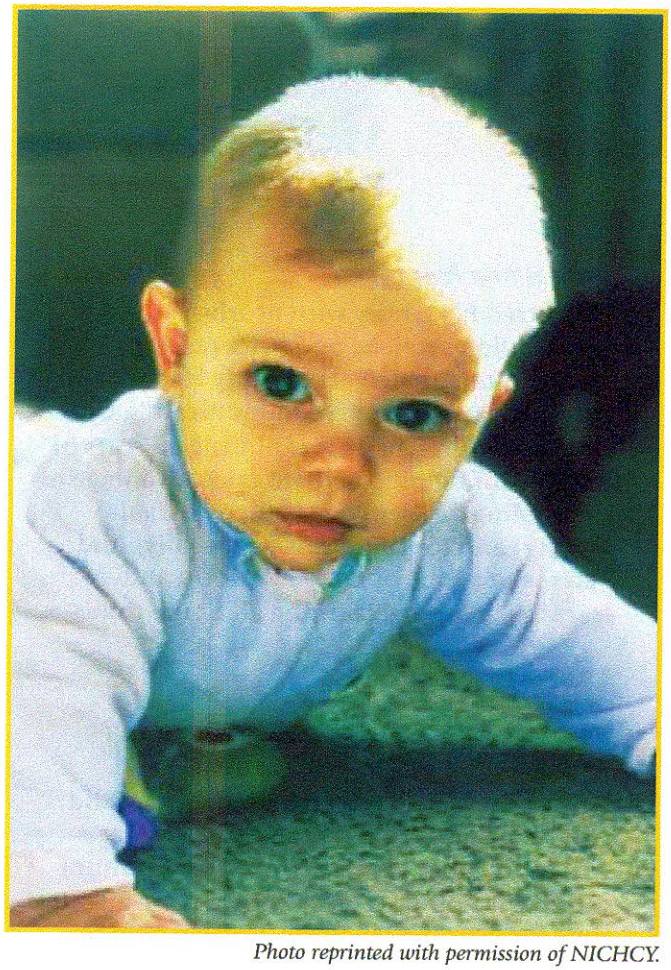
# Opening Doors:

## Technology And Communication Options for Children With Hearing Loss



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Soon after Peter was born, the hospital screened his hearing and found a possible hearing loss. Peter was referred for more testing, which showed that he did, indeed, have a hearing loss. Peter's parents were shocked. First, they had no idea that doctors could check a newborn's hearing, and second, *their son?*

If you've recently found out that your child has a hearing loss, this resource sheet is for you. Whether your child is a newborn, a preschooler, or older, *there's help available.* There are service systems in place to help your child and your family, and there are many groups with important information to share. This fact sheet can help you connect with both.

## Your Beautiful Child

Rejoice! You're the parent of a newborn or young child, and you have an incredible, wonderful journey ahead. The fact that your child has a hearing loss is only one facet of the journey.

Still, hearing loss is a very important facet and needs to be addressed. Even as a baby, your child is learning and growing all the time. The sooner you find help for your child, the better. Research has shown that, with immediate and proper help, by age 5 children with hearing loss can develop language skills comparable to those of children without hearing loss. Two key factors are involved:

- ✓ early identification of the hearing loss, and
- ✓ appropriate early intervention services from qualified providers.

Peter, the baby we just mentioned, is already well on his way to developing the language and other skills he needs to succeed in school and in life. His hearing loss was detected early, the hospital

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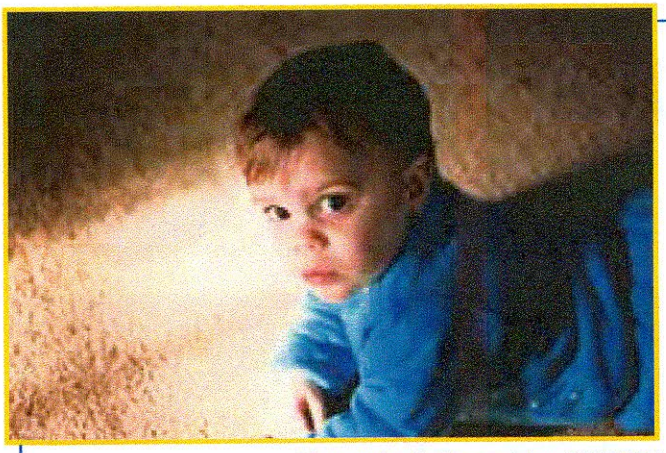

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connected his family with nearby early intervention services, and Peter received services immediately. His family learned about hearing loss and about communicating with their newborn. They are exploring all sorts of options for helping Peter to take advantage of the hearing he *does* have (called *residual hearing*) and to communicate visually. And Peter—he's wide open to the world and learning, learning, learning all of the time.

## Windows of Opportunity

One of the most amazing things your child will learn in his or her lifetime is language—words, meanings and their use for communicating with others. The early years are a critical time for learning language. Getting help for your child as early as possible maximizes his or her window of opportunity to learn language. Research has shown that children who begin receiving appropriate help before six months of age are more likely to learn language at a pace comparable to that of children whose hearing is normal.[1] So take advantage of the service systems that exist to help your child and you.

[1] Joint Committee on Infant Hearing. "Year 2000 position statement: Principles and guidelines for early hearing detection and intervention programs," *Audiology Today*, Special Issue, Reston, Va.: American Academy of Audiology, August 2000. (Accessed on May 10, 2003 at www.audiology.org/professional/positions/jcih-early.pdf.)

## Quick Facts

- Each year 24,000 children are born with hearing loss in the United States.
- The great majority of these children are born to parents who have normal hearing.
- Many states now require that hospitals screen babies at birth for possible hearing loss. This screening is painless, and only takes a few minutes.

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**U.S. Department of Education**
Margaret Spellings
*Secretary*

**Office of Special Education and Rehabilitative Services**
John H. Hager
*Assistant Secretary*

**Office of Special Education Programs**
Alexa Posny
*Director*

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- Not all hearing loss is present at birth. Causes of hearing loss later in childhood include genetic factors, illness, and trauma.
- The degree of hearing loss can vary from mild to profound, including deafness. There also are different kinds of hearing loss: *conductive* (caused by diseases or obstructions in the outer or middle ear); *sensorineural* (where the delicate sensory hair cells of the inner ear are damaged); *mixed* (a combination of the two); and *central* (resulting from damage to the nerves of the central nervous system).
- Many services are available to help children who have hearing loss, including deafness. For eligible infants and toddlers (birth through age two), there's *early intervention*. For eligible children from three to 18 (and in some states through 21), there are *special education and related services*. These services can be very important to your child and your family. Use this fact sheet to learn more about, and connect with, these systems.

# Early Intervention

The importance of early intervention has been mentioned several times already, but you may be wondering, "What *is* early intervention?"

"Early intervention" means getting started as early as possible to address the individual needs of a child with disabilities. This is done to enhance the infant or toddler's development, to minimize the potential for developmental delay, and to enhance the family's capacity to meet the child's needs. Early intervention is a *system of services* established by the states through grants from the federal government to help eligible children from birth until their third birthday.

If your child was born with a hearing loss or has developed one before turning three, you may want to get in touch with personnel in the early intervention system in your area. The hospital staff may have already connected you with these services. If not, you may wish to ask

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# First Reactions

When parents find out that their child has a hearing loss, many may feel shocked, sad, and uncertain about what to do. As the shock fades, though, they usually begin a search for information. *Information is one of your most powerful tools!* It's very important to find out as much as you can about your child's hearing loss and what options and resources are available. If the information is hard to understand, there are specialists available who can help you.

Fortunately, there are many helpful resources. Four invaluable ones are listed in the box at the right, and following is more information about the first two assistance options—state services such as early intervention and groups specializing in hearing loss and deafness.

# Where Do I Turn?

Four valuable service systems available to you and your family are:

- ❒ *state services* such as early intervention (for eligible children up to the third birthday) and special education and related services (for eligible preschoolers and school-aged children);
- ❒ *organizations specializing in hearing loss and deafness* that provide information and support;
- ❒ *resource and information centers* that can offer information about national and state resources and education rights; and
- ❒ *parent groups*, in which you can talk with other parents who also have children with hearing impairments or deafness.

The National Dissemination Center for Children with Disabilities (NICHCY) can help you connect with any of these systems. Contact NICHCY at: NICHCY, P.O. Box 1492, Washington, DC 20013. Phone: 1-800-695-0285 (V/TTY). E-mail: nichcy@aed.org. Web: www.nichcy.org.

*Photo reprinted with permission of Cochlear Americas.*

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your child's doctor or call your state's Parent Training and Information (PTI) center.

Wondering where your PTI is located? NICHCY can provide you with the number for the PTI that serves your area and put you in touch with the early intervention system in your state. Give NICHCY a call at 1-800-695-0285.

Early intervention may be of help to your child and your family in many ways, including learning to communicate with each other. Under the federal early intervention program in your state, if your child is eligible, you'll be assigned a *service coordinator* to help you understand the intervention system and make sure that your child gets the services to which he or she is entitled. *Note:* Under the Individuals with Disabilities Education Act (IDEA), parents have the right to be part of the team that identifies the early intervention services their child needs, called the Individualized Education Program (IEP) team.

# Groups Specializing In Hearing Loss and Deafness

You'll be positively amazed at the number of groups in the United States that focus on hearing loss and deafness. Their information, advice, and perspectives can be a great help to you and your child over the coming years. We've listed many such groups on Pages 7 and 8 to get you started.

# Breaking the Sound Barrier

The discovery of your child's hearing loss brings with it a lot of decisions to be made. One issue that is likely to come up is *technology* and how it can help children with hearing loss. You'll learn about two technologies in particular — hearing aids and cochlear implants. Both can give children access to spoken language and the other sounds around them. Let's take a look at these two technologies.

## Hearing Aids

Hearing aids make sound louder in the ranges needed, which are dictated by the individual's hearing loss. They operate on very small batteries, collect sounds, make them louder, and then transfer them to the ear canal.

When a child has a hearing loss, many health-care providers believe that it's important to fit the child with hearing aids as early as possible. Why? Because children begin identifying sounds and learning language in their very first months of life. Hearing aids can give many children the opportunity to hear and learn language like children with normal hearing. Even babies one month old can wear hearing aids.

Each hearing aid is selected for, and fitted to, a child's individual hearing loss. That's because not all hearing losses are the same. One child may not be able to hear certain pitches or tones of sound, while another child may not be able to hear others. A professional trained in hearing loss (called an *audiologist*) will use tests to determine how much to amplify sound for each child. The tests don't hurt. They are used because very young children can't reliably tell us when sound is too loud, too soft, or unclear.

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Once a child is fitted with hearing aids, it's very helpful for parents to work with the child's hearing health-care team and other professionals to identify the services the child will need to help him or her develop speech, language, hearing, and communication skills. For children under the age of three, these services may be available through the early intervention system. When eligible children with disabilities are three and older, the public education system takes over and makes special education and related services available. (Contact NICHCY for information about accessing these systems of services. See contact information on Page 3.)

This is only the briefest overview of hearing aids. They're complex devices, and there are many features to consider. Visit the Web sites we've listed on Pages 7 and 8 to learn more.

## Cochlear Implants

If a child has not benefited from hearing aids after wearing them for several months, he or she may be a candidate for a *cochlear implant*. This is a device that is surgically placed in the ear. Unlike hearing aids, a cochlear implant does not make sound louder. It bypasses the damaged parts of the ear and sends an electronic signal directly along the auditory nerve to the brain.

A child using a cochlear implant will need help developing language, just as children using hearing aids do. He or she will need to be trained to interpret and use the sounds that are perceived via the implant. With this training, a child who is an appropriate candidate and who receives a cochlear implant early will likely learn spoken language at a level close to that of a child who has normal hearing.

Cochlear implants are approved by the Food and Drug Administration for appropriate children 12 months of age or older. What makes a child a good candidate for a cochlear implant? The following factors are usually considered:

- *The severity of the hearing loss.* For children aged 12 months to two years, the hearing loss should be sensorineural and profound. For children over 25 months, hearing loss should be sensorineural and severe to profound.
- *The level of benefit from hearing aids.* When a child has received little or no benefit from wearing hearing aids, the possibility of a cochlear implant may be discussed.
- *The level of the family's motivation about the child receiving a cochlear implant.* For cochlear implants to be successful, family members need to be fully committed to making sure that the child receives follow-up services.

These follow-up services may include speech, audiology, and other services, which are intended to help the child learn to listen with a cochlear implant.

Services are provided by qualified individuals and may be available under various programs, including early intervention services or special education and related services. Parents play a part in identifying the services and seeing that their child receives them. The child and his or her family should be prepared to actively pursue a program of learning to listen with the cochlear implant.

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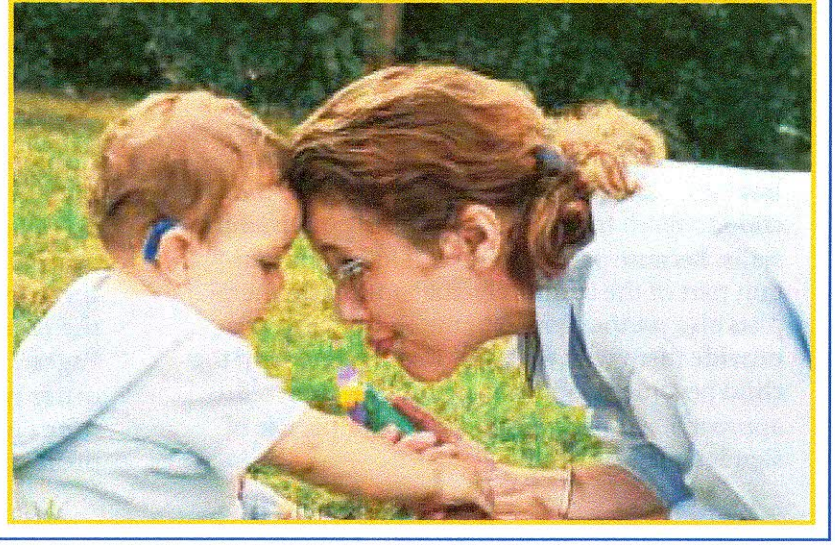

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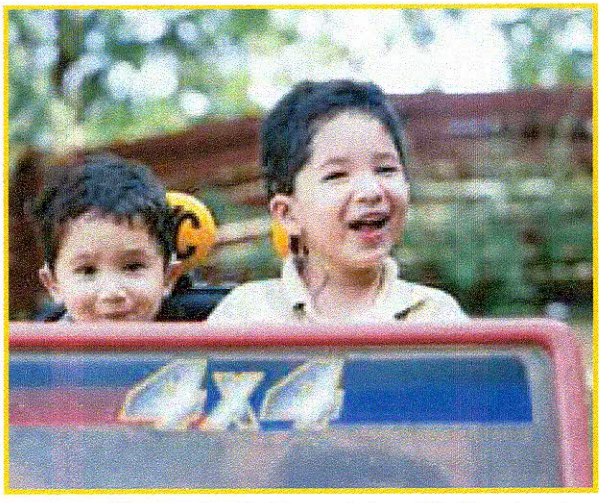
Detailed information about this technology and what families can expect is available at the Web sites and in the publications listed on Pages 7 and 8.

# Exploring Communication Options

Communication is at the heart and soul of our lives. Children with hearing loss may build their communication skills using one or more of the communication options described in this section. To help you get started learning more about these options, let's take a look at each one.

### Auditory-Oral

This approach encourages children to make use of the hearing they have (called *residual hearing*) using hearing aids or cochlear implants. Speechreading, sometimes called lipreading, is used to supplement what's detected through residual hearing. In this approach, children learn to listen and speak but do not learn sign language (described below).



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### Auditory-Verbal

A key element of this approach is teaching children to make effective use of their residual hearing—either via hearing aids or a cochlear implant. Therapists work one-on-one with the child to teach him or her to rely only on listening skills. Because parent involvement is an important part of the auditory-verbal approach, therapists also partner with parents and caregivers to provide them with the skills they need to help the child become an auditory communicator. In this approach, neither speechreading nor the use of sign language is taught.

### Cued Speech

In this system, children learn to both "see" and "hear" spoken language. They focus on the movements that the mouth makes when we talk. This is combined with: (a) eight hand shapes (called *cues*) indicating groups of consonants, and (b) four positions around the face, indicating vowel sounds. Some sounds look alike on the lips—such as "b" and "p"—and others can't be seen on the lips—such as "k." The hand cues help the child tell what sounds are being voiced.

### Sign Language

There are two basic types of sign language: (a) SEE, which stands for Signed Exact English, and (b) ASL, or American Sign Language. SEE is an artificial language that follows the grammatical structure of English. ASL is a language that follows its own grammatical rules. It is often taught as the child's *first* language. English may then be taught as a second language.

### Total Communication

In this communication system, methods are combined. Children learn a form of sign communication. They also use finger spelling, speechreading, speaking, and either hearing aids or cochlear implants.

Confused? Overwhelmed? Wondering how in the world you're supposed to decide which approach to use with your child? Well, that's normal! There's a lot to know about each of these methods. To learn more, take a look at the publications and Web sites we've listed on Pages 7 and 8. Read, ponder, and talk with other parents, your child's audiologist, and other hearing health-care and education professionals.

# Find Out More

The organizations and Web sites listed alphabetically below* are just some of the many sources of information on hearing loss and deafness. Each will lead you to more.

**Look for information such as ...**

**Alexander Graham Bell Association for the Deaf and Hard of Hearing**
1-866-337-5220; 202-337-5220 (V); 202-337-5221 (TTY)
E-mail: info@agbell.org
Web: www.agbell.org

Visit the AG Bell Web site to learn about hearing loss, hearing technology and spoken language education opportunities.

**American Academy of Audiology**
1-800-222-2336; 703-790-8466 (V)
Web: www.audiology.org

Consumer guides, including: *Early Infant Hearing Screening and Intervention* and *Frequently Asked Questions About Hearing Aids* In Spanish, too!

**American Academy of Otolaryngology–Head and Neck Surgery**
703-836-4444 (V)
Web: www.entnet.org

Online overview of the cochlear implant

**American Society for Deaf Children**
1-866-895-4206; 717-703-0073 (V/TTY)
E-mail: asdc@deafchildren.org
Web: www.deafchildren.org

ASDC Snapshots such as *I Suspect My Baby Has a Hearing Loss* and *Cochlear Implants*

**American Speech-Language-Hearing Association**
1-800-638-8255; 301-897-5700 (V/TTY)
E-mail: actioncenter@asha.org
Web: www.asha.org

*Hearing Loss* and *Hearing Screening and Assessment*

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* The U.S. Department of Education has neither reviewed nor approved the information listed on the Web sites noted in this document, which are not part of the Department's Web site. No official endorsement by the U.S. Department of Education of any product, commodity, service, or enterprise mentioned on these resource pages or in this publication is intended or should be inferred.

# Find Out More

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**Look for information such as ...**

**Hearing Loss Association of America**
301-657-2248 (V); 301-657-2249 (TTY)
E-mail: info@hearingloss.org
Web: www.hearingloss.org

Visit the Hearing Loss Association of America's National Center for Hearing Assistive Technology and learn about hearing aids, cochlear implants, and more

**Laurent Clerc National Deaf Education Center**
202-651-5051 (V), 202-651-5052 (TTY)
E-mail: Clearinghouse.Infotogo@gallaudet.edu
Web: http://clerccenter.gallaudet.edu/InfoToGo

*Hearing Aids and Other Assistive Devices: Where to Get Assistance* and visit the Cochlear Implant Education Center

**National Dissemination Center for Children with Disabilities (NICHCY)**
1-800-695-0285 (V/TTY)
E-mail: nichcy@aed.org
Web: www.nichcy.org

Contact information for the early intervention system, parent groups, disability groups, and PTI in your state

**National Early Childhood Technical Assistance Center (NECTAC)**
919-962-2001 (V); 919-843-3269 (TTY)
E-mail: nectac@unc.edu
Web: www.nectac.org

Contact information for the early intervention system in your state

**National Institute on Deafness and Other Communication Disorders**
1-800-241-1044 (V); 1-800-241-1055 (TTY)
E-mail: nidcdinfo@nidcd.nih.gov
Web: www.nidcd.nih.gov

*Hearing Aids* and *Cochlear Implants*

## And you may wish to try these Web sites, too!

www.infanthearing.org

www.babyhearing.org

www.ncbegin.com

www.nad.org