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HEARING CARE

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Looping America
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Applications of Telehealth for Hearing Care  Telehealth has taken many years to become an “overnight” sensation. This article will address some of these obstacles, as well as opportunities, which suggest that a convergence of telecommunications and health care may finally become a reality.
By David Fabry

Team Literacy  Audiologists help children with hearing loss access the world of speech sounds with amplification. Once that task is completed, are we helping families make the “hearing-listening-reading” connection? Do we stay engaged as members of the “literacy team”?
By Kris English and Jessica Snyder

A Paradigm Shift in Audiology Education  Rather than strict didactic teaching, health-care professionals are now more aware of the relevance of problem-based learning. There is a need for problem-based educational opportunities so that audiologists can adopt client-centered approaches.
By Robert W. Sweetow, Adrian Davis, and Louise Hickson

Looping America  The inclusion of telecoils in hearing aids can unlock access to desired sounds for many people who have hearing aids or cochlear implants. The audiologist can play a number of roles in helping consumers obtain maximum use of their hearing assistive technology.
By Patricia Kricos

Marketing Audiology to Physicians  Education is key for raising audiology awareness to health-care providers. It takes effort to gather information regarding the relationship between the specialties and audiology, but it can draw great returns.
By Patricia Gaffney

ARC 2010—in Review (Part 2 of 2)  The following summary articles are from the Academy Research Conference (ARC) 2010, in San Diego. These summaries may assist you in your research or clinical work with older adults. Part 1 was published in the July/August issue of Audiology Today.
By Larry Humes, Robert D. Frisina, Kelly Tremblay, Mitchell S. Sommers, and M. Kathleen Pichora-Fuller
Academy Resilience: The Engine That Could!  
By Patti Kricos

The Academy Goes Back to School  
By Cheryl Kreider Carey

A Balancing Act: How to Manage Your Stress  
By Tracey Irene

Academy and Other Audiology-Related Deadlines  
By Tracey Irene

What’s New on the Academy's Web Site  
By Tracey Irene

University of Washington  
By Jessica Hesson

"Best Practice" and the Well-Informed Hearing Aid Patient  
By David Hawkins

Hearing Impairment in the Baby Boomer Generation  
By Karen J. Cruickshanks and Judy R. Dubno

Single Vestibular Codes | CMS Issues New Audiology Transmittals  
By Tracey Irene

The ABA Broadens Its Horizons

Health-Care Reform: The Road to Implementation  
By Melissa Sinden

Welcome New Members of the Academy and Student Academy  
By Tracey Irene

In Memoriam: Brisy Northrup | Honors: Call for Nominations 2011  
By Tracey Irene

Donors Make a BIG Difference | STAR Scholarship Success | Science Fair Award Funding | Travel Awards for ARO Conference  
By Tracey Irene

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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Academy Resilience
The Engine That Could!

For the past year, I have envisioned what I would like to see in the next decade and beyond for the Academy and the profession. Having been in the field of audiology for over 35 years and attended our first convention in 1989, I am truly honored to serve as president of this extraordinary organization. During the next year, the Board of Directors will engage in strategic planning for the future. Strategic direction is one of the most important responsibilities of board governance. It involves looking forward as an organization to determine new resources that benefit members and to sustain its existing resources, networks, and operations.

Strategic planning for a future that is five or more years away is challenging because of the board’s awareness that its members depend on the right decisions being made. This year is particularly daunting, given the troubled economy. Many nonprofit organizations are dealing with actual and anticipated dips in their financial reservoirs, leading to unfortunate cuts in programs and services, and a hold on future advancements. As much as the Academy Board wants to continue going forward with new projects, a substantial amount of our time and brainpower will be focused on finding approaches to sustain our core services. Given our resilience, this does not mean that we will forego planning for the future until the economy improves but, rather, that we need to be creative and strategic as we sustain core services and develop new resources to benefit Academy members.

Despite economic challenges, I will do everything I can to help the profession and the Academy have the best possible future. Ten of the top items I wish to address in the strategic planning process include:

- Continued advances in audiology awareness
- Advocacy for greater accessibility for people with hearing loss
- Preparation of audiology students for the full scope of practice
- Promotion of best practices for service provision to patients
- Fostering professional autonomy in the workplace
- Preparation for the number of adults needing our services in the next 20 years by ensuring an adequate service delivery workforce
- Collaboration with Academy researchers and practitioners, the National Institute on Deafness and Other Communication Disorders, research centers, and universities to address research needs for the profession
- Advocacy for improved reimbursement for audiologists
- Supporting development of a national entry-level professional examination that tests clinical decision making
- Encouraging members to invest their time, money, and support for the Academy’s future and theirs

Many more items are on my wish list, and I have, as Robert Frost penned, “miles to go before I sleep.” Wish list notwithstanding, one of the primary strategies that the board will face this year is to focus on strengthening the Academy so that we maintain our resilience and have a greater chance of sustainability in the years to come. Hope to hear from you about what you want the Academy to focus on!

Patti Kricos, PhD
President
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The Academy Goes Back to School
With Assistance from the AAA Foundation

To maximize awareness of and access
to audiologists is a goal within the
Academy’s strategic plan. As such,
Academy leadership is continually
looking for opportunities to promote
audiology to future professionals and
to consumers. While some identi-
fied strategies can be implemented
immediately, others take several
years to develop, which is why the
Academy is reaching out to students
at all educational levels.

Undergraduates—Following
several years of rapport building
with the National Association of
Advisors for the Health Professions
(NAAHP), the Academy’s application
to sit on NAAHP’s Advisory Council
was recently accepted. This is a great
opportunity for audiology, given that
NAAHP is the professional society for
over 900 advisors to undergraduates
interested in careers in science, medi-
cine, and health care at colleges and
universities across the country.

With financial support from the
AAA Foundation (AAAF), the Academy
exhibited at the NAAHP’s biennial
conference in June 2010. Further, recog-
nition of audiology was raised during
the Meet the Deans event, where over
125 admissions deans and directors
of programs in the health professions
heard about audiology.

NAAHP’s Advisory Council serves
to empower academic advisors to
promote the health professions and
recruit qualified applicants. Thus,
the Academy now sits alongside
other professional societies (includ-
ing the American Dental Association,
American Medical Association, and
Association of Schools and Colleges
of Optometry) to educate undergrad-
uate advisors about the profession of
audiology.

High School Students—Academy
committee members are contact-
ing audiologists and state audiology
organizations to encourage involve-
ment with students participating
in state and local science fairs. The
AAAF will match state organizations’
local award funding to recognize
students whose projects reflect excel-
lence in hearing and balance science
research. Many states are also start-
ning to get involved with mentoring
programs to further recruit students
at a young age to the field of audi-
ology. To date, six state organizations
have begun or shown interest in
starting mentoring programs.

Elementary School Students—A
member giving a talk on noise at a
local health fair requested use of
the Academy’s rap “Turn It to the
Left.” She knew this kid-friendly rap
would reinforce the message about
noise-induced hearing loss to the
70,000 in attendance. Additionally,
the Academy was able to promote
www.HowsYourHearing.org on
promotional materials distributed
at the health fair. And, thanks to
a restricted gift from an AAAF
supporter, the rap was available at
no charge on our consumer Web
site through June 30. These efforts,
along with past outreach to teach-
ers through the National Education
Association, have been instrumental
in getting the “turn it to the left”
message into the hands (and ears!) of
our youngest consumers.

Recognizing the power in numbers,
however, the Academy and the AAAF
invite Academy members to help
maximize awareness by participating
in our October initiatives: National
Audiology Awareness Month and
National Protect Your Hearing Month.
Go to www.audiology.org to access
user-friendly resources (search key
words “audiology awareness”). The
Academy and AAAF’s efforts at the
national level, in collaboration with
11,000 audiologists promoting audiol-
ogy locally, will create the awareness
that audiology is “hear to stay.”

Cheryl Kreider Carey, CAE
Executive Director
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Audiology Today | SepOct2010

A Balancing Act: How to Manage Your Stress
By Tracey Irene

Have you ever found yourself feeling as if there is not enough time in the day? Wondering how you are going to manage your personal and professional responsibilities? Aligning your professional and personal life can be stressful. Understanding your stress triggers and finding outlets for release are important to achieving balance in your life.

Research has demonstrated that individuals who have careers in helping professions are prone to job-related stress and professional burnout. Giving so much of yourself to improve the lives of others, manage a business, and cope with changing health care can be emotionally draining. It is important to be able to identify the signs and symptoms of stress. This can enable you to find equilibrium in your life, control stress, and prevent burnout.

How do you know if you are experiencing stress or if the stress has reached the point of professional burnout? Stress and burnout can be differentiated by the presence of hope. Individuals who are under stress can be affected both physiologically and psychologically, but still have a sense of hope. If not properly managed, stress can lead to burnout, which is characterized by a lack of enthusiasm for work, depersonalization, and the inability to find meaning in the work you perform (Shanafelt, 2009).

Take a moment to reflect on your personal situation. Are you able to identify how you respond to stress? Stress can present itself with physical, mental, emotional, and behavioral symptoms. Some examples are outlined in TABLE 1.

Recognizing your symptoms can lead to appropriate management of your stress. When you find yourself in a stressful situation, it is important to recognize how this is affecting you. Can your stress be managed immediately by relaxation techniques, imagery, or simply taking a break? Do you make time for yourself outside of work to recharge your battery? Other effective ways to manage stress include getting plenty of rest, eating a healthy diet, and exercising.

Separating your professional and personal life can be difficult. How do you draw the line between these two worlds? What boundaries exist between your professional and personal life? Here are some simple ideas, according to Dr. David Posen, in his book titled The Little Book of Stress Relief:

1. Don’t bring work home.
2. Get unplugged at home: Leave the computer at work and do not...
respond to professional e-mails on personal time.

3. Have a life after work.

4. Shut off your thinking about work.

5. Organize your next day’s schedule before leaving work.

6. Create a buffer between work and home: Take the time while driving home to separate yourself from work. You may want to consider doing something for yourself: stop at the gym, meet with friends, or run a few errands.

7. Change out of your work clothes when you are home: It is hard to relax from work when you are still dressed for work. Change into something comfortable and leave the day behind.

It can be useful to draw upon the knowledge and experiences of your colleagues when considering how you can better manage your stress. You may want to consider the advice of two audiologists currently working in private practice.

Drianis Buran, AuD, wrote, “I make sure family time is sacred. So I came up with rules or guidelines to follow as far as time in the office, time off for family vacation, or time off for just relaxing at home with my family. My husband, who works in my practice full time, and office staff know to help me adhere to these, because with me, it can become really easy for the scale to tip to the career side at times. Family time also benefits my practice and patients in the end. I am a true believer that your patients can sense tension, exhaustion, and lack of order. They love to hear I am spending quality time with my husband and daughter.”

Robert Herring, AuD, wrote, “Balancing family and a private audiology practice can be challenging and very rewarding at the same time. My family comes first, but my practice is always on my mind. I have two young children, but my practice is almost like my third, and, like a small child, it needs lots of attention. Private practice affords me the flexibility of managing my own schedule and allows me to attend important school functions, baseball games, and dance recitals that might have been missed if someone else was in control of my time. The practice does, however, require a few more hours a week to keep its engine revving, but fortunately, technology lets me do many of the administrative tasks from home, after the kids have gone to bed. I can do my charts, pay the bills, and work on marketing projects on my couch and not miss any games of Candyland or Uno. The key is for me to own the practice and not let the practice own me!”

Taking time to evaluate your situation can be invaluable to maintaining a balance in your life. Remember that it is okay and healthy to take time for yourself. Use this time to recharge your battery so you can enjoy both your personal and professional passions.

Tracey Irene, AuD, is a senior audiologist with Professional Hearing Services, a division of Moreland Ear, Nose, and Throat Group, LTD, in Milwaukee, WI. She is also a member of the Academy’s BEST Committee.

References


Illustration by Johanna van der Sterre.

**TABLE 1. Symptoms of Stress**

<table>
<thead>
<tr>
<th>Physical Symptoms</th>
<th>Mental Symptoms</th>
<th>Emotional Symptoms</th>
<th>Behavioral Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>Trouble Thinking</td>
<td>Anxiety</td>
<td>Withdrawal</td>
</tr>
<tr>
<td>Muscle Tension</td>
<td>Lack of Focus</td>
<td>Tension</td>
<td>Overeating</td>
</tr>
<tr>
<td>Dizziness</td>
<td>Difficulty Concentrating</td>
<td>Anger</td>
<td>Undereating</td>
</tr>
<tr>
<td>Upset Stomach</td>
<td>Forgetfulness</td>
<td>Depression</td>
<td>Drug Abuse</td>
</tr>
<tr>
<td>Trouble Sleeping</td>
<td></td>
<td>Sadness</td>
<td>Alcohol Abuse</td>
</tr>
</tbody>
</table>
SEPTEMBER

22
eAudiology Web Seminar—The Art of Interpersonal Communication in Audiology Practice (.1 CEUs)
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OCTOBER

6
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7–9
Alabama Academy of Audiology Annual Conference
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14–16
National Council of State Boards of Examiners 23rd Conference
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Applications of Telehealth for Hearing Care

BY DAVID FABRY

Telehealth has taken many years to become an “overnight” sensation. This article will address some of the obstacles, as well as opportunities, that suggest that a convergence of telecommunications and health care may finally become a reality.

Telehealth—the term conjures up images of futuristic health care provided in a virtual reality setting, and while that may indeed be one component, telehealth has existed in principle for many years. Figure 1 illustrates the cover from a 1924 issue of Radio News that suggested physicians might use the radio to assist with patient care in the future—well before the invention of the Internet or broadcast television. Ironically, however, telehealth has taken many years to become an “overnight” sensation, for a variety of reasons. This article will address some of the obstacles, as well as opportunities, that suggest that a convergence of telecommunications and health care may finally become a reality.

What Is Telehealth?

Krumm (2009) has defined telehealth as the provision of health services from one location to another using a telecommunications medium such as the Internet, computer networks, telephones, or related technologies. Certain professions have used telehealth for some time, including cardiology, radiology, geriatrics, and others. The Comprehensive Telehealth Act of 1997 first differentiated between telemedicine, which pertained primarily to physicians, and telehealth, which includes all health-care practitioners, including audiologists. The early legislation served as the springboard for research and to build the infrastructure for telehealth in the United States.
Modes of Telehealth
Real Time—that is, synchronous, interactive, live. With these services, users on both ends are in constant contact via Web camera, phone, chat, or other means of communication, and any changes are made with the opportunity for immediate feedback. Examples include hearing aid programming or reprogramming, real-ear measurement, or real-time audiometric evaluation.

Cloud Based—that is, asynchronous, self-guided, off line, store-and-forward. With these services, files, data, and information are transmitted and stored for review or discussion at a later time. This includes automated self-testing, “data-logging” measures, screening, and self-paced rehabilitative tasks that are completed independently, reviewed, or interpreted by a professional. Results may be conveyed online, via e-mail, text, or by other asynchronous means.

Telehealth Objectives
In general, telehealth provides increased access to health-care services, facilitates greater continuity of care, and reduces costs while preserving or enhancing patient outcomes. Both the American Academy of Audiology (2008) and American Speech-Language-Hearing Association (2005) have developed position statements regarding their use, supporting the use of telehealth if the services are:

- Provided by a qualified provider.
- Primarily developed for patients with limited access to health care.
- Validated for efficacy and cost-effectiveness.
- Equivalent to those achieved by face-to-face measures.

Telehealth Challenges

Reimbursement
Today, not all telehealth costs are reimbursed, which is problematic for some, but not all, aspects of audiology diagnostic and rehabilitative services. Medicare, which has to some extent set the standard, reimburses for telehealth services when the “originating” site (where the patient is at the time of service) is in rural or medically underserved areas, defined by the U.S. Department of Health and Human Services as a:

1. Health Professional Shortage Area (http://datawarehouse.hrsa.gov/)
2. County that is outside of any Metropolitan Statistical Area (MSA), defined by the Health Resources and Services Administration and the Census Bureau, respectively.

The originating site must be a “medical facility” and not the patient’s home. Medical facilities include private practices, offices, hospitals, and rural health clinics. This reimbursement is not affected by the “remote” site (the location of the practitioner). Currently, Medicare only pays for real-time interactive telehealth services that mimic normal face-to-face interactions between patients and their health-care providers. Medicare does cover cloud-based asynchronous applications, such as teleradiology and remote EKG applications, as they do not typically involve direct interactions with patients. Medicare does cover asynchronous telehealth applications in Alaska and Hawaii, presumably due to their being more geographically remote from the contiguous 48 states.

FIGURE 1. Cover from the April 1924 issue of Radio News magazine.
There is currently no single widely accepted standard for private insurance payers. Some insurance companies value the benefits of telehealth and will reimburse a wide variety of services. The majority of insurers, however, have yet to develop comprehensive reimbursement policies, and so payment for telehealth may require prior approval. Similarly, reimbursement for telehealth services via Medicaid services varies across states, so clinicians are advised to check with the major insurance companies, and the Medicaid program in their state, to get a definitive answer and policy regarding coverage for real-time and cloud-based telehealth services.

Licensing and Credentialing Issues
Licensing may also be a problem for telehealth programs. Many states require health-care providers to be licensed to practice in the originating site’s state. Therefore, with limited exceptions, telehealth consultations with a physician across state lines require licensing paperwork and/or exceptions to be made. One approach, in response to nursing shortages across the United States, has been the development of the Nurse Licensure Compact (NLC). The process for creating the NLC began in 1996 to remove regulatory barriers and increase access to safe nursing care by establishing an interstate compact that supersedes state laws in participating states (currently 23 states recognize the NLC). This mutual recognition model allows a nurse to have a single license (in his/her state of legal residence), and to practice in other states (both physical and electronic) subject to each state’s practice law and regulation. The latter part of this requirement distinguishes the NLC from national certifications that have been used in the past to define audiologist proficiency by placing the responsibility for ensuring minimum patient care requirements at the state license board level, rather than a national professional organization. Although not perfect, it serves as one example of a model agenda for audiology telehealth service. Another, the Federation of State Medical Boards (FSMB), is a nonprofit organization comprising 70 medical licensing and disciplinary boards that acts as a collective voice for continuous improvement of health-care standards for physician practice (www.fsmb.org/). In 2000, the FSMB established the Special Committee on License Portability, ultimately resulting in the development of A Model Act to Regulate the Practice of Medicine Across State Lines, which developed a specific policy to address state reciprocity for medical licensure, including provisions that require annual registration with the state license board to permit interstate practice of medicine within the state.

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applications of Telehealth for Hearing Care (e.g., https://www.revisor.mn.gov/statutes/?id=147.032). Although a significant departure from current physician licensure, it still places ultimate responsibility on state license boards to ensure that quality of patient outcome is not compromised for its residents.

Another related issue concerns the accreditation of hospitals and clinics providing patient privileges for health-care practitioners that are involved with primary or follow-up care via telemedicine. The U.S. Centers for Medicare and Medicaid Services (CMS) proposed new regulations in May 2010 that would permit accredited hospitals to accept the credentialing and privileging of practitioners offering telehealth services from another accredited facility (credentialing “by proxy”), rather than requiring each hospital to independently credential and privilege each provider. The flexibility provided under this new proposed rule would minimize the duplicative nature of the process for hospitals that provide telehealth services to Medicare patients. Although not specific to audiology, this proposed ruling telegraphs the intentions of CMS to streamline and modernize the provision of Medicare and Medicaid services to patients via telemedicine. A copy of the proposed rule is available at www.americantelemed.org/files/public/policy/Fed_Reg_C_P%281%29.pdf.

In summary, the issues related to licensure and accreditation are dynamic and evolving rapidly; practitioners are advised to check with their state license board and accreditation specialist prior to offering telehealth services across hospitals and state lines.

Generational and Geographical Influences
As with most generational issues, the answer to the question of whether telehealth is a threat or opportunity depends on with whom you speak, and this applies to both practitioners and patients. Currently, over 72 percent of all adults in the United States have access to the Internet, and 175 million persons search for health-related information on the Web (iHealth Beat, 2010). Already, 41 percent of those over the age of 65 have access to the Internet (Pew Internet, 2009). When the first members of the 78 million baby boomer generation (born between 1946 and 1964) reach retirement age in 2011, these numbers are expected to increase considerably. Furthermore, if history serves as a guide, boomers will refuse to accept the status quo for the audiology service and delivery models used with their parents. Instead, they will demand convenience, evidence-based results, and technology that meets their needs. The question is not if but when they will demand telehealth services as an option for hearing health care.

Consequently, professionals can ill afford to ignore the potential for “electronic practice” but, instead,

**Baby boomers may start to demand telehealth services as an option for hearing health care.**

should focus on how to remain viable while ensuring patient safety and outcomes are not compromised by ensuring audiologist involvement at every step of the process for diagnostic, fitting, and rehabilitative hearing health care. This is easier said than done, however, as it addresses the “disruptive” aspect of telehealth in the United States, where despite the fiscal challenges presently facing the health-care system, most citizens have quality care available within relatively close proximity to where they live. As a result, many practitioners are reticent to depart from the status quo because of confusion, fear, or concern that patient outcomes may be compromised. As a result, many of the countries “driving” telehealth and telemedicine occur outside of the United States in countries (e.g., Australia, Brazil, South Africa) with disparate income and population distribution across vast geographic areas. Increasingly, connectivity may depend not on a computer connected to the Internet but on cell phones that transcend socioeconomic status in many countries around the world.

Telehealth Applications

**Diagnostic Tests**
Numerous authors (e.g., Givens and Elangovan, 2003; Givens et al, 2004; Choi et al, 2007; Krumm et al, 2007; Swanepoel et al, 2010) have demonstrated that it was feasible to control an audiometer remotely and provide comparable results to “face-to-face” evaluation. Lancaster et al (2008) verified the efficacy of Internet-based...
Applications of Telehealth for Hearing Care

classroom hearing screenings for rural elementary school children. Furthermore, numerous iPhone applications (apps) have been developed for uncalibrated screening telehealth purposes (e.g., “Ear Test” or “Audiometry”); at least one patent has been awarded (U.S. Patent No. 6,916,291) for calibrated remote diagnostic evaluations conducted by an audiologist or technician that conform to ANSI standard requirements. At issue is whether the intention is to increase awareness for the importance of hearing or address the personnel shortage facing our profession via synchronous or asynchronous telehealth measures using calibrated measures.

**Speech Recognition Measures**
Smits et al (2004) provided details regarding their development of a novel adaptive speech recognition in noise screening test that may be administered as digit “triplets” via telehealth, over the Internet or the telephone. The resulting speech recognition threshold (SRT) enables practitioners to assess additional diagnostic information beyond the audiogram, and the measure was shown to be quite robust across telephones and listening environments, overcoming many of the calibration issues required for pure-tone and speech threshold measures designed for use in quiet. Existing SRT in noise measures (including the QuickSIN or HINT) could quite readily be adapted for automated use on the Internet or as an iPhone/iPod application.

**Verification of Hearing Aid Fitting and Follow-Up**
Because of the third-party reimbursement issues listed earlier, telehealth diagnostic services provided by audiologists may face more challenges than for those related to hearing aid service and delivery models, which have typically used a “bundled,” self-payment system in the United States. Because no third-party payer is required, provision of services via telehealth may be built into the overall cost of hearing aids for those patients who find it beneficial.

Fabry (1996) demonstrated clinical utility for hearing aid adjustments to patients in remote locations. More recently, Ferrari and Bernardez-Braga (2009) made remote probe-tube measurements (using a technician) on 60 patients aged 18–84 years and demonstrated test-retest reliability within 3 dB for frequencies between 250 and 6000 Hz.

**Cochlear Implant Reprogramming**
Franck et al (2006) provided a comprehensive overview of their experiences with cochlear implant services provided via telehealth at Children’s Hospital of Philadelphia.
Applications of Telehealth for Hearing Care

(CHASE), and numerous others (e.g., Shapiro et al., 2008; Ramos et al., 2009) have developed strategies for telehealth support of initial and follow-up programming as well as aural (re)habilitation.

**Otoscopic**

Eikelboom et al. (2009) reported high reliability for identification of chronic middle-ear disease in indigenous Australian children living in rural, remote areas using tele-otology. They reported excellent agreement between remote and "on-site" otoscopy for acute otitis media (99.2 percent), cholesteatoma (98.5 percent), and chronic suppurative otitis media (93 percent) in a cohort of 74 subjects, aged nine months to 15 years of age. The biggest discrepancies between direct and remote otoscopic evaluations were for the presence of cerumen and tympanosclerosis, which were both observed more frequently with telehealth than for direct examination. Nonetheless, the authors concluded that telehealth could serve as a reliable and accurate referral tool for middle-ear disease in rural and remote areas.

**Audiological Counseling**

Laplante-Lévesque et al. (2003) suggested that an interactive, Internet-based counseling strategy could facilitate adjustment for first-time hearing aid users by serving as an information and counseling resource. The authors suggested that a program comprising daily emails during the first months of use was useful guidance and reinforced positive behaviors in the adjustment to use of hearing aids. Other automated counseling programs (e.g., Sweetow and Henderson-Sabes, 2004) could easily be adapted for asynchronous telehealth purposes to similarly engage hearing aid users in the fitting process and provide listening strategies for improving hearing aid outcomes.

**Conclusion**

Telehealth holds many possibilities, and a few risks, for hearing health care. These risks include concerns over reimbursement, licensing/credentialing, and preservation of the audiologist’s role. The first of the baby boomer generation (theoretically) reaches retirement age in 2011; telehealth has the potential to be a “disruptive” technology (Christensen, 1997) that may address the audiologist shortage, health-care access and cost, and clinical efficiencies but must accomplish this without compromising patient outcomes. Ultimately, what is good for the patient will eventually win; audiology’s role will be determined by our ability to recognize and address the challenges while embracing the opportunities provided by telehealth and telemedicine. ©

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**Also of Interest**


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Audiologists help children with hearing loss access the world of speech sounds with amplification. Once that task is completed, are we helping families make the “hearing-listening-reading” connection? Do we stay engaged as members of the “literacy team”?

It is fascinating to consider how reading—a highly visual activity—relies first and foremost on hearing and listening. From birth, children listen to words, and soon learn to use words to connect with their world. In the preschool years, children begin to notice the words themselves, and the sounds within the words. Some words end with the same sound (rhyme); some start with the same sound (alliteration). Being able to think about the sounds in words is requisite to the first reading lesson: when told that a specific letter of the alphabet represents a specific sound, children are “primed” to grasp this highly abstract concept because they’ve been inundated with, and thinking about, those sounds for several years (Cole and Flexer, 2007; National Center for Family Literacy, 2009). All that input, all that word play, establishes essential neural networks in the temporal lobes to help the brain process the concept of “sound-letter association.” Even as skilled readers, we continue to “listen” as we silently read and decode written text, measured by electrical activity in the temporal as well as occipital and frontal lobes (Dehaene, 2009).

Given the direct relationship between hearing/listening and reading, audiologists can consider themselves members of the “literacy team,” in partnership with families, speech-language pathologists, and early interventionists/educators. After all, when children have a hearing loss, audiologists are the “first responders” in management by amplifying those essential speech sounds. Long-term success, of course, depends on families’ daily commitment to consistent amplification.

Why, then, do we so often see irregular hearing aid use? The problem could be our message. It probably is too vague: that is, we tend to relate hearing aid use to the “development of speech and language” even though most families do not know what we mean. Try as we might to “unpack” this professional jargon, it is jargon nonetheless. Our speech/language message is also wildly open-ended, with no metrics to confirm whether efforts make a
difference. This message is akin to starting families on a journey to an unknown destination, with a map in a foreign language and no known date of arrival. Given the flaws in our message, we can understand why families might be doubtful about the value of consistent amplification: we have not successfully communicated the “daily urgency” of this journey.

If a message is ineffective, it is incumbent on us to find a more meaningful one. One approach would be to extend the developmental continuum beyond speech/language to literacy development, which has two characteristics working for us: “learning to read” is both understandable and is time-sensitive. Unlike “developing speech and language,” families are very clear about what “learning to read”...
means. However, they may not be aware that their child, by virtue of hearing loss, is inherently at risk for reading problems from the very first day of school (Moeller et al, 2007). We can modify our message accordingly; by relating hearing aid use to reading, we promote a journey with a known destination, with a map in a familiar language and a known date of arrival (the first day of school).

But are audiologists promoting reading readiness? The purpose of this study was to measure pediatric audiologists’ background and involvement with their patients’ literacy development. It was hypothesized that audiologists lack background in this area and thus do not engage in supportive discussions about preliteracy and reading skills. This study was approved by the University of Akron Institutional Review Board.

Methods

Participants
Participants were members of the American Academy of Audiology. A specialty sample was drawn from the Academy’s membership database, which included approximately 4,000 members self-identified as specializing in pediatrics: audiologists, teachers of the hearing impaired, speech-language pathologists, and dual-certified speech-language pathologists. Five hundred and thirty-six respondents opened an invitation to complete an online survey, and 311 participants completed most or all of the survey.

Instrument
The first panel of the online survey required participants to indicate their consent before continuing. The survey itself contained five questions:

1. Describe your background in literacy development as it relates to hearing loss.

2. Describe your practice setting’s approach to helping parents develop their child’s literacy skills.

3. Does your practice setting have pamphlets, brochures, or other materials to educate parents on the relationship between literacy development and hearing loss?

4. Do you feel you were educated adequately in the area of literacy development?

5. Would you be interested in taking continuing education courses in the area of literacy and hearing loss?

The questionnaire format included yes/no and open-ended questions.

Procedures
An e-mail invitation directed respondents to an online survey. The survey was open for three weeks. Results were analyzed as descriptive and/or qualitative data. Qualitative data were independently categorized and then evaluated for interrater reliability ($r = .85$ to $.99$).

Results

Question 1
Three hundred five participants answered Question 1: “Describe your background in literacy development as it relates to hearing loss.”

The majority of participants (63 percent, $N = 192$) indicated little or no background in literacy development. Slightly less than one-fourth (23 percent, $N = 71$) indicated “some background,” which included formal
Team Literacy

experiences (preservice and in-service coursework) and informal (on-the-job training, self-directed learning) experiences. Almost the same number of respondents (N = 69, 22 percent) indicated “extensive background.” See Figure 1 for a breakdown of these backgrounds. (Some participants provided two responses, resulting in a total exceeding 100 percent.)

Question 2
Three hundred participants answered Question 2: “Describe your practice setting’s approach to helping parents develop their child’s literacy skills.” (See Figure 2.)

Slightly more than half of the respondents (53 percent, N = 159) indicated having no approach (32 percent, N = 96) or leaving it to other professionals/referrals (21 percent, N = 63). The remaining participants indicated personally providing information and/or direct services (33 percent, N = 100), or working with a team (14 percent, N = 41).

Question 3
Three hundred three participants answered Question 3: “Does your practice setting have pamphlets, brochures, or other materials to educate parents on the relationship between literacy development and hearing loss?”

More than two-thirds of the participants (69 percent, N = 208) responded “no,” and 31 percent participants (N = 95) responded “yes.”

Question 4
Two hundred ninety-eight participants answered Question 4: “Do you feel you were educated adequately in the area of literacy development?” The large majority (80.5 percent, N = 240) indicated “no.” Fifty-eight participants (19.5 percent) responded “yes.”

Question 5
Three hundred seven participants answered Question 5: “Would you be interested in taking continuing education courses in the area of literacy and hearing loss?” The large majority (90.9 percent, N = 279) responded “yes,” and 28 participants (9.1 percent) responded “no.”

Discussion
This study measured participants’ background and involvement in literacy development with their patients and families. Participants (N = 311) completed a five-item survey.

Most participants indicated lacking a background in the area of literacy, and more than half either referred literacy development concerns to other professionals or did not address them at all. Most participants’ practice settings did not have basic information (brochures, handouts) about the relationship between hearing/listening and reading to share with families, but the vast majority expressed interest in continuing education opportunities in the area of literacy development.

A limitation to this study was not anticipating that nonaudiologists would complete the survey. It can be assumed but not confirmed (based on Academy membership demographics) that the large majority of respondents were audiologists and that a very small percentage were educators or speech-language pathologists. Future research in the area of literacy development should determine if audiologists do pursue continuing education in literacy development and then modify their practices to be a more active member of their patients’ literacy team. How will audiologists convey literacy information to parents? How will our effectiveness be measured? It would be important to know if these modifications had a positive impact on family commitment.

As an immediate action item, audiologists can consult local early interventionists and SLPs to coordinate their message regarding literacy development and also review their states’ Department of Education benchmarks for kindergarten and first grade (search by state on www.education.com). These parent-friendly benchmarks are posted online and clearly describe teacher expectations for school success, most of which depend on strong listening skills: following directions, listening to and retelling a story, creating rhymes. These benchmarks can serve as a framework for ongoing family counseling.

Additionally, audiologists can emphasize how “the clock is ticking” by creating a calendar for the upcoming years (from software or an Internet Web site) and asking parents,
“When will your child start kindergarten? August 26, 2013? Then that is our target date [they circle the date]: to make sure your child is “reading ready” on that date. And every day, every hour of amplified listening gets us there.”

Resources
For more information on literacy development, see:

- National Center for Family Literacy: www.famlit.org.
- Local libraries: age-appropriate reading lists to share with parents (free!).

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The mode of education for health-care professionals is currently experiencing a paradigm shift. Rather than strict didactic teaching, consisting primarily of lectures and grand rounds, health-care professionals are now more aware of the relevance of problem-based learning. There is a need for problem-based educational opportunities so that audiologists can adopt client-centered approaches.
The word *paradigm* is derived from the Greek word *paradeigma*, which is defined as “a set of assumptions, concepts, values, and practices that constitute a way of viewing reality for the community that shares them, especially in an intellectual discipline.” Thus, the term paradigm shift can be operationally defined as a change in the perception of how a system or process is structured. Examples of paradigm shifts abound in health care. For example, despite the obvious need for a cure for cancer, many clinicians and professional organizations have come to recognize that a useful paradigm shift would emphasize screening and prevention, rather than only concentrating on an elusive cure. Paradigm shifts can occur not only in how we treat and deal with patients but also in how we educate professionals to carry out these practices.

**Problem-Based Learning**

The mode of education for health-care professionals is currently experiencing a paradigm shift. Rather than strict didactic teaching, consisting primarily of lectures and grand rounds, health-care professionals are now more aware of the relevance of problem-based learning (PBL). PBL was employed at the McMaster University (MU) medical school in the 1960s. The MU Web site defines PBL as “any learning environment in which the problem drives the learning.” In other words, before students are given new knowledge to learn, they are first given a problem. The objective is to encourage critical thinking and problem solving by providing a learning environment that is interactive, based on prompt and accurate feedback, and personalized to account for individual learning preferences. Camp (1996) states that PBL is designed to affect as much of a student’s learning experience as possible. Because there are such
major differences between a PBL curriculum and the traditional curriculum, Camp would consider this change to be a paradigm shift. By the 1990s, aspects of PBL had been incorporated into the curricula of most medical schools in the United States and, increasingly, of related educational environments, including "schools of health sciences, nursing, dentistry, pharmacy, veterinary medicine, and public health" (Camp, 1996).

PBL follows important principles of adult learning theory such as allowing students to work independently, using existing knowledge and personal experience, and immediately applying new information. Malcolm Knowles (1980), a seminal figure in adult education theory, proposed a number of conditions conducive for adults to learn effectively, including an environment that allows for freedom of expression and individual differences, and encourages the learner to utilize past experiences and share responsibility for conducting the learning experience. A greater commitment to the learning process can be attained when students are active participants in their education. Norman and Schmidt (1992) have critically evaluated PBL and concluded that many of its potential advantages have been validated by the alumni of schools with PBL curricula.

PBL also agrees with the philosophy of constructivism, which has three basic principles: learning results from experience, is encouraged by conflict, and evolves by questioning the validity of our own understanding and that of others (Savery and Duffy, 1995). According to constructivism, knowledge is “constructed” by the learner, who is influenced by knowledge and experience previously gained. This learning approach can be contrasted with other theories, such as logical positivism, which assumes that there is one invariable truth to be imparted. It can be argued that this approach could thwart creative thinking and encourage belief in the universal truth of information that is not, in practice, universally true. Therefore, in order to use a PBL approach, teachers must become facilitators, rather than omnipotent conveyors of “truth.” In this manner, learning centers around the student and not the teacher.

Has the time arrived for a paradigm shift in how we educate audiologists and how we relate to patients?

Current Audiology Education

The past decade has seen the shift in the United States from a master’s to a doctorate as the entry-level degree for audiologists. In the United Kingdom, there are currently no clear-cut requirements for audiology practice, as these depend on the country and sector (public or private) in which the practice is located and the scope of practice (both clinical and managerial). In England, an autonomous audiologist, who would work as a clinical scientist in a National Health Services (NHS) audiology department, must be registered with the Health Professions Council and have the equivalent of a master’s-level qualification and demonstrate a wide ranging clinical and leadership portfolio. Entry requirements as an audiologist in the NHS are normally a bachelor’s-level qualification plus a clinical portfolio (and usually an observed structured clinical examination). In the private sector, whose scope of practice may be restricted to noncomplex hearing assessment and hearing aid rehabilitation, the requirement is different and may consist of a foundation degree (usually two years study and clinical competence). The education of clinical scientists and specialists in audiology is currently under review, and major changes may take place in the next few years to enhance scientific generality and flexibility. In Australia, the requirement to practice audiology has evolved from a postgraduate diploma in audiology to a master’s qualification. Presumably, the changing and additional educational requirements for audiologists around the world have been dictated by the increasing body of knowledge required for clinical practice. Unfortunately, audiologists do not always take advantage of many of the interactive, problem solving counseling approaches and tools designed to help patients recognize their communication deficits. Furthermore, as pointed out by Kochkin et al (2010), technological advances available for verification and validation of intervention outcome are frequently omitted. Has the time arrived for a paradigm shift in how we educate audiologists and how we relate to patients?
Patient-Centered Practice

Just as changes in audiologist education require a shift toward student-centered as opposed to teacher-centered education, there is a renewed interest in the importance of actively engaging the patient in the rehabilitative process, via a client-centered rather than traditional medical model approach, which is professionally directed. Much has been written about the changing demographics in the United States and the characteristics of the baby-boomer generation, the primary population that will require the services of audiologists in the next two decades. Clearly, baby boomers are more knowledgeable than previous generations of consumers, largely due to their use of the Internet. Sechrest (2009) posits that the massive amount of information accessible via the Internet has helped underscore that products and services are composed of two elements, the physical product or service and the knowledge required to use the product or service. A knee surgery, for example, is much more than the surgery itself and includes the education of the patient about their surgery and rehabilitation.

For audiological care, similar knowledge-based components and requirements exist. Management of hearing impairment has a knowledge component that affects patients’ ability to optimally manage their condition. It entails knowledge about the hearing loss and knowledge about how to identify and find appropriate services from the health-care system. In audiology, we can think of the physical product as the hearing aid or cochlear implant and the service as the programming of these devices. The knowledge component represents the information required to effectively utilize the product or service. In audiology, dissemination of the knowledge component begins long before the fitting of hearing aids. It starts with the patient’s acceptance that there is a problem that needs to be solved. This does not come easily to patients, however. Denial and social stigma are indisputable, pervasive issues that must be overcome before a patient achieves a state of readiness. Patients must be helped to recognize problems that need to be solved as well as emotional needs that should be addressed.

Counseling is comprised of both conveying information and helping the patient to achieve personal adjustment. Audiologists, by virtue of their academic training and experience, are expected to be adept at the former, but the latter requires a unique set of skills that may not be learned in a traditional didactic educational environment. There is, therefore, a need for problem-based educational opportunities so that clinicians can adopt client-centered approaches.

An example of an attempt to create a paradigm shift in both the education of audiologists are the seminars provided by the Ida Institute. The goal of these seminars is to generate and impart innovative, practical, and actionable knowledge, in part by developing interactive tools to better relate to patients. The seminars are organized around the concept of collaborative learning that enhances and facilitates exchange among scholars, practitioners, educators, and professional advocacy groups. Similar to PBL, the Ida Institute learning philosophy operationalizes and teaches by example (e.g., role playing), as opposed to a pure lecture format or teaching of abstract concepts. In other words, the focus shifts from teaching to learning, from providing answers to looking for questions, and from talking to listening. Information based on the professional experiences of the seminar participants is shared, and thus, the hierarchy of learning is reversed so that knowledge and expertise grows from the bottom up instead of the traditional top-down model. The student-oriented emphasis on interaction is not only novel to

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A Paradigm Shift in Audiology Education

much of the past learning experiences of the seminar participants but encourages the participants to view and relate in a more collaborative, problem-solving manner with patients. This approach can ultimately foster greater acceptance of responsibility by patients. The interactive discussion among the participants at these seminars has produced practical, nontechnological tools that practitioners can use to achieve better results with their patients.

Conclusion
A paradigm requires immense energy to change; the inertia of tradition is difficult to overcome. It is a challenge to modify the practice of audiologists from a medical control model—in which the professional asks questions, diagnoses, reaches conclusions, reports, makes recommendations, accepts responsibility for all decisions, and embraces more technology-oriented practice concepts—to a more humanistic (patient-centered) approach. Similarly, altering audiology education to involve an interactive, team-oriented, adult-learning approach will require a significant change in philosophy, curricula, and attitude. Achieving these worthy changes will constitute a paradigm shift in our profession.

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Note

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Log on to www.audiology.org/resources/audiologytoday and search the archives.
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The inclusion of telecoils in hearing aids can unlock access to desired sounds for many people who have hearing aids or cochlear implants. The audiologist can play a number of roles in helping the consumer obtain maximum use of their hearing assistive technology.
The general assembly During "body" type hearing aid (Marshall, 2002; Yanz and Preves, 2008) reported concerts, tour buses, and churches, to name a few. A simulator or auditorium, enables hearing aid and cochlear implant users easy access to sounds from telephones, or when used in conjunction with an audio induction loop, from electronic audio sources such as public address systems, concerts, tour buses, and churches, to name a few. A simple wire loop around an enclosed area, such as a theater or auditorium, enables hearing aid and cochlear implant users within the loop to hear clearly what is being delivered through the sound system as long as they have the necessary connector in their hearing aids or cochlear implant—a telecoil. The telecoil lets the consumer connect to sound through the hearing loop without having to deal with annoying background noise and without the need to check out headsets or receivers.

Telecoils enable hearing aid and/or cochlear implant users easy access to sounds from telephones, or when used in conjunction with an audio induction loop, from electronic audio sources such as public address systems, concerts, tour buses, and churches, to name a few. A simple wire loop around an enclosed area, such as a theater or auditorium, enables hearing aid and cochlear implant users within the loop to hear clearly what is being delivered through the sound system as long as they have the necessary connector in their hearing aids or cochlear implant—a telecoil. The telecoil lets the consumer connect to sound through the hearing loop without having to deal with annoying background noise and without the need to check out headsets or receivers.

History of Telecoils and Hearing Loops
Several authors have credited Samuel Lybarger for designing a telecoil in 1947 that could be used with a “body” type hearing aid (Marshall, 2002; Yanz and Preves, 2003). Lybarger’s idea over 60 years ago was that the telecoil could pick up stray electromagnetic energy from a telephone and then convert it to amplified sound, thus making it considerably easier for the person with hearing loss to participate in a phone conversation (Ross, 2006). Since then, the telecoil, as well as hearing aids, have become considerably smaller and substantially more versatile. Telecoils now fit into head-worn hearing aids, even very small ones, with few exceptions. Based on an Internet survey of hearing aid fitting practices by audiologists and hearing professionals, Johnson (2008) reported a significant increase in the percentage of hearing aids with telecoils, from 37 percent in 2001 to greater than 65 percent in 2007.

Although the inclusion of telecoils in hearing aids has significantly increased in the United States, there continues to be relatively sparse application of telecoils for anything except telephone and television use. There is a striking difference between the United States and Europe in the applications of telecoils for better listening. Rather than focusing primarily on infrared or frequency-modulated technology, Europeans rely on a variety of applications for telecoils, such as looping household rooms (most frequently for television), banks, train stations, and so forth. In September 2009, the first international conference on hearing loops was held in Switzerland, with attendees from throughout the world. Indeed, the “Get in the Hearing Loop” initiative was born as a result of Brenda Battat’s (executive director, HLAA) inspiration after attending this conference. During the international meeting, a resolution was passed with the recommendations that stakeholders involved in helping people with hearing loss (e.g., hearing aid and cochlear implant manufacturers, physicians, audiologists, etc.) should communicate the benefits of telecoil receivers, such as increasing accessibility in service centers (physician’s offices, hospitals, post offices, etc.) and public areas (auditoriums, museums, playhouses, etc.). At the same time, participants at the conference acknowledged that research to develop new technologies may some day result in superior technology that would replace the need for telecoils and hearing loops. Until then, however, the participants strongly support the promotion of a wide variety of telecoil and loop applications.

Current Status of Looping in the United States
In the United States, many consumers with hearing aids, as well as audiologists and other hearing health-care professionals, perceive that the function of telecoils is to enable better use of telephones. There is far less awareness and use of telecoils in rooms and buildings that have been looped, and there is a lack of cognizance that hearing aids and cochlear implants with telecoils can connect with an array of assistive listening devices such as FM technology. Why would hearing aid and/or cochlear implant users benefit from having telecoils? Simply ask them how well they do with their devices as far as understanding public address systems in airports, or hearing the speakers when sitting toward the back of auditoriums, or understanding what their religious leaders are saying in large, reverberant places of worship. Despite phenomenal changes and improvements in hearing aid and cochlear implant function in the past few years,
Looping America: One Way to Improve Accessibility for People with Hearing Loss

these types of difficulties continue due to interference from background noise and/or because of talker/listener distance in many “typical” listening environments.

There is a relatively easy, cost-effective solution. A simple wire loop around an enclosed area, such as a theater, auditorium, or place of worship, enables people within the loop to hear clearly what is being delivered through the sound system as long as they have the necessary connector in their hearing aids or cochlear implant, namely a telecoil. The telecoil allows the person to connect to sound through the hearing loop without having to deal with annoying background noise. Many public places such as houses of worship and playhouses offer headsets or receivers. However, many consumers report that often these devices do not provide sufficient assistance and frequently malfunction.

Hearing Loops and Newer Technology
The intent of the Academy and the HLAA in naming the initiative “Get in the Hearing Loop” is not to focus solely on telecoils and hearing loops but, rather, to encourage consumers and professionals to “get in the loop” as far as any type of helpful technology to improve accessibility for people with hearing loss. With so many advances in technology in recent years, and more on the horizon, people with hearing loss have an abundance of choices in order to achieve accessibility. Dr. David Myers (personal communication, May 14, 2010), founder of the Let’s Loop America campaign, points out that the new technology that is desirable to both consumers and hearing professionals alike needs to

- Be affordable,
- Cover both large and small areas,
- Project universally received signals,
- Be able to fit into most hearing aids, including in-the-ear hearing aids,
- Be used without the use of extra equipment,
- Demand little in the way of power, if any, and, finally,
- Be inconspicuous and user friendly.

Who Benefits from Hearing Loops and Telecoils?

At first glance, it would appear that the main beneficiary of hearing loops and telecoils would be the consumer who uses hearing aids and/or cochlear implants. However, there are other parties who are likely to benefit from looping. Audiologists who dispense hearing aids, for example, want the best fitting outcomes and highest level of satisfaction for their patients. It is logical to expect that the more functional and versatile the hearing technology, the greater the benefit, use, and satisfaction will be among consumers. Figure 1 illustrates how telecoils and hearing loops can offer potential benefits not only to the consumer but also to a variety of other individuals.

Applications of Hearing Loops and Telecoils

In recent years, thanks to the efforts of dedicated looping advocates, there have been substantial increases in the number of public venues that have been looped, such as airports (see Figure 2), train stations, places of worship, and government buildings (even the U.S. House of Representatives’ main chambers are looped). Early this year, the New York City Transit Commission announced that information booths in 488 subways would be looped to make travel assistance more accessible to people with hearing loss (Myers, 2010). By far the most common application...
of hearing loops is in houses of worship. However, the types of venues that are looped are numerous, including community, senior, recreation, and social centers; libraries; performing arts halls and cultural art centers; state government and municipal buildings, as well as courtrooms; schools and colleges; Veterans Affairs hospitals; as well as places you might not expect, such as the Bronx New York Yankees ticket booth and facilities at Ellis Island in New York City. You may want to look around your community and ponder how you could increase accessibility for people with hearing loss in your community by becoming involved with looping initiatives. Partnering with your local and state HLAA organizations is an excellent way to gain momentum in the looping campaign.

**Not All Hearing Loop Installations Are the Same**

At the recent HLAA Convention in Milwaukee, Conny Andersson, convener of inductance loop standards for the International Electrotechnical Commission (IEC), described the importance of conforming to IEC standards for installing loop systems. In 2006, IEC members from around the world approved a new standard for looping (IEC 60118-4), requiring that after a loop installation, the loop system should be tested to determine that it meets the standard. Following testing, the standard should be certified and made publicly available through a written report that provides the name of the tester, the date, and the use of a calibrated test instrument.

The looping installers’ conformity to IEC standard 60118-4:2006 will ensure the highest quality of performance for looping systems. Failure to follow the rigorous IEC standard for looping may seriously compromise the outcomes that may be expected from the looping installation. Additionally, nonconformity to IEC standards resulting in poor outcomes may impugn efforts to promote telecoil use and looping for improved accessibility for people with hearing loss.

**The Need for Evidence-Based Research**

Although there is substantial testimony about the benefits of telecoils and hearing loops from people with hearing loss, there is little in the way of evidence-based research to validate the effectiveness of looping for improving speech perception. There is a huge need for both subjective and objective evaluation of looping outcomes. Through the use of well-designed questionnaires, interviews, and so on regarding perceived improvement in communication, it may be possible to identify how looping affects activity limitation and participation restriction. Additionally, objective measures might be used to evaluate looping outcomes. Perhaps an adult version of the Functional Listening Evaluation (Johnson et al, 1997) could be developed to objectively evaluate outcomes for adults who participate in looped events. For example, research participants could be tested in controlled, but relatively natural, listening conditions (e.g., places of worship, meeting rooms, and performance halls), to determine how their ability to understand is affected by use of a hearing loop. It would be interesting to assess not only how performance in various distance and background noise conditions differs when the listening area is looped but also to obtain subjective evaluations by research participants as to their perceived ease of listening and degree of effort when a loop is used. The availability of positive conclusions from this type of research may lead to greater interest among audiologists for advocating for looping, as well as for uniformly informing their patients about the benefits of looping.

**Conclusion**

The inclusion of telecoils in hearing aids can unlock access to desired sounds for many people who have hearing aids or cochlear implants. The audiologist can play a number of roles in helping the consumer obtain maximum use of his or her hearing assistive technology. Patients with hearing aids and/or cochlear implants should be informed of the potential benefits of telecoils and hearing loops. Some states, such as New York, Florida, and Arizona, have state licensure that mandates state-licensed audiologists and hearing aid dispensers to educate their consumers about telecoil technology. It is important not just to advise consumers about the function of telecoils for telephone use but also to educate them about potential uses of their telecoils for venues that are looped.

Further, to seek the best outcomes for their patients, audiologists need to advise their patients about the
functionality and versatility of telecoils and hearing loops, as well as other forms of technology such as infrared systems and FM assistive technology. Best practices regarding advising patients of hearing loops, telecoils, and other forms of assistive technology include having the dispensing office equipped to demonstrate induction loop and other forms of assistive technology beyond hearing aids, as well as to have written materials on the benefits of telecoils, how and where to use them, and how and why to advocate for looping in their communities. In conclusion, take advantage of this simple, inexpensive technology to help patients be blissfully happy hearing aid and/or cochlear implant users. It’s time to get in the loop!

Patricia Kricos, PhD, is the president of the American Academy of Audiology and the cochair of the HLAA/Academy Joint Task Force on Looping. Currently, the joint task force is developing an awareness plan that will be detailed in a report to the Academy Board of Directors.

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Because many health-care professions do not have a direct relationship with audiology, education is the key for raising awareness of our field. It takes effort to gather information regarding the relationship between audiology and these other specialties, but it can draw great returns.
audiology, a fairly young profession, is slowly finding its way into the vocabulary of the public. The goal of audiology awareness is to promote the term audiology to the community and to other health-care professionals, as we are the experts in hearing, tinnitus, and equilibrium care. This article is going to address public relations (PR) and marketing with an emphasis on tactics for raising awareness of our field within the health-care community.

There are numerous reasons for improved audiology PR to other health-care fields. Although most physicians and health-care professionals are aware of audiology, they often are not aware of our full scope of practice. A study by Johnson (2007) reported 47.1 percent of patients find their way to an audiologist through referral from a physician or other health-care provider, suggesting that an efficacious marketing strategy targeting these physicians is essential.

Let's start with a few numbers: There are an estimated 13,000 audiologists in the United States (U.S. Bureau of Labor and Statistics, 2009) to serve the U.S. population of 309.6 million people (U.S. Census Bureau, 2010). According to those numbers, there are approximately 24,000 people for each audiologist. Purposefully, those with hearing loss were not separated from the general population. We have to take a step back and take a look at the bigger picture, to make audiology a household word we need to think about the entire population. It is also important for audiologists to understand that in addition to the estimated 36 million adults with hearing loss (NIDCD, 2010), there are also normal-hearing individuals who know someone who has experienced hearing loss, tinnitus, or dizziness, or runs the risk of acquiring one of these conditions through medications, noise, and so on.

Another number to contemplate: There are an approximately 906,000 allopathic (MD) and osteopathic (DO)
Consider marketing to nephrology, dentistry, urology, infectious disease, and gynecology.

Develop stronger relationships within the health-care community. Audiology should be recognizable by all of these individuals. Audiology awareness is the key to progress, but this takes the effort of all audiologists and professional organizations. Promoting audiology does not have to be complicated, and there are things that every audiologist can do to raise awareness of our field not only in the general public but also in the larger health-care community.

Investing in Physicians

Metaphorically, the audiology–physician relationship may be treated as a professional “investment.” In any investment portfolio, there are the steady and reliable investments; in audiology, these would be our typical referral sources such as primary care providers (PCPs), pediatricians, and otolaryngologists (ORLs). These fields typically refer to audiology and are a fairly stable referral base. There are other fields, such as speech pathology, physical therapy, neurology, and occupational therapy, where referrals and communication may be more variable, but the relationship also tends to be more predictable.

Still others, including cardiology, rheumatology, and oncology, may be considerably less stable. Stable relationships are typically more symbiotic and require less work to maintain. There is an implied understanding that ORLs and PCPs understand the scope of audiology; however, given the wealth of new research, their knowledge may not be up-to-date. Another important point is that even stable, secure relationships require periodic maintenance and evaluation, as past behavior is not necessarily predictive of future performance. That is, these relationships cannot be taken for granted. Taking these relationships for granted could open the door for our competition (e.g., hearing instrument dispensers), so it is imperative that audiology remain in the forefront of hearing and equilibrium care.

Maintaining the connection with these professionals is critical for long-term success and patient management. Educational opportunities such as AudiologyNOW! and new research are chances to keep referral sources “in the loop” regarding advancements in our field. Simple and concise updates to physicians may go a long way toward reinforcing the relationship as well as promoting audiology and underscoring the strides our profession is making toward improved diagnostics and treatment of auditory and vestibular disorders.

Diversify

Diversify your portfolio for a solid return on investment. Rule one: Don’t limit your possibilities. Although we have solid relationships with PCPs, ORLs, and pediatricians, there are many more opportunities. There are many more opportunities to promote audiology and establish relationships with medical fields off our usual beaten path. One way to approach this subject is to evaluate causes of hearing loss, tinnitus, and dizziness and those specialties where patients may also be going for medical treatment. One example is sports medicine; individuals who have a sporting injury caused by, for example, a tackle in football, could have a labyrinthine and/or cochlear concussion potentially resulting in hearing loss, tinnitus, and dizziness. These fields may know of audiology but may not consider referring patients to an audiologist possibly due to the fact they do not know the full extent of our scope. There are many other potential targets of marketing such as nephrology, dentistry, urology, infectious disease, and gynecology.

It is also critical to evaluate secondary causes of hearing loss, tinnitus, and dizziness such as ototoxicity. I had an autoimmune disease arise prior to starting graduate school. I was being followed by a rheumatologist and was prescribed what I would later find out was an ototoxic medication. At the time, the physician referred me to ophthalmology for a lengthy baseline vision exam and scheduled follow-ups. It was not until several months later when I started coursework for my AuD that I learned that the medication also had the potential to be ototoxic. When I went back to my rheumatologist, he did not know that it had the potential to cause hearing loss. This is an example of a lost opportunity for an audiologist.

Since many of these fields do not have a direct relationship with audiology, education is the key for raising audiology awareness to these health-care providers. It
takes effort to gather information regarding the relationship between the selected specialty and audiology, but it can draw great returns.

**Marketing to Physicians**

The public relations aspect of promoting the audiology image, combined with the marketing approach of business communication, has the potential to be a powerful step in creating a trusting relationship between the audiologist and the physician. Building a trusting relationship is paramount since it typically leads to less negative consequences. Trust is based on a balance of needs, expectations, and promises (Hall, 2009); therefore, if one falters in a single area or multiple areas, trust will not develop. Consider these practice principles to help build trust among physician partners: (1) Provide unambiguous and straightforward communication with a high value (Levinson, 2010); (2) Review how information is laid out to eliminate any false or misleading information (Covey et al, 2006); (3) Respond in a timely manner (Hall, 2009);
By responding to requests or inquiries in a timely manner, one shows genuine interest in the relationship and respect for the other party involved. Communicating clearly and effectively, with honesty and integrity, demonstrates self-respect and respect for one’s practice.

**Grassroots**
Grassroots marketing is personal and direct marketing/promotion through nontraditional methods, or using the collective efforts of brand enthusiasts. Grassroots marketing is an approach that can be accomplished on a modest budget (Horowitz, 2000). Grassroots marketing can take numerous forms, for example, charity events, phone calls, social media group/profiles, press releases, and much more. Grassroot approaches are becoming more common because much can be done at little to no cost. There are other budget-friendly approaches such as buzz marketing (creating a “buzz” about a product or concept), viral marketing (an advertisement spreads like a virus, e.g., videos), and guerrilla marketing (unconventional marketing tactics) that are being utilized more frequently than traditional marketing methods (Boone et al, 2010).

**Direct Mail**
One common marketing method is mail. When sending materials to physicians, it is important to remember that physicians may only take a few moments to read information because so much comes across their desks. When sending mailed material, always provide a clear, consistent message; choose a few compelling items to highlight; and make your contact information prominent.

**In Person**
An in-person approach provides a personal connection as well as an opening to further expand the discussion. For example, have an open house but focus only on the physician. Bringing the physicians to your “turf” has several benefits. First, it provides you with the opportunity to highlight the role of audiology and the audiologist. This can include a demonstration of equipment, discussion of the latest research in diagnostics and treatment, and promotion of the audiologist as the foremost expert in hearing and balance care. This is especially important for new relationships because they may not be aware of our multifaceted field. It also provides a more personal relationship with the physicians so when it is time to go back to that physician for referrals, updated information, and so on, the personal relationship will already be there. All professionals are busy, so the key to a successful in-person marketing scheme is to make it worth their while. One thing to consider is that physicians are also looking for outlets to network. Cross-referral is equally important to physicians (Wilson, 1994); thus, the physician may also see this as a good opportunity.

**Electronic**
There are so many avenues now for online marketing, between blogs, videos, podcasts, social network sites, and the Internet. Some of these tools are more suitable for marketing to potential and current patients, but a Web site can provide helpful information not only for patients but also referral sources. It is estimated that 62 percent of small businesses either have a Web page or plan to have one within the next year (Campbell, 2009). In 2009, 76 percent of the U.S. population was using the Internet (Miniwatt Marketing Group, 2010), and the Web is now considered the foremost source for information. Consider adding a section for professionals that houses new research or updated information for those who are referring to your clinic.

Achieving public recognition of audiologists as the experts in hearing is one of the visions of the American Academy of Audiology. As part of this vision, in October 2008 the Public Relations Committee launched National Audiology Awareness Month. To encourage members to use this month as a promotional opportunity, the Academy developed online resources, such as customizable press releases, PowerPoint presentations, and more. Visit www.audiology.org and search key words “audiology awareness month.”

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Promoting Audiology to the Health-Care Community

Exposure and the Future
By marketing to and working with other health-care professionals, we can help promote the profession of audiology, our services, and our scope of practice so that those in the position to refer patients will make the appropriate referrals. We must continue to adapt our marketing strategies, be willing to try new and different ideas, and embrace the changing landscape of commerce and technology.

Patricia Gaffney, AuD, is an assistant professor at Nova Southeastern University in Ft. Lauderdale, FL. She is also chair of the Academy’s Public Relations Committee and a member of the Membership Committee and HLAA/Academy Joint Task Force on Looping.

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By Larry Humes

Once again, it was my pleasure to chair the Academy Research Committee (ARC) 2010 Program Committee, with Robyn Cox, Judy Dubno, Sandy Gordon-Salant, Benjamin Hornsby, and Beth Prieve as committee members, and to chair the actual program on April 14, 2010, as well. The Program Committee put together an excellent slate of presenters, beginning with a broad overview of the problem of age-related hearing loss and the risk factors associated with this increasingly common disorder—presented by the conference keynote speaker, Karen Cruickshanks—and then progressing through the auditory system from the periphery to the cortex.

In what is hoped will become a regular feature of future ARC meetings, these excellent presentations have been summarized for Audiology Today (AT) in a series of brief synopses. ARC 2010 featured seven presentations in all. The July/August issue of AT featured summaries of the first three presentations, beginning with Karen Cruickshanks’ keynote address on the epidemiology of age-related hearing loss and underlying risk factors, followed by the two presentations on age-related changes in the auditory periphery—Richard Schmiedt’s overview of his group’s work on an animal model of presbycusis, and Pam Souza’s discussion of age-related changes in auditory perception, including implications for treatment.

In this issue of AT, the remaining four ARC 2010 presentations will be summarized. The first two explore age-related changes in the auditory portions of the central nervous system, with Robert Frisina focusing on neurobiological changes in animal models and Kelly Tremblay describing observed deficits in the responses evoked by complex sounds in the central pathways of humans. The ARC 2010 summaries conclude with two presentations concerning age-related changes in higher levels of processing, including cognitive and linguistic processing, from Mitchell Sommers and Kathy Pichora-Fuller.

On behalf of the ARC 2010 Program Committee, I hope you find these last four summaries of value, as I trust you did the first three in the previous issue. I believe you will find all to have provided a good overview of the information presented during ARC 2010. It is our hope, in keeping with the translational “research to clinic” spirit of the ARC, that the information may assist you in your research or in your clinical work with older adults and provide a gateway to additional, more detailed sources of information on each topic.

Larry E. Humes, PhD, is a distinguished professor in the Department of Speech and Hearing Sciences at Indiana University, in Bloomington, IN. Dr. Humes was the chair for ARC10 and received one of the American Academy of Audiology’s 2010 Presidential Awards for services to the Academy.

AGING, GENETICS, AND CENTRAL AUDITORY NEUROBIOLOGY

By Robert D. Frisina

Much progress has been made in our understanding of some of the neurobiological changes that take place in the ear and brain as we age—presbycusis (e.g., Gordon-Salant et al, 2010). Many of these structural and functional declines have not yet been incorporated into hearing aid design, fitting, and acclimatization paradigms, which can constrain their effectiveness. These limitations become very apparent in complex acoustic environments that have multiple talkers or other forms of background noise. As new findings from the fields of sensory neuroscience and molecular genetics become incorporated into the design and implementation
Evidence suggests that the auditory efferent system helps improve the perception of signals in background noise.

Robert D. Frisina, PhD, is with the Otolaryngology, Neurobiology and Anatomy, and Biomedical Engineering Departments at the University of Rochester Medical School, Rochester, NY.

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When older adults complain of hearing difficulty the first thing that typically comes to mind for an audiologist is the loss of audibility, and an audiogram that is typical of presbycusis—a sloping, high-frequency hearing loss. But for some older adults, audibility is not the problem. A cognitive psychologist, therefore, might approach this problem differently, questioning if the problem is attributable to attention, memory, or other cognitive processes. Biologists might approach this situation differently by examining the structural and metabolic changes that take place with age, and how they introduce distortion to the signal.

Another approach is to examine how sound is being processed, physiologically, from the ear to the brain. Experiments can be designed to determine how sound is processed without attention, memory, and other cognitive processes. Just as the auditory brainstem response can be used to estimate auditory thresholds, as well as assess the integrity of the central auditory system, including the brainstem, other electrophysiology tools are being used to assess how aging affects the transduction of sound all the way to cortex. In this respect, evoked response patterns show how age affects the transduction of sound automatically in the absence of cognitive demands. A typical finding using this approach is that sound takes longer to process, resulting in longer latencies (Tremblay et al, 2004). This problem is exacerbated when the sounds are complex and contain rapid timing changes that help distinguish one speech sound from another (Tremblay et al, 2003).

Interestingly, when speech sounds or tones are slowed down, the difference between younger and older adults is reduced and the brain pattern becomes more similar to younger adults (Tremblay et al, 2004). This finding on its own is illuminating because it supports the requests made by older individuals to slow down the speed of speech so they can hear better. Perhaps neurons in the aging brain fatigue and are less able to fire at rates of speech that are easily processed in younger auditory systems? Older adults also have more difficulty integrating the acoustic content received at both ears (Ross et al, 2007). For example, the brain’s ability to detect interaural timing cues that are used to help separate signals from noise as well as localize the source of sound also decline with advancing age. These examples are representative of only a few situations where age-related biological changes in the brain have been shown to negatively impact central auditory processes. More can be found in book chapters by Tremblay and Burkard (2007) as well as Ison et al (2010).

So how does the previously mentioned research relate to auditory rehabilitation? If the evoked neural patterns of younger and older adults had been similar to one another, one theory might be that older adults have the same physiological capacity to encode sound but that the breakdown might result from how sound is being integrated into communication. In other words, communication problems might be the result of higher-level cognitive processes, and rehabilitative efforts should be designed with these points in mind. But the fact that neural response patterns in aging adults are significantly different from their younger counterparts would suggest that rehabilitation efforts should be aimed at both sensory and cognitive components of communication.
Numerous animal studies have shown that the neural patterns in the cortex, reflecting sensory input, can be modified with training (Recanzone et al, 1993). Similarly, training exercises have been designed to improve integration of different sounds, including improvement of a person’s ability to attend to sound while ignoring other competing signals. For this reason, there is interest in determining if the physiological codes that represent different aspects of sound processing can be modified with training. Even though the physiological effects of training on the brains of older adults with hearing loss have yet to be defined, the current state of knowledge can be included when counseling older adults with hearing loss.

It is important for older adults to understand that aging not only affects sound level and audibility but also the way sound is processed in the brain. Even without specific diagnostic tests, or electrophysiological measures, it is probably safe to assume that biological changes affecting sound transduction and temporal encoding are contributing to the communication difficulties experienced by aging clients. Sharing this information with older adults can help establish realistic expectations, recognizing that while a hearing aid will assist with audibility, there will still be timing problems in the brain that can interfere with perception. This information can also be beneficial to the significant other, who is looking to the hearing aid as a solution. Most importantly, this knowledge validates the complaints of a patient and reinforces why it is important to use other strategies (e.g., reduce surrounding noise, request people to speak slower) while using their hearing aids.

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**AGE-RELATED CHANGES IN COGNITION: IMPLICATIONS FOR SPEECH PERCEPTION**

By Mitchell S. Sommers

Under favorable listening conditions, such as in quiet environments, age-related hearing loss is the principal factor contributing to the speech perception difficulties of older adults (Humes et al, 1994). However, under more adverse conditions, such as in environments with noise or reverberation, impaired cognitive abilities associated with aging may also contribute to poorer speech understanding (CHABA, 1988). In the current work, we investigated the role of one cognitive ability, inhibition, as a possible contributor to impaired spoken word recognition in older adults.

**Inhibition** refers to the ability to ignore or inhibit information that was initially activated but is no longer relevant for task performance. Inhibition was selected as the focus of the study because models of speech perception suggest that to correctly identify a target word, listeners must increase activation levels on memory representations of the target item and inhibit activation on phonologically similar competitor items (Sommers, 1996). Most importantly, considerable evidence suggests that healthy older adults have reduced inhibitory abilities relative to younger adults (Hasher and Zacks, 1988) and that...
older adults with Alzheimer’s disease have even greater inhibitory deficits than healthy older adults (Sommers, 1996). We examined the importance of inhibitory abilities for speech understanding by comparing identification performance for words that require only small amounts of inhibition (i.e., “easy” words with few competitors) versus those that require substantial amounts of inhibition (i.e., “hard” words with many competitors) in young adults, healthy older adults, and individuals with Alzheimer’s disease.

In the first experiment, we compared the ability of young adults (18–25 years) with normal hearing and older adults (older than age 65) with clinically normal hearing to identify words that differed in the number of competitors (i.e., number of similar sounding words). Easy words were target items (e.g., young) that had few competitors and therefore required minimal inhibition. Hard words were target items (e.g., cat) that had many competitors.

In the first experiment, we compared normal-hearing older and younger adults’ ability to identify easy versus hard words in background babble. We also used an auditory version of the Stroop color-naming task to assess inhibitory abilities and then investigated whether those individuals with the poorest inhibitory abilities also exhibited the most difficulty with hard words.

In the second experiment, we compared identification of easy and hard words for healthy older adults and Alzheimer’s patients who were matched on age and hearing ability but who differed in terms of their inhibitory abilities (with the Alzheimer’s patients exhibiting poorer inhibition). We consider this a particularly strong test of the role of inhibition in speech perception because it allows us to compare individuals who differ on inhibitory abilities but not on age or hearing.

In the first experiment, older adults with clinically normal hearing performed similarly to young adults in identifying easy words (with minimal inhibitory demands) but were significantly impaired on their identification of hard words. Also consistent with the importance of inhibition, older adults were approximately 20 percent more likely than young listeners to mistake a target item with a phonologically similar competitor, presumably because impaired inhibitory abilities made it more difficult to reduce activation on these competitor words. Measures of inhibitory abilities correlated moderately ($r = .56, p < .01$) with performance on hard but not easy ($r = .03, p > .7$) words. In the second experiment, healthy older adults and individuals with Alzheimer’s disease exhibited similar performance in identifying easy words, but the Alzheimer’s group was significantly impaired on identification of hard words.

The current results suggest that measures of audibility alone may not adequately predict the speech perception abilities of older adults under more naturalistic listening conditions. Instead, assessing at least one cognitive capacity—inhibition—may increase audiologists’ ability to predict the speech perception abilities of this population. Although the current methodology used to assess inhibition was relatively time-consuming (approximately 20 minutes), shorter versions could be developed and included as part of a comprehensive battery of sensory and cognitive assessments. Inclusion of measures of cognitive as well as sensory abilities would provide a more comprehensive picture of the speech perception difficulties of individual clients and could serve as one basis for devising appropriate rehabilitation strategies.

Mitchell Sommers, PhD, is with the Department of Psychology at Washington University, St. Louis, MO.

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IMPLICATIONS OF COGNITIVE FACTORS FOR REHABILITATION

By M. Kathleen Pichora-Fuller

Audiodists have become increasingly interested in how cognitive factors could alter our approaches to planning, implementing, and evaluating rehabilitation. Rehabilitation includes the provision of hearing aids as well as skill training and other therapies.

There are five main reasons to consider cognitive factors in rehabilitation. First, from an ecological perspective, the problems that challenge people living with hearing loss as they try to communicate in everyday life cannot be explained only in terms of hearing impairment. Second, age-related sensory declines may exacerbate or masquerade as cognitive declines, including problems with remembering and/or comprehending spoken language. Third, the ability of older adults to use supportive context to compensate for declines in processing reduced sensory information offers hope for new rehabilitative interventions. Fourth, cognitive factors have been related to benefit from hearing aids, especially technology with fast-acting, complex signal processing (for a review see Pichora-Fuller, 2009). Finally, maintaining good hearing health may contribute to preserving good cognitive health, insofar as communication and social interaction help to facilitate active healthy lifestyles (Pichora-Fuller, 2010). In general, a better understanding of cognitive factors could enable hearing health professionals to connect what we know about hearing loss as a sensory problem to what our patients tell us they experience as social problems.

There are many puzzles that perplex rehabilitative audiologists, and the solution to some of these puzzles may be provided by a better understanding of the cognitive factors involved in listening. Three categories of cognitive processing that decline with age are working memory, speed of processing, and attention. Inter-individual and intra-individual differences in working memory may explain why one person may understand speech or benefit from amplification more than another person when both have the same audiogram and hearing aid fitting (Pichora-Fuller, 2007). Speed of processing is usually slowed with aging, and it may explain why people complain that it is effortful to listen even when words are recognized accurately. For example, in a recent study in which the online moment-to-moment recognition of words was measured using eye-movement tracking, listeners needed more time to differentiate target words from competitors when the words were presented in noise, and older adults needed more time than younger adults when the target and competitor words rhymed, presumably because the unique onset phonemes were sufficient for younger adults to recognize the target words, whereas older adults engaged in more holistic processing of the words before the targets were distinguished from competitor words (Ben-David et al, in press).

Attention may explain why performance on clinical speech-in-noise tests does not predict well how individuals perform in realistic situations, such as when attention must be divided or switched in multitalker conversations. In studies of auditory spatial attention, listeners successfully identified the words in a target sentence presented simultaneously with two competing sentences when they were certain about the location of the target; however, listeners performed less well when the location of the target sentence was uncertain or the target was presented at an unexpected location (Singh et al, 2008). Thus, three main categories of cognitive processing known to decline with age—working memory, speed of processing, and divided
attention—may provide clues that will enable audiologists to solve these important puzzles in rehabilitation.

Much has been learned over the last decade about how cognitive measures may be related to individual differences in ability to understand speech in noise and to benefit from hearing aids, but much remains to be learned. Which cognitive factors should audiologists measure, and how would cognitive measures be used? For example, would they be used to select treatment options and/or to evaluate outcomes? Would cognitive measures be used to customize new signal processing technologies based on cognition or plan auditory training? New tests might contrast the consequences to speech understanding of informational masking by meaningful speech compared to energetic masking by continuous noise, or use more complex spatial displays and tasks involving uncertainty about the location of a speech target in the display. Further research will be needed concerning brain plasticity and how context and knowledge are deployed when the frontal lobe is engaged in auditory learning. Finally, future directions in rehabilitation should concern how to harness hearing rehabilitation in initiatives to promote cognitive health in old age.

M. Kathleen Pichora-Fuller, PhD, is a professor of psychology at the University of Toronto, Ontario, Canada.

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Keynote Speaker
James Kaltenbach, PhD, Cleveland Clinic

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Women and minorities are strongly encouraged to register.
The University of Washington (UW) started organizing our Student Academy of Audiology (SAA) Chapter in January 2009, with chapter status granted in September of that year. The Department of Speech and Hearing Sciences at UW has an AuD program, with class numbers ranging from 10 to 13 students. Currently, 40 percent of our students are SAA members! As founding officers, we were excited to make SAA a part of our colleagues’ priorities. Over the past year, our main goals included community outreach, recruitment, and student interaction among the various years of our program.

We started the 2009–2010 academic year performing hearing screenings in local elementary and middle schools to help identify hearing loss among students. We followed that activity with involvement in a community outreach project called Woodstick, at which over 200 drummers gathered and attempted to set a world record, playing the same song at the same time alongside other groups of drummers from across the world. Our goal at this event was to educate participants regarding noise-induced hearing loss and encourage the use of the free hearing protection, which we provided.

In January 2010, we had a bake sale to raise funds for our chapter and directly benefit our students by subsidizing the national SAA membership by almost 50 percent. In the spring, we partnered with Dr. Richard Folsom, professor and department chair, to work with the Special Olympics Healthy Hearing program in Washington. For this event, we rallied undergraduate and AuD student volunteers to participate in the program. Next year, we plan to take an even larger organizational role at Healthy Hearing by managing supplies and increasing volunteer presence at the event.

This past summer, we repeated the hearing screening program in the public schools and continued our mentorship program to our new first-year AuD students. This proved to be very successful and helpful to our first-year students, and, as a result, we are continuing this tradition. Our second-year AuD students are assigned to mentor first-year students to make them feel welcome and answer any questions they may have about our program or the Seattle area. The mentored students from last year have expressed not only their satisfaction with the program but also their excitement to transition into mentors.

For the upcoming school year, we hope to create new outreach opportunities while continuing the involvement in programs from last year.

Jessica Hesson is president of UW’s SAA chapter.
REGISTRATION OPENS NOV 1 2010
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“Best Practice” and the Well-Informed Hearing Aid Patient: Are You Ready?

By David B. Hawkins

My good friend Catherine Palmer is known for speaking her mind and has occasionally been known to “stir the pot” a little, in order to stimulate discussion and critical thinking. She did exactly that in a September/October 2009 Audiology Today article where she suggested that if an audiologist did not employ “best practices” in fitting hearing aids, that perhaps this deficiency represents a violation of the Code of Ethics. The example she used was when audiologists fit hearing aids and do not verify the fitting with probe microphone measurements. At AudiologyNOW! 2010® in San Diego, I heard a lot of conversation, sometimes heated, both within sessions and in the hallways, about Catherine’s article. I would like to present another type of argument in favor of the best practices use of probe microphone measurements, this time from the perspective of a very well-informed patient, Mr. Smith.

Mr. Smith is an intelligent and assertive gentleman who has a mild-to-moderate sensorineural hearing loss. He has decided to obtain hearing aids and has done his homework. He read the audiological literature on the effects of hearing impairment and knows about his reduced residual auditory dynamic range. It is clear to him, as it is to nearly all informed individuals, that the acoustic goal of hearing aids is to make speech sounds audible across the entire frequency range and package the speech signal at an appropriate place within the reduced dynamic range, and yet prevent discomfort from loud sounds.

Having determined what hearing aids should do, Mr. Smith wanted to know how to determine if in fact hearing aids do that. After reading about individual variability in ear canal volume and middle ear impedance, Mr. Smith decided that measurements needed to be made directly on him to determine if the speech signal was audible and in the right place in his dynamic range. What measurements should be made? He went to the Academy and ASHA Web sites and quickly found out that the two professional associations recommended probe microphone measurements to verify and adjust settings on hearing aids.

He found this statement on the Academy Web site,

Prescribed gain from a validated prescriptive method should be verified using a probe microphone approach that is referenced to ear canal SPL.

He found this statement on the ASHA Web site,

In order to determine how the hearing aids are performing for a given client, probe microphone measures should be made unless contraindicated by physical limitations (e.g., size of ear canal, drainage, excessive cerumen, etc.). These guidelines strongly support the use of real-ear measures, when applicable, as the primary method of verifying the performance of hearing aids.

He found similar statements from audiology groups in Australia and Canada. He had also read the recent Consumer Reports article that stated that probe microphone measurements are a “must-have” test in fitting hearing aids.

Mr. Smith was rapidly arriving at some pretty obvious conclusions about what he wanted his hearing aids to do and how that should be determined. He wanted speech sounds to be audible across frequency and comfortably loud. He knew that the only way to know if speech sounds were audible and to adjust the hearing aids to meet this
goal would be to measure amplified speech levels in his ear canal with a probe microphone system. The professional associations recommended this approach and said it represented best practice. Mr. Smith read a probe microphone system manual and found that it takes only 10 minutes to make the measurements that would be needed to adjust his hearing aids appropriately for his hearing loss and his ears.

With this knowledge base, Mr. Smith went for his hearing aid selection appointment. He and the audiologist decided on binaural middle-level digital hearing aids with a variety of good features and adjustments for a cost of $5,000. Two weeks later, Mr. Smith returned for his hearing aid fitting appointment. The audiologist connected the hearing aids to the NOAH software, selected “First Fit,” put the hearing aids on Mr. Smith and asked, "How does this sound to you?" Mr. Smith responded, "Well, I can tell they are turned on, but aren’t you going to make measurements on me to determine that the hearing aids are amplifying like they are supposed to be?" The audiologist responded, “I have chosen a good starting point and I want you to wear them like this for awhile so you can get used to them.”

Mr. Smith, feeling his blood pressure rising, said, “I have a few questions for you:

- Do you know whether speech is audible across frequency and packaged into my dynamic range? (Answer: “Not exactly”)

- Did you know that your professional organizations state that best practice dictates that you make probe microphone measurements with speech signals in order to adjust my hearing aids? (Answer: “Yes, but…”)

- Do you know that it only takes 10 minutes to make probe microphone measurements? (Answer: “Yes, but…”)

- So you used a simulation in a computer software program to set my hearing aids, and you don’t know what they are actually doing in my ears? (Answer: “Well, yes, but…”)

- Do you know whether loud sounds are going to be uncomfortable or not?” (Answer: “I bet they won’t be.”)

Mr. Smith removes the hearing aids and rises to his feet and says,

Let me get this straight. You want me to pay you $5,000 for hearing aids that I will be wearing 14 hours a day for probably the next five years and you are not taking 10 minutes to adjust them in my ear so that you know where speech is being amplified to and that it is audible across frequency. You do not know what these hearing aids are doing in my ears, and you are ignoring what your professional associations recommend for best practice. From what I’ve learned, you don’t deserve my $5,000, and I deserve a better audiologist. I’ll be leaving now.

I believe Mr. Smith does deserve better, and audiologists should be doing the things he is expecting. I would welcome Mr. Smith in my office. Would you? 

David B. Hawkins, PhD, is head of the audiology section and director of the Mayo Clinic Hearing Aid Clinic at the Mayo Clinic Florida in Jacksonville, FL.

Perspectives is an opinion editorial column. The ideas and opinions published in this column are those of the author and not the Academy.
Hearing Impairment in the Baby Boomer Generation—On the Increase?

By Karen J. Cruickshanks and Judy R. Dubno

With the aging of the baby boomer generation (people born in the United States between 1946 and 1964), researchers have been concerned about an epidemic of hearing impairment in older adults. Indeed, some epidemiologic studies based on self-reported hearing impairment found that the prevalence (the proportion of people with a condition in a given population at a designated time) of hearing impairment doubled between 1965 and 1994 (Wallhagen et al, 1997), yet others have reported only small changes between the 1970s and 1980s (Waidman et al, 1995). Some differences among studies may be attributed to a reliance on self-reported hearing impairment (where participants answer questions such as “Do you feel you have a hearing loss?”), rather than using measures based on pure-tone audiometry (Nondahl et al, 1998). Accurate estimates of secular (temporal) trends are critical, given their long-term implications for health-care systems. Large, and possibly growing, numbers of older adults will have poorer communication abilities and reduced quality of life and will need services of audiologists to identify, manage, and treat hearing impairment.

Hearing impairment increases with age, so there will be more people with hearing impairment as the number of older adults increases, due to improvements in survival and the aging of the baby boomer generation. Increases in health conditions, such as diabetes, use of medications that may have ototoxic effects, and increased exposure to noise in recreational settings may also contribute to a growing trend of hearing impairment in older adults. Some estimates suggest that, if prevalence rates are stable, there may be 65 million adults, aged 45 or older, with hearing impairment by the year 2030 (Zhan et al, 2010). This represents a large demand for audiological health-care services in the coming years and a strong imperative for new diagnostic procedures, improved options for treatment and rehabilitation, and methods to prevent, delay, or reverse age-related hearing loss. Current therapies are not sufficiently effective given the low acceptance rates for hearing aids (Popelka et al, 1998).

A recent workshop on research needs sponsored by the National Institute on Deafness and Other Communication Disorders highlighted hearing loss as a leading public health concern and the pressing need for accessible and affordable hearing health care for adults with mild-to-moderate hearing loss (Donahue et al, 2010).

However, there is some good news. A recent report found that the age-specific prevalence of hearing impairment might be declining (Zhan et al, 2010). In this study, the prevalence of hearing impairment for people born in different years (from 1902 to 1962) was compared, controlling for the age when hearing was examined. For every five-year increase in birth year (people born later), the odds of having a hearing impairment were 13 percent lower for men and six percent lower for women, which is a large decline over a generation. As an example, the percentage of individuals with hearing impairment was 50 percent lower among men born in the 1950s than among those born in the 1930s. This secular trend is called a birth cohort effect, meaning that people born in different time periods have different rates of disease. Zhan et al (2010) estimated that, if this trend continues, there will be 51 million adults with hearing impairment by 2030, rather than the 65 million estimated without the birth cohort effect. Although hearing impairment will remain a common condition of aging, 14 million people who might have been affected by hearing impairment will not be affected—an enormous improvement from a public health perspective. To put these numbers in perspective, it has been estimated that smoking cessation has saved the lives of 146,000 men between 1991 and 2003, because of declining rates of lung cancer (Thun and Jemal, 2006).

National data have also shown declines in the prevalence of hearing impairment. Using two sets of data from the National Health and Nutrition Examination and Survey (NHANES, 1971–1973 and 1999–2004), Cheng et al (2009) reported a decline in the prevalence of hearing impairment from 26 to 22 percent between 1969 and

Why would hearing impairment remain stable or even decline over time? Although some risk factors associated with hearing impairment may be increasing (aging, certain health conditions, ototoxic drugs, recreational noise exposures), many positive changes in health, nutrition, behaviors, and the environment have occurred throughout the 20th century. Air and water sources are cleaner, fewer people work in noisy environments with the rise of white collar occupations, government regulations of noise exposure in the workplace were instituted, blood pressure is lower, cholesterol levels are declining, fewer people are currently smoking, and antibiotics and immunizations were introduced to control many common infectious diseases. Although the precise mechanisms underlying age-related hearing loss remain unknown, it is likely that many factors contribute to the changes that occur in the aging auditory system. A large declining temporal trend strongly suggests that exposures to modifiable risk factors are changing, because genetic changes are known to be slow.

In summary, the news for the audiology community is mixed. The good news is that the prevalence of hearing impairment appears to be declining. Nevertheless, even with this decline, the number of people needing hearing health-care services will explode with the aging of the baby boomer generation. There is a pressing need for new approaches to help people preserve good hearing throughout life and to treat hearing impairment once it occurs.

Karen J. Cruickshanks, PhD, is a professor in the Departments of Ophthalmology and Visual Sciences, and Population Health Sciences, School of Medicine and Public Health, at the University of Wisconsin, Madison.

Judy R. Dubno, PhD, is a professor in the Department of Otolaryngology—Head and Neck Surgery at the Medical University of South Carolina, Charleston.

References


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**MOMENT OF SCIENCE**
Payment Restrictions Lifted on Single Vestibular Codes—Effective Oct. 1, 2010

Since January 2010, the American Academy of Audiology, the American Speech-Language-Hearing Association, the American Academy of Otolaryngology—Head and Neck Surgery, and the American Academy of Neurology, have diligently petitioned to lift the National Correct Coding Initiative (NCCI) edits that were incorrectly placed on the individual vestibular CPT codes 92541, 92542, 92544, and 92545. Given that the Centers for Medicare and Medicaid Services (CMS) directs NCCI, these edits were applicable primarily to Medicare beneficiaries.

Together, these four codes comprise the new basic vestibular evaluation, CPT code 92540, and their descriptors are listed. Prior to October 1, 2010, the NCCI edits precluded these codes from being filed individually if fewer than four of the tests were performed. Effective October 1, 2010, if two or three of the following codes are reported for the same date of service by the same provider for the same beneficiary, the -59 modifier, distinct procedural service, should be appended with the individual CPT codes used to bypass the NCCI edits.

Effective October 1, 2010, the corrections to the descriptions of the codes are:

- CPT code 92540 Basic vestibular evaluation, includes spontaneous nystagmus test with eccentric gaze fixation nystagmus, with recording, positional nystagmus test, minimum of 4 positions, with recording, optokinetic nystagmus test, bidirectional foveal and peripheral stimulation, with recording, and oscillating tracking test, with recording. (Do not report 92540 in conjunction with 92541, 92542, 92544, or 92545)
- CPT code 92541 Spontaneous nystagmus test, including gaze and fixation nystagmus, with recording. (Do not report 92541 in conjunction with 92540 or the set of 92542, 92544, and 92545.)
- CPT code 92542 Positional nystagmus test, minimum of 4 positions, with recording. (Do not report 92542 in conjunction with 92540 or the set of 92541, 92544, and 92545.)
- CPT code 92544 Optokinetic nystagmus test, bidirectional, foveal or peripheral stimulation, with recording. (Do not report 92544 in conjunction with 92540 or the set of 92541, 92542, and 92545.)
- CPT code 92545 Oscillating tracking test, with recording. (Do not report 92545 in conjunction with 92540 or the set of 92541, 92542, and 92544.)

CMS Issues New Audiology Transmittals

On May 28, 2010, the Centers for Medicare and Medicaid Services (CMS) issued two new transmittals to serve as a clarification to Transmittal 84, issued April 2008. The new transmittals—129 and 2007, with an effective date of July 23, 2010—clarified or addressed the following:

- Contractors shall pay for services requiring professional skills when personally furnished by an audiologist, physician or non-physician provider (e.g., nurse practitioner, physician’s assistant).
- Services performed by an audiologist must be billed under the NPI of the Medicare-enrolled audiologist.
- Services performed by an audiologist in an inpatient facility will have those services filed under the facility’s NPI.
- If there has been a change in the patient’s audiologic condition, even when a recent evaluation took place, a reevaluation to determine appropriate medical or surgical treatment or to evaluate the results of treatment is appropriate. The ordering physician dictates the schedule when the information is necessary.
- Only technicians, under the direct supervision of a physician, may perform those services with a technical component. Direct supervision requires the physician being in the facility and available if any concerns arise.
- The qualifications of technicians need to be available if the Medicare contractor requests them.
- Contractors have the option for payment of Category III CPT codes for computer-assisted tests.
- When a physician referral does not name specific tests, audiologists may select the appropriate test protocol.
- Coverage and payment are determined by the reason the tests were performed.
- Audiologists can not opt out of Medicare.
In a number of significant ways, the American Board of Audiology continues to expand its scope, visibility, size, and reach. Consistent with the American Academy of Audiology effort to serve as the professional home for audiologists around the world, the ABA Board recently approved a policy for ABA certification for international audiologists. While the ABA has for many years had a policy for those practicing internationally, the Board recently approved a separate credential or “Board Certification in Audiology—Int’l” to better serve the needs of the international community. The new credential recognizes those audiologists practicing solely outside the United States who meet ABA international requirements.

Briefly, to be eligible for the ABA international credential, the applicant must:

1. Possess a doctoral-level degree in audiology from a regionally accredited university program in

Yvonne S. Sininger, PhD
Member, ABA Board of Governors

Hails from: Los Angeles, CA, originally from Munster, IN

Year Certified: 1999

Degrees: BA and MA from Indiana University and PhD from University of California, Santa Barbara and San Francisco

What I Do for the ABA: As a member of the board, I give general input and vote on new policies and applications for certification. I am particularly interested in the initiative to provide specialty certification for pediatric audiologists. As such I have agreed to serve as the leader of the Pediatric Audiology Sponsorship Advisory Group for the board.

In My Free Time: I dream of having more free time, but when I can find some, I enjoy music of all kinds and occasionally play the guitar. My husband, Bill, and I enjoy cruises on our sailboat and traveling of all sorts.

Quote to Live by: I like to think I follow the teachings of the great philosopher Spike Lee who said, “Do the Right Thing.”
the United States or hold an internationally equivalent academic credential;

2. Meet licensure, registration, and examination requirements in his or her jurisdiction of practice;

3. Complete 2,000 hours of professional audiology practice during a three-year period after completion of both academic coursework plus 375 hours of direct patient care; and

4. Comply with the ABA Code of Ethics.

International certificants are eligible to be certified in any ABA specialty, such as cochlear implants or the soon-to-be-completed pediatric audiology, after meeting the ABA-designated eligibility requirements and passing the ABA examination for the specialty.

Board Certification in Audiology—Int’l certificants who seek an ABA credential within the United States are required to take a national examination in audiology approved by the ABA and meet all other ABA requirements for Board Certification in Audiology within six months of practicing audiology within the United States. For complete details on this international category of certification, visit the ABA Web site at www.americanboardofaudiology.org.

This new policy will allow those audiologists in countries with academic and clinical systems that differ somewhat from the United States to pursue an ABA credential of excellence. As an example, international cochlear implant specialists from two different continents sat for the recent Cochlear Implant Specialty Certification examination administration in San Diego following AudiologyNOW! This professional credential, demonstrating specialized knowledge with this advanced technology, is now broadening its scope.

In response to input from the audiology community, the ABA will now offer a regional administration of the Cochlear Implant Specialty examination. The first of the more accessible examinations will be held in the Greater Boston area in October.

In summary, with a steadily increasing number of certificants (over 1,600) the ABA continues to grow and expand in a variety of ways. Keep reading this column for news on the introduction of the second ABA specialty certification in pediatric audiology.

Visit the ABA Web site to watch ABA Chair James “Jay” Hall discuss the ABA and ABA certification. In the coming months, see a number of your fellow audiologists discuss the value of ABA certification. Upcoming clips include Patti Kricos, Bettie Borton, Jim Beauchamp, and more!

Visit www.americanboardofaudiology.org for more information and to download an application.
### Upcoming Web Seminars

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<td>SEPTEMBER</td>
<td><strong>The Art of Interpersonal Communication in Audiology Practice</strong></td>
<td>Raymond H. Hull, PhD</td>
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<td>OCTOBER</td>
<td><strong>Promoting Your Practice and Audiology</strong></td>
<td>Patricia Gaffney, AuD, and Megan Ford, AuD</td>
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<td><strong>Assessing MP3 Player Use in the Clinic: Measurement and Counseling</strong></td>
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<td>DECEMBER</td>
<td><strong>Evidence for the Expansion of Pediatric and Adult Cochlear Implant Candidacy Criteria</strong></td>
<td>René H. Gifford, PhD</td>
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### Other eAudiology CEU Programs

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<tr>
<td>JAAA - EARN .2 CEUS PER ISSUE</td>
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<tr>
<td>At least eight learning assessments available in the 2010 issues of JAAA.</td>
<td>Up to 1.6</td>
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<tr>
<td>ETHICS “GREEN BOOK”</td>
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<td>The chapters and appendices are grouped into nine modules with assessments for each.</td>
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Academy News

By Melissa Sinden

It’s hard to believe that after months of deliberation, hearings, and markups, resulting in passage of a 906-page bill by Congress, the real work is just beginning. It is now up to governmental agencies to determine the best methods of implementing policies set forth by Congress, and the road ahead is long.

The Patient Protection and Affordable Care Act (PPACA) reformed many aspects of health insurance in the United States. Implementation dates were staggered, but full compliance for these reforms is called for by 2014. It is worth noting, however, that grandfathered health plans are exempt from some implementation standards.

So what exactly is a “grandfathered” health plan? Grandfathered plans are those that existed on March 23, 2010. These plans are required to provide the new benefits described in the health care reform bill but are exempt from many of the regulations. Plans are allowed to make routine changes without compromising their grandfathered status. Plans will lose their status if they significantly cut benefits or increase out-of-pocket spending for beneficiaries. Transparency provisions were put in place to protect against the abuse of their grandfathered status.

If a plan undertakes one or more actions that would result in loss of grandfathered status, consumers of the plan will gain coverage of recommended prevention services with no copay, and additional patient protections such as guaranteed access to ob-gyns and pediatricians.

Regardless of status, all plans must provide the following benefits to consumers for plan years starting on or after September 23, 2010:

- No lifetime limits on coverage for all plans;
- No retraction of coverage when an individual becomes sick;
- Parental coverage of young adults expanded to 26 years old.
• No coverage exclusions for children with preexisting conditions; and
• No “restricted” annual limits (the limit on coverage).

What does this mean? The 133 million Americans with employer-based, private health insurance will likely not experience much change. Most of these plans already afford the benefits outlined above, including access to ob-gyns and pediatricians. Conversely, small business plans, which cover roughly 43 million Americans, tend to make significant changes to cost sharing, employer contributions, and health insurance issuers, and, as such, those plans are more likely to lose their grandfathered status. Finally, the greatest impact of the changes set forth by PPACA will most immediately be felt by the 17 million Americans who obtain coverage in the individual health insurance market. According to the Department of Health and Human Services, the historically high turnover rate in this market will result in access to new benefits for consumers of these products.

As with most public policy, the “devil is in the details.” Academy staff and consultants will continue to work with our allies in Washington, DC, to closely monitor regulations as they are defined and ensure our members are kept up-to-date as the implementation of these historic reforms take place.

From the Kaiser Family Foundation, here is a timeline for health-care reform implementation.

First Year

• Parental coverage of young adults expanded to 26 years old.
• Health plans prohibited from exclusions for children with preexisting conditions.
• No retraction of coverage when an individual becomes sick.
• Restricted annual limits and lifetime limits on benefits prohibited.
• A temporary reinsurance program designed to offset costs of coverage for companies that provide early retiree health benefits for those aged 55–64.
• Small businesses (those with fewer than 50 employees) receive tax credits financing 35 percent of health-care premiums; increases to 50 percent by 2014.

January 1, 2011

• Medicare will provide free annual wellness visits and personalized prevention plans. New plans required to cover preventive services with no copay.
• Tax-free benefits plan for small business to be created.
• Medicare payroll tax will increase from 1.45 percent to 2.35 percent for individuals earning more than $200,000 and married filing jointly above $250,000.

January 1, 2012

• Contributions to flexible savings accounts limited to $2,500 per year.
• 2.9 percent excise tax on medical devices—exempted are eyeglasses, contact lenses, and hearing aids.

January 1, 2014

• Nondiscrimination in health care. Prohibits plans from discriminating against health-care providers acting within their scope of practice.
• Individual mandate; individuals without acceptable coverage will pay a penalty of $95 in 2014, $325 in 2015, $695 (or up to 2.5 percent of income) in 2016. Penalty amount is half for each child with a family cap of $2,250.
• Companies with 50 or more employees must offer coverage or pay a penalty of $2,000 per employee after the first 30.
• Insurers cannot deny coverage for preexisting conditions and cannot charge higher rates because of health status, gender, etc.
• Health insurance exchanges open in states.
• Medicaid eligibility increases to 133 percent of the poverty level. Credits are available to those whose income is above Medicaid eligibility and below 400 percent of the poverty level who do not qualify for other coverage.

January 1, 2018

• Taxing of “Cadillac” plans. ①

Melissa Sinden is the senior director of government relations with the American Academy of Audiology.
In Memoriam: Dr. Briseida DeLeon Saez Northrup (1952–2010)

By Phillip Wilson and Jackie Clark

Dr. Briseida “Brisy” DeLeon Saez Northrup, recipient of the Academy’s 2010 Humanitarian Award, died on July 3, 2010, after a two-and-a-half-year battle with cancer.

Dr. Northrup worked as a trilingual audiologist (Spanish, English, ASL) at the University of Texas at Dallas Callier Center for Communication Disorders since July 1979. She started a structured protocol for diagnostic audiometry and hearing aid dispensing in her native Panama, where she created a foundation—La Fundacion Pro Re/Habilitation Auditiva y Oral del Nino—to support the treatment of children with hearing loss. In recognition of Dr. Northrup’s commitment to these children, the AAA Foundation made a gift to La Fundacion in April. This contribution was made to honor her receipt of the Humanitarian Award at AudiologyNOW! this past spring.

Over the years, Dr. Northrup traveled many times to Panama with AuD students from UT Dallas and other universities to provide hearing services in remote regions of Panama. She also recruited audiology and otology professionals from the United States to make trips to Panama for treatment and educational purposes. Because of Dr. Northrup, many children have received hearing aids and cochlear implants in Panama.

In 2008, Dr. Northrup was elected president of the Pan American Society of Audiology (PASA). As president of PASA, she connected colleagues from Central and South America with leaders in audiology from North America and Europe. She was the first chair of the American Academy of Audiology Diversity and International Exchange Committee. During her tenure, she initiated and coordinated the Global Village, a program developed to translate audiological terms from English to both Spanish and Portuguese. In her acceptance speech for the Academy’s Humanitarian Award at AudiologyNOW! 2010® in San Diego, she spoke of the many people in developing countries who are unable to obtain even minimal hearing health care saying, “It is this global dilemma that has made the American Academy of Audiology sensitive to the needs of those involved in humanitarian audiology and has incited so many of you, including students, to travel to other countries to help the hearing impaired through education, donations of equipment, hearing aids, batteries, and participation in the process of identification and treatment.”

To honor her life and commitment to humanitarian service in audiology, the Callier Center for Communication Disorders at UT Dallas has established the Dr. Brisy Northrup Clinical Externship in Audiology. Funding for this externship will support annual audiology trips to Panama for participating faculty, externs, and students to continue Dr. Northrup’s mission of training students and providing audiological services to the people in her home country.

If you would like to make a gift in memory of Brisy, send your contributions to The Brisy Northrup Fellowship Fund, at UT Dallas Callier Center for Communication Disorders, 1966 Inwood Road, Dallas, TX 75235.
Academy Honors—Call for Nominations 2011

The Academy Honors Committee encourages all Academy members to identify those colleagues they believe have made significant contributions to the audiology profession. If you know someone who should be recognized for his or her efforts, please take the time to submit a nomination packet to the committee for review. All nominations must be received by September 24, 2010.

Nomination Process
To nominate an individual, a nomination packet that includes a letter of nomination addressed to the committee chair and an up-to-date full curriculum vita of the nominated individual should be submitted by the deadline. Self-nominations will not be accepted. The nomination packet should include sufficient documentation as to how the nominee meets the specified criteria for the selected category. Additional letters (3–5) in support of the nomination and any other documentation that will assist the Honors Committee in their decision are required. Nomination packets will be accepted in hardcopy or electronic form. Hardcopy packets should be mailed to Academy headquarters and electronic nomination packets may be sent by e-mail to Sarah Sebastian at ssebastian@audiology.org.

Nominations in all categories, except Distinguished Achievement, have a three-year life span, after which an interim of at least one year is required before resubmission. Additional supporting data, if available, should be submitted to the Honors Committee each year a nominee is being considered.

Selection of Honorees
The committee will consider all nominations, and awards will be made to qualified candidates who receive a majority vote of the voting members of the committee pending final approval of the Academy Board of Directors. Not all awards may be given each year. Selected recipients will be presented at AudiologyNOW! in Chicago, IL, April 6–9, 2011.

Guidelines
Nominations should be made in a letter format with a full curriculum vita and 3–5 letters of recommendation of the candidate enclosed. The nomination and all supporting materials must be received at Academy headquarters by September 24, 2010.
Are you in the minority? When it comes to Academy member giving, being in the minority is a good thing... because it is only a small minority of audiologists who support the AAA Foundation with a philanthropic gift each year.

The AAA Foundation’s mission is to promote philanthropy in support of research, education, and public awareness in the hearing sciences. As members of the audiology community, we are committed to creating a culture of giving in our profession. Over the last 10 years, we have received generous gifts from many, including regular annual contributions from hundreds of members of the Academy. This support has enabled us to accomplish great things for audiology: we now fund many student-focused initiatives, support educational opportunities for all audiologists, sponsor research grants, and collaborate with the Academy on consumer-focused public awareness projects.

But we could do more. Foundation statistics on donor giving indicate that only 10 percent of the Academy membership has given to the Annual Fund. In the last fiscal year, the average donation to the Foundation was $114.00. Imagine what we would accomplish with over $1 million. That’s what we’d raise if the other 90 percent made a yearly tax-deductible gift!

So help us make the minority a generous majority... and support philanthropic projects in your profession with your gift to the AAA Foundation.

If you’ve made a Foundation donation recently, we thank you! If you haven’t, call us at 703-226-1048 or visit audiologyfoundation.org to make a gift online.

Minority Report: A Small Group of Donors Makes a BIG Difference

Education Enhanced by STAR Program Funding

Recognizing a need within the student community, the AAA Foundation launched its Student Travel Awards Reimbursement (STAR) program in 2010. The STAR program offers outstanding audiology graduate students funding to support their participation in professional meetings that enhance and supplement traditional classroom and clinical educational experiences. Selected students 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. This program was funded in part with a gift from Oticon, Inc.’s Hearing with Our Hearts fundraiser.

This spring, the Foundation awarded its first STAR scholarships to four outstanding students. We are pleased to recognize them here and share their conference experiences with you.

Cochlear Implantation in Adults and Children Conference

Student Attendee: Ayrel Gonzalez, Kent State University

“In March, I was able to attend a conference on Cochlear Implantation in Adults and Children in the Netherlands. It was a great opportunity for me to meet audiologists from around the world, as well as learn more about the audiologist’s role in the cochlear
implantation process and on the team. Funding from the STAR program helped make this occasion possible.”

National Hearing Conservation Association Conference
Student Attendee: Quintin Hecht, Illinois State University
“I am greatly appreciative of the AAAF’s STAR program, as it has aided me in my efforts to expand upon my education. The 2010 NHCA conference was a wonderful experience that allowed me to learn more about the prevention of noise-induced hearing loss and its many applications in our society. The other students and professionals in attendance provided valuable insight and knowledge regarding hearing conservation. Thank you for helping make this possible!”

American Balance Society Conference
Student Attendee: Melissa Mooney, AuD, Washington University School of Medicine
“Thank you for making it possible to attend the American Balance Society Conference. I am so lucky to have had the chance to work with the other members of the Board of Directors. These are the professors who have written my textbooks and are the minds behind cutting-edge vestibular research! This was the opportunity of a lifetime for an audiology student with a special interest in the vestibular system. Thank you for adding to my scholastic experience by assisting my attendance of this out-of-the-classroom event.”

Association for Research in Otolaryngology Mid-Winter Meeting
Student Attendee: Christopher Spankovich, AuD, Vanderbilt University
“The STAR program provided me the means to attend the ARO Mid-Winter meeting at a most critical time. Usually, travel awards require the attendee to participate in a poster/podium presentation. Unfortunately, at the time, I was in the middle of data collection for my dissertation and did not have data suitable for presentation. Nonetheless, it was important I attend this meeting to investigate potential postdoctoral opportunities. Thanks AAAF!”

If you would like to make a restricted gift to the STAR program, which enables students to attend the many worthwhile professional meetings available, call the Foundation office at 703-226-1048. If you would like to apply for a STAR scholarship, the next deadline is January 1, 2011. Visit www.audiologyfoundation.org for more information.

State Academies! Apply Now for Science Fair Award Funding
Looking for a way to recruit the audiologists of tomorrow? Attend your local or state science fair! Science fairs are a great way to introduce students to the audiology profession while recognizing research excellence in the hearing sciences. To facilitate nationwide involvement, the Foundation is allocating funds to state academies to provide awards for high school science fair participants. Don’t miss this exciting chance to share your rewarding profession with a future hearing scientist! For information on recruiting the future of audiology or to apply, visit www.audiology.org/resources/recruitment or www.audiologyfoundation.org.

AAA Foundation board member Dick Danielson presents student Ali Hoffer with an award for her project, “Hearing, Balance, and Their Interactions.”

Travel Awards for 2011 ARO Conference
The Association for Research in Otolaryngology (ARO) announces that applications are now being accepted for travel awards for audiologists and audiology students to attend the 2011 ARO Mid-Winter Meeting, February 19–23, 2011, in Baltimore, MD. Awards of $500 each are being offered to defray travel and lodging costs associated with attendance at the ARO’s annual meeting. These awards are funded by the American Academy of Audiology Foundation, and all applications must be submitted by October 15, 2010. Visit www.audiologyfoundation.org for more information.
California
DIRECTOR OF AUDIOLOGY
DEPARTMENT OF OTOLARYNGOLOGY -HEAD & NECK SURGERY
UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

The University of California, San Francisco is searching for a Director of Audiology. This individual will oversee all aspects of audiology and vestibular testing at UCSF. Candidates should have extensive experience as a clinical audiologist, and eligibility for state licensure, as well as administrative experience in a Medical Center setting. The Director is expected to have a PhD with a record of publications. In this full-time position, the Director of Audiology will be eligible for the Health Science Clinical Professor Series, will be expected to maintain a clinical practice, and will participate in clinical training and research programs for medical students, residents and AuD candidates.

Please forward a letter of inquiry and C.V. to:
Lawrence R. Lustig, MD
c/o Wendy Ma
Director, Otology, Neurotology and Skull Base Surgery
Chairman, UCSF Search Committee
Department of Otolaryngology-Head and Neck Surgery
University of California, San Francisco
2233 Post Street, 3rd Floor, Box 1225
San Francisco, CA 94115
Telephone (415) 885-7499

UCSF seeks candidates whose experience, teaching, research, or community service has prepared them to contribute to our commitment to diversity and excellence. UCSF is an Affirmative Action/Equal Opportunity Employer. The University undertakes affirmative action to assure equal employment opportunity for underutilized minorities and women, for person with disabilities, and for covered veterans.

Search number # M-3327

Donations Needed
DONATIONS NEEDED of new or used audiometers and hearing aids for the Audiology for Mali project. Donations are tax-deductible and will be hand-delivered January 2011 to hospitals and clinics in Mali, Africa. For more information, e-mail pgiertson@hotmail.com.

Pacific Northwest
Experienced audiologist wanted for 20+ year established Pacific Northwest hearing aid manufacturer. Great opportunity, with primary focus on business development. Benefits package includes vacation, medical, and 401k. For consideration, fax or e-mail resume with salary history to: Director of Operations, Fax (360) 736-2652, e-mail vocallabl@comcast.net. Replies strictly confidential. vocallabl@comcast.net

CIVILIAN OCCUPATIONAL AUDIOLOGIST
Bureau of Medicine and Surgery

Positions are immediately available in these locations:
Camp Pendleton, CA       Norfolk, VA
Lemoore, CA              Oak Harbor, WA
Pearl Harbor, HI         Gulfport, MS
Guam

These positions offer the opportunity to independently handle a broad spectrum of occupational audiology, hearing conservation, and preventive medicine work in a medical center, hospital, or clinical environment.

Exceptional salary, financial, and work-life benefits included like these:
✓ Lifetime health insurance (Navy pays portion of your premium, you pay w/pre-taxed dollars) you can carry into retirement and include your spouse.
✓ Health/dependent care flexible spending accounts.
✓ Retirement plan w/401K-type investment, employer matching, and flexibility to retire between 55-57 w/10 years of employment.
✓ Life insurance (Navy pays portion of your premium).
✓ Long term care insurance.
✓ 13-26 paid vacation days, 13 paid sick days, 10 paid Federal holidays, and vacation/sick days can carry over year to year.
✓ Employee friendly workplace flexibilities.

Overseas positions offer these additional benefits and more!
✓ Potential monetary allowances to help defray certain expenses such as: payment of permanent change of station costs, temporary lodging and living expenses, tax-free cost of living allowance, salary advance up to 3 months.
✓ DOD schools that provide primary and secondary education.
✓ Special medical or educational services for family members.
✓ Access to base facilities including medical facilities, commissary, and Exchange privileges.
✓ Local and cultural events organized and hosted by the Morale, Welfare, and Recreation Department.

Requirements
✓ Completion of accredited master’s degree that included 18 semester hours in audiology with approved clinical practice.
✓ Current audiologist license awarded by any state.
✓ CCC-A or ABA Board Certification.
✓ At least one year of professional audiologist experience, preferably in occupational audiology.
✓ U. S. citizenship.
✓ Some positions may require ability to obtain CAOHC Certification as a course director.

Apply Now!
■ E-mail your resume to medjobs@navy.mil and insert 0881AT in your subject line.
OR
■ Mail your resume to
  U. S. Department of Navy
  111 S. Independence Mall East
  Attn: BUMED/0881AT
  Philadelphia, PA, 19106

For more information, contact JoAnn Toliaferro at 215-408-5268.

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

HEAR Careers

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Resume search included with job posting.

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

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October Is
National Audiology Awareness Month
&
National Protect Your Hearing Month

What Is an Audiologist?

au·di·ol·o·gist
ȯ-dē-'ä-lə-jist
noun
The professional who specializes in evaluating, diagnosing, and treating people with hearing loss and balance disorders.

Follow the Signs
Protect Your Hearing

Walk Away from the Noise
Turn Down the Volume
Wear Ear Protection

October Is National Protect Your Hearing Month
Visit www.HowsYourHearing.org to find an audiologist near you or to learn more about a career in audiology.

American Academy of Audiology

Use the FREE tools and resources on the Academy Web site to raise awareness about audiology and promote your practice.

Resources available at www.audiology.org, search key words “audiology awareness.”
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