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ABSTRACT

This guide was developed to assist families and service providers in Connecticut with the development of Individualized Family Service Plans for infants and young children with hearing impairments under Part C of the Individuals with Disabilities Education Act (IDEA). It provides general information about hearing loss and deafness, intervention philosophies and approaches, and available services and resources in Connecticut. Following an explanation of the referral process for the state's Birth to Three system, the guide is organized around eight principles of intervention: (1) early identification and diagnosis is essential; (2) ongoing audiology assessment and management must be conducted by staff trained to work with infants and young children; (3) the intervention team should assist the family in learning about the nature of their child's hearing loss; (4) intervention requires a team approach that includes the family; (5) parents and children are partners in communication; (6) language development begins as soon as the child is born and develops through daily interactions with the family; (7) parents need to understand and manage any hearing aids and/or auditory equipment; and (8) parents are advocates for their children. Among 10 appendices are lists of hospital locations for audiological evaluations, types of hearing tests, degrees of hearing loss, and program descriptions. (DB)

Service Guideline 5

Young Children who are Hard of Hearing or Deaf

Intervention guidance for service providers and families

1

October, 1999

Connecticut
Birth to Three
System

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A Family Guide to Communication Options
This guide can be reproduced as a 2-sided brochure for families.

PREFACE

This document was prepared by the Connecticut Birth to Three System Task Force on Children who are Hard of Hearing or Deaf. The guideline is intended to assist families and service providers with the development of Individualized Family Service Plans (IFSPs) for children with these unique needs. This document includes general information about hearing loss and deafness, intervention philosophies and approaches, and available services and resources for families and children in Connecticut. It is designed to assist families and service providers to interpret the responsibilities of the Connecticut Birth to Three System under Part C of the Individuals with Disabilities Education Act (IDEA).

The Mission of the Connecticut Birth to Three System

The Mission of the Connecticut Birth to Three System (See Appendix One) is to strengthen the capacity of Connecticut's families to meet the developmental and health-related needs of their infants and toddlers who have delays or disabilities. The System will ensure that all families have equal access to a coordinated program of comprehensive services and supports that:

- foster collaborative partnerships;
- are family centered;
- occur in natural settings;
- recognize current best practices in early intervention; and
- are built upon mutual respect and choice.

The Connecticut Birth to Three System supports 38 programs that provide comprehensive services to children with a wide range of disabilities and delays and their families. Three of these 38 programs have specific expertise in providing services to children who are hard of hearing or deaf (American School for the Deaf, New England Center for Hearing Rehabilitation (NECHEAR), and Soundbridge). A complete description of each of these three specialty programs, their philosophies and expertise, is included in Appendix Two. Families are offered the option of choosing the program they feel is most compatible with the outcomes they desire for their child and themselves and have the option of changing their Birth to Three program at any time during their enrollment in the Birth to Three System.

This guideline reviews the different program philosophies so that parents can make informed choices about which alternative is best for their child and family.

REFERRAL PROCESS TO THE BIRTH TO THREE SYSTEM

Any child may be referred to the Birth to Three System prior to the diagnosis of a hearing loss, or upon the identification of a hearing loss. All referrals to the Birth to Three System come through the toll-free number 1-800-505-7000 at INFOLINE. All of the programs that specialize in children who are hard of hearing or deaf serve children throughout the state, regardless of their geographic location.

Families of children identified as hard of hearing or deaf may choose to use the following resources to assist in determining which program is best for their child:

- information obtained from their child's primary care physician;
- information from the audiologist who diagnosed the child's hearing impairment;
- information contained in this document;
- information obtained by contacting the Birth to Three programs; and
- information obtained by speaking with other families who receive services.

For children with a suspected hearing loss, who have not yet had a hearing evaluation, the following options will be offered by the INFOLINE staff the family may choose to:

- work with their primary care physician to obtain an audiological evaluation and initiate a referral to any Birth to Three program to obtain a developmental evaluation;

- determine eligibility by proceeding with a developmental evaluation through any Birth to Three program and to work with that program to obtain the necessary audiological evaluation;

- work with one of the three programs that provide services to children who are hard of hearing or deaf. The selected program would then proceed by completing both developmental and audiological evaluations to determine eligibility.

Eligibility Criteria

Children under the age of three are eligible for the Connecticut Birth to Three System because they are either experiencing a significant developmental delay or they have a diagnosed condition that may result in a developmental delay.

All children receive a complete developmental evaluation and assessment when they are referred to the Birth to Three System. Children with a diagnosed hearing impairment of 40 dB or greater, in both ears, are automatically eligible for Birth to Three services. Although children with unilateral hearing loss or a milder hearing loss are not automatically eligible for services, they should be referred to the Birth to Three System for a developmental evaluation and assessment to determine if they are eligible for other reasons. For example, children who have experienced recurrent middle ear infections, for more than six months, and who are demonstrating a significant delay in speech and language are also eligible for Birth to Three services. For additional eligibility information, see the Connecticut Birth to Three System *Service Guideline #3: Children Referred for Speech Delays*.

Individualized Family Service Plan (IFSP)

Once a child is determined to be eligible for the Birth to Three System, an IFSP is developed. Families may identify anyone they would like to attend the IFSP meeting. This may include members of their extended family, day care providers or friends. The service coordinator and other members of the intervention team will also be present. For children with an identified hearing loss, it is essential that the IFSP be developed in collaboration with the primary care physician and the child's audiologist. The service coordinator will work with the family to insure that updated information regarding the child's audiological management and medical intervention is included in the IFSP. The IFSP is reviewed at least every six months, or more frequently, if necessary.

PRINCIPLES OF INTERVENTION FOR YOUNG CHILDREN WHO ARE HARD OF HEARING OR DEAF

The following information is organized according to a list of basic principles of intervention for young children who are hard of hearing or deaf.

Principle ❶ Early Identification and diagnosis is essential.

As of July 1, 2000, all babies born in Connecticut hospitals will have their hearing screened prior to going home from the hospital. This test is a painless procedure that is performed while a baby is sleeping and determines whether the inner ear is functioning properly. If a child fails the newborn hearing screening they will need to have their hearing tested by a pediatric audiologist. The audiologist will be able to do a more complete test of the child's hearing to determine if there is a hearing loss or not. Most parents do not realize that it is possible to complete a hearing test or audiological evaluation on a very young child. Although it requires specialized equipment and training, an audiological evaluation can be performed by a pediatric audiologist on the youngest infant or toddler. (See Appendix Two for a list of hospitals that that have the capacity to complete initial audiological evaluations for infants and toddlers in the State of Connecticut.)

Behavioral Characteristics of Children who are Hard of Hearing or Deaf

Although the hearing screening process is fairly reliable, there are children who will not be identified through the screening or children who will develop a hearing loss at a later time. The following is a list of behaviors that sometimes indicate there is a problem with a child's hearing. If the answer is "no" to any of the following questions, and the child has not had a complete audiological evaluation, the family should speak with their primary care physician about having their child's hearing tested by a pediatric audiologist.

1. By 3 months, does the child startle or cry at loud noises in the environment?
2. By 3 months, does the child respond to sounds or your voice?
3. By 6 months, does the child like toys that make sound?
4. By 6 months, does the child turn to locate where a sound is coming from?
5. By 9 months, does the child turn and look when you call his or her name?
6. By 9 months, does the child respond to "no" or changes in the tone of your voice?
7. By 12 months, does the child babble and make sounds?
8. By 12 months, does the child understand the names of some simple items such as "cup" or "shoe"?
9. By 15 months, does the child respond to simple directions?
10. By 15 months, does the child say some simple words?

Principle ❷ **Ongoing audiological assessment and management must be conducted by staff trained to work with infants and young children.**

Who can Test Hearing?

It is important that families find the appropriate professional to evaluate their child's hearing. Although a number of professionals are capable of "testing hearing," not all of them will be able to test a young child, make a diagnosis, and recommend ongoing audiological services. The evaluation of a young child's hearing is often a process that requires more than one visit to the audiologist.

The following is a list of professionals who are involved with hearing management. The Birth to Three program can also share a list of professionals that they work with on a regular basis. Families may choose one of these professionals or speak directly with their family physician for a recommendation. In addition, the family's health insurance policy may identify specific professionals that are covered under a personal health care plan. The service coordinator can assist families in making the choice that is best for them.

Audiologist

They are trained to identify, diagnose, and manage all types and degrees of hearing loss. They are qualified to test hearing, prescribe hearing aids, and make recommendations for other types of equipment. Some audiologists specialize in pediatrics. These individuals have expertise in working with infants, toddlers, and preschoolers. They are known as pediatric audiologists. Although all audiologists know about hearing loss, only pediatric audiologists are trained to diagnose hearing loss and provide amplification for very young children.

Pediatricians

They are trained to diagnose and manage childhood illness, as well as to evaluate general development. With respect to hearing loss, they are qualified to diagnose and treat the medical aspects of middle ear problems. Pediatricians refer infants and children to pediatric audiologists for diagnosis and management of the hearing loss. Pediatricians may conduct informal assessments of your child's hearing and although some pediatricians have testing equipment in their office, they do not carry out complete audiological evaluations.

Otolaryngologists

They are also called Otologists or Ear, Nose, and Throat (ENT) specialists. They have a medical degree specializing in the treatment of ear, nose, and throat disorders and are trained to diagnose and manage diseases of the head and neck. They are qualified to treat the medical aspects of middle ear problems and to provide medical clearance for the use of amplification or hearing aids. Some otolaryngologists have licensed audiologists working for them and some refer infants and children to pediatric audiologists for diagnosis and management of hearing loss. By Connecticut law, ENT specialists must examine the child to rule out any medical complications before you purchase a hearing aid.

Hearing Aid Dealers

They hold a license in Connecticut to sell hearing aids. They are not qualified to assess and manage children with hearing loss, particularly infants and toddlers. They may not provide children with hearing aids without a recommendation from a licensed audiologist. They can make earmolds, which are needed to use hearing aids, repair hearing aids, and provide accessories for hearing aids.

What can one expect from a Pediatric Audiologist?

A pediatric audiologist has testing equipment that is specifically designed to be used with infants and toddlers. They use procedures for testing hearing that are appropriate for the child's age and development. Parents in the Birth to Three System should use the following criteria when choosing an audiologist to work with their young child. The audiologist:

1. can evaluate a child's hearing within a short time after being contacted for an appointment;
2. specializes in working with infants and young children;
3. has worked with a large number of infants and young children with hearing aids;
4. can provide hearing aids for the child in a timely manner;
5. makes earmold impressions;
6. dispenses hearing aids;
7. has loaner hearing aids available;
8. provides hearing aids on a trial basis;
9. has the resources to repair hearing aids in a timely manner;
10. has worked with the Connecticut Birth to Three System;
11. is familiar with the procedures of the Connecticut Birth to Three System including IFSP development and procedures for acquiring hearing aids or assistive technology;
12. will review the results of the audiogram with the family at the time of the evaluation; and
13. will provide a comprehensive written report, with a copy of the audiogram, in a timely manner.

What are the Different Kinds of Hearing Tests used by a Pediatric Audiologist?

There are many different types of hearing tests. The tests used on a child will depend on his or her age, ability to respond, and the reason the test is being performed. Often, different kinds of tests are used together to determine the type and extent of a hearing loss. The following is a brief description of tests that are commonly used with young children. (See Appendix Three for a chart comparing the different types of hearing tests. If you are unfamiliar with these tests, it may be helpful to refer to the chart as you read the test descriptions.)

Auditory Brainstem Response Measures (ABR)

This may also be called BEAR (Brainstem Evoked Auditory Response) or ABER (Auditory Brainstem Evoked Response). The test requires *no* voluntary response from the child because earphones placed on the ears present the sounds and electrodes on the surface of his or her scalp measure the electrical response of the auditory nerve and records it through a computer. This method should be used for all *infants under 4 months of age*. The test takes place while the child is sleeping. If necessary, a child may be sedated in order to get them to sleep, though this is rare in the very young child. If a child requires sedation, then the test must be conducted in a hospital. (See Appendix Two for a listings of hospitals in Connecticut that offer this testing.)

Automated ABR may be used in the hospital as part of newborn hearing screening. This is not the same as a diagnostic test from an audiologist and does not use the same equipment.

Otoacoustic Emissions (OAE)

Special equipment is needed to conduct this test. A small probe is placed in the child's ear and sound is presented. A tiny microphone in the probe collects the ear's response to the sound and a computer measures this response. If a hearing loss is present, the pediatric audiologist cannot determine the amount of the loss based on this test. This test will be conducted as part of a battery of tests for children under 3 years of age. No sedation is necessary, however if a child is being sedated for ABR, the audiologist may choose to do this test at the same time. The OAE procedure may be used in newborn screening, but is not as comprehensive.

Immittance Measures

This test requires *no* voluntary response from the child. It is conducted by placing a small probe in the child's ear and introducing a low pitched tone. There is a small pump in the probe that changes the air pressure in the ear canal. This does not cause any discomfort to the child. The change in pressure causes the eardrum to move and a computer measures how the eardrum responds to pressure change. The audiologist can determine if there is any problem such as fluid in the middle ear space. The purpose of this test it to determine if there is anything wrong in the middle ear that needs to be evaluated by your pediatrician or a specialist, but it does not measure whether the child has a hearing loss or how much of a loss exists.

Behavioral Observation Audiometry (BOA)

This test is conducted in a sound proof booth and *does* require a response from the child. Sounds are presented either through earphones or through loudspeakers. This method of presenting sound is called air conduction because the sound is transmitted through the air. The pediatric audiologist uses an audiometer to present different sounds at different frequencies (pitches). The child's response to the sound such as eye widening or head turning, is noted. The loudness of the sound is varied to determine the softest level to which the child responds. If the child is able to wear earphones, the response of the individual ears can be measured. When the loudspeakers are used, the audiogram (a graph of the test results) will describe the better of the two ears (if an ear difference exists). BOA is appropriate for infants *younger than 6 months of age.*

When BOA is used in conjunction with ABR, OAE and immittance measures the pediatric audiologist can describe the hearing loss and make recommendations for hearing aids or other treatment methods.

Visual Reinforcement Audiometry (VRA)

This test is conducted in a sound proof booth and also requires a response from the child. Sounds are presented either through earphones or through loudspeakers. The sound may also be presented through a small vibrator placed behind the ear. This second method is called bone conduction because the sound is conducted through a vibration of the skull bones. In VRA, the infant or toddler learns to turn towards the direction of the sound. This is done by pairing the child's response (turning to find the sound) with a toy that lights up or moves. The pediatric audiologist uses an audiometer to present different frequencies (pitches) and controls the toy that reinforces the child for correct responses. The intensity (loudness) is varied to determine the softest level at which the child reliably responds to each pitch. The pediatric audiologist puts the results on an audiogram to determine the degree and shape of the hearing loss. This test can be used without ABR to achieve an accurate evaluation of hearing. Immittance measures should be done in addition to this test to aid in diagnosing the type of hearing loss. With this information, the audiologist will be able to recommend hearing aids or other forms of treatment. This test becomes appropriate when infants can localize or turn to the source of sound, which is typically by *6 months of age*. It remains appropriate until 30 - 36 months of age.

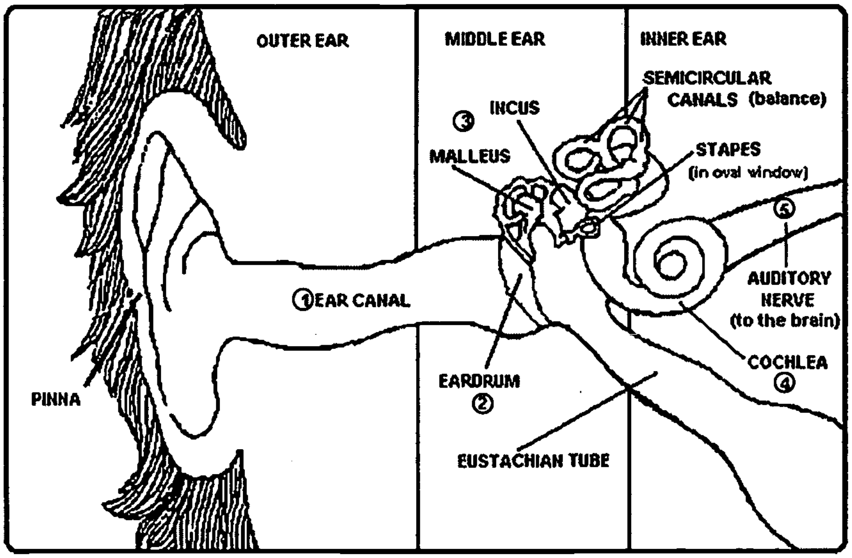
Conditioned Play Audiometry (CPA)

This test is conducted in a sound proof booth using earphones (air conduction) or by placing a vibrator behind the ear (bone conduction). It may also be done through loudspeakers. For this test, the child learns to respond to a sound by performing a task such as throwing a ball in a bucket. The pediatric audiologist uses an audiometer to present sounds at different pitches or frequencies and praises the child for the correct response (ball in bucket). The loudness or intensity of the sound is varied to determine the softest level at which the child repeatedly responds. The pediatric audiologist will put the results on an audiogram to determine the degree and shape of the hearing loss. This test can be used without ABR to achieve an accurate evaluation of hearing. Immittance measures should be done in addition to this test to aid in diagnosing the type of hearing loss. With this information, the audiologist will be able to recommend hearing aids and other forms of treatment. This test is appropriate for children who can be trained to perform the play activity, typically by *30 months of age.*

Principle ❸ ***The intervention team should assist the family in learning about the nature of their child's hearing loss.***

Learning about Hearing Loss

DIAGRAM OF THE HUMAN EAR



The audiologist puts the results of the audiological tests on a graph called an audiogram. (See Appendix Four for a description of an audiogram and information on interpreting it.) In order to understand the information on the audiogram, a family must have a basic understanding of how the ear works as well as the different types of hearing loss.

There are different parts of the ear that contribute to the hearing process. They are the outer ear, middle ear and inner ear. Sound waves enter the outer ear through the external ear canal #1 also called the external auditory meatus and are directed to the eardrum #2 also called the tympanic membrane. The movement of the sound waves causes the eardrum to vibrate. This in turn causes three tiny bones the ossicles-malleus, incus, and stapes #3 to move back and forth in the middle ear so that sound is directed into the inner ear (cochlea #4). The cochlea is lined with a membrane (basilar membrane) that has thousands of hair cells on it. The hair cells have nerve fibers from the Auditory Nerve #5 in them and change the mechanical energy of the sound wave into electrical energy. This electrical energy stimulates the nerve and sends a signal representing the sound wave through the brain.

The normally functioning ear responds to a wide range of frequencies (pitches) and intensities (loudness). Hearing loss generally reduces the intensity of a sound and can effect different frequency ranges, depending on the type and degree of hearing loss.

There are different kinds of hearing loss. A child may have a conductive hearing loss, a sensorineural hearing loss, or a mixed hearing loss. All types of hearing loss result in a reduction of loudness of some sounds or elimination of the ability to hear different pitches or to hear speech clearly. A child's hearing loss may be categorized in one of the following ranges: mild, moderate, severe, or profound. The hearing loss may be in one ear (unilateral loss) or in both ears (bilateral loss). The loss may be temporary or permanent. (See Appendix Five for a list of the range of hearing for each of these categories and contains additional information on the impact of specific degrees of hearing loss.)

Conductive Hearing Loss

A conductive hearing loss occurs when there is a problem in the outer or middle ear. The most common cause of conductive hearing loss in young children is a middle ear infection called otitis media. Otitis media is defined as inflammation of the middle ear, usually with fluid, which may or may not be infected. The condition is very common in young children and is the reason for many visits to the pediatrician. It is important that ear infections be treated by a physician as quickly as possible to reduce potential hearing loss. Most children will experience some occurrences of middle ear infection. However, significant problems result from infections that occur or last for several months, despite medical treatment.

When multiple ear infections occur prior to 18 months of age, there is the possibility that the child will have trouble with some speech sounds or language. The Connecticut Birth to Three System's Service Guideline on Children Referred for Speech Delays discusses eligibility and service delivery for children with recurrent otitis media.

There are also other types of conductive hearing loss in young children. Some children are born with physical abnormality of the outer or middle ear. This may not be surgically treated until adolescence, leaving these children with a hearing loss until the surgery. Children with structural conductive hearing loss should have auditory management as long as the hearing loss exists.

Sensorineural Hearing Loss

Sensorineural hearing loss occurs when the inner ear (cochlea) or auditory nerve has been damaged. There are many early causes of sensorineural hearing loss including loss of oxygen during delivery, extremely low birth weight, inheritance, and maternal viruses or drug use (particularly in the first trimester). A child may be born with normal hearing and acquire a loss due to a viral disease such as meningitis or exposure to certain drugs. There are also some inherited conditions that are associated with progressive sensorineural hearing loss (loss of more hearing over time).

Children born with sensorineural hearing loss need to receive appropriate and ongoing auditory management as soon as the hearing loss is identified. Audiological management may include ongoing auditory testing and follow up, referral for related medical follow-up, fitting and trial of hearing aids or equipment when necessary, and monitoring of the effectiveness of amplification and equipment. Children who acquire hearing loss should receive audiological management as soon as the loss is identified. Management should be conducted regardless of the degree of loss (mild through profound) or if the loss in present in only one ear.

Mixed Hearing Loss

When a child has both a conductive and a sensorineural loss, it is called a mixed hearing loss. Children with permanent sensorineural hearing loss are as susceptible to middle ear infections as children with normal hearing and may add a conductive component to their existing sensorineural hearing loss. A child's pediatric audiologist will regularly test all kinds of hearing loss as part of the child's ongoing audiological management.

Principle ❹ ***Intervention requires a team approach. The family is the most important member of this team. The mission of the Birth to Three System is to support, assist, and advise families on how to best meet their child's unique needs. This should include access to a wide variety of information that is shared in an unbiased manner.***

Families have identified many ways in which the Birth to Three System can assist them with meeting the developmental needs of their child who is hard of hearing or deaf. Children with hearing loss are more likely than other children to develop social, emotional, or developmental difficulties. Developmental intervention and family supports can greatly contribute to reducing the risk of developing inappropriate behavior. These family supports may include opportunities for training and resources as well as information on a variety of topics.

Family training can assist families to learn more about:

- general development of infants and toddlers including social emotional development;
- how to help their child use his or her hearing;
- different intervention options;
- how to communicate with their child in an alternate way such as sign language;
- how to use their child's hearing technology;
- the nature of their child's hearing loss; and
- how to prepare for a transition to new services once their child turns three years old.

Parent support services may be delivered in a variety of ways such as:

- parent education sessions;
- parent child interaction instruction;
- demonstration, modeling, or coaching of techniques;
- sampling of child skills;
- discussion of general developmental issues;
- opportunities to meet with other families who have children who are hard of hearing or deaf;
- opportunities to meet older children or adults who are hard of hearing or deaf;
- opportunities for sibling support; or
- counseling support for families to discuss family issues related to the child's hearing loss.

There are many nationally known programs that are specifically designed to assist families with learning about their child's hearing loss and communication method. One of the most popular programs used in Connecticut and throughout the United States is the SKI *HI model. The SKI*HI model is based on the principle that the family is the most important element of the child's life and development. This early home-based program is there to support, assist, and advise parents and other family members. Some of the resources contained in the SKI*HI curriculum includes:

1. Background information;
2. Collaborative information;
3. Getting the home program started;
4. Hearing aid management;
5. Communication programming;
6. Auditory programming; and
7. Language programming.

In addition, there are many state and national resources that parents may access for information. The Birth to Three System will assist families to network with a variety of these organizations and resources. (See Appendix Six for a listing of state and national resources including websites.)

Members of the Intervention Team for Children who are Hard of Hearing or Deaf

In addition to the family, there are many professionals that work together to make up the intervention team. One person may fill multiple roles on the team. The professionals may include any of the following people:

Audiologists

The audiologist is an essential team member for a child with a hearing loss. Audiologists specialize in assessing and managing hearing impairment. They provide ongoing monitoring of hearing loss and recommend and manage the child's hearing aids and auditory equipment. (More specific information about audiologist is included under Principle 2 concerning hearing tests and hearing loss.

Parent Advisors or Special Educators

The parent advisor/special educator brings information about the hearing loss, skills to work with the child who is hearing-impaired, skills to provide support, and the ability to help the parents access the services that they need. Parent advisors/special educator have a wide range of knowledge about different approaches and philosophies for intervention.

Speech Language Pathologist

A speech language pathologist specializes in the diagnosis and treatment of speech and language problems. This team member helps develop strategies to address the child's communication, language, and speech needs.

Teacher of the Hearing Impaired (Deaf)

A teacher of the hearing impaired is knowledgeable about hearing impairment, its effects on learning and teaching strategies. This person can help develop strategies for communication, language, and speech development.

Auditory-Verbal Therapist

Auditory-verbal therapist helps develop the child's use of amplified hearing. They help the child learn to listen and they stimulate spoken language development. Certification as an auditory-verbal therapist indicates specialization in this area beyond master's level training as a teacher of the deaf, speech pathologist, or audiologist. This certification is relatively new and not yet widely available.

Primary Care Physician

The primary care physician plays a key role for the child with hearing impairment or deafness. For some children, ongoing medical intervention and referral will be a necessary aspect of their early intervention program. The primary care physician is required by law to approve and sign the Individualized Family Service Plan for every child receiving Birth to Three services.

In addition to services specific to hearing, the child's Birth to Three program is able to provide a wide range of services necessary to meet the needs of the child and his or her family. These may include, but are not limited to, occupational therapy, physical therapy, psychology services, and assistive technology services.

Principle ❺ ***Parents and children are partners in communication. Parents and children must develop a communication system in order for a language system to develop.***

Communication occurs in a number of ways including gestures, facial expressions, and vocalizations. Some children will develop language through sounds and speech, others will develop language through gesture or sign language. Some children will use a combination of sounds, speech, and signs. A program for a young child must provide options for the use of listening and speech and, if the family chooses, sign language. It is the responsibility of the program to help the family determine the most appropriate method of communication for their child. The program must avoid biasing a family toward one communicative method or another, but rather assist them in learning about the range of options for communication and choosing what is best for their child and family.

Communication Approaches and Services

Each of the Connecticut Birth to Three programs that specialize in providing services to children who are hard of hearing or deaf have outlined their philosophies (See Appendix Seven). Each philosophy is based on a specific approach or method to help a child develop communication skills. Choosing one method over the other is a personal decision made by the family and is often affected by the nature of the child's hearing loss and the family's method of communication. The following is a short summary of the different philosophies that are offered by the Birth to Three programs:

American Sign Language (ASL)

ASL is a manual language that is distinct from spoken English and is not based on English grammar or syntax. It is extensively used within and among the deaf community. English is taught as a second language.

Auditory-Verbal

The auditory-verbal approach emphasizes auditory skills. The child is taught to develop listening skills through one-on-one therapy that focuses attention on using the remaining hearing (with the aid of amplification). Since this method strives to make the most of a child's listening abilities, no manual communication is used and the child is discouraged from relying on visual cues.

Cued Speech

This visual communication system relies on a system of eight handshapes (cues) that represent different sounds of speech. These cues are used while talking, to make the spoken language clear through vision. This system allows the child to distinguish sounds that look the same on the lips.

Oral or Auditory-Oral

This philosophy teaches a child to make maximum use of his or her remaining hearing through amplification (hearing aids, cochlear implant, FM systems). This philosophy also stresses the use of speech reading to aid the child's communication. Use of any form of manual communication (sign language) is not encouraged although use of natural gestures may be supported.

Total Communication

This method has a philosophy of using every and all means to communicate with children who are hard of hearing or deaf. The child is exposed to a formal sign-language system (based on English), finger spelling (manual alphabet), natural gestures, speech reading, body language, oral speech, and use of amplification. The idea is to communicate and teach vocabulary and language in any manner that works.

It is difficult for families to learn about the different communication approaches and determine which one is best for them. The role of the service coordinator is to assist families in this process and to help them learn about the different options available. Initially, a family may choose one program based on a particular philosophy and then change their minds. Families may find that using a combination of approaches works well for them. The communication approach a family chooses will determine which professionals are included on the intervention team. All of the communication approaches used in early intervention require a high level of involvement and input by the family.

Principle ❻ Language development begins as soon as a child is born and develops through interactions with the family in daily routines.

Regardless of the communication method a family chooses for their child (i.e. sign language, aural/oral communication), children are all individuals and the unique combination of the child, family, and characteristics of the hearing loss will affect language development.

It is helpful for families to understand the various aspects of language development in order to help their child. There are two ways that language development is often classified: receptive and expressive language. Receptive language refers to how much one understands. Expressive language refers to how one is able to share ideas or feelings in any method or mode of communication.

Factors that may impact expressive language development include form, content, or pragmatics.

Form

The form of children's language is how they put together words to make sentences. This is also called the syntax of language. Children may keep sentences very short and simple. For example a child might say, "dog run" rather than "The dog is running in the yard." Children may also have difficulty understanding the form of language. For example, children may not understand the difference between "The dog chased the boy," and "The boy chased the dog." Children who are hard of hearing or deaf may develop these language forms, but at different developmental rates.

Content

The content of children's language refers to their vocabulary. Children may understand everyday words such as cup and shoe, but not understand a larger, more sophisticated number of words such as glass, tumbler, sippy cup, boot, slipper, or cleats. They may also have difficulty with concept words such as "in" and "out" or "above" and "below." Again, children will develop this language at different developmental times.

Pragmatics

The last area of language difficulty is the area of pragmatics or how we use the rules of speech in social situations. Children may not know how to start a conversation with a friend or may misunderstand that when someone asks a question they expect an answer. Many of the problems in acquiring normal language for children who are hard of hearing or deaf are a result of the limited practice these children receive. Children without hearing loss receive considerable practice in language by overhearing others speak. For children who are hard of hearing or deaf, these opportunities may be limited. Children who are hard of hearing or deaf need as many opportunities as possible to practice language. This is one of the reasons early intervention builds on a foundation of family participation rather than isolated practice in therapy. It is through the daily practice of language in all activities that children become good communicators.

Principle ❼ ***Parents need to understand and manage the hearing aids and/or auditory equipment for their child. A program must help the family learn how to maintain any hearing aids or equipment.***

In addition to working on communication and parent training, the child will require ongoing audiological services. Infants and toddlers require frequent audiological evaluations to check on any changes in the hearing loss, the appropriateness of the hearing aid, and to make sure all equipment is working optimally. The initial process of identifying the most appropriate equipment can be overwhelming to families. It often becomes a "work in progress" rather than a cut and dried decision. Up to age three, hearing and amplification equipment should be monitored every three months. During the preschool years (ages 3-5) audiological evaluations should occur every six months unless changes in response indicate a need for an earlier check-up.

Children who are hard of hearing or deaf will most likely require the use of assistive technology. Assistive technology refers to any device or service that improves or maintains the capabilities of an individual with a disability. For children who have hearing loss, assistive technology usually means hearing aids. Hearing aids are appropriate for even the youngest children. They assist children by amplifying or making sound louder. But like glasses, which correct a vision loss, hearing aids do not restore normal hearing. Sounds are made louder by a hearing aid, but not necessarily clearer. Hearing aids are tools in the development of communication skills and in order for children to get the most benefit, hearing aids, are used in conjunction with a comprehensive intervention program that focuses on hearing and communication.

Hearing aid selection and fitting is an ongoing process that is part of a child's intervention program. This does not mean that a child has to wait to get hearing aids until a final recommendation for equipment can be made. Pediatric audiologists can use basic information to select a device, and loaner hearing aids may be provided to assist in determining the potential benefit. The pediatric audiologist works with the family to evaluate the benefit the child is receiving from the aids including recommendations for the specific device settings. During this time the family and the intervention team will work together to assess these benefits, as well as any problems the child may have with wearing the hearing aids. Eventually, the team will determine which technology is most beneficial to optimize the child's development. It is critical for young children to begin amplification and intervention as soon as a hearing loss is identified. The Birth to Three program can provide information as well as emotional support during this diagnostic phase.

How does a hearing aid work?

All hearing aids have several common components. These include a microphone (captures sound from the air and changes it to an electrical signal), an amplifier (makes the signal louder), a transducer (changes the signal back to sound so it can be sent to the ear), and a battery (power source).

What are the different types of Hearing Aids and Technology for Hearing?

Body Worn Hearing Aids

These devices have a microphone and amplification unit worn in a harness or pocket on the chest and a wire and a small button transducer that connects to a custom ear mold. Although no longer a common fitting, body hearing aids may be used by children who have a profound hearing loss or temporarily for very young babies whose ears are too tiny to hold a behind-the-ear hearing aid.

Behind the Ear Hearing Aids (BTE)

This unit has all the components of the hearing aid encased in a device that fits behind the ear. The signal is delivered to the ear by an earmold. This is the most common hearing aid recommended for young children, though there may be some difficulty fitting them to very young infants, especially those with greater degrees of hearing losses. The pediatric audiologist can help the family with techniques and materials to keep hearing aids in place on very small ears.

Keeping an Ear Level Hearing Aid in Place

Ear level hearing aids are currently the most commonly recommended hearing aids for most young children with hearing loss (not necessarily for infants, however). One of the most frequent problems is keeping the hearing aids in place behind the ear and close against the child's head. If a family is having a problem with this, be sure to mention this to their audiologist right away. There are simple adjustments that can be made in the placement or length of tubing or in parts of the earpiece that may help. In addition, there are several devices that may help keep the hearing aids securely on the child's ear. One of these is a product called "Huggies." Another solution is to use double-sided cloth cosmetic tape (check to be sure the tape does not irritate the child's skin). Some parents have found it useful to tie a small piece of dental floss from the child's hearing aid to a safety pin which is attached to the back of the child's shirt. This way, if the aid comes out of the child's ear, it will still be attached.

FM System Hearing Technology

Children who use hearing aids often have difficulty hearing speech in a background of noise or when the speaker is at a distance greater than three feet away. For these situations, a wireless FM system may be recommended.

An FM system has two primary components, the amplifier/receiver worn by the child and the microphone/transmitter worn by the talker. The child's component may be a body worn unit or a behind the ear unit. In either instance, it functions like a traditional hearing aid and has the capability of receiving a radio signal that is sent out from the microphone worn by the talker. That unit has a microphone to pick up the talker's speech, and a transmitter that takes that speech and sends it out on a radio frequency. The child's unit and the talker's unit are set to the same radio frequency so that the transmitted signal is easily received. (This is similar to setting the dial on a radio).

When using an FM system the child can hear his or her own voice and environmental sounds from the microphones on the amplifier/receiver unit and the speech of the talker from the microphone/transmitter unit. The FM system is designed to amplify the signal from the microphone/transmitter so that it is louder than the signal received by the receiver/ microphone. In this way, speech from the talker is always louder than any background noise that the child is hearing. Some children may use the FM system as the primary form of amplification while others may use it only in settings that are particularly noisy.

Ear Molds for Hearing Aids

Any hearing aid or FM system requires a direct earmold. The earmold is a soft, plastic, pliant piece that fits into the ear in order to direct the sound from the hearing aid. Young children's bodies, including their ears, grow at an incredibly fast rate and ear molds will need to be replaced quite often. There may be a need to remake the earmolds as often as every month or two when a child is very young. As the child matures, his or her growth rate will slow down and the earmolds may be remade less often. Earmolds must fit tightly in the ear or feedback (high pitch squealing) will occur. Although turning down the volume of the hearing aids reduces the feedback, it also reduces the strength of the speech signal the child hears.

To make an earmold, the pediatric audiologist makes an impression by squirting soft silicon into the child's outer ear and waiting for it to harden. This impression is sent to an earmold manufacturing company who makes a permanent earmold. The pediatric audiologist selects the kind of earmold and the material from which it will be made. For young children, soft, flexible material is used to improve the fit and comfort.

Troubleshooting Problems with Hearing Aids

Not surprisingly, hearing aids on children need daily maintenance and vigilance on the part of the adults in the child's life. The most common problems are that the battery dies, ear molds get clogged with wax, feedback creates noise (a high-pitched whistling noise), cords fray, or the case of the hearing aid cracks. When any of these problems occur, the child is not hearing as well as he or she should be. Parents should be sure to check with the audiologist for information and demonstration of how to troubleshoot all of the child's equipment.

Technology for Hearing

Cochlear Implant Technology

A cochlear implant is a device that has two sets of components, external (those worn on the outside) and internal (those that are surgically implanted in the skull). The external components include a behind the ear microphone, a body-worn speech processor, and a transmitter worn on the scalp behind the ear. The internal components consist of a receiver, a magnet anchored in the skull, and wire electrodes set in the cochlea of the ear. (In some newer models, the speech processor and transmitter have been combined into one unit.)

The cochlear implant takes sound waves in through the external microphone and changes them into specially coded electrical energy in the speech processor. That signal is transmitted to the internal electrodes which stimulate the auditory nerve and sends a signal to the brain. Cochlear implant surgery is conducted at a specially designated hospital by a specially-trained otolaryngologist. In the case of children, the surgeon has been trained to conduct the pediatric implant surgery. After the surgery and short recovery period, the implant is set (mapped) for the specific child. The mapping must be repeated on a regular basis to ensure that the child is hearing properly. Children with cochlear implants are evaluated and managed by pediatric audiologists trained in cochlear implant mapping and management. As with amplification devices, cochlear implants are tools that are used in a complete auditory management program.

Cochlear implants became a reality in 1987 and were fully approved for children in 1992. During this period, the results demonstrated an increased ability for some children to hear conversational level speech and to improve their ability to use oral language. Cochlear implants are designed for children between 18 months and 18 years who have a hearing loss in the profound range and who get limited benefit from amplification. Since a cochlear implant requires surgery, it is not a device that is covered by the Birth to Three System. The Birth to Three System will, however support the intervention program necessary for a child to benefit from his or her cochlear implant.

In order to determine eligibility for a cochlear implant, a child must use hearing aids or an FM system for at least six months. Additional criteria include ruling out any medical conditions that would interfere with surgery, determining significant parental commitment, and access to therapy before and after the surgery.

To determine what implant centers are available in their area, parents can contact the manufacturers of the devices (See Appendix Eight for a listing). Additional information can be obtained from each of the statewide Birth to Three programs that specializes in children who are hard of hearing or deaf. In addition, the child's Birth to Three program can connect families with other parents who have gone through this decision making process. This decision is always made in conjunction with a child's primary care physician and the implant center or medical institution involved. The implant center will conduct audiological, developmental, psychological, communication, and medical evaluations in order to determine if a child is an appropriate candidate for a cochlear implant.

(See Appendix Nine for the procedure used in the Birth to Three System to acquire assistive technology.)

Principle ❽ ***Parents are advocates for their children who are hard of hearing or deaf. Early intervention should help parents understand their rights as identified in state and federal legislation.***

Legislation and Rights for Individuals who are Hard of Hearing or Deaf

There have been many forms of legislation passed that advocate for services and rights for individuals who are hard of hearing or deaf. (See Appendix Seven to acquire more in depth information on the following forms of legislation.)

Individuals with Disabilities Education Act (IDEA)

Children are entitled to services in accordance with a federal law known as the Individual with Disabilities Education Act (IDEA). This legislation supports early intervention and education for children with disabilities. Among the many parts to this legislation, Part C regulates services for infants and toddlers. Part B regulates services for children ages 3-21 who receives services from their Local Educational Agency (LEA) or school district.

Part C of the Individuals with Disabilities Education Act contains an important aspects of this section of the law refers to services and supports occurring in natural environments. As described in the 1997 Amendments to IDEA *"Early intervention services means developmental services that to the maximum extent appropriate are provided in natural environments, including the home and community settings in which children without disabilities participate"* and *"The provision of early intervention services for any infant or toddler occurs in a setting other than a natural environment only when early intervention cannot be achieved satisfactorily for the infant or toddler in a natural environment."* For children who are hard of hearing or deaf, the natural environment is often defined as the community in which the child and family participate, including for some families, the deaf community.

There are occasions when children who are hard of hearing or deaf must receive services outside of the community or home setting due to the need for specialized equipment such as an audiometer in a sound proof booth or access to materials to make ear molds. The Birth to Three System recognizes the essential need for these services and recommends they be delivered as part of the early intervention program. These clinical services should be one component of a more comprehensive program that includes opportunities for the child to participate in intervention at home and in the community.

Another essential component of Part C of the IDEA is the focus on families and their right to make decisions regarding what is best for their children. The Birth to Three System offers a range of intervention philosophies for children who are hard of hearing or deaf. Families are guided through this decision making process by their service coordinator. Parents are encouraged to make the program and philosophical choice that they feel is the best match for their family. Each of the programs specializing in hearing loss and deafness will provide families with the information they need to make decisions.

Part B of the Individuals with Disabilities Education Act governs special education for children ages 3-21. At any time in a child's enrollment in the Birth to Three System, the family may contact their local school district to inquire about services for the future. The service coordinator will provide families the necessary information on whom to contact in their town. At least six months prior to a child's third birthday, the Birth to Three System recommends making a formal referral to the local school district. This will initiate the process of determining if a child is eligible to receive services as a special education student when he or she turns three years old.

To ensure that the process is smooth and that services are in place no later than the child's third birthday, it is essential that families, Birth to Three service providers, and the school district personnel walk through this transition process together, one step at a time. A parent guide and videotape are available to help explain this process.

If it is determined that a child's hearing loss significantly affects his or her ability to learn and that he or she will require some specially designed instruction, the child will be eligible for services from the local school district upon his or her third birthday. This will be determined by the local school district with input from the Birth to Three program. The Birth to Three program will work with the family and the school district to plan for the transition to school services. This plan will be developed at a transition meeting and is called a transition plan. The plan will identify what activities need to occur to identify or develop an appropriate program for the child. If the child has acquired some technology or equipment purchased by the Birth to Three System, the use of this equipment after the age of three will also be discussed as part of the plan. (Children are allowed to continue using equipment purchased by the Birth to Three System after the age of three.) Ultimately, the child's school program, services and supports will be described in a document called an Individualized Education Plan or IEP. This document is developed at a meeting in the school district of a Planning and Placement Team (PPT). This team consists of the parents and the staff of the local school district. *Additional information on acquiring assistive technology is available through the Guidelines for Assistive Technology developed by the CT State Department of Education and the Connecticut Birth to Three System.*

Some items that should be discussed at the PPT meeting in order to develop the IEP are:

- any additional need for equipment;
- the classroom environment including the acoustics of the setting;
- the philosophy of the program;
- staffing;
- training needs for staff and therapists;
- levels of support needed; and
- interaction with peers including children who are and are not hard of hearing or deaf.

Section 504 of the Rehabilitation Act of 1973 covers children who are not eligible for services as defined by IDEA, but who are deemed handicapped under Section 504 of the Rehabilitation Act. *"Section 504 protects all handicapped students, defined as those having any physical or mental impairment that substantially limits one or more of the major life activities (including learning)."*

If a district has reason to believe that, because of a handicap as defined under Section 504, a child needs either special accommodations or related services in the regular classroom setting in order to participate in the school program, the district must evaluate the child. If the child is determined to be handicapped under Section 504, the district must develop and implement a plan for the delivery of needed services. It is important to know that if a child is eligible for IDEA he or she is also considered to be protected under Section 504. However, if a child is eligible under 504, he or she may not be protected under IDEA.

Americans with Disabilities Act of 1990 (ADA) is a civil rights law that guides our national approach to individuals with disabilities. There are numerous parts to this law covering the following areas: Employment, Public Service, Public Accommodations and Services Operated by Private Entities, Telecommunications Relay Services, and Miscellaneous Provisions. For families with young children, sections of this legislation state that, *"No individual shall be discriminated against on the basis of disability in the full and equal enjoyment of the goods, services, facilities, privileges, advantages or accommodations of any place of public accommodation by any person who owns, leases, or operates a place of public accommodation."* Interpretation of this law can be complex based on the difficulty and cost of the accommodation. Families often find the ADA law supportive in determining accommodations for involvement in community resources such as child care or recreational activities.

There are certain aids and services described in the ADA that support individuals who are hard of hearing or deaf. For example, *"qualified interpreters or other effective methods of making aurally delivered materials available to individuals with hearing impairments are owed."* Persons who require interpreter services may access this by contacting the Connecticut Commission on the Deaf. (See Appendix Six for resource list).

Title IV of the ADA, is called Telecommunications Relay Services. This guarantees access to telephone communication for persons with hearing impairments or speech impairments. It is important for Birth to Three programs to have this information in order to communicate with parents who may be hard of hearing or deaf. There are two primary ways of telephone communication with an individual who is hard of hearing or deaf:

- Telecommunication Device for the Deaf or TDD is a machine that allows an individual who is hard of hearing or deaf to communicate through radio waves or over telephone lines by sending and receiving the message in print. This machine is called a Text Telephone (TT/TTY).

- Telecommunications Relay Service provides full telephone accessibility to people who are, hard of hearing, deaf or speech disabled.

Specially trained Communication Assistants complete all calls and stay on line to relay messages either electronically to a TT/TTY or verbally to hearing parties. This service is known in our state as Relay Connecticut. It is available 24 hours a day, 365 days a year, with no restrictions on the length or number of calls placed. Both TT/TTY and voice users may initiate a call through Relay Connecticut. (See Appendix Ten on the use of Relay Connecticut.)

CONCLUSION

The Connecticut Birth to Three System is committed to working with families to develop supports and services that meet the unique needs of each child and family. This process is designed to include a reflection of the child and family's current concerns, priorities, and resources, as well as assisting families to plan for the future.

For families with young children that have been diagnosed as hard of hearing or deaf, this is a time when significant amounts of information is shared and interpreted, and decisions have to be made. There are many methods of intervention for a young child who is hard of hearing or deaf. Individuals who believe one method is better than another may be passionate about this belief. However, it is important for families who have a young child to obtain the perspective of many professionals and individuals in the hard of hearing or deaf community. This will assist parents in making decisions about what works best for them and their children and decisions may change over time. We encourage families to use their Birth to Three experience to engage in a process of gathering information, and questioning and challenging this information. We look forward to sharing information in an unbiased manner in order to assist families in what may seem like an overwhelming process. Our goal is to help families to meet the unique needs of their child who is hard of hearing or deaf and lay the foundation for their children to develop to their optimum ability.

What parents who have children who are hard of hearing or deaf say about services received from the CT Birth to Three System:

"My Early Intervention Program was my personal salvation. Home visits by an educator working one-on-one with us, has kept our son connected and communicating with us. Personalized play activities stimulated a vocabulary and an exchange between my son and I that has been growing every day. It is such a pleasure to finally revel in the successes, rather than to be overwhelmed by the challenge."

"The therapists are knowledgeable, motivating, experienced professionals who are completely dedicated to the children. They captivate the child's natural interest in learning through wonderful, creative, exciting therapy sessions that foster natural language to take place and grow. Expectations are always high. Goals are always challenging while still being attainable."

QUESTIONS AND ANSWERS

Q: *My child's audiologist has not been able to complete an audiogram on my child, yet they want him to wear hearing aids. It this OK?*

A: Yes, the identification of a child with a hearing loss is the first step in a process of audiological services. When a child is very young, it may take a series of evaluations to complete a hearing profile. At the same time, the audiologist will put hearing aids on as soon as possible and refine over time. A pediatric audiologist will use the information acquired in testing as well as trial periods with hearing aids to complete the audiological recommendations for your child.

Q: *We would like our son to learn to use his hearing more. We feel if he wears his hearing aids all the time he will never learn to hear without them. Should we leave his hearing aids off for a part of each day?*

A: No, this is something you should discuss with your service coordinator, your child's audiologist or interventionist. They will assist you in identifying appropriate activities to help your son learn to use his hearing. This will ensure your child's hearing aids are used full time. Periodic non-use of a hearing aid does not improve the function of residual hearing.

Q: *My pediatrician told me that my daughter was too young to have her hearing accurately tested. She is 7 months old. Is this true?*

A: No, although it is not possible for a pediatrician to test the hearing of the youngest infant or toddler, a pediatric audiologist who has specific training and equipment to test young children can do this.

Q: *Does insurance cover the cost of hearing aids?*

A: Medical insurance policies do not always cover the cost of hearing aids. This is determined on a case by case basis depending on the benefits of your particular policy. There are some programs such as Children with Special Health Care Needs and the *CT Husky "A"* policy, that do cover the purchase of hearing aids. Your service coordinator will assist you with pursuing financial assistance to purchase your child's hearing aids. As the payer of last resort, the Birth to Three System will cover the cost of hearing aids as assistive technology listed on an IFSP, if there is no other method of payment.

Q: *What happens to equipment purchased by the Birth to Three System when my child turns 3 years old?*

A: Children may keep assistive technology devices purchased by the Birth to Three System as long as the device is needed. The equipment should be listed on the transition plan that is developed with the family and the local school district.

Q: *Can hearing aids damage my child's hearing?*
A: The audiologist will adjust the settings of the hearing aids so that they will not damage your child's hearing. If you have concerns about the loudness of the sound coming through the aids you should speak with your audiologist.

Q: *How do I know if my son is a candidate for a cochlear implant?*
A: This is a discussion you will need to have with a variety of people, including your son's primary health care provider, audiologist, and intervention team. This decision will be made based on the extent of your son's hearing loss, the benefit he gets from wearing hearing aids, and an evaluation performed at a cochlear implant center. Your son's service coordinator can provide you with information and resources about this process.

Q: *Who pays for cochlear implants?*
A: Typically, your health insurance will cover the cost of a cochlear implant. This should be discussed with your insurance company. The Birth to Three System does not pay for any medical or surgical procedures. We will support the intervention required prior to and after cochlear implant surgery.

Q: *Someone told me that if my child uses sign language she would never learn to speak. Is this true?*
A: There are many different philosophies about the use of sign language and the development of spoken language. There are many individuals who use sign language who also speak. You should discuss your child's communication program with your intervention team if you have concerns regarding the development of spoken language.

Q: *My 9-month-old daughter is constantly throwing her hearing aids off. What can I do to keep them on?*
A: You should work with the members of your intervention team to develop a plan to address this problem. This may include some specific activities designed to get her adjusted to wearing the aids, some additional devices that will keep the aids in place, or some further audiological assessment to determine if the aids are working well for her type of hearing loss.

APPENDICES – INDEX

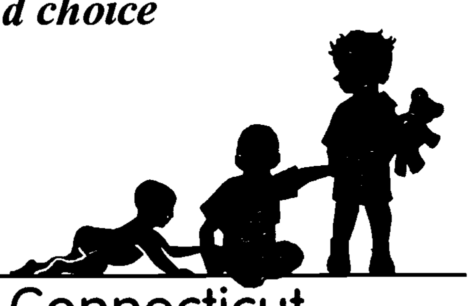
Appendix One

Mission

of the Connecticut Birth to Three System

The mission of the Connecticut Birth to Three system is to strengthen the capacity of Connecticut's families to meet the developmental and health-related needs of their infants and toddlers who have delays or disabilities. The system will ensure that all families have equal access to a coordinated program of comprehensive services and supports that:

- *foster collaborative partnerships*
- *are family centered*
- *occur in natural settings*
- *recognize current best practices in early intervention*
- *are built upon mutual respect and choice*



Connecticut
Birth to Three
System

- collaboration - partnerships - family centered - opportunity - equal access - inclusion - choice -
- natural environments - best practice - comprehensive programs - mutual respect - teamwork -

Partnerships: *Supporting families requires a collaborative approach which encourages partnerships between the family, their community, service and health-care providers, schools and child care programs. Close coordination between and integration of health care and developmental services is critical. Partnerships should attempt to enhance the competence of families to develop and strengthen lasting networks of natural support.*

Family Centered: *A family centered approach places the whole family as the focal point for supports. Evaluation, planning and services are based upon the uniqueness of the family and its culture. Strategies for promoting a child's development are integrated into the family's daily activities and routines and strengthen the role of family members.*

Natural Environments: *Services and supports should occur in settings most natural and comfortable for the child and the family. They should foster opportunities for the development of peer relationships with children without disabilities. Home-based intervention and inclusive community group settings are preferred. The unique characteristics of the family's community - and the development of a natural system of supports within that community - should be promoted at all times.*

Best Practice: *Services and supports should reflect the current values for best practice accepted in the field of early intervention in order to yield the most positive outcomes. Interventionists and families should work in teams, sharing their knowledge and skills, communicating, planning and collaborating with each other. Plans should be outcome oriented and understandable by families. They should be based on developmentally appropriate practices geared to the individual needs of the child. Transitions should be well planned and collaborative in nature. The knowledge about best practice is always increasing. Therefore, service provision should be based on the most accurate and recent research available.*

Respect & Choice: *Recognition and inclusion of the knowledge, beliefs, aspirations, culture and preferences of families should be a cornerstone of all planning and delivery of supports and services. Professionals should openly share roles and assist one another in expanding competencies. Teamwork, wherein the family is an important participant, should guide all decisions. Families should be provided with opportunities to choose programs whenever possible. Their satisfaction with services should be an important factor in selecting and evaluating providers of support.*

Appendix Two

Hospital Locations in Connecticut with the Capacity to Complete Initial Audiological Evaluations for Infants and Toddlers – 10/99

Hospital	Contact	Click ABR	Low Frequency ABR	Immittance	Otoacoustic
Bridgeport Hospital 226 Mill Avenue Bridgeport, CT 06610	Carol Caldwell (203) 338-7341	X	X	X	X
Charlotte Hungerford Hospital 540 Litchfield Street Torrington, CT 06790	Holly Florio (860) 496-6394	X	X	X	
CT Children's Medical Center 282 Washington Street Hartford, CT 06106	Laurie Lesko (860) 545-9670	X	X	X	X
Greenwich Hospital Hearing Speech & Language Ctr 5 Perry Road Greenwich, CT 06830	Geraldine H. Lorenzut (203) 863-3240	X	X	X	X
Lawrence & Memorial Pequot Health Center 365 Montauk Avenue New London, CT 06320	Patricia Lake Krista Bachl Maureen Miller (860) 442-0711 x2522	X	X	X	X
Norwalk Hospital Maple Street Norwalk, CT 06586	Mike Tassiello (203) 852-2495	X		X	X
St. Francis Hospital & Medical Center 114 Woodland Street Hartford, CT 06105	Margaret M. Ricker (860) 714-5600	X	X	X	X

Hospital	Contact	Click ABR	Low Frequency ABR	Immittance	Otoacoustic
St. Vincent's Medical Center Special Needs Center Ferroletto Center 95 Merritt Blvd Trumbull, CT 06611	Susan Chin (203) 375-6400	X	X	X	X
The Stamford Hospital Shelburn Rd, P.O. Box 9317 Stamford, CT 06902	Dr. Laura Lasley (203) 325-7816	X		X	
UCONN Health Center John Dempsey Hospital 263 Farmington Ave. Farmington, CT 06032	Audiology (860) 679-2804	X		X	X
Yale New Haven Hospital 20 York Street New Haven, CT 06504	Nancy S. Bruno (203) 785-2717 x2424	X	X	X	X

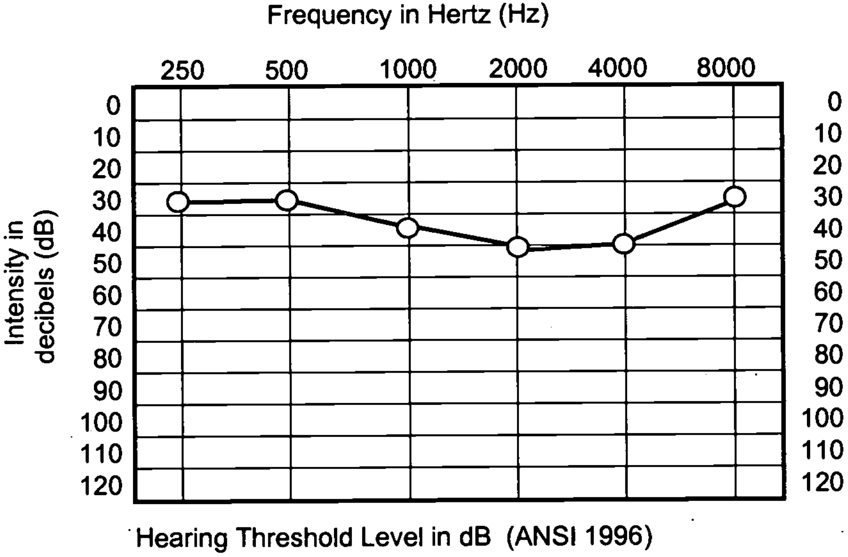
Appendix Three

Types of Hearing Tests

Name of Test	***Procedure***	***Format of Results***	***Age Appropriate***
Auditory Brainstem Evoked Response (ABER)	• Requires no voluntary response from child • Response is measured by electrodes on scalp • Sounds are presented through earphones • Estimate of hearing level by determining the softest sounds that produce measurable nerve response	Wave form that indicates response of the auditory nerve (CN VIII)	• Infants under 4 months without sedation • Over 4 months infants and toddlers typically require sedation
Otoacoustic Emissions (OAE)	• Requires no voluntary response from child • Response is measured by a small probe in the ear canal • Sounds are presented through the same probe • Does not determine severity of loss. Does determine presence of loss	Graph displaying response of inner ear	Newborns, infants, toddlers, older children. No sedation is required
Immittance Measures	• No response is required from the child • Response is measured by a probe placed in child's ear canal • Sounds are presented through the same probe • A computer measures how the eardrum responds to different pressures • Does not measure hearing loss-indicates status of the middle ear	Graph of response of eardrum to changes in pressure	Infants (at least 4 months old) toddlers, and older children No sedation is required

Name of Test	***Procedure***	***Format of Results***	***Age Appropriate***
Behavioral Observation Audiometry (BOA)	• Requires an unconditioned response from a child -- eye widening; head turning • Conducted in a soundproof booth • Sounds presented via earphones or speakers in varied pitch and loudness (from an audiometer) • Estimates the degree of hearing loss	Audiogram -- softest levels at which child responds to the different pitches	Younger than 6 months of age. Should be used in conjunction with objective test measures
Visual Reinforcement Audiometry (VRA)	• Requires a conditioned response (looking at a lighted toy) • Conducted in a soundproof booth • Sounds presented via loudspeakers, headphones, or a small vibrator are varied in loudness and pitch by an audiometer • Degree of hearing loss is determined	Audiogram -- softest levels at which child responds to the different pitches	6-30 months
Conditioned Play Audiometry (CPA)	• Requires a conditioned response (throw a ball in a bucket) • Conducted in a soundproof booth • Sounds presented via loudspeakers, earphones, or small vibrator varied in loudness and pitch by an audiometer • Degree of hearing loss is determined	Audiogram - softest levels at which child responds to different pitches	30 months and above

Description of an Audiogram



Frequency: The horizontal axis is a display of frequency (pitch) going from low frequency sounds on the left side to high frequency sound on the right. The unit for frequency measurement is Hertz (Hz) also known as cycles per second (cps).

Intensity: The vertical axis is a display of intensity (loudness) going from low (soft) intensity at the top to high (loud) intensity at the bottom. The unit for intensity measurement is the decibel (dB). The specific unit used on the audiogram is dB Hearing Level (dB HL)

Hearing Level: Hearing Level is displayed on the audiogram as an interaction of intensity and frequency. That is, the audiologist determines the softest level (threshold) a person can hear a particular frequency and indicates that on the audiogram. As softer intensity is at the top of the audiogram, hearing levels marked on the upper part of the audiogram are better than those at the lower part. Therefore, the greater the degree of hearing loss, the further down on the audiogram it appears.

- Air Conduction: Hearing level is determined using headphones and is marked (see the example above) as a circle for the right ear (red is the designated color) and an X for the left ear (blue is the designated color).
- Bone conduction: Hearing level is determined using a vibrator placed on the mastoid bone behind the ear. A bracket is the symbol that designates the bone conduction response.
- Sound field: Hearing level is determined using a loudspeaker. An S is used to indicate the sound field response.

Normal Hearing: Normal hearing in young children is defined as 15 dB or better (less).

Appendix Five

Degrees of Hearing Loss
by Ann Lieberth, Ph.D.

Parent Articles: Enhancing Parent Involvement in Language Learning, Margaret Schroder, Ed., 1988

Degree of Loss	Effect of Hearing Loss on Speech and Language	Suggested Learning
SLIGHT LOSS 15 – 25 dB	No significant speech or language delays	Hearing abilities should be tested on a regular basis
MILD LOSS 26 - 40 dB • May have difficulty hearing faint or distant speech. • May benefit from a hearing aid as loss gets closer to 40db.	• Will not usually have difficulty in school. • May need work to develop vocabulary.	• Needs favorable seating and lighting in school. • May need to speechread to increase understanding of what is spoken. • May need speech therapy to correct mispronounced sounds.
MODERATE LOSS 41 - 55 dB • Understands speaker face-to-face at a distance of three to five feet. • May need hearing aid and training in its use.	• May miss as much as 50% of class discussion if voices are faint or not within the line of vision. • Child should be referred to special education to determine the need for support service. • May have limited vocabulary. • May have problems pronouncing some speech sounds.	• Will benefit from use of FM auditory training unit in classroom. • Will need favorable seating in classroom. • May need special class placement in primary grades. • May need vocabulary development. • May need tutoring in reading. • May need special training in learning how to listen and speechread. • May need speech therapy.
MODERATELY SEVERE LOSS 56 - 70 dB • Conversation must be loud to be heard. • Will need a hearing aid and training in its use. • Using a hearing aid, child can hear: Clock ticking Liquid pouring Snapping fingers Doorbell, knock at the door Radio at normal level Voices, singing, and Conversation.	• Will have increasing difficulty in group activities in classroom. • Is likely to have problems in pronouncing some speech sounds. • Is likely to be deficient in language comprehension and usage. • May have limited vocabulary.	• Will benefit from use of auditory training unit in classroom. • Will need special help in language, grammar, vocabulary development, reading, and writing. • Will need speech therapy. • Must attend to auditory and visual aspects of situations at all times. • Will need special training in learning how to listen and speechread. • Will need resource teacher, special class, or tutor.

SEVERE LOSS 71 - 90 dB • May hear loud voices about one foot from the ear. • Using a hearing aid, child can hear: Thunder Telephone ringing Alarm clock Piano Auto horn Radio at louder than average level Group singing, loud shots, And baby crying.	• Speech and language development is delayed. • Speech and language will not develop spontaneously if loss is present before the age of two years. • May be able to discriminate vowels but not all consonants.	• Will benefit from use of a FM auditory trainer in class. • Will need full-time special program with emphasis on language skills, concept development, speech, and communication skill development. • Educational program needs specialized supervision and comprehensive support services. • Will need special training in learning how to listen and speechread. • May be able to be placed part-time in regular classes. • May benefit from using sign language.
PROFOUND LOSS 90 dB or more • May hear some loud sounds but is aware of vibrations more than tones. • Hearing aid is necessary. • Using a hearing aid, child can hear: Organ, Audience applauding, Heavy objects dropped, on a hard floor, Banging door, and Large, deep bell.	• Relies on vision rather than hearing as primary avenue for communication. • May be necessary to find alternatives to hearing aid. • Speech and language delayed and likely to need remediation. • Speech and language will not develop spontaneously if loss is present before the age of two years. • Will need full-time special program for hearing impaired children, with emphasis on language and communication skill development, concept development, reading, and writing.	• FM auditory trainer may be helpful in class. • Program needs specialized supervision and comprehensive support services. • Continuous assessment of communication needs is required. • Use of sign language will be helpful. • Speech therapy needed for functional communication development. • Part-time in regular classes is possible for a limited number of children.

Vocabulary

Consonants – The sounds made by stopping or restricting the outgoing breath

Vowels – The sounds associated with the letters "a," "e," "i," "o," "u," and "y"; made by allowing air to pass through the nose or mouth without friction or stoppage

Appendix Six

Resources Available on the Internet

http://www.oraldeafed.org
Oral Deaf Education Library (describes the technology available today through hearing aids and cochlear implants).

http://www.deafworldweb.org
Deaf World Web is the central point of deaf- related information on the Internet.

http://www.hearingalliance.com
Hearing Professionals Page - Deaf, Deafness, Hearing-Impaired (Hearing Professionals: Table of Contents presented by Hearing Alliance of America, Inc.) (/profpag2.htm).
How does a normal ear work? (/earhearing.htm).

http://www.hipmag.org/
HiPMag Online (HiP Magazine on Internet for deaf and hard-of-hearing kids and their pals).

http://www.bradingrao.com/index.htm
EDEN - The Electronic Deaf Education Network.
(A virtual community for families of deaf and hard of hearing children.)

http://www.auditory-verbal.org
Auditory International, is a private, non-profit membership organization that promotes listening and speaking as a way of life for children who are deaf or hard of hearing.

http://www.shhh.org
What is the impact of deafness on young children? (/journal/newborn.htm)

http://htwww.entassociates.com
Is my child deaf? How is deafness identified in a baby? (/baby.htm)

http://www.lhh.org
Early Identification of Hearing Loss in Infants - Statistics about prevalence of deafness in the population, recommended age for screening, use of modern technology and consequences of delay in diagnosis. (/earlyid/index.htm)

http://www.gohear.org
Where do I go from hear? This site explains how the various degrees of hearing loss actually sound to the deaf person, show you where common sounds fall on an audiogram and even take you on what they call an "animated tour inside the ear." Have a little fun while you are learning.

http://www.birth23.org
Guidelines on: Children Referred for Speech Delays, Infant Mental Health, and Assistive Technology.

Connecticut Resources

CAD – Connecticut Association of the Deaf (860) 232-6818 PO Box 270539 West Hartford, CT 06127-0539	HUSKY Plus and Children with Special Needs YALE Center for Children with Special Needs Dept of Pediatrics 430 Congress Avenue PO Box 20864 New Haven, CT 06520 (203) 737-5462
Connecticut Birth to Three System 460 Capitol Avenue Hartford, CT 06032 (800) 505-7000 For Guidelines on *Children Referred for Speech Delay*, *Natural Environments*, *Infant Mental Health*, or *Assistive Technology*	Parent to Parent Network, The Family Center Connecticut Children's Medical Center 282 Washington Street Hartford, CT 06106 (800) 545-9024
Connecticut Parent Advocacy Center (CPAC) 338 Main Street Niantic, CT 06357 (800) 445-2722	PATH Parents Available to HELP Network PO Box 611 Trumbull, CT 06611 (800) 399-PATH (7284)
CCMC Center for Children with Special Health Care Needs Connecticut's Children Medical Center 282 Washington Street Hartford, CT 06106 (860) 545-9293	Relay Connecticut Telecommunication Relay Service (800) 842-9710 TTY (800) 833-8134 Voice
Connecticut Commission on the Deaf and Hearing Impaired 1245 Farmington Avenue West Hartford, CT 06032 (860) 566-7414 *Guide to Services for the Deaf or Hard of Hearing in Connecticut* Maintains history of family support activities on their website http://www.state.ct.us/cdhi/index.htm	Special Education Resource Center (SERC) 25 Industrial Park Road Middletown, CT 06457 (800) 842-8678
Family Services Woodfield 475 Clinton Avenue Bridgeport, CT 06605 (203) 368-4291	State of Connecticut Department of Education Consultant for Deaf and Hard of Hearing 25 Industrial Park Road Middletown, CT 06457 (860) 807-2045

National Resources

Alexander Graham Bell Association
for the Deaf, Inc.
3417 Volta Place NW
Washington, DC 20007
(202) 337-8767
TTY (202) 337-5220

American Society for Deaf Children
1820 Tribute Road Suite A
Sacramento, CA 95815
(800) 942-2732

Auditory-Verbal International Inc.
2121 Eisenhower Avenue, Suite 402
Alexandria, VI 22314
(703) 739-1049 Voice
(703) 749-0874 TTY

Beginnings for Parents of Hearing Impaired
Children
3900 Barrett Drive
Suite 100
Raleigh, NC 27609
(800) 541-4327

Cochlear Implant Club International (CICI)
P.O. Box 464
Buffalo, NY 14223
(716) 838-4662 Voice/TTY

Gallaudet University
800 Florida Avenue NE
Washington, DC 20002-3695
(202) 651-5000

HASBRO National Cochlear Implant Institution
(CITI)
New York League for the Hard of Hearing
71 West 23rd Street
New York, NY 10015
(917) 305-7700

Hear Now
4001 South Magnolia Way, Suite 100
Denver, CO 30237
(800) 648-HEAR (voice/TDD)

National Association of the Deaf
814 Thayer Avenue
Silver Spring, MD 20910
(301) 587-1788 voice
(301) 587-1789 TTY

National Cued Speech Association
PO Box 31345
Raleigh, NC 27622
(800) 459-3529

National Information Center On Deafness
800 Florida Avenue, NE
Washington, DC 20002-3695
(202) 651-5051 Voice
(202) 651-5054 TTY

National Technical Institute for the Deaf at
Rochester Institute of Technology
Lyndon Baines Johnson Building
52 Lomb Memorial Drive
Rochester, NY 14623-5604
(716) 475-6700 Voice
(716) 475-2181 (TTY)

Self Help For Hard of Hearing People, Inc-
(SHHH)
7910 Woodmont Avenue, Suite 1200
Bethsheba, MD 20814
(301) 657-2248 Voice
(301) 657-2249 TTY

Appendix Seven

Connecticut Birth to Three System Descriptions of Programs that Specialize in Children who are Hard of Hearing or Deaf

Name: American School for the Deaf, Early Childhood Intervention Program
Address: 139 North Main Street, West Hartford, CT 06107
Contact Person: Dianne Martin or Karen Stockton
Telephone: (860) 570-2347 or 1(800) 244-0420 (all numbers are voice and TTY)
Fax: (860) 570-2299

History:

The Early Childhood Intervention Program at the American School for the Deaf has been providing services to deaf and hard of hearing infants and young children and their families for more than 20 years. Our program is guided by the principle that each family and child is unique and that children can learn to communicate in a variety of ways. We provide families with accurate, impartial information regarding the different modes of communication available including the use of speech, listening, and sign language systems. Based upon the family's choice of communication methodology, we offer comprehensive services to meet the needs of each child and family. Services are provided year-round in natural environments with flexible hours to meet the needs of each family.

Towns Served:

Statewide

Staffing:

Our staff has a wide range of experience and knowledge in working with deaf and hard of hearing children and their families. Staff includes teachers of the deaf and hearing impaired, speech-language pathologists, pediatric audiologists, psychologists, social workers, auditory verbal therapists, cochlear implant specialists, occupational therapists, and physical therapists. We have bilingual staff fluent in Spanish and sign language. All staff meet the Connecticut Birth to Three personnel standards.

Service Delivery:

Our goal is to provide families with resources, support, and guidance to best meet the unique, individual needs of their infant or young child. Families are provided with unbiased information regarding hearing loss, cochlear implants, and the various communication systems available such as oral, auditory verbal, cued speech, total communication, and American Sign language. It is critical that families are given the opportunity to explore options for communication with their children and are able to make positive, informed choices. When parents have balanced and objective information, they can make a choice that will enable them to communicate in a way that is most effective and appropriate for their children and family.

Services offered by the American School for the Deaf include:

- ***Audiological Services*** – Our pediatric audiologists have extensive experience serving infants and young children. They provide comprehensive audiological testing along with the latest technology in hearing aid and FM fitting. Cochlear implant consultation is also available to families as is a loaner hearing aid bank.

- ***Home Visits*** – Parents are the most critical element to a child's success. We make home visits in order to assist each family in learning how best to work with their own child. We provide information on managing hearing aids, how to help their child learn to listen, how to help their child communicate, and how to help their child develop speech and language. In addition, we provide information regarding the options available for communicating with their child. Once this important decision is made, we provide services to the child and family using the communication method they have chosen.

- ***Play Groups*** – Teddy Bear II, a total communication play group for two-year old deaf and hard of hearing children, meets two mornings a week on the campus of the American School for the Deaf. This playgroup allows children using total communication to have access to peers and teachers using this same approach. All children are eligible to attend this group. For children who already attend other child care or toddler programs, our staff will provide services to the child and the staff in those programs if it is needed.

- ***Parent Support*** – Parents meetings other parents is an important way for families to gain information and support. We provide this support in a variety of ways such as parent-to-parent telephone contact, individual parent-to-parent meetings, parent support groups, mothers' weekends, fathers' weekends, and family learning weekends.

- ***Sign Language*** – For families choosing to use a sign language system with their child, instruction is available as needed.

Name: New England Center for Hearing Rehabilitation – NECHEAR
Address: 354 Hartford Turnpike
Contact Person: Diane Brackett
Telephone: (860) 455-1404
Fax: (860) 455-1396

History:

NECHEAR was created to help children with hearing loss, including those with cochlear implants, become fully participating members of their family and community. This goal is met through testing children as early as possible, fitting them immediately with hearing aides that let them hear their own speech and the speech of others, and immediately enrolling them in intervention that teachers children to listen and speak. Our aggressive approach to intervention is aimed at preparing children to be educated with children who have normal hearing during the preschool years.

Towns Served:

Statewide

Staffing:

The caring involved staff members have many years of expertise in providing aggressive intervention to children with hearing loss and their families. They are part of a cochlear implant resource center that consults with families and professionals throughout New England. The comprehensive services are provided by a speech-language pathologist, rehabilitative audiologist, and pediatric audiologists. Other developmental services are provided through community resources.

Service Delivery:

NECHEAR provides aural habilitation throughout the state for infants and toddlers with all degrees of hearing loss and specializes in early cochlear implantation. Early intervention results in these children learning to hear and speak so that, whenever possible, they can be educated with children who have normal hearing. The latest technology (hearing aids, FM systems, cochlear implants) help[s these children hear at home and in noisy environments. the experiences intervention team supports parents as they make decisions regarding their child's progress and future educational placement.

At NECHEAR we:

- Provide a full range of diagnostic hearing testing for infants and toddlers by pediatric audiolgists with special expertise in fitting amplification for young children, including FM systems as primary amplification.
- Conduct evaluations to determine if the toddler is a candidate for a cochlear implant, meet with the cochlear implant center staff regarding candidacy and progress, and provide cochlear implant therapy and programming of the device.
- Conduct home sessions to demonstrate ways of using the home environment and daily routines for language learning.
- Conduct center-based sessions with parent participation. focusing on linking listening, speech, and language. These sessions allow for parent networking.

Name: Soundbridge
Address: 123 Progress Drive, Wethersfield, CT 06109
Contact Person: Elizabeth Cole
Telephone: (860) 529-4260
Fax: (860) 257-8500

History:

Soundbridge Birth to Three provides services to infants and toddlers who have hearing loss. It is our belief that any child with a hearing loss should have the opportunity to learn to listen and talk to the best of their ability. At Soundbridge we do not teach sign language. We specialize in helping families help their hearing impaired children develop spoken language. Our ultimate goal is that the child will be able to understand and speak well enough that they will be able to benefit from being educated in regular classes with normally hearing peers.

Towns Served:

Statewide

Staffing:

Comprehensive services are provided by teachers of the deaf and hearing impaired, cochlear implant specialist, auditory-verbal therapists, speech-language pathologists, audiologists, psychologists, social workers, occupational therapists, and physical therapists.

Service Delivery:

We provide a variety of services for hearing-impaired children and their families. One of the first concerns is to select appropriate hearing aids for your child and to help you learn how to put them on your child, and how to make sure they are working properly. The audiologist is the professional who will help with the process. We are happy to offer you audiological services such as hearing assessment, hearing aid evaluation, and hearing aid dispensing here at Soundbridge in Wethersfield, or at an approved clinic near your home. For satisfactory results with very young hearing-impaired children, the audiological process requires the special expertise or an experienced pediatric audiologist who sees large numbers of young children.

Once the hearing aids are on, the spoken language learning process can begin in earnest. With Soundbridge, you have the choice of two ways of receiving weekly parent-child guidance services: primarily through home visits by a teacher of the hearing-impaired, or primarily through center-based visits to Soundbridge in Wethersfield. In both cases, the professional you will see is an experienced teacher of hearing-impaired or auditory-verbal therapist who has received special training in the needs and concerns of very young hearing-impaired children and their families. The teacher's job is to help you help your child develop listening and talking abilities, and to provide you with information and support you need to carry out that very important task. When and if additional services are needed, the Soundbridge staff includes other professionals who can provide diagnosis and therapy in a full variety of areas noted above.

For children who are potential cochlear implant candidates or for those who have already had implants, we provide pre and post cochlear implant therapy to help the child learn to use their new auditory abilities in learning spoken language. Our support services include a complete range of spare parts for the cochlear implant ensuring immediate repair of the external components of the system.

Soundbridge Birth to Three is part of the larger CREC Soundbridge program which provides a broad variety of services to hearing-impaired children from birth through age 21 throughout the State of Connecticut. For all parents we offer a parent-to-parent network, access to all meetings for parents of talking hearing-impaired students, and counseling services as appropriate.

Cochlear Implant Corporations

Advanced Bionics Corporation
12740 San Fernando Road
Sylmar, CA 91342
http://www.cochlearimplant.com
(800) 678-2575
TDD: (800) 678-3575

Cochlear Corporation
61 Inverness Drive
Suite 200
Englewood, CO 80112
http://www.cochlear.com
(800) 523-5798

Procedure for Acquiring Assistive Technology

The Birth to Three System funds assistive technology devices and services as the payer of last resort. This means that it is the responsibility of the family, program, and audiologist to pursue all other funding options prior to requesting funding from the Birth to Three System. Potential payment sources include commercial insurance, Husky insurance coverage, Medicaid, and Children with Special Health Care Needs. If all other sources of funding have been exhausted, then the technology required may be included as a necessary service on the IFSP. The outcomes the child is expected to achieve with the technology should be identified on the IFSP. The assistive technology device and/or services should also be listed as an early intervention service in the IFSP.

Funding is requested from the Birth to Three System by having the Birth to Three program complete the Assistive Technology Request Form #3-11. If a family is working with an audiologist outside of the Birth to Three System, it is essential that the audiologist collaborate with the Birth to Three program, if Birth to Three funding is needed. Funding may be requested to pay for all, or the balance of, a purchase not completely funded by third party payment, with the exception of Medicaid payments. Requests must reflect all costs for the acquisition of equipment, including shipping and handling, and any maintenance fees. The Birth to Three System will cover maintenance contracts only for the duration of time the child is enrolled in the Birth to Three System. The Birth to Three System has an approved dispensing fee for the services needed to acquire hearing technology for young children. Requests for hearing aids should include the dispensing fee. Once approved, the Birth to Three program is responsible for purchasing the equipment and requesting reimbursement on their monthly invoice. The program will receive an invoice tag to be placed on the equipment or in the child's permanent record.

Children may keep assistive technology devices purchased by the Birth to Three System as long as the device continues to be needed by the child. If a child is transitioning to the local school district, the device should be listed on the transition plan. If a child continues to use the equipment after the age of three, the Birth to Three System will not assume responsibility for maintenance or repair of equipment. Devices that are no longer needed or used by the child are to be returned to the Birth to Three program.

The Birth to Three System is only responsible for funding equipment intended to achieve outcomes identified on the IFSP. No new devices or equipment may be requested for children, who are 2 years, 9 months or older, as equipment requested during this time would not be available during their Birth to Three experience.

Hearing Aid Dispensing Protocol (To be used by all audiologists seeking reimbursement from the Birth to Three System)

1. Review all previous audiological test results
2. Explain the test results and recommendations regarding amplification to parents
3. Obtain medical clearance for the use of amplification from a otolaryngologist
4. Make sure that the hearing aid is listed on the child's IFSP as a means to achieve outcomes.
5. Fabricate earmold impressions, order earmolds, then package and ship impressions to earmold manufacturer (this is usually done twice during the trial period)
6. Review current hearing aid technology
7. Select an appropriate trial hearing aid - make and model
8. Obtain selected trial hearing aid(s) from loaner bank or order 60-90 day trial aid from vendor
9. Send an invoice to the child's early intervention program
10. Test hearing aid(s) to ensure that they are operating properly
11. Adjust hearing aid settings so that they are appropriate to the child's hearing loss
12. Fit hearing aid(s) to child
13. Counsel parents regarding the proper use and care of the hearing aid(s)

    (Steps 7-13 may need to be repeated several times to ensure optimal amplification.)

14. Perform aided testing with the selected trial hearing aid(s) - this will involve multiple testing sessions and a second tester
15. Determine the most appropriate permanent hearing aid for the child. IFSP should be revised to contain recommendation,
16. Confirm hearing aid funding sources (e.g. commercial insurance, Medicaid)
17. Monitor and maintain trial aids
18. Perform in-house hearing aid repairs on trial aids when necessary
19. Send out trial aid for repair when necessary
20. Test, set, and fit a back-up hearing aid for the child to use while the trial aid is out for repair.
21. Notify vendor of purchase. Send invoice to child's early intervention program.
22. Obtain and check permanent aid(s) to ensure that they are operating properly and then adjust the settings for the child's hearing loss.
23. Fit permanent hearing aid(s) to child

It is estimated that it will take approximately 8.5 hours to perform the above procedures for which the Birth to Three System will pay a one-time dispensing fee. Reimbursement will be made to the child's early intervention program who, in turn, pays any contracted audiologist.

(Revised 2/12/99)

Connecticut
Birth to Three
System

Assistive Technology Device Request Form

Child's Name:	***Date of Birth:***	***B-3 #:***
Parent (or foster parent or relative) child resides with and address (i.e. where device will be located):		***Telephone #:***
Program Name:		***Telephone #:***
Contact person for this request:	***Contact person's discipline:***	***Date of this request:***
Region: ☐ NW ☐ NC ☐ EA ☐ SW ☐ SC		

Child's identified need (Attach section 5 of IFSP and outcome page which includes the technology):

Device requested (Specify model # and any necessary related equipment. Attach specs if needed):

Total cost including tax, shipping and handling: $__________

Medicaid billed: ☐ Yes ☐ No	***Date:***	***Results:***
Insurance billed (attach written denial): ☐ Yes ☐ No	***Date:***	***Results:***

Vendors contacted	**Model and Order #**	**Price**

For use by the Birth to Three regional manager only:

Date request received: / /	***Date request approved*** / /	***Cost to the state not to exceed:*** $	***Regional Manager Signature:***
Date invoice received: / /	***Date invoice approved:*** / /	***Regional Manager Signature:***	

Birth to Three Form 3-11 (revised 7/97)

Checklist

		Yes	No
1.	Was an evaluation completed to determine that this is the most appropriate equipment needed by the child?		
2.	Did the evaluation consider a range of devices from low to high tech?		
3.	Is there more than one device that can meet the need ***(e.g. one vendor's prone stander may be the same as another)***?		
4.	Has the family participated in the evaluation or seen the actual equipment being requested?		
5.	Have all provider staff serving this child agreed that this is the most appropriate device to meet the child's need ***(e.g. Can the communication device be mounted on the mobility equipment)***?		
6.	At what point will the child no longer need the equipment?		
7.	Will this device need to be listed on the transition plan?		
8.	Is there a loaner device or rental available?		
9.	Does a maintenance contract need to be included in purchase?		
10.	Will the parents be able to list the device as part of their homeowner's or renters insurance?		
11.	Does the program need to purchase insurance for the device?		
12.	Have you arranged for training for the parents in the use of the device before it is delivered?		

Additional Comments:

Send form to: **Birth to Three Regional Manager**

Birth to Three Form 3-11 (revised 7/97)

What is Relay Service?

Telecommunications relay service provides full telephone accessibility to people who are deaf, hard of hearing or speech disabled. Specially trained Communication Assistants (CAs) complete all calls and stay on-line to relay messages either electronically over a Text Telephone (TT/TTY) or verbally to hearing parties.

The service, known as Relay Connecticut in your state is available 24 hours a day, 365 days a year, with no restrictions on the length or number of calls placed. This valuable communications tool gives all individuals who are deaf, hard of hearing or speech disabled the opportunity to make personal and business calls just like any other telephone user. Both TT/TTY and voice users may initiate calls through Relay Connecticut. The toll free access numbers are 1-800-842-9710 (TT/TTY) and 1-800-833-8134 (Voice).

Confidentiality

Relay Connecticut is strictly confidential. All calls will be kept private, and no records of any conversation will be maintained. CAs will not share information regarding the contents of any relay call, unless they are required to do so by state or federal law.

Using Directory Assistance

Please refer to your local directory for the directory assistance number.

Principles of Intervention

There are some basic principles of intervention for young children who are hard of hearing or deaf. They are as follows:

Principle #1: Early identification and diagnosis is essential.

Principle #2: Ongoing audiological assessment and management must be conducted by staff trained to work with infants and young children.

Principle #3: The intervention team should assist the family in learning about the nature of their child's hearing loss.

Principle #4: Intervention requires a team approach. The family is the most important member of this team. The mission of the Birth to Three System is to support, assist and advise families on how to best meet their child's unique needs. This should include access to a wide variety of information that is shared in an unbiased manner.

Principle #5: Parents and children are partners in communication. Parents and children must develop a communication system in order for a language system to develop.

Principle #6: Language development begins as soon as a child is born and develops through interactions with the family in daily routines.

Principle #7: Parents need to understand and manage the hearing aids and/or auditory equipment for their child. A program must help the family learn how to maintain any hearing aids or equipment.

Principle #8: Parents are advocates for their children who are hard of hearing or deaf. Early intervention should help parents understand their rights as identified in state and federal legislation.

This brochure briefly presents communication options to parents of children who are deaf and hard of hearing in an impartial manner. When parents have balanced and objective knowledge, they can make choices that are right for their child and family.

For more detailed information request a copy of *Service Guideline #5 – Young Children who are Hard of Hearing or Deaf – Intervention Guidance for Service Providers and Families by calling 860-418-6147 or visit* www.birth23.org.

CT's Birth to Three System encourages parents to visit programs, talk with professionals and other parents in order to determine which methodology is compatible with the family and the child's needs. It is the **family's** choice.

For more information call:

❖ Birth to Three Infoline
1-800-505-7000

❖ CT Commission on the Deaf
1-800-708-6796

❖ CT State Department of Education
Consultant for Deaf and Hard of Hearing
860-807-2045

❖ American School for the Deaf
860-510-2339

❖ Soundbridge
860-529-4260

❖ New England Center for Hearing
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A FAMILY GUIDE TO COMMUNICATION OPTIONS

For parents of young children who are hard of hearing or deaf

Connecticut
Birth to Three
System

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

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