. Cochlear implants work by changing sound waves to electrical signals that can be processed by the brain.
Cochlear implant systems include an electrode array that is surgically placed inside the cochlea (inner ear) and an external speech processor system. The external equipment includes three things. First, a microphone to pick up sound and change it to electrical signals. Second, a speech processor that converts the electrical signals into a code. The third piece of the external equipment is a transmitter coil that sends the code to stimulate the electrodes in the cochlea. These electrical signals are picked up by the hearing nerve and sent to the brain. Some of the commercially available implant systems offer a choice of two different speech processors. The choices include a body processor similar in size to a walkman radio and a behind the ear processor similar in size to a hearing aid.

Cochlear implants are not appropriate for everyone. A team of professionals will conduct a series of formal evaluations to determine if a child meets the criteria for cochlear implantation. Age, type and degree of hearing loss and potential to benefit from conventional hearing aids are some of the things considered.

Similar to hearing aids, a cochlear implant is not a cure for deafness. Long-term rehabilitation is needed for children to obtain optimal performance with a cochlear implant. It is difficult to predict the exact benefit of the implant for a child. Children with cochlear implants demonstrate a wide range of performance. Some children are better at lipreading although they are unable to understand any speech through listening alone. Others show considerable speech understanding and can communicate successfully on the telephone. In general, the majority of young children who use a cochlear implant are able to understand some speech through listening alone.

Improvements in speech intelligibility and language abilities also have been documented with cochlear implants, with children implanted at a young age (between one to three years) demonstrating the largest gains in communication skills.

**FM Systems**

An FM system consists of a microphone connected to a transmitter, worn by a person talking, and a receiver coupled to the child’s hearing aid. The receiver may be in a case worn in a pouch on the body, or as a small attachment connected to the bottom of a BTE (behind-the-ear) hearing aid. The microphone picks up the voice of the speaker and sends the signal to the transmitter. The signal is then sent by wireless FM sound transmission to the child’s receiver. This system allows the child to hear the speaker’s voice better over a distance or in background noise.

A Soundfield FM system consists of a microphone connected to a transmitter, worn by the person talking and a receiver. The receiver is housed within or connected to loudspeakers that are placed throughout a room. These systems work the same as FM systems (see above) and are typically used in classrooms.

Personal Soundfield FM systems have the same components and work in the same way as the soundfield system described above. However, the receiver/speaker is smaller and portable, enabling the user to carry the system to different rooms or environments.
**Telecommunication Devices**

Telecommunication devices for the deaf (TDD’s) were originally know as teletypewriters (TTY’s) and most adults still call them TTY’s. They look like a small typewriter that can be used with a regular phone handset to allow deaf people to communication with each other and with hearing individuals. The parts of a TTY include a keyboard, telephone coupler and some form of visual display where words are typed via TTY tones. Since the passage of the Americans With Disabilities Act (ADA), relay services have been established in most major cities across the United States. Indiana’s relay service is called Relay Indiana and is operated by Sprint. A relay service involves the use of a telephone operator with a TTY who serves as a link between a deaf person with a TTY and a hearing person who may not have a TTY. TTY’s can also be found at most public phones and at many public buildings.

**Signaling Devices**

Signaling devices use lights or vibrations to assist deaf or hard of hearing individuals in attending to different sounds. Telephone signalers, doorbell signalers and smoke detectors that include strobe lights are more readily available through catalogs and distributors at reasonable cost. In addition, generic signal devices that can be plugged into wall outlets are available to make a particular light respond to any loud or sudden noise. Specific wake up alarms, pagers or even watches also have vibrating signals that have been developed for deaf people.

**What other assistive technology devices are available?**

There are many assistive devices available that may helpful to your child as he or she grows. While some devices may not be needed now, you may find them helpful in the future. Technology continues to serve people who are deaf or who have hearing loss in their everyday lives and in the employment world.

**Closed or Open Captioning:** Captioning devices provide a written text of spoken words. Up until 1993 a special decoder device was necessary in order for captioning to occur and the term “closed” refers to that device. More recent technology for television, videos, and movies is “open” with the captioning feature included. Captioning allows deaf and hard of hearing individuals greater access to information and allows full participation in a variety of technology. Parents may find captioning has educational benefits as well. Reading captions of news programs for example, increases vocabulary, awareness of current events, and reading ability.

**Pagers and E-mail Pager Devices:** Most pagers are available with vibrating signal systems. In addition, new pagers now available allow for instant e-mail messaging.

**Telephone Amplifier:** This type of device makes the sounds coming from a telephone louder and may be used with or without hearing aids. There are several different kinds of
telephone amplifiers that may be useful for a person’s specific needs. Many public telephones are equipped with volume controls.

**Vibro-Tactile device:** These devices convert sounds into signals that are felt on the skin as vibrations. The device is worn on the body, typically on the chest or arm. These devices may be helpful to some children who do not benefit from traditional types of hearing aids.
Educational Considerations

In Indiana children under the age of three who are eligible for early intervention may be served by the First Steps early intervention system. The agency administering that program is Family Social Service Administration, Bureau of Child Development. Children who are three to five years of age and who are eligible for preschool special education services are served by their local education agency, or public school. Children with hearing loss are eligible for special education and related services under Section 619 of the Individuals with Disabilities Education Act (IDEA). Your child will have the opportunity to transition into a community-based preschool or attend a special education preschool program.

Your local school system has a responsibility to provide a free and appropriate public education (FAPE) that meets your child’s individual needs. You will have an active role in the decisions about your child; however, there are some basic differences between the early intervention and preschool systems as defined by the Individuals with Disabilities Education Act (IDEA).

Part C, or early intervention, focuses on the family and how they can be supported to enhance the overall development of their child. Part B, or preschool, focuses on the education of an individual child. The timelines are different for each of the programs. Because Part B is concerned with school, the timelines are often measured in instructional days. There is no IFSP, however, there is a written individualized educational plan called an IEP. The school is required to provide services that enable an eligible child to benefit from the educational environment. Because a child is in school for only a portion of the day, it may seem that fewer services are being provided than in the early intervention program. You should become familiar with these differences so you understand what your choices are and can make the best decision for your child.

While there are differences, there are also similarities in the two systems. Families still are protected by procedural safeguards and have certain rights and responsibilities. A multidisciplinary team must determine eligibility. For children with a hearing loss, the team must include an audiologist, a speech language pathologist, the school psychologist and a teacher licensed in the area of disability. No tests or assessments will be conducted without your written permission. Information that you provide must be considered by the team. Your child’s records will still be kept confidential and will not be released to anyone without your permission. As a parent, you will still be a very important member of the planning team. You have a right to an advocate to help you through the process and if you disagree you have the right to due process.

If you have participated in First Steps, your Service Coordinator will let the school corporation, in the district where you live, know that they have a child who may be in need of Special Education. If you are not participating in First Steps you will need to inform the school yourself. The information given to the school will not personally identify your child unless you give permission. When your child is 30 months of age a
representative from your school will be invited to meet with you and begin planning the transition out of early intervention. The school is allowed to use existing information but because they will address educational issues, they may need to do additional testing. The evaluation will take place prior to your child’s third birthday in order to prevent a lapse in services. The evaluation will include a current hearing test, a social and developmental history, a standardized test to determine your child’s learning capability, and an assessment of educational need.

Prior to your child’s third birthday, your public school representative will set up a meeting called a Case Conference to look at the evaluation results, determine eligibility for services and to write an Individualized Education Plan, an IEP. The IEP will be similar to the IFSP process in First Steps, however the IEP is centered around your child’s educational needs rather than developmental needs. There may be some people participating in the IEP who are not familiar to you. For example the school principal or a teacher of the hearing impaired may attend. You may invite anyone who you would like to attend this meeting including a friend or an educational advocate if it makes you feel more comfortable.

Like an IFSP, your child’s IEP will be reviewed and rewritten at least every year. You are an important part of this educational team. You may request a meeting of your child’s team anytime you have a concern or if you feel there is a need to discuss something. As before, you have rights and safeguards to ensure your child receives education and support services necessary to benefit from that education. It is your responsibility to make an effort to learn what your rights are so you can effectively advocate for your child.

Many resources are available to help you understand this system and some are listed in Appendix B. Conferences, training sessions and workshops are offered to families throughout the state to ensure their understanding and participation in the educational system. It is important to know that the Individuals with Disabilities Education Act was recently reauthorized. There were many changes at the federal level and states are required to comply with those changes. Indiana wrote a new set of procedural guidelines (Article 7) to implement the changes in IDEA. Schools in Indiana are required to comply with Article 7 as of June 21, 2000.

Among the issues that a case conference committee must consider for a child with a hearing loss are: assistive technology needs, related services, communication needs, and extended school year services. IDEA states,

“The IEP team shall consider the communication needs of the child, and in the case of a child who is deaf or hard of hearing, consider the child’s language and communication needs, opportunities for direct communications with peers and professional personnel in the child’s language and communication mode, academic level, and full range of needs, including opportunity for direct instruction in the child’s communication mode.”
Your child will have the right to receive his/her education in the Least Restrictive Environment (LRE). The definition of the least restrictive environment will be determined individually based on the special factors above.

The Department of Education is the state regulatory body that oversees the special education programs and monitors public schools to ensure compliance with Article 7 (Indiana’s Special Education Law). If you have any questions about how your public school is implementing IDEA, you can contact the Indiana Department of Education.

**Factors to consider when choosing services or educational programs:**

(Adapted for parents, from the Deaf and Hard of Hearing Students Educational Service Guidelines by the National Association of State Directors of Special Education)

1. Do the service providers or other professionals have expertise in understanding the hearing loss of your child, and its potential long and short term effects?

2. Do you have access to deaf and hard of hearing adults and children and their families via this service delivery or program?

3. Do the professionals have the skill to help facilitate the development of effective parent-child interaction?

4. Can the professionals or the program provide information, education and emotional support?

5. Are you getting a broad base of information, which includes information on hearing loss, assessment, sensory devices, communication techniques, management, educational options, and deaf community resources?

6. Are you aware of your legal rights and your child’s right to an education? Does this program ensure that your child’s unique communication needs are met?

7. Are developmentally appropriate practices being followed? Will the program or service meet the child’s needs at his/her age and developmental level?

As parents and active members of your child’s team, be prepared to share with the other team members any information that you find helpful. You know your child best. You know what works well and what doesn’t. You should feel comfortable asking for assistance with any aspect of your child’s education and related service. For example, if you know your child does not like sudden changes and seems to be having a problem in school whenever it is time to switch to a new activity, talk to the team about it. Share with them what works well for you and what doesn’t. The team is there to ensure your child’s success by working together with you.
Appendix A
Worksheet for Families

Often parents feel overwhelmed when considering communication methods and an intervention program for their child. It may help to realize there is no one approach that is right for all children. There are successful people using each of the approaches and even some who use a combination of approaches. Gathering information about the resources that are available in your community and state will help you make decisions that are “right” for your child and your family. We encourage you to visit different programs and to see the methods in practice. Ask for an explanation of each method from those who actually practice it and think about whether it feels right for you and your family.

As you visit the programs in your area, it will be important to ask questions. Do not be afraid or embarrassed by any questions you may have. The answers you receive will help you understand and compare the different services and communication methods. Once you understand the options, you can make a well-informed decision. We encourage you to take the following six steps. A worksheet follows that you may use to record information you gather while visiting programs and meeting providers.

Key points to consider:

1. Know about your child’s hearing. How much they can hear with and without hearing aids or other devices?

2. Become familiar with your rights for your child and family. Federal and State laws specify your rights to confidentiality, early intervention and educational services for your child and timely resolution of disagreements and complaints.

3. Understand which agency is responsible for the different services you are interested in and contact them for information. If you don’t know how to contact them, ask for assistance from your physician or contact the Indiana HELP line 1-800-433-0746.

4. Talk to other families of children who are deaf or hard of hearing. Talk to several different parents who have made different choices for their family and children.

5. Use the resource list in this guide to contact national and state organizations. Do research in a variety of areas.

6. To locate certified or licensed providers in your area or throughout the State of Indiana, there are many directories of resources including the First Steps Central Directory. It is just as important that you feel comfortable with the provider and the methods he or she uses. Feel free to ask for references and to interview providers. The questions that follow are some you might consider.
Provider Questions

(Duplicate and fill out for each provider you interview.)

- What experience do you have with children who have hearing loss?

- What resources are available to reinforce your services?

- How do you evaluate the effectiveness of your services?

- What is the parent role when you provide services?

- What supports do you offer families?

- What is the impact of services on the siblings and extended family?

- What are the long term goals of the services you recommend?

- What is your definition of success for children with hearing loss?

- What are your licenses, certifications and or credentials?

- What is your philosophy regarding communication and a child with a hearing loss or who is deaf?

- How do you teach us to communicate with our child between visits?
Notes on Our Journey

What are our dreams for our child?

What are our fears for our child?

The following parents’ names and phone numbers were given to us:

We have contacted the following organizations or agencies:

Date: Name of Contact Person: at:

Date: Name of Contact Person: at:

Date: Name of Contact Person: at:

Date: Name of Contact Person: at:
We have visited the following programs or providers who can serve our child:

<table>
<thead>
<tr>
<th>Program name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication used with children:</td>
</tr>
<tr>
<td>Location:</td>
</tr>
<tr>
<td>Telephone number and contact person:</td>
</tr>
<tr>
<td>Email:</td>
</tr>
<tr>
<td>Dates visited:</td>
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<tr>
<td>Impressions of program:</td>
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<tr>
<td>Impressions of students’ ability to communicate:</td>
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<tr>
<td>Family support available:</td>
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<tr>
<th>Program name:</th>
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<tbody>
<tr>
<td>Communication used with children:</td>
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<td>Impressions of students’ ability to communicate:</td>
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<td>Family support available:</td>
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<td align="left">Communication used with children:</td>
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<td align="left">Impressions of students’ ability to communicate:</td>
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<tr>
<td align="left">Family support available:</td>
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</tbody>
</table>
**Program Summary**
After visiting programs and reviewing the service options and communication methods, note what you think about each program.

<table>
<thead>
<tr>
<th>Things we liked</th>
<th>Program 1</th>
<th>Program 2</th>
<th>Program 3</th>
<th>Program 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Things we disliked</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional's thoughts</td>
<td>Program 1</td>
<td>Program 2</td>
<td>Program 3</td>
<td>Program 4</td>
</tr>
<tr>
<td>Other parent’s thoughts</td>
<td>Program 1</td>
<td>Program 2</td>
<td>Program 3</td>
<td>Program 4</td>
</tr>
<tr>
<td>We think this option is appropriate (or not) for our child…</td>
<td>Program 1</td>
<td>Program 2</td>
<td>Program 3</td>
<td>Program 4</td>
</tr>
<tr>
<td>My child will be able to understand information in this setting because…</td>
<td>Program 1</td>
<td>Program 2</td>
<td>Program 3</td>
<td>Program 4</td>
</tr>
<tr>
<td>Adults who have been educated this way are now doing…</td>
<td>Program 1</td>
<td>Program 2</td>
<td>Program 3</td>
<td>Program 4</td>
</tr>
<tr>
<td>Using this approach we believe that as an adult our child can….</td>
<td>Program 1</td>
<td>Program 2</td>
<td>Program 3</td>
<td>Program 4</td>
</tr>
</tbody>
</table>

Books, magazines, tapes we like:
# Important Contacts and Phone Numbers

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Address</th>
<th>Phone</th>
<th>After hours</th>
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</thead>
<tbody>
<tr>
<td>Primary Care Physician</td>
<td>___________________________</td>
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<td>______________________</td>
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<tr>
<td>Ear Doctor</td>
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<td>Audiologist</td>
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<tr>
<td>Speech Language Pathologist</td>
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<tr>
<td>Care Coordinator/Service Coordinator</td>
<td>___________________________</td>
<td>____________________________</td>
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<tr>
<td>Early Intervention Providers or Teachers</td>
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<tr>
<td>Name</td>
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<td>PHONE:</td>
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<td>Name</td>
<td>___________________________</td>
<td>____________________________</td>
<td>PHONE:</td>
<td></td>
</tr>
</tbody>
</table>
Important Contacts

Public School Representative: _________________________________________

Title: __________________________ Phone: ____________________________

Address: _________________________________________________________

Other Parents

Name: _____________________________________________________________

Address: _________________________________________________________

Phone: __________________________ Email: __________________________

Name: _____________________________________________________________

Address: _________________________________________________________

Phone: __________________________ Email: __________________________

Name: _____________________________________________________________

Address: _________________________________________________________

Phone: __________________________ Email: __________________________

Other important contacts

Name: _____________________________________________________________

Phone: __________________________ Email: __________________________

Name: _____________________________________________________________

Phone: __________________________ Email: __________________________

Name: _____________________________________________________________

Phone: __________________________ Email: __________________________
Appendix B
State Resource Agencies and Parent Resources

This is a list of State-wide resources or agencies. You may wish to ask your service coordinator for additional local community resources and providers.

State Level Organizations and contacts:

**Indiana’s Early Intervention System:**
First Steps
Division of Family and Children
Bureau of Child Development
402 W. Washington Street
Indianapolis, Indiana 46204-2739
Phone: 800-441-STEP
e-mail: mgreer@fssa.state.in.us

**Newborn Hearing Screening Program**
Indiana State Department of Health
2 North Meridian Street 7C
Indianapolis, Indiana 46204
Phone: 317-233-1252
e-mail: wlong@isdh.state.in.us

**Indiana’s Special Education System:**
ATTAIN
Indiana Department of Education, Division of Special Education
Director: Bob Marra
Room 229 State House
Indianapolis, Indiana 46204
Fax: (317) 232-0589

**ATTAIN**
2346 South Lynhurst Drive Suite 507
Indianapolis, IN 46241
(317) 486-8808
In State: 1-800-528-8246
Fax: (317) 486-8809

**Indiana’s State School for the Deaf**
Indiana School for the Deaf
Outreach Services
1200 E. 42nd Street
Indianapolis, Indiana 46205
Phone: 800-724-9550 V/TDD

**ATTAIN**
101 East Walnut Street
Washington, IN 47501
(812) 254-7305
(888) 288-9319 toll free
Fax: (812) 254-7306

**Indiana’s Deaf and Hard of Hearing Office**
Division of Disability, Aging, and Rehabilitative Services
DHHS, PO Box 7083
IN Government Center South
Indianapolis, Indiana 46204-7083
Phone: 800-962-8408 V/TDD

**Partnership for Assistive Technology with Indiana Schools (PATINS)**
4730 W. Gadston Street
Indianapolis, IN 46241
(317) 243-5737
Contact: Jeff Bond
http://eacs.k12.in.us/patins

**Indiana’s Deaf-Blind Project**
Ms. Karen Goehl
S.O.E. 502 Blumberg Center
Indiana State University
Terre Haute, Indiana 47809

**Indiana Protection and Advocacy**
4701 N. Keystone Ave.
Indianapolis, Indiana 46205
Phone: 800-622-4845 V/TDD
e-mail: ipas@source.isd.state.in.us
Parent Support and Links with Other Parents

HEAR Indiana
9041 Colgate Street
Indianapolis, Indiana 46268-1210
317-872-3242
Sarah Killion, Executive Director

Parent Infant Program
Indiana School for the Deaf
1200 E. 42nd Street
Indianapolis, Indiana 46205
800-724-9550 V/TDD Lori Dille, Coordinator

*This not for profit organization is the state Chapter of the Alexander Graham Bell Assoc. The organization provides educational resources and a support network for children with hearing impairments, their parents and the professionals who guide and assist them in the pursuit to develop spoken language.*

Other Organizations that Link Parents to Parents

IN*SOURCE First Steps Family to Family Support
809 North Michigan
South Bend, Indiana 46601
Phone: (219) 234-7101
800-332-4433 Voice/TDD
insource@inspeced.ccmail.compuserve.com

First Steps Family to Family Support
1610 Brockton Court
Granger, IN 46530
Phone and Fax: (219) 273-6019
Project Director: Mary Jo Paladino
mpaladin@isub.edu

*The Indiana Resource Center for Families with Special Needs was incorporated in 1975 to provide parents, families and service providers in Indiana the information and training necessary to help assure effective educational programs and appropriate services for children and young adults with disabilities.*

Indiana Parent Information Network (IPIN)
4755 Kingsway Drive, Suite 105
Indianapolis, Indiana 46205
317-257-8683
800-964-4746

*The Indiana Parent Information Network (IPIN) provides information to parents of children with special needs and professionals about laws, services and resources throughout the state including information and training about health care financing and child care.*

First Steps Family to Family Support
is a project established to assist families who have been in the First Steps early intervention system connect with other families and learn how to become more active participants in the system at a variety of levels.
**Community Resources**

Community Services with all Deaf (CSAD) – South Bend
711 E. Colfax Ave.
South Bend, IN  46617
219-234-3136 V/TDD
219-234-8177 FAX

Resource Agency for the Deaf and Hard of Hearing (RADHH)
502 W. Second Ave
Evansville, IN 47710
812-425-2841 TTY
812-425-2726 Voice

Deaf Community Services (DCS) – Indianapolis
445 N. Pennsylvania St., Suite 811
Indianapolis, IN  46204
317-637-3947 V/TTY
317-685-5230 FAX

South Central Indiana Interpreting (SCH)
472 N. Dellasburg Road
Columbus, IN 47203
812-375-1806 TTY/Voice

DeafLink Fort Wayne
2826 S. Calhoun St.
Fort Wayne, IN  46807
219-456-3412 TTY
219-744-6145 Voice
219-444-0006 FAX

Deaf Services, Inc. (DSI) Merrillville
6 E. 67th Ave
Merrillville, IN 46410
219-769-8912 TTY
219-769-6506 Voice
Appendix C

Directory of National Organizations of and for Deaf and Hard of Hearing People

This directory lists the major professional, service, and consumer organizations for deaf and hard of hearing people in the United States. # 184, free (maximum of 5)

To order or for more information, please contact NICD at

(202) 651-5051 (Voice)
(202) 651-5052 (TTY)
(202) 651-5054 (Fax)

NICD@gallux.gallaudet.edu
WWW:http://www.gallaudet.edu/~nicd
## Appendix D
### Internet Sites

Listed below are some Internet sites that may provide helpful information or links to resources for families of children with hearing loss. The list is a service to the readers of this booklet and does not constitute an endorsement of any particular site. **Always consult your child’s own early intervention provider and physician before making any decisions.**

<table>
<thead>
<tr>
<th>Site</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Bionics</td>
<td><a href="http://www.cochlearimplant.com">http://www.cochlearimplant.com</a></td>
</tr>
<tr>
<td>Alexander Graham Bell Association for the Deaf</td>
<td><a href="http://www.agbell.org">http://www.agbell.org</a></td>
</tr>
<tr>
<td>American Academy of Audiology</td>
<td><a href="http://www.audiology.org">http://www.audiology.org</a></td>
</tr>
<tr>
<td>American Association of the Deaf-Blind</td>
<td><a href="http://www.tr.wosc.osshe.edu/dblink/aadb">http://www.tr.wosc.osshe.edu/dblink/aadb</a></td>
</tr>
<tr>
<td>American Sign Language Teachers Association (ASLTA)</td>
<td><a href="http://www.aslta.org/index.html">http://www.aslta.org/index.html</a></td>
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<td>American Society for Deaf Children</td>
<td><a href="http://deafchildren.org">http://deafchildren.org</a></td>
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<td>American Speech Language Hearing Association</td>
<td><a href="http://www.asha.org">http://www.asha.org</a></td>
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<tr>
<td>Assistive Communication Center</td>
<td><a href="http://www.sni.net/ear/">http://www.sni.net/ear/</a></td>
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<td>Audiologyinfo.com</td>
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<td>Better Hearing Institute</td>
<td><a href="http://www.betterhearing.org">http://www.betterhearing.org</a></td>
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<td>Boystown Institute for Communication Disorders</td>
<td><a href="http://www.boystown.org/btnrh">http://www.boystown.org/btnrh</a></td>
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<td>Captioned Films and Videos</td>
<td><a href="http://www.cfv.org">http://www.cfv.org</a></td>
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<td>Closed Captioning Web</td>
<td><a href="http://www.erols.com/berke">http://www.erols.com/berke</a></td>
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<td>Cochlear Corporation</td>
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<td>Deaf Cyberkids</td>
<td><a href="http://www.deafworldweb.org/kids">http://www.deafworldweb.org/kids</a></td>
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<td>Deaf Resources Library</td>
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<td>Deafology</td>
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<td>Educational Audiology Association</td>
<td><a href="http://pip.ehhs.cmich.edu/eaa/">http://pip.ehhs.cmich.edu/eaa/</a></td>
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Family Village http://www.familyvillage.wisc.edu/lib_deaf
Hear Now http://www.leisurelan.com/~hearnow
Hearing Health Magazine http://www.hearinghealthmag.com
HiP Magazine Online http://www.hipmag.org
House Ear Institute http://www.hei.org
Indiana First Steps Early Intervention System http://www.state.in.us/fssa/first_step
Indiana Institute on Disability and Community Website http://129.79.180.15/calendar/date.lasso
Indiana School for the Deaf http://deafhoosiers.com
Indiana Deaf Community Services http://members.aol/deafcomser
Institute for Health and Disability http://www.peds.umn.edu/Centers
Internet Links for Deaf Kids http://deafness.minigco.com/msubkid.htm
John Tracy Clinic http://www.johntracyclinic.org
Kid Source on Line http://www.kidsource.com
League for the Hard of Hearing http://www.lhh.org
Listen Up! http://members.tripod.com/~listenup/
Marion Downs National Center for Infant Hearing http://www.colorado.edu/CDSS/MDNC
National Association for the Deaf http://www.nad.org
National Center for Hearing Assessment and Management http://www.usu.edu/~ncham
National Information Center for Children and Youth With Disabilities http://www.nichy.org
National Information Center on Deafness http://www.gallaudet.edu/~nicd
National Parent Network on Disabilities http://www.npnd.org
Oberkotter Foundation http://www.oraldeafed.org
Sibling Support Project http://www.chmc.org/departmt/sibsupp/
The Caption Center http://www.wgbh.org/pages/captioncenter/
The Deaf Education Option Web http://www2.pair.com/options/
The Deaf Magazine http://www.deaf-magazine.org
The EAR Foundation http://www.theearfound.com
Voice for Hearing Impaired Children  http://www.web.net/~voice/
Where do we go from here?  http://www.gohear.org
Appendix E
Financial Assistance

Your First Steps Service Coordinator can help you get more information about any of the programs and can help you apply. If you have private health insurance, check with your carrier to determine if hearing aids and/ or assistive technology is covered.

**Children’s Special Health Care Services (C.S.H.C.S)**

Help families of children with serious, chronic “medical” conditions get treatment for their child’s condition. Child must be under 22 years of age, an Indiana resident, and medically and financially eligible. 1-800-475-1355

**Hoosier Healthwise**

Hoosier Healthwise is a health insurance program offered through the Indiana Division of Family and Children. It pays medical expenses for pregnant women and children up to 18 years of age. You must meet income eligibility requirements. If your family’s income is too high, you still may be eligible for the Medical Assistance Program for the Disabled or the Spend Down program. This program lets families with regular monthly medical bills deduct these expenses to meet income guidelines. Call 1-800-889-9949 for additional information.

**Indiana Comprehensive Health Insurance Association (ICHIA)**

Provides health insurance for Indiana residents who are denied health insurance because of a medical problem. Call 317-387-5553 for additional information.

**Managed Risk Medical Insurance Board**

Helps pay for insurance for persons who can’t get insurance. Individuals pay a monthly fee (premium), which depends on where they live and their age. Deductibles and co-payments apply. Call 1-800-289-6574 for additional information.

**Supplemental Security Income (SSI):** Benefits for children and adults with a limited income who have certain medical conditions or disabilities. Call 1-800-772-1213 for additional information.
Appendix F
Selected Books, Videos, and Resources

Catalogs are available from the following publishers:

ADCO
5661 South Curtice Street
Littleton, CO 80120
www.ADCOhearing.com
1-800-726-0851

A.G. Bell Catalog
3417 Volta Place NW
Washington, D.C. 20007
202-337-5220 Voice/TTY
202-337-8314 FAX
www.agbell.org

Butte Publications, Inc.
P.O. Box 1328
Hillsboro, OR 97123
www.buttepublications.com
1-800-330-9791

T.J. Publishers
817 Silver Spring Ave
Suite 206
Silver Spring, MD 20910-4617
1-800-999-1168 Voice/TTY

Dawn Sign Press
6130 Nancy Ridge Drive
San Diego, CA 92121
www.dawnsign.com
1-800-549-5350

Sign Media, Inc
4020 Blackburn Lane
Burtonsville, MD 20866-1167
www.signmedia.com
1-800-475-4756 Voice/TTY

Gallaudet University Laurent Clerc National Deaf Education Center
800 Florida Avenue, NE
Washington, DC 20002-3695
www.clerccenter.gallaudet.edu
1-800-526-9105

Harris Communications, Inc.
15159 Technology Drive
Eden Prairie, MN 55344-2277
1-800-825-6758 Voice
1-800-825-9187 TTY
1-800-211-4360 VCO

Resource Guide for Families Who Have Children with Hearing Loss   11/02/01   43
Books

This list includes publications by authors with a variety of viewpoints. It is not a complete listing of all books regarding hearing loss. Some books may be found in your local library or bookstores. Many of these books, as well as videotapes, can be purchased through the catalogues listed on the previous page. Some may be available through parent-organization lending libraries. You may wish to ask your service providers for assistance in locating a resource.

Auditory-Verbal Therapy for Parents and Professionals, by Warren Estabrooks

The American Sign Language Handshapes Dictionary, by Richard Tennant and Marianne Gluszak Brown

Animal Signs-A First Book of Sign Language, by Debby Slier

Assessment and Management of Mainstreamed Hearing-Impaired Children, Principles and Practices, by Mark Ross, Diane Brackett, and Antonia Branchia Maxon

Beginning with Babies: A Sharing of Professional Experience, by A. Phillips and E.B. Cole

Breaking Silence, by Ferne Glick and Donald Pellman

Buddha’s in Disguise: Deaf People of Nepal, by Irene Taylor

Choices in Deafness: A Parent’s Guide to Communication Options, by S. Schwartz

Clerc: The Story of the Early Years, by Cathryn Carroll

Cochlear Implants for Kids, by Warren Estabrooks

Deaf Heritage: A Narrative History of Deaf America, by Jack Gannon

Deaf in America: Voices from a Culture, by Carol Padden and Tom Humphries

Deaf Like Me, by Thomas Spradley and James Spradley

Educating Deaf Children Bilingually, by Shawn Neal Mahshie

Educating and Raising a Deaf Child, by Marc Marschark


Everyone Here Spoke Sign Language, by Nora Ellen Groce
Facilitating Hearing and Listening in Young Children: Early Childhood Intervention Series, by C. Flexer

The Flying Fingers Club, by Jean Andrews

Foundations of Spoken Language for Hearing Impaired Children, by Daniel Ling

The Handmade Alphabet, by Laura Rankin

Handtalk, by Remy Charlip and Mary Beth Miller

Handtalk Zoo, by George Ancena and Mary Beth Miller

Hard of Hearing, by parents and families of Natural Communication, Inc.

Hometown Heroes: Successful Deaf Youth in America, by Diane Robinette

I Want to Talk: A Child Model of American Sign Language Set, by H. Hosemann

I.D.E.A. Advocacy for Children who are Deaf or Hard of Hearing: A Question and Answer Book for Professionals and Parents, by Bonnie P. Tucker, Esq.

Journey Into the Deaf World, by Ben Bahan, Robert Hoffmeister, and Harlan Lane

Kid Friendly Parenting of Deaf and Hard of Hearing Children, by Daria Medwid and Denise Chapman Weston

Learning American Sign Language, by Tom Humphries and Carol Padden

Lipreading for Children, by George Haspiel

Listening with Your Heart, by Heather Whitestone

From Mime to Sign, by Gil Eastman and Martin Noretsky

Never the Twain Shall Meet: The Communications Debate, by Richard Winefield

Not Deaf Enough: Raising a Child Who is Hearing-Impaired, by Patricia Ann Morgan Candlish, M.L.S.

Parents In Action: A Handbook of Experiences with their Hearing-Impaired Children, by Grant B. Bitter, Ed.D.

Parent’s Guide to Speech and Deafness, by Donald Calvert
Raising your Hearing-Impaired Child: A Guideline for Parents, by Shirley Hanawalt McArthur

Reading Between the Lips, by Lew Golan

A Resource Text for ASL Users: Linguistics

Seeing Voices, by Oliver Sacks

The Secret in the Dorm Attic, by Jean Andrews

Sesame Street Sign Language ABC, by Linda Bove

Sesame Street Sign Language Fun, by Linda Bove

Signs for Me: Basic Vocabulary for Children, by Ben Bahan and Joe Dannis

So Your Child Has A Hearing Loss: Next Steps for Parents, by AG Bell

Tomorrow Dad will Still be Deaf and other Stories, by Bonnie Kraft

25 Ways to Promote Spoken Language, by Amanda Mangiardi

A Very Special Friend, by Dorothy Hoffman Levi

We CAN Hear and Speak! The Power of Auditory-Verbal Communication for Children Who are Deaf and Hard of Hearing, by parents and families of Natural Communication, Inc.

The Week the World Heard Galludet, by Jack Gannon

When the Mind Hears, by Harlan Lane

When your Child is Deaf: A Guide for Parents, by D. Luterman

Word Signs – A First Book of Sign Language, by Debby Slier

Yes, You Can Heather! The Story of Heather Whitestone, Miss America, by Daphne Gray

You and Your Deaf or Hard of Hearing Child, by John Adam
Videotapes

This list includes publications with a variety of viewpoints. It is not a complete listing of all videotapes regarding hearing loss. Some videotapes may be obtained through your local library or bookstores. Many of these videotapes, as well as books, are available through the catalogues listed at the beginning of this appendix or through internet sites listed in appendix D. Some may be available through parent-organization lending libraries. You may wish to ask your service providers for assistance in locating a resource.

American Sign Language ABC Stories, Sign Media, Inc.

Beginnings,

Bravo ASL! Beginning American Sign Language Video Course, Lessons 1-15, Sign Enhancers, Inc

Clarion: Link Between Silence and Sound, Advanced Bionics Corporation, 1-800-678-2575, 12740 San Fernando Road, Sylmar, CA 91342

Cochlear Implant –The Deaf Community View, Dawn Sign Press

Deaf Heroes, Northern Sign Theatre, 528 Hennepin Ave. #306, Minneapolis, MN 55403

DeafBlind Getting Involved: A Conversation, Sign Media, Inc.

DeafBlind Overview and Introduction, Sign Media, Inc.

Do You Hear That?, VOICE for Hearing Impaired Children in cooperation with Alexander Graham Bell Association for the Deaf

Dreams Spoken Here, Oberkotter Foundation Film Project, 1-800-ORALDEAF, P.O. Box 50215, Palo Alto, CA 94303-9465

I Can Hear!, Natural Communication, Inc.

I Can Hear II, Natural Communication, Inc.


Indiana Relay Video, Sprint Company

Overview and Introduction of Deaf-Blind, Sign Media, Inc.

Phonak Video Focus: Pediatric Hearing Assessment, Phonak, Inc., 1-800-777-7333, 850 Diehl Rd., Naperville, IL 60566

Phonak Video Focus: Pediatric Hearing Instrument Fitting, Phonak, Inc., 1-800-777-7333, 850 Diehl Rd., Naperville, IL 60566

Poetry in Motion, Sign Media, Inc.

Read it Again and Again (with book), Gallaudet University Press

Read with Me – Sharing the Joy of Storytelling with your Deaf Toddler, Harris Communication

Read with Me – Stories for your Deaf Preschooler, Harris Communication

Reading to Deaf Children & Learning from Deaf Adults (with book), Gallaudet University Press

Sign-Me-A-Story by Linda Bove from Sesame Street, Harris Communication

Sign With Me – Building Concepts, Boys Town National Research Hospital, 555 North 30th Street, Omaha, NE 68131

Sign With Me – Building Conversations, Boys Town National Research Hospital, 555 North 30th Street, Omaha, NE 68131

Sign With Me – Positive Parenting, Boys Town National Research Hospital, 555 North 30th Street, Omaha, NE 68131

Using Your TTY/TDD, Harris Communication
Appendix G  
Hearing Aids

A child is fit with hearing aids to increase his or her access to sound. Fitting a young child with a hearing aid is not a one-time event, but a process. A young child’s limited ability to describe what he or she hears is part of the challenge. Your audiologist and you may try different hearing aids, or several modifications to one hearing aid, before finding the best solution.

How does a hearing aid work?

Sounds are picked up by a microphone and carried to a signal processor (amplifier). The sounds are then made louder and shaped to match the hearing loss characteristics such as frequency (pitch) and intensity (loudness). The sound is then sent through the receiver and delivered by the earmold into the ear.

What are earmolds?

Earmolds are made from soft, comfortable material that fits inside the ear and is attached to a behind-the-ear (BTE) or body hearing aid. The earmold is made to fit snugly inside the ear and a good fit is essential for the effective amplification of sound. New ear molds can be made as your child’s ears grow. Young infants and toddlers will need new earmolds every few months.

When should my child get a hearing aid?

Children identified with a hearing loss can be fit with hearing aids as young as a few weeks old. Research tells us that fitting a hearing aid as soon as possible helps to minimize the effect of the hearing loss on language development. The earlier the auditory centers of the brain are stimulated with sound, the sooner the brain can begin to understand sound. If a child has a hearing loss in both ears, two hearing aids should be worn. In some special medical or audiological circumstances, wearing only one hearing aid may be optimal.

Who decides which hearing aid is best?

Parents and the child’s audiologist should come to a careful decision regarding the best amplification for your child. Only after considering your child’s individual needs, including the characteristics of the hearing loss, available technology, and financial resources should hearing aids be chosen. Hearing aids are prescribed for the best possible fit with the information available. As more specific information about the hearing loss is obtained, the hearing aids may be adjusted. The audiologist will perform tests while your child is wearing the hearing aids to further confirm and refine the fitting. Much useful information will come from observing your child’s reaction to sounds while wearing the aids. The audiologist will be able to make observations during appointments,
but you will have the opportunities to notice how your child responds and acts in a wide range of daily situations. Take note and share what you observe with your audiologist. Different brands of hearing aids offer specific features. The key objective is to get the features that are appropriate for each individual listener. Your child’s otolaryngologist or ENT physician will provide a medical clearance statement to permit the fitting of hearing aids in compliance with the Food & Drug Administration (FDA).

**What is the most appropriate hearing aid for my child?**

Although, the advanced technology is appealing, some conventional hearing aids may be adequate and appropriate for your child’s hearing loss. Regardless of the hearing aids ultimately chosen, they should be equipped with a strong telecoil and direct audio input (DAI) for potential use with assistive listening devices such as a FM system. These features included from the start will prevent the need for reconditioning or replacement and further expenses later.

**What styles of hearing aids are available for children?**

Hearing aid styles differ by how they are worn. Some are worn on or in the ear. Some are worn on the body. Hearing aids that are worn inside the ear are generally not appropriate or recommended for young children. Body aids are less frequently recommended for young children however may be appropriate. Your audiologist will provide you with information about the hearing aid type and style that is most appropriate for your child’s hearing loss.

**Behind the Ear (BTE):** Hearing aids are positioned behind the ear and coupled to the ear with a custom fitted earmold. BTE hearing aids are usually preferred for infants and young children for the following reasons:

1. BTE hearing aids are often more reliable and less easily damaged.

2. BTE hearing aids are easily connected to an FM system or assistive technology device that may be used at a later time, possibly in a group setting. Some features such as direct audio input (DAI) need to be specified at the time the hearing aid is ordered. Ask your audiologist about these features.

3. BTE hearing aids and earmolds are available in a variety of colors and with accessories designed specifically for children.
**Body Hearing Aids:** The hearing aid is in a small case that is worn on the body, typically in a pouch harness, with a wire connecting to a button receiver snapped into the earmolds. In the past, body aids were often recommended for children for the amount of power they provided. However, today most BTE hearing aids can provide appropriate power for a child with even a profound hearing loss. The ear level location of the microphone on a BTE, as opposed to on the body, is acoustically more appropriate and preferred.

**Bone Conduction hearing aid:** Some children with a conductive hearing loss and/or malformed or missing outer ears that cannot be medically or surgically corrected, may use bone conduction hearing aids. This is a specially adapted version of a BTE style aid.

**What types of hearing aid technology/ circuitry are available?**

The circuitry of a hearing aid is the internal components and wires that process incoming sounds in a specific manner. These components and wires are the main element of a hearing aid and can affect the final price. The circuitry is responsible for how sounds are shaped and made louder. The circuitries utilized in some hearing aids now employ tiny computer chips and higher technology. In general there are three types of hearing aid circuitry available.

- **Conventional Analogue:** Analogue circuitry refers to the way a sound signal is received and processed over time. Larger samples of information are taken and averaged over time.

- **Programmable Analogue:** These hearing aids use an internal microchip to program the parameters, however, once the hearing aid is unhooked from the computer the incoming signals will be processed by analog means.

- **Programmable Digital:** Fully digital hearing aids are programmed digitally and continue to process incoming signals digitally when unhooked from the programming device or computer.

There are many differing circuitry features available even within these three general types. Please see the information at the end of this appendix regarding some circuitry features. Ask your audiologist about your options.
**How much do hearing aids cost?**

Hearing aids range in price, depending on the technology used and the specific features. As expected, digital, the more advanced technology, is more expensive. Some insurance policies allow hearing aids as a covered benefit. However, certain conditions may apply. Often times, insurance will not cover the cost of hearing aids, earmolds or batteries for a child born with a hearing loss.

Should you choose to participate in the state early intervention system, First Steps will pay a set amount (up to $600 per hearing aid, including an extended warranty) for a one-time purchase of hearing aids until your child’s third birthday. First Steps will pay for earmolds, batteries, dry-aid kit and other products associated with hearing aids. To assist in determining appropriate amplification, your audiologist may choose to access a loaner bank for a trial hearing aid(s) to use for up to six months. The Lion’s Club, in partnership with First Steps, has donated financial resources to develop a loaner bank of hearing aids for Indiana children. A large number of hearing aids varying in types of technology and features is available. While priority is given to young infants, all children living in Indiana may apply for use of loaner hearing aid(s).

If conventional hearing aids are recommended First Steps will purchase these for your child with no special approval required. However, should digital/programmable hearing aids be recommended, your audiologist will need to submit compelling reasons and demonstrate your child’s need for this type of technology. A First Steps review board will meet monthly to consider these requests. At any time a family may choose to purchase hearing aids through private funding such as the family’s private insurance. If a family chooses this option they will then also be responsible for the cost of all associated services and products for the hearing aids (such as follow-up hearing aid appointments and batteries, etc.). Families may still continue to receive other First Steps services such as speech therapy and/or service coordination. You will need to investigate all your financial options with your insurance carrier and your audiologist.

**What happens if they break?**

Even with the best of care, at times the hearing aids will need repair. After all they are just miniature mechanical devices and like all machines will at times need parts replaced or repaired. Ask your audiologist how to troubleshoot a problem with the hearing aid. Often you will be able to solve minor problems yourself at home, saving time, energy and money. Other times, a problem may require the attention of the audiologist or manufacturer. Your audiologist will help you learn.
What Parts Are Needed For A Hearing Aid?

**Earmold:** Custom made device that is worn with BTE and body hearing aids. Its primary job is to carry the sound provided by the hearing aid into the ear canal. It can also be acoustically tuned to help shape the sound delivered to the eardrum. It should fit snugly to prevent sound leakage, which can cause feedback (a high pitched whistling sound).

**Tubing:** Soft and flexible, it connects the earmold to the hearing aid. It is securely attached to the earmold and detachable from the earhook. It may be easily replaced if torn or cracked.

**Earhook:** Curved, hard plastic hook that supports the hearing aid on top of the ear. It protects the receiver and channels sound to the earmold. It may have a filter to further shape the sound for the individual needs of the listener.

**Microphone:** Collects sound from the environment and converts the acoustic signal (sound) into an electric signal. The microphone is located on the casing of the hearing aid generally near the top.

**Amplifier or Circuitry:** The insides or ‘guts’ of the hearing aid. It shapes the sound, now an electrical signal, and makes it louder.

**Receiver:** A sound speaker inside the hearing aid that opens into the earhook. The receiver converts the amplified and shaped electrical signal back into an acoustic signal (sound).

**Battery:** Provides power for the hearing aid. It needs to be changed regularly. A battery door accesses the battery compartment. **Batteries are toxic if swallowed.** Tamper resistant doors are often recommended for children.

**Internal adjustment controls or computer cable connector port:** These are accessed by the audiologist to modify the sound shaping and frequency response of the hearing aid.

**Switch:** Used to turn the hearing aid on and/or switch between different settings.

**Volume control:** Usually a numbered wheel that changes the loudness of the sound. Some hearing aids may not need this control.
Types Of Hearing Aid Technology /Circuitry Available

**Linear:** This type of circuitry amplifies the same amount of power or gain across all frequencies and for all sounds, loud or soft, until the limits of the hearing aid’s power. It is the oldest type of circuitry used in hearing aids.

**Nonlinear/ Compression:** Nonlinear means the relationship between the incoming sound and the output of the hearing aid are not proportional. Compression describes how the amplification is reduced for loud sounds. This type of circuitry amplifies soft incoming sounds more than loud sounds.

**Conventional analog processing:** The way in which a signal is received and processed over time. Larger samples of information are taken and averaged over time.

**Digital processing:** The way a signal is received and changed to a specific numeric value at specific moments in time. These circuits use an internal microprocessor to convert sound to numbers according to a mathematical formula called an algorithm. The algorithm automatically changes sound for different listening environments. A primary advantage of digital processing is the increased ability to fine-tune.

**Programmable hearing aids:** These hearing aids use an internal microchip for precise sound adjustments. The hearing aid’s parameters (gain/amplification, frequency response, compression) are programmed through a computer or handheld programming device. The process used to program the parameters is digital and these devices are often referred to as digitally programmable hearing aids. However, once the hearing aid is unhooked from the computer the incoming signals will be processed by analog means.

**Fully digital hearing aids:** are programmed digitally and continue to process incoming signals digitally when unhooked from the programming device or computer. Fully digital hearing aids have the ability to automatically sample the incoming sounds and adjust amplification accordingly in a fraction of a second.

**Multiple memories:** Hearing aids with this ability can be programmed with different settings (parameters) or memories for different listening situations. For example: one setting for quiet environments, another for noisier environments. A remote control may be used to switch between memories to provide comfortable amplification in a particular environment.

**Multiple channels:** Low frequencies and high frequencies can be separated into bands. Each band can then be processed independently.
Appendix H
Glossary

**ABR/Auditory Brainstem Response:** A non-invasive test that measures responses to auditory stimuli through the brainstem level. The test shows whether or not sound is being detected and is often used for assessing infants and other difficult-to-test individuals. AABR (automated auditory brainstem response) is an adapted test methodology that is often used for screening newborns. This type of test can also be referred to as BAER, BSEP, and BSER.

**Accommodations:** Services or equipment to which a student with a disability is legally entitled to receive for the provision of an appropriate and equal education.

**Acoustics:** Pertaining to sound. Also may pertain to the sense of hearing, or the science of sound. The term is often used to describe the sound quality in a room.

**Acoustically Modified Earmolds:** Specifically shaped earmolds that help shape the frequency response and change the output of the hearing aid (for example: Libby horn shape helps improve high-frequency amplification).

**Acquired Hearing Loss:** Hearing loss that is not present at birth. Also may be called adventitious loss.

**Aided Thresholds:** Represented by an “A” on the audiogram, they are the softest sounds that a person can hear while wearing hearing aids.

**Air Conduction:** Sounds that travel through the air from a sound source, earphone or loud speaker, to the ear canal, eardrum, travel through the middle ear, inner ear and on the brain. Air conduction thresholds are represented by “O” for the right ear and “X” for the left ear on the audiogram.

**Advocacy:** Refers to the role parents or guardians play in developing and monitoring their child’s educational program or working to make sure other needs are met by appropriate agencies. Advocating means knowing what your rights are by law and actively participating in the decision-making process to assure that services are delivered in line with your goals for your child’s development and education.

**Americans With Disabilities Act (ADA):** A law that prohibits discrimination against people with disabilities, including deaf and hard of hearing individuals. The four sections of this law cover employment, government, public accommodations, and telecommunications.

**American Sign Language (ASL):** ASL is a visual/spatial language used by individuals in the United States. ASL is a complete language with its own vocabulary, grammar and syntax. It has evolved in the Deaf community over the last 200 years.

**Amplification:** The use of hearing aids or other electronic devices to increase the loudness of a sound so that it can be more easily received and understood.

**Article 7:** Indiana State Board of Education Special Education rules for implementing IDEA.
**Assistive Communication Device:** Any and all types of electronic devices including hearing aids, FM systems, infrared systems, tactile aids, special inputs for the television or radio, amplified/visual alarm systems, and teletypewriters that are used by people with hearing impairments or deafness. Some of these devices might also be referred to as assistive listening devices (ALDs).

**Atresia:** Absence or complete closure of the ear canal, causing a conductive hearing loss.

**Attenuation:** Reduction or decrease in magnitude; to make a sound softer or quieter.

**Audibility:** The ability to hear the sounds or spoken speech but not necessarily being able to tell one speech sound from another.

**Audiogram:** A graph on which a person’s auditory results are plotted. The frequencies (pitch) are on the horizontal axis and the intensities (volume) are vertical. The top of the audiogram represents soft intensity and the bottom of the graph indicates greater loudness needed to perceive sound. Results toward the bottom of the graph indicate poorer hearing ability.

**Audiological Assessment:** A hearing test which may include a combination of pure tone thresholds, impedance measurements for middle ear function (imittance or tympanometry), speech recognition, and speech discrimination measurements. ABR and otoacoustic emissions testing may also be included. Together, these measurements are used to describe the type and degree of hearing impairment. This can also mean a test in the aided condition to determine the benefit of amplification and might be called an aided assessment.

**Audiologist:** A person with a master’s degree or doctorate degree in audiology who is a specialist in testing hearing and working with those who have hearing impairment. The person holds a state license and certification from the American-Speech-Language-Hearing Association (and in the future, perhaps from the American Academy of Audiology). The person may have CCCA or FAAA after the signature block. An audiologist’s evaluation often results in recommendations about the appropriate hearing aids and referrals to physicians and/or other professionals.

**Audiometer:** An instrument that produces calibrated pure-tone or speech stimuli for the assessment of hearing abilities.

**Auditory Nerve:** The eighth (VIII) cranial nerve composed of the auditory and vestibular branches that carry auditory signals from the nerves in the inner ear to the brainstem.

**Auditory-Oral:** A term that is sometimes used when referring to individuals with hearing loss and deafness who talk and do not necessarily use sign language. Some educational programs that emphasize the development of spoken language (no matter what the method) are simply referred to as “oral” programs.

**Auditory Training:** The process of training a person’s residual (the amount of hearing which is present) hearing in the awareness, identification, and the interpretation of sound.

**Auditory System:** Refers to the entire structure and function of the ear.

**Auditory-Verbal Therapy:** Emphasizes the use of residual hearing (usable remaining hearing) to learn spoken communication. Therapy is individualized with parent /caregivers participating to learn how to develop their child’s spoken communication skills through their natural interactions.
**Aural Habilitation:** Training that helps a person with hearing impairment to make the most productive use of residual hearing.

**Background Noise:** Any unwanted sound that may or may interfere with listening.

**Behavioral Observation Audiometry:** An audiological assessment which assesses a baby’s or young child’s behaviors (startle, eye movement, head movement, sucking cessation) in response to calibrated sound by means of observation of those responses. Stimuli may include warble and pure tones, speech and/or calibrated noisemakers/types of noise.

**Bilateral:** Involving both sides; hearing impairment in both ears.

**Bilingual/Bicultural:** Being fluent in two languages and/or membership in two cultures; for a deaf child this generally implies learning ASL as a first language, and learning English as a second language. Commonly referred to as BI-BI.

**Binaural:** Hearing with both ears; use of hearing aids in both ears simultaneously.

**Bone Conduction:** Sound received via the bones of the skull.

**Central Auditory Processing Disorder:** Difficulty with the perception or understanding of sounds. The primary source of the problem is in the central auditory nervous system (brain stem or cortex) not necessarily in the peripheral hearing system (outer, middle or inner ear).

**Certified Auditory-Verbal Therapist (Cert. AVT):** Audiologist, speech and language pathologist, or teachers of children with hearing impairment who have obtained additional supervised training beyond their typical degrees and who have passed a special certification examination for auditory-verbal therapist; a registry of Cert. AVTs may be obtained from Auditory-Verbal International, Inc. (AVI).

**Cerumen:** An oily glandular substance found in the outer ear canal; sometimes it becomes hard and can block the ear canal and the transmission of sound (impacted). Also called earwax.

**Children’s Special Health Care Services (CSHCS):** A program to help children age birth to 21, get medical treatment for specific chronic, medical conditions, including hearing impairment. Families must meet financial and medical eligibility requirements. Information about this program can be obtained by calling 1-800-475-1355.

**Chronological/Adjusted Age:** Chronological age is the baby’s age based on date of birth. If a baby was born prematurely, his or her development is measured in terms of adjusted age. Adjusted age takes into account the time between the premature birth and the actual due date of a full term pregnancy. Using this calculation gives a more accurate picture of what the baby’s developmental progress should be.

**Closed Captioned:** Typed words on TV or video, which allow the viewer to read the spoken words. Closed refers to the special decoding device to see the words.

**Cochlea:** This is the end organ of hearing located in the inner ear. Damage to the cochlea is usually irreversible.
**Cochlear Implant:** An electronic device surgically implanted to stimulate nerve endings of the inner ear (cochlea) in order to receive and process sounds. A cochlear implant system also includes external components.

**Cognitive:** Refers to the ability to think, learn, and remember.

**Conductive Hearing Loss:** Dysfunction of the auditory mechanism in the outer or middle ear. Conductive hearing loss is often medically treatable or correctable and is commonly caused by otitis media (fluid in the cavity of the middle ear which is normally filled with air).

**Congenital Hearing Loss:** Hearing loss that is present at birth or associated with the birth process; occurring within the first few days of life.

**Coupled:** The attachment or connection of one object to another; a hearing aid to an assistive listening device.

**Cued Speech:** A visual communication system that, in English, uses eight handshapes in four locations (“cues”) in combination with mouth movements to make the sounds of spoken language look different.

**Deaf:** When capitalized (Deaf), it refers to the cultural heritage and community of deaf individuals. Communication for the Deaf culture is primarily via signed language. When the term deaf is used by medical or audiology professionals, they are referring to a profound hearing loss.

**Deaf/Blind:** A combined loss of vision and hearing that significantly impacts the educational process.

**Deaf Community:** The Deaf community is comprised of individuals, both deaf and hearing, who respond to particular community goals. The Deaf community in the United States may have a wide range of perspectives on issues, however, being deaf if viewed as a cultural difference rather than a disability.

**Deaf Culture:** A view of life manifested by mores, beliefs, artistic expression, understanding and language (ASL) particular to Deaf people.

**Decibel:** (dB) The unit of measurement for the perceived loudness of sound. The higher the dB, the louder the sound; the poorer the hearing. On an audiogram, dB is the vertical axis.

**Direct Audio Input (DAI):** Direct transmission of a sound signal into a hearing aid without the sound being changed in any way. Many hearing aids are now equipped with DAI for use with assistive technology devices such as personal FM systems.

**Disability:** A loss of function or impairment of a whole or parts of body systems.

**Discrimination:** The ability to know one sound as different from another. The ability to distinguish among sounds of different pitches, durations or loudness.

**Distortion:** Reduction or addition to a sound, decreasing its original form.
**Dri-Aid Kit:** A device that removes moisture from a hearing aid. It may be a small plastic container or bag with a silicone gel material inside. By placing the hearing aid inside, usually overnight, the gel acts as a dehumidifier to remove moisture.

**Ear:** The organ used for hearing. The ear has three main parts: the outer ear, the middle ear, and the inner ear.

**Ear Canal:** The canal between the outer ear (pinna) and the eardrum.

**Eardrum:** Part of the ear, which separates the outer ear from the middle ear. Also known as the tympanic membrane; part of the ear that can be ruptured.

**Ear Mold:** A custom made plastic or vinyl piece that fits into the ear to connect a hearing aid to the user.

**Educational Audiologist:** A licensed, certified audiologist with additional training in educational concerns and a school services license from the Professional Standards Board; usually employed by a school system.

**Educational Interpreter:** A person who performs conventional interpreting of verbal language to a signed system who also has special skills for working in the educational environment. (Oral interpreters)

**Electrophysiologic Tests:** Tests that measure the electrical activity of the brainstem and/or brain in response to sound. These tests do not require a purposeful response from the patient and are often referred to as objective tests.

**ENT:** A medical doctor who specializes in the care and treatment of the Ears, Nose, and Throat.

**Environmental Sounds:** Non-speech sounds that occur in the environment such as a siren, the telephone ringing, the doorbell, water running or a train whistle.

**Etiology:** The specific cause of a hearing loss.

**Eustachian Tube:** A tube that connects the middle ear with the throat and allows air to move back and forth into the middle ear. This tube can become swollen closed and cause middle ear dysfunction.

**Expressive Language/Communication:** The use of words, signs or conventional symbols to express one’s thoughts, needs, feelings and ideas to others.

**Feedback (acoustic):** A high-pitched squeal from a hearing aid most commonly caused by an improper fit or placement of the earmold. Feedback may also be caused by earwax in the earmold, a crack in the earmold tubing, earhook or hearing aid casing. Additionally feedback may occur when an object is very close to the hearing aid such as when wearing a tight fitting hat.

**Fingerspelling:** Representation of the alphabet by finger positions in order to spell words.

**First Steps Program:** Indiana’s early intervention system mandated by the federal Individuals with Disabilities Education Act (IDEA) amendments of 1997-Part C. Children birth to three years of age who have developmental delays, medical conditions likely to result in a delay or who are at...
risk of a developmental delay because of one of eight identified risk factors are eligible for a variety of early intervention services. There is no financial eligibility requirement for this family centered, comprehensive, neighborhood based system of services provided at no cost to families.

**FM System:** An assistive listening device worn by the speaker to amplify his or her voice and transmit it directly into the listener’s ears via a special receiver on the listener’s hearing aids. The device reduces the problem of background noise interference and the problem of distance between the speaker and the hearing impaired listener. FM stands for **Frequency Modulation** of radio waves.

**Frequency:** The number of vibrations per second of sound. Frequency, expressed in Hertz (Hz) determines the pitch of a sound. On an audiogram, frequency is the horizontal axis. Frequencies typically shown on an audiogram are 250, 500, 1000, 2000, 4000, and 8000 Hz.

**Genetic Counseling:** A medical specialty that helps families understand the cause of a child’s disability, the chance of recurrence in other relatives or future children, and whether the condition is part of a syndrome that should be watched for other medical complications.

**Habilitation:** To bring performance or functioning to a level as near typical or normal as possible.

**Hard of Hearing:** A hearing loss, either permanent or fluctuating, which adversely affects an individual’s ability to detect and decipher some sounds. The term is preferred over hearing impaired by the deaf and hard of hearing communities to refer to individuals who have some hearing loss, but also use residual hearing.

**Hearing Aid:** An electronic device that conducts and amplifies sound to the ear.
- all-in-ear: all components fit into the ear (like an earmold).
- behind-the-ear: a small half-moon shaped device worn behind the pinna along with an ear mold that channels sound into the ear.
- body aid: a small box worn on the body, which is channeled to the ear with a cord and earmold.
- canal: all components fit into the ear canal with only the small faceplate showing.
- completely-in-canal: fits into the ear canal so that it is invisible.
- bone-conduction: a behind the ear (or body style) aid coupled with a vibrator that is fit to the head right behind the pinna (mastoid process) to transmit sound vibrations to the cochlea via the bones of the skull. This is used for individuals with a conductive hearing loss who cannot wear any of the hearing aid types noted above.

**Hearing Aid Stethoscope:** A device that allows one to listen to the output of a hearing aid or ALD to check sound quality and functioning.

**Hearing Impaired:** A term used to describe individuals who are acoustically disabled/auditorially deficient, for whom the primary receptive channel of communication is hearing even with deficits. Hard of hearing may be a preferred term.

**Hearing Loss:** The following hearing levels (HL) are typically characterized as follows:

<table>
<thead>
<tr>
<th>Level</th>
<th>Normal Hearing</th>
<th>Mild</th>
<th>0-15 dB HL (child)</th>
<th>0-25 dB HL (adult)</th>
<th>26-40 dB HL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-15 dB HL (child)</td>
<td>0-25 dB HL (adult)</td>
<td>26-40 dB HL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Moderate 41-55 dB HL  
Moderate/Severe 56-70 dB HL  
Severe 71-90 dB HL  
Profound 91 dB HL or greater

**Hearing Screening:** An audiometric procedure to assess the ability to hear a set range of intensities and frequencies; separates those whose hearing is within the normal range from those who do not respond and are in need of further assessment. Failure to respond to a screening protocol does not mean a hearing problem exists, but that there should be further evaluation.

**Hertz (Hz):** A measurement of frequency equal to one cycle per second. Named after German physicist H.R. Hertz.

**Huggies:** The brand name of plastic-ringed device designed to “hug” the hearing aid to the ear. Popular for infants and toddlers whose ears may be too small to hold the hearing aid snugly in place.

**IDEA - Individuals With Disabilities Education Act:** Previously known as Public Law PL 94-142, PL 99-457, PL 101-476, and PL 105-17, recently reauthorized and amended in 1997, this federal legislation guarantees that all children with disabilities receive a free, appropriate, public education (FAPE). Part C of the legislation provides for the development and implementation of early intervention systems delivering community based, coordinated, comprehensive services for children, who have developmental delays, age birth to three years. Part B provides preschool education and related services for children, who have disabilities, age three to 5 years.

**Inclusion:** Often used synonymously with “mainstreaming,” this term refers to the concept that students with disabilities should be integrated and included in the educational setting with their non-disabled peers to the maximum extent possible.

**Individualized Educational Plan (IEP):** A team-developed, written program, which identifies educational goals and objectives for addressing the educational needs of a school-aged student with a disability. An IEP for a child with hearing loss should take into account such factors as 1) communication needs and the child’s and family’s preferred mode of communication, 2) linguistic needs, 3) severity of hearing loss, 4) academic progress, 5) social and emotional needs, including opportunities for peer interaction and communication, and 6) appropriate accommodations to facilitate learning.

**Individualized Family Service Plan (IFSP):** A written plan developed by parents or guardians with input from a multi-disciplinary team. It addresses 1) family strengths, needs, concerns, and priorities 2) identifies support services available to meet those needs and 3) empowers the family to meet the developmental needs of their infant or toddler with a disability.

**Impedance (immittance) Testing:** An objective measure of middle ear function, not hearing sensitivity, which may include typanometry and/ or acoustic reflex. Sometimes referred to as a measurement of how well the eardrum moves.

**Intelligibility:** The ability to hear and understand speech. Often refers to the quality of speech production; how well others are able to understand the speech of the talker.

**Inner Ear:** The innermost part of the ear composed of the cochlea and the semi-circular canal (end organ of balance). Damage to the inner ear results in a sensorineural type of loss.
**Intensity:** The loudness of a sound measured in decibels (dB); vertical axis on the audiogram.

**Interpreter:** A person who facilitates communication between hearing and deaf or hard of hearing person through interpretation into a signed language; refers to translation of a language into a visual and/or phonemic code by an oral interpreter, an ASL translator, or cued speech interpreter.

**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, including children in public or private institutions or other care facilities, are educated with children who are not disabled. Special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability is such that the education in regular classes, even with the use of supplementary aids and services, cannot be achieved satisfactorily.

**Lipreading:** See speechreading.

**Localization:** The ability to understand where a sound originates or is coming from.

**Mainstreaming:** The concept that students with disabilities should be educated with their non-disabled peers to the maximum extent possible, when appropriate to the needs of the child with a disability. Mainstreaming is one point on a continuum of educational options. The term is sometimes used synonymously with “inclusion.”

**Masking:** A procedure often used in hearing testing where a static-like noise is presented to the non-test ear through headphones to keep it from responding to test stimuli.

**Medical Clearance:** Statement or clearance from a doctor specializing in disorders and diseases of the ear, that a particular hearing loss is not medically treatable. Amplification devices will not harm the patient’s ear and may be fit.

**Middle Ear:** Located between the outer ear and the inner ear. It contains three tiny bones (ossicles) and is an air-filled cavity. It is connected to the throat by the Eustachian tube. The middle ear can become filled abnormally with fluid, which, in turn, may cause temporary hearing loss.

**Mixed Hearing Loss:** A hearing loss that is partially sensorineural and partially conductive in nature.

**Monaural Amplification:** The use of one hearing aid.

**Multidisciplinary Assessment and Evaluation:** The assessment and evaluation of a child by qualified persons representing two or more disciplines or professions (i.e., a speech-language pathologist and an audiologist). The child’s development is evaluated to determine if there are any delays or conditions that might indicate the need for special services.

**Native Language:** The language of the home or family; the native language of a child who is deaf with deaf parents is often ASL.
**Open Captioned:** The same as closed captioned (see Closed Captioned) except there is no need for a special decoding device to see the printed text.

**Otitis Media:** Fluid in the middle ear (normally an air-filled cavity). This fluid may cause fluctuating hearing loss and, therefore, delays in speech and language development for young children who experience otitis media with hearing impairment. Fluid can be present with or without infection and may cause temporary and fluctuating degrees of hearing loss; otitis media can turn into a permanent hearing problem without proper medical attention.

**Otoacoustic Emissions (OAE):** A passive audiological test that verifies cochlear activity. It is often used as a screening tool or to evaluate infants suspected with hearing loss. A probe is placed in the ear canal to measure auditory response.

**Otolaryngologist (ENT):** A physician who specializes in medical problems of the ear, nose, and throat. This specialist provides diagnosis and approval for hearing aids.

**Otologist:** A medical doctor who specializes in diseases of the ear.

**Outer Ear:** The pinna (part of the ear outside the head) and the ear canal.

**Part B:** Part B is the section of Public Law 105-17 (IDEA) that refers to preschool education and related services available in the public schools to eligible children ages three years through five years.

**Part C:** This is the section of Public Law 105-17 that refers to early intervention services available to eligible children from birth to three years of age and their families.

**Peri-Lingual Hearing Loss:** Refers to hearing loss acquired while learning a first language.

**Pidgin Signed English/Signed English (PSE):** A visual sign system using many ASL signs in English word order. However, often many words are not signed (a, the, an, to, etc.) as well as English word endings (-ed, -ing, -ment, -tion, etc) are not signed. PSE is often used by teachers and is generally easier and faster to learn and use than ASL.

**Pitch:** The perception of frequency; sound is commonly thought of as high or low in pitch.

**Play Audiometry:** The audiologist teaches a child to respond to sound with some type of action such as dropping a block in a pail (peg into pegboard, ring on peg) when he/she hears a sound.

**Post-Lingual Hearing Loss:** Refers to hearing loss acquired after learning a first language.

**Pragmatics:** Refers to how a language is used.

**Pre-Lingual Hearing Loss:** Refers to hearing loss, which is congenital or acquired before acquisition of language.

**Progressive Hearing Loss:** Hearing that worsens over time.

**Pure Tone:** A tone, used in testing hearing that has energy at only one frequency.
**Pure Tone Average:** A number resulting from averaging the thresholds at 500Hz, 1000 Hz and 2000 Hz.

**Real-Ear Measurements:** An audiological test that measures the actual output of the hearing aid while placed in the ear. This test uses a probe microphone that is placed into the ear canal along with the ear mold and hearing aid coupling. It assesses how effectively sound is being amplified by the hearing aids in the ear. It is considered a very important measurement because everyone’s ear canals are shaped differently, and this will affect how a hearing aid functions.

**Receptive Language or Communication:** Words and concepts one understands.

**Rehabilitation:** To restore to normal or as satisfactory a status as possible original function.

**Residual Hearing:** The amount of measurable, usable hearing a person has that may be amplified.

**S.E.E. – Signing Exact English:** A sign system in which all words of English are signed in English word order. Number, person and tense have signed grammatical markers to replicate spoken English.

**Sensorineural:** A type of hearing impairment caused by damage that occurs to the inner ear (cochlea). Sensorineural hearing loss is usually irreversible and permanent.

**Signal to Noise Ratio or Speech to Noise Ratio (SN ratio or SNR):** Refers to the relationship between the signal or speech that a listener wants to hear and the noise that a listener does not want to hear. For example: a classroom needs to have an acceptable SNR, that is the teacher’s voice must be comfortably louder than the noise in the room, for effective learning to take place.

**Simultaneous Communication:** Talking and signing at the same time.

**Sound Booth:** An acoustically treated room where diagnostic hearing tests are should be performed to obtain accurate results.

**Soundfield Tests:** A type a hearing test, within a sound booth, in which sound is presented via loudspeakers (as opposed to through earphones) into the room- the “soundfield”. Aided, that is while a person is wearing hearing aids, testing is performed in a soundfield.

**SPOE – System Point of Entry:** Contact for information and entry into Indiana First Steps Early Intervention Program. Each county has a designated SPOE. To find the SPOE in your county or area call 1-800-441-STEP (Indiana residents only) or (317) 232-1144.

**Special Education:** Specially designed educational instruction program provided to meet the needs of children with disabilities.

**Speech Awareness Threshold (SAT):** This is the faintest level at which a person detects or is able to just hear, speech 50% of the time. SAT is measured during audiological evaluation with and/or without hearing aids.

**Speech Banana:** On an audiological graph measured in decibels and frequencies, the area wherein most conversational sounds of spoken language occur. Sometimes called the “speech香蕉.”
zone” because of the shape this area depicts on the graph. The purpose of wearing hearing aids or a cochlear implant is to amplify sound into the speech zone.

**Speech Reception or Recognition Threshold (SRT):** this is the softest level at which a person can understand speech 50% of the time. SRT is measured during audiological evaluation with and/ or without hearing aids.

**Speech Reading:** The interpretation of lip and mouth movements, facial expressions, gestures, prosodic and melodic aspects of speech, structural characteristics of language, and topical or contextual clues.

**Speech-Language Pathologist:** A master’s or doctorate level trained professional who works with individuals in the areas of speech and language. Speech language pathologists are certified by ASHA and will typically use the initials CCC-SLP as a credential after their signature.

**Syntax:** Defines the word classes of language (i.e., nouns, verbs, adjectives, etc.) and the rules for their combination (i.e., how words occur in order).

**Tactile Aids:** A type of assistive communication device that emits a vibration or “tactile” signal to indicate the presence of sound. It is worn on the body and triggers the sense of touch or feeling to draw attention to information that cannot be heard by the individual with hearing loss. These devices are also referred to as vibrotactile aids.

**Teacher of the Deaf:** A teacher licensed by the Professional Standards Board in Indiana, in the education of deaf and hard of hearing children, trained to address the overall development of children and with expertise in the various communication issues of deaf and hard of hearing children.

**Telecoil and Telecoil Switch:** A series of interconnected wire loops in a hearing aid that respond electrically to a magnetic signal. An external control on a hearing aid activates a telecoil that picks up magnetic energy form a telephone or a magnetic loop of an ALD. It is often beneficial for children to have hearing aids equipped with a telecoil.

**Telecommunication Devices for the Deaf (TDD):** Originally and often still referred to as TTY (teletypewriters), these electronic devices allow the deaf and hard of hearing to communicate via a text telephone system. This term appears in ADA regulations and legislation.

**Threshold:** The softest level of sound an individual can hear 50% of the time. This term can be used in reference to speech or pure tones.

**Total Communication (T.C.):** A mode of communication that involves a sign system used with spoken words and any effective method (sign, mime, speech, pictures, etc.) of conveying information.

**Trouble-Shooting a Hearing Aid or Assistive Listening Device:** Performing a variety of visual inspections and listening checks to determine a cause for a malfunction and the need for professional repair.

**Tubes- Pressure Equalization (P.E.) or Tympanostomy Tubes:** Tiny ventilating tubes surgically placed through the eardrum to replace a malfunctioning Eustachian tube in allowing ventilation of the middle ear space.
**Tympanic Membrane**: Eardrum.

**Tympanogram**: A pressure test that indicates the function of the ear canal, eardrum, Eustachian tube, and middle ear. It measures how air travels through the outer and middle ears and can indicate dysfunction of these parts of the ear. It does not measure hearing ability.

**Unilateral Hearing Loss**: A hearing loss in one ear only.

**Vestibular System**: System in the inner ear that regulates balance. Specifically, it coordinates changes in head position, acceleration and deceleration, and gravitational effects.

**Vibrotactile Device**: See Tactile Aids

**Visual Reinforcement Audiology**: A method of assessment in which the child is conditioned to respond to sound by coupling a response (head or eye turn) with a visual reward. After the child learns that when he/she looks toward the sound there is a reward, the coupling of reward is terminated. The child then needs to respond appropriately to a sound stimulus, at which time the visual reward is given.

**Vocational Rehabilitation**: A program, which may assist with special equipment and job place modifications in assuring an individual’s employability. Typically, services are available to people 16 years of age and older.