HEAR MY DREAM
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A Hearing Report from Taiwan
High-Frequency Audiometry
AuD Student Attitudes Toward the Profession
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Clinical tests have shown that Oticon Agil delivers improved speech understanding, providing:

- **1.4 dB more clarity**
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*Independent testing performed October 23, 2009 in compliance with JIS Z 2801 standards. 
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Hear My Dream  A local support group could provide a venue where parents freely exchange contact information as desired. However, support groups for parents of children with hearing loss are inconsistently located few and far between across the country.  
By Megan D. Ford

A Hearing Report from Taiwan  In May 2010, Dr. King Chung led a group of AuD students from Northern Illinois University on a study-abroad Heart of Hearing humanitarian trip to Taiwan. The team partnered with Taiwanese audiologists and audiology students to provide hearing services to several underprivileged populations.  
By King Chung, Hsiao-Chuan Chen, Shu-Yu Liu, Nan Mai Frances Wang, Yi-Ping Chang, Ruby Lin, Wen-Chen Chiu, and Meei-Ling Kuan

High-Frequency Audiometry: An Underutilized Tool in the Practice of Audiology  Review a number of cases in which the incorporation of HFA has allowed for a better understanding of diagnostics and patient management options.  
By Linda S. Remensnyder and Carly J. Smith

Play It by (H)ear  As audiologists familiarize themselves with phonological awareness and its contribution to early literacy skills, they will be better equipped to educate parents to be long-term literacy advocates.  
By Lori Tesoro Wiley and Kris English

AuD Student Attitudes Toward the Profession: A 2002 Survey Repeated in 2009  Review the findings of this repeat of a 2002 survey on the attitudes of audiology students toward their future profession. The results are not encouraging.  
By Heather N. Bennett and James R. Steiger

AAA Foundation Research Spotlight: Kathy Vander Werff, PhD  As part of the Foundation’s efforts to promote innovative audiology research, Audiology Today will periodically feature an interview with one of the past recipients of Foundation research funding, beginning with this profile of Kathy Vander Werff, PhD, a 2005 recipient of a New Investigator Award.  
By Rieko Darling and Kathleen Devlin Culver
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## EDITORIAL MISSION

The American Academy of Audiology publishes Audiology Today (AT) as a means of communicating information among its members about all aspects of audiology and related topics.

AT provides comprehensive reporting on topics relevant to audiology, including clinical activities and hearing research, current events, news items, professional issues, individual-institutional-organizational announcements, and other areas within the scope of practice of audiology.

Send article ideas, submissions, questions, and concerns to amiedema@audiology.org.

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AARP contracts with providers to make products and services available to AARP members. HearUSA pays a fee to AARP and its affiliate for use of the AARP trademark and otherservices. Amounts paid are for general purposes of AARP and its members.
The American Academy of Audiology promotes quality hearing and balance care by advancing the profession of audiology through leadership, advocacy, education, public awareness, and support of research.

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Learn more about how Mind440 can help your patients in the fight against tinnitus.

Mind440 features include:
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- Speech Enhancer
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- TruSound Compression
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To learn more call 1.800.221.0188 or visit www.widexPro.com

Indications for Use: The Zen Program is intended to provide a relaxing sound background for adults (21 years and older) who desire to listen to such a background in quiet. It may be used as a sound therapy tool in a tinnitus treatment program that is prescribed by a licensed hearing healthcare professional (audiologists, hearing aid specialists, otolaryngologists) who is trained in tinnitus management.
Recently I needed to update a talk

I was scheduled to give at an audiology meeting. After trying some online research engines, I checked for more information on the Academy Web site, using its search tool. Not only did I find information from five current research articles related to my topic, I also spent some leisurely time browsing through the Academy Web site. I surfed through various links on the site, and at each one, I felt like a child with free access to the candy store.

First stop? The home page, where I was drawn to the “Latest News and Information.” Summaries of four articles were highlighted, along with three news items that were bound to be of interest to a large proportion of Academy members. Next, I clicked on the “About Us” at the top of the home page and noted a list of current board members, a history of the Academy, and other basic information. I was pleased to see a sublink titled “Networking Opportunities” that provides ways for members to connect with other members. The networking opportunities include listservs, social media (Twitter, Facebook, and LinkedIn), online directories (membership directory for members and “Find an Audiologist” for consumers), and volunteer opportunities.

Next stop? A cruise through the “Advocacy” page. If you think you have no time for advocacy, think again! The Academy advocacy page has everything you need. You can send a message to your congressional representatives (in 15 seconds, using the Academy’s user-friendly setup), find information about congressional and regulatory issues, and read policy resolutions of interest. I was delighted to see a new addition to the direct access page, a patient advocacy poster for direct access. When you think about it, direct access is just as much a patient advocacy issue as it is an audiology concern. You can download this poster in flyer form, add your practice name and contact information, then put it in a visible area of your practice setting. This also gives you the opportunity to let your patients know about the www.howsyourhearing.org Web site, a work in progress that offers helpful information for consumers.

I only have space to highlight a few of the resource nuggets you will find on the Academy Web site. If you spend just a few minutes exploring the site, you will be reminded why you pay dues each year to renew your membership. Speaking of which, if you have not already renewed, jump on board and get ready for another exciting year with your Academy! Let me know what suggestions you may have to add to the excellence of the Academy Web site, and drop me a line about your favorite links. I will close by offering kudos to Doug Beck, AuD, Web content editor, and Amy Miedema, CAE, senior director of communications, as well as other dedicated staff members whose work contributes to the Web site. Well done!

Patti Kricos, PhD
President
American Academy of Audiology
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To learn more go to hearinginnovation.com/moxi-at or call 1.888.615.2738. Your clients can have it all, and so can you. Kick-start your clients’ lives today.
Audiologists Give
Advancing a Culture of Giving

Audiologists give in many ways;

- They give to patients the ability to hear (again); they give (back) to the profession gifts of all sizes; they give to the Academy time and expertise. Before we flip our calendars to 2011, it seems appropriate to reflect on the culture of giving among audiologists. Enjoy this small sampling, knowing that each gift is valued.

- To further leadership development, an Academy member earmarked a $12,000 donation to the AAA Foundation in support of the 2010 Future Leaders of Audiology Conference (FLAC). Aware of the profound effect FLAC 08 had on young audiologists, this member’s desire was to give to the next generation who will lead the Academy.

- In response to the Push the PAC campaign, a growing number of Academy members are giving to the AAA, Inc. PAC. These gifts enable the Academy to further our advocacy efforts on Capitol Hill.

- Based on our initial success of disseminating letters to editors in support of 2010 Super Bowl quarterback Drew Brees’s decision to protect his son’s hearing, the Academy just recently launched another letter-writing campaign in October. Many Academy members gave their time to advance public awareness by sending letters to their editors regarding noise-induced hearing loss and sporting events.

- Academy members give of their professional knowledge by presenting Web seminars on eAudiology. Other Academy members forgo an honorarium when asked to present at AudiologyNOW! Audiologists donate their time to provide these professional development opportunities that further the education of colleagues and students.

- Interested in advancing research, an Academy member asked to work with us to develop a program that would advance and recognize student research. The outcome is the annual James Jerger Award for Excellence in Student Research. Each year, this member anonymously gives $1,500 to the AAA Foundation to fund three $500 awards for outstanding student posters presented at AudiologyNOW! Since 2005, 15 students have received these scholarships acknowledging their exceptional work.

- Gifts come as philanthropic financial pledges to the AAA Foundation Visionaries program. Financial stress is all around, and yet audiologists still find a way to give. To each audiologist who has contributed time and expertise, supported advocacy with a gift to the PAC, or made a philanthropic donation to the AAA Foundation in 2010, we say thank you.

All gifts create a culture of giving while advancing the Academy’s mission.

Cheryl Kreider Carey, CAE
Executive Director
American Academy of Audiology

Cheryl Kreider Carey, CAE
Executive Director
American Academy of Audiology
Women and minorities are strongly encouraged to register.

**TOPICS INCLUDE:**
- Keynote: Overview of the Pathophysiology of Tinnitus
- Imaging Brain Function
- Hyperacusis
- Psychological Distress and Treatment
- Sound Therapies: Basis, Implementation, and Outcomes
- Tinnitus Therapies: From Bedside to Bench and Back Again

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As a new member of the Academy Board of Directors, I find myself balancing the compliment of my election against the responsibility I have to my fellow audiologists, including those who worked on this board before me and those who will follow. We have a strong group of dedicated volunteers who serve the Academy on various committees and the associated boards of the Academy, Student Academy of Audiology, AAA Foundation, American Board of Audiology, and Accreditation Commission for Audiology Education.

We also have a strong Academy staff, who strike me as top-notch in their skill and accomplishment. The problem for a new board member is not a lack of strong support and a wealth of creativity in our Academy (I have yet to hear a really bad idea as a board member). No, the problem is that one hears too many good ideas. There is so much to do, yet we have finite time and resources. The real job is to prioritize initiatives to make sure the most important things get done first.

This is why I asked to write this column. I absolutely want to hear from you. I want to hear your best ideas and suggestions about how to make our Academy and profession more successful. Anything I can do I will do to that end. So, imagine my friend’s confusion when he started talking to me about an issue we both felt passionate about and when he asked my opinion as a board member, I answered neutrally. “What?” he asked. “Why do you board members have to be so secretive?”

I have been hearing that a lot lately, and it is a fair observation. However, my intention is not to be secretive. Rather, I try not to express opinions about potential board issues in public. There are several reasons for this, but the primary one has to do with my obligation to my fellow board members.

I owe my best, most thoughtful opinions to my fellow board members. They need to hear my opinions directly from me and not from a third party. We need to be able to debate things honestly and vigorously. When we disagree, it’s better to be face to face. That way we have the best chance to communicate clearly and protect our relationship with careful respect for each other’s opinions.

Once a board decision is made, we have to put aside our differences and act in good faith to do what we agreed to do in the best interest of the profession and its
professional organization, even if it means a really good idea gets put on the back burner or a good friend disagrees with a decision. Without this type of honor, board members may not trust each other. A lack of faith in individual members or in the decision-making process in general can paralyze a board. At a time when there is so much to do, the cost of paralysis would be high.

Acting in good faith is really an expression of a board member’s fiduciary responsibility to the organization. Briefly, legal fiduciary duty requires that board members act with loyalty to the best interests of the organization and the profession it serves. Fiduciary duty also requires that all Academy volunteers maintain confidential information; disclose, avoid, or ethically manage potential conflicts of interests; and respect the association’s corporate opportunities. My opinions are not necessarily confidential information. However, if speaking publicly about a board issue diminishes our Academy’s ability to act, I am not working in the best interest of the Academy or the profession. Fostering unnecessary dissension by publicly discussing things I disagree with in Academy decision making can cause this inability to act. That’s not in the Academy’s or the profession’s best interests.

There are also legal considerations to expressing opinions carelessly. For one, there is the legal construct of apparent authority. Apparent authority means that an association may be held liable for damages caused by the speech of a member even when that member had no formal authority to speak on behalf of the association. This may occur if a reasonable listener is left with the impression that the speaker was talking for the Academy (that is, the speaker has apparent authority even though actual authority was never given.) To avoid apparent authority problems, the board speaks with one voice, through the Academy president or its designated representative. Google apparent authority and you will see that this is a common and necessary communication strategy for most organizations.

We all have opinions. However, our ultimate strength is marshaled when we find areas of consensus and act in unity. So express your opinions to board members—we need your best ideas, and it’s our job to listen.

David Zapala, PhD, is a member of the Academy Board of Directors (July 1, 2010–June 30, 2013). He is also an assistant professor in the Mayo School of Medicine and a senior consultant in audiology at the Mayo Clinic in Jacksonville, FL.
Have you ever considered how many individuals go without hearing aids because they can’t afford it? Have you contemplated what funding resources may be available in your community and state, as well as nationwide, to help these individuals? Increased demand and decreased funding of these types of services have created an environment of lengthy delays in many communities. Has it left you wondering how you can make a difference? Come full circle and give back to some of the charities you have used for years.

Humanitarian efforts are all around us. Finding an avenue that works for both you and your business is as individual as picking out a pair of shoes. Keep in mind the impact this will have on your business and community. Involve your patients in your mission—you will be surprised by the generosity of those around you. Consider some of the following opportunities to give back:

- Volunteer your time at a free clinic.
- Collect and donate used hearing aids to charity.
- Educate your community on hearing-related topics.
- Volunteer to participate in a mission.
- Provide hearing protection at community concerts and events.

Once you have decided to support a charity endeavor, you must determine where you will focus your resources and establish how to incorporate the cause into your business and marketing plan. Determine your budget and the amount of time and staff resources you’re going to devote to this project. Find ways to promote your humanitarian efforts in your office through word of mouth, literature, and displays. Most people are inherently generous and will be happy to support your efforts. As your reputation of giving back to the community grows, more people and potential clients will become eager to participate.
Here is one private practice owner’s account of how he has successfully incorporated his humanitarian work into his practice.

Michael Mallahan, AuD, is a practice owner in Everett, WA. Mallahan has expanded his scope of practice to include humanitarian work with the program Healing the Children, a national organization providing surgical and medical care for children worldwide.

Mallahan first became involved with Healing the Children when he was approached by an ENT looking to expand the program’s focus toward audiological needs in Guatemala, a country currently employing only one audiologist. Seven years later, Mallahan is a passionate supporter of the program, leading teams of audiologists, twice a year, to villages in Guatemala to perform mobile hearing exams, fit hearing aids, and educate the local population on both hearing, hearing aid care, and maintenance.

Mallahan reports that over the past seven years his humanitarian efforts have grown significantly. His initial involvement started as a week-long trip. He now devotes approximately one month out of the year away from his clinical practice toward the endeavor. The humanitarian efforts have led to indirect marketing benefits through a small display highlighting the program in his office. Mallahan’s patients are involved and interested in the efforts and enjoy receiving updates in his office newsletter. They have supported his mission through both financial contributions and donation of supplies ranging from used hearing aids to coloring books to share with children.

To Mallahan, the intrinsic rewards are the greatest. To date, over 1,100 children have been fitted with hearing aids through the program. He reports that finding audiologists to donate time and skill has been the easiest aspect of the mission. "Audiologists are folks who like to provide service but also have a big heart for volunteering." He states that by far the biggest challenge is obtaining funding for hearing aids. Mallahan’s team accepts hearing aids and any diagnostic screening equipment and, in particular, has a strong need for portable audiometers. Vintage equipment may also be donated to Healing the Children. For more information, visit www.htcoregonwashington.org or e-mail drmallahan@hearingandbalanceLAB.com.

Supporting humanitarian efforts within your practice provides satisfying opportunities to share your skills and expertise with those who may not have access to audiological services. Involvement in charity work not only provides the opportunity to give back to local, national, and international populations but also provides generous opportunities to promote business. The main objective may be to positively contribute to the community, but an additional benefit of participating in charity programs is recognition and publicity for your business. Sharing your efforts with your patrons fosters goodwill and interesting talking points. This enhances the patient experience and builds a business with a loyal client base.

Tracey Irene, AuD, is a senior audiologist with Professional Hearing Services, a division of Moreland Ear, Nose, and Throat Group, LTD, in Milwaukee, WI.

Brenna Carroll, AuD, is a clinical audiologist at Group Health Cooperative in Bellevue, WA.

Irene and Carroll are both members of the Academy’s BEST Committee.

Illustration by Johanna van der Sterre.
### NOVEMBER

1. **AudiologyNOW!® 2011 registration and housing opens for Academy members.**
   - [www.audiologynow.org](http://www.audiologynow.org)

10. **eAudiology Web Seminar—Assessing MP3 Player Use in the Clinic: Measurement and Counseling (.1 CEUs)**
    - 1:00–2:00 pm ET
    - [www.eaudiology.org](http://www.eaudiology.org)

10–12. **British Academy of Audiology Annual Conference Edinburgh, Scotland**
   - [www.baaudiology.org](http://www.baaudiology.org)

29. **AudiologyNOW!® 2011 submission deadline for clinical and research posters, the Student Research Forum, and research pods.**
   - [www.audiologynow.org](http://www.audiologynow.org)

### DECEMBER

1. **AudiologyNOW!® 2011 general registration and housing opens.**
   - [www.audiologynow.org](http://www.audiologynow.org)

2–5. **Society for Ear, Nose, and Throat Advances in Children Cincinnati, OH**
   - [www.sentac.com](http://www.sentac.com)

8. **eAudiology Web Seminar—Evidence for the Expansion of Pediatric and Adult Cochlear Implant Candidacy Criteria (.2 CEUs)**
   - 1:00–3:00 pm ET
   - [www.eaudiology.org](http://www.eaudiology.org)

31. **Last day to make a AAA Foundation gift for the 2010 tax year.**
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Hear My Dream

By Megan D. Ford
During audiology consultation appointments, it is not uncommon for parents to request contact information of other local families of children with hearing loss. A local support group could provide a venue where parents could freely exchange contact information as desired. However, support groups for parents of children with hearing loss are inconsistently located few and far between across the country.

Have you ever looked into the eyes of a parent as you provided the life-changing information that his or her child has permanent hearing loss? Chances are, the parent heard you loud and clear. This is because over 90 percent of babies with congenital hearing loss are born to parents with normal hearing (Mitchell and Karchmer, 2004; Palmer et al, 2009; National Institute on Deafness and Other Communication Disorders [NIDCD], 2010).

Breaking the news to parents with normal hearing that their child has permanent hearing loss has to be one of the most difficult scenarios an audiologist can encounter. This is not because having hearing loss is a terribly bad thing—if anyone can foresee that a child with hearing loss can grow up to be more than okay, it is the audiologist. The difficult part is that we are breaking news to parents who likely do not currently know another parent of a child with hearing loss, and chances are, they are not currently equipped with the knowledge of how to raise a child with hearing loss. For many parents, their child will be the first person with hearing loss that they will ever meet.

In the fifth paragraph of the popular handout So Your Child Has a Hearing Loss: Next Steps for Parents (AG Bell Association for the Deaf, 2010), often given to parents immediately following the diagnosis of hearing loss, it reads:

*Deaf parents of deaf children are not necessarily prone to grief because they are already familiar with living in a world without sound. Deaf parents may feel more comfortable with a child who is deaf, because this seems natural. However this isn’t the case for most hearing parents, who probably know little or nothing about hearing loss and who may never have known a child with a hearing loss.*

The vast majority of the time, they are not deaf parents but, rather, parents with normal hearing.

UNHS Is Wonderful, Isn’t It?
As advocates for the tool of universal newborn hearing screening (UNHS), we often witness firsthand the amazing benefits of early identification. However, there are some critics of UNHS who believe we are communicating bad news...
to parents shortly after they have given birth. In reality, the news we deliver is not “bad” but, rather, “difficult,” the descriptor preferred by the Audiologic Counseling Evaluation (ACE) tool when breaking the news to parents (English and Naeve-Velguth, 2006; English et al, 2007).

It’s true, hearing loss often appears to define the child who is identified at birth; however, the experienced audiologist knows that hearing loss will not define the child for long. Many audiologists discover their livelihood among those amazing, spoken conversations with five-year-old “deaf” children that—without UNHS and early identification—would otherwise be impossible. Being able to take part in providing early access to sound so that a child can be mainstreamed by kindergarten is a priceless reward.

Soon after parents learn the news that their child has hearing loss, many are faced with the duty of making life-changing decisions.

So why do some audiologists feel the way that they do? The answer is simple—hearing loss is usually only perceived as bad news when the parent has normal hearing. This is because when we diagnose a child of normal-hearing parents with permanent hearing loss, those normal-hearing parents likely have no prior education regarding how to raise a child with hearing loss. They have been thrown into a world they were not expecting to enter; they arrive completely unprepared, and they don’t know a soul. Soon after parents learn the news that their child has hearing loss, many are faced with the duty of making life-changing decisions. Often these decisions are time sensitive, as we’re dealing with interventions that impact development. It is clearly not an easy situation but rather difficult for the parent who was not expecting this diagnosis.

The Need
The first three national goals of Early Hearing Detection and Intervention (EHDI), better known as the One-Three-Six plan, are as follows:

1. All babies should have their hearing screened by one month of age,
2. All permanent hearing loss should be identified by three months of age, and
3. Appropriate services and intervention should be in place by six months of age (Centers for Disease Control and Prevention [CDC], 2010).

One of the roles an audiologist may fill is the fitting of amplification on very young newborns that are identified with hearing loss through the UNHS process. When
appropriate, audiologists talk to parents about cochlear implantation and help parents to navigate through all of their options. Audiologists often help parents understand their child’s hearing loss and make sure proper services are coordinated.

During audiology consultation appointments, it is not uncommon for parents to request contact information of other local families of children with hearing loss. This can be quite helpful, though difficult to coordinate when considering privacy laws and HIPAA regulations. A local support group could provide a venue where parents could freely exchange contact information as desired. However, support groups for parents of children with hearing loss are inconsistently located few and far between across the country. In the area where I practice, no such group had existed in the recent past. I had heard of rumors that there used to be a parent-driven support group many years ago that fizzled once the children with hearing loss grew up. Motivated by a few parents who were reaching out to meet other local families, I decided to study parent needs a little closer. I discovered that the two most important needs of parents in this situation are peers and education. To try and get an idea of what would be most helpful to parents, I conducted a survey. For example, I asked parents to rank the need for a family support network to assist in the facilitation of understanding their child’s hearing loss and rehabilitation options. Most parents feel a need to have a family support network to supplement the help they receive in the clinical setting. (FIGURE 1) In another question, parents were asked to rank how helpful contact with families who have children with hearing loss would be to the acceptance and understanding of their own child’s hearing loss. Peer contact ranked very high in aiding acceptance and understanding of their child’s hearing loss. (FIGURE 2)

The Dream
In July 2007, I founded the Hear My Dreams support group for parents of children with hearing loss. After gathering a group of about a dozen parents, we discussed locations, convenient times, and how often we should meet. Since this was a volunteer effort on my part, I felt comfortable offering my services about six to seven times a year toward this project. Weekends were busy for most people—many did not want to sacrifice time during Saturday or Sunday, and many parents worked during the day, as did I. After dinnertime and around the time most children are getting to bed was the most popular vote for time of day to meet. Together, the parents and I decided that to keep it simple; we would meet on a regular basis.

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AT THE POINT OF THEIR CHILD’S HEARING LOSS DIAGNOSIS

>> 100% parents did not know another parent of a child with hearing loss.

>> 100% of parents did not feel fully equipped with knowledge of how to raise a child with hearing loss.

SINCE ATTENDING HEAR MY DREAMS SUPPORT GROUP

>> 100% of parents found peer relationships helpful.

>> 89% of parents feel they have obtained information, education, and knowledge to help raise their child.

Collective Responsibility

It makes sense to me that the professional who delivers the life-changing information to the parents that their child has hearing loss (collectively this is usually none other than the audiologist) be held accountable to make sure that parents are getting the peer support and education that they need to raise their child appropriately. Often, parent-driven support groups cease after the founder’s children grow up. However, to keep it consistent and active longitudinally, it is imperative to be facilitated and driven by professionals. As supporters of UNHS, we need to follow through beyond the One-Three-Six plan.

It is our responsibility to follow through with the aftermath after we diagnose a child with hearing loss. If audiologists support UNHS, then we need to be held accountable, as professionals, to be there, not just for the hearing aid consultation or cochlear implant counseling session. Audiologists should also offer and provide a place to go outside of the clinic where parents can receive ongoing education in areas where they need it. Parents should be “guided” by a professional facilitator who has the perspective that the parent is not alone.

every second Tuesday of every odd-numbered month (odd months are those with the least holiday interference) from 7:00–9:00 pm. The key is that the meeting time and day is consistent and reliable.

As for location, I envisioned meeting in a neutral location near a major birthing hospital with easy access for all (if parents were able to access the birthing hospital to have their child, then they should be able to access that same region near the birthing hospital to attend a support group meeting). I searched around and looked at local libraries, local churches, and other public locations. A local hospital kindly agreed to allow use of a conference room in an off-site building with free parking six nights a year at a convenient location that many families were already familiar with.

All are welcome to attend. The idea behind this support group was to design a place that meets the needs of parents and caregivers of children who were identified through UNHS as having permanent hearing loss of any type or degree. Where the child receives clinical services is irrelevant. Professionals are also welcome to attend—and when they do, they later testify how extremely informative and eye-opening the experience was for them. Parents have traveled from towns 52 miles west and 59 miles north to attend. Such a large catchment area testifies to the need for parent support groups such as the Hear My Dreams support group in additional, more convenient locations.

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I have been facilitating the Hear My Dreams support group meetings for almost four years now. I felt called to volunteer and hope that this article inspires and motivates other audiologists to volunteer their time doing something they’re really good at. It is a rewarding aspect to the profession, plus it only makes sense that the professional who informs parents that their children have hearing loss be the founder, organizer, and facilitator of this very important step toward successful outcomes for these children. If telling parents their children have hearing loss is the most difficult thing about being an audiologist, you may find that volunteering in this area is the best thing about being an audiologist. Plus, volunteering is a wonderful way to give back to the profession.

The Design
In designing the meeting, I took the theme of “peers and education” and divided the two-hour meeting up accordingly. The first hour is dedicated to peer-relationship development. First, written ground rules are passed out and read aloud for all newcomers. This is very important for
emphasizing privacy so that attendees can feel secure that what is spoken at the support group stays at the support group. Next, introductions (and name tags) are made, which often includes updates of each child’s progress and sharing photos around the room. A contact sheet is passed around where parents can voluntarily provide e-mail addresses or phone numbers that they’d like to share with others. To elicit a guided conversation, predetermined talking points are often discussed. The interactions that occur during these discussions can only take place via parent-to-parent contact and simply cannot be duplicated in a clinical setting or by a professional, no matter how empathetic he or she may be.

The second hour of the meeting is dedicated to parent education. The topics are chosen based on parent request for information. We’ve had a variety of guest speakers including:

- A literacy specialist
- A psychologist
- Speech language pathologists
- Audiologists
- The Massachusetts Commission for the Deaf and Hard of Hearing
- Massachusetts Department of Public Health UNHS parent advocates
- A geneticist
- A teacher of the deaf
- A panel of successful young adults who grew up with hearing loss, including those who use both oral and manual forms of communication
- A panel of parents who raised successful young adults that grew up with hearing loss

![Figure 3](image-url)

**FIGURE 3.** At meeting one, variation among subjects in understanding their child’s diagnosis and treatment options. At meeting nine, less variation in understanding diagnosis and treatment options with higher mean score.
In addition to the evening meetings, there is an annual summer meet-and-greet potluck picnic where children, extended family, and professionals (highly comprised of past invited guest speakers) can mingle, play, socialize, and have a great time.

A simple Web site allows parents to check out the upcoming guest speaker. The Web site, www.hearmydreams.com, has been viewed over 13,400 times by over 4,400 visitors with an average of almost five hits per day. About 50 percent of the visitors are repeat hits, and about 50 percent of the visitors are new and unique.

From the key word searches that bring people to the Web site it is apparent that there are people across the nation and perhaps around the world who are looking for this type of support group and the information that it has to offer.

Business cards have been designed with the location and meeting times for the Hear My Dreams support group. These are handed to parents on the day of diagnosis with the date of the upcoming meeting written in like an appointment, to accompany other appointment cards that may be made for the child, such as a hearing aid consultation.

**Outcomes**

After attending several meetings, parents were surveyed again. It was discovered that the majority of parents found the peer relationships extremely helpful, and many felt they obtained the knowledge and education needed to raise their child.

When asked at their very first parent support group meeting if they understood their child’s diagnosis and treatment options, parents displayed variation in their response. When asked that same question at their ninth support group meeting, however, there was less variation in the response, with a higher mean score noted in understanding their child’s hearing loss and treatment options.

This support group model addresses parent needs, which have been identified as peer relations and education. Specific educational needs may vary locally across the nation based on available local resources, early intervention (EI) programs, and other factors. Parental educational needs will also change over time not just with the age of the child (i.e., parents may need initial support during times of acceptance, but then they may need information at age three that pertains to their rights when transitioning from EI to public schools) but also as times change technologically, culturally, and socially. Specifically, the educational needs of local parents are best realized through a simple study, which can be completed in the form of a survey.

**Vision**

In the acknowledgment section of his recent best seller, *Outliers: The Story of Success* (2008), Malcolm Gladwell uses the term “internal finder” when discussing his editor. Apparently his editor was a huge influence on him and worked with him for so long that Gladwell now has what he likes to call the “internal finder,” a self-correcting voice inside his head that gives him the benefit of his friend’s advice and support, even when he is not present. He states that finders—both internal and external—were invaluable to him (Gladwell, 2008). My vision, or dream if you will, is that a parent support group can be a finder for parents. They may be faithful attendees who go to each meeting or they may only have attended one meeting. But hopefully, while facing challenges in raising their child, they can carry with them an internal finder—the peers and education found at the Hear My Dreams support group.

This support group is not where you will find a room full of people sitting around crying and feeling bad for themselves. When you enable parents by offering them...
the tools they need, through education and peer support, you empower them to overcome their fears, their pain, and their loss. This support group is about parents learning that their child is going to be okay. This group is about parents getting relief because now they know what they need to do. Just because their child has hearing loss does not mean that their dreams need to end. They learn how to form new dreams for their child, because now they have the framework for this sort of dream.

Perhaps one day there will be parent support groups with similar format, consistency, and occurrence, located near all major birthing centers. At the point of diagnosis, audiologists will make an appointment for parents to attend at least one parent support group meeting, just as one recommends a hearing aid consultation appointment for their child. Consider the idea of a One-Three-Six-P plan where “P” represents parent support with the goal being a universal parent support group (UPSG) to accompany universal newborn hearing screening.

UNHS is mandated and realized in most states, yet there is a need for a standard support system for parents of children identified through this process. A support group enables parent participation and education and promotes positive outcomes. I propose that the availability of support groups, such as the Hear My Dreams parent support group, be included as an accompaniment to mandated UNHS programs. If this were to happen, it would be my dream come true.

Megan D. Ford, AuD, is a clinical audiologist and member of UMass Memorial Medical Center Sounds of Life cochlear implant team in Worcester, MA. She currently serves on the Academy’s Public Relations Committee.

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References


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In May 2010, Dr. King Chung led a group of doctor of audiology students from Northern Illinois University on a study-abroad Heart of Hearing humanitarian trip to Taiwan. The team partnered with Taiwanese audiologists and audiology students to provide hearing services to several underprivileged populations.

Taiwan is known for its modern technologies, rich cultural heritage, and magnificent natural beauty. Fishing villages, old temples, and high-rise buildings—including Taipei 101, one of the tallest buildings in the world—coexist on the skyline. Taiwan is home to 23 million inhabitants, 98 percent Han Chinese and two percent aborigines.

There are three universities offer audiology courses in the northern, central, and southern parts of Taiwan, including an undergraduate program at Chung Shan Medical University in Taichung, and two graduate programs, at the National Taipei College of Nursing in Taipei and the National Kaohsiung Normal University in Kaohsiung. Every year, these three programs produce approximately 25 to 40 graduates who are eligible to take the national examination in order to become licensed audiologists.

**Audiology National Examination and Licensure**

There are 250–300 people working in audiology settings in Taiwan. The Ministry of Examination administered the first national examination for audiology licensure in June 2010. A total of 177 passed the examination and became licensed audiologists. Other people currently working in audiology settings without audiology degrees from...
university programs will have four more opportunities to pass the examination before June 2014. For people who have attended an audiology program in a university, the first national examination was offered in July 2010. The establishment of a national examination for audiology marks a major milestone in the history of the audiology profession in Taiwan.

The underwriting of the audiology scope of practice is another major milestone recently achieved. The major obstacle was the mutually exclusive nature of Taiwan’s medical system. In the United States, for example, the scope of practice for both audiologists and hearing aid dispensers overlaps in the areas of hearing aid fitting and fine-tuning. In Taiwan, however, if one profession claims a service in their scope of practice, other professions cannot include that service in their scope of practice any more.

After nearly 20 years of negotiations with other professional organizations such as the Taiwan Otolaryngology Society, Hearing Aid Dispenser Union, Taiwan Academy of Physical Medicine and Rehabilitation, Special Education Association of the Republic of China, a group of audiology professors, and members of the Taiwan Speech, Language, and Hearing Association were finally able to establish the scope of practice and a national examination for audiology license.

The scope of practice includes:

1. Hearing evaluation,
2. Nonorganic hearing evaluation,
3. Inner ear balance functions evaluation,
4. Listening device evaluation (which includes hearing aids and assistive listening devices),
5. Pre- and post-cochlear implant evaluation and programming,
6. Aural habilitation/rehabilitation, and
7. Other audiological services approved by the Department of Health.

Although the scope of practice for audiologists is not as broad as in the United States and all patients must get medical clearance prior to receiving audiological services, the licensure examination will definitely raise the practice standards and establish professional status for audiologists.
Hearing Services and Government Programs

The Bureau of Health Promotion, a suborganization of the Department of Health, is the government agency that promotes health-related issues in Taiwan. Currently, the goal is to provide at least one hearing screening to all preschool children before attending primary school. Employers are required by law to provide an annual hearing evaluation for employees who work in areas with noise levels exceeding 85 dBA. In addition, a mandatory newborn hearing screening program was proposed in 1998. Currently, approximately 50 percent of newborns receive hearing screenings that are mainly provided by clinical nurses in large hospitals. The mandatory newborn screening program is still undergoing discussion.

If a person has a hearing loss, he/she can obtain amplification services in private practices, hearing aid distributors, or hospitals. Any person whose better ear has a hearing loss of 55 dB HL and above (calculated as the average of 500, 1000, 2000, and 4000 Hz) is eligible for the government hearing subsidy that can be applied toward purchasing hearing aids every three years. The amount for adults varies from NTD$5,000 ($155) to NTD$10,000 ($310) per ear, depending on the household income and the budget of the local government. Students under the age of 18 get a maximum subsidy of NTD$28,000 ($870) for bilateral amplification.

People with profound hearing loss can also apply for government subsidy for cochlear implantation. The average cost for cochlear implantation in Taiwan is NTD$850,000 ($26,500). The amount of subsidy ranges from NTD$200,000 ($6,230) to NTD$600,000 ($18,700). Several large hospitals also provide subsidies for cochlear implantation besides the government one. Children with hearing aids or cochlear implants can also go to private practices, schools for special education, or two nonprofit organizations, the National Women’s League Foundation for the Hearing-Impaired (NWLHIF) and the Children’s Hearing Foundation, for amplification services as well as aural habilitation services.

FIGURE 1. Hearing test results of individuals evaluated during the NIU Heart of Hearing Humanitarian Trip to Taiwan.
Audiology Today | NovDec2010

We performed otoscopic examination, distortion product otoacoustic emission tests, and tympanometry.

Heart of Hearing Humanitarian Trip to Taiwan

In May 2010, an audiology professor (Dr. King Chung) led a group of doctor of audiology students from Northern Illinois University (NIU) on a study-abroad Heart of Hearing humanitarian trip to Taiwan. The NIU team partnered with Taiwanese audiologists from the NWLHIF in Taipei and students and faculty members from Chung Shan Medical University in Taichung City and Kaohsiung National Normal University in Kaohsiung and provided hearing services to several underprivileged populations.

The NIU team brought otoscopes for checking the outer ear status, portable audiometers (EarScan 3) with insert earphones for testing hearing sensitivity, portable tympanometry and otoacoustic emissions diagnostic equipment (EroScan Pro) for testing middle and inner ear functions, and calibration equipment from the United States. The Taiwanese partners brought their equipment and the ability to communicate with locals and to translate for the NIU team.

In Taiwan, children with special needs are classified into 12 categories, including mental retardation, visual impairment, hearing impairment, communicative disorders, physical disability, sickness, emotional and behavioral disorders, learning disability, multiple disabilities, autism spectrum disorders, developmental disorders, and other disorders. Children with lesser degrees of disability are generally placed in mainstream classrooms. Most children with more severe degrees of disabilities attend special education schools that admit students from six to 18 years old. Some of these schools also offer vocational training to older students.

On this trip, we tested students in three special education schools/institutes in Taipei, Taichung, and Kaohsiung. We performed otoscopic examination, distortion product otoacoustic emission tests, and tympanometry. If these
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tests showed abnormal results, pure tone audiometry would be attempted to examine their degree of hearing loss. In most cases, however, we relied on play or behavior observation audiometry to examine their minimal response levels. Among the 253 students we tested, 239 were individuals with disabilities. Fourteen young children with normal abilities were enrolled in the classrooms to serve as role models. The age range of the students with disabilities was between two and 21 years old. Eighty-five students (35.9 percent) passed their hearing test. A total of 123 students (51.9 percent) were recommended for further audiological follow-up. Thirty-six students (23.8 percent) needed cerumen management (i.e., wax only) in at least one ear. Forty-five (28.9 percent) needed cerumen management and exhibited middle ear problems, failed the distortion product otoacoustic emissions (DPOAE) test, or had hearing thresholds/minimal response levels greater than the normal limits (i.e., wax plus). The other 42 (17.7 percent) did not need cerumen management but failed at least one of the other tests (clear canal). Twenty-seven students (11.4 percent) did not cooperate during the tests (CNT), and two students (0.8 percent) needed monitoring of middle ear status because they had Type C tympanograms but passed DPOAE tests (Monitor).

We also tested 60 residents with special needs in Wufen Caring Home located in a small village in Taichung County. Wufen Caring Home is a subsidiary of the Maria Social Welfare Foundation (www.maria.org.tw/org.html) that provides service to residents aged 15 to 60 years old with severe disabilities. We performed otoscopy, DPOAE tests, and tympanometry. If any of these tests showed abnormal findings, play audiometry and behavior observation audiometry were attempted. Twenty-two (36.7 percent) residents passed, and three (five percent) did not cooperate. Among the 35 (58.3 percent) who were referred, 20 had clear canals, seven needed cerumen management, and seven needed cerumen management and failed at least one other test.

In addition, we tested older adults in a nursing home in Taipei and a community center in Taichung. We performed otoscopy and pure tone tests from 250–8000 Hz in octave intervals. If the otoscopic examination indicated abnormality or the pure tone tests showed a hearing loss, we followed up with tympanometry to check their middle ear status and/or DPOAE tests to check their outer hair cell functions. Among the 66 individuals we tested, 60 needed cerumen management and/or had hearing loss of more than 40 dB at more than two test frequencies. This indicated 91.0 percent of the older individuals needed audiological follow-up. The results for the community center are shown in Figure 1 in detail.

We spent our first day in the southern part of Taiwan traveling to and testing in an orphanage—Christian Mountain Children’s Home (www.twcmch.org)—that was located in the foothills of a remote village in the mountains. The orphanage accepts children whose parents were diseased or in prison, who are born of a single mother or as a result of a crime, or whose family environment was violent. Sixty percent of the orphans were aboriginal children. We performed otoscopy, DPOAE tests, and tympanometry on 56 children between one and 15 years old. If a child failed any of these tests, play or standard audiometry was performed. We are glad to report that the majority of the children passed the DPOAE tests and had Type A tympanograms. Only one child had thresholds higher than 25 dB at 4000 Hz, two children needed follow-up for middle ear dysfunction (Type B tympanograms with normal ear canal volume), and eight required cerumen management in one or both ears.

Toward the end of the trip, we visited two Harmony Homes that are home to children and adults with HIV or active AIDS. All the adult residents were disowned by their family and friends and rarely have visitors. We performed otoscopy and DPOAE. If abnormal results were noted in either test, pure tone audiometry and tympanometry were performed. Among the 44 adults we tested, 21 (47.7%)}
percent) needed referral, half of which either had wax or wax plus failing pure tone audiometry or tympanometry.

It was heartbreaking to see many children who contracted HIV at birth and were abandoned by their families. We tested 25 children in Harmony Home in Taipei; eight were HIV positive and six were tested HIV positive at birth but were HIV negative at 18 months old. The remaining 11 children did not have HIV. They either had parents with HIV or were orphans with developmental delays. Seven children (31.8 percent) passed, 14 (63.6 percent) needed follow-up services, and one needed monitoring because of a Type C tympanogram.

The trip provided a valuable experience for all participants. Most of the individuals we tested had never had their hearing checked before. Most special education schools in Taiwan do not have full-time audiologists, and the students’ other disabilities sometimes make their hearing problems harder to detect. If the hearing loss and/or the impacted cerumen problem is unknown, a natural inclination is for their parents and/or teachers to assume that the students’ lack of responses to oral instructions was due to the inability to comprehend instructions instead of a hearing loss. We hope the hearing tests not only provided useful information to the parents, teachers, and caregivers to pay attention to the children’s hearing health but also subsequently improved students’ learning abilities and helped them achieve their educational or training goals.

In the Chinese community, hearing loss is considered to be one of the natural consequences of aging. As hearing loss is not a “disease,” older adults should not worry about it. Yet close to 90 percent of adults in the nursing home and the community center had significant hearing loss, but less than 10 percent wore hearing aids or any other amplification devices. We hope our services enhanced their awareness of the importance of hearing health and facilitated their search for better hearing solutions.

Some adults in the last stage of AIDS were living in vegetative states. They lost the control of their torso and limbs and lay motionlessly in bed in diapers. Hearing was their only connection to the world. We hope that identifying their hearing loss can lead to resolution of the problem and improve the quality of the final stages of their lives.

As for follow-up, the individuals or the parents of students who needed referral were informed of our test results. The NIU team also solicited 12 free hearing aids before the trip. The Taiwan teams will provide hearing aid evaluation, fitting, and follow-up services to individuals with hearing loss who would otherwise not be able to afford the hearing or hearing aid services.

For all of us, the trip was both educational and eye-opening. The stories we heard were incredible, sometimes heartbreaking yet encouraging. For example, a flood and...
A landslide destroyed the road leading to the Christian Mountain Children’s Home last September. The orphanage personnel searched for underground water holes in the nearby mountains and overcame tremendous difficulties to install three 5 km-long pipes in order to bring clean water to the orphanage.

Despite all the hardships, the orphanage seeks every opportunity to provide mental and physical training for the children. On the day of testing, the older children went mountain climbing in preparation for an adventure therapy trip to Kun Lun Mountain (elevation 6138 feet). On June 26, four children 16 to 18 years old and their caretakers joined a group of college students, adventure therapists, psychologists, and a tour guide and departed for China. Although they were forced to turn back at 5,600 feet because of various sicknesses and because the glacier leading to the mountain top started to melt, the participants were transformed by the 16-day trip. They not only became more proactive and confident but also gained physical endurance, respect for life, and appreciation for team work.

It was also encouraging to hear that some children in Harmony Homes who contracted HIV at birth and tested HIV positive at six and 12 months, with early and consistent administration of medicine, developed antigens and tested HIV negative at 18 months.

A rare and amazing find in Taiwan is that Dr. Joshua Chen, the chief ENT at Cheng Hsin General Hospital, is able to perform cochlear implant surgery on young children and to control the swelling so well that their standard procedure was to turn on the cochlear implants the next day! In addition, 98 percent of the cochlear implant recipients do not need painkillers after the surgery. The NIU team was very grateful for the opportunity to observe an amazing pediatric cochlear implant surgery performed by Dr. Chen right in the operating room!

Taiwan, indeed, is a beautiful and fascinating island. People are very friendly and welcoming. Our test results show that their needs in audiological services are tremendous. It is our hope that more people and organizations and the Taiwanese government agencies will be aware of their needs and actively engage in activities to improve the hearing health care of the underprivileged populations and Taiwanese people in general.

For more information about the trip, visit the online scrapbook at www.blurb.com/bookstore/detail/1498905.

King Chung, PhD, is an assistant professor at Northern Illinois University in DeKalb, Illinois. Her research interests are amplification, wind noise research, and hearing loss prevention.

Hsiao-Chuan Chen, PhD, is a professor at the Graduate Institute of Audiology and Speech therapy in National Kaohsiung Normal University in Kaohsiung, Taiwan. Her research interests include hearing conservation, auditory processing, and speech perception of children with hearing impairment.

Also of Interest


Log in to www.audiology.org and search the Audiology Today archives.
Shu-Yu Liu, MS, is a lecturer and Nan Mai Frances Wang, PhD, is an associate professor at the School of Speech-Language Pathology and Audiology at Chung Shan Medical University in Taichung, Taiwan.

Ruby Lin, BS, is a special education teacher in Cheng Gong Developmental Disability School in Kaohsiung, Taiwan, and a student in the master’s program at National Kaohsiung Normal University in Kaohsiung, Taiwan.

Yi-Ping Chang, AuD, and Wen-Chen Chiu, MS, are audiologists, and Meei-Ling Kuan, BS, is the executive director of the National Women’s League Foundation for the Hearing Impaired in Taipei, Taiwan.

Acknowledgments. We would like to thank Rex Lo and students from Chung Shan Medical University and National Kaohsiung Normal University for their participation in the hearing tests and thank Etymotic Research, Oticon Inc. (USA), Sonic Innovations, and members of the NIU Audiology Advisory Board for their generous support of the trip.
Private-practice audiologists are committed to providing services that differentiate themselves from the myriad of other hearing-care providers in the marketplace. Their aim is to communicate to both patients and referring physicians that the diagnosis of hearing loss is their foremost concern, and to reaffirm the generally acknowledged professional axiom that the vast majority of hearing loss cases can be managed, in house, by a doctor of audiology.

Our practice, Hearing Associates, PC, has been in existence since 1980, and there is no otolaryngologist affiliation. Over the years, our considerable physician-based referral network has been garnered, in part, by the practice’s commitment to providing thorough diagnostic hearing assessment including the diagnosis and prevention of hearing loss secondary to ototoxic medications.

High-frequency audiometry (HFA), the assessment of frequencies between 10,000 and 16,000 Hz, has, therefore, been provided long-term and in conjunction with distortion-product otoacoustic emission (DPOAE) assessment (American Speech-Language-Hearing Association [ASHA], 1994; Academy, 2009).

Most recently, the practice has expanded the use of HFA beyond its isolated use as a method of ototoxicity detection. In a surprising number of cases, the incorporation of HFA in our test battery has allowed us to “flesh out” a diagnostic impression, and it has helped steer us when evaluating patient management options.

The following five cases serve to illuminate HFA’s increasing value to our practice.

**Assessment of Sudden Hearing Loss**

LR, aged 62, a long-term (1980) patient, was seen for a sudden onset left hearing loss accompanied by unilateral high-frequency tinnitus and transient vertigo. Symptoms abated subsequent to steroid therapy, and hearing reportedly returned to pre-episode levels with thresholds reportedly symmetrical. The patient’s perception was that left hearing remained diminished, and she described increased problems hearing in the presence of background noise. HFA results on May 15, 2009, confirmed significant discrepancy in the high-frequency hearing threshold range when left HFA thresholds were compared to those of the right. It is our impression that patients are misled when told a sudden hearing loss has returned to pre-episode hearing levels unless HFA can confirm that assertion. In addition, confirmation of nonresolution of symmetry in the ultra high frequencies provides the
otolaryngologist the option of reinitiating a second course of glucorticoids should she or he decide to do so. (FIGURE 1)

Assessment of Obscure Auditory Dysfunction
C.SH, aged 59, a long-term (1997) patient, followed due to mildly progressive bilaterally symmetrical high-frequency sensorineural hearing loss (SNHL) and chronic motion sickness, occasional incapacitating nausea, and frequent imbalance. On June 9, 2010, the patient phoned the office in alarm due to a sense of disconcerting left ear fullness, distortion of sound, and a perception that her voice was resonating in her left ear. She was evaluated later that same day. A basic comprehensive audiological evaluation was conducted in addition to tympanometry, DPOAEs (previous DPOAE results were available), and HFA (initial assessment). Results failed to reveal any evidence of a conductive component; there was no asymmetry in responses on routine audiometry, DPOAEs, and HFA; and hearing was bilaterally stable in comparison to prior assessment. Videonystagmography (VNG) conducted two weeks later revealed a left unilateral weakness (32 percent). The patient was later diagnosed with vestibular migraine by a neurotologist. It is our impression that HFA should be part of the test battery when a patient presents with unilateral obscure auditory dysfunction just to ensure that no stone is left unturned in the audiologist’s diagnostic repertoire. (FIGURE 2)

Documentation to Supplement Patient’s Subjective Impression of Impaired Hearing
CG, aged 20, a college student, was referred by an otolaryngologist in February 2010 due to a complaint of persistent and annoying right ear fullness, right otalgia (aching through the neck), and occasional R>L tinnitus. Relevant case history included chronic ear disease in childhood with multiple myringotomies and insertion of ventilating tubes on four occasions.

Previous records from a local hospital’s audiology clinic dated February 8, 2006, documented that the patient presented with the complaint of constant ear popping, aural fullness, occasional ear pain, and subjective hearing loss in her right ear. Dizziness, a history of sinus infections, and recent drainage from the ears was denied. The hospital audiogram revealed hearing sensitivity that was WNL (within normal limits) at all test frequencies, bilaterally, with the exception of 8000 Hz where there
High-Frequency Audiometry


FIGURE 2. CSH, aged 59, date of assessment: June 9, 2010.

FIGURE 3. CG, aged 20, date of assessment: March 4, 2010.
High-Frequency Audiometry

was a 30 dB discrepancy in hearing thresholds (RE [right ear]: 50 dB, LE [left ear]: 20 dB). Immittance measurements were normal, and a subsequent (February 2, 2006) ABR was negative for retrocochlear involvement.

Testing at our facility four years later (March 4, 2010) revealed stable hearing—with the single isolated finding again being a 30 dB discrepancy between thresholds at 8000 Hz (RE: 55 dB, LE: 25 dB). DPOAE assessment yielded absent OAEs restricted to 8000 Hz for the right ear. HFA revealed that the patient’s significant asymmetry in hearing persisted throughout the ultra high frequency range (RE HFA thresholds at 50–55 dB, LE HFA thresholds at 10–20 dB). (FIGURE 3)

Interpretation

Certainly, in a normal-hearing young adult, a 30 dB asymmetry restricted to 8000 Hz could be considered inconsequential, but a 40 dB average discrepancy at seven test frequencies could constitute enough of a perceived asymmetry that the patient could describe it, for lack of a better term, as “persistent right ear fullness.”

There are four possible interpretations that could be gleaned from the HFA information:

1. The initial incident may have been a sudden right hearing loss, and the hearing loss, which was apparently isolated to 8000 Hz, may have been more extensive than that displayed on the more cursory audiogram.

2. The follow-up test results obtained at our office may have reflected progression in right hearing loss (unknown since first facility did not conduct HFA) with the progression in hearing loss prompting the patient’s request for further evaluation four years post-episode.

3. The unilateral hearing loss may have reflected the patient’s long-term history of otitis media (OM), where research in regard to EHF (extended high-frequency audiometry) and OM has documented that “subjects with longer, more severe OM histories had poorer EHF hearing than those with more mild disease. The results suggest both middle ear and inner ear components to the EHF hearing losses with inner ear effects most likely accounting for most of the differences between the normal and OM groups” (Margolis et al, 1993).

4. A final possibility is the diagnosis of multiple sclerosis (MS), which unilateral audiological symptoms. Based on our HFA findings, the referring otolaryngologist prescribed an MRI to rule out the presence of plaques.

Better Patient Management by Reducing the Need for Further Assessment

MC, aged 50, was referred by her physician when the patient expressed concern regarding asymmetrical hearing. She noted that she had difficulty hearing the television when the left ear was propped on the pillow and that she had difficulty hearing in background noise. Onset was gradual. Relevant case history information included familial hearing loss (mother). Medical conditions that may contribute to hearing loss included end-stage renal disease, diabetes, and a cardiac condition. The patient denied tinnitus, vertigo, and ear disease.

The audiologic evaluation conducted at our office on June 10, 2010, revealed hearing sensitivity WNL, bilaterally, at 250–4000 Hz, with a mild symmetrical hearing loss at 6000 Hz, and a significant asymmetrical hearing loss at 8000 Hz (R: 75 dB, L: 30 dB). HFA, a fast and accessible measure, was therefore administered. Results revealed continued, but reduced, HFA asymmetry at 9000 and 10,000 Hz, with remaining HFA thresholds symmetrical or symmetrically absent. (FIGURE 4)

In consideration of other, nonremarkable findings on the remainder of the test battery, in conjunction with case history findings in regard to the patient’s contributing health issues, the diagnostic impression was that, in all probability, the better hearing ear would, at that isolated 8000 Hz test frequency, eventually “catch up” to the alternate ear over time.

Asymmetry in pure-tone hearing thresholds, with remaining test battery results unremarkable, has always prompted consternation on the part of the managing audiologist. Some investigators have proposed “Rule 3000” (Saliba, 2009), which advocates that asymmetry of 15 dB or more at 3000 Hz provides the most predictive value of retrocochlear involvement. Others have suggested that any asymmetry in pure-tone findings needs to be investigated (Beck, 2010).

HFA test results in this, and other similar cases at our practice, have provided necessary input on whether to pursue an ABR or, if thresholds exceed that required for ABR, an MRI or a referral to an ENT. Certainly in this time of fiscal restraint in terms of ordering expensive—and sometimes unnecessary—tests, this is no small consideration. In addition, when the asymmetry in pure-tone findings is put in its proper perspective via the more pervasive view provided by HFA, the managing audiologist can move expeditiously forward with amplification when appropriate.
**Better Patient Management by Assessing HFA Responses Prior to Consideration of a Cochlear Implant**

SS, aged 52, an engineer, had been followed at our practice long-term (1985) due to a progressive bilateral sensorineural hearing loss (SNHL) that was initially saucer-shaped in configuration. His hearing loss progressed to profound in degree (thresholds approximately 95 dB at 250–2000 Hz, bilaterally) with a severe sloping upward to moderate SNHL at 3000–8000 Hz. Bilaterally amplified word recognition ability and SRT testing yielded no response for either ear and only a SDT was obtained for each ear. The patient was, therefore, encouraged to undergo evaluation for a cochlear implant.

Prior to implantation, SS expressed concern about the paramount place music plays in his life. He lives alone and noted that he often removes his hearing aids and listens to music at high-intensity levels. He had a well-trained ear since his hearing was once normal and the hearing loss had progressed over a 40-year time frame. It is widely acknowledged that cochlear implants, being primarily designed to convey speech information, fail in regard to music perception—especially with respect to timbre (McDermott, 2004).

Since music can involve an extended high-frequency response (20,000 Hz), HFA was conducted to determine the patient’s responses in the ultra high frequency range. Results confirmed improved hearing thresholds in comparison to the profound hearing loss responses in the speech frequency range as displayed on routine hearing assessment. The patient ultimately deferred implantation. **(FIGURE 5)**

**Better Patient Management for Selection of Amplification Parameters**

Recent articles in hearing journals have suggested that respondents have reported improved hearing when hearing aids with an extended bandwidth frequency response—specifically 10,000 Hz—were provided. These articles are generally manufacturer authored. It has been disconcerting to us that selecting such technology would be based on availability of the feature and threshold measurements at 8000 Hz rather than on concrete HFA threshold measurements. It is our premise that prior to fitting an extended frequency response hearing device, HFA should document aidable hearing thresholds at the targeted frequency.

**Conclusion**

Our practice is incorporating HFA, without charge, whenever routine audiometry can be supplemented with information that will help us in fleshing out a
more complete diagnostic picture of the hearing loss. We acknowledged that there is no HFA standardization regarding normative values. However, in our practice, we evaluate HFA symmetry (for diagnosis) and the level of threshold responses (for management). We are impressed with its accessibility, its ease of administration, and its speed (about five minutes) (De Seta et al, 1985).

Linda S. Remensnyder, AuD, is founder and owner of Hearing Associates, PC, with offices in Libertyville, Gurnee, and Lincolnshire, IL.

Carly J. Smith, AuD, is staff audiologist at Hearing Associates PC.

References


FIGURE 5. SS, aged 52, date of assessment: November 10, 2009.
As audiologists familiarize themselves with phonological awareness and its contribution to early literacy skills, they will be better equipped to educate parents to be long-term literacy advocates.
History in audiology and the education of children with hearing impairment (CHI) is replete with concerns of literacy development. As cited in Yoshinaga-Itano and Downey (1996), Furth (1966) demonstrated that only 25 percent of deaf or hard-of-hearing (DHH) students aged 14.5 to 16.5 years had achieved at least a fifth-grade reading level (Yoshinaga-Itano and Downey, 1996). More recently, Traxler (2000) described a similar trend: SAT results revealed that 50 percent of 18-year-old students with hearing loss achieved fourth-grade equivalent (GE) scores for both reading comprehension and vocabulary and a sixth-grade level in GE scores for spelling.

Fortunately, the future holds more promise. The No Child Left Behind Act is designed to systematically analyze and improve the academic performance of students with hearing impairment (Johnson, 2008). Advanced hearing aid and cochlear implant technology and universal implementation of early identification and intervention of hearing loss (HL) yield unprecedented auditory accessibility to the sounds of spoken language early in life, thereby affecting the potential for literacy development. Research continues to investigate the benefits of these innovations while widespread improvement in reading and overall academic outcomes for the general population of DHH high school graduates remains forthcoming.

The question, then, is what can audiologists do to support literacy achievement of CHI? This article will present information regarding one specific component of literacy, namely phonological awareness and its connection to audition. As audiologists familiarize themselves with phonological awareness and its contribution to early literacy skills, they will be better equipped to educate parents of CHI to be long-term literacy facilitators and advocates. Although not reading specialists, audiologists can help parents understand the relationship between listening and reading.

**Early Literacy**

Early literacy is defined as “reading and writing behaviors with no awareness, or only a beginning awareness, of letter-sound relationships” (Paulson and Moats, 2010). A two-year-old engaged in pretending to read aloud from a book is exhibiting early literacy skills and, likewise, the three-year-old who places a random string of magnetic letters on the refrigerator and proudly proclaims, “This says Andrew!” Similar is the child who, upon seeing the black two-eared logo, exclaims, “Mickey!” These scenarios demonstrate the child’s profound revelation that printed symbols have meaning attached to them. These steps need not be formally taught; rather, this awareness develops naturally and serves as a fundamental step in the child’s unfolding journey toward literacy achievement.

According to Paulson and Moats (2010), early literacy is comprised of three fundamental components:

1. Oral language,
2. Phonological awareness, and
3. Print knowledge.

Due to the breadth of the topic of literacy, this discussion is limited to that of phonological awareness. However, phonological awareness must be integrated within the context of a comprehensive reading approach to be effective. Phonological awareness is a familiar term to audiologists. However, because the typical graduate training program lacks coursework in the area of literacy, perhaps the typical audiologist lacks a working knowledge of its connection to literacy achievement. Paulson and Moats (2010) describe phonological awareness as an “awareness of the sound structures of spoken language and represents an ability to reflect on and consciously manipulate syllables and sounds of speech” (p. 113). In other words, phonological awareness is the ability to hear the sounds of spoken language (i.e., word, syllable, or smaller units), think about them, and manipulate or “play” with them. From this definition, phonological awareness is unmistakably an auditory-based set of skills with a rather broad linguistic focus; it includes an awareness of larger chunks of spoken language such as words and syllables as well as an awareness of the smallest units of spoken language.

Another familiar and related term is phonemic awareness, which involves the ability to be aware of and consciously manipulate the smallest units of speech sounds within words (phonemes). While the term phonemic awareness is frequently used interchangeably with the term phonological awareness, they are distinct (Cunningham et al, 1998). Phonological awareness exists as a continuum of sub-skills, from simple to complex, and is much broader in its linguistic domain, including other characteristics of sound such as intonation (Armbruster et al, 2003). It begins with noticing the large chunks of spoken language (i.e., words and syllables) and progresses to thinking about and later manipulating (playing with) the individual sounds within words (phonemic awareness) (Armbruster et al, 2003).

One familiar example of a lower-level phonological awareness skill is that of rhyming, which begins at around the age of two years and involves listening to
what is similar within two or more words. Conversely, as a child’s phonological awareness skills develop, the child also becomes more astute at learning to hear the differences between the sound patterns of words (words that do not rhyme). Being able to hear and pay attention to these similarities and differences is at the heart of phonemic awareness (Paulson and Moats, 2010). An example of phonemic awareness is that of blending. At this level of phonological complexity, children attain the skill of combining individual phonemes to form words. When presented with the sounds /t/, /i/, and /p/, a child shows his competence in blending phonemes by responding with the word tip.

Children getting ready to enter kindergarten (around age five) should be able to blend orally presented phonemes to form words (Paulson and Moats, 2010). As is evident, phonemic blending prepares the child to begin to decode (read/sound out) novel words.

In addition to development of the other components of early literacy (oral language and print knowledge), research has demonstrated that phonological awareness instruction early on in a child’s life, and more specifically, phonemic awareness instruction, contributes positively to his or her reading and spelling achievement (National Institute of Child Health and Human Development [NICHHD], 2000).

Some consider the early literacy/literacy phase to begin at birth (for the normal hearing child), when the newborn begins to clearly hear spoken language. As cited in English (in press), Dehaene (2009) reports that continual daily stimulation of the auditory neural pathways with the sounds of spoken language will be required over the first five to six years of life before a child is even ready to begin the process of formal literacy instruction.

**Audiological Management**

From an audiological standpoint, the first order of business is to provide optimal auditory accessibility to the sounds of spoken language as early in the child’s life as possible through appropriate hearing technology. The task of priming must entail constant stimulation of speech sounds via “incessant listening and then attention to/thinking about the differences and similarities in speech sounds (phonemic awareness)” (English, in press). We often use the phrase consistent hearing aid use. However, the term relentless more accurately captures the amount of spoken language stimulation that the developing brain will require during the critical first five to six years if the child is to stand a chance at developing literacy skills that will be on par with normal hearing peers.

Obviously, an accurate acoustical representation of these speech sounds is vital since what is heard by the child will imprint accurate or inaccurate phonological structures in the child’s developing brain. Inconsistent use of hearing devices will surely lead to inaccuracies in how phonemes (and larger units of oral language—i.e., words) are represented leading to flawed or delayed phonological representations (Sullivan, 2009). As cited in Sullivan (2009), Studdert-Kennedy determined in 2002 that poor speech perception gives rise both to “fuzzy” or “under-specified” lexical and phonological representation that eventually yield negative consequences upon reading and spelling. Arguably, failure to provide consistent (relentless) auditory stimulation early on in life will surely reap grave consequences upon a child’s literacy development. This early deprivation will lead to academic challenges that will be difficult for the CHI to recover from. Clearly, it is imperative that audiological counseling incorporate discussion regarding the detrimental effects of inconsistent hearing aid use upon literacy development.
Support Early Literacy Development

Although speech-language pathologists, early interventionists (EIs), and early childhood educators are directly involved in early literacy instruction, we recommend that audiologists be members of the child’s literacy team. This may begin with a shift in counseling focus from discussion of hearing as a means to speech and language development toward hearing as necessary for developing (early) literacy skills. The importance of a child being ready to learn to read when he or she enters kindergarten immediately resonates with parents and with it, the realization of the need for consistent, daily amplification and assistive technology use. Counseling in this manner is more effective since parental resolve is not coerced. Following are four easy strategies for audiologists:

1. Encourage Parents to Read to Their Child

Explain to parents that before the child even learns to read, there are essential early literacy skills that the child must attain prior to kindergarten. These skills do not result from formally “teaching reading.” Instead, they occur prior to and are necessary for literacy success. Most caregivers already acknowledge the importance of reading aloud to their child on a regular basis to foster later reading skills and typically do this naturally; audiologists should encourage this practice to strengthen the motivated parents’ resolve. Audiologists can also provide lists of age-appropriate books; these are typically available at the local library.

2. Discuss the Concept of Listening to Speech Sounds as a Precursor to Literacy

While the actual phrase phonological/phonemic awareness itself may or may not be necessary to relay to caregivers, a few basic points can be shared in a simplified manner. Audiologists can begin by sharing that before learning to read, a child must, simply put, listen incessantly. For most parents, reading to their child is the automatic default strategy in an effort to get the child reading-ready. While there is indisputable benefit to reading aloud to a child, a necessary preliminary step is first having the child simply listen to spoken language—all the time, even during non-reading activities.

Caregivers must understand that reading-readiness mandates all day, every day, listening to conversation at optimal levels, through the use of appropriately fit hearing technologies. They must understand that learning to read, beginning with infancy, is more than just pointing out the sounds associated with letters in a picture book; instead, a child must listen as early in life as possible thousands of times over to sounds that comprise their native tongue.

This “listening to conversation” will prepare the brain to begin to hear the “sameness” and the “differentness” of words, the entry point to the early stages of phonological awareness. In addition, the ability to detect this “sameness” between words is at the heart of noticing rhyming words.

3. Explore At-Home Early Literacy Strategies

Some of the early phonological skills such as rhyming are things that parents already do with their child. A typical two- to three-year-old toddler who has had the good fortune of consistent auditory access to spoken language begins to acquire the skill of attending to and noticing rhyming words, which accounts for their delight with Dr. Seuss rhyming books and nursery rhymes. Over the next few years, the child will hone his rhyming skills, progressing from noticing rhyming words to spontaneously producing rhyming words roughly between the ages of four to six years.

Parents and children together engaging in these intentional and explicit listening activities will improve the child’s readiness for later reading. Furthermore, by educating parents regarding phonological awareness and in-home strategies, the frequency of these in-home activities may increase along with parents’ motivation to get to the next step. Broadening the counseling focus to include phonological awareness may increase the probability that the child will enter kindergarten ready to read.

4. Use Counseling Aids

The American Academy of Audiology (Academy) has published a brochure titled Hear to Read: The Connection Between Hearing and First-Grade Reading (2009). This valuable tool maintains that children need consistent auditory access to speech before they will be ready to read between the ages of five and six years and provides practical suggestions that parents can implement to promote reading-readiness in their child who has hearing loss.

An additional brochure and poster written for parents, called Getting Ready for Reading and Writing (2010), published by the American Speech-Language-Hearing Association, includes tips for helping children get ready to read and write, early literacy milestones and timelines, and suggestions for parent-child interactions to facilitate early literacy.

The audiologist might consider creating a handout depicting a timeline of the progression of phonological awareness skills acquisition. Appendix A provides one such example that has been adapted from the Paulson and Moats (2010) tables. This handout can be used as a clinical tool during the audiological counseling portion of routine hearing/hearing aid checks and would serve as a reminder for audiologists to discuss listening and phonological
awareness skills development routinely with families also prepares parents for the next step in literacy development.

**Conclusion**

Being able to share information about phonological awareness helps audiologists educate parents concerning the hearing-reading connection and what they can do to maximize their child’s literacy outcome. Audiologists can also provide families with at-home, daily auditory-based strategies that incorporate phonological awareness activities. Often, in their noble efforts to prepare their child to read, parents focus on aspects of early literacy such as teaching the child letter names, the sounds they represent, and familiar words that begin with the corresponding letter. While these efforts are meritorious, audiologists can educate parents that much of reading-readiness is also tied to simply listening to and playing with the sounds of spoken language.

While not a new concept, the addition of phonological awareness to our repertoire of EI strategies has been virtually nonexistent. All audiologists have a general sense that the work we do will affect a child’s reading outcomes. However, there are measures that we as practitioners can take to directly impact literacy outcomes from a child’s earliest stages in life. By having meaningful discussions with caregivers about the impact of assisting their child in playing with the sounds of language, literacy research suggests that major dividends in the child’s literacy outcomes are possible.

Lori Tesoro Wiley, AuD, is a pediatric audiologist and an Orton Gillingham (multisensory reading/writing instruction) practitioner in Honolulu, HI. This article is based Wiley’s capstone project for the AuD. She would like to acknowledge her gratitude to Kris English for her mentorship during the course of the project.

Kris English, PhD, is a professor with the University of Akron/NOAC.

**References**


## Appendix A

### PHONOLOGICAL AWARENESS SKILLS ACQUISITION

#### Developmental Sequence

<table>
<thead>
<tr>
<th>Child’s Name:</th>
<th>DOB:</th>
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#### Rhyming

<table>
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<th>Age</th>
<th>Skill</th>
<th>Date</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2–3 Years</td>
<td>Children participate in saying words in nursery rhymes, finger plays, jingles, songs, and books that are read to them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3–5 Years</td>
<td>Children match words that rhyme.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4–5 Years</td>
<td>Children produce words that rhyme.</td>
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<td></td>
</tr>
</tbody>
</table>

#### Alliteration

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<tr>
<th>Age</th>
<th>Skill</th>
<th>Date</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3–5 Years</td>
<td>Children recognize words with a common initial sound.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5–7 Years</td>
<td>Children produce words with a common initial sound.</td>
<td></td>
<td></td>
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#### Blending

<table>
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<th>Age</th>
<th>Skill</th>
<th>Date</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3–4 Years</td>
<td>Children combine a sequence of isolated syllables to produce words.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4–5 Years</td>
<td>Children combine a sequence of isolated sounds to produce words.</td>
<td></td>
<td></td>
</tr>
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#### Segmentation

<table>
<thead>
<tr>
<th>Age</th>
<th>Skill</th>
<th>Date</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3–4 Years</td>
<td>Children identify syllables in words.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4–5 Years</td>
<td>Children identify beginning sounds in words.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5–6 Years</td>
<td>Children identify sounds in one-syllable words.</td>
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Adapted from Paulson and Moats, 2010.
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<th>DESCRIPTION</th>
<th>CEUs</th>
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<tr>
<td>Aging and Speech Understanding in Complex Environments</td>
<td>Explore the nature of speech understanding in situations with multiple competing sound sources and learn how both sensorineural hearing loss and aging can compromise performance.</td>
<td>.3</td>
</tr>
<tr>
<td>The Art of Interpersonal Communication in Audiology Practice</td>
<td>Develop communication skills often overlooked yet critically important to audiologists dealing with patients, families, and colleagues.</td>
<td>.1</td>
</tr>
<tr>
<td>Hearing Aid Reality Check</td>
<td>Analyze input level, activation of algorithms, and variability data to support and, possibly, challenge popular beliefs about hearing aid use.</td>
<td>.2</td>
</tr>
<tr>
<td>Assessment and Management of Auditory Processing Disorder in Traumatic Brain Injury (TBI)</td>
<td>Hear more about the diagnostic and rehabilitative challenges involved with the adult TBI population with central, and often peripheral, auditory dysfunction.</td>
<td>.1</td>
</tr>
<tr>
<td>TITLE</td>
<td>DESCRIPTION</td>
<td>CEUs</td>
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<td>------</td>
</tr>
<tr>
<td>Implementing the Physician Quality Reporting Initiative (PQRI) in Your Practice</td>
<td>Examine the benefits of submitting claims for PQRI and learn how to use the appropriate modifiers when filing PQRI claims.</td>
<td>.1</td>
</tr>
<tr>
<td>The Internet Pharmacy: Looking for Drug Information in All the Right and Wrong Places</td>
<td>Learn which Web sites—federal, professional, commercial, and private—offer accurate drug information and how the AMA’s guidelines for Internet drug information can make your time worthwhile when seeking information.</td>
<td>.2</td>
</tr>
<tr>
<td>Global Audiology: Humanitarian Audiology for Beginners</td>
<td>Identify the tools needed to create a successful humanitarian audiology program.</td>
<td>.1</td>
</tr>
<tr>
<td>Recent Advances in Understanding Conductive Hearing Loss</td>
<td>Review how third-window pathologies affect sound conduction and how various ossicular lesions produce different losses in tympanic membrane motion.</td>
<td>.2</td>
</tr>
<tr>
<td>Ethics and Research</td>
<td>Hear an overview of the research process involving human subjects and discuss retrospective reviews of patient populations.</td>
<td>.4</td>
</tr>
<tr>
<td>Prescribing Hearing Aids for Adults and Children</td>
<td>Learn about the processes involved in fitting hearing aids to adults and infants, and the selection of different hearing aid signal processing options.</td>
<td>.1</td>
</tr>
<tr>
<td>Vestibular Evaluation of Infants and Children</td>
<td>Review pediatric vestibular dysfunction and determine the best ways to proceed with a workup from an otolaryngology perspective.</td>
<td>.1</td>
</tr>
<tr>
<td>Vestibular Rehabilitation Therapy (VRT): Who, When, and How</td>
<td>Explore the use of evidenced-based clinical pathways to assist in the identification of appropriate candidates for VRT and the corresponding adaptation, habituation, and substitution protocols.</td>
<td>.1</td>
</tr>
</tbody>
</table>

To learn more and see a full calendar of upcoming Web seminars, visit [www.eAudiology.org](http://www.eAudiology.org).

### Upcoming Live Web Seminars

**NOVEMBER 10**
Assessing MP3 Player Use in the Clinic: Measurement and Counseling
Presented by Cory D.F. Portnuff, AuD, and Brian J. Fligor, ScD

**DECEMBER 8**
Evidence for the Expansion of Pediatric and Adult Cochlear Implant Candidacy Criteria
Presented by René H. Gifford, PhD
Survey

☐ Excellent
☐ Very Good
☐ Good
☐ Fair
☐ Poor
In 2002, Doyle and Freeman discussed the importance of surveying audiology students to learn their attitudes on professional issues. They argued that “one of the most critical elements to professionalism is first understanding the characteristics of the students within training programs. These students and their attitudes, beliefs, and abilities will drastically impact the future direction of any given profession” (Doyle and Freeman, 2002, p. 122). Doyle and Freeman reported that the only previously conducted survey on this matter (Neal, 1994) showed that “audiology ranked low in almost every category of professionalism compared with students in other health-care professions” (Doyle and Freeman, 2002, p. 122). Neal surveyed mostly audiology master’s students, and his survey was conducted at a time before the advent of the AuD degree.

In 2002 Doyle and Freeman surveyed audiology students. They adapted the questions used by Neal (1994), who had used as her framework questions used by Merton et al, in a 1957 survey of medical students. Doyle and Freeman’s survey was conducted when audiology was transitioning to a doctoring profession. Though many audiology programs still offered our then terminal master’s degree, there were seven four-year AuD programs training 165 full-time students (Doyle and Freeman, 2002). Doyle and Freeman surveyed the students from those seven AuD programs and also students from six randomly chosen master’s programs. Their results therefore provide a snapshot of our student’s attitudes on professionalism at a unique time in our profession’s history. Doyle and Freeman reported that their master’s students responded similarly to those in Neal’s study, but their AuD students differed with regard to their views on postgraduation employment, income, and autonomy.

Now that the transition to the AuD degree is completed, the current authors decided the times warrant an updated survey of audiology students’ attitudes on professional issues. Much has changed since 2002. Because our terminal degree is now the AuD, there are no students earning master’s degrees in audiology. Moreover, there are now 71 programs (including consortiums) training over 600 potential doctors of audiology annually (Freeman, 2009). Our goal was to gather data from current AuD students and to report that data side by side with the data reported by Doyle and Freeman (2002) with tables ordered and labeled identical to theirs for easy comparison. We did so, and we offered our view on what some of it means for our profession.

Methods
We used Doyle and Freeman’s (2002) questionnaire, modified by removing references and answer options pertaining to the master’s degree. The questionnaire included 24 closed-ended questions (Appendix A). A professional survey company was used to disseminate the survey to 1,098 Student Academy of Audiology (SAA) members. Along with the survey, we included an e-mail asking SAA members to complete the survey within one week. No follow-up letters or surveys were sent, and data collection was ended after one week.
### TABLE 1. Students Who Seriously Considered Another Occupation/Profession

<table>
<thead>
<tr>
<th>Did you consider another occupation/profession?</th>
<th>2002 Master’s and AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>92%</td>
<td>92%</td>
</tr>
<tr>
<td>No</td>
<td>8%</td>
<td>8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Which occupations/professions were considered?</th>
<th>2002 Master’s and AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech-Language Pathology</td>
<td>41%</td>
<td>42%</td>
</tr>
<tr>
<td>Education</td>
<td>31%</td>
<td>22%</td>
</tr>
<tr>
<td>Medicine</td>
<td>18%</td>
<td>19%</td>
</tr>
<tr>
<td>Psychology</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>Physical Therapy/Occupational Therapy</td>
<td>11%</td>
<td>9%</td>
</tr>
<tr>
<td>Nursing</td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>8%</td>
<td>5%</td>
</tr>
<tr>
<td>Business</td>
<td>7%</td>
<td>4%</td>
</tr>
</tbody>
</table>

### TABLE 2. Studying Audiology Versus Other Professions

<table>
<thead>
<tr>
<th>Much More Difficult Than...</th>
<th>2002 Master’s and AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td>Teacher</td>
<td></td>
</tr>
</tbody>
</table>

| About the Same as...       | Lawyer, optometrist, pharmacist, nurse, and dentist | Lawyer, optometrist, pharmacist, nurse, and dentist |

### TABLE 3. How Students Think the Public Perceives Various Professions

<table>
<thead>
<tr>
<th>“Is ___ Important”</th>
<th>2002 Master’s and AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician</td>
<td>Very (98%)</td>
<td>Very (98%)</td>
</tr>
<tr>
<td>Lawyer</td>
<td>Very (54%)</td>
<td>Very (54%)</td>
</tr>
<tr>
<td>Dentist</td>
<td>Very (51%)</td>
<td>Very (43%)</td>
</tr>
<tr>
<td>Optometrist</td>
<td>Somewhat (70%)</td>
<td>Somewhat (62%)</td>
</tr>
<tr>
<td>Teacher</td>
<td>Somewhat (53%)</td>
<td>Very (61%)</td>
</tr>
<tr>
<td>Psychologist</td>
<td>Somewhat (52%)</td>
<td>Somewhat (51%)</td>
</tr>
<tr>
<td>Nurse</td>
<td>Somewhat (51%)</td>
<td>Somewhat (39%)</td>
</tr>
<tr>
<td>Engineer</td>
<td>Somewhat (47%)</td>
<td>Somewhat (52%)</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>Somewhat (46%)</td>
<td>Very (47%)</td>
</tr>
</tbody>
</table>
Of the 1,098 disseminated surveys, 369 were completed and returned for a response rate of just under 34 percent. We received more responses than the 132 received by Doyle and Freeman (2002). Our response rate was the same as Doyle and Freeman’s response rate of 34 percent for master’s degree students (56 of 165) but less than their response rate of 46 percent for AuD students (76 of 165). The majority of our 2009 AuD students were female (90 percent) compared to 86 percent in 2002. Of our 369 responses, 11 percent were first-year students, 28 percent were second-year students, 28 percent were third-year students, and 28 percent were fourth-year students.

The majority (49 percent) of the 2009 AuD students reported first considering audiology between the ages of 18 and 20 years, and many (40 percent) reported first considering audiology after the age of 20. Doyle and Freeman reported that 50 percent of their 2002 students first considered audiology after the age of 20. Sixty-one percent of the 2009 AuD students definitely decided to study audiology after age 20 compared to 68 percent of the 2002 students.

| TABLE 1 | data indicates that 92 percent of the 2009 AuD students and 92 percent of the 2002 students seriously considered another occupation or profession. The 2009 order in which other professions were considered was speech-language pathology (42 percent), education (22 percent), medicine (19 percent), psychology (11 percent), physical therapy (nine percent), nursing (six percent), pharmacy (five percent), and business (four percent). The 2002 students’ order and percentages were similar: speech-language pathology (41 percent), education (31 percent), medicine (18 percent), psychology (10 percent), physical therapy (11 percent), nursing (eight percent), pharmacy (eight percent), and business (seven percent).

In 2002, Doyle and Freeman reported that the majority of students felt studying audiology was about as difficult as studying to become a lawyer, optometrist, pharmacist, nurse, and dentist. They also reported that students felt studying to become a teacher was less difficult than studying to be an audiologist. Our 2009 data, as shown in TABLE 2, indicates that our students also believe that studying to become an audiologist is about the same as studying to become a lawyer, optometrist, pharmacist, nurse, and dentist. Students also still believe that studying to become a teacher is less difficult. TABLE 3 data indicates how the 2009 and 2002 students think the public perceives various professions. Students in both studies thought physicians (98 and 98 percent respectively), lawyers (54 and 54 percent respectively), and dentists (43 and 51 percent respectively) were perceived as very important,
As of 2010, the American Speech-Language-Hearing Association (ASHA) conducted a survey to understand the attitudes of Audiology Doctorate (AuD) students towards their profession. The survey results are presented in the following tables:

**TABLE 4. Most Important Influence to Enter the Profession**

<table>
<thead>
<tr>
<th>Influence</th>
<th>2002 Master's and AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate Professor</td>
<td>31%</td>
<td>32%</td>
</tr>
<tr>
<td>Mother/Father</td>
<td>23%</td>
<td>24%</td>
</tr>
<tr>
<td>Audiologist You Know</td>
<td>16%</td>
<td>16%</td>
</tr>
<tr>
<td>Audiology Student</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Friends</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>Other Relative</td>
<td>4%</td>
<td>10%</td>
</tr>
<tr>
<td>Audiologist You Heard About</td>
<td>2%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Undergraduate Counselor</td>
<td>2%</td>
<td>6%</td>
</tr>
</tbody>
</table>

**TABLE 5. Things Students Will Like Most About Being an Audiologist**

<table>
<thead>
<tr>
<th>Preference</th>
<th>2002 Master's and AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being Able to Help Other People</td>
<td>54%</td>
<td>53%</td>
</tr>
<tr>
<td>Being Able to Deal Directly with People</td>
<td>22%</td>
<td>15%</td>
</tr>
<tr>
<td>Earning a Good Income</td>
<td>9%</td>
<td>6%</td>
</tr>
<tr>
<td>Challenging and Stimulating Nature of the Work</td>
<td>9%</td>
<td>13%</td>
</tr>
<tr>
<td>Being in a Respected Profession</td>
<td>4%</td>
<td>6%</td>
</tr>
<tr>
<td>Doing Work Involving the Scientific Method</td>
<td>2%</td>
<td>3%</td>
</tr>
</tbody>
</table>

**TABLE 6. Specialty Preference (First Choice) and Setting Where Students Plan to Practice**

<table>
<thead>
<tr>
<th>Specialty</th>
<th>2002 Master's and AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostics</td>
<td>41%</td>
<td>38%</td>
</tr>
<tr>
<td>Cochlear Implants</td>
<td>22%</td>
<td>22%</td>
</tr>
<tr>
<td>Hearing Aid Dispensing</td>
<td>18%</td>
<td>17%</td>
</tr>
<tr>
<td>Audiological Rehabilitation</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Intraoperative Monitoring</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Educational/Schools</td>
<td>8%</td>
<td>12%</td>
</tr>
<tr>
<td>Industrial/Conservation</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>No Specialty Interest</td>
<td>1%</td>
<td>2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting</th>
<th>2002 Master's</th>
<th>2002 AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own Practice</td>
<td>21%</td>
<td>61%</td>
<td>24%</td>
</tr>
<tr>
<td>Hospital</td>
<td>31%</td>
<td>27%</td>
<td>36%</td>
</tr>
<tr>
<td>ENT/Physicians' Office</td>
<td>18%</td>
<td>1%</td>
<td>7%</td>
</tr>
<tr>
<td>Other's Audiology Practice</td>
<td>12%</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>University</td>
<td>10%</td>
<td>4%</td>
<td>9%</td>
</tr>
<tr>
<td>School System</td>
<td>5%</td>
<td>0%</td>
<td>7%</td>
</tr>
</tbody>
</table>
whereas the 2009 AuD students thought teachers (61 percent) and pharmacists (47 percent) are also perceived as very important.

TABLE 4 data indicates who was most influential in the 2009 and 2002 students’ decisions to enter audiology. The top three influences were an undergraduate professor (32 and 31 percent respectively), mother and/or father (24 and 23 percent respectively), and an audiologist (16 and 16 percent respectively). TABLE 5 data indicates what the 2009 and 2002 students think they will like the most about being an audiologist. Ranked most highly were being able to help others (53 and 54 percent respectively) and being able to deal directly with people (15 and 22 percent respectively). Students were also asked about their undergraduate major. The majority (73 percent) of our 2009 AuD students held a degree in communication disorders. This is similar to the 75 percent for the 2002 students. Other undergraduate majors for the 2009 AuD students included science (four percent), psychology (four percent), and education (three percent). Doyle and Freeman’s 2002 students had similar undergraduate majors, including science (eight percent), psychology (six percent), and education (two percent) degrees.

TABLE 6 data indicates students’ preference for specialty and practice settings. The order of specialty preference was identical for the 2009 and 2002 students. The order was diagnostics (38 and 41 percent respectively), cochlear implants (22 and 22 percent respectively), hearing aid dispensing (17 and 18 percent respectively), audiological rehabilitation (six and six percent respectively), intraoperative monitoring (three and three percent respectively), educational/industrial/conservation (12 and eight percent respectively), and no specialty interest (two and one percent respectively). Preferred settings differences were apparent among the 2002 students, and side-by-side viewing of that data with the data from our 2009 AuD students is of interest. Owning one’s own practice was preferred by 21 and 61 percent of the 2002 master’s and AuD students respectively. Only 24 percent of the 2009 AuD students preferred owning their own practice, a significant difference from the 2002 AuD students (chi square p < .0001). The second
### TABLE 7. View of Audiology as a Primary or Secondary Source of Income

<table>
<thead>
<tr>
<th></th>
<th>2002 Master’s</th>
<th>2002 AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Income</td>
<td>50%</td>
<td>73%</td>
<td>72%</td>
</tr>
<tr>
<td>Secondary</td>
<td>50%</td>
<td>27%</td>
<td>28%</td>
</tr>
</tbody>
</table>

### TABLE 8. Current and Future Autonomy for the Profession

<table>
<thead>
<tr>
<th>Is Audiology Currently Autonomous?</th>
<th>2002 Master’s</th>
<th>2002 AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>7%</td>
<td>7%</td>
<td>11%</td>
</tr>
<tr>
<td>No</td>
<td>93%</td>
<td>93%</td>
<td>89%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Will Audiology Become Autonomous During Your Career?</th>
<th>2002 Master’s</th>
<th>2002 AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>75%</td>
<td>96%</td>
<td>83%</td>
</tr>
<tr>
<td>No</td>
<td>25%</td>
<td>4%</td>
<td>17%</td>
</tr>
</tbody>
</table>

### TABLE 9. Feelings About a Career in Audiology

<table>
<thead>
<tr>
<th>The Only Career That Could Really Satisfy Me</th>
<th>2002 Master’s and AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>37%</td>
<td>27%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>One of Several Careers I Could Find Almost Equally Satisfying</th>
<th>2002 Master’s and AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>55%</td>
<td>61%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Not the Most Satisfying Career I Could Think of</th>
<th>2002 Master’s and AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>3%</td>
<td>7%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I Decided Without Considering Whether It Was Most Satisfying</th>
<th>2002 Master’s and AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 10. Doubt Concerning Choice to Enter Audiology

<table>
<thead>
<tr>
<th>Do You Doubt the Choice You Made?</th>
<th>2002 Master’s</th>
<th>2002 AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>34%</td>
<td>20%</td>
<td>44%</td>
</tr>
<tr>
<td>No</td>
<td>61%</td>
<td>79%</td>
<td>52%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Never Thought About It</th>
<th>2002 Master’s</th>
<th>2002 AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>1%</td>
<td>4%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Descriptions of Feelings of Doubt</th>
<th>2002 Master’s</th>
<th>2002 AuD</th>
<th>2009 AuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate Income</td>
<td>30%</td>
<td>28%</td>
<td>22%</td>
</tr>
<tr>
<td>Wrong Career Choice</td>
<td>23%</td>
<td>16%</td>
<td>8%</td>
</tr>
<tr>
<td>Limited Job Potential</td>
<td>13%</td>
<td>16%</td>
<td>29%</td>
</tr>
<tr>
<td>Lack of Autonomy</td>
<td>3%</td>
<td>19%</td>
<td>16%</td>
</tr>
<tr>
<td>Concerns over Degree Designator</td>
<td>10%</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>Other</td>
<td>12%</td>
<td>9%</td>
<td>18%</td>
</tr>
</tbody>
</table>
most popular preference was hospital, which was chosen by 31 and 27 percent respectively for the 2002 master’s and AuD students, and by 36 percent of the 2009 AuD students. Response preferences for ENT physician’s office was 18 and one percent respectively for the 2002 master’s and AuD students, and by seven percent of the 2009 AuD students. Other’s audiology practice was preferred by 12 and five percent respectively for the 2002 master’s and AuD students, and by nine percent of the 2009 AuD students. No other preferences exceeded double-digit percentages.

Students were asked whether they believed audiology will provide a primary or a secondary source of income for them after graduation. There was a significant difference in the 2002 data (Doyle and Freeman), with 50 percent of master’s students and 73 percent of AuD students choosing primary. Similarly, 72 percent of the 2009 AuD students chose primary (TABLE 7).

At the end of the survey, students were given the definition of autonomy used by Doyle and Freeman (2002): “patients having direct access to audiology services, audiologists being directly reimbursed by third parties for their services, and health care entities (insurance companies, government agencies, etc.) recognizing the full scope of practice of audiologists.” When asked if audiology is currently an autonomous profession, the 2002 master’s and AuD affirmative response rates were similar (seven percent for each), whereas the 2009 AuD student affirmative response rate was 11 percent (TABLE 8). When asked if audiology will become autonomous, the 2002 affirmative response rates were 75 and 96 percent respectively for master’s and AuD students whereas the 2009 affirmative response rate was 83 percent. There was a significant difference (chi square p < .0001) between the 2002 and 2009 AuD students’ responses to this question. When asked whether they had doubts about their career choice, 44 percent of the 2009 students responded yes, compared to 34 percent of the 2002 master’s students and 20 percent of the 2002 AuD students. There was a significant difference (chi square p < .0001) between the 2009 and 2002 AuD students’ responses to this question. Moreover, 29 percent of our 2009 AuD students had doubts concerning the limited job potential compared to 13 percent of the 2002 master’s students and 16 percent of the 2002 AuD students. There was a significant difference (chi square p < .0005) between the 2009 and 2002 AuD students’ responses to this question. Finally, when asked whether they had doubts concerning inadequate income compared to 28 percent of the 2002 AuD students and 30 percent of the 2002 master’s students.

**Discussion**

Our side-by-side display of the 2009 survey responses with the Doyle and Freeman 2002 survey responses will allow the interested reader to compare and contrast the data, contemplate the current opinions of AuD students, and consider possible ramifications for the profession. Furthermore, our ordering and labeling of tables in a manner identical
to Doyle and Freeman will allow the interested reader to compare and contrast the two documents.

The current authors were struck by the apparently similar responses to many questions, despite the passage of seven years and the many changes we have made including the transition to the AuD as our terminal degree. An example of similar responses for the 2009 and 2002 AuD students included whether students considered professions other than audiology, and what those professions were. Speech pathology remained the top-ranked other profession considered, and communication disorders remained the top undergraduate major despite the hope that AuD programs might attract students from the sciences and social sciences. Similarly, the top three influences to enter audiology (undergraduate professor, mother/father, and audiologist you know), and the top two reasons for entering audiology (being able to help others and being able to deal directly with people) were unchanged. Regarding postgraduation issues, there also appeared to be no change of specialty preference, with diagnostics, cochlear implants, and hearing aid dispensing receiving double-digit responses in that order. Finally, there appears to be no change—or, said differently, no improvement—in the percentage of AuD students that believe audiology will provide their primary source of income.

There were, however, some differences between AuD student responses in 2009 and 2002. Compared to the 2002 AuD students, fewer of the 2009 AuD students expected audiology to become an autonomous profession, and only about one in 10 of the 2009 AuD students thought we are currently autonomous. Moreover, fewer of the 2009 AuD students preferred owning their own practice, and hearing aid dispensing remained ranked third among career choices (as it was ranked in 2002). These findings might surprise some in view of our transition to the doctoral degree, and these findings might be of some concern to those who emphasize the importance of independent practice and hearing aid dispensing for the future of the profession. However, it should be noted that the 2002 to 2009 decrease among students preferring owning their own practice occurred only for AuD students; the rate of the 2002 master’s students preferring owning their own practice was almost identical to that of the 2009 AuD students. Viewed in this context, it is possible that the high rate of the 2002 AuD student students preferring owning their own practice might have been an anomaly, perhaps owing to that unique time of transitioning to a doctoral profession.

Perhaps most concerning was that more of the 2009 AuD students than the 2002 AuD students had doubts about audiology as a career choice. The current authors wonder if students’ concern over limited job potential is the major factor in their doubt. Future researchers might consider investigating and better defining what students consider limited job potential. Interestingly, our data suggest inadequacy of income is not a major factor in the increased student doubt.

Finally, the 2009 AuD students’ doubts about audiology as a career choice are interesting in view of the apparently decreasing preference not to own an independent practice and doubts regarding the future autonomy of the profession. We might do well as a profession to explore and address the reasons for our current AuD students’ responses. We might also do well to consider whether we are attracting AuD students predisposed to hold certain views, including those recorded here, and who are similarly predisposed to make certain career choices. We could also consider as a profession what our goals should be regarding various postgraduate career choices, including independent practice. Perhaps we could then consider how we can recruit differently as needed and how we might direct, advise, and mentor the students we accept into our AuD programs.

Heather N. Bennett, AuD, recently graduated from the Northeast Ohio AuD Consortium and is now a private practice audiologist with Advanced Hearing Centers, Inc.

James R. Steiger, PhD, is a professor at the Northeast Ohio AuD Consortium.

References


Appendix A

STUDY QUESTIONNAIRE

1. Date of birth: ___/___/___

2. Sex:
   - Female
   - Male

3. Marital status:
   - Single
   - Married
   - Engaged
   - Divorced, separated, widowed

4. Current level of academic training:
   - First-year AuD student
   - Second-year AuD student
   - Third-year AuD student
   - Fourth-year AuD student
   - PhD or other doctoral

5. At what age did you first think of becoming an audiologist?
   - Before the age of 14
   - Between 14 and 17 years
   - Between 18 and 20 years
   - After the age of 20

6. At what age did you definitely decide to study audiology?
   - Before the age of 14
   - Between 14 and 17 years
   - Between 18 and 20 years
   - After the age of 20

7. Before deciding on audiology, did you ever seriously consider any other occupation or profession?
   - Yes
   - No

8. Please check if either of the following statements is true:
   - I initially became interested in audiology while taking an undergraduate introductory course in speech pathology/audiology.
   - At one time I was interested in a speech pathology career.

9. Which one of the following statements best describes the way you feel about a career in audiology?
   - It’s the only career that could really satisfy me.
   - It’s one of several careers that I could find almost equally satisfying.
   - It’s not the most satisfying career I can think of.
   - It’s a career I decided on without considering whether it was most satisfying

10. Some people experience doubts about their career choice. Do you find yourself doubting the choice you made in audiology?
    - Yes
    - No (skip to question #12)
    - Have never thought about it (skip to question #12)

11. Which of the following best describes your feelings of doubt? (check all that apply)
    - Wrong career choice
    - Limited job potential
    - Inadequate income
    - Lack of autonomy
    - Concerns over degree designator
    - Other (specify) _______

12. How do you think studying to be an audiologist compares with each of the following professions?
    Choose one of the following five options for each of the professions below: (1) Much more difficult, (2) Somewhat more difficult, (3) About the same, (4) Less difficult, (5) Don’t know
    - Studying to be a lawyer
    - Studying to be an engineer
    - Studying to be a physician
    - Studying to be a psychologist
    - Studying to be a teacher
    - Studying to be an optometrist
    - Studying to be a pharmacist
    - Studying to be a nurse
    - Studying to be a dentist
13. How important do you think the public considers each of the following professions?
Choose one of the following four options for each of the professions below: (1) Very important, (2) Somewhat important, (3) Of minor importance, (4) Not at all important
- Physicians
- Teachers
- Optometrists
- Nurses
- Audiologists
- Pharmacists
- Lawyers
- Psychologists
- Engineers
- Dentists

14. How important was each of the following in your decision to enter the profession of audiology?
Choose one of the following four options for each of the professions below: (1) Very important, (2) Fairly important, (3) Of minor importance, (4) Not at all important
- A. Mother/father
- B. Other relatives
- C. Friends
- D. Audiologists you know personally
- E. Audiologists you have heard or read about
- F. Audiology students you know
- G. Undergraduate professor
- H. Undergraduate counselor
- I. High school counselor
- J. Other (specify): __________

15. Which two individuals in question #14 were most important in your decision to become an audiologist? (list the appropriate alphabetic letters) _______ and _______

16. Once you have finished school, what three things do you think you will like best about being an audiologist? (rank in order of importance: 1, 2, 3)
- Being able to deal directly with people
- Being able to help other people
- Having interesting and intelligent people for colleagues
- Doing work involving scientific method and research
- Being in a respected profession
- Earning a good income
- The challenging and stimulating nature of the work
- Other (specify) _______

17. Do you intend to practice in a particular specialty in audiology?
☐ Yes
☐ No
☐ Not sure
- Cochlear implants
- Audiologic rehabilitation
- Diagnostics
- Intraoperative monitoring
- Educational/schools
- Industrial/conservation
- Hearing aid dispensing
- Not interested in specializing

18. If you were to specialize, even though you may not have decided yet, please indicate your first two choices in order of preference.
- Cochlear implants
- Audiologic rehabilitation
- Diagnostics
- Intraoperative monitoring
- Educational/schools
- Industrial/conservation
- Hearing aid dispensing
- Not interested in specializing

19. In which practice setting do you ultimately plan to practice the profession of audiology?
☐ Own audiology private practice
☐ Other’s audiology private practice
☐ Hospital
☐ ENT physician’s practice
☐ University
☐ School system
☐ Other (specify): __________

20. Below are some considerations that might enter into your selection of the type of setting in which you would like to practice. Please rank each of the following based on importance to you as you think about your career.
Choose one of the following four options for each of the professions below: (1) Very important, (2) Somewhat important, (3) Of minor importance, (4) Not at all important
- Having the opportunity to know your patients well
- Being able to establish your own hours of work
- Meeting diagnostic problems that are particularly challenging
- Making a good income
- Other (specify): __________
21. Which of the following do you view your career in audiology as providing you with?
- A primary income in your household
- A secondary income in your household

22. What was your undergraduate major?
- Communication disorders
- Education
- Science
- Psychology
- History
- Other (specify) ________

23. Do you believe that audiology is currently an autonomous profession?
- Yes (skip question #24)
- No

24. Do you believe that audiology will become autonomous during your career as an audiologist?
- Yes
- No

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—promote yourself, audiology, and hearing health care to patients on hold

—post resumes and search job listings for free

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Audiology Today NovDec2010
As part of the Foundation’s efforts to promote innovative audiology research, *Audiology Today* will periodically feature an interview with one of the past recipients of Foundation research funding, beginning with this profile of Kathy Vander Werff, PhD, a 2005 recipient of a New Investigator Award.
he American Academy of Audiology Foundation (AAAF) has partnered with the Academy since 2003 to support the Research Grants in Hearing and Balance program (formerly known as the Academy Research Awards). As part of the Foundation’s efforts to promote innovative audiology research, Audiology Today will periodically feature an interview with one of the past recipients of Foundation research funding, beginning with this profile of Kathy Vander Werff, PhD, a 2005 recipient of a New Investigator Award.

When the Foundation was reorganized in 2002, the Foundation board recommitted to its role as the philanthropic arm of the Academy, and agreed to embark on fund raising efforts to support the Academy’s Research Awards program as one of its first initiatives. At that time the Academy was funding research in the form of New Investigator, Student Investigator, and Summer Fellowship awards that ranged from $2,500 to $10,000. The Foundation’s new mission was “to support programs of excellence in research, education, and public awareness.” Assuming financial stewardship for this program was a first step in fulfilling its renewed philanthropic responsibilities.

Since that time, the Foundation’s support of audiology research has been one of its most successful programs. Foundation research funding has been expanded and now includes funding for the Student Research Forum and the James Jerger Awards for Excellence in Student Research, in addition to partnerships with allied organizations such as the National Hearing Conservation Association (NHCA), the Association for Research in Otolaryngology (ARO), and the American Balance Institute Education Foundation. The Foundation has also received support for topic-focused research in the areas of pediatrics, noise-induced hearing loss, and vestibular issues.
Research in traumatic brain injury is critically needed to not only understand the mechanisms but also to provide clinical measures and recommendations.

The recently renamed Research Grants in Hearing and Balance program continues to attract high quality applications from hearing scientists across the United States. Proposals are reviewed each fall by the Academy’s Research Committee, and several innovative projects are funded each year. Since 2003, the Foundation has provided over $315,000 in research funding, supported largely by Academy members’ gifts to the Annual Fund.

Dr. Vander Werff received her doctoral degree from the University of Iowa, and is now an associate professor in the department of Communication Sciences and Disorders at Syracuse University. Her 2005 AAAF New Investigator funding supported research on her project titled Time and Accuracy of ASSR Response Identification Using Two Different Analysis Methods. In addition to the Foundation’s Award, she received the Advancing Academic-Research Career (AARC) Award from the American Speech-Language-Hearing Association in 2006. She is currently the Principle Investigator on a R03 grant from the National Institutes of Health/National Institute on Deafness and Other Communication Disorders Grant (NIH/NIDCD R03 DC010246-01A1), for her project titled Neural Responses to Speech in the Central Auditory System Following Brain Injury.

In August, she spoke with Rieko Darling, AAAF board trustee, and Kathleen Devlin Culver, AAAF director of operations and development, about the Foundation-funded research, her subsequent examination of how subcortical and cortical neural processing of speech cues is altered in aging adults and in individuals with traumatic brain injury, and the impact of the research award on her professional endeavors.

AAAF: Thank you very much, Kathy, for talking with us today. Your AAAF New Investigator Award supported a project titled Time and Accuracy of ASSR Response Identification Using Two Different Analysis Methods. Would you please tell our readers about that project?

VW: Much of my research prior to receiving the Foundation award was focused on the use of physiological measures to diagnose and characterize hearing loss, primarily concentrating on improving the accuracy of objective determination of the degree and type of hearing loss using the auditory steady-state response (ASSR), and the auditory brainstem response (ABR). My doctoral research included comparisons of ASSR and tone-evoked ABR in infants, and addressed questions about the accuracy of frequency-specific estimation of hearing thresholds given the configuration of the audiogram and the suprathreshold characteristics of the ASSR in individuals with sensorineural hearing loss.

Recognizing the need for more evidence-based research to support the clinical application of ASSR, I continued with this line of research when I started as an assistant professor at Syracuse University. The number of commercially available evoked potential systems implementing multiple-frequency ASSR techniques was increasing, and there wasn’t available data for all the different techniques to guide clinicians in using these systems to estimate behavioral thresholds in the clinic.

The Foundation-funded project was designed to study the effects of analysis method and clinical protocols on the efficiency of the multiple-frequency ASSR technique, addressing questions related to the comparative accuracy and time efficiency for different ASSR systems available to clinicians.

The two methods that I compared were different in how the response was analyzed. One used time domain averaging and fast Fourier transform (FFT) to analyze...
peaks in the frequency spectrum of the EEG (electroencephalography) activity that relate to neural activity in response to the stimulus, and this technique accounted for most of the multifrequency ASSR data in the literature at the time. Another commercially available analysis method had been recently introduced that used a somewhat different approach of an adaptive filtering algorithm called the Fourier linear combiner (FLC), which basically used a model of sine waves continuously evaluated in amplitude and phase against the actual EEG signal. The clinician’s decision and the statistical performance could be different because the FFT usually was implemented by completing a set number of averages, while the FLC method stopped as soon as a match to the model was obtained.

I developed clinical protocols with decision criteria on when to stop recording that were designed to be time efficient and clinically realistic without sacrificing accuracy. I conducted stringent comparisons of the two methods using simultaneous recording of the two methods to control important test variables such as background noise related to the patient and equipment.

The study showed that both the FFT and FLC analysis methods could be used for behavioral threshold estimation with approximately equal accuracy, although correction factors specific to the method were necessary. There were no significant time efficiency differences between the two methods, using the clinical decision protocols designed in the study. An automated threshold search protocol, available only on the equipment using the FLC method, did allow for significant time savings, but there was also a sacrifice in accuracy using this method.

Sounds interesting. So were there any applications or implications for manufacturers of these systems when the data were analyzed? And perhaps you can also address any implications for clinicians?

What was interesting about the research for clinicians, and maybe for the manufacturers as well, was the importance of using critical clinical decision making to

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decide what kind of protocol to use even though it was an objective statistical-based response. Clinicians need to ask questions such as “Have I averaged long enough?” and “Is this a reliable response that I’ve recorded, or could it be a false positive?” So even though the two techniques that I looked at turned out to be equally accurate, there is receiving a lot of attention in the field right now, which is important due to the fact that TBI (traumatic brain injury) is such a high-incidence problem.

Research in this area is critically needed to not only understand the mechanisms but also to provide clinical measures and recommendations, as audiologists.

**I think it is critical to support new investigators, especially in this climate where it seems to be more and more difficult to obtain funding.**

were some good messages in terms of how we’re going to implement some of these techniques clinically. Overall, the results suggested that despite the “automatic” nature of ASSR response detection, clinicians need to make some important decisions about the test protocol and accepting test results to reduce errors and increase time efficiency.

**Kathy, would you tell us about research you are currently working on?**

This is actually a really exciting stage of my career, I think, because I’ve just started working on an NIH/NIDCD awarded R03 grant looking at the neural processing in the central auditory system in individuals with mild-to-moderate traumatic brain injury. I started collaborating with Dr. Brian Rieger, a psychologist at SUNY Upstate Medical University, and we were talking more and more about how many of these patients report problems affecting their everyday lives similar to those experienced by individuals with central auditory dysfunction. This is an area that is receiving a lot of attention in the field right now, which is important due to the fact that TBI (traumatic brain injury) is such a high-incidence problem.

**Will you be working with populations of veterans or those who have experienced injury through accidents or sport injuries?**

Potentially, all of the above. We’re primarily recruiting participants from the concussion management and brain injury rehab program at SUNY Upstate, and a lot of these individuals are part of the sports injury clinic or have been in motor vehicle accidents and other kinds of falls and trauma. So it’s not necessarily just the military population.

As you reflect on your career up to this point, is there anyone who is or was particularly influential to you as a mentor?

Definitely. I think the greatest influence on my development as a researcher has been my PhD advisor at Iowa, Carolyn Brown. I’ll always be very grateful for her support and encouragement and the model that she provided me. Along with Carolyn, Paul Abbas at Iowa was also a really tremendous model and mentor. I’ve been really lucky, and I’ve also had great mentors here at Syracuse, including Beth Prieve, whom I worked with on my postdoc, and

**Also of Interest**


Log on to www.audiology.org and search key words “Vander Werff.”

Audiology Today | NovDec2010
Karen Doherty, who has been a really fantastic mentor in all aspects of my academic and research career. I feel like I could go on for a long time about the many great mentors I’ve had in the field as a whole. I’ve met many researchers at various meetings and contacted many other people directly about research, and they have all been very generous and helpful.

Looking ahead, do you anticipate conducting research full time, or will you continue to teach? The NIH grant will allow me to focus a little more on research, but I’ll still be doing some teaching, which I really enjoy. The main focus of my teaching is auditory-evoked potentials, and I teach an instrumentation course. I’ve also taught on cochlear implants, an area I continue to be interested in.

Kathy, as you look to the future, do you see any trends in audiological research? There’s so much exciting work going on right now. A lot of great research is being conducted to explore the central auditory system, and look at what objective measures might tell us about performance and performance differences among individuals, as well as what these measures might tell us about auditory plasticity and the effectiveness of rehabilitation. I think those are big trends right now. Of course, there are always the new advances in hearing aid and cochlear implant technology expanding the populations for those devices, which is very exciting. Although I’m not directly involved in these areas, there are interesting advances in the areas of genetics and pharmacology, and it’s going to be very interesting to see where this research lead us in terms of better identification of and intervention for hearing loss.

Do you believe research awards and grants such as those granted by Foundation are important? Yes, I absolutely do. I think it’s critical to support new investigators, especially in this climate where it seems to be more and more difficult to obtain funding. It’s really encouraging to have awards like this to work toward. It gave me something to build on to develop my research trajectory. Those who review grant applications, applications for tenure, and so forth want to see you build on previous work. So awards like this are very, very important to a new investigator’s career.

What advice can you give future researchers? Well, I think the biggest piece of advice that I was always given was just to be persistent and keep knocking at the door for funding and publication. It is also important to develop a network of other junior colleagues as well more senior mentors. I was lucky enough to have a tremendous support network of fellow PhD students when I was at Iowa. Having these friends and colleagues to help each other and commiserate with has been invaluable. Lastly I would encourage junior researchers and academics to participate in conferences and apply for awards.

From the perspective of this point in your career, would you say that the research that you did with AAAF support had an impact on the professional path that you took? I was always interested in a career in an academic and research setting, particularly conducting clinical research. I think this award really gave me the opportunity as a new investigator to go through the whole process from developing an idea, to writing the grant, to carrying it out and publishing the results as an independent researcher. It was a great learning experience about the grant process. It also got my lab up and running as an active research lab, and I was able to involve students in this research. In some ways, my research focus has really changed since this project, but it was a big boost that has led me in the direction I’m going now. I’m really grateful to the Foundation for this support.

Congratulations, Kathy, on your professional achievements. The Foundation is very pleased that we were able to play a part in supporting your early research activity, and we appreciate the opportunity to talk with you today and to learn more about your continuing contributions to audiology science.

Rieko Darling, PhD, is a board trustee of the American Academy of Audiology Foundation and an associate professor of audiology at Western Washington University in Bellingham, WA.

Kathleen Devlin Culver is the director of operations and development for the AAA Foundation.
Significant health disparities often exist for adults with intellectual disabilities due to a lack of awareness on the part of parents, caregivers, and primary health-care providers. This is especially true for their hearing, vision, and dental needs. Special Olympics (SO), a 40-year-old sports training and competition organization for people with intellectual disabilities, has been offering free health screenings in a welcoming, fun environment to athletes at the local, national, and world games through the Healthy Athletes® initiative for more than 10 years. These screenings also serve to educate athletes on healthy lifestyle choices. Established in 1999 as part of the Healthy Athletes initiative, the Healthy Hearing program addresses the hearing-health needs of SO participants. The program provides audiological services to thousands of SO athletes and documents their mostly unidentified, unserved, or undertreated hearing-care status.

Healthy Hearing’s audiological outcome data reveal that 13 percent of SO athletes experience sensorineural hearing loss, many significant enough to warrant amplification. Another 10 percent of athletes exhibit conductive hearing loss requiring medical management. Nearly half (45 percent) require cerumen management regardless of hearing status.

While the Healthy Hearing program has been successful in meeting some of the amplification needs of SO adult athletes, much of the future care management remains to be accomplished. Needs exist in the evaluation and fitting of hearing aids, the development of a thorough tracking mechanism, as well as facilitating accessibility to hearing health care for athletes at the local level.

Numerous Student Academy of Audiology (SAA) chapters nationwide are actively involved with their local Healthy Hearing programs, providing volunteers for hearing screenings and assisting with follow-up. Because an important goal of the SAA is to increase audiology awareness by promoting community involvement among students, becoming involved with Healthy Hearing on a larger scale seemed a perfect fit. With the potential for the SAA to provide resources required to conduct athletes’ screenings, and also student volunteers with experience and long-term interests vested in the future of these athletes, the involvement with the Healthy Hearing program was welcomed by Gilbert R. Herer, PhD, founder and senior global advisor of the Healthy Hearing program.

The SAA is excited to officially announce its relationship with the SO Healthy Hearing program. This relationship focuses on the promotion of efforts and interests of each organization to improve the lives of athletes with intellectual disabilities. With the SAA’s involvement in the program, we hope to expand community awareness of
hearing health in this population and take advantage of a unique opportunity to educate audiology students about the needs and health-care considerations of people with intellectual disabilities.

Dr. Herer spoke during the SAA Annual Business Meeting at AudiologyNOW!® 2010 in San Diego. Although initial efforts will be focused on identification, Dr. Herer sees great potential in this relationship through the development of follow-up services, not only throughout the United States but worldwide as well.

In the coming months, we will be inviting all SAA chapters to consider working with their local SO Healthy Hearing program. The future of this cooperative endeavor will be directed toward follow-up services for athletes, including additional evaluation and management when indicated, hearing aid services, and audiological counseling. By increasing not only the number of student volunteers involved at their events but also by improving the audiolologic follow-up of athletes after the games, the SAA can play an important role in expanding the Healthy Hearing program so that individuals with intellectual disabilities receive the services that they need.

The SAA will also work with the AAA Foundation to raise funds to support chapter and student participation in local, regional, and international games.

It is encouraging to see the SAA and the profession of audiology associated with such a successful and worthwhile cause, especially one where both parties benefit greatly. There is much to look forward to as this relationship continues to evolve.

Gilbert R. Herer, PhD, contributed information for this article. He is an Academy member, professor emeritus of pediatrics at George Washington University in Washington, DC, and founder and senior global advisor of the Special Olympics Healthy Hearing Program.

Samantha Gustafson serves on the SAA Board of Directors as chair of the Humanitarian Committee and is a third-year AuD student at Arizona State University in Tempe, AZ.

Ryan Bullock is president of the SAA Board of Directors and is a third-year AuD student at Missouri State University in Springfield, MO.

You can support the SAA as it works with Special Olympics to improve the hearing health of individuals with intellectual disabilities.

Contact Tara Conte (703-226-1048) at the AAA Foundation to make your contribution to this exciting SAA project or for information on Special Olympics games in your community.

Also of Interest

Special Olympics Healthy Athletes® Resources

http://resources.specialolympics.org/Sections/Healthy_Athletes_Resources.aspx.
The Connection Between Connexins and Hearing Loss

By Shimon P. Francis and Lisa L. Cunningham

The National Institute on Deafness and Other Communication Disorders (NIDCD) estimates that two to three out of every 1,000 children are born deaf or hard of hearing (NIDCD, 2010). Of these, approximately 50 percent have a hereditary hearing loss, while the remaining cases are due to secondary or environmental factors (Petersen and Willems, 2006). Improvements in vaccination rates, health awareness, and prenatal health care have decreased the incidence of congenital hearing loss caused by environmental factors, but hereditary hearing loss rates have remained relatively stable (Nance, 2003). Our understanding of the causes underlying hereditary hearing loss has advanced significantly in recent years. Scientists have identified numerous genes associated with hereditary deafness, and they are making progress toward viable therapies that may someday restore hearing.

Researchers have linked mutations in over 39 genes to hereditary hearing loss. The most common of these mutations has been linked to chromosome 13, corresponding to the genes that code for the proteins connexin 26 (Cx26) and Cx30 genes are thought to underlie up to 50 percent of autosomal recessive hereditary hearing loss (Kochhar et al, 2007). Thus far, over 90 mutations in the Cx26 gene have been shown to contribute to hearing loss, but one mutation in particular, called the 35delG mutation, is responsible for a large portion of Cx26 defects.

Approximately 1.5 percent of Caucasian Americans are thought to be carriers for the 35delG mutation, which is more prevalent among Caucasians than among ethnic minorities (Mahdieh and Rabbani, 2009). The 35delG mutation causes a defect in protein translation, resulting in a nonfunctional Cx26 protein (Marziano et al, 2003). The mutation usually results in a flat or downward sloping audiogram, and the severity of hearing loss in individuals with this mutation is variable. Approximately 50 percent of people with this mutation will experience profound hearing loss, and 30 percent will experience severe hearing loss (Smith, 2004).

Connexins 26 and 30 are members of a large family of transmembrane proteins. These proteins form channels known as gap junctions. These gap junctions allow the transport of ions and cellular signals between nonsensory cells of the inner ear (Rabionet, Gasparini, et al, 2000). Gap junctions are found in all of the epithelial and connective tissue of the inner ear but not in the sensory hair cells (Marziano et al, 2003; Nickel and Forge, 2008). The mechanisms by which connexin 26 and connexin 30 mutations alter inner ear physiology are only partially understood. The gap junctions formed by these proteins are crucial for proper cycling of potassium between supporting cells of the organ of Corti, fibrocytes of the spiral ligament, and epithelial cells of the stria vascularis. This movement of potassium is necessary to prevent potassium toxicity and maintain the endocochlear potential (Petersen, 2002).

Currently, genetic testing and counseling are offered to families with hereditary hearing loss caused by Cx26 and Cx30 mutations, while the hearing loss itself is treated using hearing aids, cochlear implants, and/ or speech and language therapy (Smith and Van Camp, 1999; Kochhar et al, 2007). Studies in mice suggest that gene therapy may hold promise for treatment of hearing loss caused by mutations in Cx26 and Cx30. Like humans, mice with mutations in connexin genes are hearing impaired. Mice with Cx30 mutations lose their endocochlear potential, while mice with mutations in Cx26 show cochlear supporting cell death followed by subsequent hair cell death (Kudo et al, 2003; Ahmad et al, 2007). However, hearing loss in these mice can be reversed by gene therapy with Cx26 (Ahmad et al, 2007). Improved understanding of the genes involved...
in hereditary hearing loss increases our knowledge about how the inner ear functions, and it may also inform the eventual development of clinical therapies aimed at reversing hereditary hearing loss in humans.

Shimon P. Francis, BS, is a PhD candidate at the Medical University of South Carolina.

Lisa L. Cunningham, PhD, is an assistant professor with the Department of Pathology and Laboratory Medicine at the Medical University of South Carolina.

References


Implementing a Private Practice Model in an On-Campus Clinic

By Victor Bray and Tricia Dabrowski

Many in academic circles are concerned that, while audiology education focuses on the acquisition of clinical knowledge, little is done to prepare a student for the business details of audiology practice management (American Academy of Audiology, 2009). This article describes the implementation of an on-campus, private practice audiology clinic as a practice management training ground for first- and second-year students in an AuD residential program.

The doctor of audiology degree at Salus University’s George S. Osborne College of Audiology (OCA) was founded from the vision that the AuD should be the point of entry into the hearing-care system (Academy of Dispensing Audiologists [ADA], 1988). To implement this vision, OCA’s academic curriculum emphasizes, but is not limited to, three fundamental elements:

1. Early instruction in the biomedical sciences
2. Training in clinical skills, and
3. Exposure to audiology practice management (APM).

Auditory problems often do not occur in isolation. Many times, changes in auditory function may be an indication of a disease process that involves more than the ear. The emphasis of the biomedical science curriculum trains the student to use a holistic approach for patient management. That is, the audiologist needs to be able to look “beyond the ear” in determining those systemic pathologies that may have impacted the patient’s auditory systems. Our AuD students must have understanding of molecular and cellular processes, integrated organ systems, auditory biology, and the neurosciences in order to recommend direct patient management, comanagement with other health-care professionals, or referral to other specialists for care outside of our scope of practice (ADA, 1988).

As audiologists, we see patients, select and perform the appropriate tests, interpret their result, and recommend the course of treatment. The second element of our curriculum centers on developing proficiency of these clinical skills. Not unlike other programs, audiometric principles and training, amplification and rehabilitation, vestibular and balance disorders, electrophysiology, pediatric approaches, geriatric considerations, and so on are embedded into a curriculum so that these skills critical to the audiologist’s scope of practice are learned.
Our goal at the OCA is to produce well-rounded, competent audiologists who can work in a variety of environments and can manage a fiscally sound practice. Toward that end, we have created an on-campus, community-based hearing and balance center that operates as a private practice. Students involve themselves in the daily management of the practice as part of their clinical education and study the clinic’s financial performance and design marketing activities in their APM courses. We believe that APM is an essential component of clinical education and that AuD programs should integrate business process training with the clinical experience (Audiology Foundation of America [AFA], 2008).

The Pennsylvania Ear Institute
It was the vision of Dr. George Osborne, founder of the audiology program at Salus University, to create an on-campus audiology private practice. Specifically, the objectives were to:

▪ Run the Pennsylvania Ear Institute (PEI) as a real audiology practice with a goal of profitability;

▪ Provide state-of-the-art care to the community that is competitive with the best regional care found in other clinics, private practices, and hospitals;

▪ Become a center of excellence that audiologists and otolaryngologists will refer to for advanced diagnostic studies; and

▪ Provide a clinical training environment that supports the skill development of students in the first two years of the program.

The PEI mission statement, developed out of that charge, is “To provide clinical education and presentation of a private practice model to the residential AuD students of the Osborne College of Audiology while...
providing for the hearing health care and balance needs of the community at large.”

PEI is an incorporated business with its own tax identification number. It has its own budget, with a responsibility to operate in a fiscally sound manner, while at the same time maintaining a standard of care that showcases best practices from evidence-based medicine. Clinical staff is made up of full-time faculty and adjuncts coming from community private practices. These audiologists work as preceptors, alongside students, to ensure patient’s needs and expectations are met. The goal is to provide transparent care whereby the patients recognize that students are involved in their care, without negative impact.

The OCA’s white coat and otoscope ceremonies occur during orientation week, with first-year student’s clinical assignments beginning on the first day of classes. In that initial term, the students observe patient care and are required to use CPT-4 and ICD-9 coding appropriately in completing the PEI superbill. By the second term of the first year, the students become involved in the care of the patient, performing audiograms, middle ear studies, and otoacoustic emissions. That leads to the increased accountabilities in the third term, at which point the students are assuming co-responsibility for the complete care of the patient. Under the guidance of the preceptor, the student begins to manage the patient during comprehensive case histories including a review of systemic pathology, moving through diagnostic studies that may include blood pressure and body temperature checks, and completing the patient’s care by interpreting the diagnostic findings and developing management plans. At the conclusion of the patient encounter, the students must complete progress notes and professional reports. Clinical requirements also include fitting, programming, and verifying hearing aids.

Also in the third term and throughout the second year, students work alongside the PEI office coordinator performing front desk assignments that are routine to in-office hearing aid repairs, updating Noah software modules, entering hearing instrument data into audiology practice management software, and reviewing the explanation of benefits forms applying payments to the patient’s account.

Our goal at the college is to produce well-rounded, competent audiologists, who can work in a variety of environments, and can manage a fiscally sound practice.

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The Clinical Education and Audiology Practice Management Education Process

The clinical education process begins outside of PEI with a focus on supporting the student’s ability to learn specific clinical skills. Didactic courses are paired with clinical skills laboratories to teach the theory and technical components of each skill.

Also of Interest


Visit www.audiology.org and search the Audiology Today archives.
Initial testing begins in the lab while working with standard patients, who are often normal-hearing students from outside of the audiology program. As skills develop, certified patients with known pathologies are brought into the clinical skills labs for student evaluations. With both standard and certified patients, the lab instructor functions only as an observer of the testing process, providing no guidance and determining if the student can independently perform the clinical skill. In this model, the student’s training has priority over patient care because certified patients have known pathologies, are under professional care, have signed releases for participation in the lab exercise, and are compensated for their participation.

In parallel with technical clinical skill development, students participate in problem-based learning (PBL) activities that promote independent learning and use of critical thinking skills while applying knowledge from the biomedical science and audiology curriculum to patient case studies. The combination of these clinical and PBL activities leads the student to credentialing evaluations that examine their readiness to move on to the next clinical level. Once credentialed, students are then required to consistently perform that skill correctly during patient encounters at the PEI, and at future clinical off-campus placements.

Throughout this process, the PEI preceptors are aware of the student’s individual capabilities. They allow student management of the patients as is appropriate to their level of capability but retain the professional responsibility for patient care. At this step in the process, given our private practice model, the focus shifts to the care of the patient with student participation.

Students provide care while operating with a safety net provided by the preceptor. The preceptor’s role is to slowly remove that safety net while keeping the student at his or her edge, so that they are constantly challenged to move to the next level of clinical performance. In this challenging environment, when the student is not capable of providing the desired level of care, the preceptor is mandated to step in and model correct clinical performance. The focus in PEI, with its private practice model, always remains on the needs of the patient with preceptor intervention as needed.

Summary Comments on Student Involvement
The students’ response to this APM training inside the clinical facility has been interesting, with both positive and unforeseen outcomes. Involvement so early and so frequently in patient care was expected to produce a student audiologist who is comfortable interacting with patients, able to synthesize and apply knowledge from didactic coursework, and show competence in clinical skills. However, during external rotations, it is not unusual for preceptors to remark regarding the unexpected confidence students demonstrate while executing those skills.

Within PEI, students are found taking on an active role of a business partner, proposing strategies that assist in the growth of the practice, and then voluntarily implementing their plans. Students have expressed their talents and made contributions in the design of consumer brochures, conception and construction of acoustic panels, investigation of health insurance fee schedules, and a variety of organizational improvements within the facility. The students’ mental ownership of the private practice highlights the benefits of their exposure to APM as part of the curriculum and illustrates to each individual that a successful private practice is possible today within a university setting and within their immediate future on graduation.

Victor Bray, PhD, is the dean of the George S. Osborne College of Audiology at Salus University in Elkins Park, PA.

Tricia Dabrowski, AuD, is the director of the Pennsylvania Ear Institute at Salus University in Elkins Park, PA.

The Osborne College of Audiology’s AuD bridge program ran from 2000 to 2010 and produced 2,119 graduates. The college’s AuD residential program began in 2003 and has 29 graduates and 63 current students.

References


Pediatric Audiology Practice Analysis Study and Exam Outline

As previously reported in *Audiology Today*, the ABA has completed a pediatric audiology practice analysis study. The practice analysis collected the statistically valid data required to support a valid knowledge-based certification for the pediatric audiology specialty area. This important study, conducted in 2009–2010, defined the current scope of knowledge of pediatric audiology. Pursuant to certification best practices, the results of a practice analysis (also referred to as a “job analysis”) are used to develop the blueprint or outline for a certification examination (Durley, 2005). The ABA developed an examination blueprint based on the practice analysis findings and the recommendations of a panel of subject matter experts (SMEs).

The examination blueprint resulting from the practice analysis serves several important purposes. First, it guides pediatric audiology Conference and spend time with my family and friends. I love being a mom to my high school daughter, whose activities, vocal music and rowing, keep me busy. I work concessions at the high school football games and volunteer on the crew fund-raising committee.

*Quote to Live By:* “How far you go in life depends on you being tender with the young, compassionate with the aged, sympathetic with the striving, and tolerant of the weak and the strong. Because someday in life you will have been all of these.”

George Washington Carver

**ABA Board Profile**

**Gail Whitelaw, PhD**

*Member, ABA Board of Governors*

**Hails from:** Columbus, OH

**Year Certified:** 2001

**Degree:** PhD from The Ohio State University

**What I Do for the ABA:** I chair the ABA Continuing Education Committee, which promotes awareness of high-quality education opportunities for certificants, with an emphasis on Tier 1 and ethics-focused opportunities.

**In My Free Time:** I serve as the program chair for the Ohio Audiology Conference and spend time with my family and friends. I love being a mom to my high school daughter, whose activities, vocal music and rowing, keep me busy. I work concessions at the high school football games and volunteer on the crew fund-raising committee.

*Quote to Live By:* “How far you go in life depends on you being tender with the young, compassionate with the aged, sympathetic with the striving, and tolerant of the weak and the strong. Because someday in life you will have been all of these.”

George Washington Carver
SMEs’ question development for the Pediatric Audiology Specialty Certification (PASC) examination. Perhaps of most interest to those considering the PASC, it also provides direction on the breadth of knowledge covered on the examination.

Visit the ABA Web site (www.americanboardofaudiology.org) for the more detailed examination blueprint, suggested readings, examination administration information, and more! Check back often: the ABA will be continuously updating the site with the latest information!

Reference


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**Pediatric Audiology Specialty Examination Blueprint Summary**

<table>
<thead>
<tr>
<th>Blueprint Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Laws, Regulations, Professional Standards, and Practice Guidelines</td>
<td>This section of the blueprint covers federal laws and regulations that relate to pediatric audiology practice, such as the Americans with Disabilities Act and the Family Educational Rights and Privacy Act. Also, this section includes practice standards and guidelines from professional organizations, such as the American Academy of Audiology.</td>
</tr>
<tr>
<td>2. General Knowledge About Pediatric Hearing and Pediatric Hearing Loss</td>
<td>This includes general topics related to pediatric hearing, such as anatomy and acoustics. Also encompassed in this category is knowledge of pediatric hearing loss, including prevention, risks/causes, types and implications, and referral criteria.</td>
</tr>
<tr>
<td>3. Child Development</td>
<td>The child development section addresses all stages of normal child development and milestones as well as how hearing loss and communication disorders affect development. Also addressed in this category are common developmental disorders.</td>
</tr>
<tr>
<td>4. Screening and Assessment Procedures</td>
<td>The screening and assessment section consists of knowledge related to selecting, testing, and interpreting procedures to screen for or assess hearing in children. This requires an understanding of what characteristics (e.g., age) influence procedure selection/interpretation as well as appropriate follow-up timelines.</td>
</tr>
<tr>
<td>5. Counseling</td>
<td>The counseling section contains knowledge on how to interact with children and/or families in relation to providing audiological services. This includes knowledge of different counseling techniques and the implications of patient characteristics (e.g., culture, learning styles).</td>
</tr>
<tr>
<td>6. Communication Enhancement Technology</td>
<td>The communication enhancement technology section includes selecting, implementing, and customizing hearing assistive devices, such as hearing aids, cochlear implants, and FM devices. Also included is knowledge of device training and outcome measures.</td>
</tr>
<tr>
<td>7. Habilitation/Rehabilitation Strategies</td>
<td>The habilitation/rehabilitation strategies section contains knowledge of resources, programs, and service options available to assist children in communicating and succeeding in their daily lives.</td>
</tr>
<tr>
<td>8. Evidence-Based Practice/Research Methods</td>
<td>Although all items on the examination will be based on current literature and best practices, this section focuses specifically on appropriate clinical decision making based on the method and quality of research.</td>
</tr>
<tr>
<td>9. Educational Supports</td>
<td>This includes knowledge of resources available through educational institutions, such as individual education plan (IEP) development and other education-related strategies.</td>
</tr>
</tbody>
</table>
Looking Back at the PAC: 2010

By Steve Taylor

Business, industry, and other interest groups’ political action committees (PACs) have had a busy year on Capitol Hill, and the Academy has been no stranger to this game of educating and influencing. As direct access and other hearing-health-care-related legislation gains support in Congress, the 2010 congressional elections provide an exciting political arena and uncertainty about the future for some congressional members. For these reasons, now more than ever is the time to extend our political influence on Capitol Hill, maintain current relationships with key members of Congress, build new relationships, and develop congressional allies who can continue to support our legislation.

The question has been asked, “What is a PAC and why does the Academy have one?” The simple answer is that the law precludes special interest groups, business, and trade associations from donating directly to a member of Congress; so current and prospective members of Congress have a separate political committee that receives money for their political campaigns. Likewise, the Academy has a separate entity, the AAA, Inc. PAC, which receives contributions from Academy members so that the Academy may support political campaigns for members of Congress who support issues important to audiology.

In 2010, the Academy’s PAC was very active, experiencing a spike in contributions from AudiologyNOW!® and from two summer fund-raising campaigns launched as part of the PUSH the PAC initiative. These campaigns included a lapsed donor campaign and the Academy leadership and committee member campaign. In June, the PAC Board began a campaign to reconnect with members who had previously supported the PAC but had not donated in the past three years. The second campaign, directed at the leadership of the Academy, began in September when members of the PAC Board personally contacted committee members to encourage their continued support of the PAC as leaders of the Academy. Their willingness to contribute demonstrates the critical role that the PAC plays in advancing the goals of the profession.

Earlier this year, the Academy’s PAC Board set a goal to raise $100,000 during this election cycle, and we are almost there. If you have not yet made your 2010 contribution, you can do so by visiting the Academy’s Web site at www.audiology.org and searching key words “political action committee.”

As a historic election year comes to a close, the Academy has seen positive results from its political and legislative advocacy efforts on Capitol Hill, helped in large part by a PAC that allowed the Academy to support legislators who will continue to advance audiology-related legislation. The PAC serves the interests of all Academy members and the profession. For this reason it is only as strong as the financial support members are willing to put forth, so please keep in mind that your contribution to the PAC goes a long way in backing those in Congress who have supported moving the goals of the profession forward!

Steve Taylor is the political and legislative affairs coordinator for the Academy.
Get the Latest Tools to Educate Your Patients

Available through the Academy Store.
To order, visit www.audiology.org and search key words “Academy Store.”

- **Tinnitus brochure for patients**
  - $40/pack of 100

- **Audiogram of Familiar Sounds**
  - $20/tablet of 100

- **Hearing Aids brochure for patients**
  - $40/pack of 100

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**File Caption:**

AUDIOMETER OF FAMILIAR SOUNDS

- **FAINT**
  - 0
- **SOFT**
  - 10
- **MODERATE**
  - 20
- **LOUD**
  - 30
- **VERY LOUD**
  - 40
- **UNCOMFORTABLE**
  - 50
- **PAINFUL & DANGEROUS**
  - 60

**Frequency in cycles per second (Hz):**

- 125
- 250
- 500
- 1000
- 2000
- 4000
- 8000

**Hearing Level in Decibels (dB):**

- 0
- 10
- 20
- 30
- 40
- 50
- 60
- 70
- 80
- 90
- 100
- 110
- 120
- 130
- 140

**Normal Hearing Range:**

- 0-20 dB
New Federal Regulation Resource for Academy Members

The Academy’s Practice Compliance Committee (PCC) has created the Federal Regulation Summary Guide, a must-read for all practicing audiologists. This summary guide provides brief regulation descriptions, compliance deadlines, and detailed resources for many of the regulations that impact the practice of audiology including the Anti-kickback Statutes, Stark, Centers for Medicare and Medicaid Services regulations, electronic health records, False Claims Act, Red Flag Rules, Health Insurance Portability and Accountability Act, and much more.

To access the guide, visit www.audiology.org and search key words “Federal Regulation Summary Guide.”

Kathy Foltner, AuD, chair of the PCC, acknowledges the contributions from all PCC members—Melissa Alexander (student); Kim Cavitt, AuD; Brant Christenson, AuD; John Coverstone, AuD; Jiovanne Hugart, AuD; Harriet Jacobster, AuD; Douglas Lewis, AuD, PhD; Suzanne Yoder, AuD; Deb Carlson, PhD, board liaison; and Debbie Abel, AuD, staff liaison—in the development of this member resource.

New Members of the American Academy of Audiology
Valarie Ahlstrand, AuD
Sudipta Barick
Monika Bertges Reber
Martin Blecker
Charles Bowers, AuD
Michelle Brooks, AuD
Matthew Brown, AuD
Michele Clapin, MAud
Jessica Dagley, AuD
Shannon Daniels, AuD
Mary Deegan, AuD
Theresa Delicensorie, MA
Brian Fasler, AuD
Emily Foreman, AuD
Vera Garcez
Penny Gosselin, MCISc
Melanie Gregan, MS
William Hoole, AuD
Weldon Jackson, MA
Charles Jordan, MD
Irene Kalligeris, MCISc
Bridget Kane, AuD
Aubrey Mey, AuD
Renee Neely, MS
Derek Stiles, PhD
Mayra Takenaga
Hillary Taylor, AuD
Vikki Tselepis, AuD
Koren Wasilka, AuD
Ryan Whitaker, AuD
Marie Willis, AuD

New Members of the Student Academy of Audiology
Elizabeth Camposeo
Robin Criter
Melanie Gilbert
Stacy Noskowicz
Jessica Oppee
Alaina Waller
Mary Wilks

Academy CAPD Practice Guidelines Published

The Clinical Practice Guidelines for the Diagnosis, Treatment, and Management of Children and Adults with Central Auditory Processing Disorder is now available. Visit www.audiology.org and search key words “central auditory processing disorder.” Thank you to the task force for their work on this document:

- Frank E. Musiek, PhD (Chair)
- Jane A. Baran, PhD
- Teri James Bellis, PhD
- Gail D. Chermak, PhD
- James W. Hall III, PhD
- Robert W. Keith, PhD
- Larry Medwetsky, PhD
- Kathleen Loftus West, AuD
- Maxine Young, AuD
- Stephanie Nagle, PhD, Student Volunteer
Academy Audiology Assistants Position Statement Published

The Audiology Assistants position statement is now available. Visit www.audiology.org and search key words “audiology assistants.” Thank you to the task force for their work on this document:

- Dick Danielson, PhD (Co-Chair)
- Teri Hamill, PhD (Co-Chair)
- Bob Dunlop, PhD
- Larry Engelmann, AuD
- Alison Grimes, AuD
- Gyl Kasewurm, AuD
- Tom Littman, PhD
- Shannon Luongo, AuD

Cochlear Implant Resolution Revised

It was recently brought to the Academy’s attention that some audiologists in public school settings have attempted to reprogram students’ cochlear implant (CI) devices independent of, and without authorization from, the child’s CI team. This practice is contrary to Academy policy, and, therefore, the cochlear implant policy resolution that was approved by the Academy Board earlier this year was revisited.

After conferring with the Educational Audiology Association (EAA), the Academy’s Government Relations Committee worked to amend the existing cochlear implant resolution. Language was added to reflect the Academy’s position that cochlear implant MAPing by an audiologist in any setting should take place only after consultation with a member of the cochlear implant team, principally the “implant audiologist,” to make certain that appropriate continuity of care is attained. The amended resolution was approved by the Board of Directors and may be viewed on the Academy’s Web site. Visit www.audiology.org and search key words “cochlear implant resolution.”

In Memoriam—Dr. Robert Harrison

By Fred Rahe

Robert J. Harrison, PhD, a founding member of the American Academy of Audiology, passed away August 18 at his St. Petersburg, Florida, home at the age of 81.

Dr. Harrison was born November 22, 1928, in Anthony, KS. He received a BA in Logopedics from the University of Wichita in 1951 and a PhD in Audiology from Northwestern University in 1962. He moved his family to Coral Gables in 1962, where he served as director of the Audiology Clinic, professor of speech and hearing sciences, and chief of the Division of Audiology and Speech Pathology at the University of Miami School of Medicine.

Dr. Harrison was professionally active his entire career, both on the state and national level. He was president of the Florida Speech and Hearing Association in 1966–1967 and was instrumental in the political process that resulted in Florida becoming the first state to regulate the practice of audiology in 1969. Dr. Harrison was one of the founding members of the American Academy of Audiology in 1988. He was a strict and demanding professional that expected nothing less than excellence from employees and colleagues. He also welcomed new graduates into the field, provided guidance and mentoring, and made them feel a part of the professional community. He was a true friend to those who knew him and was well respected and admired among his professional peers. His friendship among audiologists was such that he performed the marriage ceremonies for several Florida audiologists.

Dr. Harrison is survived by his wife, Maurine, of Coral Gables, FL, three children, and four grandchildren. He will be missed by all who knew him.

Fred Rahe was a friend of Harrison and kindly offered to write this “In Memoriam.”
Plural Publishing Pledges $25,000 for Student Research Forum

The AAA Foundation is pleased to announce that longtime supporter Plural Publishing has renewed its commitment to the Student Research Forum with a pledge of $25,000. Over the past five years, 25 students from across the United States and Canada have presented their research findings at AudiologyNOW!® and have received research awards thanks to Plural Publishing’s generous contributions. This new gift will ensure funding for the Student Research Forum through 2015.

Plural first provided funding for the Student Research Forum at AudiologyNOW! 2006. This support was a result of the late Dr. Sadanand Singh’s great interest in nurturing young researchers in audiology and hearing science.

Jeffrey Danhauer, Singh’s longtime friend and colleague, recently reflected on this commitment:

“Next to his family, Dr. Singh’s greatest pleasure was in helping others succeed and reach their maximum potential. He was a born educator and was especially thrilled to work with students at all levels. Few things made him happier than the pride he took in supporting and meeting the students involved in the Student Research Forum each year. Few individuals have made an impact on so many lives as Dr. Singh. His own students and those he supported through the Research Forum became a part of his family. He loved us all, and we and the profession miss him dearly.”

The Foundation is grateful to Angie Singh and her family for their ongoing dedication to student research, and the Foundation is honored to collaborate with Plural on this fitting tribute to Dr. Singh’s legacy.

Angie Singh and her son Samir, along with Academy members, congratulate the 2010 Student Research Forum recipients at AudiologyNOW!® in San Diego. From left to right: Thomas Powers, Jill Preminger, Kristi Oeding, Katharine Fitzharris, Garrett Cardon, Angie Singh, Jeff Danhauer, Laura Colleen Baskett, Penny Anderson Gosselin, and Samir Singh.
Inaugural Roger Ruth Memorial Scholarships Awarded

In 2009, the audiology community lost Roger Ruth, a founder of the American Academy of Audiology and great friend of the AAA Foundation. In 2010, the Foundation prepared to award its inaugural Roger Ruth Memorial Scholarship generously funded by Dr. Ruth’s family and friends.

The Foundation received over 30 applications from students, illustrating not only the important need for educational assistance but also the bright future of the audiology profession. Reviewing the applications was no small feat. AAA Foundation board member Dr. Blumsack, who served as committee chair, explained that, “the Educational Grants Review Committee members faced a very difficult selection task because of the impressive qualifications of the applicants, but ultimately we were able to decide on two excellent students. I especially appreciate the efforts of our committee members who took the time to read and rank the quality submissions.”

The Foundation is pleased to announce AuD students Emily Leister and Jessica Richardson as the inaugural recipients of $1,000 Roger Ruth Memorial Scholarships.

Emily Leister is a fourth-year student at the University of Akron and a member of the Student Academy of Audiology. Her interests include diagnostics, electrophysiology, hearing aids, and cochlear implants. Upon graduation, Leister hopes to gain employment in a hospital or private practice setting where she has the opportunity to treat patients throughout the life span. Because of her passion for research, she also plans to obtain a PhD after gaining several years of professional experience.

Jessica Richardson is a second-year student at A.T. Still University and a member of the Student Academy of Audiology. She hopes to experience a wide variety of opportunities within the audiology field while completing her education and seeks to practice independently and manage her own clinic within five years of graduation. Richardson also aspires to become a “visioneer” practitioner, who is energetic, inspired, and sees the great potential audiology holds as a doctoring profession.

If you would like to make a restricted gift to the Roger Ruth Memorial Scholarship Fund, please contact the AAA Foundation office at 703-226-1048.

Emily Leister, 2010 Roger Ruth Scholarship recipient.

Jessica Richardson, 2010 Roger Ruth Scholarship recipient.
Apply Now for 2011 Member Assistance Program
Audiologists who wish to attend AudiologyNOW!® 2011 but are experiencing financial hardship (for medical, family, professional, or other personal reasons) are encouraged to apply for convention travel and registration support through the AAAF’s Member Assistance Program (MAP). Assistance can include hotel accommodations, convention registration, and/or a travel stipend. The MAP application is now available at www.audiologynow.org and www.audiologyfoundation.org. Applications received by the January 21, 2011, deadline will be evaluated and reviewed by the award committee. Notification of awards will be made in early February. For more information, contact Tara Conte at tconte@audiology.org.

Thank you to the annual underwriters of the MAP: Auban, Inc., and Oaktree Products.

STAR Program Deadline January 1
The deadline for the Student Travel Awards Reimbursement (STAR) Program applications is January 1, 2011. Selected students will receive a stipend of up to $500 for conference registration, transportation and/or lodging expenses for meetings in the hearing sciences, as well as other sciences relating to student coursework. For more information or to apply, visit www.audiologyfoundation.org.

The AAAF would also like to recognize the two student recipients of STAR stipends from the July 2010 award cycle. Amanda Clark, a second-year student at the University of Northern Colorado, attended the Dangerous Decibels Educator Training Workshop on August 12–13 in Portland, OR. Fadi Najem, a fourth-year student at Missouri State University, will be attending the Acoustical Society of America convention, May 23–27, 2011, in Seattle, WA. Congratulations to our STAR award recipients!

Save on Chicago Dining and Entertainment in the Pre-AudiologyNOW! Online Auction
Once again we’re doubling the auction excitement with a mini-auction focused on the best Chicago has to offer. From November 29 to December 10, score big on Chicago dining and entertainment you can use while at AudiologyNOW! 2011. Why wait to plan your free time when you can find great bargains now? Or grab a great holiday gift for your Chicago family, friends, and colleagues. Best of all, proceeds benefit the American Academy of Audiology Foundation! To see all of the items up for bid, visit www.biddingforgood.com/auction4audiology.
Ohio
Assistant/Associate Professor of Audiology

The Speech-Language Pathology and Audiology program at Kent State University offers the BS, MA, AuD and PhD degrees and is a member institution of the Northeast Ohio AuD Consortium (NOAC). We are seeking a colleague with a commitment to excellence in teaching, research and service. PhD/ABD candidates considered. Expertise in anatomy and physiology, amplification, and/or aural rehabilitation and a demonstrated or developing area of research preferred. CCC-A and eligibility for Ohio licensure desired.

Apply at http://jobs.kent.edu for position #998018 and send letter of interest, current CV, official transcripts and three letters of recommendation to Mark Krumm, Audiology Search Chair, 1325 Theatre Drive, Music and Speech Bldg., Kent State University, Kent, OH 44242-0001. Address questions to mkrumm@kent.edu or 330-672-0255/330-957-7332.
Classified and Employment Line Listing
Rates for Audiology Today

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<td>$1,230</td>
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Full Color            $1,375
2nd Color Matched     $800

Agency discount 10%: valid to advertising agencies only, does not include color.

Contact Christy Hanson at chanson@audiology.org or 703-226-1062 for more information or to place an ad.

Classified and Employment Display
Advertising for Audiology Today

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<td>$880</td>
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Full Color 2nd Color Matched

Agency discount 10%: valid to advertising agencies only, does not include color.

Contact Christy Hanson at chanson@audiology.org or 703-226-1062 for more information or to place an ad.

Web Employment Postings
Posting Rates

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Resume search included with job posting.

Contact Sarah Sebastian at ssebastian@audiology.org for more information.

Advertiser Index

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