CONSIDER THE CLASSROOM
EDUCATIONAL ACCESS FOR CHILDREN WITH HEARING LOSS

INTERVIEW WITH ANU SHARMA, PHD
Marion Downs Pediatric Lecturer

COMMUNICATION IN INFANTS WITH HEARING LOSS
Prior to Cochlear Implantation

INFLUENCERS OF BUSINESS SUCCESS
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INTERVIEW WITH FRED BESS, PHD
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**Shelly Chadha, MBBS, MS, PhD**  
*Medical Officer, World Health Organization (WHO)*  
*Programme for Prevention of Deafness and Hearing Loss*

Dr. Shelly Chadha was trained as an otorlaryngologist at the University of Delhi, India, and subsequently undertook doctoral studies in public health at the same university. Prior to joining WHO in 2011, she was a professor of Otolaryngology at the Maulana Azad Medical College in New Delhi, India. She has long-standing experience in community ear and hearing care, planning, and policy development for hearing care.

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**GENERAL ASSEMBLY**

**CONTEMPORARY TOPICS**

Presented by leaders in the field of audiology, hearing science, and related professional areas.

A 3-D Rotational Tour of the Vertebro-basilar System: It’s Neuroanatomy and NeuroAudiology

*Frank Musiek, PhD*

Hearing Aids in Review

*Gustav Mueller, PhD; Catherine Palmer, PhD; and Robert Turner, PhD*


*Francis Kuk, PhD*

Improving Patient Care Through Innovation in Workplace Management Lecture

*Barbara Balik, EdD, MS, RN*

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*Anu Sharma, PhD*

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*Sandra Benavides Caballero, PharmD, and Kathleen Campbell, PhD*

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* Canadian Audiologist, VOL. 3, ISSUE 5, 2016, “A Canadian Evaluation of Real-Life Satisfaction of Hearing Aids in Challenging Environments”, By Ryan Kalef, BSc, MSc, AUD(C), RAUD Carol A. Lau, MA (Audi), BA (Sp & H Th) Rachel Liu, AuD, AUD(C), Reg. CASLPO Melissa McFadden, MSc, Reg. CASLPO Andrew Sharpe, HIS

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Considering the Classroom: Educational Access for Children Fitted with Hearing Assistive Technology  A careful assessment and regular monitoring of appropriate accommodations and services can improve auditory access for children who are deaf or hard of hearing in the classroom. This is not simply a matter of providing educational access. This is a matter of educational equity for these children.
By Kimberly Peters

Back to the Future! Dr. Anu Sharma Is the 2017 Marion Downs Lecturer at AudiologyNOW! Since 2005, the Marion Downs Lecture in Pediatric Audiology has been the highlight for pediatric audiologists attending the annual convention. The inaugural lecture was given by Anu Sharma, PhD, and we are honored to have her back to present this year at AudiologyNOW 2017.
By Eileen Rall

Supporting Communication in Infants with Hearing Loss Prior to Cochlear Implantation Now, rather than simply waiting for a cochlear implant, parents can feel empowered to teach their infant with hearing loss fundamental prelinguistic skills that do not depend on access to sound.
By Megan Y. Roberts

Influencers of Business Success in 2017 While no one can predict the future, one thing is certain—change will occur and if recent events are reliable predictors of what’s to come, 2017 will be a year of change for audiology.
By Gyl A. Kasewurm

Kids Need Two Ears! With our understanding of the disabling effects of unilateral hearing loss (UHL) in children, and with the increased consideration and use of cochlear implants (CIs) in adults with UHL, research is needed to determine efficacy of CIs in pediatric populations for auditory and psycho-educational success.
By Alison Grimes

Founder’s Focus: Interview with Dr. Fred Bess The “John Adams” of the Academy discusses the events that led up to the formation of the organization, by, and for audiologists, the growth of the Bill Wilkerson Center at Vanderbilt University under his leadership, as well as his first presentation in front of many of the profession’s pioneers.
By David Fabry
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Where Is the Outrage?

On December 1, 2016, U.S. Senators

Elizabeth Warren (D-MA) and Chuck Grassley (R-IA) introduced the Over-the-Counter Hearing Aid Act of 2016. This bill would make certain types of hearing aids available on an over-the-counter (OTC) basis, would remove the requirement for a medical evaluation (or signed waiver), and would also allow personal sound amplification products (PSAPs) to be sold for the treatment of hearing loss.

Last October, the President’s Council of Advisors on Science and Technology (PCAST) produced a report that included the recommendation for the FDA to create a class of OTC hearing aids. Then in June 2016, the National Academy of Sciences (NAS) issued a lengthy report making 12 recommendations for improving hearing health care. The recommendations included creating a class of devices to be sold OTC, again for adults with mild-to-moderate, age-related hearing loss.

The reactions to these recommendations have been predictable. On one end of the spectrum of reactions is support for allowing OTC devices to be available to the consumer, while the other end of the spectrum calls for an all-out effort to prohibit these type devices. The most common reasons to oppose these recommendations are the potential to miss a treatable pathology, and the probable poor outcomes due to inability to match the technology to the loss and/or functional deficit.

Often included with the calls to oppose the recommendations and the bill introduced by Senators Warren and Grassley is the question: “Where is the outrage, particularly from the national organizations?”

There are really two parts to the answer to this question. First, I can assure you that the national organizations are fully engaged on this issue. The Academy has to be deliberative and thoughtful in the response to this type of development, and “outrage” is not a response that will result in achieving the desired outcomes. Now that the bill has been introduced, and we understand the implications, we can form an effective response—one that takes into account the various economic, political, and relational considerations necessary, as well as the diversity of opinions of the members.

The second part of the answer to the question is that the outrage is right in front of us. It is the consumer outrage over the cost of hearing care, particularly amplification devices. It is the outrage over the lack of access to the full spectrum of devices that might be used to assist an individual with hearing or communication difficulties—and not just the ones that cost $3,000–$6,000. It is the outrage over two-for-one ads that treat the products as a commodity, rather than a treatment for hearing loss. It is the outrage over not being able to self-direct hearing care initially and being required to see an audiologist and/or physician prior to getting help for their communication problem.

This is the outrage that has led to these policy statements, and now the legislation, over the past year. We in
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the audiology community have done little to be responsive to the consumer demands for less costly hearing care. We have not changed our practices to offer the full range of services or products that might have allowed more people to overcome their communication deficits. We do not offer “PSAPs” or even the inexpensive hearing aids to any great degree. We get trained on how to make “sales,” particularly for the higher priced products, and then wonder why the consumer complains about the cost of hearing aids. We continue to bundle the cost of devices and services, and then wonder why the consumer doesn’t intuitively understand the process, or place a value on our professional services.

We also suffer from an access issue. There are simply not enough audiologists positioned geographically to meet the current demand for hearing care, much less the demand expected over the next several decades. So should we be outraged with Congress or federal agencies for allowing more people to access hearing care, or should we be outraged at ourselves and our academic programs for not recognizing and responding to the demand? Moreover, do we deny individuals access to a hearable that could be a consumer electronic because they cannot easily access audiolgic services?

Clearly, these policy statements recommending or even mandating an OTC device for the treatment of hearing loss have the potential to be disruptive to the current model of delivery of hearing care services in general, and the delivery of hearing care devices specifically. But before we become outraged, perhaps we need to consider WHY these recommendations were made and WHY Senators Warren and Grassley felt compelled to introduce such a bill. It is easy to surmise that among the reasons is the general public believes that hearing care is not affordable and accessible, and they are outraged about it.

Ian M. Windmill, PhD
Board Certified in Audiology
President
American Academy of Audiology
There is significant power in the provider-patient relationship. Your patients look to you as the expert, and trust that you have the knowledge to assess their hearing needs and to recommend a hearing instrument that best satisfies those needs. Your patients are best served when you are proactive with recommendations.

Of course, there is a place for choice, especially when it comes to cost options and what your patients can afford. However, there is an unspoken assumption that you will only show them options that you trust and stand behind. They trust you would never recommend or fit them with an instrument that does not promote their best interest. Your patients also look to you to prescribe proper care for their hearing instruments along with a recommended service schedule and follow-up exams to ensure the best possible results.

The same trust is implied with other products and services that you offer patients as part of your holistic approach to hearing care (e.g., hearing aid accessories, batteries, anti-itch cream, and ALDs for television and telephone, etc.). Just like hearing aids, patients trust that you understand what you are recommending and why you are recommending it. You would never set a plethora of hearing aid brochures in front of a patient and say, “Choose one.” Why would you do that with any other product or service in your office? Yet, sometimes, practice owners will put brochures in their lobby for different types of ALDs and other services for their patients to consider without doing the necessary due diligence to recommend a specific product. In a sense, they are saying, “Here are some options … I don’t know which is best so you choose.”

You have worked too hard to develop a trusted brand and reputation to link yourself to any product, service, or brand that does not enhance that reputation. As you make choices on what to carry and recommend as part of your holistic care solutions, remember to keep it simple, provide high quality options, and only link yourself with the best. Simplicity creates efficiencies and effectiveness for your practice and delivers on the trust patients place in you. If you offer batteries, only carry and recommend the best option for your patients. If you offer a solution for telephone communication, make a choice to only carry and recommend the very best option for your patients and your brand. Patients will appreciate the simplicity and will be rewarded for the trust they place in you as their hearing-care expert who understands their needs and only recommends what is best for them.

Do your homework. Stand for something. Recommend the very best!

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Audiologists see a variety of hearing losses, mild sloping to severe, flat, and precipitous. We do not question to recommend amplification for a patient with a moderate hearing loss or a high-frequency, mild-to-severe hearing loss. But what about a mild, high-frequency hearing loss? What determines whether a patient chooses a hearing aid?

Patients with hearing loss often do not pursue amplification until 10 years after they first perceive hearing problems (Davis, 2007). Why do they wait? Is it because they do not perceive a hearing problem? If those patients with mild hearing loss wait to obtain hearing aids, then their hearing loss may worsen. Research has also shown that untreated sensorineural hearing loss and chronic health conditions show a reduction in the health-related quality of life (Chisolm et al, 2007).

In children, mild hearing loss can cause “delayed language, trouble paying attention, [and difficulty] understanding in noise” (Anderson, 2011). But what about adults? Adults with mild hearing loss have “less satisfaction with their independence, reduced emotional well-being, and greater perceived limitation while others show no problems or limitations.” (Timmer, 2014). What causes an adult patient to choose or decline amplification? Is there evidence to show that adults with mild hearing loss benefit from amplification?

Sereda et al (2015) asked audiologists what were important factors in fitting mild hearing losses. Without bothersome tinnitus, the top five factors were patient-reported hearing difficulties, motivation to wear hearing aids, self-reported impact of hearing loss on quality of life, degree of hearing loss, and realistic expectations.

We have all seen patients with the same hearing loss, normal sloping to a mild, high-frequency hearing loss. One patient chooses to obtain hearing aids, while the other patient does not. Why?
Factors for Those Who Chose Amplification

During the case history, does the patient report or deny hearing problems? Activity limitations? Social withdrawal?

Those who obtain hearing aids have a higher self-perceived difficulty prior to being fit than those who don’t, and greater difficulties perceived by others (Laplante-Lévesque, 2012). Based on the Hearing Handicap Questionnaire (HHQ). Whereas, those who chose no amplification accept their hearing loss, have less communication-related stress, and feel less emotionally handicapped by their hearing loss, based on the Hearing Handicap Inventory for the Elderly-Short form (HHIE-S) (Laplante-Lévesque, 2012).

Johnson et al (2016) also showed that pre- and post-fitting measures are beneficial to demonstrate how the patient perceives their hearing difficulties and quality of life. They show that if a questionnaire is completed, it must be done prior to amplification. After the hearing aid fitting, results about the unaided condition are not as accurate.

How can we, as audiologists, measure these outcomes? Here are a few methods:

- Pre- and post-questionnaires on the HHIE-S
- Hearing Handicap Inventory for Adults (HHIA)
- Abbreviated Profile of Hearing Aid Benefit (APHAB)
- Client-Oriented Scale of Improvement (COSI)

Laplante-Lévesque (2012) also found that patients who have applied for financial assistance for amplification are more likely to actually obtain amplification than those who are not eligible.

Factors for Those Who Did Not Choose Amplification

Timmer’s study (2014) shows there are no differences between those who choose amplification versus no amplification on the following:

- Audiogram
- Word recognition scores
- ABR wave V
- Age of onset
- Education level
- Speech-reading ability
- Auditory processing disorder testing via VA CD
- Loudness discomfort levels (LDL)
- Distortion production otoacoustic emissions (DPOAEs)
- Hearing aid expectations

There is a wide range of speech intelligibility scores in those with a mild hearing loss (Timmer, 2014). Other research based on patient outcomes has shown no consensus on age, cosmetics, type of hearing aid, previous experience with amplification, intelligence quotient, and visual impairment. There is some disagreement among researchers regarding socioeconomic status and its effects. Some research has shown that “higher socioeconomic status was associated with less of a self-perceived hearing disability” (Sereda, 2012).

Can we fit patients with mild hearing losses? The current technology in hearing aids is changing...
very quickly. The technology in itself may allow audiologists to fit mild hearing losses better due to a higher frequency range, advances in connectivity to TV and phone, improved microphones for speech-in-noise, and overall better open-fit hearing aids. We can perform verification on these hearing aid fittings for these mild hearing losses, and we can show that we can indeed fit these mild hearing losses through real ear. But what does this mean for the patient? He or she may not realize what hearing aids will do to help.

Therefore, the question of to fit or not to fit a mild hearing loss has been shown to rely on patient case history, interviews, questionnaires, and patient preferences, NOT on the audiogram. One in three adults older than age 65 has a mild hearing loss (WHO, 2012) and with the number of aging adults tripling by 2050, mild hearing loss will increasingly affect the older population (Timmer, 2014).

Should we or shouldn’t we fit these mild hearing loss patients? Should it be a recommendation? How much weight do patient factors have? What do they say? Are they having hearing problems and are they ready to do something about it? It appears patient factors weigh more heavily than audiological factors, verification methods, and age.

Leslie K. Rolph, AuD, Board Certified in Audiology, is an audiologist at the University of Texas Medical Branch Hospital in Galveston, Texas. Her interests include adult and pediatric audiology, vestibular testing, amplification, and electrophysiology.

Illustration by Johanna van der Sterre.

References


Timmer B. (2014) It may be mild, slight, or minimal, but it’s not insignificant. Hear Review 21(4):30–33.

Here's what's trending!

Madeline Bennett developed a prototype for an earplug attachment to reduce the stigma around wearing earplugs. Published on November 18 at 10:56 am

On October 25–26, 2016, the American Speech-Language-Hearing Association (ASHA) hosted a conference on audiology education. Published on November 29 at 10:15 am

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Advancements in Cerumen Removal

*In vitro* model demonstrates significant improvement in the topical treatment of impacted cerumen

Soham Roy MD, FACS, FAAP
Otolaryngologist

**Who suffers from ear wax impaction?**

18 million individuals will experience impacted cerumen and at least 8 million ear irrigations are performed each year, according to the 2008 clinical practice guideline. While epidemiological studies vary, it is generally accepted that about 10% of children, 5% of normally healthy adults and up to 57% of older patients in nursing homes will experience impacted cerumen.

**Problems associated with ear wax**

Cerumen impaction has clinical implications and often affects the well-being of patients. Cerumen impaction is often associated with conductive hearing loss, minor pain, itching and occasionally tinnitus. Removal of impacted cerumen has been shown to positively improve these symptoms, particularly hearing, in many patients.

**What are the current treatment options?**

There are several cerumen removal products commercially available, including oil-based, water-based, and non-water/non-oil based formulations. These products often require multiple doses per day over several days and provide very limited efficacy. As a result, millions of patients are driven to their doctor for manual extraction, which is often time-consuming and painful for the patient.

**Earwax MD™ – a new innovative treatment**

Scientists at Eosera™ have developed Earwax MD™, a novel, patent-pending topical drop that uses a ‘dual-action’ mechanism to disintegrate human cerumen. The wax ester and fatty acid lipid components of the cerumen are disrupted by one part of the formulation while the second part of the system works to disrupt the keratinocyte component of cerumen.

**In vitro study design**

Human cerumen was collected following a protocol approved by an external ethics review board. Once collected, similar sized samples were placed into test tubes. One mL of Earwax MD™, or Debrox*, or Murine Ear* were added to the test tubes and allowed to incubate at room temperature for up to 30 minutes. Disintegration scores were recorded at 5, 10, 15 and 30 minutes. Disintegration was measured on a scale of 0 to 4, with grade 0 showing no disintegration and grade 4 showing complete disintegration.

**The statistically significant results**

The time course study for disintegration scores demonstrated that Earwax MD™ was effective at quickly breaking down cerumen under room temperature conditions. Samples incubated in Earwax MD™ demonstrated significantly higher disintegration scores than the two comparators at every time point measured ($P < 0.0001$). Photographic representation of human cerumen samples also shows rapid disintegration.

**The evidence of success**

Earwax MD™ provides rapid disintegration of human cerumen samples with breakdown beginning as early as 5 minutes. Conversely, the two commercially available products, Debrox* and Murine Ear®, both containing carbamide peroxide 6.5%, had minimal effects on the cerumen samples. A recent exploratory study in humans demonstrated similar efficacy of Earwax MD in clearing impacted cerumen. Greater than 50% of patients with at least 50% impaction had total clearance after one 15-minute treatment and rinse, with 86% of patients showing total clearance with only 2, 15-minute treatments. The statistically significant results of Earwax MD make this new product a viable option for both in-office and at-home treatment of impacted ear wax.

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CONSIDERING THE CLASSROOM

EDUCATIONAL ACCESS FOR CHILDREN FITTED WITH HEARING ASSISTIVE TECHNOLOGY

BY KIMBERLY PETERS

A careful assessment and regular monitoring of appropriate accommodations and services can improve auditory access for children who are deaf or hard of hearing in the classroom. This is not simply a matter of providing educational access. This is a matter of educational equity for these children.

As a rehabilitative audiologist, speech-language pathologist, and the mother of a child who is deaf, I expect to get a lot of questions about how to improve listening performance for children in schools. Classroom listening and educational access are complicated issues. We know most children with any degree of hearing loss fall into the category of hard of hearing; children who are in mainstream education settings tend to have more residual hearing; and that about 75 percent of children with hearing loss in public school settings rely on speech for communication and listening to learn (Karchmer and Mitchell, 2006).

We also know that poor signal-to-noise ratio affects learning for children who are deaf, hard of hearing, who are learning English as a second language, or who have learning challenges such as attention deficit hyperactivity disorder (ADHD). Despite this, mainstream unoccupied classroom noise levels often exceed those recommended by the American National Standards Institute (ANSI, 2002) for optimal speech recognition for young children with typical hearing and those with hearing loss (see Crandell and Smaldino, 2000 for a review; Knecht et al, 2002).
Research shows that high levels of classroom noise negatively impact reading comprehension, auditory and visual attention, and short-term memory in typical hearing children, and that children in noisier school settings demonstrate more oppositional behaviors and poorer social skills than children attending quieter schools (Howard et al., 2010; Ferguson, 2013). High background noise levels can reduce acoustic access to and recognition of conversational speech cues by children who are deaf or hard of hearing (Eisenberg et al., 2004; Finitzo-Hieber and Tillman, 1978; Litovsky et al., 2004) and slow, verbal processing speed (common in children who are deaf) further reduces speech recognition in noise.

We know that even when a child who is deaf or hard of hearing (DHH) can hear what is being said, this does not mean that he or she has equal communication access to his or her typically hearing peers or complete access to the curriculum. In school, children need to hear the teacher, their peers, and other adults with whom they interact (e.g., instructional assistants, specials teachers, recess and lunch monitors, and the school nurse). They need to navigate a dynamic linguistic environment all day that often includes variable and unpredictable background noise. That noise can be generated by outside sources such as traffic, children on the playground, children in the gymnasium, children passing in the hallway, music room noise; or it can be generated by inside sources, such
as heating and ventilation equipment, desks moving, or other children making noise. Depending on the location of the child who is DHH, background noise can vary across multiple acoustic dimensions such as intensity, frequency, and duration. The child with hearing loss encounters multiple learning and social situations throughout the school day with which noise can significantly interfere.

Recent research suggests that children who are deaf (especially those with delayed language) are at higher risk for auditory memory and auditory attention deficits (Burkholder and Pisoni, 2006; Pisoni et al, 2010). In addition to classroom noise interfering with auditory access, noise and classroom disruptions interrupt auditory attention; this can also have significant effects on learning for a child who is DHH. Children who intermittently lose track of instructional language because they are attending to other distractions will invariably miss critical information.

About 80 percent of students with hearing loss attend schools with only one to two children who also have hearing loss (Karchmer and Mitchell, 2006). Most children who are DHH are being served by school teams that have limited experience with and knowledge of the educational impact of hearing loss. Educational audiologists have an important role not only in assessing and fitting school-aged children with hearing assistive technology (HAT) for the classroom, but also in helping teachers and other professionals understand the complex listening and learning needs of children who are DHH and how to optimize communication access despite the many listening obstacles these children face throughout the day.

Optimize Learning

Here are some recommendations for optimized learning, communication access, and communication equity for children who are DHH in schools.

Start with a Good Assessment

Every individualized education plan (IEP) must be based on a comprehensive assessment. Per the Individuals with Disabilities Education Act (IDEA) 2004 Section 300.304 (b)(1), the evaluation process must include a variety of assessment tools “to gather relevant functional, developmental, and academic information about the child, including information provided by the parent that may assist in determining the content of the child’s IEP.”

Further, “the public agency must not use any single measure or assessment as the sole criterion for determining whether a child is a child with a disability and for
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*Image view of practitioner conducting a test*
determining an appropriate educational program for the child” [IDEA Sec. 300.304(b)(2)] and the child must be “assessed in all areas related to the suspected disability, including, if appropriate, health, vision, hearing, social and emotional status, general intelligence, academic performance, communicative status, and motor abilities” [IDEA Sec.300.304 (c)(4)].

When eligibility determination, accommodations, and specialized instruction for a child who is DHH are based solely on standardized assessments of expressive and receptive language, this will be insufficient to develop an appropriate and comprehensive school plan.

The educational audiologist should contribute to the assessment process by collaborating with other team members in conducting and recommending appropriate standardized and functional measures of educational impact. This might include conducting unaided and aided audiological testing, measuring speech recognition in quiet and noise, evaluating functional listening, and observing and evaluating the classroom listening environment.

Furthermore, Title II of the Americans with Disabilities Act (ADA) was clarified in 2014, requiring schools to ensure that communication is as effective for students with hearing loss as it is for students without disabilities (Anderson, 2014). Effective communication is provided through auxiliary aids and services for the purpose of “affording an equal opportunity to obtain the same results, to gain the same benefit, or to reach the same level of achievement as that provided to others” (DOJ, 2010) and “to participate in and enjoy the benefits of the district’s services, programs, and activities” (page 14, DOJ-DOE, 2014).

Auxiliary aids can include such things as interpreters, note takers, computer access real-time translation (CART) services, hearing assistive technology, accessible electronic and information technology, and captioning. Services can include training for staff, students and/or parents, or consultation/collaboration among staff, parents, and/or other professionals (Anderson and Price, 2015). The need for “effective communication” support and services can be documented by assessing impact of noise on communication effectiveness, social communication, and self-advocacy through a combination of standardized and functional measures. While some testing may be outside the scope of competence of an educational audiologist, it is well within the scope of practice for an audiologist to make a recommendation to the IEP for such testing.

For more information on this topic, an outstanding and comprehensive guide to assessment of children who are DHH is Steps to Assessment: A Guide to Identifying Educational Needs for Students with Hearing Loss by Karen Anderson and Lynne Price.

Advocate for a Quiet Classroom
A critical step in facilitating auditory access for children who are DHH is advocating for a quiet learning space. In the primary grades, this will often
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include advocating for smaller class size because as the number of children in a room increases, typically so does the background noise level—young children make a lot of noise. And they make noise at random. This can pose significant speech recognition and attention problems for a child who is DHH. Although it is not always feasible to control how many children are in a given classroom, research on class size and learning outcomes suggests that the “optimal” class size for children with typical hearing in elementary school is around fewer than 20 children (see Finn et al, 2005).

If it is not possible for a child who is DHH to be in a small classroom, advocate for a room in a quiet location, and a teacher with a clear voice. School districts are not always open to specialists choosing specific teachers for individual children, but it is possible for an audiologist to make a case for visiting a school and measuring the signal-to-noise ratio in several classrooms in order to make an educationally appropriate recommendation for placement. Research suggests that the use of “clear speech” facilitates comprehension for children who are DHH (Payton, 1994); choosing a teacher whose natural inclination is to speak clearly makes sense. Auditory access for children who are DHH is critical, and thoughtfully choosing the learning environment is the first step in facilitating auditory access.

Assess Functional Listening

Teachers, support personnel, classroom environment, and classroom demands change annually. In addition, a child’s ability to hear well in noise can improve or decline over time. It can be helpful to complete a functional listening assessment annually, before the start of the school year for every child who is DHH. This should include measures of speech recognition under ideal conditions (conversational distance in quiet) and at various distance and background noise conditions. Sometimes this type of testing is done as part of annual audiological testing, but sometimes it is not. Even if speech recognition in noise testing is completed during an audiological evaluation, it may not be conducted in such a way as to be reflective of classroom listening demands, and the results of such testing may not be described in a way that makes sense to classroom teachers or other school personnel.

There are many excellent, easily accessible procedures for conducting functional listening evaluations. Karen Anderson’s website (http://successforkidswithhearingloss.com) is a great place to start; the Hands and Voices website (http://handsandvoices.org/articles/education/ed/func_listening_eval.html) describes a similar evaluation.

The most important thing is to try to replicate classroom listening for each individual child as faithfully as possible, and explain to people who do not know anything about hearing loss how the scores reflect a child’s access in the school setting. For instance, it can be helpful to measure a child’s speech recognition when noise is coming from in front of the child and behind the child (like when the child is sitting in the cafeteria, or in the middle of a group of children on the floor). It can be useful when trying to demonstrate the impact of noise on unilateral listeners to conduct speech recognition testing with the noise and speech directed toward the “good” ear versus the “poor” ear. It might even be helpful for a teacher to see the difference between story comprehension in quiet versus comprehension in low to moderate background noise. A functional listening evaluation should be flexible, understandable to the classroom teacher and team, meaningful for the child, and reflective of the actual listening demands in the child’s classroom.

Research has shown that school-aged children with typical hearing understand 95–98 percent of speech presented in quiet, 93–97 percent of speech presented at a +5dB S/N ratio (low to moderate background noise) and 90–92 percent of speech presented at a 0 dB S/N ratio (moderate to high background noise) (Bodkin et al, 1999). For a student who is DHH to have comparable access to teacher instruction as typical hearing peers, he or she would need to demonstrate functional listening scores across listening conditions in the 90–95 percent range.
Measure Noise Levels During Different Activities
Especially in the primary grades, noise levels vary with activity. The Common Core State Standards include not only the skills and knowledge that children need to acquire at each grade level in English language arts and math, but also describe learning standards for group communication and learning in the classroom (National Governors, 2010).

This presents some unique challenges for children who are DHH because, while some of the school day is still spent in structured, teacher-directed activities, there is a lot of semi-structured peer interaction interspersed throughout the day. To make an appropriate recommendation for the type of HAT and how to best use them in school, audiologists need to gather comprehensive information about noise levels and auditory access during instruction and peer interactions across multiple activities.

To that end, audiologists should spend time observing a variety of learning and social activities, measure noise versus speech levels, and monitor auditory comprehension of students who are DHH. This enables the audiologist to make better recommendations to teachers about optimal technology usage throughout the day. For example, in a classroom where a child uses both a personal FM system and a sound field system, it might make sense for the teacher to give the transmitter to a friend and turn off the sound field system during “buddy reading.” This can become a self-advocacy objective for the child who is DHH as he or she gets older. If a child changes seats throughout the day, it would be helpful for the audiologist to determine for each location what the best seat is.

Assess Subjective Impressions of Noise Impact
Children and teachers can also provide useful feedback to the team. Self-reports and teacher observations about perceived auditory access in the classroom can assist the team in making decisions about seating. HAT use (when it is most helpful, when it is being used effectively, when use needs to be modified), what listening situations are challenging for the student, what communication mode is preferable to the student, and when communication is most and least successful. Self-report measures can be used to educate the team generally about the impacts of hearing loss or can be used to make specific changes to a child’s educational program. Commonly used measures are the Listening Inventory for Education-Revised (LIFE-R) Student Appraisal (Anderson et al, 2011), the Children’s Auditory Performance Scale (CHAPS) (Smoski, 1998), and the Listening Inventory for Education-Revised Teacher Appraisal of Listening Difficulty (Anderson, 2011).

Provide Frequent Training Sessions
Appropriate technology usage by teachers and school personnel takes a lot of practice and coaching. It requires more than annual support for most teachers, especially if the district does not have a full-time teacher of the deaf. Instructional assistants, specials teachers, substitutes, speech-language pathologists, special educators, peers, “big buddies,” and even the school nurse may need to use HAT in the classroom. Per IDEA, assistive technology must be checked every day to ensure appropriate function. One beginning of the year in-service with the classroom teacher will likely be insufficient to guarantee that a child who is DHH has working technology and consistent auditory access via HAT in the classroom for 180 school days.
Considering the Classroom

Other Considerations

Classroom Modifications
One common accommodation in the classroom is preferential seating. Perhaps a better term is “strategic” seating. Strategic seating should be used to improve the child’s visual and auditory access to both the teacher(s) and peers. This might mean moving a child from the front and center of the classroom, to the left or right and toward the middle or back, so that he or she can more easily auditorily alert and visually orient to peers when they are speaking. Depending on classroom seating arrangements (desks, multiple pods, or “flexible” seating) the child who is DHH may need to be coached in effective self-advocacy strategies around strategically locating him or herself to optimize visual and auditory access. The educational audiologist should advise the team on strategic seating based on the child’s visual access, the location and level of background noise relative to the child, and the teaching goals during instruction.

Whenever feasible, the FM transmitter should be passed to peers so the child with hearing loss can hear what other children in the classroom are saying. This can be challenging in a busy classroom, but it is good to get in the habit of doing this, especially as children's brains are still developing with respect to auditory signal processing (Ponton et al, 2000).

Many classrooms purchase a second pass-around microphone to facilitate this goal. Some transmitters can be used as conference microphones as well, depending on the number of children in the group and the goals of the group. For example, if all of the children at the table are sharing information, putting a conference microphone in the middle of the table will allow the child who is DHH to hear his or her peers. If the child is working with a partner at a table where other children are seated, the partner should wear the transmitter in directional mode so that the child who is DHH hears the partner. Guidelines from the American Speech-Language Hearing Association (ASHA) specify that noise levels in an unoccupied learning space should not exceed 35 dBA, and that the SNR at the child’s ear should be at least +15 dB (ASHA, 2005). Some suggestions for improving classroom acoustics for children with hearing loss (per ASHA) include the following:

- Consider acoustic treatment throughout the classroom.
- Consider carpeting—if there is not wall-to-wall, place some area rugs.
- Request acoustically treated hanging ceiling tiles.
- Avoid situations where the class is split and half of the students are listening to teacher instruction and the other half are watching TV or listening to a tape recorder.
- Use window treatments (thick material).
- Replace buzzing lights.
- Hang long pieces of felt on the wall on which children can pin artwork.
- Use “creative” artwork—hang egg crates and strips of carpet from the ceiling.
- Use corkboards whenever possible.
- Place flat surfaces (movable boards) at an angle.
- Place tennis balls or rubber tips on chair feet (keep in mind latex allergies).
- Have soft chairs (small beanbag chairs) in leisure/reading areas.
- Do not have noisy equipment (e.g., computers, projectors) on if you are not using them.
- Try to keep doors and windows closed.

Use of Hearing Assistive Technology
The importance of appropriate remote microphone usage in the classroom for a child who is DHH cannot be overstated. In order for a child who is DHH to have access to education and to acquire new vocabulary and language, they need to have clear and consistent access to the speech signal during all instruction and throughout the day. Appropriate remote microphone use includes (consistently and across multiple settings):

- Maintaining placement of the microphone in the optimal location for signal reception no greater than six inches directly in front of or directly below the speaker’s mouth.
- Activating the microphone when giving classroom instruction, when talking to the child, or when talking to a group in which the child is a member.
- De-activating the microphone when not addressing the child or a group in which he or she is a member.
- Passing the microphone to other adults and children when they are talking to the child.
- Restating into the microphone what other children and/or adults have said so that the child does
not miss incidental classroom discussions or interactions.

- Listening to the child’s hearing aids with the remote microphone activated every morning to ensure optimal function of all technology.

- Monitoring the location of the microphone at all times so that other children or adults do not misuse the technology (either inadvertently or intentionally).

- Giving the microphone to a responsible adult during transition times and “specials” such as recess, art, or physical education.

- Determining a secure location for the microphone and components of the child’s assistive technology for times when it is not in use.

- Charging the microphone every night.

- Consulting regularly with the child’s audiological and educational team as well as the child’s parents about technology function and use in the classroom.

**Conclusion**
A careful assessment and regular monitoring of appropriate accommodations and services can improve auditory access for children who are deaf or hard of hearing in the classroom. This is not simply a matter of providing educational access. This is a matter of educational equity for these children.

Kimberly Peters, PhD, CCC-SLP/A is a professor and the chair of the Department of Communication Sciences and Disorders at Western Washington University.

**References**


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Dr. Anu Sharma is the 2017 Downs Lecturer at AudiologyNOW!®

By Eileen Rall

Enjoy This Article?
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Since 2005, the Marion Downs Lecture in Pediatric Audiology has been the highlight for pediatric audiologists attending AudiologyNOW!, the annual convention of the American Academy of Audiology. This lecture series is supported with a grant from The Oticon Foundation. The inaugural lecture was given by Anu Sharma, PhD. Many pediatric audiologists, myself included, can remember sitting in that session, captivated and inspired by the groundbreaking work that Dr. Sharma presented on the biological markers of auditory development and the impact of early intervention. This year, the Academy of Audiology Foundation (the Foundation) is honored to invite Dr. Sharma back this year to present the lecture at AudiologyNOW! 2017 in Indianapolis, Indiana, on Friday, April 7 at 9:45 am.

Dr. Anu Sharma is professor and interim chair of the Department of Speech Language and Hearing and a fellow at the Institute for Cognitive Science and Center for Neuroscience at the University of Colorado at Boulder. She also serves as an adjunct professor in the Department of Otolaryngology and Audiology at the University of Colorado at the Denver Medical School. Her research is focused on examining brain plasticity in children and adults with hearing loss who receive intervention with hearing aids and cochlear implants. Her research has been funded by the U.S. National Institutes of Health (NIH) since 2001.

In addition to her inaugural Marion Down’s lecture at AudiologyNOW!, Dr. Sharma has earned an international reputation as an eloquent speaker who can make her research understandable to any audience. She has given the keynote address at the British Academy of Audiology, the British Society of Audiology, and has presented at many other national, regional, and state venues. The Foundation is beyond pleased that she was available for the 2017 Marion Downs Lecture. I had the privilege to interview Dr. Sharma about her work since that inaugural lecture in 2005.
ER: How did Dr. Downs inspire you all of those years ago?
AS: Everything about Marion was and continues to be inspirational. The breakthroughs she made in pediatric audiology were extraordinary, especially at a time when women were hardly represented in important decisions in the field. Universal Newborn Hearing Screening would not have been conceptualized without the pioneering work of Marion.
I was also inspired by Marion personally. She lived her life to the fullest. I very much enjoyed reading her memoir called, “Shut up and Live!” She was always ahead of the curve. I recall that when I moved to Colorado to join the faculty at University of Colorado, one of the first emails I received was from Marion. In it, she linked some brand-new articles in pediatric neuroscience and asked if I had read them. She was probably 92–93 years old at that time, and that’s how on top of things she was!

Finally, measuring CAEPs in patients with cochlear implants can be challenging because of the cochlear implant artifact. It can be difficult to manage or minimize in the measurement, and you need a good understanding of it so it doesn’t ruin your data.

What did it mean to you to be the first speaker for the Marion Downs Pediatric Lecture?
Especially since I had only been conducting pediatric research for 10 years, it was an incredible honor to be the first Marion Downs Lecture speaker. I still vividly remember the event. The questions and feedback I received were very insightful and helped inform my research in following years.

I remember sitting in the audience in awe of the research your lab was conducting. Was there any audience member follow-up that stays with you?
Thanks for the kind comment. I must acknowledge all of my students (past and present) who have worked so hard in the lab to allow us to have the findings we do. As I said, I very much enjoyed the interaction with the audience at the end of the first Marion Downs Lecture. The insightful comments and questions allowed me to think in different ways about our research findings and informed aspects of our future clinical studies.

Who are the researchers in pediatric hearing that you admire?
Marion Downs, of course! I also admire current pediatric research in areas including basic neurophysiology and clinical outcomes with hearing aids and cochlear implants. Importantly, these outcomes are not just restricted to speech and language development, but are encompassing social-emotional development and considering the child as a whole.

In the years since your first Marion Downs Lecture, what do you feel is the most significant advance we have made in pediatric hearing assessment and intervention?
As a field, we have made important strides in better understanding the variability
underlying outcomes for children with hearing loss. For example, NIH-funded studies, e.g., The Childhood Development After Cochlear Implantation (CDACI), Outcomes for Children with Hearing Loss (OCHL), and The Longitudinal Outcomes of Children with Hearing Impairment (LOCHI), that you heard about last year when Dr. Teresa Ching was the invited presenter for the Marion Downs Lecture, are excellent examples of this kind of work.

The CDACI has shown so many important factors related to outcomes in children with cochlear implants that weren’t even considered 15 years ago, such as maternal education. We were so focused on variables such as the type of implant or amplification, measures we could control as audiologists. We learned from these studies to consider the whole child, the family situation, and the support from the community. You could have the perfect cochlear implant or hearing aid fitting and yet there is still so much variability in outcome if you didn’t consider the whole child.

Both you and last year’s lecturer, Dr. Teresa Ching, stress the value of measuring cortical auditory-evoked potentials (CAEPs) as a way of determining candidacy for technology or as a measure of the impact of intervention. Have you been able to implement this in any clinical protocols in the facilities where you work?

We have been measuring CAEPs for the better part of two decades. We did it clinically when I was at the University of Texas at Dallas, Callier Center, on almost every child that was a candidate for cochlear implantation, and they continued to do so for many years after I left. The focus of my work in Colorado is research, but I do offer P1 biomarker evaluations in my lab at no charge if cases are referred to us by audiologists after detailed consulting with us. We have had patients fly in from all over North America for the assessments. We try to focus our work on the most complex cases, such as those patients with auditory neuropathy spectrum disorder (ANSD), including hypoplastic auditory nerves, or children with co-morbid multiple disabilities that make behavioral assessment to help determine candidacy for cochlear implantation difficult. Measuring CAEPs gives you a functional assessment, whereas MRI is a structural assessment. I have publications of several case studies where we assessed CAEPs on children who had hypoplastic nerves to see if they were candidates for cochlear implantations, complex cases of ANSD, and on children with co-morbid disabilities (Roland et al, 2012; Sharma et al, 2013; Cardon et al, 2012).

With all of the benefits to doing CAEPs, what do you think is the barrier to wide-spread use of this tool clinically?

I think there are a couple of factors. First is training. We are probably still not training AuD students as much as we should on cortical potentials. Another is resources. To be candid, audiologists sometimes work under tight conditions where they don’t have the financial flexibility to add another test that requires additional equipment and training. Finally, measuring CAEPs in patients with cochlear implants can be challenging because of the cochlear implant artifact. It can be difficult to manage or minimize in the measurement, and you need a good understanding of it so it doesn’t ruin your data.

In a recent article you authored, you discuss the use of inter-trial coherence (ITC) as a more effective measure of function in patients with ANSD – can you tell us more about this measure and its clinical feasibility?
It’s a fairly new test. Typically, in auditory brainstem response (ABR) and CAEPs, we are measuring a timed waveform. We evaluate when the response is occurring. We can also look at cortical potentials and measure them in the frequency domain. This is a whole new area of cortical potentials that is opening up called “time frequency analysis.” There is so much rich information about the brain in the cortical potential, but typically we only consider the time aspect of it. Now we want to see the frequency aspect of it. To me, it was intuitive that we would want to use this type of analysis in patients with ANSD because ITC measures cortical synchrony through phase-locking. We found some very interesting results in which this analysis classified the patients into having good or poor synchrony, and it was measurable. The measure is more widely used in neuroscience literature, but there is very little clinical documentation of it in the CAEPs literature in audiology (Nash-Kille and Sharma, 2014; Sharma and Cardon, 2015).

In the article, you describe this measure as using a single impulse as opposed to relying on averaging responses over time. Is that correct? Yes, you can think of it as presenting many iterations of a stimulus such as “bah, bah, bah, bah.” Every time you present a stimulus like that, you get a response from the brain. In typical cortical potentials, we just average it but in ITC we measure the response to each trial and then we see how coherent the response is across trials. Even children with ANSD who had a normal average P1 response, normal cortical potential, showed a deficit in this synchrony. It is a much more sensitive measure than the averaged response, at least in auditory neuropathy. We published a case study of a girl with unilateral ANSD. One ear was fine: it had a very synchronous response. In the other ear, sometimes we would present the stimulus and get a response from the brain and other times we wouldn’t. Given this degree of variability, it would be hard to make sense of our auditory world. The sound has to be consistent in its representation on the brain. If the signal coming in is not coherent, or synchronous, it is challenging to learn (Nash-Kille et al, 2014).

In another recent article on cortical development and neuroplasticity in ANSD, you report the impact of inconsistent or degraded stimulation on development. You reference the literature on deprivation due to chronic otitis media with effusion and the impact it has on auditory processing. Do you feel that this also applies to inconsistent use of amplification? Absolutely, I do think inconsistent use of technology is a factor in outcomes. Our data in cochlear implants show us a clear pattern of changes in cortical potentials following implantation. When we would find a case in which development of the cortical potential wasn’t meeting its benchmarks, we could predict the inconsistent use of the technology as the reason for the lack of development. In those cases, when we do not see the changes in the brain’s response, we could follow up with the families and present the data to help support more consistent use. The brain’s responses were objective and very compelling and helped change behaviors. It was a very powerful counseling tool.

In your recent article, “Developmental and Cross-Modal Plasticity in Deafness: Evidence from the P1 and N1 Event Related Potentials in Cochlear Implanted Children,” you introduce the reader to “cross-modal plasticity” (CMP). Can you explain what cross-modal plasticity is and why the measurement of it is important in assessing outcomes for children with hearing loss?
CMP is a form of cortical re-organization associated with deafness. This form of plasticity occurs when an intact sensory modality recruits cortical resources from a deprived sensory modality to increase the processing capabilities of the intact modality. This recruitment appears to reverse in some cases following stimulation of the deprived sensory modality. Compensatory cross-modal re-organization, which results in areas of auditory cortex being re-purposed by vision or somatosensation, has been implicated as a factor that may further explain some of the variable outcomes in children with cochlear implants. Large-scale studies are needed to determine the extent to which cross-modal re-organization may be a predictive factor in pediatric cochlear implant success.

We have a recent publication exploring cross-modal plasticity in children with cochlear implantation, and I will explore this topic in more detail in my presentation this April at AudiologyNOW! 2017.

In another article, “Cross-Modal Plasticity in Developmental and Age-Related Hearing Loss: Clinical Implications,” you discuss the reversal of cross-modal plasticity in a young child with progressive single-sided deafness (SSD) who received a cochlear implant. Have you seen any other cases of this? Is this something your lab is working on with pediatric patients?

Yes, we are very excited about looking at patients with SSD. We see the reversal in some of these patients. It depends on many factors such as age of hearing loss onset or implantation. Our lab has been interested in cross-modal plasticity not just in the pediatric population but also in age-related hearing loss. We are seeing cross-modal reorganization, recruitment by vision, in people with mild, early stage hearing loss. Interestingly, we have found in a couple of cases with well-fit amplification, there is reversal of the re-organization. These brain changes are happening in older adults as well as pediatric patients. We don’t take mild hearing loss as seriously as more significant degrees of hearing loss, yet we are seeing some of these same changes with deprivation or degradation. The brain is telling us a story that we need to listen to about compensatory plastic changes which happen secondary to hearing loss in both children and adults (Glick and Sharma, in press, and Sharma et al, 2016).

Last year at AudiologyNOW! in the Hearing Aids in Review session, Catherine Palmer said, “There is nothing mild about mild hearing loss.”

That is exactly right. Even mild degradation of the signal can impair development and processing. Cross-modal
plasticity and markers of listening effort are showing us the impact of mild hearing loss and the benefits of intervention.

You will have 90 minutes to convey the results of your research to the audience at the 2017 Marion Downs Lecture. What lessons have you learned over the past decade that you want the readers of this article to take away that you won’t be able to cover in your lecture in Indianapolis?

I will try to be comprehensive, but I probably won’t be able to get to the case study level that would demonstrate the everyday clinical implications of the research. I want listeners to go read the papers so that they can apply the principles of brain plasticity in helping their patients.

Conclusion

Thank you for speaking with me, Dr. Sharma, and for giving us a preview of the 2017 Marion Downs Lecture in Pediatric Audiology. As a clinician for almost 30 years with a long-term focus on serving pediatric patients and their families, it is so meaningful to see the outcomes of what you do, and know that these outcomes are based on objective data and meticulous study methods. We hope that your research will one day become fully implemented in all facilities where pediatric patients are evaluated and treated so that early, accurate diagnoses are made and individualized treatment plans start as soon as possible.

Your lecture years ago was so memorable. Your enthusiasm for your research is contagious! I think I speak for many pediatric audiologists when I say we are grateful for your work and we look forward to learning more from you in Indianapolis.

Eileen Rall, AuD, Board Certified in Audiology, is a member of the Board of Trustees of the American Academy of Audiology Foundation and is an audiologist at the Center for Childhood Communication at the Children’s Hospital of Philadelphia in Philadelphia, Pennsylvania.

References


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Survey Sheds Light On Consumer Preferences

What Do They Want In A Rechargeable Hearing Aid Battery?

A recent Hearing Tracker survey of 500 consumers asked what people want in a rechargeable hearing aid solution. The results reveal that wearers want rechargeable batteries for their hearing aids. But the results also show that there is some specific criteria that needs to be met before a rechargeable is perceived to have the capabilities necessary to be of real value to the wearer. In short, not just any rechargeable option will do.
With more rechargeable choices than ever hitting the market soon, consumers and providers alike are faced with the challenge of determining which option best meets their needs. Here are some of the survey findings we found of primary importance for making that decision:

People Want Options
Of survey respondents, 84% said that if their battery lost power during a time of use, they would prefer to use a disposable battery over charging their rechargeable system for 30 minutes. One respondent made the following comment to support this opinion: "I don’t have time to wait around for the battery to recharge – especially at work." Another respondent said, "No one wants to put their life on hold for any length of time so a battery can charge."

All-Day Power On A Single Charge
While survey respondents want the option of changing out their rechargeables for disposable batteries should the need arise, 85% declared that they would prefer to never have need of that option in the first place. These survey respondents rated the desire for a rechargeable battery solution that lasts for the entire day’s wear on a single charge as “very important.”

Users Don’t Want An Enclosed Unit
Some of the new rechargeable hearing aids hitting the market use lithium-ion batteries. They claim to be able to power hearing aids all day on a single charge, but lithium-ion batteries can be dangerous and life-threatening if swallowed. To work around the danger factor, manufacturers are sealing the battery into the hearing aid. While this fix helps to bring down the potential problems associated with lithium-ion batteries, it also directly impacts wearers’ options should their battery die or malfunction during times of use. All a wearer can do in the event of battery failure is recharge – an effort that can take a minimum of 30 minutes. And if something were to go seriously wrong with the battery, the wearer would be without their aid until the problem can be fixed by their provider or the brand – a situation that could leave the wearer without their hearing aid for days or even weeks.

This lack of control may explain why only 8% of survey respondents said they would prefer an enclosed unit.

One survey respondent made the following comment:
“I would like to be served with options. In case of failure of the rechargeable battery, I want to have the option to use the disposable batteries. I use hearing aids all the time and I prefer to always have a back [up] plan.”

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*See hearing aid compatibility list at www.zpowerhearing.com
Supporting Communication in Infants with Hearing Loss Prior to Cochlear Implantation

BY MEGAN Y. ROBERTS

Now, rather than simply waiting for a cochlear implant, parents can feel empowered to teach their infant with hearing loss fundamental prelinguistic skills that do not depend on access to sound.

A baby fails a newborn hearing screening and an auditory brainstem response (ABR) indicates profound bilateral hearing loss. From an audiologist’s perspective, fitting for hearing aids and an evaluation for cochlear implant candidacy are often the next steps. But for parents the lag time between identification and implantation is often a stressful time that involves waiting and worrying. This lag, during which infants do not have access to auditory linguistic input, occurs during a sensitive period of prelinguistic communication development (Ruben and Schwartz, 1999). What can pediatric audiologists and early intervention providers do during this critical period of development? The results of the first clinical trial (NCT01963468) of a pre-implantation communication treatment (PICT) allow us to answer this question.
Persistent language delays following early implantation suggest a cochlear implant alone is insufficient for normal language skills post-implantation (Niparko et al, 2010). But waiting to initiate communication treatment until after the cochlear implant may be too late, given the critical period for language development (Ruben and Schwartz, 1999).

Effective early communication intervention delivered prior to implantation may be necessary to reduce such delays. Because infants do not have access to sound during this period, they may require additional support to acquire prelinguistic communication and language skills (Ruben and Schwartz, 1999).

Early in life, infants and parents engage in interactions that form the foundation for language learning. When an infant is born with a hearing loss, these interactions are altered in two primary ways. First, hearing loss limits the amount of access to spoken language. Second, given that 90 percent of children with hearing loss are born to hearing parents, a hearing status mismatch between the parent and the child may result in communication interaction difficulties. Hearing parents, limited by their own communicative experience which is different than that of their infant, may have difficulty tailoring interactions to meet their infant’s learning needs. For example, hearing parents may use fewer visual strategies (Waxman and Spencer, 1997) and may

Tactile support strategies are associated with longer engagement periods between child and mother.
be more directive (Fagan et al, 2014). These increased directive behaviors may result in fewer infant-parent interactions (Gale and Schick, 2009).

Despite this mismatch, several parent behaviors are related to language development in infants with hearing loss. Visual support strategies (e.g., using gestures, moving objects into the child’s line of sight) provide input such that the developing brain begins to form symbolic representations during this critical time, despite the absence of auditory information (Ruben and Schwartz, 1999). Tactile support strategies (e.g., tickling or caressing the child to initiate and maintain an interaction) are associated with longer periods of engagement between child and mother (Loots et al, 2005). Use of responsive support strategies (e.g., responding to child communication) is associated with spoken language skills in children with cochlear implants (Cruz et al, 2013). Furthermore, interactive strategies (e.g., following the child’s lead) are associated with expressive language growth in children with hearing loss (Pressman et al, 1999).

While correlational research suggests these support strategies have a positive impact on language development in children with hearing loss and for children with other disabilities (Cruz et al, 2013), the PICT trial is the first study to teach parents specific communication support strategies prior to implantation. PICT is implemented during a sensitive period between identification of hearing loss and implantation (Ruben and Schwartz, 1999). It involves visual, tactile, responsive, and interactive communication support strategies that are associated with stronger language skills in children with hearing loss (Loots et al, 2005; Pressman et al, 1999), and includes systematic parent training which has been shown to be effective at increasing parents’ use of communication strategies in other populations of children (Roberts and Kaiser, 2015).

**Support Strategies**

PICT includes three classes of communication support strategies.

**Visual**

First, parents are taught to use visual strategies. Visual strategies are especially important for infants with profound hearing loss who do not have access to linguistic auditory information. The primary visual strategy is the use of gestures by parents because, “children enter language hands first” (p.741, Goldin-Meadow, 2007). All children, regardless of hearing level, use gestures to communicate before they are able to say words (Iverson and Goldin-Meadow, 2005). In fact, deaf children not exposed to spoken or visual language point at the same number of objects as hearing children (Feldman et al, 1978). These children use gestures to direct an adult’s attention and to communicate about something they find interesting.

Gesture use has a positive effect on language learning because

- The act of gesturing (regardless of parent response) may make it more likely that the infant will learn a word for the object to which they pointed.

Given the strong relationship between gesture use and language development, modeling gestures during this critical prelinguistic period may facilitate post-implantation spoken language skills. Other visual strategies include sitting face to face with the child, waiting until the child looks before starting an interaction, moving objects in the focus of the child’s visual attention, and using exaggerated facial expressions. Teaching parents to use visual strategies may be particularly important for hearing parents of children with hearing loss given they are less likely to use visual strategies than deaf parents.

**Interactive and Tactile**

Second, parents are taught to use interactive and tactile strategies. Interactive strategies support increased engagement with a communication partner or activity. This increased engagement is especially important because it’s positively related to language learning (Adamson et al, 2004). Parents are taught to increase engagement by following their infant’s lead in play, choosing interesting and engaging toys, imitating the infant’s non-verbal actions, touching the child to attract or keep attention, and using tickling or physical touch to sustain engagement. These strategies are effective at increasing child engagement and subsequent language skills (Roberts and Kaiser, 2015).
Supporting Communication in Infants with Hearing Loss Prior to Cochlear Implantation

Teaching parents to use effective interactive strategies is essential for parents of children with hearing loss because mothers of infants showing signs of communication difficulties interact less with their infants (Alston and St James-Roberts, 2005).

**Responsive**
Lastly, parents learn responsive strategies, such as responding to all child vocalizations and gestures and balancing turns by responding to each child utterance with only one comment. Maternal responsiveness at the time of cochlear implantation positively predicts language skills four years after implantation (Quittner et al, 2013). Most striking is the fact that maternal responsiveness and age of implantation were equally related to long-term language outcomes in children with cochlear implants (Niparko et al, 2010; Quittner et al, 2013).

Responding to prelinguistic communication such as vocalizations and gestures is particularly important for infants with hearing loss. Because infants with hearing loss don’t receive auditory feedback to help shape their vocalizations, parent responsiveness is critical. Responding contingently to every communicative act teaches infants how to participate in social interactions. Once children have access to auditory information, language may be mapped to these vocalizations and gestures. As such, the goal of this prelinguistic period prior to implantation is to increase prelinguistic behavior and to teach infants the basic back and forth components of social interactions.

**Coaching Sessions**
Parents are taught these strategies during one-on-one coaching sessions in three phases (visual, interactive and tactile, and responsive). At the beginning of each phase, the topic is introduced through an hour-long workshop in which the therapist: (a) defines the strategy, (b) provides a rationale for each component of the strategy, (c)
Supporting Communication in Infants with Hearing Loss Prior to Cochlear Implantation

describes how to do the strategy, (d) shows video examples of the strategy, and (e) answers parent questions about the strategy. Following each workshop, parents practice the specific set of strategies during sessions.

Each session includes four segments: (1) the therapist reviews the intervention strategies taught in the workshop, (2) the therapist models the intervention strategy with the child, (3) the parent practices the strategy with her child with coaching from the therapist across four different routines and activities of the parent’s choice, and (4) the therapist provides feedback to the parent, summarizes the session, and answers the parent’s questions.

Outcomes

The effects of parent use of these facilitative strategies on prelinguistic communication skills of infants with hearing loss was evaluated by randomly assigning 19 infants with hearing loss to either receive PICT or no treatment. Infants in both groups received their regular early intervention services. We measured children’s symbolic (following directions, use of objects) and speech skills (words, sounds) using the Communication and Symbolic Behavior Scales (CSBS) after intervention. Parents in the PICT group used significantly more communication support strategies than parents in the control group. These differences in parent behavior resulted in changes in infant prelinguistic skills. After intervention, infants in the PICT group had greater speech and symbolic skills than infants in the control group. These results indicate that it is possible to improve prelinguistic communication even in the absence of auditory information.

Now, rather than simply waiting for a cochlear implant, parents can feel empowered to teach their infant with hearing loss fundamental prelinguistic skills that do not depend on access to sound. First and foremost, we should teach parents to engage in meaningful, stimulating, and interactive exchanges with their infant. We should encourage parents to model gestures such that infants have a way to participate in social interactions. We should also teach parents how to recognize and respond to prelinguistic forms of communication such as gestures and vocalizations. Teaching parents the importance of their communicative behaviors prior to cochlear implantation is likely to have a cascading effect on spoken language skills in infants with hearing loss. These strategies result in increases of prelinguistic communicative behaviors (gestures and vocalizations), which serve as the foundation for spoken word learning providing a context in which parents can map new words.

Megan Y. Roberts, PhD, is the Jane Steiner Hoffman and Michael Hoffman assistant professor of Communication Sciences and Disorders at Northwestern University in Evanston, Illinois. More information about the PICT project and other ongoing work in Dr. Roberts’ lab can be found at http://ei.northwestern.edu.

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AMERICAN ACADEMY OF AUDIOLOGY
INFLUENCERS OF BUSINESS SUCCESS IN 2017

BY GYL A. KASEWURM
While no one can predict the future, one thing is certain—change will occur, and if recent events are reliable predictors of what’s to come, 2017 will be a year of change for audiology.

President’s Council of Advisors on Science and Technology (PCAST) issued a report in late 2015 suggesting that the market for hearing-impaired consumers was characterized by high cost and low innovation, and suggested that current distribution channels created a barrier to access for older Americans in need of hearing care (HLAA, 2016). The Council further declared that hearing health care was too expensive for the majority of Americans. They identified a few recommendations for change, including the need to reduce the cost of hearing aids and the possibility of creating a category for over-the-counter (OTC) hearing aids (PCAST, 2016).

Just a few days prior to the writing of this article, U.S. Senators, Elizabeth Warren and Chuck Grassley, announced plans to introduce the Over-the-Counter Hearing Aid Act of 2016 (Hearing Review, 2016) would allow hearing aids that are, “intended to be used by adults to compensate for mild-to-moderate hearing impairment” to be sold over the counter. Furthermore, it would also remove the requirement that people get a medical evaluation or sign a waiver in order to obtain hearing aids. In essence, the proposed legislation would eliminate the need for audiologists to be involved in fitting hearing aids for individuals with mild or moderate hearing loss.

and the resultant report on hearing aid accessibility and affordability, the bipartisan legislation would make certain types of hearing aids available OTC and, “would remove unnecessary and burdensome requirements that currently create barriers for consumers who could benefit from hearing aids.”

According to the press release, the Over-the-Counter Hearing Aid Act of 2016 (Hearing Review, 2016) would allow hearing aids that are, “intended to be used by adults to compensate for mild-to-moderate hearing impairment” to be sold over the counter. Furthermore, it would also remove the requirement that people get a medical evaluation or sign a waiver in order to obtain hearing aids. In essence, the proposed legislation would eliminate the need for audiologists to be involved in fitting hearing aids for individuals with mild or moderate hearing loss.
Influencers of Business Success in 2017

Why This Matters
So how could this impending legislation affect audiologists and what can we expect in the coming year? While some industry insiders may project impending doom, my overly optimistic personality believes that while our industry will face and is, in fact, in need of change, there will always be a place for quality hearing health care. Audiologists will continue to be the most qualified professionals to provide that care.

Why This Matters
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I asked some colleagues to share their concerns for 2017 and, as expected, the situation causing the most anxiety is the unavoidable change in the dispensing model created by competition from big-box stores, manufacturer-owned practices, the internet, and the pending new legislation that will allow and encourage over-the-counter sales of hearing aids.

The Competition
Hearing aid sales by big-box retailers are the fastest growing segment of the hearing aid market. The Hearing Review estimates Costco’s U.S. market share to be around 11 percent of total sales, with the retailer’s year-on-year unit growth increasing at an estimated 20–25 percent pace during the past five to six years, while the average audiology practice only grew two to three percent (Pessis, 2016). At Costco, the largest wholesaler of hearing aids, devices often sell for less than audiologists pay for similar products despite the fact that the aids are produced by the same manufacturing companies. So, can audiologists win the price war?

Economics would suggest that to compete on price alone, an average practice would need to see three times as many patients as they currently see to make up for the reduced margins created by the dramatically discounted prices offered by big-box retailers and the internet. Where will those additional patients come from? The cost of attracting a new patient through traditional marketing efforts are already substantial and a typical practice has a limited marketing budget.

What practice can afford to spend three times as much on marketing efforts with the hopes of gaining more patients? I can only imagine that manufacturer-owned practices have access to much lower priced devices and almost unlimited corpuses of cash for marketing. How does a typical audiology practice compete against these giants? Perhaps the answer is not in waging a price war, but in creating a practice that focuses on the best in hearing health care. While most audiology practices can’t compete on price alone, we certainly can provide our expertise, an amazing experience, over the top service, and a commitment to 100 percent patient satisfaction, qualities that will be attractive to consumers who want the best.

How to Compete
There is a strong relationship among excellence in hearing health care, benefit, and improvement in quality of life derived from better hearing. Benefits always outweigh price in this industry, so instead of lowering prices, perhaps the focus should be on adhering to a protocol consisting of a comprehensive test battery including measures of loudness discomfort and speech-in-noise testing, as well as in depth real-ear measurements to ensure that patients are deriving optimal benefit from their hearing aids.

When problems occur, there is value in evaluating outcomes of performance by using real-ear and aided discrimination testing to make certain a patient is understanding in complex listening environments. It’s important to measure outcomes instead of just making minor changes and suggesting a patient, “Try this setting and let me know if you continue to have problems.”

While a patient’s subjective impression should always be considered, objective measurements can provide valuable information and may reduce the number of follow-up appointments when a patient is experiencing problems. If a patient has poor speech-in-noise ability, a rehab program may be necessary to improve their ability to understand in noise. Patients
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should always be assured that you are there to help them every step of the way on their journey towards better hearing. Make certain your actions back up that assurance.

If you want to survive in an increasingly competitive marketplace, measuring and monitoring predictors of profitability become the key to success. Some business owners rely on their accountants to keep the business on track financially. No one outside of the business is as readily equipped to assess the health of a practice as the owner. In most practices, it is the practice owner or manager’s job to monitor financial stability.

The key indicators of profitability should be monitored at least quarterly. When profitability is down or not as expected, it is time to reassess profit and loss to develop a plan to put the business back on the right track. Over the years, my business has experienced many slowdowns. After digging into the numbers, the slowdown has always been the result of the same problem: taking my eye off of the ball. I got busy working in the business, seeing patients, and forgot to work on the business.

In an established practice, a reduction in profitability is usually a result of a change inside the business. For instance, pricing from suppliers may have increased slightly, patients may be getting out of the door without a future appointment, incoming calls are not being converted to appointments, or perhaps marketing that was producing new patients is no longer effective.

Operating a small business is a constant balancing act—spending too much time on marketing or managing employees detracts from the necessity of generating revenue and yet, if the majority of the owner’s time is consumed with patient care and there is no time to monitor the health of the business, the bottom line will suffer.

Having a handle on the financial metrics of a practice is critical for making quick decisions and maintaining profitability. The routine review of key performance indicators of the business will reveal what is resulting in a profit and should also uncover other areas that are not generating a profit.

Key to Success

Another concern shared by many colleagues as they face a new year in business is reduced, or lack of, reimbursement for diagnostics and hearing aids. The reimbursement landscape is undergoing significant changes. According to reimbursement expert Paul Pessis, AuD, “Practice management, which encompasses reimbursement, is becoming increasingly more important in securing business success. Each practitioner within a facility is responsible for fortifying the practice through thoughtful business protocols. In the end, it is the patients seeking the services of the audiologist who benefit most when a practice has the financial stability to be the best in its class” (2016).

Much of the success of an audiology practice depends upon the owner or manager’s awareness and understanding of coding and reimbursement. There is a difference between coverage and reimbursement. Coverage, in health care, is when a third party is responsible for reimbursing the professional for all or part of the services rendered. In other cases, payment comes directly from the patient themselves. Reimbursement, regardless of whether it comes from third-party payers or from patients directly, is key to maintaining good cash flow in a business. Practices that focus heavily on reimbursement from third-party payers must monitor accounts receivable carefully to make certain that payment is coming in a timely manner. Third-party payers are notorious for finding all kinds of crazy reasons to delay payment. It is prudent for practices to decide what portion of total revenue in the business should come from third-party payers. Diversity is important for maintaining profitability so that if one payer decides to quit reimbursing, the business can continue to survive.

While change is not easy for any business, audiologists have the choice to find new solutions to maintain a successful practice or fight change and possibly become stagnant and cause the business to suffer. As Socrates suggested many, many years ago, “The secret of change is to focus all of your energy not on fighting the old, but on building the new.” Audiologists will be wise to follow this salient advice in 2017.
Gyl A. Kasewurm, AuD, is the owner of Professional Hearing Services in St. Joseph, Michigan, and is also an associate editor for Audiology Today.

References


KIDS NEED TWO EARS!

BY ALISON GRIMES

With our understanding of the disabling effects of unilateral hearing loss (UHL) in children, and with the increased consideration and use of cochlear implants (CIs) in adults with UHL, research is needed to determine efficacy of CIs in pediatric populations for auditory and psycho-educational success.
CHILDREN WITH HEARING LOSS
are at high risk for delays in acquiring and advancing speech and language, and achieving psycho-educational success. This fact, well known for decades, escapes clear guidelines for treatment when the hearing loss is unilateral, sensorineural, and “unaidable.” The traditional definition of “unaidable” is challenged by modern cochlear implants, which provide a potential—albeit “off-label” solution—to provide bimodal or binaural hearing in cases of unilateral hearing loss. Unilateral hearing loss (UHL) is known to be handicapping, particularly in young children who are acquiring language and speech. Its consequences include difficulty with localization, difficulty understanding speech-in-noise, and difficulty when speech originates from the deaf/impaired side. Negative educational impact of UHL is common, and children are known to be at higher-risk for speech, language and social-emotional difficulties than children with normal hearing in both ears. Sub-optimal signal-to-noise ratios in classrooms, a common occurrence, exacerbate listening and learning difficulties for all children, but particularly those with hearing loss and unidentified/untreated unilateral hearing loss.

The prevalence of UHL in newborns and young children is largely unknown. And when present at birth, it may be late to be identified unless the infant does not pass newborn hearing screening. With the advent of newborn hearing screening, it is apparent that hearing loss in children may not be identified in the birth-screen for a variety of reasons. The
A proportion of this group having severe-profound unilateral SNHL was not estimated. Unilateral hearing loss, if not present at birth, is often late to be identified. It is common that physicians, and perhaps to a lesser extent, audiologists, assume that UHL is an inconvenience, but not a significant factor in acquiring language or achieving successful learning in the classroom. Yet the preponderance of research over the past 30 plus years shows this not to be the case for all children. While some children with UHL are able to achieve at grade-level (often with greater listening effort), many children with UHL experience academic challenges.

Listening effort is also a consideration—at what cost does a child with a UHL achieve success in the classroom? Stress and exhaustion associated with increased listening demands are known to be byproducts of classroom listening for children with UHL. Additionally, children with UHL may experience psycho-social impact (e.g., embarrassment) when they “mis-hear” casual conversation at school, or turn the wrong direction when their name is called out in the noisy school cafeteria.

**Options for UHL**

For the sake of simplicity, “UHL” is defined here as a severe-profound sensorineural hearing loss, where radiographic studies indicate a normal or adequate eighth nerve. UHL can be congenital, or can occur after birth for known or unknown reasons.

Amplification options for children with congenital UHL are limited. If a child is identified as having a UHL and if audiologic treatment is pursued, three approaches are common:

- **Contralateral routing of signal (CROS) hearing aid**—i.e., delivering sounds from the deaf side of the head into the normal-hearing ear,

- **Bone-anchoring hearing (BAH)**—i.e., using a bone-anchored device worn on a headband that stimulates the normal hearing ear, by bone-conduction, with the device microphone on the deaf side of the head,

- **FM technology coupled to the normal-hearing ear**, and FM transmission of the desired speech signal to the normal-hearing ear.

Often there is a perception that a UHL is not handicapping, and no intervention is necessary. This may take the form of waiting until a child begins to demonstrate difficulty in academic performance, and then considering intervention. In school-aged children, often the only approach is to offer “preferential seating” in the classroom.

Increasingly, unilateral cochlear implantation for UHL is considered and performed (“off-label”) for adults with UHL. Why not children? When there is a viable cochlear nerve, early stimulation of the deaf ear via a cochlear implant (CI) could result in achieving bilateral, if not binaural, hearing. Indeed, this is the only approach that holds any possibility for achieving binaural function at all. Absent early direct stimulation of the deaf ear...there is no reference—just common sense and common knowledge. It is well-known that children who do not receive stimulation (via hearing aid or cochlear implant) at a young age fail to develop optimal auditory skills at older ages.

In a recent study in Germany, 20 children with UHL were studied after they received a cochlear implant (Arndt et al, 2015). Older age at implantation portended poorer outcomes, and four years or younger was suggested as an optimal age for implantation. These authors note that a CI presents the only opportunity to restore binaural hearing.

Significant considerations currently impede the consideration of cochlear implantation for infants and children with UHL. First, it is not a Food and Drug Administration (FDA)-approved indication. Without FDA approval, a child with UHL can only be implanted if parents self-pay, or if a child is enrolled in a research study. Second, it is difficult (or at least time-consuming) to do prospective research. Lacking such research, which necessarily takes a significant number of years to complete, it
Kids Need Two Ears!

is unlikely that the FDA indications will change. Long-term outcomes are needed in order to impact practice and regulations. But it remains clear that a unilateral CI is the only way to potentially create binaural cues. And it is probable (though unproven) that this approach could help to overcome the known impairments and challenges faced by children with UHL.

Increasingly, cochlear implants for UHL in adults are being sought and performed, with good outcomes. Investigational studies are on-going, and are generally considered “off-label” for insurance reimbursement. Nonetheless, patients may opt for implantation, and in some circumstances, private insurance may pay.

When to Implant?

Should children with severe-profound UHL who do not show benefit from a hearing aid be offered a cochlear implant? In selected circumstances, yes.

If a child has a progressive UHL, and formerly had some degree of hearing and speech perception in the “deaf” ear, a CI might prove to be beneficial. In a very
Kids Need Two Ears!

young child with congenital hearing loss, a CI (when implanted early) might also provide benefit.

Sladen et al (2016) found that children with short-duration UHL were benefited in listening in quiet and in noise with a unilateral cochlear implant. These authors noted that “current treatments” for UHL have not proven to be satisfactory for the child in a classroom situation. The CROS hearing aid provides benefit only when a desired signal originates from the deaf side of the head. The CROS hearing aid, conversely, creates detriment when noise originates from the deaf side of the head (effectively introducing noise into the normal and only-hearing ear). The bone-anchored hearing device creates the same outcome—it provides benefit only when the desired signal is on the side of deafness.

Dornhoffer and Dornhoffer (2016) note that there is a “burgeoning accumulation of research on cochlear implantation for the treatment of unilateral sensorineural hearing loss in children.”

A cochlear implant was found to “potentially improve” development of intelligence in deaf children when implanted prior to six years of age (Chen et al, 2016).

Conclusion

Unilateral hearing loss is a disabling condition for people of all ages. Its significance is often minimized by the medical and audiological communities, however, when one considers the advantages of binaural hearing, it is not difficult to understand the challenges experienced by people who have UHL.

With our understanding of the disabling effects of UHL in children, and with the increased consideration and use of CI in adults with UHL, research is needed to determine efficacy of CI in pediatric populations for auditory and psycho-educational success. The FDA criteria can expand when carefully designed, prospective, longitudinal studies confirm what many believe—the advantages of CI for UHL in children at least mirrors, if not exceeds, those seen in adults, when implantation occurs at a young age.

It is time to consider the potential benefit of CI for children with unilateral SNHL, much as we currently consider CI for children with bilateral severe-profound SNHL. The handicap associated with UHL is different from that of bilateral SNHL; yet for the child with UHL, the impact on learning and psychosocial well-being can be profound. We have a tool that can potentially address this condition far better than the tools we have been using for the past 40-plus years.

Alison Grimes, AuD, Board Certified in Audiology, is the director of audiology at the Audiology Clinic, UCLA Medical Center. She is a past-president of the Academy.

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Personal communication, Holly Teagle, AuD, University of North Carolina.

Our ability to identify, diagnose, and treat infants and children with hearing loss has improved significantly over the last decade as a result of enhanced understanding of developmental and biological mechanisms, and technological advances. These important elements in the hearing health care of children will be examined at the Academy Research Conference (ARC), a one-day translational conference. Leading researchers whose work has informed our clinical practice will present their latest findings.

www.AcademyResearchConference.org
FOUNDER’S INTERVIEW

Dr. Fred Bess

BY DAVID FABRY

The “John Adams” of the Academy discusses the events that led up to the formation of the organization of, by, and for audiologists, the growth under his leadership of the Bill Wilkerson Center at Vanderbilt University, as well as his first presentation in front of many of the profession’s pioneers.

Thank you for taking the time with us today, Fred Bess, PhD. You were a founding member of the Academy, and our second president after Dr. Jim Jerger. You had been very active with the American Speech-Language-Hearing Association (ASHA), and had a burgeoning professional role at the Bill Wilkerson Center at Vanderbilt, with your teaching and research career there. What was your reasons for focusing your energies on the formation of a new professional organization?

FB: The mid-1980s was a very difficult time for audiology. There was a lot of discontent, unhappiness, and unrest in the profession. I think that audiologists felt that they had no organizational home at that time, and that they had no control of their own destiny. You have to remember that, during that period, ASHA was governed primarily by speech-language pathologists. Often, they made decisions about audiology that audiologists did not agree with.

Yes, and although they had a large member base, approaching 100,000 members (at the time), audiologists represented a small fraction of the overall total. I think that there was a general sentiment that they were taking audiology for granted; in their defense, I often heard that in terms of member resources per capita, the commitment to audiology far outpaced that devoted to their speech-language pathologist members. In addition, I think that they have made numerous attempts to correct that perception over time.

There is no question that ASHA tried to correct the problem, but the general feeling was that it was too little, too late. I think that the biggest issue for me during that time centered around the discussions that took place regarding the development of a new Institute on Deafness with National Institutes of Health (NIH).

In the initial stages of those discussions, ASHA opposed a separate institute on deafness, and if you were an audiologist, you had to ask the question of why? Why would our own professional organization oppose the creation of an institute that would be so important for the profession of audiology and for those who we are here to serve?

Almost every organization that had anything to do with hearing favored the new institute. Speech-language pathologists, however, did not; they were content with their current home at the National Institutes of Health (NIH).

Eventually ASHA came on board and supported the effort. However, their initial reluctance to support the institute sent a huge message to all audiologists that something was very wrong, and that audiology was not being well represented by their professional organization.

Fascinating.

Of course, we all know about the important meeting that occurred in November 1987, at the ASHA Annual Convention in New Orleans. At this meeting, Rick Talbott hosted a group of leaders in the profession to discuss the future of audiology. There were a lot of people in...
Fred Bess with Jane Wilkerson Yount, the sister of Bill Wilkerson. In the portrait behind them is Bill Wilkerson, who was killed in the Battle of the Bulge when he was 18. The plaque on the wall contains the purple heart that was given to the Wilkerson family by the Army.
I was there, although I most certainly was not a leader in the profession!
Well, Jim Jerger, Chuck Berlin, Jay Hall, George Osborne, and Lucille Beck were on the program. When Jerger spoke, somewhere during that speech, he noted that perhaps it was time for the profession of audiology to develop an organization of, by, and for audiologists—the room literally came alive in response to Jerger’s comments.

It was electric.
That’s a great word for it—it gave me chills.

It’s giving me chills as I think about it right now. It’s as if, at that moment, he put it in all in words that we could understand and that we were waiting to hear.
We were waiting for it, and we were so ready to hear it. It was terribly exciting, and at that point, I was ready to go to the wall. It didn’t take very long, maybe a matter of weeks, when Jim Jerger contacted some 32 audiologists, and they all gathered in Houston and began to deliberate on the development of an organization. Interestingly, the first name that I think we came up with was the American College of Audiology, but it was later changed to the American Academy of Audiology. At any rate, that’s what brought me to the table—the NIH issue, and then that meeting. Unfortunately, before the Academy was developed, we lost some really great people during that period because they were so unhappy, and they moved on to some other form of work. These were good people who wanted to stay in the hunt, but they didn’t feel like there was any future.

Certainly, the “of, by, and for audiology,” and the transition to the AuD were areas where ASHA had a bit of a quandary. Its largest member base, the speech-language pathologists, didn’t really feel that there was a need to transition to a doctorate as a first professional degree. While a lot of people got the first part, there was a lot of discussion and debate, even into the early-90s, about the need for the doctoral degree. I think that it is important for students and new members today to understand that this is an important part of our history, but in the big scheme of things, it is also relatively recent. The important thing is that the early leadership had a vision for where they saw the profession going, and were not afraid to deliberate with others, even in the midst of controversy. This carried into the early days of the Academy, and you were in the midst of it serving as the Academy’s version of John Adams as our second president.

Wayne Olsen, one of my mentors, was in the group, and in the early days when I joined the Mayo Clinic it was exciting to live vicariously through what he could report back to us.
It’s interesting that you mention Wayne—to be sure, he was one of the finest in our profession. Wayne probably found himself in a bit of a difficult situation because of the years and years of work that he had done with ASHA—after all, he grew up in ASHA. To be a part of a meeting that would form a new group independent of ASHA had to be awkward for Wayne, but I think he knew that it was probably the right thing to do. Many of us had allegiances to ASHA; I did—part of my responsibilities at Vanderbilt was to represent speech-language pathology as well as audiology. Nevertheless, in my view, there was an important need for a new professional home for audiology.
Well, you’re right, and I know for many of those founding members of the Academy, including Wayne and others, politics was not something that they signed up for, or that came easy for them. You had attended the AudiologyNOW! 2015 meeting in San Antonio after a several year absence to honor both Brad Stach and Gary Jacobson, when they received their Distinguished Service Awards for the Academy. What did you take home about the changes from the early Academy meetings?

Well, it was so much larger than anything that I ever could have imagined! The number of people that attended and the size of the exhibit area were overwhelming, and the meeting was so well organized. You know, we used to do the meetings ourselves—we didn’t have a professional staff. Kiawah Island, New Orleans is where the first four or five meetings were done by us. I was very impressed by how far the Academy has come, and (laughing) I was impressed with how young all the members were!

I completely understand! I like to say that I’m a classic Baby Boomer, in the sense that I like to think of myself as one of the young “kids,” until I look in the mirror, and I think, “what the heck happened!”

There were a lot of young people at the meeting. The only thing that I noticed from a programmatic point of view was that there seem to be fewer “research” sessions than what I would have expected, but then again, it is an organization of mostly clinical audiologists now, so perhaps that is to be expected.

That serves as a convenient segue into the next question, and also onto your earlier statement regarding the importance, even with the transition to the AuD, that we don’t forget about our research roots. To that end, one of the things I’ve noticed over the years is that attendees of AudiologyNOW! have become more courteous and polite, less argumentative than when I was growing up professionally.

Yes, I think that is true.

My first presentation was at an Acoustical Society conference, and the audience comprised Margo Skinner, Josef Zwislocki, Bob Bilger, Harry Levitt, Lou Braida, and a bunch of other people who should have intimidated the heck out of me, if I’d had any good sense. But my advisor, Dianne Van Tasell, had ensured that I was prepared to handle any question they could ask, and they asked some hard ones in the discussion period. I remember some time ago you shared with me a story about your first presentation.

Yes, my first presentation was at ASHA in 1965, when there probably weren’t more than 400–500 audiologists in the United States. The people who attended those meetings were not just audiologists, but included psychologists, engineers, speech scientists, linguists, and neurobiologists. Anybody who was interested in the topic of hearing would attend that meeting. There must have been 500 people or more in attendance at my first presentation. I presented a paper on aural harmonics in normal-hearing listeners. I probably had seven or eight people stand up to ask questions, and to be honest, I wasn’t too nervous about it because I didn’t know any of the people who were asking the questions. I learned later that some of the attendees who stood up were Ira Hirsh, Dixon
There was a lot of discontent; there was a lot of unhappiness. I think that audiologists felt like they had no organizational home at that time, and they really didn’t feel like they were in control of their own destiny.

I think that is a very good point. With a more homogeneous group of primarily clinical practitioners, I think that it is very different now from that standpoint. Today, I see attendees asking questions of clarification, but not challenging methodology or interpretation of results the way they did in the early years.

Can you share the story about Joseph Zwislocki, who was the moderator of the session during your second presentation?
My second paper presentation was in Washington, DC, and at that point in time people thought my paper was controversial. Some investigators didn’t really believe that I was measuring aural harmonics, and when I finished my paper, around eight or nine people stood up to ask questions. Joseph Zwislocki, who was moderating the session, said, “before we get to the questions, I have a few slides that I’d like to show.” I was so nervous that I couldn’t believe it. He started out by saying that, “Last year, I really didn’t believe that he was measuring what he said he was measuring, but I happened to be in Ann Arbor at Kresge, and I visited his lab. I ran the test that he’s been talking about with his equipment, and I do believe that he’s measuring aural harmonics and here’s why.” Then he showed two or three slides and said, “Would anyone like to ask me any questions?” Nobody said anything, and I took a big sigh of relief.

That story has stuck with me for a number of years, because I think that it captured the essence of that environment, with the strong need for evidence-based replication of the data as “truth,” with the strange juxtaposition of a very challenging environment with the unwritten rule that you didn’t “eat your young” unless they were engaging in behavior that was unbecoming for a scientist. He knew that you had prepared, that you were working in an area that was still controversial, so he checked it himself. He was willing to take a public stand to shut down any additional discussion regarding whether the data were valid. I love that he did that.

Yes he did. He just basically validated the presentation and I’ve always been grateful for that.

Can you talk a little more about your days at Michigan? I thought another thing that was interesting was that when you were in New Orleans in 1987, you were at a special place during a special moment. You have also reflected on your time at Michigan in similar fashion.
Yes, the University of Michigan was a special place. Actually, I visited Michigan prior to making the decision to go there—the faculty member I met with during my visit was Bob Bilger. I chose to attend Michigan thinking that Bilger would be my advisor and mentor. When I arrived there, he had already moved on to Pittsburgh. Nevertheless, there were some wonderful opportunities at the University of Michigan; it was not the traditional type of audiology program. Most important was the Kresge Hearing Research Institute, where I had the chance to spend time with outstanding people such as Merle Lawrence, Bill Stebbins, Joe Hawkins, Dean Clack, and several other investigators—it was an incredible experience.

Ward, Joseph Zwislocki, and Raymond Carhart—at that point in time, I was very nervous!
The next year, I presented a paper on aural harmonics in hearing-impaired listeners, and I was nervous because this time I knew who was asking the questions. In those days, meetings in hearing science were well attended and presenters were often challenged in part because the attendees represented such a diverse group of scholars.
I understand completely. It was the multi-disciplinary aspect of the experience that probably made it so exciting.

Looking back, it’s probably the best kind of training that you can have. I really enjoyed it, although I never thought that I would be using any of that information or experience because I was working as a traditional audiologist. But I found that I drew frequently from those experiences throughout my career. Students at Michigan were allowed to take courses at other state schools at no additional cost. Hence, I was able to take several classes at Wayne State University with John Gaeth, one of Carhart’s first PhD students. This turned out to be a very meaningful opportunity for me. Much of my “clinical” audiology at the doctoral level came from Gaeth.

All in all, my experiences at Michigan prepared me well for my first audiology position at Central Michigan University—another special place that I will always look back on with fondness, admiration, and respect.

It’s surprising how often John Gaeth’s name comes up as having made a significant impact on their careers.

He was a fabulous teacher.

Moving to Bill Wilkerson Center and Vanderbilt University; you have to be so proud of what you’ve helped to build. I’ve had the good fortune to visit over a broad span of years, dating back to your old “grant proposal closet,” and culminating in several recent visits to beautiful facility today that is a part of the Medical Center campus. Is there anything at all that you miss about the early days?
The new building is wonderful, but there are some things that I do miss about the old building. I miss my office and my old desk. I went to school there myself back in the 1960s. Dr. Wesley Wilkerson, who was an otolaryngologist that founded the Bill Wilkerson Center, was in that office and sat at that desk. Dr. Freeman McConnell, the first center director, my mentor, and my friend, also occupied that office. So for me, it was a very special place—a place with great history and tradition.

I also miss the mail room at the old center. It was special in the sense that it was the one place where you met everybody, at least once each day. There were only three floors in that building. Now it’s very different—there are five floors in the new building and just one of those floors has more square footage than all three floors combined at the old center. As magnificent as the new Bill Wilkerson Center is, I continue to miss the old building.

So, with all of these accomplishments over a 40-year career, what are you up to these days?
I am involved in a research project concerned with listening effort, stress, and fatigue in children with hearing loss and the possible impact of these constructs on listening and learning. I first became interested in this topic several years ago, when I was sitting outside a conference area with Mark Ross taking a break from a meeting. Mark is a well-recognized pediatric audiologist who happens to have significant bilateral hearing loss. Mark began to talk about how tired he was from listening all day. He noted that it was difficult for him to focus and concentrate for long periods of time in noisy sessions—in essence, he was exhausted from listening and he planned to go back to his room and rest.

I never forgot that conversation. When I stepped down as the direct of the center, I began to look into stress and hearing-related fatigue in children with hearing loss. I was fortunate to receive a four-year grant to explore this topic. We have completed our data collection and are now in the process of writing up our findings. Thus, listening effort, stress, and fatigue have been my focus over the past several years. It has been a very exciting and fulfilling initiative.

Well, I can’t tell you how much we appreciate your taking time out of your schedule to chat with us today, and thanks so much for all that you have done for the profession of audiology.

My pleasure.

David Fabry, PhD, is the editor-in-chief of Audiology Today and www.audiology.org.
CSI: AUDIOLOGY

WELCOME BACK to an ongoing series that challenges the audiologist to identify a diagnosis for a case study based on a listing and explanation of the nonaudiology and audiology test battery. It is important to recognize that a hearing loss or a vestibular issue may be a manifestation of a systemic illness. Being part of the diagnostic and treatment “team” is a crucial role of the audiologist. Securing the definitive diagnosis is rewarding for the audiologist and enhances patient hearing and balance health care and, often, quality of life.


How to Save a Life
By Erin Cipriano

Case History
A 10-year-old female presented to the audiology department at a large pediatric hospital. She recently failed a hearing screening in both ears at her pediatrician’s office. The patient reported she was unable to hear. She stated that sounds were muffled and she was unable to understand when spoken to. The audiologist attempted to converse with the patient; however, she responded inconsistently and frequently looked to her mother for clarification.

Reported medical history was significant for recent complaints of hip pain and intermittent vomiting. The parent conveyed that her daughter’s symptoms began approximately one month prior. At that time, she was also notably lethargic. The patient was receiving counseling to address emotional concerns that developed around the time of her parents’ recent divorce.

Two to three weeks following the onset of hip pain, but prior to her audiological evaluation, the patient was taken to the emergency department. Radiographs of the hips and pelvis were completed and there were no abnormal findings.

The parent reported that the patient visited her primary care physician a few days prior to the audiology evaluation due to continued hip pain. During this examination, a sore was identified on her upper leg which was subsequently cultured for Lyme disease. Results of this culture were still pending at the time of the audiological evaluation.

Although not reported by the parent during the initial case history, a thorough review of the medical record at a later date revealed that the patient had returned to the emergency department the day after discharge with continued hip pain.
and more frequent vomiting. Her abdominal symptoms were reported to be exacerbated under stress and the patient was discharged again with the recommendation to follow up with her primary care physician. Continued counseling was also recommended as it was believed symptoms were likely related to her parents’ recent divorce.

**Audiometric Findings**

- Otoscopic examination confirmed ears were clear of debris.
- Tympanometric measures were within normal limits, bilaterally.
- Transient evoked-otoacoustic emissions (TEOAEs) screening was consistent with a pass result, bilaterally.
- Distortion product otoacoustic emissions (DPOAEs) were present for the frequency-regions tested, bilaterally.
- Behavioral threshold testing was attempted; however, no reliable results were obtained. The patient was unable to repeat spondees presented to each ear at various intensities up to 90 dB HL. The patient did not respond consistently to tones presented at various frequencies and intensities. Although the patient was repeatedly re-instructed, no reliable thresholds were obtained.

**What Would You Do?**

At this time, testing was suspended. Questions arose about the possibility of Lyme disease causing a sudden onset neural hearing loss, an undiagnosed auditory neuropathy spectrum disorder exacerbated by Lyme disease, or a case of pseudohypacusis. After audiologist reflection and a discussion with the parent, it was decided to continue testing.

- Middle-ear muscle reflex (MEMR) testing was completed and revealed absent ipsilateral and contralateral acoustic reflexes at 110 dB HL for 1000 and 2000 Hz stimuli.
- Natural-sleep auditory brain-stem response (ABR) testing was attempted. No repeatable waveforms were identified using a 2000 Hz tone burst or a click stimulus. Waveform morphology was poor. The patient was not asleep for testing and although...
she was calm, artifact secondary to her wakefulness was present, preventing the majority of waveforms from being interpreted accurately.

**What Does that Add to the Diagnostic Picture?**
Although the natural-sleep ABR testing did not provide additional information regarding the patient's hearing sensitivity, the absence of identifiable waves at high intensities (90 dB nHL), as well as absent MEMRs suggested abnormal auditory function.

**Course of Care**
Atypical audiological (behavioral and physiological) as well as reported sudden onset hearing loss prompted an immediate evaluation with an otolaryngologist. This otolaryngologist recommended a consult to neurology and ordered an expedited magnetic resonance image (MRI) of the brain and internal auditory canals. The MRI was completed later that same day and revealed a lesion in the nasal cavity, thickening of multiple cranial nerves including the optic and vestibulo cochlear nerves, and increased cranial pressure. An MRI of the spine and pelvis completed the next day revealed additional abnormalities including masses and tumor infiltration concerning for lymphoma or leukemia.

The patient was admitted to an inpatient unit where a plan for chemotherapy and radiation was initiated immediately to treat her diagnosis of B cell lymphoblastic lymphoma. Upon admission, her functional hearing ability decreased and she was unable to communicate. Her vision also became blurry and she began to have seizures.

Approximately three weeks after the oncology treatment plan was initiated, both the patient and her parents reported a significant improvement in hearing.

**Follow-up Audiological Testing**
MEMRs were retested and were present ipsilaterally at 85 dB HL for 1000 Hz stimuli in both ears. The patient was able to complete reliable behavioral audiological testing. Results were consistent with a mild sensorineural hearing loss in the right ear and a moderately severe rising sensorineural hearing loss in the left ear (FIGURE 1).

Audiologic testing was completed again following another month of treatment. Hearing in the right ear returned to normal with the exception of a mild hearing loss at 250 Hz. A mild low-frequency sensorineural hearing loss was documented in the left ear (FIGURE 2). DPOAE testing was repeated and emissions were present for all frequency regions tested, bilaterally.

**Ototoxicity Monitoring**
The patient was treated with radiation approximately three times a week for two weeks. Although she also received chemotherapy, non-ototoxic agents were used. Nonetheless, audiologic testing using an ototoxicity monitoring protocol was recommended. As the dosage of radiation increases, the risk of hearing loss also increases. Additionally, hearing loss can appear up to 18 months after the completion of treatment (Hua et al, 2008).

**Discussion**
This patient presented with many symptoms that upon the initial encounter were suspect for pseudohypacusis. Previous hearing screenings administered at school and at her pediatrician’s office were normal. Her parents reported that she seemed to hear at home. There were no academic concerns and her speech and language skills were age-appropriate. At times, she
seemed to respond appropriately to questions from the audiologist. She was receiving counseling due to her parents’ recent divorce and was reported to exhibit other concerning social-emotional behaviors at home. Finally, OAE results were consistent with normal cochlear function. MEMR and ABR results eventually ruled out pseudohypacusis.

Thinking critically and completing various cross-check measures led to a compilation of test results with atypical findings. These findings, along with reported audiological and medical history, led to urgent recommendations from other specialists which ultimately confirmed a life-threatening diagnosis. Previous symptoms including hip pain, vomiting, and lethargy, which had resulted in more than one visit to the emergency department, did not lead to a diagnosis. In the three days between audiologic testing and her inpatient admission, this patient experienced a dramatic decline including vision loss and seizures. With a diagnosis and appropriate treatment, her condition improved.

Dr. Theodore Woodward, professor at the University of Maryland, is often credited for coining the phrase, "When you hear hoofbeats, think of horses not zebras." This case highlights the fact that, although less likely, zebras do exist. Practicing with a questioning attitude with each patient allows you to consider the atypical, and in this case, mindful practice that was lifesaving.

Erin Cipriano, AuD, is an audiologist in the Center for Childhood Communication at the Children’s Hospital of Philadelphia in Philadelphia, Pennsylvania.

Reference
On October 1, 2016, new ICD-10-CM codes were released that increase the specificity of hearing loss codes, applying specifically to coding the type of hearing loss when it differs between ears. Previously, when the types of hearing loss differed between ears, audiologists were required to code an unspecified type of hearing loss for each ear and could not specify right versus left ears in this scenario (i.e. sensorineural hearing loss, unspecified; conductive hearing loss, unspecified; mixed hearing loss, unspecified). With the new codes, audiologists should code a specific type of hearing loss for each ear when bilateral hearing loss is present. The new codes include the type of hearing loss with the designator “restricted hearing in the contralateral ear.” Monaural codes should still be used when hearing is normal in the other ear. These codes have a designator of “unrestricted hearing in the contralateral ear.”

What about asymmetric sensorineural hearing loss? Unfortunately, there is not a code specific for asymmetry and sensorineural hearing loss, bilateral (H90.3) should be used in this scenario.

Other relevant additions include pulsatile tinnitus codes with the ability to code right ear, left ear, bilateral, or unspecified.

Below is a listing of the new codes impacting audiology:

- **H90.A11** Conductive hearing loss, unilateral, right ear with restricted hearing in the contralateral ear
- **H90.A12** Conductive hearing loss, unilateral, left ear with restricted hearing in the contralateral ear
- **H90.A21** Sensorineural hearing loss, unilateral, right ear with restricted hearing in the contralateral ear
- **H90.A22** Sensorineural hearing loss, unilateral, left ear with restricted hearing in the contralateral ear
- **H90.A31** Mixed conductive and sensorineural hearing loss, unilateral, right ear with restricted hearing in the contralateral ear
- **H90.A32** Mixed conductive and sensorineural hearing loss, unilateral, left ear with restricted hearing in the contralateral ear
- **H93.A1** Pulsatile tinnitus, right ear
- **H93.A2** Pulsatile tinnitus, left ear
- **H93.A3** Pulsatile tinnitus, bilateral
- **H93.A9** Pulsatile tinnitus, unspecified ear

The audiograms (GRAPHIC ON PAGE 71) demonstrate appropriate use of the new hearing loss codes. Additional questions regarding coding and reimbursement may be directed to the Academy at reimbursement@audiology.org.

The Academy’s Coding and Reimbursement Committee (CRC) will continue to monitor ICD-10 related coding changes and inform Academy members regarding these changes. Visit the Academy’s Web site and search keyword “ICD-10” for more information on ICD-10 coding including a listing of codes pertinent to audiologists, an editable superbill template with updated ICD-10 codes, and other coding resources.

Kristiina K. Huckabay, AuD, is a clinical audiologist at the Swedish Medical Center and a lecturer at the University of Washington in Seattle, Washington. Kristen M. O’Connor, AuD, is the clinical coordinator at the UMASS Memorial Hearing Improvement Center in Worcester, Massachusetts. They are both members of the Coding and Reimbursement Committee.
**Coding + Reimbursement**

**H90.A11** Conductive hearing loss, unilateral, right ear with restricted hearing in the contralateral ear.

**H90.A32** Mixed conductive and sensorineural hearing loss, unilateral, left ear with restricted hearing in the contralateral ear.

**H90.11** Conductive hearing loss, unilateral, right ear with unrestricted hearing in the contralateral ear.

**H90.A21** Sensorineural hearing loss, unilateral, right ear with restricted hearing in the contralateral ear.

**H90.A32** Mixed conductive and sensorineural hearing loss, unilateral, left ear with restricted hearing in the contralateral ear.

**H90.3** Bilateral sensorineural loss.
Public Awareness of Us

In 2002, Friends was one of the most watched shows on television, the Euro became the official currency of the European Union, and flip phones were the latest in cellular technology. At the time, “social media” was a foreign concept, the smartphone revolution was on the horizon with the growing popularity of the Blackberry, and the American Academy of Audiology Foundation (AAAF) was formed.

The inaugural AAAF Board of Trustees set the mission of the Foundation as promoting philanthropy in support of research, education, and public awareness in audiology and hearing science. The Foundation has successfully focused on research and educational initiatives over the past 14 years, awarding tens of thousands of dollars in grants and scholarships.

Historically, the Foundation’s focus on public awareness initiatives has been limited. However, in much the same way the public has moved on from the days of flip phones to smartphones, audiology has evolved. Likewise, the Foundation is evolving its narrative to focus on public awareness of audiology, audiologists, and education on hearing and balance wellness.

As trustees of the Foundation, we are often asked what efforts and initiatives are active to promote public awareness. There are many examples of education and research activities ranging from the Marion Downs Lecture Series in Pediatric Audiology to the New Investigator Grant in Hearing and Balance. In the past, the Foundation supported consumer education tools such as Turn It To The Left and the DiscoVEARy Zone. The Foundation will build on these successes and promote a contemporary public awareness of all things audiology. The Foundation’s support of education and research in hearing and balance remains a priority.

The Foundation is responding to the requests of Academy members and is actively developing plans to promote public education and awareness of audiology, and hearing and balance wellness. The Foundation will be partnering with the Academy and other strategic partners to develop public

We Want to Hear Your Story

If you received a Foundation grant, tell us your story! We’d love to share your successes to inspire others. Visit www.audiologyfoundation.org to download a form to submit your story. You can also download a form (www.audiologyfoundation.org/events/documents/2017AAFAuctionDonationFormFL.pdf) to donate as well. We’d like to hear how the Foundation’s support impacted you personally and professionally. For more information, call 703-226-1049. Thank you!
FOCUS ON FOUNDATION

awareness/education projects—but we need your help.

You can see how diligently and carefully the Foundation has used your donations in the past by reviewing our Stewardship Reports (www.audiologyfoundation.org, search keyword “stewardship”). We have just published our 2016 Year in Review, so you can see how successful 2016 was in terms of advancing our philanthropic mission, and how impactful were your hard-earned contributions.

We are proud of our long history of supporting education, research, and public awareness. Now we are also focusing on telling our story more effectively. We need you to be a part of the Foundation’s future. Perhaps you have considered donating to the Foundation in the past but opted not to do so. We ask you to consider joining the family of supporters as we focus on making the public more aware of the good work audiologists and those in hearing science do each day.

To our current donors, thank you for your steadfast support of the Foundation’s work; we are grateful to you and plan to build on our success. With current and new donors working together, we can continue to advance the work audiologists do every day. Please consider making a tax-deductible donation (www.audiologyfoundation.org) now or when you renew your Academy membership.

Audiology is on a rising trajectory and we are all a part of its bright future ahead! Stay connected to the Foundation for more exciting details!

Donate to Auction 4 Audiology by March 15, 2017

Be creative for a cause! Consider donating an item to the AAA Foundation’s annual Auction 4 Audiology. Funds raised from the auction support grants, scholarships, research, and public awareness efforts of the Foundation.

What you receive for your donation:

- Exposure to thousands of AudiologyNOW! attendees, the Academy membership, and online users

- Your donated items displayed at the Foundation booth in Academy Central at AudiologyNOW! with your name highlighted

- Recognition in Audiology Today

- Online listing with your name, logo, and website link (as applicable)

Every gift matters—and they are tax deductible. We hope that you’ll join us as we work to improve hearing health care. Visit the Events page of www.audiologyfoundation.org to download a form or to make a donation, call 703-226-1049 with any questions.
As a student in an audiology graduate or undergraduate program, you are well on your way to becoming an outstanding audiology professional. With all of the time you spend at school, it can be challenging to find ways to stand out to externship sites and future employers. The AudiologyNOW! convention, in Indianapolis, Indiana, April 5–8, 2017, is one great way to prepare for your future. AudiologyNOW! is the largest gathering of audiologists and has historically offered a variety of events for students and professionals looking to stay up to date with the newest research and technology. This year, the Student Academy of Audiology (SAA) Programs and SAA Conference Subcommittees have planned several events you will not want to miss! We are bringing back some of your old favorites, but we also have some exciting new ones. See our guide below for everything you need to know about AudiologyNOW! and the SAA Conference.

Why Indianapolis: Indianapolis is a beautiful yet inexpensive city that lies in the heart of Indiana. This city has one of the best and largest conference centers in the country, which was voted best “Convention City” in 2014 by USA Today. With state-of-the-art lecture rooms and the best technology available, you can maximize your conference experience.

How to get there: If you are a national member of the SAA, you can take advantage of student rates for both AudiologyNOW! and the SAA Conference. You can also investigate funding through your university. Many universities offer grants or scholarships for conference attendance. Additionally, your local chapter of SAA could hold a fundraiser to help chapter members get to Indy!

What’s in It for Students?

Expand your knowledge. Students have the opportunity to hear from leaders in our field through the student lecture series during AudiologyNOW! and the SAA Conference on a new day, Saturday, April 8, from 8:00 am to 2:00 pm.

Develop new skills. New this year, the SAA is hosting multiple hands-on workshops just for students during AudiologyNOW! Be sure to reference the Conference Planner as the convention nears! In addition, be sure to attend the SAA Conference to see challenging real-life case studies that put your knowledge to the test!

Learn in small groups. The AuD Student Toolbox event features round-table discussions of various topics including tables with resources for undergraduate students. First time attendee? Held right after the General Assembly, this event is a must-see to learn some tips and tricks to make the most of your conference experience!

Engage in friendly competition. Compete against your fellow classmates and other AuD programs in our second annual AuD Practice Bowl, Exhibit Hall Scavenger Hunt, and SAA T-shirt Contest.

Meet leaders in our field. Attend any of our three Hot Topics, Cold Drinks sessions, where you have the chance to ask experts in our profession the tough questions in an intimate, one-on-one setting at SAA Central.

Prepare for the future. We have options for students at every level. Hear from current fourth years and new professionals at our Externship Panel. Work on your curriculum vitae at our resume workshop. Can’t decide which specialty of audiology is right for you? Come to our panel, “What Kind of AuD Do I Want to Be?” to learn and ask questions with audiologists from a variety of settings.

Network with other students. Attend the SAA Mix and Mingle on Wednesday afternoon, April 5, for a chance to meet students from other programs and enjoy some hors d’oeuvres. On Wednesday night, be sure to meet up with your new friends at Cheers for Ears, a fundraising benefit that supports student scholarships, research grants, education, and community service initiatives of the SAA.
SAA Conference and AudiologyNOW!—What’s the Difference?
The SAA Conference and AudiologyNOW! are two complementary events that go hand-in-hand! AudiologyNOW! gives you the opportunity to pick and choose events from a very large agenda. Student events at this conference are just a small portion of what you can attend by registering for AudiologyNOW! In addition to the ability to attend lectures and networking sessions that offer continuing education units for professionals, you are granted access to the exhibit hall, where you can see and learn about all of the latest products from the leading technology manufacturers and vendors.

Conversely, the SAA Conference is a separate event that is created specifically for graduate students in audiology. At this conference, content experts and audiology leaders will present case-based studies to the student audience, designed to supplement graduate coursework. Your separate registration for the SAA Conference grants you access to an entirely different agenda of events—one designed with students in mind. We are very excited to announce that this year the SAA Conference is being held on Saturday, April 8 from 8:00 am to 2:00 pm, so you can enjoy everything both conferences have to offer.

Get access to these great events by registering for both conferences online now at www.audiologynow.org!

Emily Venskytis is a fourth-year AuD student at Arizona State University. She currently serves on the national Student Academy of Audiology (SAA) Board of Directors as secretary and chair of the SAA Programs Subcommittee. Emily is passionate about pediatric audiology and is completing her fourth-year externship at Nemours/Al duPont Hospital for Children in Wilmington, Delaware.

Arun Joshi is a fourth-year AuD student at the University of North Texas in Denton, Texas. He currently serves on the national Student Academy of Audiology (SAA) Board of Directors as treasurer and chair of the SAA Conference Committee. Arun is completing his final year externship at the Scholl Center for Communication Disorders in Tulsa, Oklahoma.

Students interested in attending the SAA Conference have the opportunity to apply for a scholarship to cover the cost of registration. Applications for the SAA Conference Scholarship are available on the SAA website, http://saa.audiology.org/educational-opportunities/grants-and-scholarships, and are due January 31, 2017.
New Members of the Student Academy of Audiology

Rachel Ackerman
Carissa Allen
Elisabeth Aman
Carly Amurao
Kelsey Artz
Kevin Ascherfeld
Morgan Ashby
Kaley Babich
Emma Bailey
Gena Baker
Lauren Barnett
Olivia Bender
Anna Benson
Taylor Benson
Megan Bilodeau
Sarah Black
Allison Blunt
Sarah Bochat
Ashley Bookmyer
Stephanie Borio
Holly Botzem
Kayla Bradford
Sarah Broughton
Eric Brown
Kelly Brown
Molly Brown
Grace Buchholz
Gabrielle Buono
Nicolette Butler
Anne Rankin Cannon
Kelly Casper
Hannah Chase
Austin Childers
Young Eun Choo
Devin Christensen
Alexandra Clark
Kelli Clark
Sarah Cohen
Devin Collett
Sarah Colligan
Ashleigh Collins
Ashley Coners
Casandra Conlee
Katherine Coobs
Kayla Cormier
Julia Curato
Arielle Darvin
Kenneth D’Auria
Gabrielle Davis
Brooke Dillard
Michael Doing
Caitlin Dold
Kayla Dub
Lindsey Dwenger
Rachel Ellinger
Kalley Ellis
Brittany England
Hayden Engstrom
Lauren Ervin
Matthew Falk
Emily Kate Feibelman
Cassidy Feldsien
Brendan Fitzgerald
Brooke Flesher
Krista Fogtlanz
Carol Ford
Jacinthe Fragoso
Nicole Friedman
Amanda Futernik
Sara Gaffney
Kathryn Gerard
Beri Glover
Jessica Gnofo
Jessica Graham
Kalene Gutman
Kelly Hanscom
Abigail Harkay
Clarice Hauschildt
Chloe Haygood
Megan Hebb
Julianne Heggie
Jaclyn Hellmann
Samantha Henderson
Anna Herrmann
Jessica Hillam
Gregory Hobbs
Jordan Hoffman
Caitleen Holliday
Veronica Holmes
Alexis Holt
Lauren Howard
Alexandra Howell
Ying Hsiao
Sara Irvin
Amanda Kaaihue
Lauren Keller
Lauren Kelly
David Kessler
Alix Klang
Morgan Klingsporn
Meredith Klinker
Aviva Klugmann
Samantha Kohnen
Bridget Kosilla
Jordan Krentz
Shana Laffoon
Robert Lang
Ryan Leahy
Claire Letendre
Jessica Lorenz
Malica Ly
Hilary MacCrae
Brittany Mackey
Spruha Mahapatra
Heather Maze
Lisa McManus
Madeline McNamie
Kirsten McWilliams
Brittney Medina
Robert Melton
Vasila Meskouris
Jennifer Meyer
Angela Milligan
Molly Mochel
Kalli Monti
Hayley Morris
Amanda Mueller
Elizabeth Mueller
Kayla Murphy
Megan Nash
Kelly Nguyen
Michaela Nikolai
Emily Norton
Colleen O'Brien
Marine Prevost
Kathleen Quick
Noelia Rodriguez
Alexis Ronney
McKenzie Rosdail
Alyssa Rose
Jane Rose
Katie Rutcofsky
Megan Satre
BreeAnna Sawyer
Katie Schramm
Brielle Shapiro
Kathleen Sheeran
Kiran Silwal
Jasmine Simmons
Miranda Skaggs
Madeline Smith
Rachel Smith
Rebecca Smith
Shelby Solem
Sarah Sparks
Kati Stilwell
Yini Sun
Nicole Swanson
David Taylor
Monica Thomas
Elizabeth Thompson
Julia Thompson
Samuel Tillman
Rachel Timm
Christina Tornatore
Brigid Townsend
Madison Trammell
Nicole Trupu
Kathleen Turek
Erin Turner
Linda Igshel Vargas
Mercado
Lauren Volzke
Ye Wang
Veronica Whitnell
Kristin Williford
Nikki Wipplinger
Jeffrey Wise
Casey Wolter
Lauren Yanouzas
Danielle Yurjevich
Celia Zhang
Chenchen Zhang
Expanding Knowledge and Skills Through Certificate Training

By Meagan P. Lewis

The American Board of Audiology (ABA) continues its expansion of services to meet the needs and requests of audiologists. Based on feedback obtained from the profession, the ABA Board of Governors had identified a purpose for targeted assessment-based certificate training for audiologists interested in bridging gaps in their education. Needs assessment surveys of audiologists further revealed the greatest demand for training as preceptors, and also focused training in specialty areas of clinical management. Within a few short years of idea conception for ABA certificate training programs, we completed the preceptor training program and have started our first clinical specialty-focused program. These programs have a strong foundation of high standards and involve a level of expert engagement and validation that is beyond reproach.

**CH-AP™**

In a previous article (September/October issue of *Audiology Today*), we discussed the successful 2016 launch of the Certificate Holder-Audiology Preceptor (CH-AP) Training Program. At the time of this writing, 64 audiologists have completed the CH-AP program in full and are now listed in the electronic National Registry of Audiology Preceptors. Achieving the CH-AP designation and being on the National Registry signifies to consumers, students, educators, and other stakeholders that the audiologist is well-trained in the critical role of preceptor. More audiologists are in the CH-AP pipeline, and we anticipate a rapid increase of the National Registry as more audiologists complete all four modules. The National Registry is an invaluable resource to students and educators seeking preeminent preceptors for clinical experiences.

CH-AP is a unique program. No other comprehensive preceptor training program exists for audiologists, let alone for many other health disciplines. The range of material
covered in the ABA CH-AP Training Program prepares the individual for the multiple facets of the preceptor role: educator, mentor, coach, and role model. Being a highly competent clinician does not inherently translate to being a good preceptor; instead, any clinician who serves as a preceptor should secure additional training and orientation to the responsibilities of the preceptor.

Although the introductory pricing for CH-AP registration ended on December 31, the regular pricing structure is still very reasonable. For less than the cost of conference registrations or an educational program, someone can complete all four modules of the program without any travel, be added to the National Registry, and have ongoing access to a toolbox of additional resources. Volume discounting for registration is available if organizations enroll multiple people at the same time. The fee is a modest investment in a commitment to having the knowledge to be—and recognition as—an exemplary preceptor for audiology students.

**CH-TM**

Building on the successful model of the CH-AP Training Program, the ABA has begun development of the Certificate Holder-Tinnitus Management (CH-TM) Program. Our earlier needs assessment survey revealed tinnitus management as a priority subject area for post-graduate training. Audiologists have reported receiving less than adequate instruction on tinnitus management in their degree programs. With the expanding body of knowledge on tinnitus, even those audiologists who did receive some content in the past could benefit from an in-depth program. Through the generous support of Phonak, LLC, and Plural Publishing, we were able to move forward with developing this important program.

In a parallel process to that used in creating the CH-AP Training Program, the ABA is engaging leaders in the field to develop the CH-TM Program. We have a distinguished panel of subject matter experts (SMEs) tasked with identifying the content for the program modules. We are very pleased with the SME Working Group’s broad representation of research and practice management by leaders in the field:

- Courtney Abel, AuD
- Debra Abel, AuD, Board Certified in Audiology
- Gail B. Brenner, AuD, Board Certified in Audiology
- John A. Coverstone, AuD, Board Certified in Audiology
- Lisa Evans-Smith, AuD, Board Certified in Audiology
- James A. Henry, PhD
- Melanie Herzfeld, AuD, Board Certified in Audiology
- Norma R. Mraz, AuD
- Paula Myers, PhD
- Stephen M. Nagler, MD
- Cory D.F. Portnuff, PhD, AuD, Board Certified in Audiology, PASC
- Paula L. Schwartz, AuD

More content experts will be available on the Verification Task Force to review the learning objectives, modules, and curriculum developed by the SME Working Group. A professional facilator and instructional designer will support the process and translation of the work to an e-learning platform. The infusion of expert and technical expertise in the process is an optimal model.

As we celebrate the success of CH-AP and look forward to launching CH-TM later this year, the ABA Board of Governors recognizes that these programs would not have been possible without the vision and dedication of Torryn Brazell. Torryn has moved on from her role as managing director of the ABA, but her contributions will continue on as CH-AP and CH-TM continue to progress.

Meagan P. Lewis, AuD, Board Certified in Audiology, CISC, is the director of audiology at Wake Forest Baptist Health and the chair of the ABA Board of Governors.
CERTIFICANT NETWORKING LOUNGE
Wednesday, April 5–Saturday, April 8
Across from Registration
Open during Academy Central hours.
Network, take advantage of charging stations for your mobile devices, and relax with club-style seating. Wear your special certificant lanyard for entrance to the lounge.

SPEED upDATING OPEN TO ALL ATTENDEES!
Thursday, April 6
1:00–3:00 pm
Room 145
This is your opportunity to meet leading audiologists, tap into their knowledge banks, and ask practice questions. The event is free.
Sponsored in part by Starkey Hearing Technologies.

CERTIFICANT MIXER
Thursday, April 6
5:30–6:45 pm
Colts Grille
Enjoy small bites and a beverage while networking with other ABA certificants. Wear your special certificant lanyard to gain access. Attendees may bring one guest. The event is free to ABA certificants.

ADVANCE YOUR CAREER WITH A SPECIALTY CERTIFICATION!

Pediatric Audiology Specialty Certification Exam
Saturday, April 8, 12:00–2:30 pm

Cochlear Implant Specialty Certification Exam
Saturday, April 8, 3:30–5:30 pm

Applications are due February 8, with late registrations accepted until March 8.
WWW.BOARDOFAUDIOLOGY.ORG
As we think about the year to come, let’s renew our focus on achieving excellence in higher education by rigorous accreditation. You have heard members of the ACAE Board and myself repeat this concept again and again, but let me reiterate on why it is important and what can happen when it is not a top priority.

Education is facing new and more intense scrutiny. Why is this happening now and why should we be concerned?

The federal government spends more than $180 billion (in today’s dollars) to support higher education, as noted in major news publications over the past few years, and, more recently, in an article by a member of the Editorial Board of the New York Times on October 20, 2016. This includes many aspects of higher education, including student aid. With such a huge investment, it makes sense that the Department of Education (DOE) would want to know whether or not this money was spent wisely. Their valid concern is the quality of academic programs, competency of degrees offered, student attrition, graduation rates from the college or university, debt incurred by students, and, most importantly, the accreditation standards with which institutions and programs must comply.

In recent instances, two for-profit colleges were "subjected to fraud investigations" demonstrating mismanagement in finances, operations, and program curricula. The DOE also found the responsible accrediting body at fault, in that it...
was not monitoring and/or providing sufficient oversight. These situations caused the “collapse of the institutions” and hundreds of millions of dollars wasted. The lack of assessment and attention provided by the accreditor, coupled with their stamp of approval, provided a gross disservice to students, the general public (yes, the taxpayer), and to the overall principles of the two institutions. Here is a case where accountability seemed nowhere in sight.

As a result, there is current talk within DOE about wanting to play a more major role in accreditation, and this could include all accreditors. As we know, the government can sweep with a broad brush and might use those bad actors in the for-profit sector as an excuse to put non-profit programs under the microscope as well. Also, we know in health-care professions, the demanding scrutiny within an accreditor’s standards to keep the specialized health-care programs accountable is high. But lax behavior can occur anywhere and this must be remembered.

Fortunately, for audiology education, the American Academy of Audiology has supported not only the need for quality education, but the absolute necessity of demonstrating quality through an independent and fully accountable accreditation body. Wise leaders established the ACAE over a decade ago as a means of verifying educational rigor and assuring the public, the profession, the public, the educational establishment, and, dare we say, even the government of the quality of each accredited program.

Here are some of the ways ACAE anticipated concerns of the DOE by:

- Paying attention to the constituencies, i.e., programs offering the doctor of audiology degree
- Writing qualitative, rigorous standards and monitoring how they are followed
- Working collaboratively with programs so that they understand the ACAE standards and expectations, and assist programs in self-study and continuous program improvement
- Providing incentives/benefits for programs using ACAE’s web-based integrated platform
- Lifting expectations in accreditation standards, so that students feel the natural pride of a highly regarded profession
- Working with stakeholders within the profession, so that everyone understands that excellence and rigor in education is for the common good
- Providing aggregate data to programs (as available), so that they have factual information about how to make improvements
- Recognizing the impact of the ACAE gatekeeper status, yet emphasizing success rather than failure
- Keeping an eye on the prize—assuring the public that graduates will be qualified to be independent practicing audiologists

CHEA membership is another level of assurance in the chain of quality promoted by ACAE.

As we begin 2017, we look forward to continuing our work with our present accredited programs and with new audiology programs over the course of the coming year. We ask all of you who value education to support ACAE, and lobby to extend its reach into the AuD program community, particularly those with which you are personally connected.

If Big Brother is watching us, we’ll give him something we’re proud of!

Happy New Year from ACAE.

Doris Gordon, MS/MPH, is the executive director of ACAE.

References

ENJOY THIS ARTICLE?
Check out the eAudiology web seminar, “ACAE—Creating Our Future Together: Stellar AuD Education for Students, Faculty, and Preceptors” on Thursday, January 26 at 2:00 pm ET (0.1 CEUs).

www.eAudiology.org
For the better part of two years, the 2016 presidential election has captured the nation’s attention and dominated the local, state, and national news. Now that the dust has settled from this election, it’s time for the Academy to identify and pursue our legislative and regulatory priorities for the upcoming year. In addition to a new Presidential Administration, the 115th Congress will begin on January 3, 2017. As policymakers move into new roles, now is the time for the audiology community to jump into action. No matter what personal feelings we may have about the outcomes of this election cycle, we can coalesce around the potential for opportunity that comes with any new Congress and administration. The leadership of the Academy and the Government Relations Committee (GRC) will be poised to set forth an agenda to represent the interests of its members. The membership, too, can be ready to get involved at many levels.

Setting Priorities

Setting the agenda for working with the 115th Congress and the new administration necessitates consideration of various questions. What items, within our current list of priorities, do we want to continue to address? What new priorities are feasible to address in the current political climate? What other topics in health care are on the horizon? What is the timeline for action? Who can be our partners and champions?

To guide us in answering some of those questions, we need to align our legislative and regulatory priorities with the strategic priorities of the Academy enterprise. The enterprise consists of the Academy, the Accreditation Commission for Audiology Education (ACAE), the American Board of Audiology (ABA), and the Student Academy of Audiology (SAA). The Academy leadership recently engaged all of these groups in a visioning session that will inform the development of a common agenda and support the Academy’s advocacy-related committees in setting and advancing our policy agenda.

Guided by the visioning session, the GRC has been focused on making recommendations regarding the legislative agenda for the new Congress. This includes assessing bills that did not pass in the 114th Congress that must be reconsidered and reintroduced in the 115th Congress. This also includes identifying other priority issues important to our audiologist members and our partners in the Academy enterprise, such as over-the-counter hearing aid legislation, student-loan forgiveness and telehealth. As the GRC finalizes the legislative agenda for the upcoming two-year congressional session, this information will be communicated to Academy members via the Academy’s website, including our Legislative Action Center and Government Relations News page, through updates in the Audiology Weekly E-Newsletter, and through additional articles in Audiology Today.

Although the GRC focuses significantly on federal legislation and regulation, we are also interested in how the Academy can support state-level advocacy efforts. The State Network Subcommittee (SNS), a subcommittee of the GRC, has set up the infrastructure to facilitate communication among and within states, and to track key issues and activate state-level grassroots. We anticipate the need for greater engagement of the network, the state leaders, and the SAA chapters, as we seek to implement state-level strategies to advance a national agenda.

Engaging to Support Audiology and Hearing Health

Across the Academy enterprise, we are fortunate to have a large cadre of volunteers eager to support the advocacy efforts of the organization and the profession. From the students to the seasoned professionals, audiologists are ready to engage! The Academy offers members an array of options for getting involved, each offering varying levels of commitment. No matter how much time a member has to offer, activities for advocacy exist.

To support the Academy’s legislative agenda, the GRC has developed a framework for a new federal-level grassroots network. This network is comprised of Academy volunteers who are willing to engage with the members of Congress on federal legislative and regulatory issues. These individuals have or agree to develop a relationship with their member of Congress to raise the visibility of the profession on the legislative front. A critical first step for members to support the Academy’s advocacy efforts is to join the Academy’s grassroots network. Signing up is the base level of engagement. We ask that you provide the GRC with your areas of expertise and other key information, and indicate the range of activities you could support. Once in the network, you will receive an orientation to advocacy and a toolkit with support materials. To sign-up,
e-mail Kate Thomas, senior director of advocacy and reimbursement, at kthomas@audiology.org. Join today to help be the messenger on behalf of the profession. The GRC and the PAC will be using the network to identify members to tap for advocacy activities.

Members who do not want to join the network for whatever reason can still contribute. The GRC and staff send out action alerts on identified needs for advocacy on a particular issue, and we need each member to consider what he or she can do to help. Our Legislative Action Center offers sample letters and quick access to legislators, making outreach by members as simple as possible. The GRC tries to be selective in issuing an action alert, so consider that when you receive an alert, we have identified a critical need for member action. Truly, your voice is important to carry forth messages on behalf of the patients with hearing-health challenges and the audiology community.

Another avenue for supporting the Academy’s advocacy efforts is by contributing to the Academy’s Political Action Committee (PAC). PAC contributions go directly to support candidates for Congress who champion or influence audiology issues. The PAC Advisory Board has already started laying the groundwork to extend the outreach of the Academy’s PAC in the new Congress. The PAC Board has been closely following the election and composition of Congress, and is developing a list of targets for the session ahead. The PAC Advisory Board also identifies opportunities for highlighting the Academy’s priorities at events for Congressional targets and will look to members of the GRC’s grassroots networks to represent the Academy’s interests at these events.

Of course, AudiologyNOW! offers more outstanding ways to get involved and to hear important advocacy updates. The program includes sessions that provide valuable policy and business information to support practice management. Look in the program guide for different offerings provided by members of the GRC, SNS, Coding and Reimbursement Committee, and Practice Compliance Committee (PCC). The SNS will also be sponsoring a State Fair on Friday, April 7. Each state is invited to participate in this interactive event. Members can also join in some fun activities at the conference to support the PAC. Don’t miss the “Perk the PAC” coffee networking and fundraising event on Thursday and Friday, April 6–7, and for the early birds, join us on Thursday, April 6, for the first 5K run/walk that will benefit the PAC and the American Academy of Audiology Foundation.

Do not stand on the sidelines and miss the excitement of being part of the Academy’s advocacy efforts. Each letter, phone call, PAC event, and local outreach effort makes a difference. Our collective voice can be powerful, and together we can influence policy. Prepare now to engage!

Adam Mehlenbacher, AuD, is an audiologist at the Durham VAMC in Durham, North Carolina, and is the chair of the government relations committee; Kate Thomas is the senior director of advocacy and reimbursement for the American Academy of Audiology; and Kitty Werner is the vice president of public affairs for the American Academy of Audiology.
On October 25–26, 2016, the American Speech-Language-Hearing Association (ASHA) hosted a conference on audiology education that was attended by representatives of all 75 academic programs in the United States, with representatives from the American Academy of Audiology, the American Board of Audiology, the Accreditation Commission for Audiology Education, and the Student Academy of Audiology also attending the conference. The focus of the meeting was on challenges for clinical education and, in particular, the consideration of transitioning the fourth-year externship to a residency model.

The current model of audiology education generally includes two or three years of on-campus education followed by a one-year externship. Students graduate after completing the externship. A survey completed prior to the conference identified a number of challenges to the current model, including lack of standardization of the process, quality control for externship sites, the qualifications and skills of preceptors, student debt, and assuring student readiness for both the externship and at graduation.

The model under consideration at the conference would have students graduate after the third year and then require a one-year residency post graduation. Representatives of medicine, physical therapy, and optometry presented an overview of their residency programs. Of the three, a residency is only required for medicine. Both physical therapy and optometry have voluntary residency programs and these are generally focused on expanded training in a specialty area.

After intensive discussion and careful deliberation, the conference participants determined that the audiology profession was not prepared for a residency model and voted overwhelmingly to not pursue the model at this time. After rejecting the residency model, the participants of the conference turned their attention to addressing the challenges associated with the current model. The need for standardization of the externship received significant attention, as well as the need for a collective understanding of a vision for audiology that would subsequently inform the evolution of the educational model. Through this understanding, academic programs could adjust the didactic and experiential needs in a systematic fashion, both within and across programs.

The role of professional organizations and accrediting agencies in supporting or even forcing change within academic programs, particularly in regards to addressing the issues of the current externships was also discussed. The professional organizations in particular were challenged to partner with the educational programs in addressing the challenges. The Academy accepted the challenge and is looking forward to providing leadership and assistance in this regard.
The externship is a model of clinical education used by some doctor of audiology programs. While not standardized or mandated, it is commonly a 36–52 week immersive experience during which students engage in hands-on patient care as part of a clinical team. In 2015, a survey was distributed to audiology students nationwide to investigate the student experience during the externship application process. The survey consisted of 17 questions including quantitative, qualitative, rankings, and free response options. This article is a brief analysis of the 245 responses.

![Qualities of a Good Externship](chart)

<table>
<thead>
<tr>
<th>Most Important Factors</th>
<th>Least Important Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope of practice</td>
<td>Patient demographics</td>
</tr>
<tr>
<td>81%</td>
<td>78%</td>
</tr>
<tr>
<td>Type of facility</td>
<td>Location</td>
</tr>
<tr>
<td>79%</td>
<td>60%</td>
</tr>
<tr>
<td>Presence of stipend</td>
<td>Prestige of the facility</td>
</tr>
<tr>
<td>60%</td>
<td>67%</td>
</tr>
<tr>
<td>Ability to work with other professionals</td>
<td>Preceptor qualification</td>
</tr>
<tr>
<td>54%</td>
<td>63%</td>
</tr>
</tbody>
</table>

#### Qualities of a Good Externship

**67%** think funding is important or very important.

**72%** said funding affected their decision to accept or reject an offer.

**Explanations**

- Student debt (as high as $100,000+)
- High cost of living
- Moving expenses
- Tuition (including out-of-state tuition)
- Financial hardship

**UP TO $2000+** The application and interview process cost for individual students.

Many respondents reported feeling conflicted with the choice between the most educationally rewarding position and a paid position. They expressed concern regarding their ability to survive for a year on savings, loans, and a part-time job. Many questioned the ethics of a system in which it is acceptable for a student to participate in a full-time, unpaid position for as long as 12 months.
UNIVERSITY REQUIREMENTS AND SUPPORT

- 86% said a faculty or staff member was dedicated to helping them find a placement.
- 54% reported a good to excellent level of support from their university.
- 51% felt their university did a good or excellent job preparing them for the application and interview process.

APPLICATION PROCESS

- 70% understood the externship process before applying.
- 63% felt prepared for the application process.
- 66% felt confident when applying.

TOOL MOST FREQUENTLY USED

- 85% applied to out-of-state placements.

BENEFITS OF THE CURRENT EXTERNSHIP PROCESS

Autonomy in applying to and accepting a placement is reportedly the biggest benefit (45 percent) of the current process. Other benefits include job interview practice, clinical experience, university support, stipends, and networking opportunities. Twenty percent reported HearCareers was a valuable resource. Fifteen percent reported they liked the variety of positions available and thought the interview process was good practice for future job interviews.
### WEAKNESSES OF THE CURRENT EXTERNSHIP PROCESS

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>61%</td>
<td>indicated a desire for increased uniformity at all stages of the process.</td>
</tr>
<tr>
<td>37%</td>
<td>expressed a desire for uniform application deadlines, interview periods, offers, and acceptances.</td>
</tr>
<tr>
<td>9%</td>
<td>wanted an inclusive database, requiring all sites to post in a central area.</td>
</tr>
<tr>
<td>26%</td>
<td>suggested the implementation of systems to streamline the application process, such as a match program or a database similar to CSDCAS.</td>
</tr>
</tbody>
</table>

**Audiology externships should use a match process, similar to medical residencies.**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>55%</td>
<td>AGREE</td>
</tr>
<tr>
<td>19%</td>
<td>DISAGREE OR STRONGLY DISAGREE</td>
</tr>
<tr>
<td>4%</td>
<td>4% DESIRED LESS UNIVERSITY INPUT AND INDICATED THAT DECISIONS SHOULD REMAIN WITH THE STUDENT.</td>
</tr>
</tbody>
</table>

Over 50% agreed or strongly agreed they felt pressure to take the first placement they were offered.

**SECOND GREATEST WEAKNESSES**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>14%</td>
<td>disparity in funding</td>
</tr>
<tr>
<td>13%</td>
<td>lack of a standard database to find externships</td>
</tr>
</tbody>
</table>

The survey responses reveal several interesting aspects of the student perspective. The number of neutral responses was substantial (11–27 percent) when basic knowledge of the externship, the residency model, and the clinical fellowship year was required. Interestingly, these same questions received a higher percentage of strong rankings. This may be indicative of variable knowledge and expectations of clinical models among students; those who are more informed have stronger feelings, typically leaning in favor of processes with funding and uniformity.

A common theme is the concept of uniformity. This includes preferences for an all-encompassing database, a central application system, identical deadlines for application submissions, and the use of a matching algorithm or universal accept/reject date for final decisions.

Students reported variable responses in the amount of guidance and support they received from their university, as well as with individual expectations and requirements. Reports of the presence of tuition and absence of financial compensation were also variable. Financial hardship during the final year of graduate education was a main point of contention among respondents.

A follow-up survey targeting current externs will investigate the similarities and differences between externship experiences and provide the audiology community with a deeper understanding of how the externship model actually functions.

Farah Dubaybo is the SAA Education Committee chair, and Kate Johnson, Devon Palumbo, Amber Kadolph, Caitie Milligan, and Melissa De La O are SAA Education Committee members.
Another smashing group of young professionals assembled at the American Academy of Audiology headquarters in Reston, Virginia, September 11–13, 2016. Chair and former JFLACer Lisa Christensen (class of 2008) and Academy staff member Sarah Sebastian, along with many other Academy staff, pulled off another successful Jerger Future Leaders of Audiology Conference and spurred these young professionals back into their world equipped with new perspectives and upgraded leadership skill sets, as well as many new friends and colleagues.

With an aggressive agenda that included a history lesson of the Academy and the profession from Founder and Past President Brad Stach, an overview of Academy operations from the Executive Director Tanya Tolpegin, a visit to Capitol Hill to talk to legislators, work on their DiSC profiles led by Jeffrey Cufaude, numerous other leadership talks, and a special ‘hot topic’ project; these young professionals truly experienced lives in the leadership fast lane. The hot topic project was especially engaging as the attendees were assigned to one of the following six topic areas:

- Importance of clinical research
- Accessibility of hearing aids
- Affordability of hearing aids
- Attrition of audiologists
- Audiologic management of the whole patient
- Public awareness of audiology

Along with their partners, they were to come up with a five-minute ignite presentation that told a story with 20 slides that were automatically advanced after 15 seconds… talk about reducing a topic to its essence! But they did it and they did it really well.

What the JFLACers learned from this exercise and the whole of the conference is that audiology is an awesome and engaging profession. Although we have issues that need to be addressed to advance the profession, they learned that they, as leaders, are part of the solutions.

JFLAC 2106 was made possible through a partnership between the Academy, the AAA Foundation, The Oticon Foundation, as well as past JFLACers Dr. Melissa Heche (class of 2010) and Dr. Bre Myers (class of 2012). Thank you for your generosity and moral support!

The 2016 JFLAC class is listed below, as are some of their comments about their experiences at the conference.

Vinaya Manchaiah

I was honored to be in the JFLAC 2016 class. Interacting with highly intelligent and committed people who want to foster the profession is very exciting. The two-day conference really ignited me and peaked my interest and enthusiasm. I see this opportunity as a beginning and will work closely with the Academy and other stakeholders to improve audiology services locally, nationally, and globally.

Maggie Kettler

Participating in JFLAC 2016 was a turning point for me professionally. I have never felt as connected to audiology as I do now. I am truly humbled to have been able to meet and work with such an impressive group of young professionals. The energy and passion of the participants in JFLAC was amazing. Taking the time to see the legislative process helped me to conceptualize my part. The future of audiology is bright, thanks to the American Academy of Audiology and the members that continue to work to develop clinical, research, and leadership excellence.

Dave Jedlicka

When I applied for JFLAC, I did so with mixed feelings. I have always had a strong desire to add to our profession, to help develop the next generation of audiologists, and to leave the profession and the American Academy of Audiology in a better place than when I first entered. Initially, I had some doubts as to why I should be selected to this conference. JFLAC is named in honor of one of the most respected and influential names in the history of our profession, James Jerger. As the conference took place, a major shift took place within myself. My thoughts changed from, “What do I have to offer to audiology?” Into, “Why am I, and
others, not doing more for our profession?”

The ending of the conference was bittersweet. I would have loved a longer program to continue to learn and be inspired. I look forward to being able to take the steps to become more involved in all aspects of audiology. I feel somewhat silly knowing that I doubted my place within the field prior to the conference. Every single individual who has had a long lasting, positive impact for audiology all had to start somewhere. JFLAC was my spark. This experience has given me the knowledge, confidence, and inspiration to be the best audiologist that I can be for my patients, peers, and future audiologists. JFLAC was truly a life-changing event.

**Kate Marchelletta**

JFLAC was an amazing event that I wish all audiologists could experience. I left the meeting with not only a much fuller network of amazing audiologists, but also a fuller heart and mind. This meeting gave me the opportunity to think about issues and ideas that I may not have had before, which opened my eyes to the road that is before us. This is an exciting time in our field and I feel very fortunate that I will be able to use the skills that I learned from this experience to help not only myself professionally, but hopefully the field as a whole! Thank you to the Academy, the AAA Foundation, and The Oticon Foundation for helping make this enlightening experience a reality!

**Nicole Krueger**

Attending JFLAC 2016 was a pivotal moment in my career. I had heard from others how wonderful it was but you can’t really know the impact that it will have until you have attended. I learned so much about the history of our profession. It lit a fire inside of me to want to help shape the direction of our profession. I felt empowered to go out and be more involved! One of the most surprising aspects of the conference was all of the wonderful people I got to meet. I have made some lifelong friends. I want to express my heartfelt appreciation to everyone who made this conference a possibility.

**Julie Verhoff**

Thank you to The Oticon Foundation for supporting JFLAC 2016. I had the most amazing experience. Initially, I knew it would be a great opportunity for me to attend the conference and network with my colleagues. I never could have imagined how it would change my outlook in just three days. Working with my colleagues rejuvenated me and sparked a new interest in volunteering at the national level to advance audiology for the good of our patients and future colleagues. JFLAC 2016 was one of the best conference experiences I have ever had. The energy and excitement of being in the program is something special that will be shared with all JFLACers. I am honored to have met such amazing colleagues and the best part was making friendships to last a lifetime.

**Kathryn S. Schwartz**

JFLAC 2016 was single-handedly the most influential and stimulating conference I have ever attended. The speakers were inspiring and provided us with tools to become effective leaders in our field. I treasure the networking opportunities and personal connections I made. They would not have been possible without this conference. The projects assigned were challenging, and led us to develop real action plans to...
improve audiology within our profession and in our communities. Upon returning home, I felt empowered, passionate, and motivated to begin implementing change and advocacy for our profession. The skills and knowledge gained through JFLAC will serve as a guide for the rest of my career. It was truly an honor to attend this conference. Thank you for granting me the opportunity to participate.

Brian R. Earl
I sincerely thank the American Academy of Audiology Foundation and The Oticon Foundation for their generous support for the Jerger Future Leaders of Audiology Conference 2016. It was truly a career-changing experience to be taught by strong leaders who have contributed immensely to advancing our profession, the Academy, and the level of care we provide to our patients. As true leaders, they elevated their teaching to mentoring as they inspired us to not only learn by listening, but to learn by doing. The conference activities included a visit to Capitol Hill to communicate our position on legislative issues influencing our profession, and a project focused on enhancing our communication ability on key issues through clear and succinct presentations. These experiences significantly enhanced my perspective of the current state of audiology and motivated me to continue speaking up for the future of our profession and the needs of the patients we serve.

Heidi Slager
Attending JFLAC 2016 afforded me the unique opportunity to connect with past, present, and future leaders in the profession to consider the current state of our field, and our vision for the future. It was both refreshing and enlightening to move outside of my niche and consider audiology in its entirety; we are truly a diverse group of professionals. I left with a deeper understanding of myself, our field, my colleagues, and the issues that we are all working to solve every day. Perhaps most importantly, I also left armed with a new network of motivated, brilliant minds to collaborate with on future endeavors! I could not recommend JFLAC enough as an excellent opportunity for young professionals looking to become more involved with the Academy and our field in general.

Kristi Reed
I was very fortunate to have been chosen to attend JFLAC 2016. It was an experience that had a significant positive impact on me. As a graduate student, I became interested in learning about ways to support the profession of audiology. I was eager to make a difference. I began my career in a rural Texas practice and then transitioned to the pediatric facility where I have been for the past five years. My passion for helping children and their families only served to strengthen my desire to advance the profession, but I struggled with how to put that into action. When it was recommended that I apply to JFLAC, I knew this was how I could contribute in a meaningful way.

JFLAC provided the opportunity to learn about the many ways in which I can become involved. I learned more about myself and my leadership style. I found areas of strength to build on and areas

Lisa Christensen, Chair of JFLAC, names the hot topic project winner.
to improve upon. I made friendships with colleagues who share the same passions and goals, and who will be lifelong partners. I also came away with a plan for a project which will allow me to contribute immediately in a meaningful way. JFLAC is an amazing opportunity for leaders in our field and I hope that it continues for many generations to come. It has brought focus to my desire to lead our profession into the future.

Natalie Feleppelle
Prior to JFLAC 2016, I did not have a full appreciation of the trials, tribulations, and advances in our profession’s history that accrued from an enormous amount of work by members. In the current landscape of health care, there are a number of new issues we face which have the potential to dismantle or alter our course. JFLAC provided a more meaningful understanding of our past, which helped readjust my expectations and understand the value of making strategic moves, taking small calculated steps, and having unwavering persistence and patience in the effort to sustain and advance our profession.

JFLAC was the most profound and influential professional experience of my career. I left with a clear vision for the direction in which we need to move, the realization that I have the potential to make significant contributions to our advancement, and the awareness that the future of our profession lies solely in the hands of its fellows. JFLAC provided me with valuable advocacy and leadership tools, as well as the confidence to get involved and begin giving back to the field that has given me such a satisfying career.

Jeremy Donai
JFLAC 2016 was both informative and beneficial to my professional growth. I would recommend it to anyone interested in helping the profession prosper.

Conclusion
The comments from the JFLAC 2016 class express the essence of the biennial event: opportunity, knowledge, empowerment, enthusiasm, and more. The next conference will be held in 2018. Be on the lookout for application information.

Therese Walden, AuD, Board Certified in Audiology, chair of the American Academy of Audiology Foundation Board of Trustees, is a research audiologist at the Walter Reed National Military Medical Center in Bethesda, Maryland.
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