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Feature Story

Why Audiologists Should Be Aware of the Relationship Between Cardiovascular Health and Peripheral and Central Auditory Function

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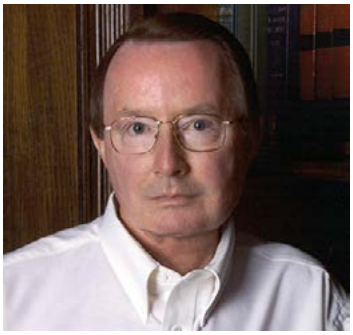

Note: This report was published in part in "The Hearing Journal," 2014. Title—"Why Cardiovascular Health Should be Added to the Hearing Case History."

Introduction

As was stated by Hull (2014) for over 80 years, beginning with the work of Bunch and Raiford (1931), and Crowe, Guild and Polvogt (1934), the existence of what appears to be a strong relationship between the health of the human cardiovascular system and the health of both the peripheral and central auditory systems, and including the health of cognitive function into advanced age has been confirmed by a sizeable number of investigators.

The Relationship

The cardiovascular system directly influences the viability of the cochlea and the central auditory system, and if blood supply is restricted, can frequently compound other damaging influences including noise, injury and disease. The relationship between cardiovascular health, the resulting reduction of blood and nutrient supply to the cochlea and the health of that system has been confirmed by a great deal of research. As referred to earlier, those include Bunch and Raiford (1931); and Crowe, Guild, and Polvogt (1934). Other research on that topic includes work by Jorgensen (1961); Proctor (1961); Kirikae, Sato, and Shitara (1964); Schuknecht (1964); Johnsson and Hawkins (1972); Makishima, 1978; Susmano & Rosenbush, 1988; Gates & Cooper, 1991; Gates, Cobb, D'Agostino, & Wolf, 1993; Schuknecht and Gacek (1993); Cocchiarella, Sharp, & Persky, 1995; Brant, Gordon-Salant, Pearson, Klein, Morrell & Metter, 1996; Rubenstein, Hildesheimer, Zohar & Chilarovitz, 1997; Torre, Cruikshanks, Klein, & Klein, 2005),Agrawal, Platz and Niparko (2008); Helzner, Patel, Pratt, Cauley, et al (2011); Lin, Yaffe, Xia, Xue, Harris, Purchase-Helzner, et al (2013), among many others.

As a good example, as found in Hull and Kerschen (2010), Rubinstein, Hildesheimer, Zohar, and Chilarovitz (1997) conducted an investigation to determine a possible relationship between chronic cardiovascular disturbance and hearing status. They

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In This Issue

Cardiovascular Health, *cont.*

found that adults with cardiovascular disease and signs of peripheral circulation disorders had significantly poorer thresholds between the 500 – 8000 Hz frequency range compared to other subjects without cardiovascular disease, and felt that it was related to a disturbance of the microcirculation of the cochlea. Of course, there are many possible causes of peripheral hearing loss, but whatever those might be, cardiovascular disease appears to exaggerate the degree of potential impact of those causes, and thus the degree of hearing loss.

Even among younger adults, there seems to be a relationship between early onset arteriosclerosis and changes within the cochlea. Nomiya, et al (2008), compared temporal bones of young adult subjects who possessed arteriosclerosis with temporal bones from 7 patients without arteriosclerosis. They found that the temporal bones with generalized arteriosclerosis possessed significantly fewer ganglion cells at the basal turn of the cochlea, along with an atrophic spiral ganglion, which would be expected to be associated with a high frequency sensorineural hearing loss. However, audiograms had not been previously obtained on the arteriosclerotic subjects.

Other researchers have studied the possible relationship between cardiovascular disease and an increased probability of associated hearing loss. For example, Schuknect & Gacek (1993), felt that varying degrees of degenerative changes in the cochlea are attributable at least in part to changes in blood supply to the peripheral and central auditory systems over-time. They stressed that any degeneration in the stria vascularis can affect the quality of the endolymph, which, in turn, can result in a disruption of the processes by which electrochemical energy is created within the organ of Corti.

Even among younger adults, there seems to be a relationship between early onset arteriosclerosis and changes within the cochlea.

In earlier work, Johnsson and Hawkins (1972) confirmed a positive relationship between stria vascularis atrophy and degenerative changes along the basilar membrane which contribute to a decline in electrosensory function of the cochlea. Those authors stressed that the cochlea relies on adequate blood circulation to function appropriately, otherwise the system becomes vulnerable.

Other early work by Fisch, Bobozi, and Greig (1972) and Makishima (1978) studied degenerative changes within the internal auditory artery. They correlated the extent of narrowing of the internal auditory artery with atrophy of the spiral ganglion and degree of hearing loss. A close relationship between restriction of blood supply through the internal auditory artery and degree of hearing loss was established.

Combined Peripheral and Central Auditory Involvement

Changes in auditory function as a result of a decline in cardiovascular health does not appear to be confined to the peripheral auditory system, and can also involve the central auditory pathways. This can compound the effects of the sensorineural symptoms of impaired hearing, not only further compounding the difficulties the individual experiences in speech understanding, but also the ability to process the phonemic elements of spoken speech with the speed and accuracy necessary to decode spoken speech. Several studies have addressed the relationship between the CNS auditory pathways and cardiovascular health. For example, according to Hull and Kerschen (2010), those include studies by Briner & Willott (1989); Caspary, Raza, Lawhorn-Armour, Pippin & Arneric (1990); Manson, Alessio, Cristell & Hutchinson (1994); Kramer, et al (1999); Colcombe & Kramer (2003); Alessio, Hutchinson, Price, Reinart and Sautman (2002); and Hinrichs (2003), Helzner, Patel, Pratt, Sutton-Tyrrell, Cauley, Talbott, et al (2011), among others have postulated a positive relationship between cardiovascular health and the structure and function of the brainstem auditory pathways and auditory cortex that can certainly compound the speech understanding decline that can accompany a sensorineural hearing loss.

Cognition

Kramer, A. F., Hahn, S., Cohen, N. J., Banich, M. T., McAuley, E., & Harrison, C. R. (1999), and Colcome and Kramer (2003), along with Stanek, Gunstad, Spitznagel, Waechter, Hughes, Luyster, et al (2011), Lin, Yaffe, Xia, Harris, Purchzase-Helzner, Satterfield, Ayonayon, et al (2013), and others have studied the relationship between cardiovascular health and cognitive function as associated with aging, and found that the relationship is a generally positive one. Particularly, the study by Kramer, et al (1999), as found in Hull and Kerschen (2010), suggests that the impact of age and cardiovascular health on the frontal and pre-frontal areas of the brain can result in significant changes in the control of executive processing, which can impact negatively on the speed and accuracy of decision making, higher language processing, and other similar executive language-based abilities.

Further, research by Colcome and Kramer (2003), also found in detail

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Cardiovascular Health, *cont.*

in Hull and Kerschen (2010), through a comparative literature review showed consistently similar results. They concluded that improvements in cardiovascular health will likewise improve cognitive function in older adults, that is, executive decision making and language processing. All of the authors above concluded that..."cardiovascular improvements might even "turn back the clock" biologically speaking, and lead to patterns of neurocognitive activation that are more similar to the patterns of young adults" (p. 129).

These improvements could likewise increase speed and accuracy of speech understanding in adulthood, including those functions in older adults. And, a rather thought provoking relationship would be interesting to investigate. That is, could improved cardiovascular health, therefore, become a new component of a patient's program of aural rehabilitation?

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Tips and Tricks from the Trenches

By Eileen Rall, Au.D.
Children's Hospital of Philadelphia

The practice of pediatric audiology is an art and a science. Engaging young children to achieve accurate comprehensive results requires a strong foundation of technique (science) and creativity and flexibility (art). As a pediatric audiologist in one of the largest practices in the country I have the opportunity to work with a group of clinicians who are dedicated to continual review of our practices and improving the services we provide for our patients. One of the ways we do this is our annual "skills fair." During this day-long event we all participate in peer-led educational sessions. This year, I facilitated a session on our internal Behavioral Assessment Evidence Based Practice Guideline. What I am going to share with you are four of the challenges that we experience in the assessment process and some of solutions that our staff uses to provide innovative accurate assessment. I will also include one "please don't tell anyone your audiologist did this" solution to a common challenge with our youngest patients.

Challenge #1 - Anxiety: How many times have you entered the waiting room to call your patient and you are greeted with a child who makes it clear that they are not going to go with you "quietly"?

Solutions:

1. Bring props to the waiting room – small toys – to use to entice the child to go with you so you can play together. Bubbles can help encourage the child to leave the waiting area and then can be used later to distract while you are talking to the family or need them to quiet for part of the evaluation.

How many times have you entered the waiting room and you are greeted with a child who makes it clear that they are not going to go with you "quietly"?

2. Provide social stories to families ahead of time so that they can prepare their child for what to expect. Rady Children's Hospital – San Diego and Seattle Children's Hospital are just two organizations that have prepared social stories available for download on their website. If you must bring a child back for a second visit, have the family take photos of the facility and they can create their own social storybook that is specific to what their child will experience from the parking facility through getting stickers at checkout.

3. If the child is older you can coax them back into the clinic by playing "Red Light, Green Light." I usually add "Purple Light" which means they spin in a circle when it is called. Playing this game gives them some control over their actions and before you know it, you are in the exam space.

Challenge #2 - Earphone refusal: The goal of assessment is to get ear-specific information on every child and in order to accomplish that, use of earphones is essential. This can, at times, be a challenge when working with toddlers who are in the developmental stage of wanting to be in charge of their bodies and actions.

Solutions:

1. Keep child's hands "busy" with toys and encourage parents to hold their child's hands or elbows versus wrapping the child in a bear hug.

2. If the child has earmolds, attach the insert earphone tubing to the earmold where the hearing aid earhook is inserted. If the earmold tubing is stretched (see photos on next page) insert the black end of a foam tip into the earmold tubing. Trim the black tube at the end of the earmold tubing leaving a short extension for easy removal of the black tubing. Insert the insert foam tubing into the earmold tubing and you should have a snug and secure fit.

3. Give it a try. Put the insert earphones in even if the child is upset by it and hopefully you can distract them with your voice through the earphones and animating the reinforcers to quiet them. Ultimately, they realize it doesn't hurt and the toys and videos you are using are kind of entertaining.

Challenge #3 - Won't quiet for OAE testing: You may be seeing a child after a long day at pre-school or following a post-op ear tube check. Sitting quietly with a probe assembly in their ear while you send strange noises into their ears may be not be a priority for the two-year-old in front of you.

Solutions:

1. Allow the child to hold the equipment and touch the earphone before you put it in their ear. A child may be less intimidated if they have a chance to explore the equipment first.

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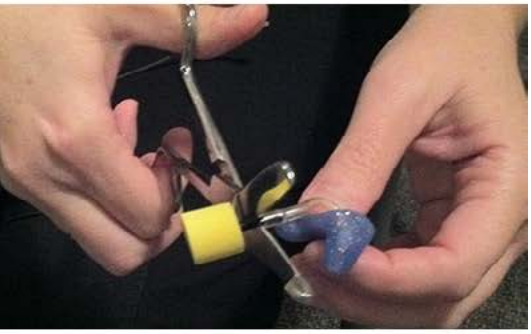

Tubing is too stretched to securely fit on insertphone. Place end of earphone in tubing and trim with a short amount outside of tubing for removal with pliers.

Tips and Tricks, *cont.*

2. Try playing video on iPad, computer desktop with sound lower or go through videos/photos of the child on smartphone.

3. Use "Shock and Awe." After placing the probe in the child's ear, do something loud and sudden such as making noise by banging on a tissue box. Once you've gotten the child's attention, do something silly like very dramatically balancing the tissue box on your head while slowly spinning in a circle. You will be amazed at how captivating an adult acting silly is to a young toddler. Caution: warn the caregivers that you will be doing something ridiculous and that it is important for them to remain still and quiet (and not laugh at you).

Challenge #4 - Not quite ready or not quite interested in Conditioned Play Audiometry: What do you do when your patient is not "into" your puppets and videos and is not ready or not reinforced by conditioned play tasks.

Solutions:

1. Have the caregivers work on the game at home. While they are in the clinic, demonstrate to the family how to train the child to do conditioned play tasks. Make sure they understand how to demonstrate and practice the game with the hand-over-hand technique. At home, they can even download pure tone stimuli for use on a smartphone. Have them bring in the toys they use at home so that the child doesn't need to generalize the skill to the toys you have in your clinic.

2. If you have a wireless activation button for your Visual Reinforcement system, bring it in the room with the patient. They can push the button to activate the toys. If you don't have a wireless system, you can use an "easy button" with a recordable message. Who doesn't enjoy an enthusiastic "Good Job!" Caution: make sure the recorded message is audible to the patient.

3. Try Tangible Reinforcement Operant Conditioning Audiometry (TROCA). You don't need a TROCA machine to dispense tasty treats to use this test method. You can achieve the same test paradigm with a plate or napkin, a cup and a caregiver approved treat. Place the treat under the cup and train the child (hand-over-hand) to lift the cup when the stimulus is presented. You want to use a small treat, so they don't fill up too quickly AND make sure the treat is not too chewy or sticky. My favorite treat to use is mini M&Ms.

Finally, the "please don't tell anyone your audiologist did this" challenges. Have you ever tried to put a bone oscillator on your patient (usually about 12 months of age) and the headband is way too big? Yes, you can create Velcro sleeves to wrap around them or stuff tissues under the side of the headband but...

Solution: You can also wrap a disposable diaper around the headband. At this age you are likely to find one in the room with you and 1. They stay in place better than tissues and 2. Are disposable so you don't have to worry about cleaning them between patients.

Working with children to provide quality audiologic care takes flexibility, creativity and, at times, the humility to just be silly. I hope you find some of our staff's "tips and tricks" helpful in your practice. While we can be challenged to achieve our clinical goals daily, there is no other specialty in our profession that offers the satisfaction of supporting the development of our youngest patients.

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Member Spotlight

Ann Allen, Au.D.

Educational Audiologist, Intermediate School Distrct (ISD) #917

How long have you been an MAA member?
I have been a member of MAA since it was established. Supporting MAA is important, because it is an organization that serves audiologists and individuals in need of the unique skills of audiologists.

You've worked in both clinical and educational audiology – what is your favorite part of the job and your least favorite or most challenging part of the job you've encountered working in each setting?
In clinical audiology, my favorite part is finding a way and carrying out an evaluation that allows a child to show how they hear. I find great joy in obtaining the best, most complete set of audiological information possible. It's like solving a puzzle.

In educational audiology, my favorite part is seeing what children with hearing loss can do out in the world overall as a person and specifically in terms of getting access to auditory information and language overall.

In both clinical and educational audiology, hands down the toughest part is keeping up with the reports and correspondence.

Overall, what has been the most memorable/rewarding part of your career so far?
The most rewarding part of my career is connecting with children and families and using my skills to help them achieve their best.

You've also spent time supervising AuD students over the years—including me a few years ago! I wanted to thank you for that experience and ask what advice you have for students getting ready to enter the field as professionals?
Make sure you get experience in a variety of settings, so you know what you will enjoy. Find something you can support yourself with that also brings you joy, but not excessive stress. Focus on what the person you are testing can do and not what they can't do. Do high quality work. See each coworker and each patient/student/family as an individual with their own experiences and talents no matter what their situation. You'll be amazed at the things you learn.

What do you enjoy doing in your spare time?
I enjoy walking with friends or with my dogs, knitting, and reading. I also like to spend time with my family.

Student Spotlight

Lexi Clark

3rd year Au.D. Student
University of Minnesota

You have been a HUGE part of the MAA State Fair screenings in the past few years, why do you choose to volunteer with MAA?
I think the MAA does a fantastic job advocating for the profession of audiology and connecting professionals and students. Additionally, the MAA is instrumental in helping connect audiologists to the local community, especially when it comes to the State Fair. It has been a joy to meet with and learn from fair-goers and audiologists.

Where is the most fascinating place have you traveled to and what did you do there?
I am very fortunate to have traveled to many places when I lived in Copenhagen, Denmark for two years. I lived in Denmark under both a study visa and an au pair visa. However, by far the most fascinating place I have traveled is Hruboskalsko, a rock

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Student Spotlight, *cont.*

formation forest in Bohemian Paradise, Czech Republic. I traveled alone into the forested area with no agenda other than to explore, be spontaneous, and climb up and down the many ladders on the rocks.

What is the one audiology textbook you can't live without?
I really like *Essentials of Audiology* by Stanley Gelfand, because it is foundational in nature, and I believe every professional needs to have a solid foundation.

As a current student, what is one piece of advice you would provide audiology preceptors?
My advice to audiology preceptors is to both provide honest feedback and display empathy. Please remember we are learning and practice is key.

What is a thing you do well that is unrelated to audiology?
I love to oil paint.

2019 Board of Directors

On behalf of the MAA Nominations and Awards Committee, it is our pleasure to announce the results of the elections that were recently conducted to serve on the upcoming 2019 MAA Board of Directors.

President-Elect

Dr. Kristi Gravel, Audiologist University of Minnesota.

Member at Large (3 yr. Term)

Dr. Jason Leyendecker, Audiologist, Audiology Concepts.

Dr. Rachel Allgor, Audiologist, Audiology Concepts.

The MAA leadership wishes to congratulate and welcome our representatives to their new roles and look ahead to the coming year. The leadership wishes to express thanks for the service and contributions to the Academy of **Dr. Jennifer Reside** (Past-President), **Dr. Brent Fisher** (Member-at-Large), **Dr. Rachel Zerby** (Member-at-Large), and **Dr. Cynthia Hogan** (Treasurer) as departing board members. The MAA would also like to thank all members, including those of you who voted, and for all who serve the academy on various committees for your contributions, as they are greatly valued.

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Perspectives From a New Au.D.

What they don't teach you in graduate school

Kelsey Dumanch, Au.D.
Pediatric Audiologist, Mayo Clinic

Let me begin by saying that I went to an excellent training program and I am incredibly thankful for my graduate education; however, no matter where you go to school or how much you study, read, and prepare, clinical experience and an excellent group of colleagues is what truly tops off your knowledge base as a new audiologist.

During graduate school, we learn the didactic and technical information required for our future jobs, but often times classes fail to explicitly address the crucial "dos and don'ts" of a successful clinical career. When transitioning from a student, to an Audiology Extern, and ultimately to an Audiologist at a major medical institution, the Audiologists who were my mentors, teachers, colleagues, and friends were critical in supporting my development as a young professional. Given the wide reach of the members of the Minnesota Academy of Audiology, I want to discuss some of the ways current Audiologists positively impacted my development as an extern and as a new Audiologist.

Whether you realize it or not, you all have an important impact on the development of new professionals and teach us to meet the challenges and successes of each day with both optimism and pragmatism. In reflecting upon my externship year and my transition to becoming a new Audiologist, I began to document some of the questions that arose and how my more experienced colleagues were able to help me grow as a young professional. It is my hope that you can relate to these thoughts and questions, or you can think of a time when you helped a colleague find the answer.

What even is H90.3? 92570? An NPI? Do I need malpractice insurance? Should I become an ASHA or AAA or ADA or AAS or NHCA or IHS or ASA member?

While some of these questions have more straight-forward, less controversial answers (e.g., H90.3 or an NPI), some of the very best resources for obtaining the answers were my colleagues, both new and established Audiologists. Garnering perspectives regarding different national organizations was important and interesting, because all things look shiny and grandiose as a new grad and it is hard not to get swept into signing up for everything that comes into your email inbox. Speaking with professionals who are on the boards of different organizations, have personal experience volunteering for organizations, or are members or stakeholders was exceedingly helpful when it was time for me to make my own informed choices.

Everything is kind-of sort-of like what you read in the textbooks but usually not really.

This became most apparent during my Pediatric rotations. I have always been passionate about pediatric healthcare, and from day one of graduate school knew this was the population with which I wanted to work. I quickly found out, however, that seemingly simple tasks (ha-ha) like VRA, CPA, or even tympanometry often do not go as smoothly or quickly as might have been described in my pediatric, diagnostic, or clinical classes. Having colleagues who imparted wisdom on time-saving shortcuts, child-soothing tricks, and equipment troubleshooting was priceless. Plus, learning a thing or two about Paw Patrol didn't hurt.

Learn to "play well in the sandbox" and how to interact with colleagues in related professions.

Although interprofessional development has recently become a hot topic, it is not something that was formally taught when I was a graduate student. Learning to interact in a professional manner with staff in other specialties is an art and a science. Learning to not only speak their language, but also best communicate yours, is a critical skill that I found best obtained from observing my fellow professionals or from asking "What would you do?" Working in a large medical center, you may see some of the best examples of collaboration, teamwork, and multidisciplinary-based care; you may also see or hear about, some of the worst. Learning from both the good and the bad, and having these difficult conversations with more senior colleagues helped me to apply these skills in my own professional development.

In addition to interacting well with ENT colleagues, treating everyone in

cont.

Perspectives, *cont.*

a fair and friendly fashion is critical to navigating as a new professional; I have to thank the more senior Audiologists for teaching me about mutual respect. Working with administrative assistants, clinical assistants, housekeepers, and other hospital staff in a kind and respectful manner will get you just as far, if not farther, than working with the chair of the department. I quickly learned that everyone at a large medical center has an important role in assisting the care of patients, even if it is not direct patient care, and can be the crucial person to help with what you need to best serve your client.

How to deal with difficult patients

There are patients that will challenge your patience and professionalism. There are patients that will make you question your expertise and your skill set. There are days when you will feel like you aren't making a difference at all. My colleagues have taught me how to deal with difficult patients with grace and poise, when inside my brain I might be steaming. Audiologists with more experience than I shared ideas on empathic communication, mindful pauses, and useful phrasing when actively listening (e.g., "I hear that this was a frustrating experience for your family"). Continuing to be honest when it's uncomfortable and use integrity when it's difficult are skills that require an incredible amount of maturity and patience, and I am grateful for the suggestions which were imparted upon me by more senior Audiologists at this practice.

I quickly found that we are incredibly fortunate to work with patients and their families, and it is an honor and privilege to have the opportunity to leave a positive impact on their lives.

How to celebrate the little victories

Sometimes it seems as though obtaining a graduate degree is merely a mark of survivorship. Realizing that it is important to have fun and enjoy yourself in the clinic, particularly as a new grad, is one of the most difficult aspects of the job when you are so focused on continuing to improve, learn, impress, and make a positive lasting impact on your patients and colleagues. At first, I had to constantly remind myself to find the joy; however, I quickly found that we are incredibly fortunate to work with patients and their families, and it is an honor and privilege to have the opportunity to leave a positive impact on their lives. Very few professions allow the opportunity to engage in such a special and impactful long-term relationship with patients and their families; it is easy to lose sight of that when you are deep in the trenches and feeling as though you are just shuffling people in and out of your clinic doors. Remembering to celebrate the little (and big) victories with your colleagues is one of the greatest joys of becoming a new Audiologist because you finally have a nerdy ear family with which to share those triumphs.

Whether you are an appointed teacher of externs or new graduates, or you are a clinical Audiologist working with colleagues at all stages, I encourage you to keep mentoring your fellow professionals. This is one of the best ways to promote the betterment of the field and the improvement of your colleagues' professional and personal lives. Continue to altruistically impart integrity, mutual respect, testing tips and tricks, wisdom, and funny clinical anecdotes, as this does have an important impact on the development of new professionals. While bettering the field and new audiologists begins with the didactic and technical information learned in graduate school, more often than not, it is our colleagues that teach us, challenge us, and support us as new audiologists.

MN Rule to Require Medical Fee Disclosures

By now, audiologists are used to change, whether it be with FDA rules, manufacturer design, or reimbursement methods. MAA's legislative lobbyist, Rob Vanasek, has alerted us to revisions in this law. Here is a quick look at what this means for audiologists.

The law (SF 3480) amends current legislation that required medical places to disclose their fees to patients. The new language is designed to make things even more transparent for medical consumers potentially "shopping" between medical providers or clinics.

The first part of the law, which applies to audiologists, reinforced the current medical rules and requires:

1. Consumer has the right to request fee and reimbursement information from provider.
2. Medical provider has 10 business days in which to provide a consumer with written request.
   a. Good-faith estimate of amount payable by their health-care coverage,
   b. Good-faith estimate of the average allowable reimbursement the medical provider accepts from private third-party payers,
   c. Estimated amount the non-covered consumer will be required to pay,

cont.

Fee Disclosure, *cont.*

d. And disclose any other fees the consumer may be required to pay, including facility fees

The second half of the bill is labeled "Primary Care Price Transparency" SF 3480: 2: 62J.812 and requires a more complete look at fee disclosures. This portion of the law does not apply to audiologists as MAA's firm, Capitol Hill Associates understands the current language. The law defines provider as a primary medical provider (i.e. Family Medicine or Pediatrician). However, section two of the bill requires:

1. Provider discloses the list of the top, most frequently-billed 25 CPT Codes (with associated fees) that are over $25,
2. Provider includes the top 10 E/M codes and fees,
3. Provider includes the top 10 preventative service CPT codes and fees,
4. For each of the above, the medical provider will include:
   a. Provider's charge,
   b. Average reimbursement rate,
   c. Medicare allowable rate, if applicable, and
   d. Medical Assistance fee-for-service payment rate
5. Information must be updated annually,
6. Information must be available to the consumer by the following:
   a. Posted in provider's reception area, and
   b. Available on the provider's website, if the provider hosts a website.

Effective date is July 1, 2019. The law can be found online.

Welcome New Members

Jill Gruenwald – jill.m.buckingham@gmail.com

Beth Thomas – beth_thomas@ascenthearing.net

Kelsey Putvin – kcorcoran432@gmail.com

2018 Gloria Gross Scholarship Winners

Carissa Kucala, Au.D.
Audiology Awareness Committee Chair

The Gloria Gross Scholarship is an annual award given out by the Minnesota Academy of Audiology (MAA) to high school seniors who have hearing loss. Applicants are nominated by MAA members, and winner(s) are selected by the Audiology Awareness Committee.

The scholarships are funded by money raised during the silent auction at the Upper Midwest Audiology Conference (UMAC). MAA awarded nearly $3000 in scholarship funds in 2018! Thank you to those who helped support the silent auction last year, and all who submitted applications and nominations.

Jhenna Becker

nominated by Ann Allen, Au.D.

Please tell us about your hopes and dreams for the future.
It has been my dream since childhood to become an author and write books. Ever since I could hold a pencil, I have created stories from my wild and crazy imagination by writing a few sentences on a sheet of paper, adding simple illustrations, and stapling them together to create picture books. As I grew up, my few sentences and drawings have become short stories, comics, and even a few novels. I hope that college will help me expand my writing and discover other aspects such as screenwriting, photography, film production, and publishing.

I have participated in a lot of creative arts at school. I was the senior editor of my school's literary magazine and had a lot of fun with that. I enjoyed having a leadership position and the ability to help publish the magazine. Similarly, I have been involved in theater in middle and high school, and hope to have the opportunity to be part of theater in college as well. I want to continue bringing life to stories, whether in books, theater, or behind the scenes of film production. I hope I can help with similar projects in college and in my future career.

I am very excited for my college experience this fall, because I can more fully explore all my interests. I have lots of hopes and dreams for college and my future career and hope I can find a career that parallels my passions.

How would you convince someone with a hearing impairment to see an audiologist and follow hearing aid recommendations?
Audiologists may not be a well-known resource for people *without* hearing loss, so it really helps if people with hearing loss share their own experience about how an audiologist is beneficial to them. My audiologist has been a huge help to me over the years. I have more than enough examples to tell another person if they are hesitant about making an appointment to see an audiologist.

Kaitlyn Jo Somers

nominated by Julie Baslington, M.A.

Please tell us about your hopes and dreams for the future.
I am motivated and driven to take what I have experienced as a child growing up with hearing loss, and help educate others about how technology can make an impact in your life.

As a young child, I was very confused about my hearing loss. I didn't know what it meant or how it would affect me throughout my life. While growing up, my parents and teachers for the deaf and hard-of-hearing began to teach me about my hearing loss, my hearing aids, and how my hearing loss affected me. In middle school, I was bullied for having a hearing loss. I learned to ignore the people who bullied me but it was a difficult time in my life.

As the years went by, I became more comfortable with my hearing loss, and I realized what a difference it made to have hearing aids. I knew that learning to use my hearing aids would help me become a successful person, and without them, I would likely fail. I learned that having people in your life who can help you understand more about your hearing loss and how it affects you can make a huge difference. It was then

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Scholarship winners, *cont.*

that I realized that I wanted to be an audiologist. I have the passion to help people with hearing loss. I want them to know that I'm there for them, to advocate for and support them, until they learn to do so on their own.

How would you convince someone with a hearing impairment to see an audiologist and follow hearing aid recommendations?
I would explain that through the years, I've noticed that having hearing loss without utilizing hearing aids or any type of assistive technology can affect you socially and emotionally. I would clarify the affected areas and share my personal experiences.

One of the major impacted areas is your social life. When people are speaking in a group or loud environment, you have no idea how much you miss. If you have a hearing loss, you may have difficulty communicating with others. Peers may have to repeat themselves numerous times and sometimes you can't even hear what you're saying. If you want to join an activity, it may be problematic because it can be loud and you may miss a lot of information.

Hearing loss may also affect a person emotionally. You tend to feel like you don't fit in or are not connected to anything because it is just too much stress to listen so effortfully. Depression or anxiety may set in because you may feel nobody understands how you are feeling. In noisy situations, you may have to ask others to repeat themselves, which becomes embarrassing.

Lastly, having a hearing loss with no hearing aids can affect your education. If you cannot hear, you're unable to do what is asked of you. Your performance will likely suffer. Untreated hearing loss leads to poor communication with your teachers and supervisors.

Everyone has a desire to do their best to succeed and if you don't acknowledge or address your hearing loss, you will likely be less successful at reaching your personal and professional goals.

Desiree Ann Kobal

nominated by Jennifer Ward, Au.D.

Please tell us about your hopes and dreams for the future.
My hopes are to become a Registered Nurse and work in the pediatric field. I am interested in becoming a traveling Nurse, and eventually, returning to school to receive a degree as a Nurse Practitioner.

I have always been interested in the medical and science field. As a child born with hearing loss, I have had many positive interactions with adults in the medical field—many that have continued to support me, encourage me, and helped shape me into the person I am today. I feel that without their support and continual guidance I would not have succeeded in life as much as I have. I feel this will be a career in which I can continue to grow and learn, in addition to pay it forward for all the support and assistance I have received throughout my life. My goal is to work with children with hearing loss and/or other special needs.

How would you convince someone with a hearing impairment to see an audiologist and follow hearing aid recommendations?
This is an interesting question, as I have found myself in this situation many times. I try to lead by example, as my hearing aids or processor have always been a part of my life. It is the first thing on in the morning and the last thing off at night. I encourage the person to see an audiologist and to get fitted for either a hearing aid or cochlear implant. I explain the benefits of being able to hear and communicate with others, whether it be in person or on the phone. I tell them the beauty of hearing music, TV, nature sounds, etc. I explain that it opens a new world when you can hear and experience sound. I also describe the safety portion, including the importance of hearing sirens, oncoming vehicles, or horns. In addition, I explain the importance of getting into a routine once they have the aids or processor. I tell them I am forever grateful for the ability to hear, and the world it has opened.

Auction Items Sought

Proceeds from the silent auction at the Upper Midwest Audiology Conference help support the Gloria Gross Scholarship Fund. Donations for the 2019 auction are currently being collected and can be mailed to MAA, PO Box 13732, Roseville, MN 55113 **before February 14, 2019**. You can also make a monetary donation when registering for the conference. Donations are tax-deductible.

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Standards in Audiology

Gail M. Whitelaw, Ph.D.
The Ohio State University
Board Member, Audiology Practice Standards Organization

When we read about or hear about the profession of audiology, it's often described as a "young" profession. This may be true relative to other professions, however if we are to grow and advance our profession and address threats now and, in the future, we must transition to a more mature profession. There are many cornerstones of a mature profession, including the development and acceptance of professional standards of practice. Every audiologist has heard a lament from a patient in how their experience differs from clinic to clinic, or a question about why there is inconsistency among audiologists in the assessments they receive. Addressing this issue is merely one aspect of the need for professional standards.

Professional standards are a way to calibrate what we provide to our patients, to each other, and to referral sources. Consistency in service provision and clinical outcomes are certainly cornerstones of the implementation of professional standards.

In April 2017, a small group of audiologists appeared on an audiology podcast to discuss different types of audiology standards. As one of the audiologists fortunate enough to participate on the podcast, I frankly was surprised at the level of interest that resulted from the discussion. Audiologists were indeed interested in discussing standards—how standards are created, why the profession needed (or did not need) standards, which party is responsible for creating standards—along with other issues. Audiologists raised issues about universal standards for the profession and how to best align these standards to the future of the profession.

These discussions resulted in the development of the Audiology Practice Standards Organization (APSO), an organization created to advance standards for audiology. APSO is "non-denominational" in that it is independent and not affiliated with any professional organization. The mission of APSO is "to develop, maintain, and promote national standards for the practice of audiology which are based on current evidence, reflect best practices in the profession, and are universally accepted by practitioners." As one of the nine APSO Board members, it has been an exciting and rewarding professional opportunity and clearly necessary to move audiology ahead.

Real-Ear Measures

Recently, a patient arrived in our office for a hearing aid consultation. He was wearing his second set of hearing aids fit at another facility and reported being generally dissatisfied with both sets of hearing aids. He is a professional in another field and arrived with the words "real-ear measures" written on a notepaper. An audiologic re-evaluation was required as part of the consultation. All previous word recognition testing was done my monitored live voice testing. When speech audiometry was performed by recorded presentation, his word recognition skills were below 20% for both ears, previously in the 90% range. The patient reported doing research on hearing aid fitting and indicated that he had read that using real-ear measures was a recommended then asked the question as to why a standard was not followed for fittings. Based on the results of real-ear fitting, this patient was severely under fit with amplification. Most audiologists can describe a situation like that of this patient, where the use of a standardized test protocol or fitting of technology would result in more accurate results and better patient outcomes.

Those of us who routinely work with hearing aids are already intimately familiar with standards, since calibration of equipment using American National Standards Institutes (ANSI), is foundational to the services we provide. Professional standards are a way to calibrate what we provide to our patients, to each other, and to referral sources. Consistency in service provision and clinical outcomes are certainly cornerstones of the implementation of professional standards. Professional standards are recognized as helping professions and industries be more effective and more efficient and as method to drive clinical decision-making.

A secondary benefit of professional standards for audiology may also be the ability to lower the cost of hearing care. Standards will help to guide curricula in Doctor of Audiology (Au.D.) programs

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Standards, *cont.*

and provide a foundation for teaching to state of the science.

In contrast to our storied history, standards define the best of our "current" practice and set a roadmap for the future. Practitioners who embrace patient-centered care and help to raise the benchmark for the profession of audiology create standards. Developing and maintaining standards is an opportunity for each of us and we need the profession to cultivate and grow practice standards.

APSO will raise awareness of the need for standards development for the profession and based on early feedback, audiologists are on-board. We hope you'll join us; details are available at https://www.audiologystandards.org/. Regardless of how you may support standards development, please join your colleagues in raising the bar for our profession.