HEI Children's

The Children's Auditory Research and Evaluation (CARE) Center at the House Ear Institute (HEI), truly is greater than the sum of its parts. The synchronization between the Center's efforts regarding newborn hearing screening, clinical services and scientific research yields benefits beyond the individual efforts of each department. Together, professionals in these departments provide children who have hearing loss with a complete program of intervention and rehabilitation to optimize their communication skills.

The CARE Center offers comprehensive pediatric auditory services from birth through age 18 at one location. A child's initial visit to the Center typically consists of comprehensive testing by an audiologist, often followed by a consultation with a physician in the House Ear Clinic. The child's hearing profile and treatment plan are developed from the information gathered. Further sessions may include additional testing and fittings for a hearing aid or evaluation for a cochlear implant, followed by speech therapy or family counseling. Staff is available to answer questions, provide information and offer referrals and access to other resources.

"Families tell us they are fortunate to find so many services under one roof," comments Margaret Winter, the Center's Clinical Services Coordinator. "Because many of our patients travel great distances to receive treatment at the Center, we try to incorporate multiple services into every visit. Our approach is to offer complete care and relieve the burden of unnecessary return visits."

The mission of the CARE Center is to improve the communication ability of children with auditory disorders through clinical services, research and the education of professionals and families.

Early Detection

As an infant grows and begins to interact, parents may suspect a hearing problem when their baby does not respond to a sound by turning to look in the direction of the source. But how does one actually test the hearing ability of a newborn?

Two screening methods are currently used for detecting hearing loss in the very young. Each relies on playing soft sounds to the sleeping baby through earphones. In one test, auditory brainstem response (ABR) brainwave patterns, gathered by sensors placed on the baby's scalp, reveal the response to sounds in the auditory nerve and brainstem. In another test, ear function is measured by using a sensitive

Center: greater than the sum of its parts

CARE Center researcher conducts a speech and language test.

microphone to collect echoes or otoacoustic emissions (OAEs) generated by the baby's cochlea (inner ear) in response to sound waves.

In 1998, with the passage of a law mandating hearing screening tests for newborns in all state-approved hospitals, California joined thirty-six other states in implementing screening methods to bring the benefits of early identification and treatment to hearing-impaired children.

Early Intervention

The CARE Center provides a valuable patient base for scientists studying the maturation of the auditory system and developing new diagnostic techniques and technologies. CARE Center scientists are conducting a new research study to evaluate the importance of fitting hearing aids to infants and children with hearing loss as early as possible.

Once these children are identified, scientists test their ability to understand and imitate spoken language. Re-testing is conducted at regular intervals until the children reach the age of four. Researchers track each child's progress in speech perception and production to determine the effects of early hearing aid use on their communication development. This evaluation increases understanding of the relationship between accurate early amplification and communication skills.

One test used in this study is an online version of the Imitative Test of Speech Pattern Contrasts, developed by Arthur Boothroyd, Ph.D., a visiting scientist at HEI. Working from images displayed on a computer screen, children are asked to recognize and repeat consonant syllables such as "pa" and "ba." At first, audio-visual cues are provided, and then the visual cues are removed, requiring children to rely on their hearing to repeat the sounds.

"By studying the speech perception abilities of these children we are better able to determine the effect of early amplification and ultimately, to fine-tune hearing aid prescriptive techniques for children," said Laurie Eisenberg, Ph.D., CARE Center Research Scientist and co-principal investigator of the study.

The Children's Center was originally established in 1984 to provide pediatric clinical services to the first children ever to receive cochlear implants. In 1991 the name was changed to the Children's Auditory Research and Evaluation (CARE) Center to signify the expanded scope of the pediatric research and range of services offered. The mission of the CARE Center is to improve the communication ability of children with auditory disorders through clinical services, research and the education of professionals and families. ❖

For additional information on CARE Center services, please contact Margaret Winter at (213) 483-4431.

A young patient responds to audio-visual cues.