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By Alyssa Banotai

COMO LAKE, ITALY—NHS 2006, held here May 31 to June 3, showcased research on infant hearing science from 66 countries and five continents. The biennial conference, with the theme “Beyond NHS: Infant and Childhood Hearing in Science and Clinical Practice,” offered sessions on subjects such as early cochlear implantation research, diagnostic testing methodology, language development and auditory-verbal outcomes.

The conference began with an official welcome from scientific organizers Deborah Hayes, PhD, and Ferdinando Grandori. Dr. Hayes is chair of Audiology, Speech Pathology and Learning Services at Children's Hospital-Denver; and Grandori is director of the Institute of Biomedical Engineering (Italian National Research Council) in Milan, Italy.

The 2006 gathering—the fifth time the event has been held—was the largest meeting of its kind, remarked Grandori, who also chaired the conference. “It is amazing to see how many countries are represented here. Eight years ago the implementation of early interventional systems was like a dream for the majority of the countries in the world. Nowadays, the situation has changed.”

Dr. Hayes introduced an international panel to discuss the state of newborn hearing screening programs in countries around the world. The panelist from Brazil expressed cautious optimism. Monica Chapchap, of the Hospital Sao Luiz, in Sao Paulo, reported her country had established more than 200 infant hearing screening programs, but they cover only 3 percent of hospitals in the country.

“From an optimist's point of view, it is improving,” she said. “From a realist's point of view, we have a long way to go.”

Lihui Huang, of the Beijing Institute of Otolaryngology, expressed a similar sentiment about the progress in China. “How to deal with this crisis is a big challenge for us,” she said.

South African delegate DeWet Swanepoel, of the University of Pretoria, pointed out that very few African countries were represented at NHS, indicating the slow progress of newborn hearing screening programs across the continent.

“Very little” is happening in South Africa, he said, but interest is growing. While screening is available in the private health sector if parents request it, very few programs have been implemented in the public sector.

The South African government issued a position statement in 2002 in support of newborn hearing screening. However, implementation will be a challenge, Swanepoel admitted. “We need to look at a variety of platforms.”

While 95 percent of babies born in the United States are screened and all 50 states currently have programs in place, many challenges remain, said Karl White, PhD, of Utah State University in Logan. There is no follow-up system for children who fail the initial screening; and because U.S. health care is not centralized, the programs are not uniform.

“There is a lot of variety in the way services are provided to people,” he stated. However, infant screening has become a more prominent part of the national public health agenda within the past five years. “People are starting to talk about it a lot more, but we still have a long way to go.”

About half of Canada is screening infants, reported Martin Hyde, of Mount Sinai Hospital in Toronto. He joked that since his country is “a reluctant partnership of 13 territories called provinces,” the federal government issues commands but has little control over the individual localities. The system is largely “patchwork,” he said, noting that Ontario and British Colombia have promising screening programs, while Quebec is “thinking about” establishing one.

Dr. Hayes asked Adrian Davis, of the MRC Hearing and Communication Group, in Manchester, United Kingdom, to address the ideal role of federal government in infant hearing screening programs.

The role of the federal government is changing worldwide, but “light” government control is helpful in leading an organized strategy for screening programs, Dr. Davis stated. “What is needed is to lead in strategy but allow local implementation and determination. Whenever things go belly-up, 99 percent of the time this may be due to lack of governance or appreciation of the governance that is needed.”

Governments should make “quality statements that mean something” about the programs and maintain motivation after achieving initial successes or objectives, he said. Governments also need to be willing to accept the economic realities of investing in training, equipment and research to ensure survival of the program. “We must do a brilliant job for these children.”

The panelists then were asked to assess the most critical needs of their programs.
"Ensuring quality and accuracy is not an easy task," said Chapchap, who noted that Brazil has many more screening sites than diagnostic sites. Quality assurance also is problematic in the United States, Dr. White said. Without a comprehensive data collection program, it is hard to analyze results.

"We're doing a good job in screening, but we haven't linked diagnosis and early intervention to screening," he said. "Accomplishing systems change takes a lot more time, but it will be what sustains the program."

"There is an extreme lack of research data to support these programs" in South Africa, which struggles to keep government interest and increase public awareness, Swanepoel said. Pilot sites are needed to serve as centers of excellence to provide initial data that prove the effectiveness of the program to the government and public.

Public health in Africa largely is centered on infectious disease, which "takes some of the limelight away from hearing loss," he said. The health department needs to shift some of its attention to quality-of-life issues.

Developing nations like Brazil still struggle with the expense of diagnostic and screening equipment, Chapchap said. "The hearing aids are good equipment, but they need to be less expensive."

Swanepoel agreed, saying, "Cheaper equipment would help our efforts."

The success of a screening program requires the efforts of determined individuals, Dr. White stated. "Newborn hearing screening is a good idea, but it takes individual people who work hard. It's very exciting to see what individual people can do."

Practitioners need to develop leadership skills, Davis urged. "Become masters of your profession; evidence alone is not enough."

In closing marks Dr. Hayes praised the efforts of the panelists and the conference attendees. "It is refreshing and encouraging to know we share a common passion to make life better for our fellow man," she said.

Bolajoko Olusanya, of the Institute of Child Health and Great Ormond Street Hospital for Children, NHS Trust of University College, in London, delivered the keynote address. She addressed the challenges she faced in establishing a newborn hearing screening program in Nigeria.

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In late 2003 Guam instituted a tracking and surveillance program to improve newborn hearing screening outcomes. Velma Sablan, PhD, of the University of Guam-CEDDERS, reported the results of a preliminary study on the effectiveness of the program. When screening programs began in 2002, only 228 infants out of 3,222 births were screened. By 2005 the U.S. territory reported a 99 percent screen rate.

To reinforce the success of the screening and tracking program, the researchers reported the results back to the hospitals, she said. "Never use the data to blame people. Always use it to help people."

The program also allotted funding for public awareness, Dr. Sablan noted. "People have to know about hearing screening programs."

She and her colleagues undertook an aggressive effort to obtain equipment and training and to push the government to pass a law requiring screening for all infants.

Despite initial success, follow-up for babies at high risk is a challenge, often due to cultural sensitivities, Dr. Sablan said. Local families are a "tremendous resource" for getting in touch with parents who might avoid follow-up attempts.

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Beyond NHS: Focus on Early Intervention

COMO LAKE, ITALY—In keeping with the conference theme of "Beyond Newborn Hearing Screening," several U.S. researchers at NHS 2006 presented findings on early intervention.

The age of identification for children with hearing loss has decreased to about 6 months, but only about half of U.S. children with hearing loss are enrolled in early intervention programs.

"We want to intervene," but gaps in service often occur, said Ranjani Krishnan, MS, of the University of Michigan Health System (UMHS), who presented on "Bridging the Gap between Identification & Intervention." These gaps may be due to a child's medical fragility or the fault of the screener, parent, audiologist or physician.

In 2004 Krishnan helped to develop Sound Support, a UMHS program designed to promote early intervention and coordinate service delivery. The program included roundtable discussion groups in the medical community, lectures to audiology and speech-language pathology students, and outreach efforts to physical and occupational therapists.

Another U.S. presenter at NHS 2006 was Barbara Hecht, PhD, president of the John Tracy Clinic in Los Angeles, CA. She discussed "Creating Natural Environments in Center-Based Early Intervention Programs."

Federal legislation dictates that early intervention services be provided in a "natural environment," which has come to equal a home visit, she explained. Though laws differ from state to state, there usually is little or no reimbursement offered for center-based services.

While home visits are convenient for families, disadvantages include limited access to audiological services and a shortage of expert personnel. Efficiency also is an issue.

"If most of the therapist's time is spent on the road, it's not really the best use of personnel," Dr. Hecht said.

Limited research is available on home- vs. center-based early intervention approaches for hearing loss.

"Home visits are no guarantee of appropriate practice," she stated. Even when they take place in the home, therapy activities can be unnatural for the child. In addition, parents may be busy and unable to observe the session.

The John Tracy Clinic has a demonstration model that offers a "home away from home" atmosphere. Everyday activities that are developmentally appropriate are provided in rooms modeled after the typical home environment.

"The parents are the learners in this environment," Dr. Hecht explained. The parent curriculum is embedded in the activities, which often are play-based. "We often have to teach parents about the importance of play."

For children with cochlear implants, early communication in any modality is critical for language outcome, observed Brenda Seal, PhD, CCC-SLP, of James Madison University, in Harrisonburg, VA, in her presentation on "Evidence for a Facilitative Relationship Between Sign and Speech Acquisition in Young Children with Cochlear Implants."

"Younger is better for spoken language development," she said. Early sign language use and exposure has been controversial in the United States, though it appears to promote vocabulary development and thinking skills.

Dr. Seal conducted a longitudinal study of speech and sign language production in 22 deaf children, ages 16, who were exposed to sign language, spoken language or Total Communication at school over a two-year period after implantation. They developed advanced sign and speech articulation.

"For many children early sign language seemed to serve as a safety net or a bootstrap," she concluded.

"Meeting the Needs of Children with Hearing Loss in the 21st Century" was the title of the presentation by K. Todd Houston, PhD, CCC-SLP, Cert. AVT, and Judy Harrison, MA, of the Alexander Graham Bell Association for the Deaf and Hard of Hearing in Washington DC.

Harrison called for an increased focus on enhancing opportunities for children with hearing loss. Part of this effort is determining whether
speech-language pathologists and audiologists are prepared to meet the needs of these children and their families.

Approximately 10 percent of the U.S. colleges that provide teacher training programs for educators of the deaf and hard of hearing use manual methodologies such as Total Communication or American Sign Language (ASL), she estimated. Out of 70 schools with teacher training programs, only eight specialize in auditory oral education.

"There is a critical shortage of professors who have the necessary training to facilitate spoken language," she said, noting that this is particularly problematic for families in rural areas.

"There is extremely poor teacher retention in Deaf education in the United States," said Dr. Houston.

Some of the problems that face new teachers in this field are a disconnect between education and practice and a lack of family-centered training, multiple disability experience, multicultural experience, and an understanding of hearing technology.

Speech-language pathologists also need more specialized training, he said. "Essentially, they are trained as generalists. These children are moving in a very different direction than some of us were trained."

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