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AUDIOLOGY TODAY

The magazine of, by, and for audiologists

AUDIOLOGY CARE AT THE END OF LIFE

THE POWER OF SOCIAL MEDIA

Drive the Hearing Health-Care Conversation

INTERVIEW WITH DR. TERESA CHING

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Academy News

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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AUDIOLOGY TODAY

The American Academy of Audiology promotes quality hearing and balance care by advancing the profession of audiology through leadership, advocacy, education, public awareness, and support of research.

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PRESIDENT'S MESSAGE

It's Time to Own Hearing!

The sense of hearing is a beautifully

complex process. While it connects us to our environment, it primarily serves that unique human quality of communication. Hearing loss, by definition, typically results in the degradation of this remarkable communication skill and loss of contact with our environment. We also understand that hearing loss is not simply a change in hair-cell function, or an inability to discriminate speech, but also has cognitive, social, educational, and vocational dimensions.

In the realm of human hearing, there are three primary health-care providers: audiologists, surgeons, and salespeople. Of these three, none understand hearing and all of its dimensions as well as the audiologist. Indeed, it is this knowledge that makes the audiologist the most uniquely qualified to provide hearing care. There is no other health-care provider or tradesperson who has the breadth and depth of knowledge about human hearing and hearing loss than the audiologist.

We need to clearly and unequivocally acknowledge this fact and own hearing and hearing loss (and vestibular function), in all of its dimensions and presentations. We already own the clinical procedures and the clinical decision-making processes. We own the educational foundation and the continuing educational processes as well. We need to own the data that supports state-of-the art hearing care and the research that generates this data. We need to own the practice of contemporary standards of care. We need to own the leadership of the hearing health-care team. We need to not be afraid to manage our scope of practice to incorporate all those elements that contribute to the assessment, diagnosis, and treatment of hearing loss in the future.

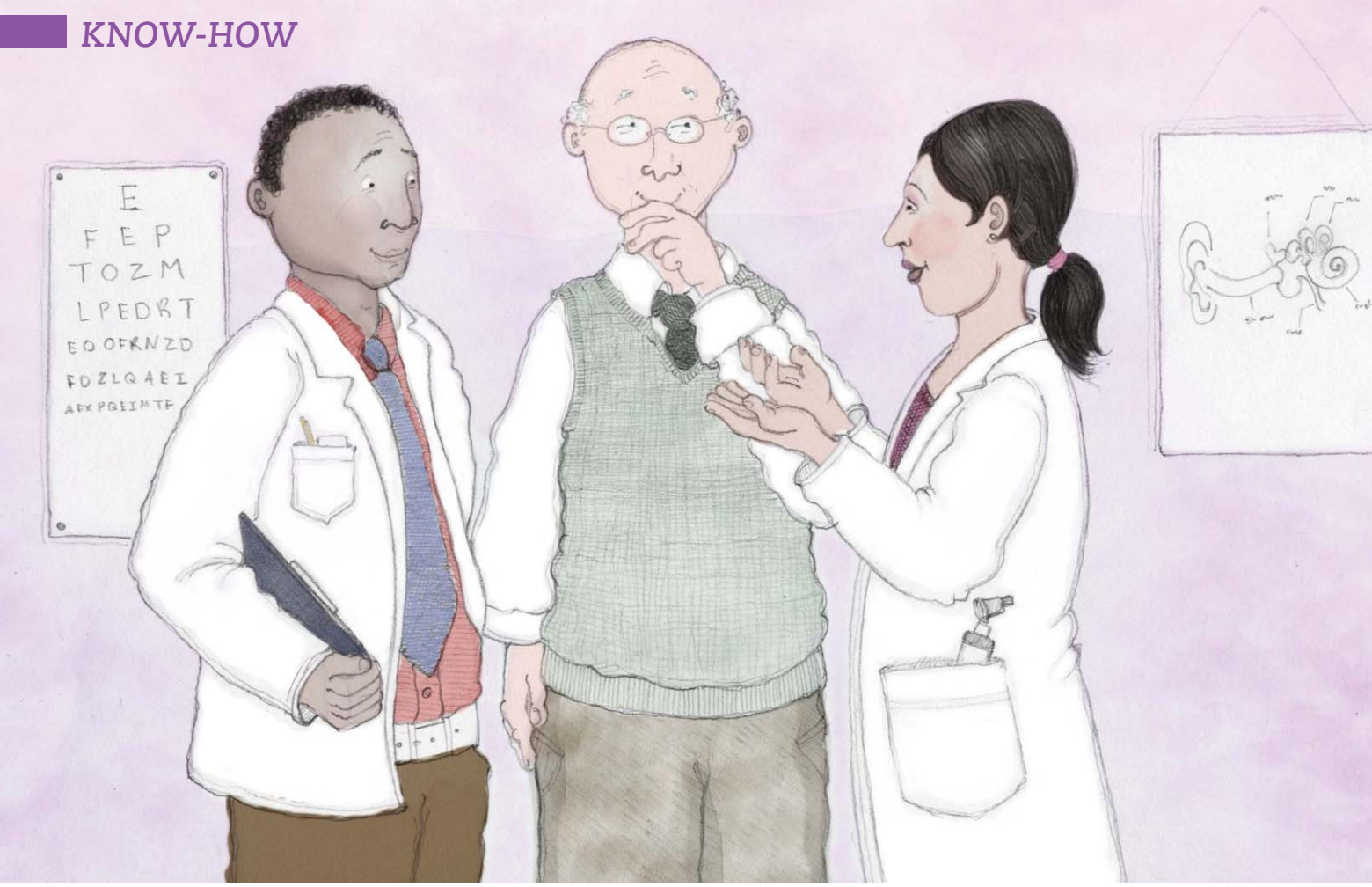
This is not the ownership of otitis media or superior canal dehiscence, but it is the ownership of the hearing loss that accompanies these medical conditions. It is not the ownership of "procedures" or "devices" but rather the manner in which those procedures or devices are employed in serving patients with hearing loss. By extension, it is also the understanding that there are procedures or devices that are provided by other medical specialties that should be incorporated into our clinical decisions about hearing status. An example would be imaging studies of the ear or central auditory system, and, in particular, those imaging studies that may evaluate hearing, such as functional MRI.

Ownership of hearing health, hearing care, hearing loss, and vestibular function should be the cornerstone of our profession. As noted earlier, there is no other group that has the knowledge, skill, competency, passion, or dedication to serve persons with hearing or balance needs than the audiologist. We therefore have to be committed

to meeting the challenges and the responsibilities that come with this ownership—the challenge of change in health care and reimbursement, and the responsibility to understand the patient's needs; the challenge of new technologies and the responsibilities to practice to the top of our licenses; the challenge of innovation in service delivery and the responsibility of contemporary standards of care. I have complete faith in our ability to meet the challenges and to accept the responsibilities of the ownership of hearing!

Ian M. Windmill, PhD
Board Certified in Audiology
President
American Academy of Audiology

KNOW-HOW



Eye Can't Hear You

By Kristen Decelles

Conversation is a two-part process—seeing and hearing. I often joke with patients that if they want to hear better they should put on their glasses. This is due to common knowledge amongst audiologists that, as your hearing declines, you become more reliant on a person's facial cues and mannerisms to help fill in the blanks. We call these tactics "effective communication strategies."

This process of communication also works the other way, as your eyesight declines you become more reliant on your ears to fill in what you cannot see. But what if both of these senses are declining? How are our patients coping?

In the National Health Interview Study, persons reporting combined vision and hearing loss had significantly poorer results with negative effects on physical, emotional, and social functions compared to those without vision or hearing impairments (Campbell et al, 1999). They also were more likely to have difficulty walking, getting outside, getting into or out of bed or a chair, preparing meals, and managing medications. Dual sensory impairment has such a large impact as your eyes and ears influence different aspects of function. Hearing loss causes problems with social communication, whereas vision loss alters your physical and spatial environment (National Eye Institute, 2016; Chia, 2006; Heine and Browning, 2002). Therefore, this combined decline impacts the overall well-being in older adults, resulting in poorer physical and social functioning leading to higher rates of depression symptoms than those with a single impairment, thus making a strong argument that both audiologists and optometrists should inquire about the other sense (Chia, 2006; Fischer et al, 2009; National Eye Institute 2016).

Much of the published research looks at the correlation between

Changing hearing aid batteries or cleaning hearing aids may be more of a challenge for those with vision loss.

age-related maculopathy, cataracts, and sensorineural hearing loss as many of the risk factors are the same (National Eye Institute, 2016; Chia et al, 2006; Klein et al, 2001). Aging, diabetes, and smoking emerge as common risk factors in this work. Below you will find some quick facts about these two eye diseases: age-related macular degeneration and cataracts.

Age-Related Macular Degeneration

Age-Related Macular Degeneration (AMD) is a common cause of vision loss in persons older than the age of 50. This type of loss occurs at the macula, a spot near the center of the retina that allows you to see straight ahead. There are two primary classifications of AMD: wet and dry. The type of AMD determines whether treatment with anti-vascular endothelial growth factor (VEGF) medication is possible. Not everyone who has early AMD will develop into late AMD, which can occur in only one eye or both (National Eye Institute, 2015).

Risk factors for AMD include smoking, which doubles the risk of AMD. Another risk factor is race. One study sited 89 percent of those affected by AMD were Caucasian. Family history and genetics also are risk factors. The risk of AMD increases with age. In 2010, 2.5 percent of all Caucasian Americans and 14 percent of Caucasian Americans older than 80 years of age had late AMD. Common symptoms of AMD include blurred vision and blank spots within central vision (National Eye Institute, 2016). Treatment varies depending on type of AMD. Treatment options can be as simple as monitoring and taking vitamins/supplements to slow the progression or as complex as regular injections of anti-VEGF to preserve vision (National Eye Institute, 2016).

Cataract Quick Facts

A cataract is a clouding of the eye's natural crystalline lens. The lens is responsible for focusing light and producing clear, sharp images. When we are young, the lens is clear but as we age, it begins to harden and become cloudy. The cloudy lens diminishes quality of vision (St. Lukes, 2016). Risk factors for developing cataracts include the natural aging process, certain diseases such as diabetes; personal behavior such as smoking and alcohol use; an environment such as prolonged exposure to sunlight; obesity and high blood pressure (Boyd, 2014; National Eye Institute, 2016).

According to the National Eye Institute (2016), the risk of cataracts increases with each decade of life, starting around 40 years of age. By 75 years of age, half of Caucasian Americans have cataracts. By age 80, 70 percent of Caucasian Americans have cataracts, compared with 53 percent of African-Americans and 61 percent of Hispanic-Americans. Common symptoms of cataracts are halos around lights, difficulty reading fine print, distortion of colors, and trouble driving at night (St. Lukes, 2016; National Eye Institute, 2016). People can have an age-related cataract in their 40s and 50s; however, during this stage, most cataracts do not affect vision enough to seek treatment. It is after age 60 that most cataracts impact vision to the point of recommending surgery (National Eye Institute, 2016). After, cataract surgery, vision improves in 95 percent of patients who have it, and 90 percent have 20/40 vision or better.

Conclusion

As medical professionals, we have a responsibility to these patients to ensure they are experiencing the best possible quality of life. Perhaps you can incorporate a simple question about eyesight while obtaining case history in your clinic. This question would facilitate a conversation about how the dual-sensory impairment may be impacting your patient's daily living, as some patients may be struggling. This is where our roles as audiologists become extremely important to maximize the utility of residual hearing.

Changing hearing aid batteries or cleaning hearing aids may be more of a challenge for those with vision loss (Kricos, 2007). I work at an eye clinic, which treats thousands of new eye patients annually, and we tell our hearing aid patients to visit whenever they are in the building for eye care. We are always available to change a wax trap or replace extra batteries. If they are simply having their eyes checked annually, we recommend having a hearing test on the same day. Patients are very

appreciative of this convenience, as they often rely on family or friends for transportation. In our clinic, we have pocket talkers in all the eye-care areas to encourage optimal communication for those who may have forgotten to wear their hearing aids to the eye appointment.

I encourage you to reach out to optometrists and ophthalmologists in your area. The opportunity to collaborate in order to better address the needs of patients with dual sensory impairment is immense.

Kristen Decelles, AuD, Board Certified in Audiology, is in the hearing services department at St. Luke's Cataract and Laser Institute in Tarpon Springs, FL, and is also a member of the Academy's BEST Committee.

Illustration by Johanna van der Sterre.

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CALENDAR

July 27
eAudiology Web Seminar
The Audiologist's Role in Referral to Early Intervention
www.eAudiology.org

August 4–6
Meeting
2016 Florida Academy of Audiology Convention
Orlando, FL
www.floridaaudiology.org

August 4–6
Meeting
Kentucky Academy of Audiology, Annual Conference
Lexington, KY
http://kyaudio.org

August 15
Call for Presentations
AudiologyNOW! 2017 Submission System Opens
www.audiologynow.org

September 8–10
Meeting
California Academy of Audiology Conference
San Diego
www.caaud.org/conference.asp

September 18–21
Meeting
33rd World Congress of Audiology
Vancouver, BC, Canada
www.wca2016.ca/

Here's what's trending this month.

"Over 1 billion young people put themselves at risk for hearing loss by listening to their portable music players or at large scale entertainment venues. At some electronic dance music festivals, the sound can remain at 120 decibels for hours."

Published on June 10 at 9:12 am

Tinnitus and hearing loss are significant concerns for the military. Use of hearing protection devices has been limited due to concern for reduced situational awareness.

Published on June 7 at 12:02 pm

This year's Miss Pennsylvania in the Miss USA pageant experienced hearing loss due to meningitis at an early age and went on to get a cochlear implant.

Published on June 6 at 9:07 am

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Audiology Care at the End of Life

BY LAURA RICKEY AND KRIS ENGLISH

Though not recognized as part of this interdisciplinary team, audiologists quietly provide care in end-of-life situations where communication is central to quality of life.

In his exploration of today's end-of-life issues, Gawande (2014) movingly captured many patient fears, including the loss of hearing and the related disconnect from loved ones. For example, he mentioned his aged grandfather, "so hard of hearing that people had to shout in his ear through a rubber tube." In more detail, he described a married couple facing the challenges of aging, particularly the wife's visual impairment, memory decline, and partial hearing loss. At one point, she developed an ear infection and subsequent tympanic membrane rupture. "And that was when she became totally deaf. That was all it took to sever the thread between them." Her subsequent confusion was overwhelming, to the point that the husband could not look after her. Recommendations were made to move her to a skilled nursing unit, an option he did not want to consider. Fortunately, the eardrum healed and her hearing recovered. However, when Gawande asked the husband what he would do "if the hearing in the right ear went again," the husband conceded he did not know.

By now you are surely wondering, where is the audiologist?

This was certainly our question. Understandably, the topic of Western medicine and end-of-life situations required the author to cover a lot of

ground; however, we couldn't help but notice that, except for a hearing tube, he did not mention hearing help of any kind, in spite of the high likelihood of hearing loss in the settings he visited. Our subsequent research provided a partial explanation—audiology is not acknowledged by professional organizations dedicated to end-of-life concerns, including these leaders in the field:

- American Academy of Hospice and Palliative Medicine (http://aahpm.org)
- National Hospice and Palliative Care Organization (www.nhpco.org)
- International Association for Hospice and Palliative Care (http://hospicecare.com)
- Visiting Nurse Associations of America (www.vnaa.org)

Additionally, as Beck (2015) observed, documents addressing the quality of end-of-life care also fail to mention audiology care. Examples of this omission can be found here:

- Agency for Healthcare Research and Quality (2012)
- Institute of Medicine (2014)
- *Scientific American* ("A Last Right for Dying Patients," 2015)
- Worldwide Palliative Care Alliance/World Health Organization (2014)

As professionals dedicated to auditory access, audiologists do not hesitate to emphasize the importance of hearing from the earliest moments in life. However, if audiologists also provide care in the last days and weeks of life, we couldn't find any indication in our literature. This omission has even been mentioned in the field of gerontology. Smith et al (2015) observe that "... hearing loss has detrimental effects on quality of life and communication, outcomes that are central to palliative care. Despite its high prevalence, there is remarkably little written on the impact of hearing loss in the palliative care literature."

Terminology

Before we continue, it is important to point out that *hospice care* and *palliative care* are often misused interchangeably. The American Academy of Hospice and Palliative Medicine (palliativedoctors.org) and the National Hospice and Palliative Care Organization (2014) make these distinctions:

- *Palliative care* focuses on improving a patient's quality of life at any

time by managing pain and other distressing symptoms. Palliative care is provided with other medical treatments.

- *Hospice* is a type of palliative care for patients in their last year of life, wherever a patient resides. Hospice provides expert medical care, pain management, and emotional and spiritual support for both patients and loved ones. Care is designed neither to hasten nor prolong life.

The goal for both settings is to keep an individual as comfortable as possible. By definition, *hospice* focuses on end-of-life needs, and palliative care may also do so, depending on circumstances. We will use both terms to inclusively address end-of-life needs.

Importantly, both settings involve an *interdisciplinary team of specialists*, including the patient's primary physician, hospice physician or medical director, nurses, home-health aides, social workers, bereavement counselors, clergy or other spiritual counselors, trained volunteers, and physical, occupational, and speech therapists (Toner and Shadden, 2012). Although audiologists are not currently recognized as part of this interdisciplinary team, it seems likely that audiologists quietly provide care on an as-needed basis or even routinely as part of their job description (Rickey, 2015). Unfortunately, if not documented, our end-of-life care will remain unrecognized and not be included as a standard of care.

The purpose of the following study, approved by the University of Akron's Institutional Review Board, was to determine:

1. To what extent audiologists are working in the palliative care setting.
2. If audiologists see a need to be involved in some capacity in the palliative care setting.
3. If respondents would choose to participate in palliative care.

Methods

Recruitment Procedures

On November 18, 2015, we posted a call for participants in an *Audiology Weekly* e-newsletter (SAA Survey section) to complete an online survey (n=10). From November 29 to December 16, 2015, we also sent invitations to 1,600 randomly selected Academy members, yielding a response rate of 14.6 percent (n=230). (Student members were intentionally not recruited.)

Instrument

The online survey consisted of six multiple-choice questions and one open-ended question. Questions could be left unanswered, resulting in different total answers per subject. Participants indicated their consent by selecting the "I wish to continue" option on the survey homepage. The survey was open for 30 days.

Results

Following is a summary of the survey results:

Question: Your primary role?

The combined total of 240 respondents included 221 practicing audiologists, 11 professors, four manufacturer representatives, two students, two research audiologists, one retired audiologist, and five participants who listed their primary role as "other." Some participants checked more than one option.

Question: Have you ever practiced in the palliative care setting? If yes, please describe your experience:

Fifty audiologists (21.46 percent of the 233 responses) replied "Yes." TABLE 1 summarizes their experiences.

Responses to the remaining survey questions indicated that the vast majority (98.34 percent) agreed that hearing loss could affect the quality of palliative care,

and that audiologists should be part of an interdisciplinary team in these settings (86.74 percent). Seventy percent of respondents indicated they would be comfortable providing audiology services in palliative care settings, although less than half (44.43 percent) was interested in doing so. Regardless, the majority of respondents (71.43 percent) indicated interest in obtaining more information about hearing loss and palliative care. Response rates to these questions are summarized in TABLE 2.

Anecdotal Reports

After completing the survey, three audiologists replied privately to share additional thoughts and experiences. One audiologist shared a combined professional/personal experience (and we appreciate his generosity in doing so):

> Working in a head and neck clinic with heavy oncology traffic, I saw many cases of conductive hearing losses following head and neck radiation treatment. But during the last stages of my late wife's cancer, where she had metastasis to the brain, radiation treatment was used to slow the tumor growth—as a palliative measure. The terror of her increased hearing loss was something I had not anticipated. A myringotomy would have been the best approach, but I couldn't raise much interest in the hospice doctors or oncologists. So I intervened with new wide dynamic range compression hearing aids, which greatly calmed her panic, and made palliative care possible.

This was several years ago. I was already retired from practice and had no credibility or clout with the attending doctors. Had she not had her own personal audiologist, my wife's demise would

TABLE 1. Work Settings Reported by Audiologists Providing Palliative Care (n=50)

N	Participation in Palliative Care
17	Care is included in work setting (hospital, cancer centers)
12	Have independently developed hospice support in region
11	Have extended current patient care into hospice
7	Have had a one-time experience
3	Have trained employees, volunteers at hospice settings

TABLE 2. Response Rates (%) to Survey Questions (Modal Responses Bolded)

Yes	No	Don't Know	Survey Questions
98.34% (n=178)	0%	1.66% (n=3)	Do you think that hearing loss could affect care in palliative care settings? (n=181)
86.74% (n=157)	2.21% (n=4)	11.05% (n=20)	Do you think audiologists should be part of the interdisciplinary team in palliative care settings? (n=181)
70% (n=126)	6.67% (n=12)	23.33% (n=42)	Would you feel comfortable practicing in a palliative care setting? (n=180)
44.44% (n=80)	25% (n=45)	30.56% (n=55)	Would you be interested in working in a palliative care setting? (n=180)
71.43% (n=165)	20.35% (n=47)	8.23% (n=19)	Would you like more information about hearing loss and palliative care? (n=231)

have been hellish and frightening instead of gentle and calm. At the time, I didn't have the emotional stamina to follow-up with the radiation oncologist. I think this phenomenon is probably very common and pursuing it may prevent the trauma of unexpected hearing loss following whole brain radiation for other patients.

Another audiologist, Joan McCormack (Massachusetts), wrote:

> This [topic] is HUGE and something that may be overlooked as hearing is often the last sense to go as the person is passing. I have given loaners and pocket talkers to my patients and their families as they are dying. If someone passes within the first 30 days of a new fitting, we always offer a refund. Some people donate them for the next family to use.

A Hospice-Based Program

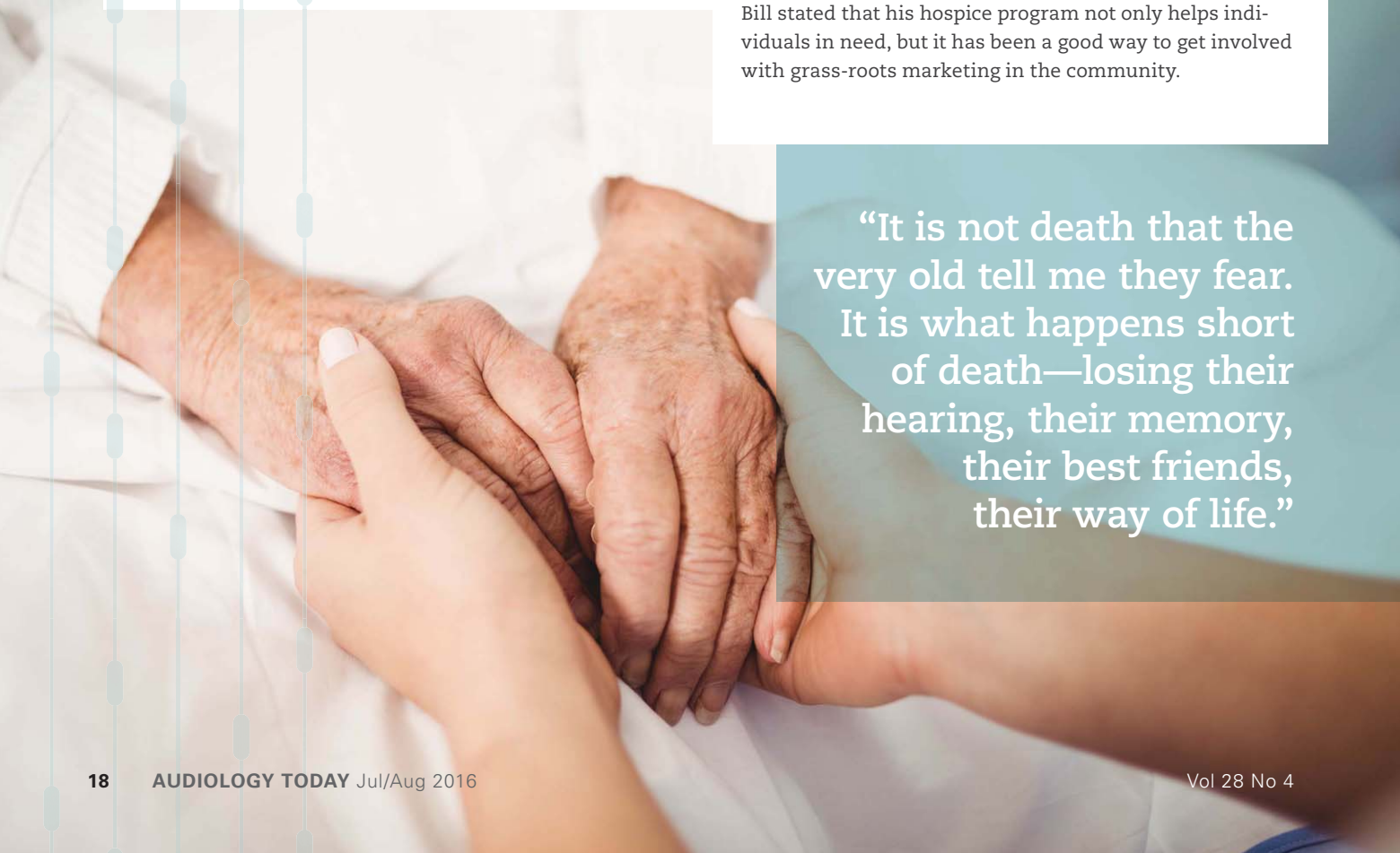
A third audiologist, Bill Diles (California), invited us to phone him. When we did, we learned that he began a "Hospice Hearing Program" four years ago. Managed in his free time, he indicated, "This is the reason I got into audiology in the first place."

He initially tried to get involved with local hospice facilities by dropping off his card; however, no one called him back. At one point, though, he made a personal connection with a medical director of a local hospice facility. The medical director then sent flyers out to nurses and physicians in his facility, and the program began to grow.

Bill suggests that the best way to get the attention of a hospice facility is to call and say, "I would like to make a donation." This offer tends to connect the audiologist to a director or other decision-maker; when meeting, we explain that we would like to donate our time and expertise.

Bill collects donated hearing aids at his own practice and at a local hospice thrift store. He then uses those hearing aids for individuals in need. He occasionally gives the family a pre-addressed box so that they may return the hearing aids when they are no longer needed; however, he usually does not expect that the devices will be returned, understanding that the families have much more to be concerned about at that time.

Bill currently receives about two calls per month requesting his services from nurses or physicians. He then goes to the individual's home or to a hospice facility and completes a hearing test with a handheld device. He makes instant custom earmolds, returns to his practice to program devices, and then fits the patient accordingly. Bill stated that his hospice program not only helps individuals in need, but it has been a good way to get involved with grass-roots marketing in the community.



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Discussion

Based on the prevalence of hearing loss with age and the growing aging population, we can safely assume that there are a large number of individuals with hearing loss in hospice and palliative care settings. And yet as Beck (2015) pointed out, a Scientific American article about the end-of-life did not mention hearing loss: "Consider the most important words and thoughts and actions that might occur during the last hours of life. Perhaps hearing your loved ones maximally and communicating with them effectively would be of maximal concern? I'll bet it is."

We learned that about 20 percent of the audiologists we received responses from are involved with end-of-life and palliative care in some capacity, and have expertise to share. We also learned that 70 percent of our respondents would like more information. Weinstein (2015) recently called audiologists to action, saying, "Audiologists must become proactive and work with palliative care team members, educating them about best practices for the delivery of relationship-centered health-care communication." To support Weinstein's call, we encourage audiologists with interest in this topic to join an online community moderated by the first author. The group is called "Audiology in End-of-Life Care" and it can be found on Facebook by searching that title. It is a closed group where audiologists or other interested individuals are welcome to share their experiences, ask questions, and get more information about how audiologists are involved in end-of-life care. In addition, we hope discussion will include suggestions on how to educate end-of-life interdisciplinary teams about hearing loss and audiology. We thank the survey respondents for their encouragement to explore this aspect of audiology care.

Laura Rickey is a third-year AuD student at the University of Akron/Northeast Ohio AuD Consortium in Akron, Ohio. Kris English, PhD, is a professor and Interim School Director at the University of Akron/ Northeast Ohio AuD Consortium in Akron, Ohio.

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The New Open Sound Paradigm

The challenge of multiple sound sources

Capturing more sounds in complex environments – specifically, soundscapes that offer competing sounds, movement of the speaker and the listener, and overall unpredictability of the sound source – is an industry-wide problem every hearing aid manufacturer wants to solve.

Closing down sounds closes down life

Narrow directionality and slow-reacting noise reduction under-stimulate the brain and deprive it of the context needed for understanding. This stresses the brain and makes it harder to focus naturally and switch attention to something else when needed. Such under-stimulation makes social interaction much less enjoyable, significantly increasing the likelihood of social withdrawal and cognitive decline.

Oticon Opn™ challenges the status quo

Oticon's audiological approach, called BrainHearing™, is proven to deliver better hearing with less effort by supporting how the brain makes sense of sound. Our new hearing solution, Oticon Opn™, takes BrainHearing™ to the next level by challenging conventional approaches for managing dynamic settings with multiple sound sources.

Sound processing 50 times faster than ever before*

This paradigm shift in hearing care is powered by Velox™, a groundbreaking platform that transcends industry standards for speed and precision to capture the entire soundscape, analyze the environment, balance sounds and remove excess noise. Listeners can locate sound sources and shift focus while still getting the full sound picture.

This open sound experience is made possible by OpenSound Navigator™ and Spatial Sound™ LX. By rapidly scanning the environment to locating and balance sounds and exchanging data between the instruments at streaming speed, the open sound experience reduces the load on the brain to free up mental resources in noisy environments. Reduced cognitive stress helps listeners experience a dynamic soundscape without feeling overwhelmed.

One hearing aid – two communication systems

One of the leading-edge technologies in Oticon Opn™ is TwinLink™, the world's first dual wireless communication system – one for binaural processing and one for streamer-free connectivity. TwinLink™ communication is delivered without compromising binaural capabilities, battery consumption and size, and is enabled by Oticon's purpose-built platform technology.

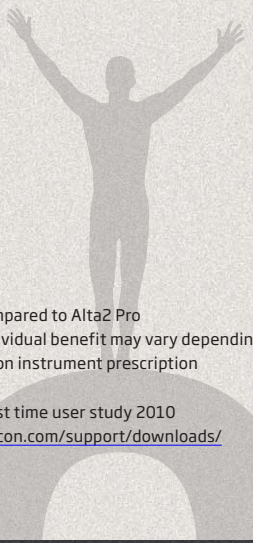
Helping patients open up to the world with faster signal processing enhances the quality and richness of their lives, providing a foundation for increased social interaction and cognitive health.

Oticon Opn™ gives patients a fuller sound experience, called Open Sound, that reduces cognitive stress and yields significant benefits:

20%
less listening effort*

20%
more capacity to remember/recall**

30%
better speech understanding*



* Compared to Alta2 Pro
** Individual benefit may vary depending upon instrument prescription

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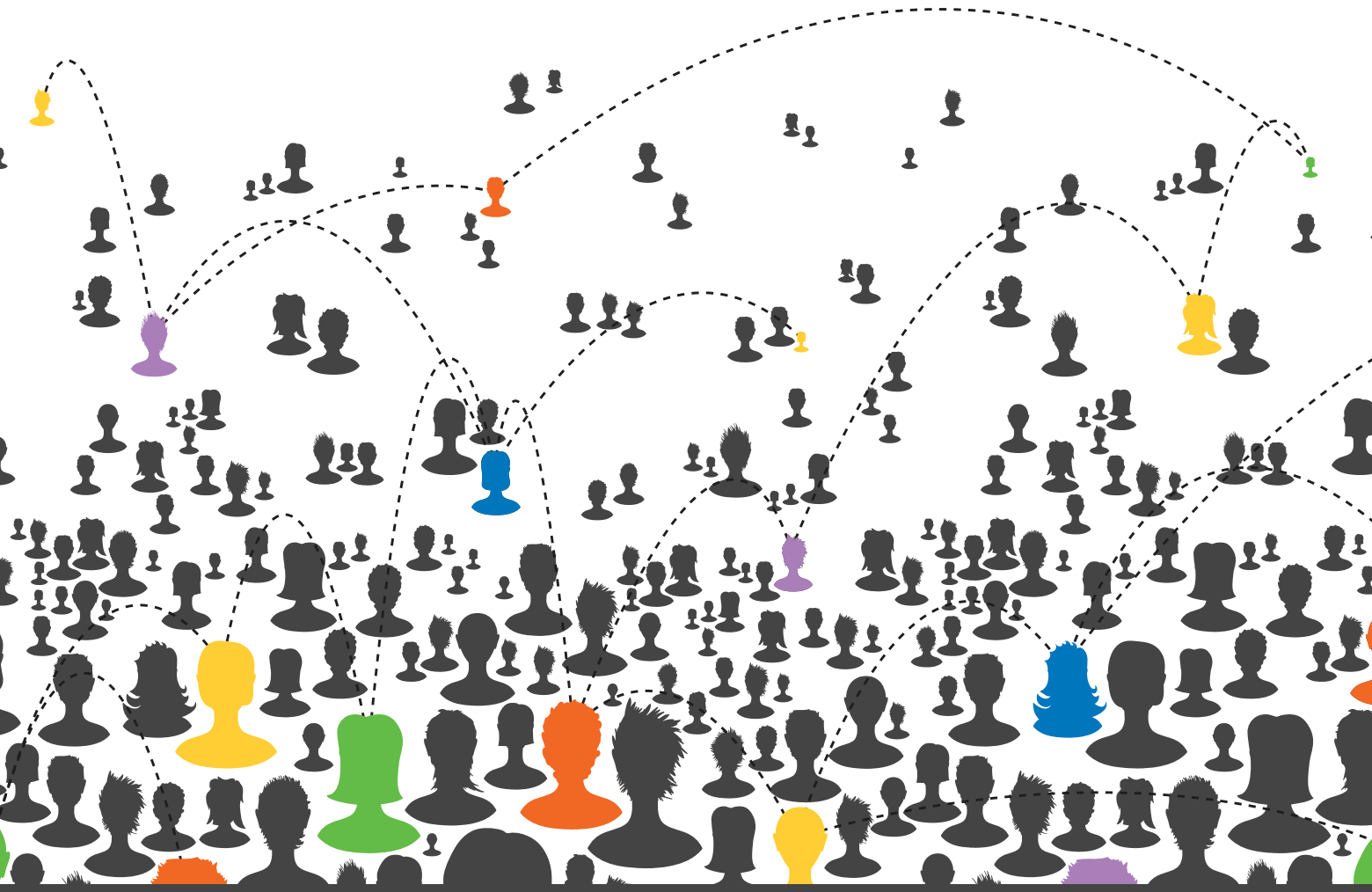
How to Effectively Harness the POWER of SOCIAL MEDIA

BY D'ANNE RUDDEN



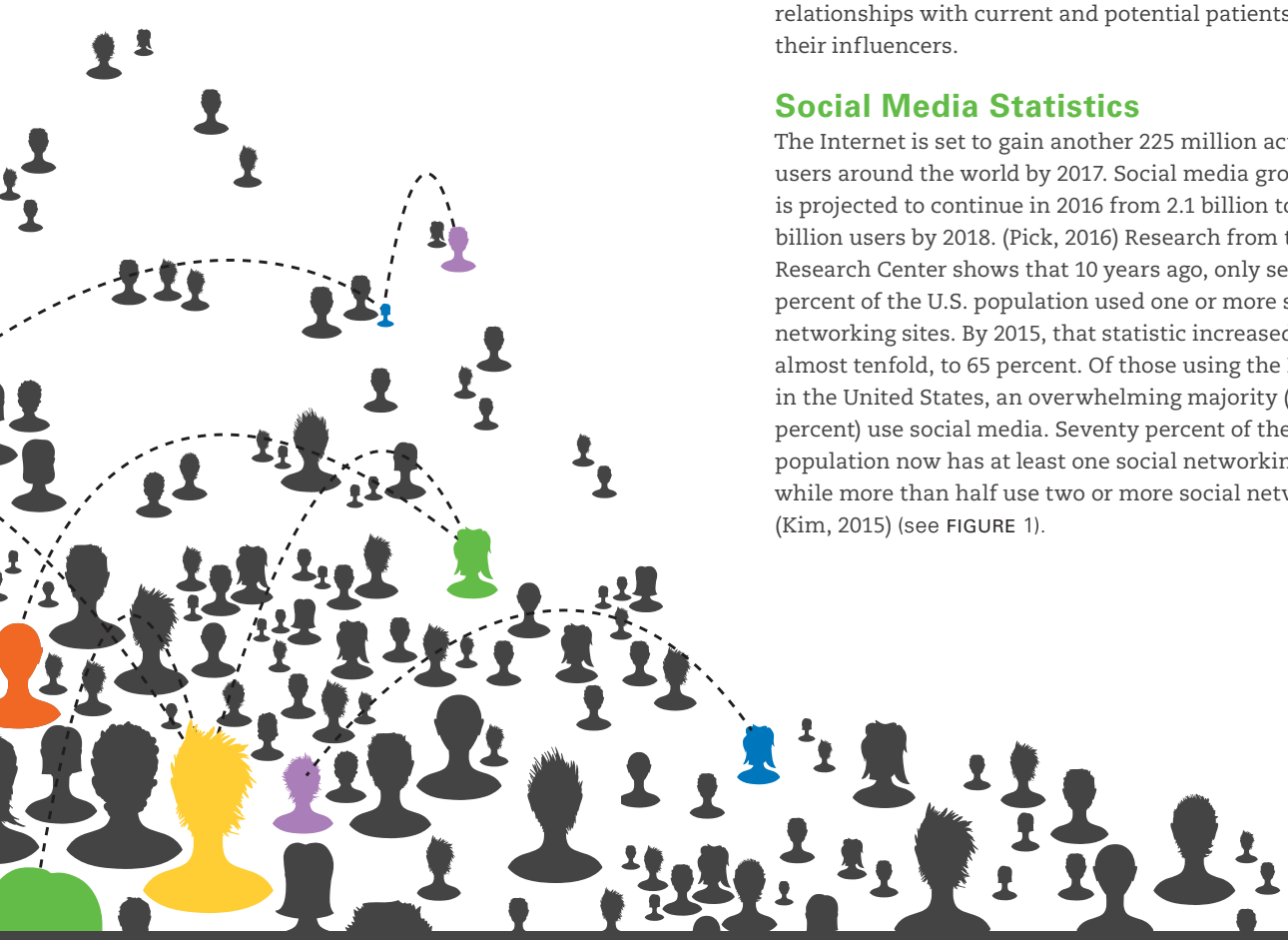
In the new digital "wild west" of health care, audiologists have a unique opportunity to drive the hearing health-care conversation and be seen as trusted experts in their communities.

People have been talking to each other about their experiences with products, services, and brands for centuries. Today, the explosive growth of social media has evolved and expanded word-of-mouth communication. Social media is defined as "any form of electronic communication—Web sites for social networking and microblogging—through which users create online communities to share information, ideas, personal messages, and other content such as videos" (Merriam-Webster, 2016). Social-media dialogues have become increasingly interactive and dynamic as people share, and sometimes criticize, reality in an almost instant way. Be warned! In the time it takes to read this article, someone could be talking about or vetting you and your business.

In the new digital "wild west" of health care, audiologists have a unique opportunity to drive the hearing health-care conversation and be seen as trusted experts in their communities. It is no longer a question of whether or not using social media is a valuable tool in your communication and marketing toolbox; it is an increasingly critical way for you to connect, educate, and develop relationships with current and potential patients, and their influencers.

Social Media Statistics

The Internet is set to gain another 225 million active users around the world by 2017. Social media growth is projected to continue in 2016 from 2.1 billion to 2.5 billion users by 2018. (Pick, 2016) Research from the Pew Research Center shows that 10 years ago, only seven percent of the U.S. population used one or more social networking sites. By 2015, that statistic increased by almost tenfold, to 65 percent. Of those using the Internet in the United States, an overwhelming majority (76 percent) use social media. Seventy percent of the U.S. population now has at least one social networking profile; while more than half use two or more social networks (Kim, 2015) (see FIGURE 1).



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These statistics are further validated when looking at the growth of social media usage as it relates to gender (see FIGURE 2).

While young adults are still the most likely demographic to use social media, users age 65 years and older are the driving force behind this increase in growth, with their numbers surging from two percent in 2005 to 11 percent in 2010 to 35 percent in 2015 (Smith, 2015). Older people don't just "get" social media, they are actively engaging with it!

Although current reports do not explain why seniors are increasing their usage, previous research cited these as the most common reasons (Smith, 2016).

- Reconnecting with old friends
- Reaching out for chronic disease support
- Finding a simple way to bridge generational gaps

While there are many factors contributing to this change, research clearly indicates that one of the more common reasons the geriatric population uses social media is to reach out for chronic disease support. Because hearing loss is the third most prevalent chronic health condition facing older adults (Collins, 1997), audiologists must be ready to meet social media inquiries with solid information and caring support.

Getting Started

If you are still sitting on the sidelines of social media, it is time to get in the game. These three easy steps will take you from online zero to social-media hero!

1. Establish your presence.
2. Create an effective strategy.
3. Measure your success.

Establish Your Presence

Facebook is the obvious choice to get started, because if Facebook were a country, it would be the most populous on earth. Estimated at 1.6 billion people, Facebook's population is bigger than the entire population of China (Stenovec, 2015). Facebook has 1.6 billion active users monthly and 1.038 billion active users daily as of January 2016 (Stenovec, 2015).

You may hesitate to share your latest family vacation pictures or critiques of your last home-cooked meal, but a Facebook business page is definitely the way to go (Hines, 2015). A business page creates professional separation, and when done strategically, this platform can be used as the "voice" of your practice.

Get the conversations going! Post quality content and introduce topics you believe your audience will be interested in reading. Think of each post as a virtual conversation starter or icebreaker; ask questions and instruct readers to "comment below." Solicit feedback and interaction. Social media marketing is not a lecture, or a way to just sell your unique products and services. Many blogs, articles, and other resources I read each month confirm the best social media users build relationships and are seen as the drivers of communication.

If you are unsure how to begin, visit your colleagues' business Facebook pages and learn from them. Also, review the pages of highly-visible brands outside the health-care industry, such as Starbucks, or pages of social media industry leaders like Guy Kawasaki and Gary Vaynerchuk. They have invested their time and focused their energy at becoming masters at online engagement.

Create an Effective Strategy

Consistency is the key to using social media effectively. Posting sporadically is the virtual equivalent of turning your back on a conversation. Make an engagement plan that you can stick to; one that works for you. Research tells us that Thursdays and Fridays provide an 18 percent higher level of engagement than other weekdays. This is attributed to people being happier toward the end of the week as they get closer to the weekend. Afternoons between 1:00–4:00 pm is also regarded as prime time to garner attention (Neidlinger, 2015).

If the thought of logging in and posting daily or even several times a week is daunting, consider using a social media scheduling management service; examples include the following:

- Buffer (www.buffer.com)
- Hootsuite (www.hootsuite.com)
- Sprout Social (www.sproutsocial.com)

These platforms allow you to create unique content ahead of time and set up a calendar to deliver it to all of your social media outlets. Note that if you use a service, posts made through each will appear as having been published by the service and not by you personally as the Facebook page owner.

While scheduling is great for social media productivity, you might consider supplementing these updates

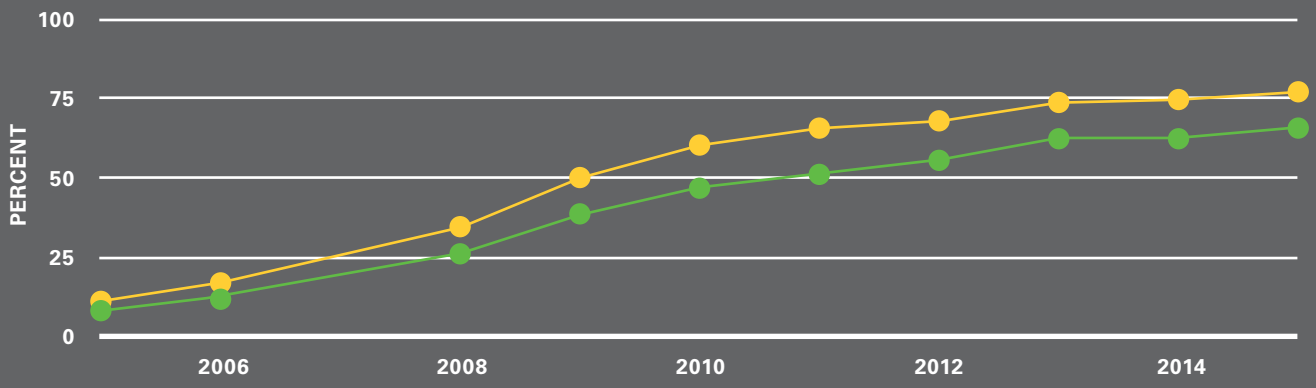

FIGURE 1. Social media growth from 2009–2015; lines represent the percentage of American adults and Internet-using adults using at least one social networking site (Kim, 2015).

Source: Pew Research Center surveys, 2005–2006, 2008–2015. No data are available for 2007.

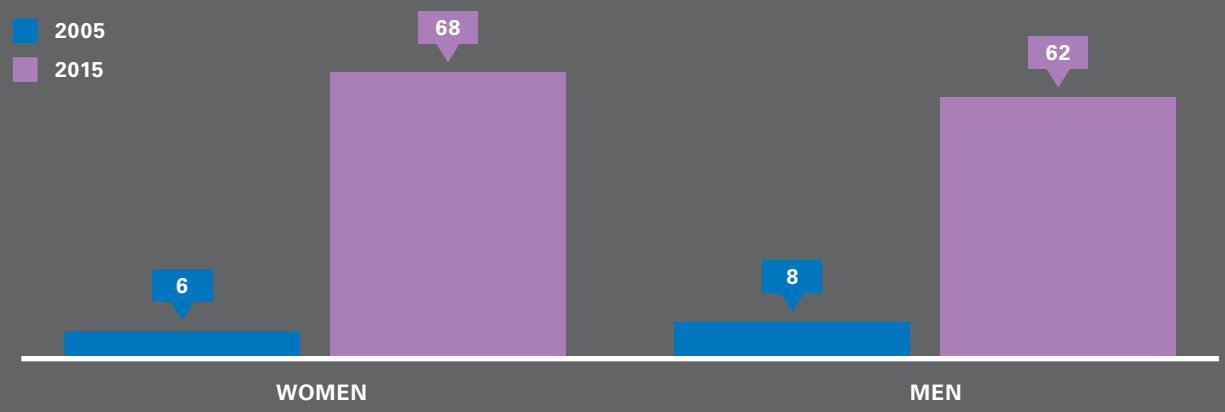

FIGURE 2. Social media usage in 2005 compared to 2015. Use by both women and men has increased at about the same rate (Kim, 2015).

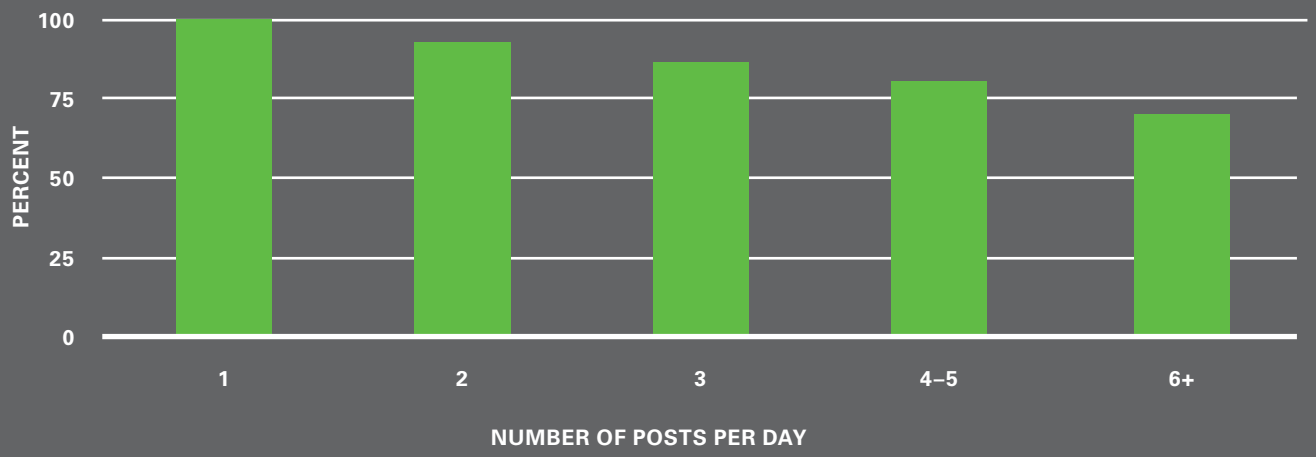

FIGURE 3. Relative response per post, by Facebook post frequency.

with on-the-fly content. (Smarty, accessed March 1, 2016) There's nothing better than relevant and timely updates. Look at what's going on in the world right now, and how it might relate to ears and hearing; or what's new in the world of technology. Offer links to interesting new research summaries and—sparingly—special offers or promotions. Ultimately, you want to bring the conversation into the real-world where you can personalize the conversational aspect and create an individual solution.

When you develop confidence and your social media prowess increases, beware of the "over share!" Experts indicate the law of diminishing returns occurs when posting too frequently (see FIGURE 3). General guidelines for posting frequency on each platform are

- Facebook: Two times per day AT MOST. Likes and comments begin to drop off dramatically after your second daily post (Lee, 2015).
- LinkedIn: One time per day; 20 posts per month will allow you to reach 60 percent of your audience (Lee, 2015).
- Pinterest: Five times per day or more. Some well-known brands such as LL Bean and Whole Foods have reported a rapid growth in pinning volume and frequency with three to 10 pins per day (Lee, 2015).
- Twitter: Three times per day or more. Engagement decreases slightly after the third tweet. A 2012 Track Social study found that per tweet engagement peaks at around five tweets per day (Lee, 2015).

Content

To optimize your social media impact, you must become an Information Sherpa for your followers. Seeking out quality content can quickly become a time-consuming endeavor, if you let it. Develop a problem solving mindset! I keep myself focused and on-track by creating a list of information categories, one for each day of the week, and then posting information relevant to that category each day. Topic areas range from "Medical News Monday" to "Fun Fact Friday," and each category keeps me focused and on-track, resisting the urge to dive into the rabbit-holes that appear everywhere. Over time, followers will come to expect facts, research, and helpful hints related to these consistent daily categories. Keep in mind this is a conversation. If you experience virtual crickets, it might be a sign it's time to change it up or start a new topic.

Part of the human condition is being drawn to visual images. Add interesting photos or videos to your posts to increase engagement. (Stelzner, 2014) If you find an image, video, or even an entire post that you like and want to share, it is fine to share it; just be sure to credit the originator or Web site. This also creates a unique opportunity to cross-market. I often highlight—tagging in Facebook terms—the original creator of shared content. Doing so can build some social media allies. In the virtual world, you can easily create mutually-beneficial relationships with other audiology practices, businesses in your local community, and nationally-recognized brands.

Start and maintain the conversation with easy, feedback-friendly information points. Don't be afraid to think outside the box with items others can share easily. Think in terms of cut and paste information, FAQs, Top 10 lists, and how-to videos. Social networks have become the gatekeepers to spreadable content. (Jenkins, 2013)

Voice

Like your mama always told you—just be yourself! How would you speak to a valued patient or one of their family members in person? Only you can decide if you lean toward the folksy or the factual. No matter your personal approach, make it authentic. Your online community can spot an imposter from a mile away.

Decide whether you will post in third-person or in first-person, for example using "Our practice believes" rather than "I believe." If multiple providers in the same office are posting, it may make sense to post in third person, especially if one person is in charge of posts.

It is becoming a common practice to outsource the entire job of social media maintenance to a third party. Some hearing aid manufacturers also will set up and manage your social media efforts for a small fee, or a unit commitment. Options include Healthy Hearing or Promoboxx. This type of service can be great for time-management, but be warned, content is being distributed across many providers and is often posted at the same time during the day. If you want to stand out, this may not be the best way to do it. You could end up looking like a clone of a thousand other offices. I suggest starting with a third party, and slowly increasing your knowledge and comfort-level and begin to add your own unique content over time. You also can edit the language used in standard posts to better fit your voice.

Measure Your Success

In the social media realm, word-of-mouth travels at lightning speed and often feels like it has been super-charged. Monitoring engagement statistics provides insight to your impact, and helps keep your social media strategy on target.

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One of my favorite social media tracking tools is SumAll (www.sumall.com). You can link all of your social media accounts—Facebook, Twitter, Google Analytics, Instagram, and uploaded e-mail lists are currently supported—and SumAll collects and monitors data, delivering you an up-to-date overview of your audience via a daily or weekly e-mail.

Although a direct correlation of online relationship to actual sales is difficult to determine, begin by asking the question at patient intake. Ask, or even assist, your patients and their caregivers to connect with you through your social media sites. Keep in mind this is a public forum so caution should be taken to protect the private health information of your current and potential patients. It is recommended that you avoid saying anything that you wouldn't say in a "public coffee shop or elevator." Check for the most current information on HIPAA laws through the U.S. Department of Health and Human Services Web site (U.S. Department of Health and Human Services, 2016).

Expand Your Presence

Guy Kawasaki's *5 P's of Social Media* provide direction for what type of information to post on each platform (Murton, 2013):

- Passion—Google+
- People—Facebook
- Pimping—LinkedIn
- Pictures—Pinterest
- Perception—Twitter

The following provides a 20,000 foot view of the most popular social media sites, along with some basic suggestions for how and why you would use each. Although not a comprehensive list of all of the available options for engagement, some basic familiarity of these primary platforms gives you the ability to continue to add to your social media portfolio over time.

Google+

Google is continually trying to establish its Google+ platform as a way to connect areas of interest, rather than a focus on being people-oriented like Facebook. The primary purpose for establishing a strong Google+ presence for your practice is improving how your ranking is presented in Google searches. Google associates Google+ with Google Search and Google Maps via their Google My Business portal (Chaney, 2015).

Facebook

Facebook is the most essential social media presence for your audiology practice. You can share photos, articles, and videos, as well as educational information to your page fans. There are a multitude of options for customization to match your business needs so you can target your optimal patient demographic alongside their influencers. Facebook allows you to verify your business page. Verified pages appear higher in a Facebook list of search results. Along with your organic content, Facebook is designed for you to share posts and information from other pages easily. Give credit to the other pages by tagging their Facebook pages in your posts. This shows people that you are interested in more than just selling the latest product, and that you care about what is going on in your industry (Helmrish, 2016).

You can use your business page to promote an upcoming event and invite your fans. Encourage your fans to invite people they think may be interested, too (Helmrish, 2016). Experiment with branding information by including reference points (you know…the # symbol) so your business becomes "findable" when someone searches for information on Facebook.

I use #HearForLife and #LongmontHearing for all of my posts—branding each. Facebook posts offer a variety of paid advertising options to target specific demographics, locations, interests, behaviors, and social connections (Hisaka, 2013).

The Insights tools built into Facebook are useful for monitoring your social media growth, also referred to as reach. Facebook Insights also provides statistics regarding:

- Fan engagement levels
- Most popular date/time your fans see your content
- Detail on both organic and paid posts

Insights data allows you to gauge the success of your Facebook strategy. Use it to analyze and grow your brand, and recognize what content your fans "like," as compared to what they seem to ignore.

The most important advice for Facebook is to be responsive. Facebook is like a conversation between two people; you don't want your followers to feel like they are talking to a billboard. Facebook now tracks your response time and gives your page a badge acknowledging that you are "very responsive." This badge reflects that you respond to 90 percent of engagements within 15 minutes in a given week (Facebook Help, 2016).

LinkedIn

This is not just a site to post your resume. You can use the platform to generate unlimited networking opportunities with past and potential employees and employers. You can get involved with professional communities within the hearing industry, and even connect professionals that have similar interests or aspirations outside the hearing health-care field. I love using ideas from women's entrepreneurship groups outside our field to help keep business ideas fresh and innovative. Your goal here should not be selling a product or service, but establishing yourself as an industry expert.

Pinterest

Pinterest can be your secret weapon for content procurement. It's like an online scrapbook. Create virtual bulletin boards of topic interests that can be used in future information sharing. You will eventually learn to create your own pins with links to your business blog or other original Web site content, and graphics about topics of your own expertise. This is the one site that really allows you to lead with content rather than relationships. My Pinterest boards also allow me to showcase, without words, areas of my own personal interest such as inspirational quotes, and my love for travel and yoga.

Twitter

Facebook is essential, but Twitter is the number two professional "must-have." Twitter can be used by businesses and brands to communicate with customers, colleagues, and even industry leaders outside your profession. It's all about jumping into a conversation and getting to the point. You have 140 characters, which forces you to distill it down to just the juicy facts. Choose to present your practice as a branded business presence, or a more personal profile with that of your company. Use hashtags followed by either a searchable reference topic or clever, humorous anecdotal point so your tweets could be found by a wide variety of Twitter users. A good business guideline is to use the 80/20 rule, with 80 percent of your tweets conversational and personal, and 20 percent about your practice (Brito, 2009).

Other Platforms

Instagram

Purchased in 2012 by Facebook, Instagram is a primarily mobile, video, and photo-sharing platform. Users enhance photos with a set of professional style filters to further improve the quality and potential "likeability" of the image. Instagram also uses Twitter-style hashtags to allow users to search and reference similar content. It is easy to share your embellished photos on your other social media sites. Ideas for business usage include showing off your employees, or maybe some behind-the-scenes happening during your work day with patient interaction, repairs, or new products. Always keep HIPAA in mind and exercise extreme caution that you do not disclose any private health information or images without express written patient consent. It is advised to removed all reference to identifiers. The Web site (https://p3inbound.com/blog/keeping-your-social-media-marketing-hipaa-compliant) has an excellent list of recommended items to remove from your social media posts.

Facebook Live, Meerkat, and Periscope

Bursting onto the scene in 2015, Meerkat and Periscope are live streaming applications designed for mobile use. In April 2016, Facebook launched its own version of live streaming called Facebook Live. This service allows users to broadcast directly into the popular social media site from any device. (Wagner, 2016). Possible future applications for audiology might be live Q&A sessions, group support on topic areas, product demonstrations, troubleshooting guides, behind-the-scenes insider views of your practice, and product feedback (Greener, 2014; Miller, 2015). Avoid HIPAA conflicts by keeping discussions very general in nature, avoiding any distribution of specific personal stories, patient anecdotes, or sensitive information. Before you "go live", look around the surroundings that will be visible in the video, and remove any potential visual references to specific private information including patient charts or forms.

YouTube

YouTube is the third most popular Web site in the world, following Google and Facebook (Nelson, 2013). If a picture is worth a thousand words, videos are pictures on steroids! This is a great platform for publishing videos of patient testimonials (don't forget to have written HIPAA-compliant permission from your subjects) or instructional videos on topics such as hearing-aid cleaning and battery changing. With mobile phone video capabilities, you no longer have to be a professional filmmaker to have quality video content. Video editing tools like iMovie from Apple allow you to edit and even add music and graphics to your video creations.

Conclusion

The power of social media as word-of-mouth advertising must not be overlooked. According to Nielsen, 92 percent of people use recommendations of family and friends over all other forms of advertising to make decisions (Whitler, 2014). Providing your patients with high-quality care and service naturally results in their sharing with others about their experience. Learning how to engage with potential patients and their influencers, giving them reasons to talk about you and empowering them to share that information with the world, may be just the ticket to elevate your clinical efforts to the next level, driving the power of the audiology professional. Harnessing the power of social media to facilitate connection is not only a good idea; it is a critical tool in the brave new world of audiology. As the words of Brene Brown teach us, "Connection is why we are here. We are hardwired to connect with others."

D'Anne Rudden, AuD, is a private practice owner in Longmont, Colorado. She is the director of social media for AuDConnex and a Global Ambassador for Empowering a Billion Women by 2020 (www.ebw2020.com), a group dedicated to cultivating resources in mobility, mentoring, and money for women entrepreneurs around the world. You can follow Dr. Rudden on Facebook at Longmont Hearing & Tinnitus Center or on Twitter and all other social media outlets @AudioDocRudden.

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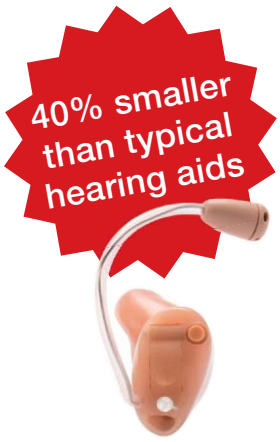

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A Conversation *with* Dr. Teresa Ching

After the Marion Downs Lecture in Pediatric Audiology

BY EILEEN RALL AND ALISON GRIMES

This year's Marion Downs Lecture in Pediatric Audiology was introduced by Dr. Jerry Northern who had the following to say about the lecture series that carries on his good friend's legacy.

I had the pleasure and privilege of working with Marion Downs for more than three decades. The many contributions made by Dr. Downs will, for many years in the future, no doubt serve to influence and encourage our hearing care for children of all ages. In fact, I firmly believe that every audiologist who tests the hearing of a baby, or provides services in early intervention, carries on the great work and spirit of Marion.

I know Marion took great delight in this pediatric lecture series and she would beam with pride if she could see this great turnout this morning. Marion was a great believer in continuing education—and that audiologists who provide services to infants, toddlers, and children were obligated to constantly advance their skills and knowledge.

She thought that the specialty certification for pediatric audiologists (or audiology) was so necessary and important, that she jumped at the chance to serve as the Honorary Chairperson of the American Board of Audiology (ABA) Pediatric Audiology Specialty Certification program. Please give serious consideration of achieving the specialty certification that will demonstrate your commitment and skills for working with hearing-impaired children of all ages.

If you attended this year's lecture, you probably left in awe of the quality care in Australia and the pioneering data coming out of the Longitudinal Outcomes of Children with Hearing Impairment (LOCHI) study. Dr. Teresa Ching from the National Acoustic Laboratories (NAL) in Australia was this year's invited lecturer, and she shared with the standing-room-only audience her seminar titled, "Population Outcomes of Children with Hearing Loss: Early Treatment Is Crucial but Not Sufficient." We had the great fortune of sitting down with Dr. Ching after her lecture to continue the conversation about how to implement some of the lessons she presented.

Our conversation started with a discussion of how to best promote uniform high-quality practice standards in the United States, which does not have a single-payer system or mandated guidelines for services. Dr. Ching felt that our professional organizations should take the lead and "provide specific recommendations for the knowledge and skills necessary to provide services for our children with hearing loss." Of relevance to this viewpoint, the American Board of Audiology is the only organization that currently offers Pediatric Audiology Specialty Certification (PASC®) (www.boardofaudiology.org).

While certification is voluntary and does not currently impact reimbursement, this may be a good start to helping third-party payers and families identify audiologists who have demonstrated the knowledge and skills needed to implement best practice. After the lecture, we had the opportunity to interview Dr. Ching and ask her some additional questions.

Dr. Ching had a full and attentive audience for her lecture.

Q: Knowing the limitations of our service delivery model in the United States that currently exists, what would be the one recommendation you would make to promote best outcomes for children diagnosed with hearing loss?

A: Being able to identify those children who need cochlear implants and implant earlier would make a huge difference. It is so important to show the public the impact cochlear implants have on children's language ability, at five years of age, of delaying cochlear implantation during the first two years of life—we now have clear data that allow us to calculate the effect size.

We can also estimate, for a certain degree of hearing loss, the probability of the performance of a child being better with cochlear implants than with hearing aids for a given age at hearing aid fitting and a given age at cochlear implant activation. In this study, all children receive the same high-quality services, the same high-quality hearing aids and cochlear implant processors. There is no question that they are getting the state of the art services/equipment. The data show the critical importance of very early implantation and this finding is universal. Language delays are preventable if we act early. We need to use the data to promote earlier access to cochlear implants.

One of the assessments you discussed in your lecture was aided cortical auditory-evoked potentials (CAEPs). The first question on many of our minds was how can we implement and make this accessible in the United States? How feasible is it to offer these services clinically?

The expertise to perform this type of test is not an issue. I understand that people might have questions because they haven't done it before, but if they are familiar with doing auditory brainstem response testing, CAEP testing is simpler. We developed the protocols and validated them, and then we provided training through three-hour workshops to pediatric audiologists who may or may not have had any experience with electrophysiological testing.

Australian Hearing uses a "train-the-trainer" system for additional support and provides on-call support through an advice hotline manned by clinical coaches.

The clinicians embraced CAEP testing because it gave them information that they didn't have access to before this testing. We recently completed a survey of families and clinicians who were in the initial phase of the cortical testing, and the response was completely positive. Parents love the objective information, especially for those who have issues of uncertainty like ANSD and additional disabilities. Clinicians love it because it empowers them to provide additional data to families to support their recommendations.

CAEP testing makes such a huge difference in the first few months before a child can respond behaviorally in a reliable manner. Currently, we complete unaided cortical testing on our patients with ANSD following diagnosis to determine whether hearing aids need to be fitted, and we do aided cortical testing to confirm audibility. We perform aided cortical testing on most children shortly after initial fitting of hearing aids to evaluate the effectiveness of the devices—it is critical information to have in the first few months of life. As an aside, children with mild loss or profound loss are sometimes not assessed because the cortical results are predictable if the audiogram is correct. We use the HEARLab equipment, which is FDA-approved for use in the United States, and our clinical protocol for CAEP testing is freely downloadable from http://hearlab.nal.gov.au/practical-AH-protocol.shtml.

The protocol will be updated this summer to a more time-efficient procedure.

You mentioned in your presentation that you have a paradigm for assessing discrimination with CAEPs. Is that something you are doing in your clinics?

This is something we are doing in our research but have not yet developed as a clinical tool. In the same way as we can assess detection using CAEP testing, we can assess discrimination by applying a different set of stimuli and algorithm for determining the presence of responses. It will give us so much more valuable information about the effectiveness of hearing devices because we are not just looking at detection but also discrimination.

Do you perform any diagnostic testing through telepractice?

There are areas in Australia that are so remote that, while Australian Hearing does send audiologists out, you can only do that so many times, thus, in circumstances like these, telepractice is used. We currently don't do the cortical testing remotely, but I don't see any reason why this wouldn't be possible in principle. We just need someone who is trained to put the sensors on, and keep the baby entertained and reasonably quiet. When you can map cochlear implants remotely, which we do now, I don't see any reason why you could not also do cortical testing.

Do you think we will ever achieve parity in expressive and reception language ability with child with hearing impairment and typically hearing children?

I think we will. If we consider the outcomes of the LOCHI study, and you exclude the children with additional disabilities, then you are looking at a median language score at five years-of-age at about 90 and a median score of about 100 for non-verbal cognitive ability. That is much better than what has been reported in the literature in the past on population outcomes, but language skill is still a bit lower than what their cognitive potential would indicate.

Two things that we need to focus include (1) the effectiveness of the amplification very early on—the discrimination task with CAEPs is a step in the right direction, and (2) the educational intervention part. Intervention programs need to be based on evidence. There are very basic skills in processing sounds, especially phonological awareness skills, that need to be worked on early. If we are able to get the hearing side as best as we can, I don't see any reason why these children cannot achieve the same outcomes as typically hearing children.

Tell us what you think about frequency lowering/compression? How are you fitting/verifying it?

In the LOCHI study, we used a randomized controlled trial for frequency-lowering technology versus conventional technology. The data show that, on average, there was no significant difference in language outcomes between the two groups. Overall, we don't see a compelling reason to use it or not use it. So, what do we currently do when frequency lowering is used? We perform cortical assessment using the "s" stimulus. If a response is absent for stimuli presented at 65 dB, we increase the presentation level to 75 dB; if it is still not there and the audiogram

Dr. Teresa Ching, third from the left, was presented a plaque for her wonderful lecture by Foundation Chair Therese Walden, second from the left, and Don Schum, far right. Dr. Jerry Northern, far left, introduced this year's lecture, which is generously funded with philanthropic support from the Oticon Foundation.

suggests that the hearing loss is severe to profound in the high frequencies, we use frequency lowering and evaluate the fitting with aided CAEPs to see if we can provide audibility. In the future, we might be able to use cortical discrimination testing to check that the frequency compression is not so great that /s/ and /sh/ have become indistinguishable."

In the LOCHI study, one of the outcomes you are assessing is psychosocial or social emotional development. What tools are you using to assess this, and what have you found in this area of development?

We used the Child Development Inventory of Social Skill and a parent report tool called the Strength and Difficulties Questionnaire, which gives you subscale scores for conduct, hyperactivity, peer problems, pro-social behavior, and emotions. These scores were used to derive a global psychosocial score for each child. The average score of LOCHI children was 0.67 standard deviation below the normal score for typically developing children. We found that the early PEACH scores have accounted for 18 percent of the variability in psychosocial outcomes at five years, after we allowed for the effect of language skills. This finding supports the use of the PEACH to identify children who may be at risk of psychosocial development. We need to develop tools to support psychosocial development and to measure the effectiveness of these tools.

What an opportunity it was for us to not only attend your presentation but to have this opportunity to talk afterward! Are there any parting comments you would have for us?

The principle with any treatment/intervention is that we must always evaluate its effectiveness; and we must use an evidence-based approach in the way we manage childhood hearing loss. If there is no evidence, you really need to evaluate your individual patient's outcomes and determine effectiveness of your treatment; and if it is not effective, have the courage to change.

Conclusion

The LOCHI study is generating the evidence to better support our youngest patients with hearing loss. Dr. Ching's lecture was a fitting tribute to the legacy of Marion Downs. Because of the generous support of the Oticon Foundation, the Marion Downs Pediatric Audiology Lecture is available for free through www.eAudiology.org. We are grateful to Dr. Ching for the groundbreaking work she and her colleagues from the National Acoustic Laboratories are doing, and we look forward to using this information to support our patients.

Eileen Rall, AuD, PASC, Board Certificed in Audiology, is with The Children's Hospital of Philadelphia in Philadelphia,Pennsylvania.

Alison Grimes, AuD, Board Certified in Audiology, is a director with UCLA Health Audiology, in Los Angeles, California.

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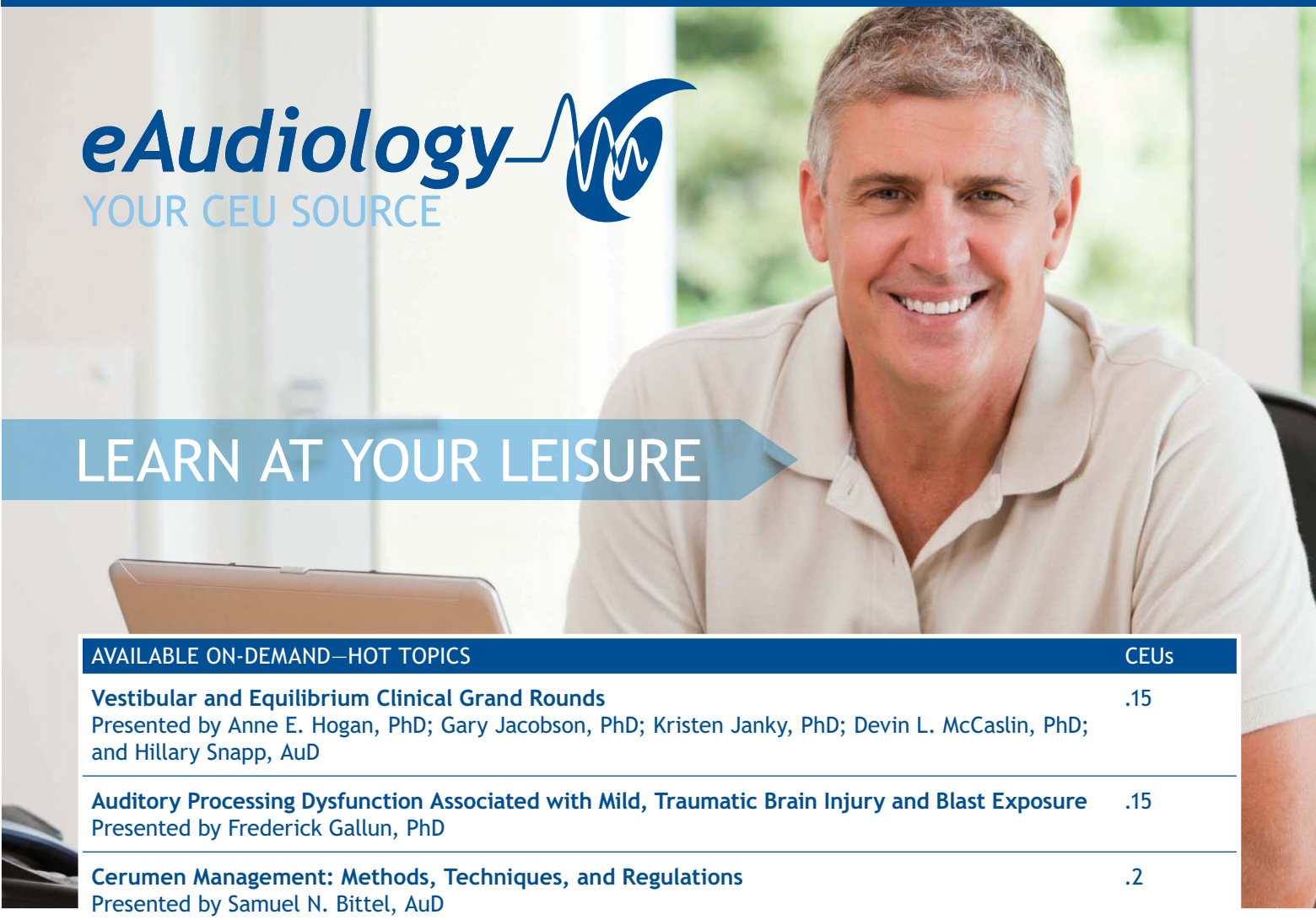

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Embezzlement
Could It Really Happen To You?

BY ROBERT M. TRAYNOR

What is embezzlement, who embezzles, and how.

In addition to seeing their patients, audiologists write reports, conduct marketing, manage employees, pay suppliers, and many other business tasks, as well as meet family responsibilities, all in an eight-hour day that often turns to 12 or more. Allocating certain business transactions to a trusted individual facilitates the smooth operation of the clinic and allows the practitioner to focus on exceptional patient care. While attempting to make the clinic and business life a bit easier, practice owners expose themselves to the age old crime of *embezzlement*.

The Crime of Embezzlement

The Texas Medical Society (2014) describes the crime of embezzlement as when a trusted person steals funds, patient files, or other valuable items from the practice. By their definition, "embezzlement is an act of dishonestly withholding assets of another for the purpose of conversion (theft) of such assets by one or more persons to whom the assets were entrusted, either to be held or to be used for specific purposes." They further describe it is a premeditated crime performed methodically with the embezzler taking precautions to conceal their own activities as the theft is occurring without the knowledge or the consent of the affected person or organization. Vlachos (2013) presents that 95 percent of embezzlements are committed by 10 percent of the workforce for an estimated cost to United States business of 40 billion dollars each year. Successful embezzlements often continue for years (or even decades) without detection 75 percent of the time. About 40 percent of small businesses in the United States will be targeted, for an average loss of $140,000, but only reported two percent of the time. Sixty percent of embezzlers are trusted, long-term employees or family

friends/relatives, and nine out of ten are first-time offenders.

Collateral Damage from Embezzlement

Embezzlement is a personal violation crime. Among victimized practice owners, trust in their own judgment and their trust in others is often shattered. There is a sense of betrayal, especially if the perpetrator is a friend or a relative. Moreover, forensic psychologists indicate that there are more ramifications that come from this crime for the victim than simply the funds that are lost, such as:

- Family, friends, colleagues (and even patients, if they know) may blame the victim over what they perceive as lack of judgment, resulting in the possibility of withdrawing financial or emotional support.
- Consumer protection agencies for failing to protect your interests.
- Creditors and suppliers who don't understand your dire financial circumstances.
- Very few of these cases are prosecuted as community, state, and federal law enforcement agencies have limited resources to assist victims and prosecute perpetrators.

Can You Tell Who Is an Embezzler?

Early on in reviewing the crime of embezzlement, Peterson (1947) observed that the embezzler is an anomaly in the field of crime. Previous arrest and/or prison records are frequently not available to act as a warning of possible dishonest conduct. Steady work records often conceal the psychological or financial instability that may be present in the person. Pedneault (2010) states that no one has yet to discover a "sure-fire" method of avoiding the employment of potential embezzlers, as they follow no pattern and offer no outward signs. They may be 18 years old or 80 years old, work for a firm for four months or forty years, be paid $1,800 or $18,000, and steal anywhere from a few hundred dollars to many hundreds of thousands. He further states that for the most part, embezzlements are committed by individuals who have no previous criminal records and whose business and personal background are beyond reproach. While there are many methods embezzlers can use to hide their crimes, there are often warning signs evident in the employee's behavior long before the theft is uncovered. These warning signs can have legitimate explanations individually, but several red flags together could signify an embezzlement problem. Generally there are a number of behaviors that might offer clues such as the following:

- An overly enthusiastic employee who consistently asks questions about business processes and procedures.
- Employees that make major lifestyle changes, living beyond the means afforded by their salary.
- Employees with excessive debt created by divorce, an affair, drug abuse, or ongoing financial or legal issues.
- Gambling debts are a major cause of embezzlement.
- Refusing to take time off or not wanting someone else to take over their duties.
- Beware of employees that want to work when no one is around, such as after hours or on weekends.
- A hostile attitude toward reasonable questions, particularly about financial transactions.
- A disgruntled employee dissatisfied with the practice or the practice owner.

But why do these people break the bond of trust with their employers? Sometimes these employees are even the practice owner's relatives.

What causes them to not only break the trust of their employer, but create insurmountable issues within families? Cressey (1973) describes the "triangle of fraud" and all three factors must be present before a person will commit fraud or embezzlement:

1. Need
2. Opportunity
3. Rationalization

Need involves stealing to resolve a desperate financial problem, such as an addiction to drugs, alcohol, gambling, shopping, or an extramarital affair. Embezzlers may be simply attempting to keep up with their peers financially or be motivated by the pressure created by the loss of their spouse's job, divorce, or otherwise drowning in debt.

Opportunity is defined as a perception that there is a low probability of being caught. In accounting, the descriptive word for this is "poor internal controls." For some employees, the opportunity to steal is very difficult

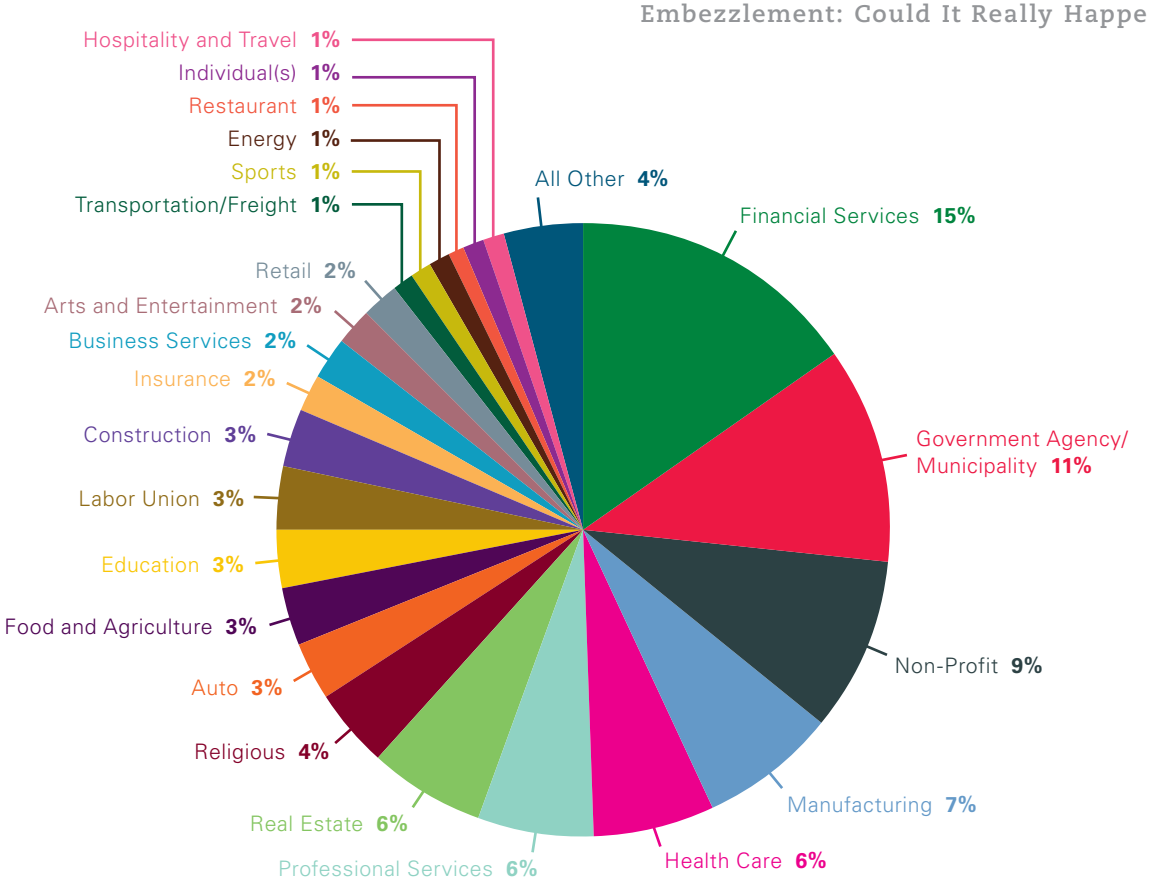

FIGURE 1. Major embezzlements by industry (Marquet Industries, 2013).

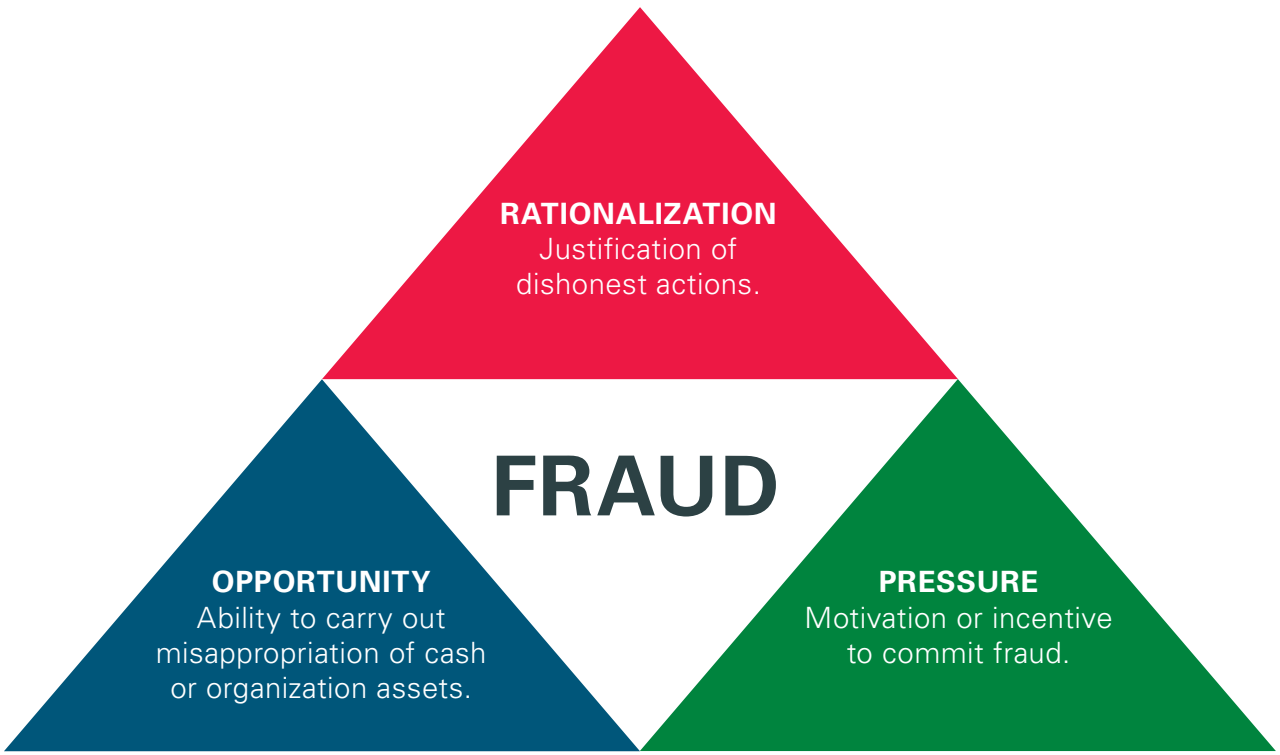

FIGURE 2. The fraud triangle (Knopp, 2013).

Some embezzlement schemes are so clever that they're almost impossible to catch, but one typical weakness is that they usually require ongoing maintenance on the part of the embezzler.

to resist. The combination of being the trusted individual in the practice who conducts the business, handles the funds, writes the checks, makes deposits, and reconciles the bank statements, combined with a busy, possibly absent practice owner, is opening the door to theft.

Zeune (2015) discusses rationalization as the employee's mental process of making his or her illegal action fit within a personal code of conduct or ethics. In other words, the dishonest employee must be able to "talk himself into the action." Rationalization often results in what he refers to as "situational fraud." An employee's propensity to steal or embezzle can be predicted on the basis of a widely-accepted formula:

- Five to 10 percent of employees would never—ever—do anything wrong.
- Five to 10 percent of employees are always scheming to steal whatever they can obtain.
- Eighty to 90 percent of remaining employees will commit "situational fraud" when they have an opportunity and rationalization.

Then there is the rationalization of the theft with thoughts such as, "I deserve a raise!" or "Who are these people to make all this money and I can't?" or other such issues. Often there are good intentions of borrowing the funds and a desire to pay it back later. While there may be good intentions to just take a loan, if the theft is not discovered the funds are never paid back.

Symptoms of Embezzlement?

Symptoms of embezzlement can be as simple as reviewing the bank account and cash flow, or extremely complex requiring the services of a forensic accountant to sort out the problem. While not an exhaustive list, certified public accountants (CPAs) such as Potkonjak (2013), offer seven general symptoms that embezzlement could be occurring in your practice:

1. Sales Rich but Cash Poor

If you believe that the business activity in your practice should be generating more cash than it is for a given level of activity, relate the sales data to gross margins by product or service. Disparities between what should exist and what actually does exist on the Income (Profit and Loss) Statement could be indicative of concern.

2. Unusual Income (Profit and Loss) Statement Balances

Expenses that are not consistent with historic norms or budgeted. These amounts need to be checked as to the specifics to insure that they are real.

3. Vague, Implausible, or Inadequate Explanations

Once unusual Income (Profit and Loss) Statement activity is noted, those responsible for maintaining the spreadsheets and the books should be questioned. If their explanations are not clear or seemingly irrelevant to the question at hand, it may be necessary to have your accountant recheck the entries.

4. Missing, Altered, or Incomplete Supporting Documents

Normal business transactions are generally supported by a strong documentation trail. If your analysis of the Income (Profit and Loss) Statement has prompted you to request support for a particular transaction that cannot be immediately produced in its original format, appears with manual edits, or the person responsible is otherwise incapable of a plausible explanation, the accountant should review this and other transactions.

5. Missing or Problematic Bank Reconciliations

Cash needs to balance and embezzlers often manipulate cash to hide their theft. If bank account reconciliations are not prepared in a timely manner, span multiple accounting periods, include significantly old or unusual items, include a list of reconciling items that have grown over time, or if the reconciliation includes an "adjustment" for unreconciled differences, the practice accountant should be consulted.

6. Voids, Reissues, Write-Offs, and Other Adjustments

If checks are voided and reissued more frequently than you would expect, if the accounts receivable write-offs are collectively large or individually strange, or if balances are reclassified or "adjusted" without adequate support, the adjustment could be theft.

7. Third-Party Complaints

This is a big clue that something is awry. When patients or vendors complain about misapplications of their payments on accounts or missing payments to suppliers, this is a signal that fraud could be in progress.

How Embezzlers Steal

It has been suggested that the limits of stealing by employees is limited only by their ingenuity. Embezzlement takes many forms, from simply taking 20 dollars from petty cash, to ingenious schemes to manipulate large sums and hide these transactions in the books. While space limits detailed discussion of the most popular methods of diverting funds, Anderson (2015) and Pedneault (2010) present a checklist of popular methods of how employees steal. The following is their checklist, applied to an audiology practice:

1. Issuing fictitious checks to pay bills from fictitious suppliers and cashing them through a signature stamp or faked endorsement.

2. Invoicing products such as hearing aids, batteries, and etcetera, below the established prices and pocketing the difference between the usual price and the invoiced price.

3. Raising the amounts of checks, invoices, and vouchers after the practice owner has officially approved the amounts.

4. Issuing and cashing checks for returned hearing aids and other products not actually returned.

5. Pocketing the proceeds of cash sales for hearing aids, batteries, or accessories and not recording the transactions.

6. Pocketing collections from "uncollectable" accounts receivable.

7. A procedure called "lapping," which is the pocketing of small amounts of funds from incoming payments and applying them to accounts to cover previously embezzled funds.

8. Forging checks and destroying them when they are returned by the bank, then concealing the transactions by modifying the books or by raising the amounts of legitimate checks.

9. Charging patients more than a duplicate invoice or sales slip shows and pocketing the difference.

10. Padding payroll as to rates, time, production, or number of employees and then pocketing the differences.

11. Failing to record returned devices or other purchases, allowances, and discounts and appropriating equivalent amounts of cash to themselves.

12. Paying suppliers or creditors twice and appropriating the second check to themselves.

13. Appropriating to themselves checks made out to "cash" or to the bank supposedly for creditors' accounts, payment of notes, or other expenses.

14. Stealing from the petty cash or cash register and making adjustments in the tape or receipts.

15. Misappropriating cash and charging the amounts taken to fictitious patients' accounts.

16. Increasing the amounts of creditors' invoices and pocketing the difference.

17. Pocketing portions of collections made from patients and offsetting them on the books by improper allowances for discounts.

Undoubtedly, there are many more methods which may be used by unscrupulous employees or consultants who have access to the accounts and the cash flow of the practice. Usually embezzlements do not happen right way. When they do, it will be in small amounts first then, over time, the amounts get larger and the track to discovery becomes more obvious.

Tips for Embezzlement Prevention

While there is no sure-fire method of preventing embezzlement, there are some precautions that can be taken by practice owners to lessen their chances of being targeted. First of all, set a good example for your employees. An employer who dips into petty cash, fudges on an expense account, uses company funds for personal items, or sets other examples of loose business behavior will find employees rationalizing dishonest actions with the attitude "if it's good enough for the boss, its good enough for me." Another discouragement of embezzlement is by establishing a climate of accountability. Employees should know their jobs and feel trusted to do them but

should also realize that they are held accountable for their actions. It is important for busy practice managers to examine the financial procedures within the clinic and determine what controls can be added to forestall dishonesty. The system should be designed to provide documented evidence in the event someone does try to embezzle your funds. A major problem in embezzlement claims is proving the amount that was stolen. If an embezzlement does occur, the practice owner will be expected to support the loss with evidence, documented facts, and figures obtained from the books. While most professional accountants and CPAs offer similar suggestions to minimize embezzlement, Mar (2011) summarizes these suggestions into nine tips that can control embezzlement in your practice:

1. Do an extensive background check before hiring. It's a good idea to be informed about the person you're hiring *before* you hire them. Do not simply rely on recommendations, interviews, and their resume. It is necessary to conduct a criminal record check and a credit check before the final candidate is hired for positions that will handle funds, such as bookkeepers,

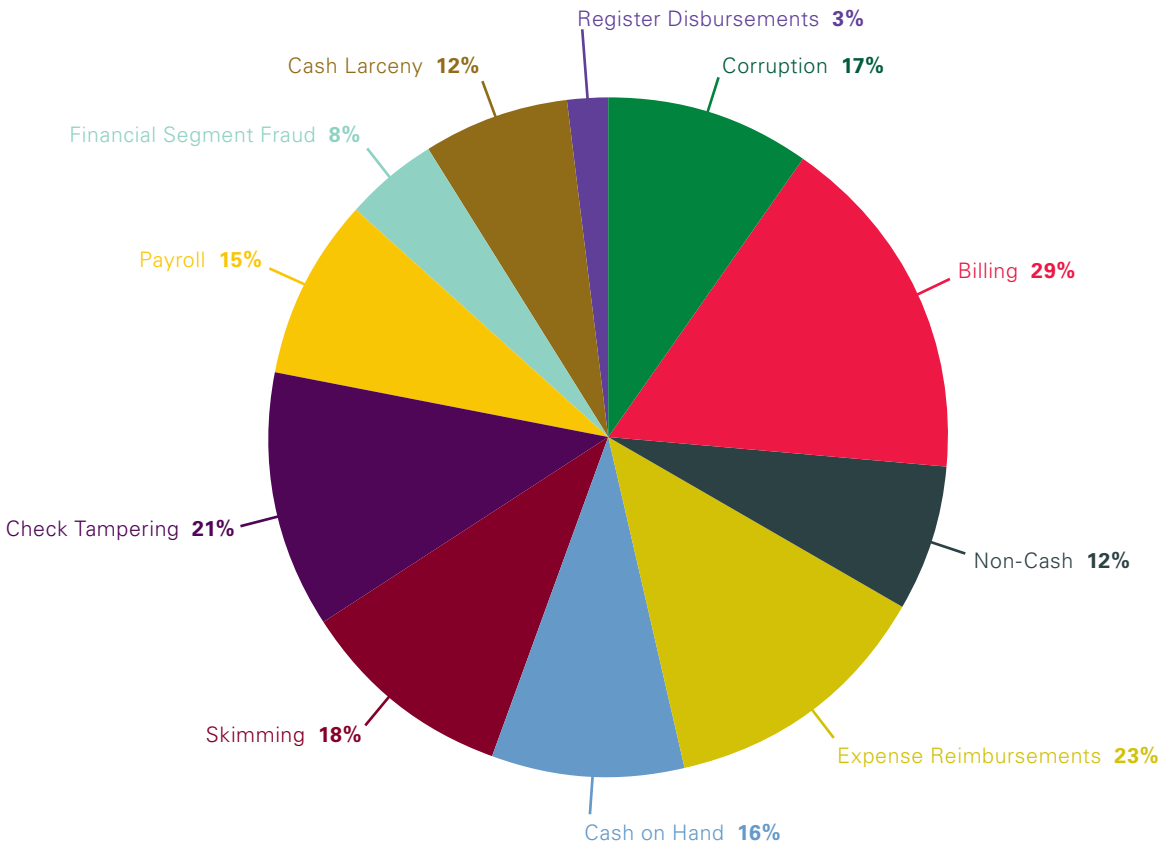

FIGURE 3. Types of embezzlement in hearing care.

Source: Association of Certified Fraud Examiners (2014).

office managers, and others that are involved with the day-to-day transactions.

2. **Keep track of your practice's checks.** Purchase and use pre-numbered checks and periodically look for missing check numbers by using the Missing Checks report. Have a written "voided check" procedure that requires all voided checks to be coded to an Expense Account called Voided Checks. Never sign a blank check, NEVER use a signature stamp, and never insert a graphic of your signature to be printed on each check.

3. **Sign and verify all checks, especially payroll checks.** It's a good idea to sign all checks, even the small ones, personally. The benefit of signing all of your checks is that your signature will be a requirement for money to leave the business.

4. **Make bank deposits nightly.** As the practice owner, you should make the nightly bank deposits. While there is not usually much cash in the clinic, this is especially true for cash because it is so tempting and easy to steal.

5. **Understand your books.** Embezzlement is easy to miss and difficult to prove if bookkeeping is sloppy or unsupervised. Practice owners need to be educated in financial statements and know how to evaluate them. The more you understand about accounting and your particular software, the easier it is to pick up irregularities.

6. **Reconcile the bank and credit card statements yourself.** Make it a practice policy that you are the one who is responsible for reconciling the monthly bank and credit card accounts. This way, you can make sure that no one is forging your signature by simply reviewing the checks and the statements.

7. **Separate mailroom from bank deposit and reconciliation.** As mentioned earlier, one of the most common ways to embezzle money from an employer is called "lapping". To lap, an embezzler skims a little bit of the cash that comes in each month and then adjusts the books to hide the skimming. As long as the person skimming the cash also maintains the checkbook and reconciles the bank, it's easy for the theft to go unnoticed.

8. **Protect Other Valuable Assets.** From an embezzler's perspective, cash is the most convenient item to steal as it is portable, easy to store, and easy to convert. Cash is usually watched closely so embezzlers so they often steal other items of value, such as office equipment, inventory, supplies, and even patient files.

9. **Require Vacations.** There's a final embezzlement prevention tool that many big businesses use and should be considered by small businesses as well. Require regular vacations of a week or two. Some embezzlement schemes are so clever that they're almost impossible to catch, but one typical weakness is that they usually require ongoing maintenance on the part of the embezzler. By mandating employee vacations, the practice owner can observe what happens if the employee is absent for a few days.

Those handling funds in the clinic need to be closely and routinely monitored, to insure that all of the profits stay within the practice and not in someone else's pocket. Practice owners must exercise continuous due diligence in monitoring all business operations. As Peter Drucker reminds us, "efficiency is doing things right; effectiveness is doing the right things." (Cohen, 2010)

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ARC16 CAPD EVALUATION AND TREATMENT

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Evidence is fast accumulating on the feasibility of rehabilitative procedures and how they can help those with CAPD. It is clear the this year's ARC program not only brought together a group of outstanding speakers, but also provided a forum for exchange of ideas and learning for both students and established professionals.

BY FRANK MUSIEK

The Academy Research Conference (ARC) 2016 was another huge success, attracting over 260 participants—many from outside the United States. As chair of the program, I was honored to work with the Program Committee consisting of Doris Bamiou, MD; Teri Bellis, PhD; Gail Chermak, PhD; David Moore, PhD; and Jennifer Shinn, PhD. As in past conferences, the focus of the meeting was translational research, but this year, demonstrated the fast moving area of CAPD and how progress is influencing our view of basic and applied research. I introduced the conference with highlights on how tinnitus, noise-induced hearing loss, and recruitment—once thought to be the domain of the auditory periphery—are now considered mechanisms linked, at least in part, to the central auditory system.

The program showcased over 40 posters on CAPD and related issues. A number of posters were from students who received travel scholarships as part of the ARC. An outstanding faculty was recruited to highlight not only the latest research but also show the breadth of basic and applied investigations into CAPD. The conference was a testament to the worldwide interest in CAPD as well as the progress being made in the lab as well as the clinic. The following are abstracts from the speakers at ARC.

Animal Models of Neurodevelopment Disruption and Associated Acoustic Processing

R. Holly Fitch, PhD, Professor of Behavioral Neuroscience, Department of Psychological Sciences at the University of Connecticut (UConn); and Director of UConn's Murine Behavioral Neurogenetics Facility.

The purpose of this presentation was to explore novel methods and approaches (animal models) to improve our understanding of auditory processing disorders that correlate with—and predict—poor language outcomes in humans. A number of existing methodologies provide insight about the relationships among genetics, neural substrates, neural processing, acoustic processing, and language skills. These include cross-sectional and longitudinal behavioral studies of typical and atypical populations, genetic association studies using language or pre-lingual scores (i.e., mismatch negativity to phonemes), and structural/functional neuroassessments in typical and atypical populations.

However, the crucial link between early genetic/environmental factors and early brain development is difficult to access in humans. This reflects the typical age-at-diagnosis for most language disorders, as well as restrictions in the study of infants. Recent advancements in gene engineering using rodent models, coupled with sophisticated behavioral phenotyping, provides an alternate route to study these relationships. Rodent studies have revealed associations between mutations to rodent homologs of genes associated with language outcomes (DYX1C1, DCDC2, KIAA0319 (dyslexia), CNTNAP2 (SLI, ASD), and relevant behavioral impairments in auditory processing. Interestingly, patterns of deficits and apparent level of processing anomalies differs with manipulation of different genes. For example, while anomalies in Dyx1c1 and Dcdc2 are associated with deficits in working memory and in processing complex acoustic stimuli, anomalies in Kiaa0319 are associated with deficits in discriminating rapid acoustic stimuli only, with no memory impairments. Anomalies in Cntnap2 are associated with some complex acoustic processing impairments, but also with a surprising superiority in acoustic pitch discrimination. Other models are being explored, including the impact of early brain injuries sustained by preterm infants, and infants with birth complications, on neural and acoustic processing outcomes. Ongoing research will continue to pursue these important topics, providing insight about early factors that might be used to screen and/or provide intervention for infants at risk for poor language outcomes.

Auditory Cortex Plasticity Following Hearing Loss

Stephen Lomber, PhD, Professor of Physiology and Pharmacology, National Centre for Audiology, University of Western Ontario, London, Ontario, Canada

When the developing brain is deprived of input from one sensory modality, it often compensates with supernormal performance in one or more of the intact sensory systems. In this presentation we examined evidence in support of this hypothesis. By using a battery of visual psychophysical tasks we found that congenitally deaf, compared to hearing, cats have superior localization in the peripheral visual field and lower visual movement detection thresholds. Furthermore, reversible deactivation of posterior auditory cortex selectively eliminated superior visual localization abilities while deactivation of dorsal auditory cortex eliminated superior visual motion detection.

This evidence suggests that cross-modal reorganization in the congenitally deaf switches the sensory, but not the behavioral roles of auditory cortex. More recently, it has been proposed that "deaf" auditory cortex may be recruited to perform visual cognitive functions. To test this hypothesis, we examined the visual capabilities of adult congenitally deaf cats and adult hearing cats on a battery of visual cognitive tasks to define which visual abilities are involved in cross-modal compensation.

The animals were tested on their abilities to both learn and recall seven different pattern or object discriminations: simple patterns (2-D black shapes), complex patterns (simple patterns with borders or overlays), simple objects (3-D black objects), junk objects, natural scenes (2-D pictures), and faces (both human and conspecific). Both deaf and hearing cats learned to discriminate simple patterns, complex patterns, simple objects, junk objects, and natural scenes at similar rates. However, deaf cats were significantly faster at learning (fewer trials and errors to criterion) both the human and conspecific faces compared to hearing cats.

Abilities to recall any of the visual discriminations were no different between the hearing and deaf cats. These results demonstrate that deaf subjects possess enhanced visual cognitive abilities compared to hearing subjects. The second part of this study was to examine if cross-modal reorganization in auditory cortex may be contributing to the superior cognitive capabilities of the deaf cats. To accomplish this, we bilaterally placed cooling loops on A1, A2, the temporal auditory field (TAF), and insular cortex (area IN) to permit their individual deactivation. Bilateral deactivation of A1, A2, or area IN, did not alter learning rates for either the human or conspecific faces. However, bilateral deactivation of TAF resulted in the elimination of enhanced face (both conspecific and human), discrimination learning capabilities of the deaf cats, and resulted in performance similar to hearing cats. Unilateral deactivation of left, but not right, TAF resulted in a partial, but significant, decrease in the enhanced face learning abilities of the deaf cats. These results provide evidence of a lateralization in the enhanced face learning abilities of the deaf cats. Overall, our results show that enhanced visual cognition in deaf cats is caused by cross-modal reorganization within "deaf" auditory cortex and that it is possible to localize individual visual functions within cross-modally reorganized auditory cortex.

It is clear that this year's ARC program brought together a group of outstanding speakers and provided a forum for idea exchange and learning for both students and established professionals.

Long-Term Non-Traumatic Noise Exposure: A Cause of CAPD?

Jos Eggermont, PhD, Emeritus Professor, University of Calgary, Calgary, Alberta, Canada

Auditory processing disorders can broadly be characterized as difficulty understanding speech, while having a normal audiogram and auditory brainstem responses. Exposure to sound at levels that do not cause permanent threshold shifts are generally considered safe (Gourévitch et al, 2014). Recent studies however have shown that sound levels that only cause a temporary threshold shift may still result in permanent damage to ribbon synapses in the inner-hair cells, with subsequent loss of auditory nerve fibers with high thresholds.

Going even lower in exposure levels, we have shown that exposures with multi-frequency sound band passed between 4 and 20 kHz and presented to adult cats at 80 dB SPL for more than four months continually do not produce ABR threshold shifts, but dramatically reduce (to 10–15 percent of control) the neural responses in auditory cortex for tones of 4–20 kHz, and significantly enhance the responses to frequencies above and below this range.

These exposures also resulted in reorganization of the tonotopic map in primary auditory cortex, in that the range normally most sensitive to 4–20 kHz became mostly sensitive to frequencies above 20 kHz and below 4 kHz (Noreña et al, 2006). We demonstrated also that exposures to the same sound presented at 68 dB SPL continuously for six weeks resulted in similar cortical changes, again in the presence of normal ABR thresholds, and normal DPOAEs. Here, we also looked at potential recovery from the induced cortical changes. Whereas we found the beginning of tonotopic map changes immediately after cessation of the exposure, during a three-month recovery period in a quiet room, the tonotopic maps became even more abnormal, in such a way that the center of gravity of CFs in octave bands was now found at roughly the same spatial location in primary auditory cortex.

Despite these map changes, the distribution of units' CFs became indistinguishable from that in non-exposed cats, the firing rates also recovered to normal, i.e., all signs of reduced or enhance firing rates had disappeared (Pienkowski and Eggermont, 2009). Whereas it is not clear how reorganized tonotopic maps would relate to perceptual changes in humans, a survey of recently published studies clearly shows that long term, people exposed to noise but with clinically normal audiograms have more difficulty in understanding speech, either in quiet or in noise, than their age-matched controls without such exposure. It is tempting to suggest that the changes we observed in adult cat cortex following non-traumatic noise exposure potentially also occur in humans and their present themselves as an auditory processing disorder.

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Auditory and Cognitive Processing in Older Adults

Kathleen Pichora-Fuller, PhD, Professor, Department of Psychology, University of Toronto, Ontario, Canada

Speech understanding involves bottom-up auditory processing and top-down cognitive processing. High-frequency sensorineural hearing loss is common in age-related hearing loss (ARHL), but there are also age-related changes in auditory temporal processing. Even older adults who have normal or near-normal audiograms report more difficulty listening in everyday life and these difficulties are not fully accounted for by either their pure-tone or speech-in-noise thresholds (Banh et al, 2012). Their difficulties likely reflect the combined effects of age-related changes in auditory and cognitive processing.

As adults age, there are declines in sensory and cognitive processing, but also gains in knowledge and expertise that can offset losses in processing. Younger and older listeners may achieve speech understanding by drawing on different combinations of auditory and cognitive processes. In general, younger adults rely more on auditory processing of the incoming speech signal compared to older adults, who rely to a greater extent on top-down use of knowledge, at least when supportive context is available.

Working memory resources are allocated to the dynamic processing of incoming information and to storing the information that has been processed. For any listener, as listening becomes more challenging (e.g., as background noise increases), more resources are needed for listening. As more resources are allocated to listening, fewer resources remain available for remembering what was heard. To achieve 50 percent correct word recognition, older adults with normal hearing for their age typically need a signal-to-noise ratio that is about 3 dB better than that needed by younger listeners. Therefore, in many everyday noisy situations, older adults must work harder than younger adults to understand speech. Brain activation becomes more widespread and more working memory resources are consumed as they listen harder. As listening consumes more resources, fewer resources remain available for storing information. Consequently, even though listeners are able to repeat words correctly, they may not be able to recall the words later.

The trading relationship in the allocation of working memory resources between processing and storage is the basis for tests of working memory span. This relationship has guided the development of a new test for use in rehabilitative audiology, the *Word Auditory Recognition and Recall Measure* (Smith et al, in press).

As ARHL progresses over decades, there may be permanent changes in how the brain engages in listening to and remembering information (Dupuis et al, 2015). Notably, older adults with hearing loss are at greater risk for developing dementia than peers with better hearing (Albers et al, 2015). Audiologists should consider the possibility of clinically significant cognitive declines when working with older clients. Conversely, other health professionals who are assessing dementia need to be aware that hearing loss may affect the results of cognitive testing (Jorgensen et al, 2016).

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Auditory Training for Central Auditory Processing Disorder

Jeffrey Weihing, PhD, Assistant Professor, University of Louisville, in Louisville, Kentucky

Auditory training is typically recommended as a remediation strategy for patients with central auditory processing disorder (CAPD). This training consists of challenging listening exercises that are thought to benefit listening through beneficial reorganization of the central auditory nervous system (CANS) and refinement of supra-modal support systems (e.g., attention).

Training tends to be most efficacious when: (1) tasks target the affected auditory process, (2) the challenge level of the training is adaptive based on patient performance, (3) shorter, more frequent sessions are used, and (4) reinforcement and feedback are provided to the patient based on their responses (for a review see Weihing et al, 2015).

Dichotic interaural intensity difference (DIID) training is a deficit-specific auditory training approach to remediation of dichotic listening issues in cases of CAPD (Musiek and Schochat, 1998). The training approach is applicable for patients who show asymmetric dichotic performance on common clinical tests of dichotic listening (i.e., they have a better and a poorer dichotic processing ear). The training approach is based on reducing intensity in the better ear in order to release the poorer ear from competition.

Over time the intensity of the better ear is increased to challenge the patient. Initial research has shown that patients participating in dichotic training show improved dichotic processing and, in some cases, improved listening in noise following completion of the therapy (for a review of the DIID and related research see Weihing and Musiek, 2014). Studies in adults with neurological lesions demonstrate that some patients may adopt compensatory strategies for assisting them on the dichotic listening training tasks (Weihing et al, In Preparation).

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Deficit-Specific Remediation for CAPD: Spatial Processing Disorder and Other Specific CAPD Subtypes

Harvey Dillon, PhD, National Acoustic Laboratories, Sydney Australian Hearing

The main reason for diagnosing an auditory processing disorder (APD) is to do something about it. The "something" can be either management or treatment. Management largely comprises improving the signal-to-noise ratio (SNR) received by the child and is not informed by identifying the specific type of auditory deficit. Treatment, conversely, seems most likely to succeed if auditory training can be focused on the skills in deficit, which requires a very specific diagnosis.

One specific form of APD that we have investigated in great depth is spatial processing disorder (SPD). Children with SPD are less able than their peers to use spatial cues to help segregate a target talker from sounds arriving from other directions. SPD can be diagnosed with the Listening in Spatialized Noise Sentences (LiSN-S) test, which simulates, under headphones, target and distracting sounds arriving from the same and from different directions. SPD is diagnosed when performance in the separated condition is not better than performance in the collocated condition by the amount expected for children of the test child's age. This reliance on a difference score makes the test insensitive to cognitive and language deficits. Protracted otitis media during early childhood strongly predisposes children to have SPD in later childhood. Fortunately, about 15 hours of intensive training in focusing on frontal sounds while suppressing sounds coming from both sides can totally reverse the deficit, at least up to age 12 years. Training can be done at home with LiSN and Learn computer-based training, which has just been superseded by Sound Storm, a more engaging iOS app version of the training.

Although SPD is just one form of APD, we think it is unique in the field of APD because: the test for it is very insensitive to cognitive or language deficits and has

extensive normative and reliability data, we know its major cause, there is a highly effective treatment available for it, and a blinded randomized trial has shown that the benefits of the treatment generalize to real-life listening situations.

We are currently investigating why so many children assessed for APD perform below normal limits on dichotic tests. We have devised the Dichotic Digits Difference Test (DDdT), which includes a diotic condition that shares cognitive load (memory, attention, and understanding of instructions) with the much-used Dichotic Digits Test (Cameron et al, 2016). Across both a large group of typically developing children and a small group of children referred for APD assessment, the correlation between dichotic and diotic scores is 0.7. For some children, low scores in the dichotic condition are the result of a cognitive deficit rather than anything to do with dichotic perception, even when the dichotic test result is asymmetric. (Attending to the dominant ear is intrinsically easier.) We hypothesize that identifying the type of deficit (i.e., dichotic or cognitive) present will affect the training that is optimal for children with low dichotic test scores.

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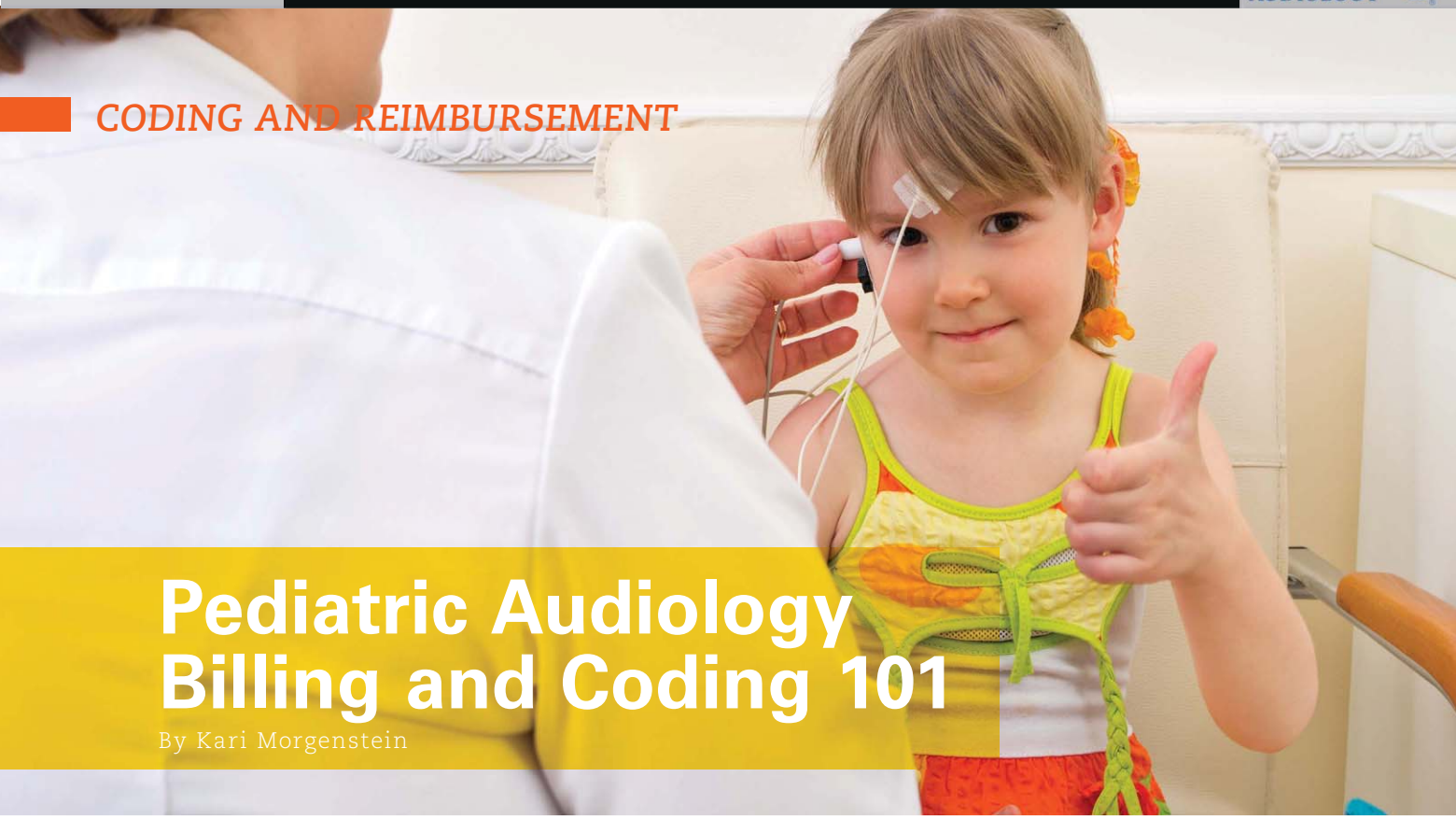
Conclusion

ARC 2016 demonstrated several key aspects of CAPD. There is a high level of interest in CAPD that includes the clinician as well as the basic scientist. Advances are rapidly being made to change the way we think about the roles of both the peripheral and central auditory systems in hearing, hearing pathology, and human communication. In addition, evidence is fast accumulating on the feasibility of rehabilitative procedures and how they can help those with CAPD. It is clear the this year's ARC program not only brought together a group of outstanding speakers but also provided a forum for exchange of ideas and learning for both students and established professionals.

A profound appreciation is extended to all those who worked diligently to make ARC the success it was in 2016. A special thanks to Jennifer Shinn, PI for the NIH grant that supported this conference.

Frank Musiek, served as chair of the Academy Research Conference (ARC) 2016. He is a professor of speech, language, and hearing sciences, at the University of Arizona, Tucson, Arizona.



CODING AND REIMBURSEMENT

Pediatric Audiology Billing and Coding 101

By Kari Morgenstein

Evaluating and managing children with hearing loss is complex and involves significant follow up to ensure children receive the proper services needed to meet their full potential. The complicated and ever-changing world of billing and coding can add another level of stress to the practice of pediatric audiology. This article will address some common pediatric diagnostic procedure billing and coding questions, in an effort to save you a few minutes in your busy and often chaotic pediatric clinic.

So, let's start with the basics! What is a Current Procedural Terminology (CPT®) code? These five-digit codes are developed and maintained by the American Medical Association. They designate a distinct test or therapeutic procedure. The procedure(s) included in the description are used to assess the value of that code.

Here are a few pointers to get you started on the right path for correct billing and coding with pediatric audiology procedures.

- Choose the CPT code that best represents the procedure that was performed.
- Most audiology CPT codes (with the exception of Visual Reinforcement Audiometry) are valued based on the procedure being performed on both ears.
- Medical record documentation must support the reason for testing and why particular codes are used.

Visual Reinforcement Audiometry and Conditioned Play Audiometry

Starting around the developmental age of six months, children are able to complete visual reinforcement audiometry (VRA). The CPT code for VRA is 92579. Historically, descriptions of VRA test procedures included both speech and tonal stimuli as part of the test protocol. If you perform VRA and are able to obtain ear-specific information, it will still likely be most appropriate to report the VRA code as it best reflects the technique and equipment utilized. As children get older, typically around the age of three, they are able to perform conditioned play audiometry (CPA). The CPT code for CPA is 92582. In contrast with the VRA code, CPA includes tonal stimuli but does not include speech stimuli. So what should you do if you perform CPA along with speech measures? In addition to 92582, you should use a code that best describes the speech measure performed such as Speech Threshold Audiometry (92555), Select Picture Audiometry (92583), or Speech Audiometry Threshold with Speech Recognition (92556).

The Challenges in Pediatrics

Sometimes, it's just not possible to obtain all the information needed for a specific child in one visit. There are cases where you may attempt a hearing evaluation, but obtain very limited information or no interpretable results at all. In these situations, the codes you select should accurately reflect the procedures, techniques, and effort used (i.e. VRA, 92579 or CPA, 92582) and not the

actual responses you obtained. This would not be considered a reduced service. It is essential that the audiologist include the effort made to obtain results and document the time spent with the child.

Tympanometry

In 2010, new CPT codes were added for evaluation of middle-ear function. Four distinct codes are now available:

- Tympanometry (92567),
- Acoustic Reflex Threshold Testing (92568),
- Tympanometry and Reflex Threshold Measurements (92550), and
- Acoustic Immittance testing, which includes Tympanometry, Acoustic Reflex Threshold Testing and Acoustic Reflex Decay Testing (92570).

If Acoustic Reflex Threshold Testing or Acoustic Reflex Threshold Testing and Acoustic Reflex Decay Testing are performed on the same date of service as Tympanometry, you must report the bundled code. If an audiologist performs a 1,000 Hz ipsilateral acoustic reflex screening only, there is no CPT code for this procedure. In this case, the Tympanometry code (92567) would be used.

Otoacoustic Emissions

In 2012, new codes were also included for Otoacoustic Emissions (OAE). The OAE screening code (92558) should be billed when an overall pass/fail result is obtained and no additional interpretation was performed. The OAE limited evaluation code (92587) should be used when the purpose of the test is to evaluate hearing status, but the child is non-compliant and you are only able to obtain a few frequencies. CPT code 92587 specifies that three to six frequencies were evaluated per ear. The OAE comprehensive evaluation code (92588) should be used when evaluating 12 or more OAE frequencies per ear.

Auditory Brainstem Response

The Limited Auditory-Evoked Potential code (92586) is generally used for newborn hearing screening. The comprehensive Auditory-Evoked Potential code (92585) should be used for all other auditory evoked response testing, including testing via air and bone conduction.

Currently, there is no CPT code that differentiates "threshold-search" ABR from "neuro-diagnostic" ABR.

Evaluation of Auditory Rehabilitation Status

CPT code 92626, Evaluation of Auditory Rehabilitation Status; first hour, can be used in the pediatric population. This code was added in 2006 to describe the assessment of a patient's auditory rehabilitation status. The evaluation process focuses on a battery of procedures designed to provide an in-depth examination of the magnitude of speech understanding abilities with and without intervention, such as hearing aids, cochlear implants, bone-conductive devices, and/or hearing assistive technology.

It should be noted that this is a time-based code and 92626 is reported for the first hour of evaluation. The code should not be used for evaluations less than 31 minutes. The code 92627 is reported for each additional 15 minutes of evaluation after the first hour.

Kari Morgenstein, AuD, is an assistant professor at the University of Miami Medical Center, Miami, Florida.

**Note, this is NOT a comprehensive list of all billing and coding items within the audiology pediatric population. Some information from the collaborative "Pediatric Audiology Billing and Coding Q&A" was presented in this article. Refer to this document for additional information: www.audiology.org/practice_management/coding/pediatric-audiology-billing-coding-questions-answers.*

FOCUS ON FOUNDATION

Don't Take a Vacation from Philanthropy

By Brenna Carroll and Kelly Coleman

Summer provides the hope of a break to leave the office and enjoy lovely summer rays, but during this time of relaxation, we hope that you don't take a summer break from philanthropy. With a growing list of non-profits, it is often overwhelming to decide where and when to give. When you have a hectic summer schedule, sometimes it is difficult to remember to give at all.

You may find yourself shopping online to prepare for your summer vacation. Do you love to shop on Amazon? Use the Amazon Smile Program (http://smile.amazon.com), and select the American Academy of Audiology Foundation (AAAF) so that Amazon donates a small percentage of your purchase to the Foundation.

It is easy to forget how valuable each and every single donation is to the Foundation. Without you, the Foundation simply could not exist. Due to all of your support, we are able to raise awareness surrounding hearing loss and balance through the "Turn it To The Left" campaign and other public initiatives, such as the "Myth vs. Fact" Poster regarding hearing loss that the Foundation created this past October for National Audiology Awareness Month.

Your donations also help fund research grants that fuel the next generation's excitement and curiosity for audiology. These research grants are critical to the future of the profession, as are the conferences and learning opportunities that your donations help to support. As professionals, you all know how crucial attending conferences are to obtain continuing education credits and remain current on new developments in the field. Your donations allow students and professionals experiencing financial difficulties to attend these remarkable learning experiences. For those who cannot attend conferences due to other obligations, your donations allow Foundation-sponsored learning opportunities, including streaming lectures such as the Marion Downs Lecture in Pediatric Audiology and Topics in Tinnitus, at no charge for professionals. To put it simply, no gift is too small, as each of your donations does make a difference.

How do you help? Maybe it is something simple such as introducing a fellow audiologist to the Foundation and educating them on the work we do in terms of grants, scholarships, lectures, and public awareness. Maybe you forgo your daily coffee stop and make a donation to the Foundation instead. Set aside all of the loose change lost in your couch and car for a month and make a donation to the Foundation. Find whatever works best for you!

Once you have decided to make a donation, how do you want to donate? Most of you probably know that you can make a contribution to the annual fund online or over the phone, but there are multiple other ways to give as well. If you want to do something kind for a fellow audiologist who has shown incredible dedication or is retiring, make a tribute donation in his or her honor. Show your gratitude for an amazing professor by starting a scholarship or program in his or her name. Take a look at our Web site to see all of the way you can make a donation at www.audiologyfoundation.org/supporters/waystogive.html.

Make giving an integral part of your life. There are so many fantastic reasons to donate your time, skills, and money. These donations show what you are passionate about and value. More importantly, all of the donations do make a difference. Furthermore, people often feel more self-confident and motivated when they give. Last, but certainly not least, the best reason to donate is because you can.

As Winston Churchill once said, "we make a living by what we get, but we make a life by what give."

Brenna Carroll, AuD, Board Certified in Audiology, is a clinical audiologist at Swedish Medical Group in western Washington. She is a member of the American Academy of Audiology Foundation Board, and serves as the Foundation's Development Chair. Kelly Coleman is the manager of the Foundation in the Reston, Virginia, office.

New Members of the Student Academy of Audiology

Pamela Achuka
Alyssa Attard
Emma Bozarth
Hannah Calhoun
Jaehee Choi
Sadie Coleman
Kendall DeLorenzo
Jeffrey Djavadi
Anne Duchen
Amanda Guzallis
Celest Hammonds
Tara Harmon-McElheney
Kelsey Harris
Casey Haumesser
Elias Hernandez
Samantha Hudson
Jacob Iveland
Bomi Kim
Gungu Kim
Sarah Klemuk
Jonghyun Kwak
Cecilia Lacey
Abby Langlinais
Stephanie Montes
Wesley Morehouse
Clarice Myers
Wondo Na
Candace Neufville
Maria Roa
Anna Ross
Margaret Schaltenbrand
Jin Bae Shiu
Silas Smith
Gabrielle Tachenko
Kristen Toole
Kelley Trapp
Melissa Velasco
Amy Voss
Samantha Weyers

Examining the PhD Shortage in Audiology

By Alissa Nickerson and Arun Joshi

Students interested in pursuing post-baccalaureate training within the discipline of audiology have a few factors to consider prior to applying to a graduate program. Most notably is the decision to pursue a clinical track, research track, or a combination of the two. The doctor of audiology degree (AuD) is a professional doctorate with emphasis on clinical practice; the goal of which is to create knowledgeable and competent hearing health-care providers. Conversely, the doctor of philosophy degree (PhD) is a research doctorate, which may be earned in the area of audiology or hearing science, and prepares students for careers in academia and research.

While these degrees have traditionally been separate, there are currently a number of university programs that are offering a combination of the two. In fact, students interested in integrating clinical and research interests have access to a variety of enrollment models, including sequential, simultaneous, and dual-program models (Ferraro and Nunez, 2008). The sequential model involves the completion of one degree followed by the remaining degree, whereas the simultaneous model involves overlap between the degrees in time. Finally, the dual-program model admits students for the purpose of beginning both degrees at the start of the program (Ferraro and Nunez, 2008).

Despite the availability of numerous enrollment models to fit students' educational needs, there

Student Academy of Audiology | SAA SPOTLIGHT

has been a decline in enrollment for students seeking the PhD degree (Florian, 2001; Gallagher, 2006; Ringel, 2004). This, coupled with an anticipated decline in senior faculty at educational institutions in the United States, is cause for concern (Florian, 2001; Ringel, 2004). These issues, albeit more complex than the scope of this article, are leading many professionals to speculate on the emerging consequences, which include a shortage of faculty to educate incoming students and a shortage of researchers within the field (Florian, 2001; Ringel, 2004).

In a discipline grounded on evidence-based practice (EBP), the emergence of new researchers is central to the provision of quality patient care. The EBP model aims to improve the quality, effectiveness, and efficiency of service delivery through careful examination of scientific evidence (Moodie et al, 2011). At present, EBP works to merge research and clinical practice, reduce practice variation, and ultimately improve patient care (Moodie et al, 2011). Of utmost importance to this model is the continued production of high-quality research. If the discipline of audiology is unable to attract and maintain high-achieving students interested in pursuing research and academic careers, there is concern that it will not continue to meet scientific, clinical, and training duties (Florian, 2001; Ringel, 2004). This notion is highlighted when we consider that many tools currently used routinely in audiology clinics—including the auditory brainstem responses, otoacoustic emissions, and real-ear measurements—were first developed as tools within research laboratories (Florian, 2001).

To date, many organizations and task forces have put forth recommendations aimed at addressing the PhD shortage (Florian, 2001; Gallagher, 2006). Some actions that have been recommended include the following: (1) increasing attention devoted to doctoral shortages, (2) increasing retention efforts of current faculty, (3) expanding student research training, (4) expanding interdisciplinary work in PhD programs, (5) creating faculty research development programs, and (6) ameliorating current traditions that may deter students from pursuing PhD degrees (Gallagher, 2006). A major priority is familiarizing current and future students with the increasing need for incoming researchers within the profession of audiology.

Opportunities for students interested in research careers are available at most educational institutions. Students interested in the possibility of a research career—both at the undergraduate and graduate levels—are encouraged to gain exposure in local laboratories to further expand their understanding of research and its role in clinical practice. Students are also encouraged to seek out external programs, such as the National Institutes of Health National Institute on Deafness and Other Communication Disorders Short Term Research Traineeship (T35), which enables students to experience research in basic, applied, and clinical sciences. The T35 traineeships are typically offered in the summer and are an excellent opportunity for graduate students to obtain an NIH-funded, in-depth, two- or three-month experience conducting research in active laboratories under the mentorship of an established scientist. At present, there are four programs in the country that offer the T35 traineeship: Boystown National Research Hospital, National Center for Rehabilitative Auditory Research, Vanderbilt University Medical Center, and Washington University School of Medicine.

Additionally, the American Academy of Audiology supports student investigators through their Research Grants in Hearing and Balance. Generously supported by the American Academy of Audiology Foundation, there are several grants available to students interested in conducting basic and applied research in hearing and balance. The Student Investigator Research Grant awards up to $5,000 to doctoral students working toward a degree in audiology or hearing science who wish to complete a research project in conjunction with their course of study. Another opportunity is the Student Summer Research Fellowship, which awards a stipend of $2,500 to undergraduate students or doctoral students currently enrolled in a program in audiology or hearing science who wish to gain limited, but significant, exposure to a research environment. The deadline for the 2017 applications will be in early fall and the Academy Web site will update the submission system during the summer.

If you are not a student, perhaps a practicing clinical audiologist, research audiologist, or academician, this is your call to action as well. The field of audiology needs current faculty to mentor tomorrow's researchers. As a community of professionals, we can work together to recruit and maintain students to be the next generation of exceptional researchers—after all, we have big shoes to fill.

Alissa Nickerson is a fourth-year AuD student at the University of Illinois at Urbana-Champaign in Champaign, Illinois. She currently serves on the National Student Academy of Audiology (SAA) Education Committee. Her

audiological interests include pediatrics and hearing aid fittings. Alissa is completing her final year externship at Presence Resurrection Medical Center in Chicago, Illinois.

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

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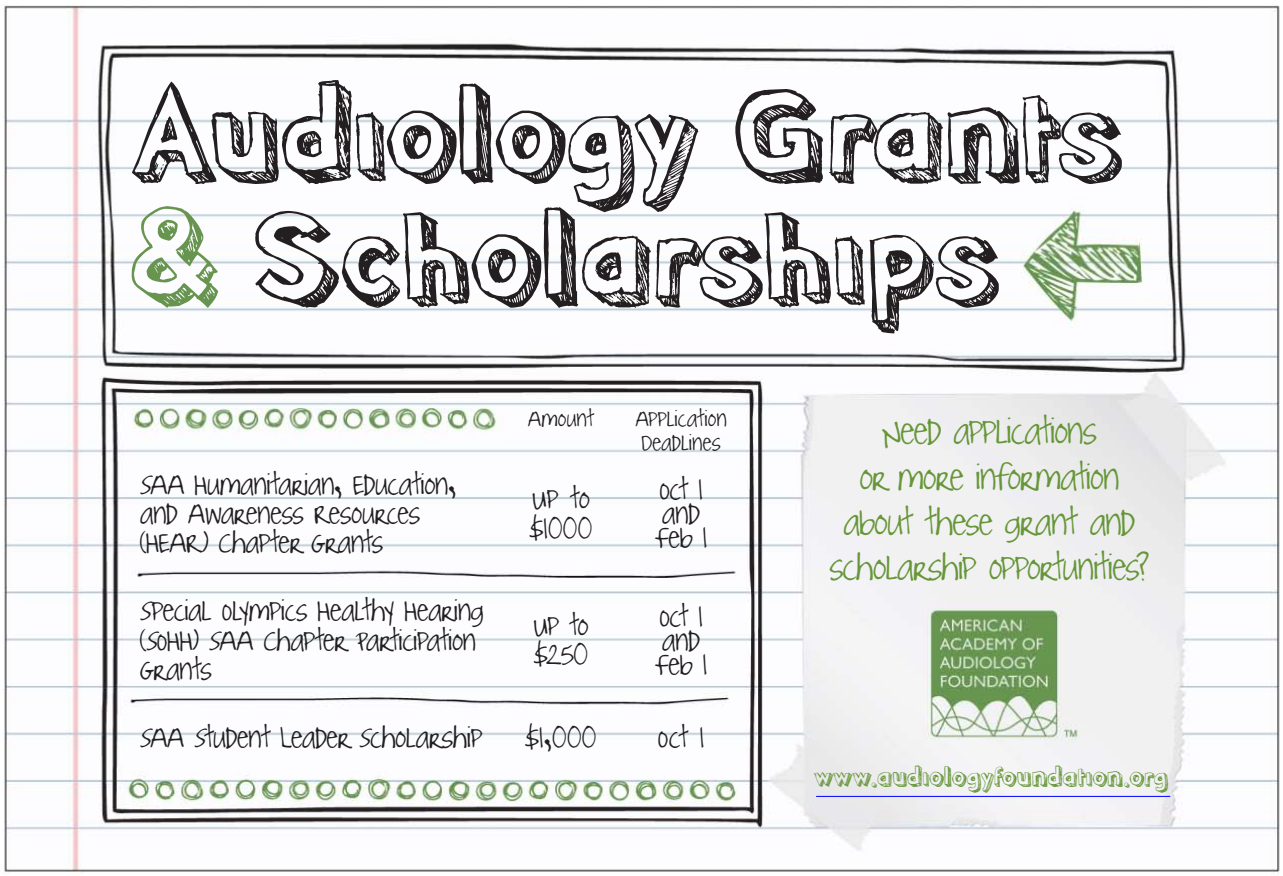


American Board of Audiology | AMERICAN BOARD OF AUDIOLOGY

Candidates for ABA Board of Governors Share Why They Want to Contribute

By John Coverstone

Three candidates are vying for the position of director for the American Board of Audiology® (ABA) Board of Governors (BoG) for a term that begins in early 2017 and continues through the end of 2019.

Audiologists who hold a current ABA certification—Board Certified in Audiology, Pediatric Audiology Specialty Certification (PASC®), or Cochlear Implant Specialty Certification (CISC®)—may vote for one of the below candidates when elections open.

Stacy D. Claycomb, AuD, PASC
Board Certified in Audiology

Shelley R. Moats, AuD, PASC

Cory Workman, AuD
Board Certified in Audiology

Please cast a vote for one of these dedicated audiologists for the ABA Board of Governors, August 1–15, 2016.

Stacy D. Claycomb, AuD

Dr. Claycomb is a clinical audiologist at the University of Colorado Hospital Hearing and Balance Center and an audiology regional coordinator for the Colorado Department of Public Health and Environment in Aurora, Colorado.

Please describe your job description/work setting.

I work at a major teaching hospital that offers a full range of audiology services. Our audiology team is comprised of 14 audiologists, who provide care at our main hospital and two satellite sites to patients ranging in age from birth through geriatric. Many audiologists in our group are engaged in clinical research with a view of improving patient outcomes. Although we maintain a high level of autonomy, our team works in close collaboration with four neurotologists as well as other multidisciplinary teams. We integrate student teaching into our clinical work and typically have several students with varying levels of experience participating in clinical care on any given day.

Please describe your prior board experience—volunteer, paid, etc., if any.

Throughout my career, I have worked on two volunteer-based boards:

Secretary/Treasurer for the Colorado Academy of Audiology, for the two-year term of 2008–2010. This position required taking meeting minutes and financial accounting for standard quarterly board meetings, as well as additional committee meetings when planning for upcoming events.

Board of Directors for the Colorado HEAR Project (2015–Current), a non-profit working to provide new hearing aids to Colorado children who are deaf or hard-of-hearing and do not qualify for public or private funding. Although legislation has improved accessibility to amplification, many children are still without adequate resources; HEAR Project attempts to fill that gap on a local level. Current responsibilities include serving on the Applications Committee and fundraising for sustainability.

Please explain why you are interested in serving on the ABA Board of Governors.

The field of audiology is in a state of growth and continued development. Since I entered the profession, we have increased the acceptable education standard for new audiologists entering the field and continue to explore further

Continued on page 68.

AMERICAN BOARD OF AUDIOLOGY

Shelley R. Moats, AuD

Dr. Moats is the founder and executive director of Little Ears Hearing Center in Louisville, Kentucky. She serves as a clinical instructor/gratis faculty member for the University of Louisville School of Medicine, Department of Surgery, Program in Audiology.

Please describe your job description/work setting.

I am the founder and executive director of Little Ears Hearing Center, a nonprofit organization that serves children with hearing loss and their families. I wear many hats: I am a clinical service provider, organizational leader, administrator, grant writer, and occasionally a receptionist and a cleaning person. I feel so fortunate to be part of an agency that is 100 percent focused on providing best practices in pediatric hearing care to every patient. We develop strong relationships with our patients and families, and take pride in providing them with the support and tools to help their child succeed. In addition, I provide guest lectures and serve as a clinic preceptor for AuD students at the University of Louisville. Specialty certification in pediatric audiology has allowed me to take my daily practice to the next level, serve as an example to students, and direct the vision and mission of Little Ears with the best quality of services in mind.

Please describe your prior board experience—volunteer, paid, etc., if any.

In addition to serving on multiple committees for state-based professional organizations and the Academy, I am a past member of the board of the Minnesota Academy of Audiology. I am currently a board member of the KY Chapter of Hands and Voices, the KY State Champion for the American Cochlear Implant Alliance, and a co-chair of the KY EHDI Advisory Council. Involvement in the profession of audiology outside of the clinic setting has given me a broader understanding of the issues that our profession faces, and the concerns that our patients and families face.

Please explain why you are interested in serving on the ABA Board of Governors.

I am dedicated to the concept of specialty certification for audiologists, and am the first PASC recipient in the state of Kentucky. I feel strongly that any type of professional certification program must have "teeth" —it cannot be a

Continued on page 68.

Cory Workman, AuD

Dr. Workman is a clinical audiologist at Southwest Idaho ENT in Nampa, Idaho.

Please describe your job description/work setting

I am a clinical audiologist in a large multi-specialty ENT practice. I see patients of all ages for hearing evaluations, hearing aids, and vestibular evaluations.

Please describe your prior board experience—volunteer, paid, etc., if any.

I had the privilege of serving on the Student Academy of Audiology Board of Directors for two years from 2011 to 2013. I served as the media committee chairman, followed by treasurer. After graduation and while practicing, I served on the Colorado Academy of Audiology Board of Directors for two years, first as vice president of communications, second as president-elect, and then as president until I left the state in June 2015 for my current position.

I am currently serving on two subcommittees for the Academy AudiologyNOW! Outreach and researching Audiology Assistants.

Please explain why you are interested in serving on the ABA Board of Governors.

While serving with the SAA, I gained a greater perspective of the importance of standing out in a crowd. I see the amazing potential and momentum of audiology. I want to be a part of that change and not just be along for the ride. Board certification is one of the best ways for audiologists to set themselves apart and be held to a higher standard. The vision of board certification falling in line with the vast majority of the medical field, as not only an achievement but as a standard that one must uphold, is exciting. It gives me confidence in the future of audiology and our ability to be the premier providers of hearing and balance health care.

What do you feel you could contribute to the ABA?

I came to audiology later in life, after working in social work and retail sales, allowing me experiences that have shaped my perspective of audiology in unique ways.

I am able to look at problems from outside of the box and find ways to improve upon current methods for addressing the problems that face audiology. I bring a

Continued on page 68.

AMERICAN BOARD OF AUDIOLOGY

CLAYCOMB CONTINUED

specialization. In my current work setting, we have long recognized that providing exceptional audiology care isn't attainable without limiting the breadth of each provider. While the currently-offered specialty certifications don't yet hold meaning to all, their potential is great for recognizing exceptional service provision. Over the course of my career, I have experienced the fortune of mentorship from passionate audiologists who have helped shaped the field of audiology through their vision. I want to contribute in a similar fashion. Now in my 10th year of clinical practice, I have both experience to draw from as well as an active interest in contributing to current and future audiology practices.

What do you feel you could contribute to the ABA?

Being an active contributer to the field of audiology is an overarching career goal that has been woven into my practice. With that objective in mind, I have always taken opportunities to share my work and passion to help others grow. On a local level, I participate on a stakeholder committee that aims to develop guidelines that improve newborn hearing screening, infant diagnostic, and amplification protocols for our youngest patients. On an international level, I contribute to the audiology training of professionals with the same values in mind. I believe audiologists alone are the best contributors to represent our core values to other specialties. As our field responds to changes in the marketplace and grows in specialization, we need both experience and fresh eyes to shape the Board and our future directions. Serving on the ABA Board of Governors is an opportunity well suited to my passion, values, and goals.

MOATS CONTINUED

purchased certificate, nor can it be something that is simply granted. Having specialty certification brings audiology to the same level as other doctoring professions, which is important for both professionals and consumers. I was impressed by the rigor of the PASC examination, even after being in practice for nearly 20 years. It was a wonderful opportunity for me to demonstrate what I know and understand what I need to relearn or investigate further. Serving on the board will provide me with an opportunity to demonstrate the value of specialty certification to our colleagues and the public, work to increase the awareness of the certifications and their benefits, and ensure the continued rigor of the certification programs.

What do you feel you could contribute to the ABA?

I have strong organizational and communication skills, in addition to management experience and past Board experience. I understand that even small tasks are important and must be handled well and in a timely manner. I would be honored to share my time and use my talents to help the ABA advance its mission.

WORKMAN CONTINUED

passion for audiologists of all professional settings. I have experience on the national and state levels and will continue to participate as much as I can. It is very important for your audiologists to be involved on local, state, and national levels to shape the future of our great profession. I have a vision of audiology as strong, independent, and united. I will work to see these through—board certification is one of the big catalysts to this becoming a reality. I also bring a passion for audiology as more than just my day-to-day job, it is a way for me to connect to my community both at home and abroad; it is an avenue for my personal growth; it is where I am privileged to associate with great providers across the country. I look forward to the opportunity to serve on the board and appreciate your consideration.

John Coverstone, AuD, Board Certified in Audiology®, is the immediate past chair and nomination committee chair on the ABA Board of Governors.

A Closer Look at the ACAE 2016 Clinical Education Forum

By Rupa Balachandran, Carol Cokely, Sumitrajit Dhar, Erica Friedland, Alyssa R. Needleman, and Doris Gordon

On April 16, 2016, the first annual event in clinical education took place in Phoenix at the American Academy of Audiology conference. The ACAE hosted a four-hour program titled, *Securing the Future of Innovative Clinical Education in Audiology*. More than 100 audiologists attended from the United States and various countries to hear presentations from leaders in the field on innovative practices and on demonstrating outcomes in clinical education. The keynote speech, *The Journey's Not Over*, was delivered by Ian Windmill, PhD, president-elect, American Academy of Audiology, and the program was moderated by Lisa L. Hunter, PhD, chair, ACAE; and Jay W. Hall III, PhD, vice chair, ACAE.

For those unable to attend the forum and as a recap for those who did, the ACAE is publishing a summary of the meeting, including abstracts from the forum's presenters in this and the next two issues of *Audiology Today*. In this issue, we will provide abstracts from four participants.

These articles will keep the interest of clinical education alive and will continue the important conversations started in April. We also may publish a lengthier article or special issue devoted to this topic in this or a professional audiology journal in the near future. A critical outcome is to develop a clear strategy and trajectory for the future education and training needs of audiology students over the next year. ACAE plans to host its second annual event about this subject at AudiologyNOW! 2017 in Indianapolis.

The Abstracts

Moving From Time-Driven to Competency-Based Metrics in Audiology Clinical Education

Rupa Balachandran, PhD, Program Director, Doctor of Audiology Program, University of the Pacific

Audiology education is governed by standards that need to be met in different areas of clinical competencies. In clinical education we continue to struggle with legacies of time-based metrics. Some come from standards that require specific clock hours to be met to satisfy requirements. These time-based metrics have subsequently been adopted by agencies for licensing criteria. Clinical placement is similarly guided by clock hours at each practicum site and reporting is presented as contact hours per patient demographic.

Time-based measures are not adequate in describing the competencies required to meet standards specified by the audiology accreditation for audiology education. They are a poor indicator of student readiness for clinical practice.

The AuD program at University of Pacific is an accelerated program and has developed a clinical curriculum which is based on student competencies in each clinic area assessed. Clinical teaching is based on the individual needs of students. These steps include the following:

1. Identifying behavior that is consistent with the competency
2. Developing an individualized plan to develop each competency
3. Clinical instruction, mentoring, and supervision
4. Assessment of competency
5. Work on next competency

Student progression through the curriculum is based on achieving clinical competencies in each area before moving on to the next.

Evidence-based clinical education requires measuring student outcomes for each of the training protocols and assessing effectiveness of clinical education. We are currently working on evaluating the effectiveness of our clinical protocol and will have data to share with you on various aspects of clinical training as it relates to accreditation standards.

acae | ACAE CORNER

Outcomes in Clinical Education: Framework for Building and Measuring Competencies

Carol Cokely, PhD, Clinical Professor and Director of Clinical Education, The University of Texas at Dallas

Outcomes in clinical education must mirror the goals of the program, provide qualitative and quantitative data documenting trajectory of individual students and the program, and align with reassessment of the program and actionable items. Furthermore, clinic-rotation and externship guidelines must support desired outcomes. Clock hours, cumulative-competency ratings, and formative written/oral examinations are useful but are largely retrospective or are not indicative of in-action capabilities.

In addition to the above-named assessment standards, programmatic tools are in place that aid in determining whether students–to-graduates can be entrusted to complete professional activities in action and engage in professional-growth activities commensurate with an independent health-care practitioner. The clinical-education framework requires documentation and uniform vetting of rotation and extern sites, recording of on-going tallies that document frequency of hands-on activities in practice, and provides for self-assessment of accomplishments, goals, and plans for self-directed growth. Protocols reflect equivalent and standardized guidelines rather than a student-by-student approach.

Programmatic, in-house, evaluations include a wide array of specific-skill readiness and a Performance Assessment of Skills (PAS) that uses standardized patients alongside trained-faculty observers to assess clinical reasoning, patient-practitioner interactions, and patient-confidence. In addition, outcomes are gathered following a minimum of six months post-graduation and offer important metrics regarding professional preparedness, curriculum relevance, career satisfaction, and debt-to-salary ratio. Aggregate data have been instrumental in development of facility/preceptor guidelines, novel clinical instruction/assessment tools, and curricular changes.

ACAE CORNER

The ABCs of Innovation—Aspirations, Balance, and Creativity

Sumitrajit (Sumit) Dhar, PhD, professor and chair, Roxelyn and Richard Pepper Department of Communication Sciences and Disorders, Northwestern University

In this presentation, I argue that we need to consider serious and immediate innovation in audiology education for three reasons, among others. First, auditory and vestibular science is evolving more rapidly than ever before. Thus audiology education needs to adapt to a model where learning how to learn new information is the central skill attained. Second, new knowledge and technology is emerging from non-traditional sources. Audiologists need to develop the ability to incorporate new information and technologies in a timely manner, but with appropriate discretion. Third, funding models of higher education, and especially professional education, are changing at a dramatic pace. Thus models of audiology education need to acknowledge this new reality while respecting the financial reality of professional compensation in today's health care environment. I discuss possible solutions to these problems but argue that solutions need to be locally sensitive but globally applicable. I advocate for national standards for measuring outcomes, particularly for readiness to practice.

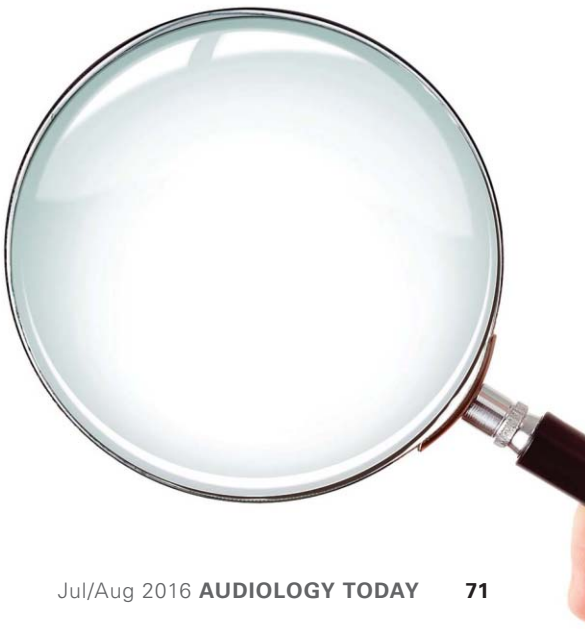
Assessment of Clinical Education: A Competency-Based Clinical Skills Evaluation Tool

Alyssa R. Needleman, PhD, Clinical Director and Associate Professor; Erica Friedland, AuD, Chair and Associate Professor, Department of Audiology, College of Health Care Sciences, Nova Southeastern University

One of the most significant aspects of the educational experience for students completing their AuD is the clinical experience. However, the diversity of clinical settings and clinical preceptors can vary widely. Some clinical settings can afford great opportunity for students to practice independently, while others, by nature of the setting and third-party contracts, cannot allow students the same level of independence. This creates significant difficulties in evaluating students' clinical and professional performance in their clinical experiences. Moreover, there is considerable diversity among community preceptors in how the student evaluation is approached and interpreted, even with training by the university.

In an attempt to better delineate student performance and expectations, an assessment tool has been developed that focuses on descriptive skill competency as opposed to skill proficiency ratings. Each clinical skill competency to be assessed (e.g., "efficiently performs and interprets tympanometry") is broken down into component skills that make up that competency (e.g., selection of probe tips, maintaining a seal, analyzing tympanogram). In this manner, preceptors are asked to make less of a judgment call based on ratings that require interpretation and definition, and are rather asked to score how many of the components of the skill the student can complete without preceptor guidance.

Outcomes indicate skill competency evaluation is an effective way to evaluate performance in externship, and individual preceptor evaluation can be normalized. Additionally, students have a better understanding of the required skills in order to achieve a specific competency level, removing ambiguity. Preceptors do not require the same training level to complete the evaluation due to the specificity of the descriptors, which saves time for both the preceptor and the university.



Conclusion

We will continue the series throughout this year, but in the meantime, we are interested in hearing your thoughts about the future for qualitative and consistent clinical education. Please feel free to respond to info@acaeaccred.org.

2016 BOARD OF DIRECTORS ELECTION RESULTS

The American Academy of Audiology is pleased to announce the results of the election for president-elect and three member-at-large positions. Please help us congratulate the following Academy members on their election to the Board of Directors. Their term of office will begin on July 1, 2016.

In April 2016, the Academy board of directors voted to align board member terms with the Academy's fiscal year. The board term for those just elected to serve will be extended by three months, ending September 30, 2019. Beginning in 2017, newly elected board members will begin their term of office on October 1.

PRESIDENT-ELECT

Jackie L. Clark, PhD

Board Certified in Audiology

Clinical Professor, University of Texas at Dallas/Callier Center, Dallas, TX; Private Practice Owner, Cedar Creek Hearing Center, Tool, TX; Managing Editor, *International Journal of Audiology*, Dallas, TX

Education

BS: Textile Science, Merchandising, Colorado State University, 1975
MS: Communication Disorders, University of Texas at Dallas, 1987
PhD: Human Development and Communication Sciences, University of Texas at Dallas, 1995

Position Statement

I easily fell in love ("hook, line, and sinker") with audiology, as a change of career person, while taking my first graduate level audiology class. Since then, I have unabashedly drunk the "Kool-Aid" from the audiology fountain with full gusto year after year. Serving on the Academy Board has provided me the privilege of working with other dedicated and passionate audiologists. Without a doubt, my volunteer service on the Academy Board has allowed me to fine tune my leadership and collegiality skills while working with richly diverse boards and committees. It is always at the top of my mind the sobering honor and responsibility in representing the profession of audiology while on occasion making those difficult decisions, which hold long-lasting repercussions.

My varied current work settings include private practice owner, clinical professor within a top ranked AuD program, researcher, and managing editor of a scholarly peer-reviewed journal. I believe the coupling of my past and current life professional perspectives with my passion for the profession of audiology have amply prepared me for stepping into the Academy Board as president-elect.

MEMBER-AT-LARGE

Bopanna B. Ballachanda, PhD

Board Certified in Audiology

Director of Central Operations, Audiology Management Group

Education

BS: Audiology and Speech Pathology, All India Institute of Speech and Hearing, University of Mysore, India, 1973
MS: Audiology, University of Texas–Dallas, Callier Center for Communication Disorders, 1982
PhD: Auditory Neurosciences, University of Texas–Dallas, Callier Center for Communication Disorders, 1988

Position Statement

I am seeking to be on the board again for several reasons—(1) I enjoyed my tenure on the board and learned a lot about the inner workings of the Academy. However, the current challenges are different, and I feel that the board can help shape the future of audiology, especially to the practitioners. I am clinician thus understand the needs of the clinicians and can work to address their concerns. (2) The current reimbursement for our services from Medicare and other payers are decreasing, and I can provide a strong voice on the board to address the coding and billing issues. (3) The Academy has a tremendous opportunity to be the leader in other parts of the world, and I feel that with my international background and experience, I can initiate and guide a global presence of the Academy. The globalization of the Academy's resources can provide additional revenue to achieve the goals set forth in our Preferred Future document.

2016 BOARD OF DIRECTORS ELECTION RESULTS

MEMBER-AT-LARGE

Tracy Murphy, AuD

Clinical Audiologist, North Shore Audio-Vestibular Lab

Education

BEd: Speech Pathology, University of Toledo, 1992
MA: Audiology, Northwestern University, 1993
AuD: Salus University, 2004

Position Statement

I am interested on serving on the Academy Board because of the continually changing climate of healthcare and the impact that will have on the delivery of audiology services in the coming years. My experience on the Academy's Coding and Reimbursement Committee and the Audiology Quality Consortium has been truly educational and only a taste of the "big picture" of issues affecting our profession. I am interested in broadening my knowledge of these issues and my contribution to the profession of audiology by serving in a board position. That, coupled with my realization that the field of audiology is dynamic and ever-changing, is why I want to be involved and impact the direction of these changes.

MEMBER-AT-LARGE

Chris Zalewski, PhD

Research Audiologist, National Institutes of Health (NIH)
Clinical Audiologist, Washington Hospital Center
Adjunct Faculty, University of Maryland

Education

BA: Communications, Pennsylvania State University, 1989
MA: Hearing and Speech Sciences, Audiology, University of Maryland, 1999
PhD: Hearing, Speech, and Language Sciences, Audiology, Gallaudet University, 2013

Position Statement

The profession of audiology has enjoyed significant advancements in its practice guidelines during the past decade, however, there is still much more to accomplish. As my father always stated, "If you're not going to move forward today, then why did you get out of bed?" It was good advice and I continue to follow it each and every day of my life both personally and professionally. To advance as a successful profession, audiology must remain diligent in its self-advocacy and its advancement of evidence-based practices. I feel the future of audiology is certainly bright and primed for significant strides in the breadth, depth, and growth of our profession. There are surely daunting tasks ahead as we face impending juxtapositions between a surge of patients over the next decade against a disproportionate patient-to-provider ratio, a strong need for clinical research undermined by a dwindling PhD population, and a changing economy where consumers are seemingly being taught to measure the benefit of amplification solely on cost rather than a strong patient-clinician relationship.

A strong vision is needed to determine the correct path for the potential growth and continued independence of our profession. These are challenges that have always driven me and I am honored to be nominated as a potential Academy Member-at-Large and have the opportunity to represent the future directions of the Academy and its 12,000 plus members.

2016 ACADEMY HONORS

Academy Honors and Awards

By Devin L. McCaslin and Gabrielle Saunders

The American Academy of Audiology (the Academy) takes great pride in recognizing leaders in our field who have not only contributed to the success of the Academy, but to the field at large. One of the mechanisms the Academy has to recognize and honor these influential individuals is the Academy Honors and Awards. There are currently seven different award categories. Specifically, there is the prestigious Jerger Career Award for Research in Audiology. This award is given to an individual with a distinguished research career in audiology and/or hearing sciences. There is also the Marion Downs Award for Excellence in Pediatric Audiology. The Samuel F. Lybarger Award for Achievements in Industry is awarded to our industry partners who have pioneered major contributions to research within the field of hearing. There is the Humanitarian Award that recognizes those individuals who have dedicated their time to making a difference in peoples' lives throughout the world that suffer from hearing and balance disorders. The Career Award for Hearing or Balance is given to a non-audiologist with a distinguished career in the field of audiology, hearing, and/or balance. There is also an award recognizing the contributions of our international colleagues. Finally, the Distinguished Achievement Award is given to an individual who is or has been an exceptional researcher, educator, and/or clinician in the field of audiology.

There are criteria that a successful candidate must fulfill to be considered. The criteria can be found on the Academy's Web site. Once the applications have been received, the Academy Honors Committee goes to work. This committee is currently chaired by Gabrielle Saunders, PhD. The committee, composed of national and international hearing professionals from many different specialty areas, is tasked with selecting the individuals who will receive the awards that year.

The nomination process is simple: to nominate an individual, the nominator must submit a packet that attests to how the nominee meets the specified honors criteria. Items that must be submitted include a letter of nomination addressed to the

committee chair, a current curriculum vitae (resume) for the proposed candidate, and one letter of support written by a colleague in the field. Any other documentation that will assist the Honors Committee in making the decision is appreciated.

One of the most satisfying events at AudiologyNOW!® is the Academy Honors and Awards Banquet where these true VIPs receive their awards. From the introductions they receive and their acceptance speeches, you will witness firsthand the influence they have had on the profession.

Who would you like to see recognized in 2017? The deadline for submitting nomination materials for the 2017 meeting will be October 4, 2017. In advance of that deadline, we challenge you to identify individuals who have inspired you, have contributed significantly to our profession, and who would be worthy recipients of the Academy Honors.

More information can be found at: www.audiology.org/about-us/academy-information/academy-honors.

Devin L. McCaslin, PhD, is associate professor and director of the Vestibular Sciences in the Department of Hearing and Speech Sciences at Vanderbilt University in Nashville, Tennessee.

Gabrielle Saunders, PhD, is the associate director of the National Center for Rehabilitative Auditory and associate professor in the Department of Otolaryngology at the Oregon Health and Science University and Research in Portland, Oregon.

Note from the Academy Honors Chair

By Gabrielle Saunders

As we note at the start of the previous article, the Academy Honors are an important way to recognize the individuals in our profession who have made significant positive impacts on clinical practice, research, and humanitarian efforts. Over the years, the Academy has honored many renowned clinicians and scientists whose work lives on in the field of audiology.

Each year, the Academy selects awardees from among nominated individuals. These individuals formally receive their awards at the Academy Honors and Awards Banquet that takes place at AudiologyNOW!® The banquet is one of the most genuinely satisfying events of AudiologyNOW! During dinner, awardees are presented with their award and give an acceptance speech all in the company of family, friends, and colleagues.

Last year, we added a new way to honor each awardee by adding a Special Session to the AudiologyNOW! program. Each awardee presented their personal story of how they got to where they are now, the achievements they are most proud of, and some of the key things they learned along the way. We will have another such session at AudiologyNOW! 2017.

Hopefully this has inspired you to nominate one of your colleagues. If so, read on….

This year we have streamlined the nomination process:

- Step 1: Go to www.audiology.org/about-us/academy-information/academy-honors to see the list of award categories.
- Step 2: Select the award category most appropriate for your nominee.
- Step 3: Prepare a one- to two-page nomination letter in which you describe why the nominee should be selected for the award. Keep the letter focused on the nominee's achievements that are directly applicable to the award for which you are nominating them.
- Step 4: Obtain the nominee's curriculum vitae (CV). Some nominators choose to keep nominations a surprise so bear this in mind when acquiring the CV.
- Step 5: Submit the letter and CV to Morgan Fincham at mfincham@audiology.org.

We hope that this streamlined nomination process will yield more nominations and we look forward to receiving your nomination packets by October 4, 2016.

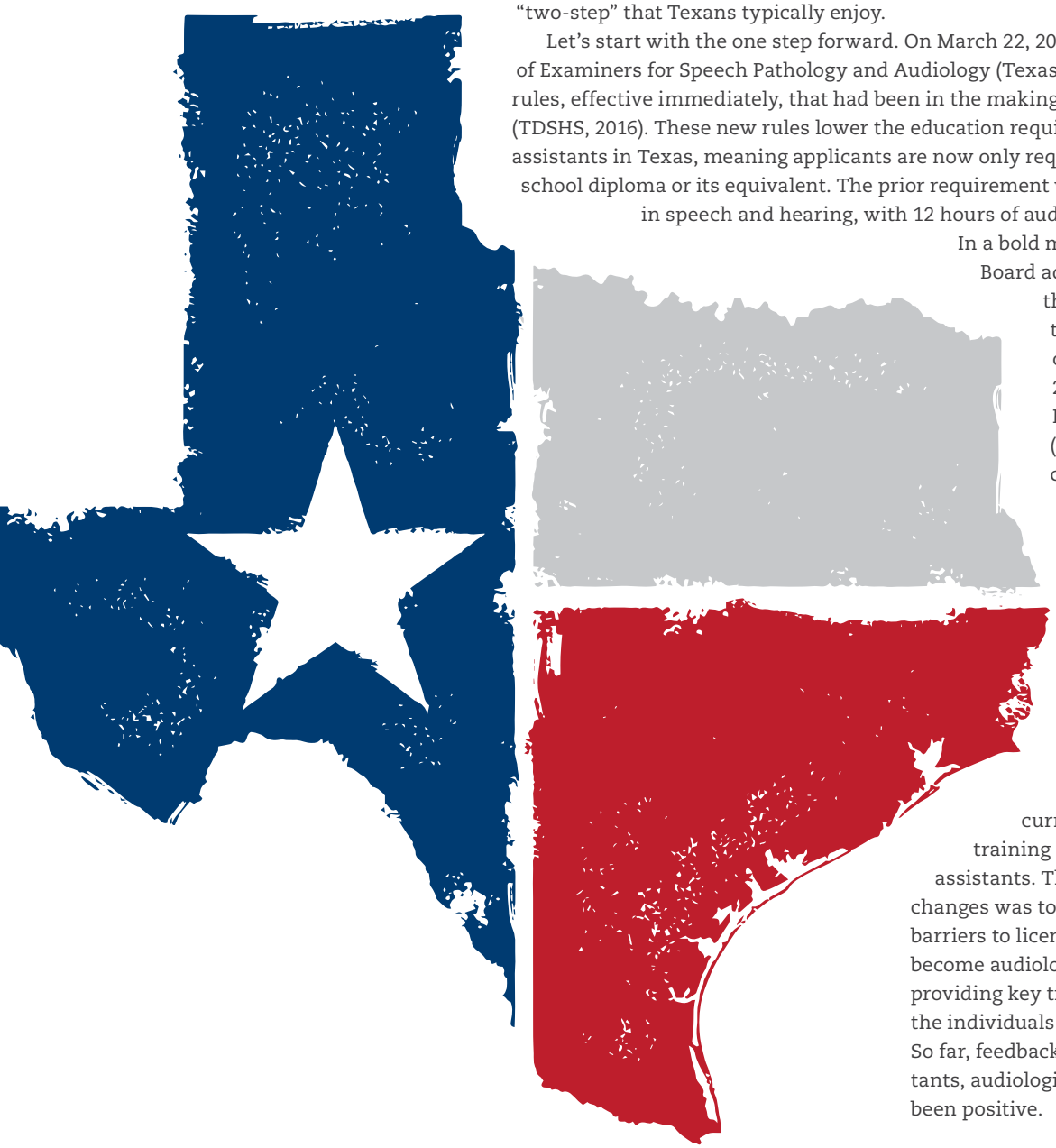
Gabrielle Saunders, PhD, is the associate director of the National Center for Rehabilitative Auditory and associate professor in the Department of Otolaryngology at the Oregon Health and Science University and Research in Portland, Oregon.

AUDIOLOGY ADVOCATE

The Texas Two-Step:

Regulatory Strides and Setbacks in the Lone Star State

By Vickie Dionne



Many people have of heard of the Texas "Two-Step," but with recent state regulatory and legislatives changes, Texas audiologists feel more like they are taking one step forward and two steps back—not the kind of "two-step" that Texans typically enjoy.

Let's start with the one step forward. On March 22, 2016, the Texas State Board of Examiners for Speech Pathology and Audiology (Texas State Board) adopted rules, effective immediately, that had been in the making for the past 18 months (TDSHS, 2016). These new rules lower the education requirement for audiology assistants in Texas, meaning applicants are now only required to possess a high school diploma or its equivalent. The prior requirement was a bachelor's degree in speech and hearing, with 12 hours of audiology coursework.

In a bold move, the Texas State Board added the requirement that all applicants for this license must have completed the approved 20 hour Occupational Hearing Conservationists' (OHC) training and certification course from the Council for Accreditation of Occupational Hearing Conservation (CAOHC), and earn a passing score on the examination (Texas Administrative Code). This makes Texas the first state to accept CAOHC's OHC course curriculum as a minimum training standard for audiology assistants. The purpose driving these changes was to both reduce some of the barriers to licensure for those seeking to become audiology assistants, while also providing key training and education to the individuals seeking these positions. So far, feedback from audiology assistants, audiologists, and consumers has been positive.

Now we move on to the two steps back. The Department of State Health Services (DSHS), the administrative agency for the Texas State Board, went through the sunset review process during the 2015 Texas Legislative Session. As a result of this process, the independent audiology and speech pathology (SLP) licensing board (the Texas State Board), which has been the regulating entity for audiologists and SLPs in Texas since the early 1980s, was dissolved, and all responsibilities for regulating audiologists and speech language pathologists in Texas was transferred to the Texas Department of Licensing and Regulation (TDLR). Senate Bill 202 became effective on September 1, 2015. That bill has mandated that the Texas DSHS and TDLR develop a transition plan for the "orderly transfer of powers, duties, functions, programs, and activities." The six professional members of the board who are appointed by the governor, as well as the three public members, have all been released from their appointments. TDLR has chosen eight individuals (three audiologists, three SLPs, and two public members) to serve as advisors; however, the staff of TDLR will manage all of the complaints as well as the rules and enforcement. There is one public member advisory position that remains to be filled. To date, TDLR has only regulated non-professional licenses (barbers, electricians, elevators). Audiologists and SLPs will be the first licensees regulated by TDLR requiring more than a high school diploma. There is concern amongst the licensees in Texas regarding the future of licensure in Texas following this drastic change.

The September 1, 2015, effective date proved to be premature. While the current board members received a letter of thank you and release from the Office of the Governor of Texas in October 2015, they will continue to serve in an unofficial capacity until the next proposed date of transfer which is October 3, 2016.

As state budgets become more and more strained, and state decision-makers look for ways to cut spending, take heed of what transpired in Texas. The main function of professional licensing boards is consumer protection. By cutting corners and consolidating regulatory boards, individuals with little-to-no experience regarding a particular profession or health specialty can be put in the position to oversee complicated matters related to licensing and consumer protection. This is not in the best interest of the patient, the consumer, or the provider. Like most states, audiologists in Texas continue to fight for what is right for their profession and the patients they serve, and hope that those in other states recognize and prepare for the challenges that we face in the future.

Vickie Dionne, AuD, Board Certified in Audiology, is presiding officer of the Texas State Board of Examiners for Speech Pathology and Audiology and an associate professor at Lamar University in Beaumont, Texas.

References

Texas Department of State Health Services, http://www.dshs.state.tx.us/speech/ (Accessed May 1, 2016).

Texas Administrative Code Title 22, Part 32, Chapter 741, section 741.84, Requirements for an Assistant in Audiology License.

Texas Legislature Online, SB202, http://www.legis.state.tx.us/BillLookup/Text.aspx?LegSess=84R&Bill=SB202 (Accessed May 1, 2016).

New Members of the American Academy of Audiology

Nataliya Ayzenberg, AuD, PhD

Anita Baum, MS

Brianna Boles, AuD

Marcia Ferreira

William Huson, AuD

Michele Hutter, MS

Casie Keaton, AuD

Scott Seeman, PhD

Sarah Simons, AuD

Nathaniel Whitmal, PhD

New Audiology Education Grant

The American Academy of Audiology is pleased to support research by new investigators, students, and scientists through the Research Grants in Hearing and Balance Program. This program is generously supported by the American Academy of Audiology Foundation. Over the past decade, this program has awarded nearly 70 grants. The development of this research grants program underscores the commitment of the Academy and the American Academy of Audiology Foundation to the promotion of research among audiologists. This program provides a means for encouraging research as part of a student's training program, and for the development of current investigators and their scientific endeavors within our profession.

At this time, we are excited to introduce a NEW grant type: Research in Audiology Education. The Academy has identified a significant need for improving our understanding the efficacy of audiology educational practices, and will be offering a new research grant mechanism in audiology education. Compared to other doctoring professions, such as dentistry, pharmacy, or physical therapy, there is a paucity of research related to education in our profession. As we have come to expect evidence to support clinical-decision making, it is equally important that we have evidence for audiology educational decision-making.

Areas of research endeavor that would support the development of the science of audiology education would be multi-faceted. Apart from scientific and clinical research questions, this grant will encourage hypothesis-driven research proposals on educational processes and outcomes in the field of audiology. The criteria may include the following:

- Examination of the efficacy of problem-based learning
- Examination of the outcomes of the use of standardized patients in performance assessment
- Comparison of the outcomes of distance-based vs. face-to-face formats for course delivery.

These are just a few examples of the topics of research that are critical to explore in the development of evidence-based audiology education. This grant will be available to all who are eligible for funding for the Research Grants in Hearing and Balance Program with a particular emphasis on investigators with experience in audiology education.

- New Investigator Research Grant: A grant up to $10,000
- NEW! Research in Audiology Education Grant: A grant up to $10,000
- Student Investigator Research Grant: Grants up to $5,000
- Student Summer Research Fellowship: A stipend up to $2,500

The deadline for submitting a grant application is October 4, 2016. More information can be found at www.audiology.org; search keywords "grants program."

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