Assessing Hearing Health…

. . .an important piece of the language and literacy puzzle

Why Hearing Screening?

- Hearing impairment is the most common birth defect in the United States: Approximately 1 out of every 300 infants is born with a hearing loss. Children can experience permanent or temporary hearing loss at any age. By school age, the incidence of permanent hearing loss in children triples to 3 out of 300.
- Approximately 35% of preschool children will experience repeated ear infections before three years of age which, if untreated, nearly always causes a temporary hearing loss that can significantly disrupt language acquisition and other educational progress.
- Vital language learning occurs during early childhood; any hearing impairment can adversely affect the developing auditory system and have harmful effects on social, emotional, cognitive, and academic development, and on an individual's subsequent vocational and economic potential.
- The earlier a hearing impairment is identified and treatment begun, the greater the likelihood of preventing or reducing the debilitating/disabling effects.

Head Start's Commitment to Early Identification of Hearing Loss

- Head Start's Performance Standards reflect a long-standing commitment to early childhood hearing screening.
- Most Head Start Grantees have been attempting to screen children 0 – 3 years of age for hearing loss using ***subjective*** screening methods as such hand clapping, bell ringing and parent questionnaires that do not screen the range of sound frequencies critical for normal speech and language development. Many Grantees have recognized the need to update their hearing screening practices, but have not been sure how to accomplish this.
- Most Head Start Grantees have yet to learn about the benefits of otoacoustic emissions (OAE) screening technology used extensively in hospital-based newborn hearing screening programs. As the most reliable, ***objective*** method for screening toddlers and young children for hearing loss, OAE screening is recognized by the American Academy of Audiology, the American Speech-Language-Hearing Association and the American Academy of Pediatrics as being a sensitive and efficient tool.
- **Given Head Start's emphasis on ensuring early childhood language development and literacy,** it is critical that Grantees be assisted in adopting high-quality, reliable, OAE hearing screening practices.

The Hearing Head Start Pilot Project

With funding from the Head Start Bureau and the Maternal and Child Health Bureau, from 2001 to 2004 the National Center for Hearing Assessment and Management (NCHAM) at Utah State University conducted a pilot study with Migrant, American Indian and Early Head Start grantees in Oregon, Utah, and Washington to update their hearing screening practices using OAE hearing screening technology and an effective hearing screening and follow-up protocol for children 0 - 3 years of age. Staff representing over 69 Head Start Grantees were trained to conduct OAE screening and screening data was collected on over 3400 children.

Participating Grantees received:

- Hands-on training, coaching, and educational resources
- Assistance in obtaining OAE screening equipment.
- Implementation resources including a field-tested screening protocol and forms for documenting hearing screening results and follow-up interventions.
- On-going technical assistance and networking with state and local resources.

Results indicated that:

- With appropriate training and support, Head Start Grantees can successfully update their hearing screening practices using OAE technology and an effective protocol.
- Grantees identified children with a broad range of hearing health needs including previously undetected permanent hearing losses and chronic middle ear infections (otitis media) that could potentially delay or impede language, learning and literacy.
- Grantees prefer OAE screening over previous hearing screening methods, reporting that it:

    - Is quick, reliable, and incurs no additional personnel costs.
    - Builds confidence that their hearing screening approach is based on accepted audiological practices.
    - Expedites the referral process for follow-up, promoting more prompt attention from health care providers.
    - Contributes significantly to a child's Medical Home when OAE screening is not available in a health care provider office or clinic.
    - Contributes to community hearing health as information about up-to-date screening practices is shared with Part C providers, Community Health Clinics and health care providers.

Comments from participants

Updating practices

"Like many Head Start programs serving children birth-to-three years of age, for years all we had been using were the bells, noise makers and a parent questionnaire to screen the hearing of children in our program. We knew this was not adequate, but we didn't know what else we could be doing that would be a more objective method." Julie Quaid - Confederate Tribes of Warm Springs, American Indian Head Start, Warm Springs, OR

"We have always assumed that the medical providers were screening for hearing during well-child visits. In fact, we relied on them for this. We have discovered that even though a child's medical record may indicate that ears have been checked, this does not necessarily mean a hearing screening has been performed. By implementing OAE hearing screening as a part of the battery of screenings we provide to all children, we are providing a valuable service that is seldom provided by anyone else." Jyl Bosone, Mid-Columbia Children's Council, Hood River, OR

"Initially I was concerned about the additional time and costs that might be associated with implementing an OAE screening program. In reality, OAE screenings are quicker to perform than our previous method, taking about 3 to 5 minutes per child. We do have to rescreen some of the children, however, which has taken some strategizing, but we simply rearranged a few activities to get this accomplished and haven't encountered any prohibitive barriers in terms of time or money. Now I can't imagine using any other method." Barbara Williams, Washington State Migrant Council, Sunnyside, WA

Training is key

"Learning to implement OAE screening and follow-up practices is relatively simple. By the end of a one-day training, we were off and running, and have needed only a little bit of help since we got started. Training was the key for us. Learning to do OAE screening is not difficult, but it is just tricky enough that training is important. I don't know that we would have ever gotten this going without the training we received." David Bennett, Oregon Child Development Coalition, Migrant Head Start, Ashland, OR

Outcomes

"One of the positive outcomes of doing OAE screenings is that physicians are responding to my referrals. I used to refer a child for hearing simply because they didn't respond to my clapping. …Now that I have an objective screening tool, the physicians are able to follow through. The physicians are seeing us in a new light – as more legitimate partners in meeting the health needs of the children we serve. As a consequence, we have played an important role in identifying numerous children with fluctuating hearing losses caused by untreated middle ear infections and one child with a permanent hearing loss." Sara Rolfs, Chelan-Douglas Child Services, Early Head Start, Wenatchee, WA

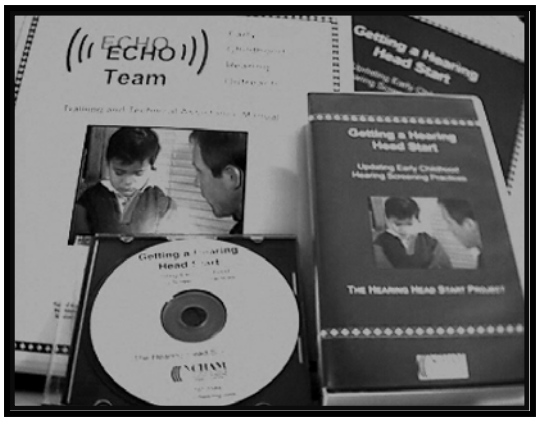
"There was this one little guy who we were all concerned about. He'd look at me when I spoke to him, but he didn't really respond to what I was saying. His mother was concerned, too. I screened him and he didn't pass on several attempts. The mother took those results to the doctor who then determined that he needed tubes in his ears. I was so happy to have played a part in that because it didn't seem like he was hearing normally. It was such a relief that he needed tubes!" Mark Dewsnup, Davis County Head Start, Kaysville, UT

"I screened a child who never passed after multiple attempts. He was referred to an audiologist and was eventually identified with a permanent hearing loss. When I got this news, I had mixed emotions. On the one hand, I felt sad for what this potentially means for the child and family. On the other hand, I was thrilled that we got this child in to see the audiologist to get tested and identified as early in his life as we did. He had had nearly a full year of disrupted language acquisition due to his hearing loss, but now he is going to have accommodations made so that he is not at a disadvantage because of his hearing loss. That's the whole point of identifying children with hearing losses as early as possible. I am very excited to be a part of this because it really does change lives." Alissa Weller, Bear River Head Start, Logan, UT

The Hearing Head Start ECHO Project-
A Head Start Innovation & Improvement Project

NCHAM has been awarded a grant from the Head Start Bureau to conduct an Innovation and Improvement Project from 2005-2008. In this project, NCHAM is collaborating with existing state-based Early Hearing Detection and Intervention (EHDI) programs to establish Early Childhood Hearing Outreach (ECHO) Teams that are "*echo-ing*" the training and technical assistance activities of the original Hearing Head Start Project. State-based ECHO Teams will be established to provide training and technical assistance to update hearing screening practices for children 0 - 3 years of age in Early, Migrant and American Indian Head Start programs. Because ECHO Teams are connected with the infrastructure of their respective state newborn hearing screening systems, they are ideally positioned to extend hearing screening training and support to Migrant, American Indian, and Early Head Start Grantees, linking them with valuable state and local hearing-health resources. ECHO Teams have been established in a number of states, including Alaska, Colorado, Connecticut, Washington DC, Kansas, Michigan, Nebraska, Arkansas, North Carolina, Oregon, Utah, and Washington.

NCHAM has developed an instructional package to assist ECHO Teams in providing high-quality training and support to Grantees. These materials were developed and evaluated during the Pilot Project with input from hearing health and early childhood professionals from across the country and provide a framework for the standardized 6-hour training ECHO Teams will be providing to participating grantees:



- ***Hearing Screening & Follow-up Diagnostic Forms*** were designed to help Grantees easily adhere to an accepted protocol for conducting screening, documenting results, and referring children for follow-up hearing-health services.

- ***Screener's Guide -- Getting a Hearing Head Start*** incorporates all of the resources developed during the Pilot Project to assist Head Start grants in fully implementing an OAE screening and follow-up program. These resources reflect input from participating grantees, pediatric audiologists and pediatricians participating in the training workshops.

- ***Training Video -- Getting a Hearing Head Start,*** a four-part video reproduced in CD-ROM and VHS formats, serves as the core of the training workshops for Head Start grantees. The video maximizes standardized delivery of information to grantees while minimizing preparation time of those providing training.

- ***The Early Childhood Hearing Outreach (((ECHO))) Team Training and Technical Assistance Manual*** outlines implementation steps for selecting ECHO Team members, collaborating with state hearing-health stakeholders, and providing Early, Migrant and American Indian Head Start grantees with OAE hearing screening training and technical assistance.

Overview of Otoacoustic Emissions (OAE) Technology

OAE technology is widely used across the country in hospital-based universal newborn hearing screening programs. It is ideal for young children because it:

- is painless for the child,
- requires no behavioral response,
- is quick and efficient to administer,
- can be performed by anyone skilled in working with children and trained to do the procedure,
- can help to identify fluctuating hearing loss caused by chronic ear infections as well as permanent hearing loss, both of which can impede a child's language development, socialization, and educational achievement.

OAE screening is done using a portable, handheld screening unit attached to a probe. The probe, placed in the outer portion of the ear canal, emits a series of soft clicks or tones. A normal, healthy inner ear responds to the clicks or tones by producing an emission or "echo". A tiny microphone within the probe analyzes information on the emission coming from the inner ear. Results are shown on the equipment display screen, indicating whether the child's ear passes or refers. A "pass" indicates normal ear functioning while a "refer" means there is need for further medical or audiological evaluation.

Budgeting

While the Innovation and Improvement grant includes funding for at least five grantees in each participating state, additional grantees interested in updating their hearing screening practices through the use of OAE technology should budget for the following:

Approximate One-Time Costs
$3500 - $3800 per OAE screening unit
Check with your ECHO Team to see if there are costs associated with obtaining training and support. Costs may range from $500 to $1000 per OAE screening unit for training and technical support.

Approximate Annual Costs
$150 per year for recalibration/maintenance of equipment

Approximate Costs per Child (per screening attempt)
15¢ - $2 for disposable probe covers