



MINNESOTA ACADEMY OF AUDIOLOGY Newsletter

January 2024



The Impact of Evidence-based Hearing Intervention on Cognitive Decline in Older Adults

Heidi Hill, Au.D.

We have known since 2011 that there is an independent association between hearing loss in older adults and cognitive decline (Lin et al. 2011a, b; Loughre et al. 2018). No controlled studies have shown that hearing aid intervention could reduce cognitive decline in older adults with hearing loss.

A few months ago, the much-anticipated results from the Aging and Cognitive Health Evaluation in Elders (ACHIEVE) study were published in *The Lancet*. The good news is the outcome of this study shows that “in older adults at increased risk for cognitive decline, hearing intervention slowed down loss of thinking and memory abilities by 48% over 3 years”, which excites audiologists.

It is essential to pay close attention to the details: hearing intervention, not hearing aids alone, was shown to slow down the loss of thinking and memory abilities. The ACHIEVE study used a specific hearing intervention protocol that was not just “fit with hearing aids.” As audiologists, this is an important point; we can make a huge contribution to slowing the loss of cognition by providing best-practice audiological care.

In the ACHIEVE study, the hearing intervention was a structured protocol

or a manualized best-practice intervention followed by all test sites. The framework for the design of this intervention was from the World Health Organization’s International Classification of Functioning, Disability, and Health (World Health Organization 2001). Intervention “focuses on a person’s ability to engage in activities and participate in life situations, which can be impacted by changes in body structures and/or body functions and is influenced by both environmental and personal contextual factors.”

We cannot rely on hearing aids alone to improve quality of life and functional hearing in all situations. It is essential that hearing intervention is patient-centered and guided by the identification of individual needs with the setting of specific goals, engagement in shared-informed decision-making, and the development of self-management abilities.

Based on AAA Guidelines for the Audiologic Management of Adult Hearing Impairment (Valente et al. 2006), four general process areas are involved in patient-centered, best-practice hearing rehabilitation for adults. They are listed below with specific details of how they were incorporated

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ACHIEVE, *cont.*

into the ACHIEVE hearing intervention protocol:

- 1. Assessment and Goal Setting:** this included unaided sound-field speech-in-noise testing (QuickSIN) and the COSI
- 2. Technical Aspects of Treatment (Hearing Aids and ALDs):** this included electroacoustic analysis (EAA) and probe microphone measurements.
- 3. Orientation, Counseling, and Follow-up:** systematic orientation and instruction in device use and hearing aid toolkit materials for self-management and communication strategies. Things covered included understanding hearing loss, setting goals, communicating in background noise, TV listening, using communication strategies, places of worship, telephone listening, HATS, and common psychosocial adjustment issues related to hearing loss.
- 4. Outcomes Assessment:** HHIE-S, hearing aid data logging, IOI-HA, IOI-AI, IOI-SO, and aided QuickSIN in the sound field.

The protocol was completed in four 1-hour sessions every 1-3 weeks, then every 6 months for re-instruction using devices and hearing rehabilitative strategies.

Evidence-based, patient-centered, best-practice hearing rehabilitation reduces the cognitive change in populations of older adults at increased risk for cognitive decline! Not hearing aids alone. It is us, audiologists, following best-practice guidelines.

It's essential to note that many audiologists strive to provide patient-centered care and stay informed about the latest research. However, systemic challenges and individual preferences

Achieving the best treatment outcomes for hearing loss must be audiology's mandate and mission if we are to stay relevant and thrive in years to come. Let us all commit to making this our watershed moment of self-reflection and a catalyst for moving us into a better tomorrow.

can contribute to variations in practice. Efforts to address these challenges may involve ongoing education, changes in healthcare policies, and a commitment to patient-centered care within the audiology profession.

If we don't have time for best-practice hearing rehabilitation, we must fight for it! This research is a great tool to use in that fight.

Change starts with each of us.

- Implement EAA, probe microphone measures, and speech-in-noise testing.
- Maximize hearing aid adjustments, counseling our patients on audibility and comfort.
- Offer auditory rehabilitation. Many tools are available today, like 5 Keys, Amptify, Hearing Wellness Journey, and even the ACHIEVE hearing intervention toolkit.
- Complete outcome measures to assess how our patients are doing after the fitting.
- Add assistive listening devices (ALDs) as needed, especially remote microphone technology.

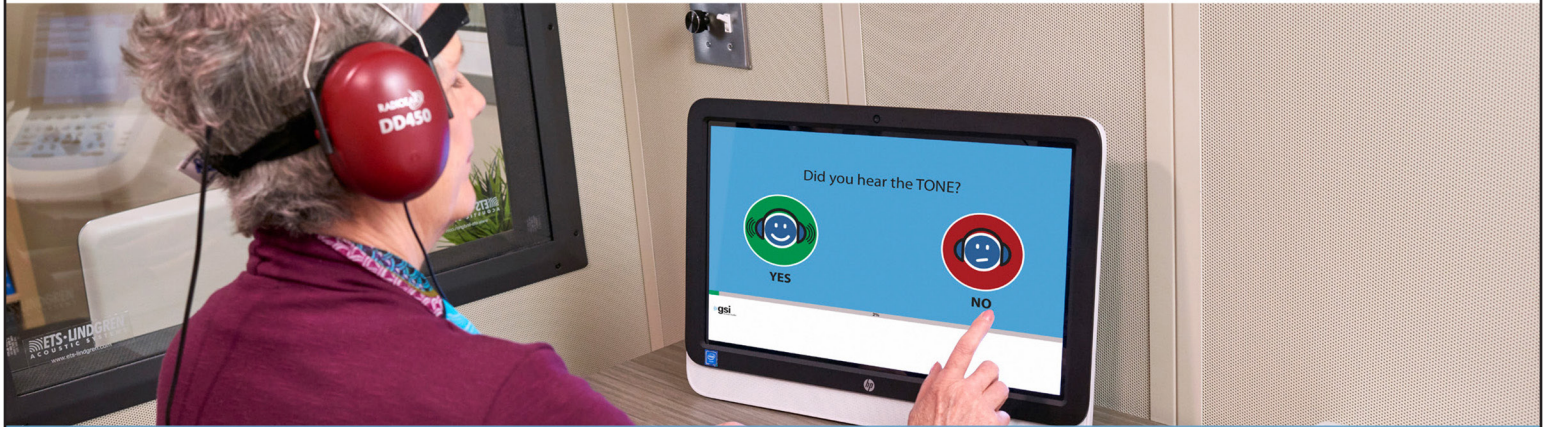
Achieving the best treatment outcomes for hearing loss must be audiology's mandate and mission if we are to stay relevant and thrive in years to come.

Let us all commit to making this our watershed moment of self-reflection and a catalyst for moving us into a better tomorrow.

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Dr. Heidi Hill has owned and operated Hearing Health Clinic, an audiology private practice in Osseo, MN, for over 16 years. Dr. Hill received a Master of Arts in Communication Disorders at the University of Minnesota in 1996, completed a clinical fellowship year in speech pathology and audiology in 1997, and received an Au.D. from A.T. Still University in 2013. Dr. Hill focuses on patient- and family-centered care that considers the entire auditory system, including auditory and cognitive processing. Dr. Hill is passionate about integrating more functional hearing assessments and remediation that consider hearing, listening, and communicating ear-to-brain.



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Member Spotlight

Lisa Afton, Au.D.

Anoka-Hennepin School District

Where do you work?

I currently work for the Anoka-Hennepin School District as one of their educational audiologists.

What do you like about being an audiologist? ?

One of my favorite things about being an audiologist is the variety of ways and settings in which we can help those with hearing issues. In my career, I have been fortunate enough to work in multiple settings including ENT practices, private practices, and several school districts. I love learning and each setting has taught me new techniques and strategies to allow me to be the best audiologist I can be to those who need our services. For me, a great day is when I have made a positive difference in the life of someone else, and I am so fortunate to work in a field where there are so many opportunities to do this!

Why do you feel like being a member of MAA is important?

Let me answer this in a roundabout way, because I've only actually been a member of MAA for a bit less than a year. I moved to Minnesota from North Carolina about a year ago. When living in North Carolina, I was very active in helping to form and organize the North Carolina Audiology Association and later served as a board member and loved the experience!



So upon moving to Minnesota, it was an easy decision to join a state organization specifically dedicated to making our profession better.

With the rapid changes to healthcare and, at times, our profession and scope of practice, we cannot sit on the sidelines of our own professional destiny but rather must engage and be a part of that ever-changing landscape, and I feel that being a part of this organization will help to facilitate this. I also love the ability to network with and meet other audiologists in the field!


What do you do for fun?

I love getting out in nature and exploring the great outdoors with my family and friends, whether it be camping, backpacking, or even just getting outside and listening to some live music in a park. I also love to read, cook and watch sports—especially football and hockey.

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Message From Your President

MAA Needs You

Rachel Allgor, Au.D.

The president's letter often revolves around a call to action to have more people volunteer, but I don't know that we've always done

visions the board has helped bring to life for the organization over that time.

All this is to say, MAA needs YOU in order to THRIVE. Existence and survival is simply not enough, we want more than existence and we can do so much more when we band together. I encourage you to read through the committee updates in this newsletter to see which one you resonate with most.

a good job explaining the *what* of that request.

I've found that the fear of the unknown is one of the biggest barriers to entry for anything that is new. Many of us have seen that in clinical experiences, in industry situations, and in our personal lives. Yet, once there is more knowledge surrounding whatever the new item is, the easier it is to start using, to implement in our clinics, or to incorporate into our lives.

It has certainly been a privilege to see how committees are adapting to life and engagement after the pandemic. I am very excited to see what the upcoming year brings for new initiatives and options for member engagement. Thank you for making Minnesota one of the most active state organizations and let's THRIVE in 2024!

So let's talk about the nuts and bolts of volunteering in MAA.

Many of the committees have time commitments of 1-2 hours per month, or less, and when the committee has more members, then the workload is spread among them. Other committees have more time needed during specific periods of the year, such as Continuing Education and everything they do to give us the best conference experience possible, and that time commitment is often still only 2-3 hours per month in the fall and the month before the conference, with it dropping to 1-2 hours other months of the year. Meetings are usually virtual, so you can be anywhere in the state and participate!

Being a board member does have a higher time commitment, both in term length and time per month. To give some estimated numbers, we meet for an hour and a half every other month and there's generally 30-60 minutes of work between meetings for action items. Meetings, again, are typically virtual.

The saying "the higher the commitment, the higher the reward" rings true for this role. As someone who has served on the board for five full years, I can say that this group has enriched both my personal life and my professional network in ways I never imagined. The wonderful thing about MAA is that it is for everyone. I was a new grad when I was first elected to the board as a member-at-large in 2018 and it has been one of the best decisions in my career. I've made lifelong friendships through the committees I've served on and from getting to know fellow board members. Not to mention the many initiatives and



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or equal to
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in the better
ear

Speech understanding
Unaided Word
Recognition Score

60
less than
or equal to
60%¹
in the better
ear



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*This provides a recommendation only of when an adult may be referred for a cochlear implant evaluation, but does not guarantee candidacy based on indications (only for adults). For more information on candidacy criteria, please visit www.cochlear.us/cicandidacy.

1. Zwolan TA, Schwartz-Leyzac KC, Pleasant T. Development of a 60/60 guideline for referring adults for a traditional Cochlear implant candidacy evaluation. Otol Neurotol 2020;41:895-900.

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If Not You Then Who?

Kathleen E. Peterson, Au.D., CCC-A

I have been a volunteer for the Arizona Speech-Language-Hearing Association (ArSHA), for ASHA, for AAA and for the Arizona licensing board throughout my entire career. It never occurred to me *not* to be part of this important part of my profession. It is from this viewpoint that I am writing this.

What is Advocacy?

“Advocacy is defined as any action that speaks in favor or, recommends, argues for a cause, supports or defends, or pleads on behalf of others.” (The Alliance for Justice’s Nonprofit Advocacy Project)

As audiologists, we advocate for our patients daily. We teach them how to advocate for themselves and for parents to advocate for their children. Advocacy is not foreign to us but sometimes, it is not easy to see in other areas of our personal and professional lives. When we vote in an election, we are advocating for ourselves. When we want to make a change at our workplace, we are advocating for change.

To be an advocate for our profession does not take a special skill set. It does, however, take passion and the willingness to commit to solving the problem. It helps to have a mentor and that mentor could be from outside of our profession. It does take a willingness to learn something about the legislative process. It requires us to do some

research and to be able to explain our position. Before I began advocating for our profession on both state and federal issues, I was quite intimidated to approach a state or federal legislator. But after you do this once (and I had great mentors!), you realize that *you* are the expert, and *you* can do this!

Let me tell you about “the power of one” in the state of Arizona. In 2021, a member of ArSHA contacted the executive board to discuss the lack of coverage for speech-language pathology services and audiology services for the adult population (21 yrs +) covered by our state Medicaid program called Arizona Healthcare Cost Containment System {AHCCCS}. State and federal funds are used to finance this coverage.

During the mortgage crisis in 2008, Arizona was hit hard. Approximately one third of mortgages made in Arizona at the peak of the market was a high-interest, high-risk loan. Homes were overvalued, many homeowners were forced to sell at a loss, the job market began to crumble and major financial institutions began to fail. As a result, the state budget had to be reduced. A.R.S. 36-2907 was introduced to state legislators. Here is the language that was inserted into the AHCCCS program:

For eligible persons who are at least twenty-one years of age:

- a. Outpatient health services do not include speech therapy.
- b. Prosthetic devices do not include hearing aids, dentures, bone-anchored hearing aids or cochlear implants. Prosthetic devices, except prosthetic implants, may be limited to \$12,500 per contract year.

- c. Percussive vests are not covered health and medical services.
- d. Durable medical equipment is limited to items covered by Medicare.
- e. Nonexperimental transplants do not include pancreas-only transplants.
- f. Bariatric surgery procedures, including laparoscopic and open gastric bypass and restrictive procedures, are not covered health and medical services.

You can certainly understand how this impacted our patients! Imagine suffering a stroke as an adult and not be able to receive swallowing therapy if you are covered by AHCCCS. Or an adult patient who suffers a sudden sensorineural hearing loss and cannot receive a hearing aid or a cochlear implant. In addition, children who were covered for services lose their coverage when they turn 21.

After considerable review of this issue by the Executive Board of ArSHA, we decided that the timing was right to lobby for a change to the AHCCCS program. This would require presenting a bill to the Arizona legislature. ArSHA employs a part-time lobbyist. Our lobbyist advised that we should divide this into three different issues: speech-language pathology services, cochlear implant services, and audiology services. We were also advised that, since the speech-language pathology services required less money than both cochlear implants and audiology, we should address speech-language pathology issues in 2023 and then go back to the legislature in 2024 to address the audiology services.

cont.

If Not You, *cont.*

Rather than write a new bill, our lobbyist proposed exclusion language (to strike) so that item {a} “outpatient health services do not include speech therapy” would be removed from the AHCCCS exclusions.

We were quite successful and our change to the wording of A.R.S. 36-2907 was introduced on the opening day of the 2023 legislative session (January 10, 2023) in the Health and Human Services Committee of the Arizona House of Representatives. The bill progressed nicely with little to no opposition from either side of the aisle. However, in May of this year, it was publicized that an investigation had uncovered massive fraud by providers—specifically mental health care providers—which amounted to a loss of several million dollars to the AHCCCS program. In response to this discovery, the Governor issued a proclamation that there would be no increase in services under the AHCCCS plan until an audit was performed and safeguards were enacted. In addition, it is projected that Arizona will have a budget deficit to be estimated at \$400 million dollars in 2024. Therefore, our bill died.

What is the point of this story? One individual can make a difference! In this case, it was *one* speech-language pathologist who pointed out the need for a change. They stepped up to the plate to be part of the solution. They gathered like-minded individuals to join in the fight. This group did their research, presented their cases to state legislators, and kept our membership informed. Without their passion and the resources of our state association, the Arizona state legislature would not know who we are or what we do.

Where are we headed? Although we will not reintroduce this bill in 2024 due to the impending economic

situation, we will continue to “friend-raise.” We will continue to visit with our state legislators, and continue to gather evidence to prove the value of our services. We will participate in local elections and stay focused on the end goal. When the time is right, we will introduce another bill. Meanwhile, another committee of audiologists is currently working on gathering the cost of adding audiology services to the AHCCCS program.

My parting words to each of you is that when you pay your dues to join an association, become an *active* member of that association. Give input, join committees, network with other like-minded people. Do not wait for someone else to do the work. After all, if not you then who?

Dr. Kathleen Peterson completed her master's degree in audiology at the University of Illinois in Champaign-Urbana. She relocated to Phoenix, AZ and completed her AuD at A.T. Still University in Mesa in 2009. Work experience includes owning a private practice, ENT practices, establishing the first cochlear implant program in Arizona, and consulting to public schools and industry. Dr. Peterson is a Past President of the Arizona Speech-Language-Hearing Association. She was also an Assistant Professor at Arizona State University.

Dr. Peterson is retired from clinical practice. She continues to serve on the ArSHA Executive Board and just finished a second term as the Audiology Representative on ASHA's Committee of Ambassadors.



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Student Spotlight

Andrew Setrum

Third Year Au.D. Student, Pacific University

Where are you from, what interested you about audiology, and what AuD program are you enrolled in?

I am from Clear Lake, MN. I am in my final year at Pacific University's School of Audiology three-year accelerated program in Oregon.

There are a few different reasons I got interested in audiology. First, while growing up, I met a dear friend named Kevin. Kevin and I have been friends since kindergarten. He is primarily

nonverbal and uses an AAC device to communicate. I was always near him during classes, lunchtime, and school assemblies. We had a sibling-like bond and enjoyed each other's company. I have always made it a goal of mine to help him communicate to the best of his abilities. As I progress through my clinical and future career as an audiologist, I can spread that goal to many other individuals.

Secondly, I took three full years of American Sign Language. During my junior year, I visited the University of Wisconsin River Falls where I learned about the fields of Communication Sciences and Disorders (CSD) and Audiology. I later went on to obtain my Bachelor of Science degree in CSD from there.

What is your favorite thing about Minnesota so far?

My favorite thing about Minnesota is being outdoors no matter what season. In the fall, it's the vibrant colors of the trees. In the summer, it's golfing and bonfires with close family and friends. In the winter, it's skating on a frozen lake and ice fishing. In the spring, it's the roar of the waterfalls.

Tell us a little bit about your externship experience so far.

I am completing my Externship at M Health Fairview's Clinic and Surgery Center in Minneapolis. So far, I have been performing a wide range of hearing, vestibular, and cochlear implant evaluations. I am fine-tuning new skills every day that are helping me develop into a well-rounded future audiologist. I have truly enjoyed learning from all of my preceptors at my current site and past internship sites as well.

If you can plan out your favorite meal, what would that look like?

My favorite go-to meal is any kind of pizza item. Whether it is your standard thin-crust frozen pizza, a cheese-loaded calzone, homemade pepperoni, and spicy sausage, or air fryer personal pizzas dunked in homemade pizza sauce, a family favorite.

If you could go back in time and give first-year Andrew one piece of advice that you now know in your 3rd year, what would that be?

If I could go back in time and give first-year me some advice, I would say, trust your gut.

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Better TV Listening with TV-Streamer+

Charlotte T. Jespersen, Brent Kirkwood, and Jennifer Groth

Provided by Resound

Abstract

People with hearing loss who wear hearing aids are more satisfied with TV listening situations than those who don't use hearing aids, but still report issues. TV accessories that can stream sound from the TV to users' hearing aids can potentially provide further help, but uptake of TV accessories is modest. This study measured speech recognition benefit of the ReSound TV-Streamer+, the first TV streaming accessory based on the Bluetooth LE Audio standard. People with hearing loss ranging from moderate to severe were tested in a living room environment with typical domestic noise backgrounds. They performed speech recognition tasks aided with sound presented from a TV via a TV soundbar, the TV-Streamer+ or legacy ReSound Unite™ TV Streamer 2. Performance was better with TV-Streamer+ than the TV soundbar in all conditions except "quiet", where performance was comparable when listening aided to the TV soundbar versus streaming. No performance differences were found between TV-Streamer+ and TV Streamer 2. The results strongly support the use of the TV-Streamer+ to improve TV listening in typical home environments.

Watching TV is a popular leisure activity for many people, and it is no less so for those who wear hearing aids. While hearing aid users' improved communication ability in daily listening environments tends to steal the headlines, improved hearing of the TV is also an important benefit that hearing aid users recognize. In the 2022 MarkeTrak survey, satisfaction "when watching TV with others" was 78% for

hearing aid users and only 39% for non-users.¹ This is not to say that hearing aids solve every TV-related complaint. Hearing aid users experience the same difficulties when watching TV as non-users but to a significantly lesser degree, and the top complaints regardless of whether or not people wear hearing aids are related to loudness, understanding speech on the TV program when there were competing sounds in the environment, and effort needed to follow speech on TV programs.² To cope, both hearing aid users and non-users adjust TV volume, which can lead to its own set of issues when others in the surroundings complain about elevated TV volume levels.

Wireless accessories that can connect to TVs and stream sound to hearing aids have been available for many years. ReSound introduced the first of its kind based on digital radio frequency transmission at 2.4 GHz that streamed sound directly from the TV accessory to the hearing aids of the user with no additional body worn device. To meet the low power consumption requirements of hearing aids, GN engineers cleverly designed a proprietary audio streaming protocol based on the power conserving variant of Bluetooth that was intended for transmission of small amounts of data rather than rich content like audio. This solution provided high quality true stereo streamed audio at low latency with power efficiency that was suitable for hearing aids, and was the forerunner for similar proprietary protocols for smart devices.³ Dedicated TV streaming accessories from some other brands also followed. But despite the widespread availability and relative

low cost of TV streamers as a beneficial accessory to hearing aids, relatively few hearing aid users have them. MarkeTrak¹ found that only 9-10% of people with professionally fitted hearing aids used some kind of streaming accessory and this statistic included the whole category of wireless streaming accessories, not just TV streamers. Use of TV streamers with hearing aids may vary somewhat depending on hearing aid brand although it is likely still quite low. For example, 16% of hearing aid users have used a TV streamer to bring the TV audio to their Beltone hearing aids.⁴

The first TV streamer based on a new standard for wireless audio and hearing aids

The ReSound TV-Streamer+ introduces personal and broadcast streaming based on Bluetooth LE Audio which, compared to classic Bluetooth, is a better quality and a more power efficient way of transmitting audio from one device – such as a smartphone or streaming accessory – to another – such as earbuds or hearing aids. Like the legacy TV Streamer 2, users of compatible hearing aids from GN brands can pair their hearing aids to the accessory and receive the streamed sound directly to their hearing aids. In addition, TV-Streamer+ is ready for Auracast™ which will allow owners of TV-Streamer+ to share the broadcast with others who have Auracast compatible devices including headphones, earbuds or even hearing aids from another brand as these become available.

Given the challenges that hearing aid users experience watching TV in their daily environments, it is of interest to
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TV-Streamer+, cont.

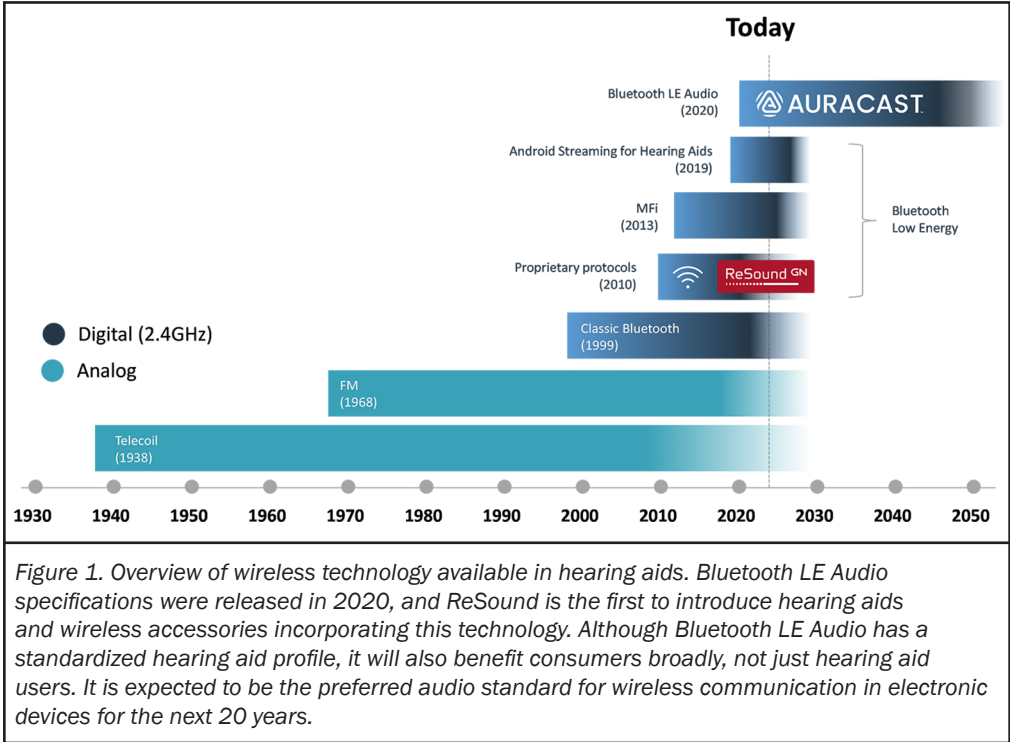
explore how much they might benefit from listening via streamed sound versus TV speakers. In addition, the new application of Bluetooth LE Audio in streaming digital wireless audio to hearing aids is relevant to compare to existing solutions. The purpose of the study was to quantify the benefit of listening to sound streamed from the TV-Streamer+ versus from the TV with hearing aid amplification alone in a typical home listening environment. A secondary purpose was to benchmark performance of the TV-Streamer+ against the legacy ReSound Unite TV Streamer 2.

Given the challenges that hearing aid users experience watching TV in their daily environments, it is of interest to explore how much they might benefit from listening via streamed sound versus TV speakers. In addition, the new application of Bluetooth LE Audio in streaming digital wireless audio to hearing aids is relevant to compare to existing solutions. The purpose of the study was to quantify the benefit of listening to sound streamed from the TV-Streamer+ versus from the TV with hearing aid amplification alone in a typical home listening environment. A secondary purpose was to benchmark performance of the TV-Streamer+ against the legacy ReSound Unite TV Streamer 2.

Methods

Participants, hearing aids and fitting

Fifteen individuals with bilateral moderate-to-severe sloping sensorineural hearing loss (12 males and 3 females) participated in the experiment. All participants were experienced hearing aid users with a median of 24 years of experience with amplification (1st quartile: 20 years and 3rd quartile: 30 years). The median age of the participants was 79 years with



a first quartile of 60 years and a third quartile of 81 years.

The test participants were fitted with a pair of ReSound Nexia™ rechargeable micro-Receiver-In-the-Ear (RIE) hearing aids (NX 960S-DRWC). The hearing aids were fit with the appropriate power receiver (MP or HP), power domes and gain based on the proprietary Audiogram+ fitting rationale for experienced users. The hearing aids were fitted with the default 360 All-Around program using ReSound Smart Fit 1.17. ReSound hearing aids have “mix-in” streaming, meaning that a streamed input to the hearing aids is combined with the microphone input in the program that is active. The gains and features that are active in the program remain active during streaming, but the microphone input can be reduced relative to the streamed input depending on the setting chosen in the ReSound Smart Fit.

Test conditions, material, and setup
Speech recognition in noise was tested

with the hearing aids picking up sound from a soundbar connected to the TV and with the hearing aids picking up streamed sound from the TV via the TV-Streamer+ and the legacy TV Streamer 2. A soundbar is a single long speaker containing multiple discrete speakers and is commonly wall-mounted above or below a TV to enhance the audio experience. Many consumers today add soundbars to their TVs to compensate for the poorer sound quality that is a trade-off of the often small, rear-facing built-in speakers for the sleek design of modern flatscreen TVs. In this study, the soundbar was mounted below the TV in accordance with installation recommendations to create the most favorable conditions for listening to the TV aided without streaming. The streaming test condition was tested with hearing aid microphones activated in all noise conditions described below and muted in two of the noise conditions.

The test participants completed a speech recognition in noise test that was a
cont.

TV-Streamer+, *cont.*

slightly modified version of the Dantale II test.⁵ The test is comprised of five-word sentences and was presented in different noise backgrounds that are likely to occur in domestic situations. The noises used were the following four recorded domestic noises: “vacuuming”, “cooking”, “people talking”, and “kids playing”. Testing was also performed in quiet for reference. Thirty sentences were administered for each test condition and background combination. Table 1 shows an overview of the test conditions.

Each test participant completed a speech recognition test aided with the test hearing aids serving both as practice but also to calculate each test participant’s reference signal-to-noise ratio (SNR) for the actual test. The practice test was conducted according to the unmodified Dantale II test, where the noise is fixed at 65 dB SPL and the stimulus presentation level is adaptively changed depending on the person’s response, resulting in an SNR for 50% speech recognition. The result of this practice test, minus 6 dB, served as the reference SNR for each individual. Based on the psychometric function for Dantale II, it was expected that each test participant would obtain a speech recognition score of between 10-40% at their reference SNR if tested in the same background noise. Testing at the individual reference SNR was done to minimize ceiling

effects in demonstrating benefit of the TV-Streamer+. The modification of the Dantale II test was to present all sentences at the individual’s reference SNR and count the number of correctly recognized words, thereby allowing a % correct score to be calculated for each condition. The maximum speech level used was 75 dB SPL.

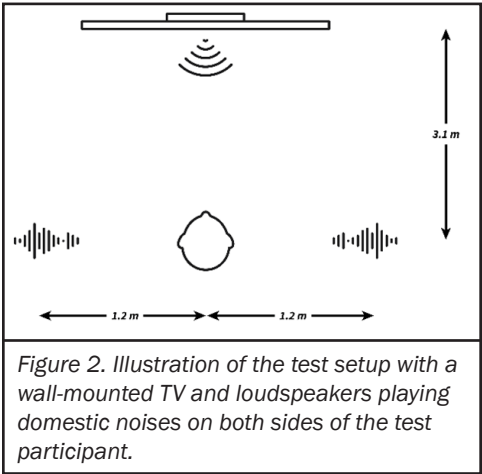
Adobe Audition was used to play the background noise from two Genelec 6010 loudspeakers placed 1.2 meters to the left and 1.2 meters to the right of center of the test participant’s head. The loudspeakers to the left and right of the test participant was treated as a stereo pair to play back stereo background noise recordings. The test environment setup is illustrated in Figure 2.

The hearing aids tested have adaptive features that rely on identification of speech and noise in the environment e.g., the environmental classifier which drives automatic changes in hearing aid features such as noise reduction, wind noise reduction, and directionality. Therefore, noise was presented for 1 minute and 15 seconds prior to the first sentence of each speech recognition test to give the hearing aids time to adapt to the environment.

Testing was conducted in a simulated living room with a wall-mounted TV.

The audio from the TV was played from a Sonos soundbar connected to the TV. The Dantale II test sentences were played from a laptop through an RME Fireface UFX audio interface. An output of the audio interface was connected to an (line-in) analogue-to-HDMI converter. The output of the converter was connected to an HDMI input of the TV. The target speech was played from either the TV soundbar alone or streamed via the TV-Streamer+ or TV Streamer 2 alone. The level of the target speech was calibrated to start at 65 dB SPL when played through the soundbar with competing noise presented according to the individual’s reference SNR. The level of the TV-Streamer+ was set to default. While streaming, the hearing aids’ microphone input was turned down by 3 dB as is the default when streaming from a TV Streamer.

cont.



| Test Condition | Domestic background noises | | | | | | |
|----------------------|-----------------------------|---------------------------|---------|----------------|--------------------------------|------------------------------|-------|
| TV with soundbar | Vacuuming w HA mics unmuted | N/A | Cooking | People talking | Kids playing w HA mics unmuted | N/A | Quiet |
| TV-Streamer+ | Vacuuming w HA mics unmuted | Vacuuming w HA mics muted | Cooking | People talking | Kids playing w HA mics unmuted | Kids playing w HA mics muted | Quiet |
| Legacy TV Streamer 2 | Vacuuming w HA mics unmuted | Vacuuming w HA mics muted | Cooking | People talking | Kids playing w HA mics unmuted | Kids playing w HA mics muted | Quiet |

Table 1. Overview of test conditions.

TV-Streamer+, cont.

Statistical analysis

The resulting speech recognition scores from the test, which was the percentages of words understood correctly, was compared across test conditions. The data was analyzed using analyses of variance and using the Tukey's honest significance test when comparing across multiple conditions.

Results and Discussion

The test participants' mean speech recognition in noise scores when listening to the TV through the TV soundbar (hearing aids alone) and when listening to the TV with sound being streamed from the TV to the hearing aids via the TV-Streamer+ are shown in Figure 3. The results are for all four domestic noise conditions ("vacuuming"-, "cooking"-, "people talking"-, and "kids playing") combined. The streaming results are for streaming with the hearing aid microphones activated (unmuted). The mean speech recognition in noise score is 55% when listening to speech from the TV soundbar and 85% when speech is streamed to the hearing aids via the TV-Streamer+.

Streaming sound from the TV to the users' hearing aids provided a significant mean improvement of 30% in speech recognition score in domestic noise ($p < 0.001$). When examining individual results, benefit was observed for each test participant. Individual improvements ranged from a score improvement of 8% to 54% with 13 of the 15 test participants getting a streaming benefit exceeding 20% in speech recognition in noise. It is important to note that, with the hearing aid mics active, participants could hear the competing noise. The benefit demonstrates a significantly improved SNR for the streamed TV signal without isolating the hearing aid user from their surroundings. This is

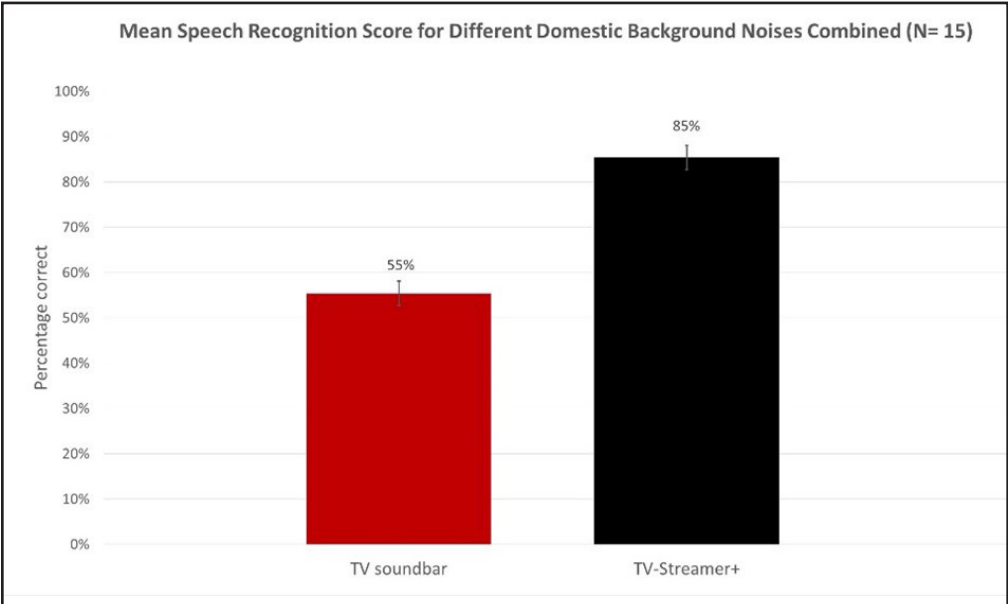


Figure 3: Test participants' mean speech recognition score when listening to speech from the TV with hearing aids alone and with hearing aids combined with the TV-Streamer+ in various domestic background noises combined. Error bars show 95% confidence intervals.

important for people who are watching TV together with others or people who want to be able to hear what is happening in the environment around them.

The test participants' mean speech recognition score in the four different domestic noises: "vacuuming"-, "cooking"-, "people talking"-, and "kids playing" noise for the two test conditions listening to TV with sound through the TV soundbar and listening to sound streamed from the TV to the hearing aids (with hearing aid microphones activated) is shown in Figure 4. The test participants' speech recognition score is improved from 40% to 70% in "vacuuming noise" when the TV sound is streamed to the hearing aids instead of delivered via the TV soundbar ($p < 0.001$). The test participants' speech recognition score is improved 40% points in "cooking noise" ($p < 0.001$), 19% points in "people talking noise" ($p < 0.001$), and 32% points in "kids playing noise" ($p < 0.001$). The streaming benefit is significant in all four domestic

background noises with the most benefit obtained in the "cooking" noise.

Speech recognition was also tested with the hearing aid microphones muted during streaming in the "vacuuming" and "kids playing" noise conditions. The mean streaming benefit when streaming sound from the TV to the hearing aids via the TV-Streamer+ with and without the hearing aids activated for the two noise conditions is shown in Figure 5. The mean streaming benefit in "vacuuming noise" when streaming sound from the TV to the hearing aids (with hearing aid microphones activated) is 30% points in speech recognition score improvement. Not surprisingly, the mean streaming benefit is even greater when the hearing aid microphones are muted, providing a significant streaming benefit of 56% points ($p < 0.001$) in "vacuuming noise".

Likewise, the mean streaming benefit in noise increases from 32% points ($p < 0.001$) with the hearing aid microphones

cont.

TV-Streamer+, cont.

activated to 39% points ($p < 0.001$) with the microphones muted in the “kids playing” noise.

The mean results are limited by some test participants who attained a speech

recognition in noise score of 100% when streaming with the hearing aid microphones muted. Despite this test limitation, the mean streaming benefit for the vacuuming noise is an impressive 56% score improvement. On the other

side of the coin, remarkable benefit of streaming was observed for some test participants who did poorly when listening to the TV soundbar in noise. The greatest individual streaming benefit was a 70% score improvement with streaming and hearing aid microphones muted compared to listening with the TV soundbar.

Speech recognition with the TV soundbar and TV-Streamer+ in various domestic noises was benchmarked against speech recognition in quiet and the legacy TV Streamer 2. Figure 6 shows the test participants’ mean speech recognition scores in the four domestic noises as well as in quiet for listening to the TV soundbar and to streamed sound via the TV-Streamer+ as well as the legacy TV Streamer 2.

Streaming provides so much benefit that streaming sound from the TV to the hearing aids via the TV-Streamer+ and legacy TV Streamer 2 provides speech recognition in noise performance that is very close to speech recognition in quiet. There is no significant difference between speech recognition via the TV soundbar in quiet compared to speech recognition in all the streaming in noise conditions ($p < 0.51$). In contrast, speech recognition in the noise conditions is significantly better with TV-Streamer+ and TV Streamer 2 than with the sound from the TV soundbar ($p < 0.001$).

Mean speech recognition performance with the domestic noises and in quiet are not significantly different for the TV-Streamer+ and legacy TV Streamer 2 ($p = 0.57$). This shows that the TV-Streamer+ with Bluetooth Low Energy Audio provides similar speech recognition in noise and quiet performance as legacy TV Streamer 2 with GN’s proprietary streaming protocol.

cont.

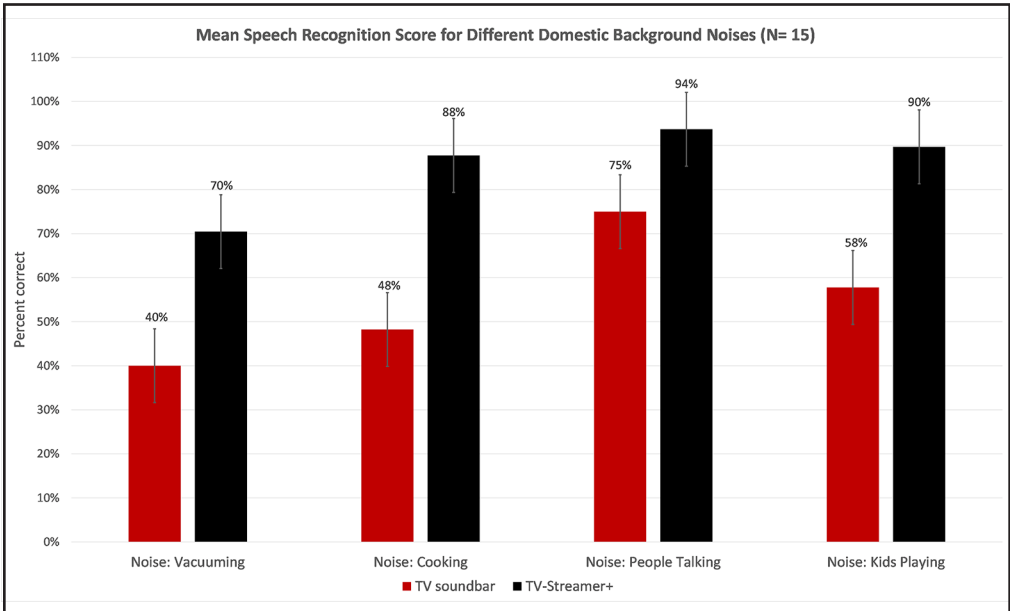


Figure 4: Test participants’ mean speech recognition when listening to speech from the TV with hearing aids alone and with hearing aids (hearing aid microphones unmuted) combined with the TV-Streamer+ in various real-life domestic background noises. Error bars show 95% confidence intervals.

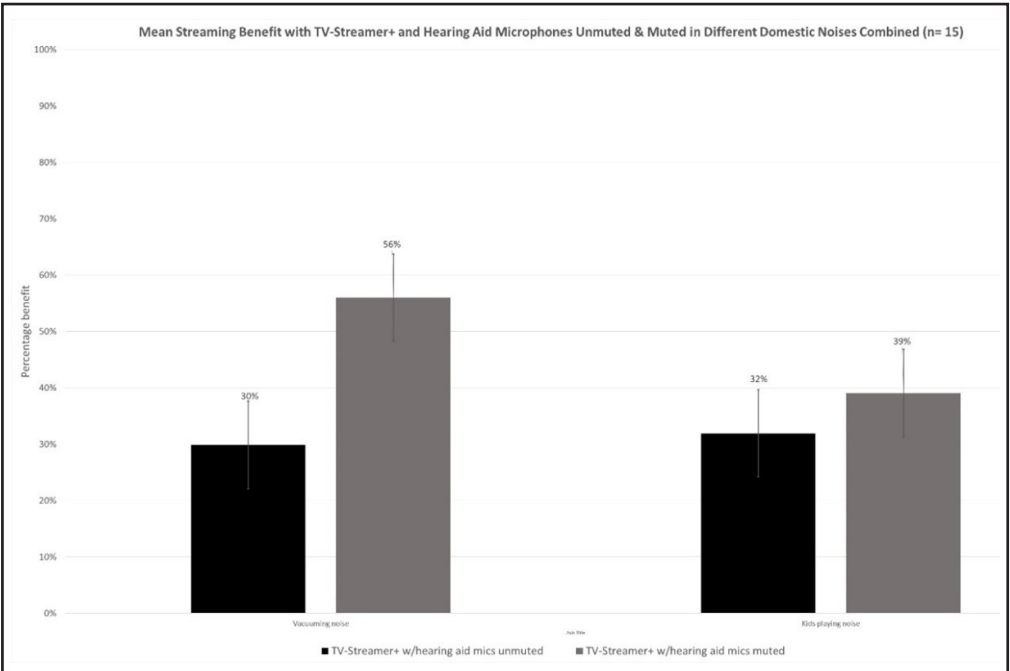


Figure 5: Test participants’ mean streaming benefit when listening to streamed speech from the TV via the TV-Streamer+ with and without hearing aids microphones muted. Error bars show 95% confidence intervals.

TV-Streamer+, cont.

Results and Discussion

The TV-Streamer+ provides a significant improvement in speech recognition performance in various domestic noises compared to when listening aided to the TV through the TV soundbar alone. Speech recognition performance improves even further when speech is streamed via the TV-Streamer+ to the hearing aids when the hearing aid microphones are muted. Streaming speech from the TV in different domestic background noises provides a speech recognition performance that is comparable to speech recognition in quiet when listening aided to sound from the TV soundbar. The speech recognition in noise and quiet benefit provided by the TV-Streamer+ with Bluetooth Low Energy Audio is equivalent to benefit provided by the legacy TV Streamer 2 with GN's proprietary streaming protocol.

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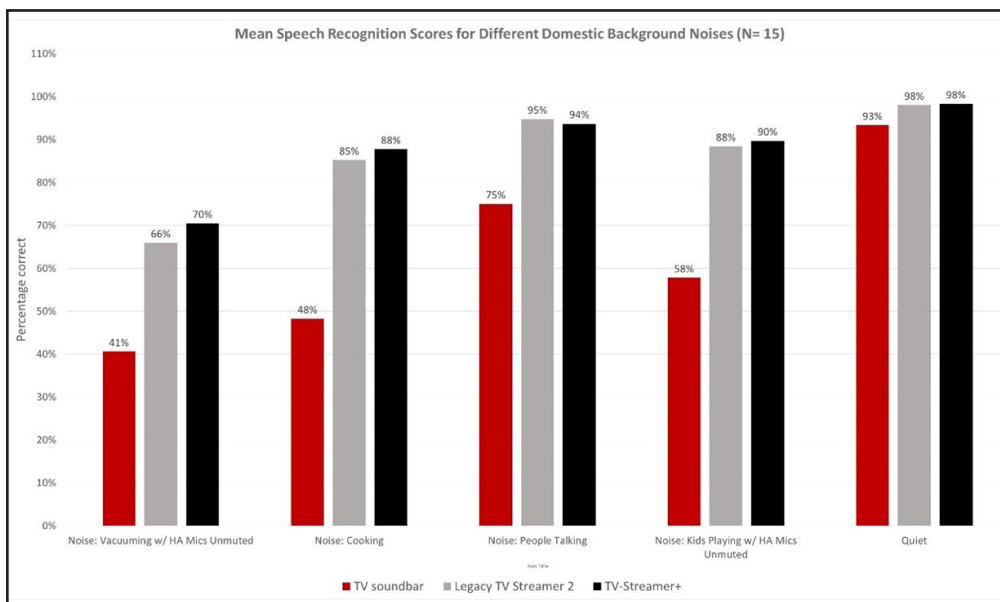


Figure 6: Test participants' mean speech recognition score when listening to speech from the TV with hearing aids alone and with hearing aids combined with the TV-Streamer+ and legacy TV-Streamer in various domestic background noises and quiet. Error bars show 95% confidence intervals.

Upper Midwest Audiology Conference

speakers and topics include:

- Debbie Abel, Au.D. Ethics, Billing and Coding: What Could Go Wrong?!
- Young Sil Kim Allgor, M.Ed Identity, Culture, and You
- Nicole Carreon, LMFT Sound Minds: Navigating Mental Health Challenges in Audiology Practice
- Amanda Griffin, Au.D., Ph.D. Cochlear Implantation for Pediatric Unilateral Deafness is Here! Now What?
- Devin McCaslin, Ph.D. Dizziness Triage: The Emerging Role of Audiology and Artificial Intelligence
- Jacqueline Weycker, Au.D. Effects of a Hearing Intervention on Cognitive Decline: Results of the Aging & Cognitive Health Evaluation in Elders (ACHIEVE) Randomized Trial

March 1 & 2, 2024 || Sheraton—Bloomington

registration is now open!

www.minnesotaaudiology.org/conference

A publication of the Minnesota Academy of Audiology, distributed to MAA members with information pertinent to the field of audiology. Information contained in this publication is obtained from sources considered to be reliable; however accuracy and completeness cannot be guaranteed.

Address all questions and comments to the editors:

[Rachel E. Allgor, Au.D., FAAA](#)

[Alana Kennedy, Au.D., CCC-A](#)

MAA Committee Updates

Audiology Awareness

The Audiology Awareness Committee includes Drs. Katie Awoyinka (chair), Jordan Krentz, Jessica Marquardt, Jessica Connolly Russow, and Beth Thomas. The primary goal of the Audiology Awareness Committee is to spread awareness regarding audiology and hearing loss. Typically, this is accomplished through community/ employer health fairs, community education events, and partnerships.

Currently, the Audiology Awareness Committee plans to meet either virtually or in-person early January and May to discuss the Gloria Gross Silent Auction, the Gloria Gross Scholarship, plan for upcoming events, as well as continuing to maintain an internal group chat for additional responsibilities. The Gloria Gross scholarship application deadline is 05/31/2024. Scholarship applicants must be high school seniors with hearing loss. MAA Members: please spread the word so the committee can extend this fantastic opportunity to as many eligible students as possible! For more information and to access the application, please visit our website.

We, as a committee, plan to reassess the wants and needs of our membership to best satisfy, engage with, and represent our organization and profession. Be on the lookout for a short survey from the committee, which will be used to guide the direction Audiology Awareness moves in the future. We are always looking for volunteers to join the committee to help manage our existing initiatives and help collaborate on creating our future. Please email audawareness@minnesotaaudiology.org if you are interested in joining us!

Coding & Reimbursement

Coding and Reimbursement Committee includes Drs. Melisa Oblander (chair),

Jason Leyendecker, and Carrie Meyer. We are looking for new members. We meet virtually three times a year and connect over email on related topics. The purpose of this committee is to disseminate accurate coding, billing, and reimbursement methodologies, investigate coding questions and concerns from membership, and look into coding/billing improvement opportunities for membership.

In 2024 we have a goal of working with the new DHS Hearing Aid Policy coordinator on updates and clarifications to the MHCP Hearing aid Services Manual and collaborating with the GRC committee to propose fee rate increases. We can be contacted at coding@minnesotaaudiology.org.

Communications & Publications

The Communications & Publications (C&P) Committee includes Drs. Rachel Allgor (co-chair), Alana Kennedy (co-chair), Ashley Hughes, and Katie Awoyinka. This committee is responsible for collecting and editing content for this newsletter, administrating the MAA Facebook group, and communicating pertinent information to our members

The C&P Committee plans to meet either virtually or in-person on the first Thursday of April, August, and December to edit upcoming newsletter content and we maintain an internal group chat for additional responsibilities. We are looking for another volunteer to join C&P as a co-chair to help manage collection and editing of newsletter content. Please email communications@minnesotaaudiology.org if you are interested in joining us!

Continuing Education

The Continuing Education (CE) members include Drs. Kerry Witherell,

Angie Mucci, Ashley Hughes, Erin Voyer, Kelsey Putvin, Danielle Barr, and Bobby Lang. Our committee focuses on planning and promoting educational growth opportunities for audiologists. We strive to create and maintain positive relationships between the Academy and the businesses that support and sponsor audiologists.

The largest annual event we focus on is the annual Upper Midwest Audiology Conference (UMAC), which is taking place March 1-2 this year in Bloomington. This year, outside of UMAC, the committee is hoping to offer virtual and potentially in-person sessions on current professional topics and events to best serve our members. Currently, the CE committee plans to meet either virtually or in person on the last Tuesday of March, June, and October to discuss potential educational events and the UMAC conference.

Government Relations

This was an exciting year for legislative initiatives. Sometimes the stars align and we are able to see major changes in government mandates and regulations. In 2023, we saw the Minnesota Hearing Instrument Dispensing Examination get modernized—the first change in decades. We appreciate the hard work of the members of the SLP and Audiologist Advisory Committee and Hearing Instrument Dispenser Advisory Council: Drs. Josie Helmbrecht, Jenne Tunnel, Carrie Meyer, and Jennifer Ward.

A large portion of the practical examination is now available online, with an extensive list of resources and study guides to prepare for the examination. If you would like to apply to be a member of either of these councils, you can apply online at the website of the [HID Advisory Council](#) or [SLP/A Council](#).

cont.

Committees, *cont.*

In May, Governor Walz signed a very large Omnibus Bill which included two items that directly impact the profession of audiology.

1. The definitions for prescription and over the counter (OTC) hearing aids were updated to better reflect the federal requirements for OTC hearing aids. Please make sure you have updated your patient facing materials to reflect the changes. You can access that information [here](#).
2. The age limitation was removed from the hearing aid mandate. Effective, August 1, 2023, most insurance companies in Minnesota are required to provide a hearing aid benefit, no matter the age of the person. Unfortunately, there are restrictions for this rule which exclude our patients with Medicare and self-funded insurance benefits,

but this mandate has really expanded access to hearing healthcare for many Minnesotans.

We have a lot more to do in 2024. Currently, we are partnering with Minnesota Speech Language Hearing Association in the hopes of passing the Interstate Compact Agreement. This initiative was ranked top priority by the attendees of UMAC 2020. The Government Relations Committee is also partnering with the MAA Coding & Reimbursement Committee with the singular goal to address the low reimbursement rates of Minnesota Medical Assistance. We are happy to also have the support of the Minnesota Commission of the Deaf, DeafBlind, and Hard of Hearing on these initiatives in 2024.

Rebecca Younk is the chair for the Government Relations Committee with support from Drs. Kristi Albers, John Coverstone, Kristi Oeding, Sara Downs, Kristi Gravel, Ashley Hughes, Sarah Kahley, Angie Mucci, Victoria Pecharek, Jennifer Tunnell, Jacqueline Weycker, and Gwen Washburn. Please be on the lookout for meeting dates for 2024 committee meetings. Contact govrelations@minnesotaaudiology.org if you would like to be a part of GRC.

Membership Development

The Membership Development Committee includes Drs. Sarah Ostlie (co-chair), Kirsten Bock (co-chair), Maureen Cannon, Hannah Herd, Carly Kempton, Margaret Koeritzer, Melodie Maerz, Melissa Polonenko, and Kerry

cont.

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Committees, cont.

Witherell. This committee is responsible for fostering a growing community of audiologists, ensuring consistent leadership of MAA by facilitating annual nominations and elections, and engaging membership in meaningful interactions with one another.

The Membership Development Committee plans to meet virtually on the third Tuesday of odd months (January, March, May, etc) to collaborate on ongoing projects. Currently the Membership Development team has the hearty participation of its engaged team members and is not necessarily in need of extra hands, but extra hands are always welcome

nonetheless! Please email membership@minnesotaaudiology.org if you are interested in joining the Membership Development Committee!

Sponsorship

The Sponsorship Committee includes Drs. Melodie Maerz and Kristi Oeding (co-chairs), Kristi Gravel, Melisa Oblander, Carrie Meyer, and Jim Urbanski. This committee builds funding sources so that the organization can effectively fulfill our mission and serve our members. This is accomplished through cultivating and maintaining positive relationships with the businesses that support and sponsor audiologists.

We are looking to increase awareness of MAA through developing more relationships with businesses and sponsors from past years as well as new organizations in our community. We plan to communicate event details and upcoming deadlines to our sponsors in a timely fashion.

Currently, the Sponsorship Committee plans to meet in the first week of March, July and November to verify that correct information will be obtained for the upcoming newsletters along with other planned events. Please email sponsorship@minnesotaaudiology.org if you are interested in joining the Sponsorship Committee.

2024 Board of Directors

We're excited to welcome our 2024 Board of Directors, which includes three new members: Angie Mucci, Danni Drummond, and Sarah Ostlie.



President
Rachel Allgor, Au.D.



Past President
Eric Barrett, Au.D.



President-Elect
Angie Mucci, Au.D.



Treasurer
Margaret Koeritzer, Au.D.

Members-at-Large



Danni Drummond, Au.D.



Heidi Hill, Au.D.



Robert Lang, Au.D.



Jessica Marquardt, Au.D.



Kristi Oeding, Au.D.



Sarah Ostlie, Au.D.

Changes to Billing and Coding Relevant to Audiologists for 2024

Fee Schedule Changes

- CMS Medicare Physician Fee Schedule (MPFS)/Hospital Outpatient Prospective Payment System (OPPS) [available here](#).
- CMS uses an annual conversion factor (CF) to calculate MPFS payment rates. For 2024, CMS estimates that the CF will be \$32.7476, representing a 3.36% decrease from the \$33.89 CF for 2023. The proposed decrease in the CF is due in large part to the expiration of the temporary 2.5% positive adjustment that Congress implemented to mitigate significant payment cuts in 2023 and Medicare's requirement to maintain a budget neutral program. However, it's important to note that the proposed CF includes a 1.25% increase required by Congress to help mitigate the 2024 payment cuts.

Example:

92557 Comprehensive audiogram
2024 = \$35.69 // 2023 = \$37.28
-4% (-\$1.59)

New CPT Codes

- **926X1** *Diagnostic analysis programming and verification of an auditory osseointegrated sound processor any type; first 60 minutes*
- **926X2** *Diagnostic analysis programming and verification of an auditory osseointegrated sound processor any type; each additional 15 minutes* (CPT code 926X2 serves as the add-on code for base CPT code 926X1)
- CMS proposes to add CPT codes 926X1 and 926X2 to the list of audiology services that can be

billed with the AB modifier, that is personally provided by audiologists without a physician/non-physician practitioner (NPP) referral for non-acute hearing conditions one time in a calendar year.

- Audiologists must follow the more rigorous classification of activities allowed to be counted in a timed code as well as the more robust documentation rules. Only count minutes engaged in direct programming and analysis of device(s) and document this in patient chart notes. Time spent on counseling and teaching cannot be included. Thirty-one or more minutes in direct activities meets code value.

Telehealth

- Telehealth service coverage is extended through 31 Dec 2024 (Consolidated Appropriations Act 2023)
- All CPT codes covered under the federal PHE will remain covered through the end of next year.

Quality Reporting/ Quality Payment Program

- Merit Based Incentive Payment System (MIPS) have two new measures for reporting options
 - Screening for high blood pressure
 - Connection to community service providers for health-related social needs
- MIPS Value Pathway (MVP) for Quality Care for Treatment of Ear, Nose, and Throat Disorders
 - Providing care for patients experiencing some of the most

common otolaryngology conditions such as, but not limited to: otologic conditions, chronic rhinosinusitis (CRS), age-related hearing loss (ARHL) and otitis media.

- This proposed MVP would be most applicable to clinicians who treat patients within the practice of otolaryngology, including non-physician practitioners like audiologists.

Minnesota Health Care Programs (Medical Assistance/Medicaid)

- To see MHCP patients, regardless of plan, participating providers must enroll with MHCP.
- Participating providers once enrolled can choose to see only Managed Care patients.
 - Managed Care Plans are plans managed by health plans rather than State of Minnesota
 - Providers must opt in, rather than opt out

Custom Recasings

It was acknowledged that the description of V5014 was outdated and confusing, as it is written to cover both in house repairs, as well as manufacturer recasings. But V5014 is not to be used for manufacturer repairs that have a negotiated repair rate. The new policy for billing remakes/recasing/replating will be to no longer use V5014, but rather bill like a typical out of warranty repair using the original HCPCS code with RB modifier along with the hearing aid model number. Look for an update in the Provider News soon.



Experiences in a Study Abroad Trip to Belize

Kristi Oeding, Au.D./Ph.D., CCC-A

Assistant Professor

Minnesota State University, Mankato

Minnesota State University, Mankato has been going to San Pedro, Belize for the last 10 years. This study abroad provides an opportunity for students to experience clinical care in a different country. Every year, except during COVID, four graduate students in speech language pathology and two undergraduate students interested in audiology travel to the island to provide speech language services and hearing screenings to local schools. These trips require a lot of preparation and flexibility and I wanted to share my first-year experience being a part of this program.

Once students were chosen via an application process for the trip, several meetings were held over five months to discuss what the study abroad trip would involve. One of the key components of these meetings was getting to know more about San Pedro and Belize. This is critical in order to provide culturally responsive clinical practices, which is defined as “the capacity of clinicians to provide care that is respectful of, and relevant to, the health beliefs, health practices, cultural and linguistic needs of diverse patient populations and communities.”¹ Over these several months, we learned about Belize’s history, politics, its many cultures, beliefs, religions, cultural expectations, its many languages, currency, the healthcare and education systems, food,

and its speech, language, and hearing services and practices. This provided the group with background knowledge and helped us in planning the culturally responsive services we would be providing in addition to talking with the principals and teachers.

Building relationships with the schools and particularly the principals and the teachers was critical. Since I was new, I had to re-establish rapport with each of the schools. This was one of my favorite parts of the trip. I was so grateful for how open they were to partnering with me. It was very important to me to create a partnership with each school and to make sure they were telling me what their needs were. The first thing I realized was that I needed to provide them with information on the services I would be able to provide with the equipment that I could bring. I provided this information so they knew what we would all be able to do. They knew of quiet places we would be able to test due to past trips and had lists of all the students we were going to test ready for us when we arrived. It was a very seamless transition.

In addition to the learning completed in the pre-trip meetings, it was important to me to continue learning on my own. I continued learning about Belize, the trip itself from my colleague who had provided audiology services prior, and books and articles on services trips. This last portion was important for me as this was my first study abroad and service trip. I wanted to ensure that I

was approaching the trip in a culturally responsive manner and in order to do this I had to learn. I learned a lot from these resources, including learning about Belize and particularly the past history of colonization, ensuring the voices and needs of the community are amplified and put above our own needs, and to create long lasting partnerships with the community. I think it is important to note here that I am not an expert after doing this work and I need to continually learn and grow throughout my entire career in order to provide culturally responsive clinical care.

In addition to the service aspect of the study abroad trip, students also had the opportunity to choose some learning activities. We had the option to go cave tubing and learn about how the cave was used by the Mayans, we could go ziplining, visit the Mayan site of Xunantunich, go snorkeling and see the Hol Chan Marine Reserve and learn about its importance to San Pedro, and go on a sunset cruise to see the island at night and learn about fishing and its importance to the island. These were great opportunities for the students to get to learn more about Belize’s culture, wildlife, and history. Beyond these structured opportunities, students could explore the island when we had free time. Relationships were built quickly this way as we were recognized throughout the island and the students went to a lot of the same venues to say hello to people they had met while exploring.

cont.

Belize, *cont.*

When bringing equipment on the plane, it was surprisingly easy to get through customs and security. I put medical equipment signs on the outside of the carriers along with the manuals in case there were any questions. We brought a portable tablet audiometer and we were loaned a combination audiometer/tympanometer so we could screen for ear infections. We brought an otoscope with disposable tips, several tympanometry tips, disinfectant wipes, stickers and pencils for the children, screening forms, extra paper to write reports, and information on screenings, ear infections, hearing loss, and communication tips in both English and Spanish. We ensured that we had appropriate instructions in Spanish as many of the children, while learning English in school, speak Spanish or another language at home. I could also use a teacher as a resource if the child spoke another dialect or language to ensure each child understood the instructions for the screening.

When we arrived in San Pedro, we walked around and had the opportunity to say hello to the school principals and teachers in person. It was also a great opportunity to introduce ourselves to the kids. They were really excited to say hello and asked us if we'd be back the next day. Throughout the two weeks we were there, we worked hard during the week to provide screenings at the schools. The average school day was 8:30 a.m. to 1:00 p.m. and we saw about 400 children while we were there. The process we set up for testing hearing was to initially perform a hearing screening, similar to what is done in the United States. If a child didn't pass, we would retest them the next day and if the child still did not pass, then tympanometry was performed along with a diagnostic air and bone conduction test using the tablet audiometer.

Rescreening children the next day was also a great way to see if noise, instructions, or alertness during testing had impacted the previous results.

One of the things I learned early is that I needed to adjust my passing criteria. The noise was too loud to screen at 20 dB HL at 1000, 2000, 4000, and 6000 Hz (when age appropriate) and 25 dB HL for 500 Hz. The rooms would sometimes have a wall air conditioner unit, or you could hear the wildlife outside or the children playing. I did some research and found the World Health Organization hearing screening guidelines.² The guidelines suggest that, if the room is very noisy, a threshold cutoff of 30 or 35 dB HL would be appropriate. These adjustments helped us to see who wasn't passing likely due to noise and who was likely not passing due to hearing loss. While the system was not perfect, it prevented us from over referring children.

Rescreening children the next day was also a great way to see if noise, instructions, or alertness during testing had impacted the previous results. It is important to note here that bone conduction wasn't very helpful diagnostically due to noise in the environment affecting results, however, occasionally air-bone gaps were noted confirming tympanometry results.

After each school hearing screening was completed, we wrote our notes and delivered them to the schools. We organized the notes for each child and provided handouts about the screenings, ear infections, and hearing loss.

Looking back, I am grateful to have had the opportunity to be a part of this study abroad. Some of the major takeaways

from the trip are the importance of going in with a culturally responsive mindset in everything you do, to make meaningful and lasting partnerships with the schools and the community, and to ensure that the school and community voices are at the forefront of what you do. In addition, I found the most meaningful way to get to know Belize was to talk to the people we met and learn their experiences and stories.

I will never forget the people I met, and I am humbled by their openness to talk with me and tell me their stories and life experiences. An improvement to the trip in the future is to determine if we can provide equipment for local healthcare providers or school staff to do the screenings when we aren't there. While the services we provide are important, we want them to be sustainable and part of the community year-round.

References

1. Migrant and Refugee Women's Health Partnership. (2019). Culturally responsive clinical practice: Working with people from migrant and refugee backgrounds. [link](#)
2. World Health Organization. (2021). Hearing screening considerations for implementation. [link](#)

Dr. Kristi Oeding is an assistant professor at Minnesota State University, Mankato. She teaches undergraduate courses related to audiology and runs the audiology clinic and research program. Her research interests include hearing loss, aging, evidence-based practices, and hearing aids. She is interested in creating collaborations for research and for services in the clinic and in the community, teaching and community outreach, as well as finding opportunities for her students to gain more experience in audiology. In her free time she likes to spend time with her husband Ben and her family, hiking, fishing, cooking, and gardening.



MAA Q&A

We Want to Know:

Which is your preferred transducer?

- A) Supra-aural
- B) Inserts
- C) Circum-aural

Respond [here](#) and your answers will be shared in the next newsletter issue.



Welcome New Members

Audiologists

Kendal Pearson, Au.D.
Maria Rodriguez, Au.D.
Emily Thompson, Au.D.

Students

Halle Isom
Brittney Rauschendorfer



MAA Job Board

The MAA website includes a job board. If you're an employer, post your job announcement. If you're a member looking for a new position, post your resume for potential employers to see.

The job board is free for MAA members and is \$25 per month for non-member job postings. Learn more at www.minnesotaaudiology.mcjobboard.net/jobs.



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