

MAR/APR  
2023

American Academy of Audiology  
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# AUDIOLOGY

TODAY

The magazine of, by, and for audiologists



## Hiring a Diverse Workforce

and Why Is It  
Important?

**RAYMOND  
CARHART**

and the  
"Gray Fox"

**OVER-THE-  
COUNTER  
HEARING AIDS**

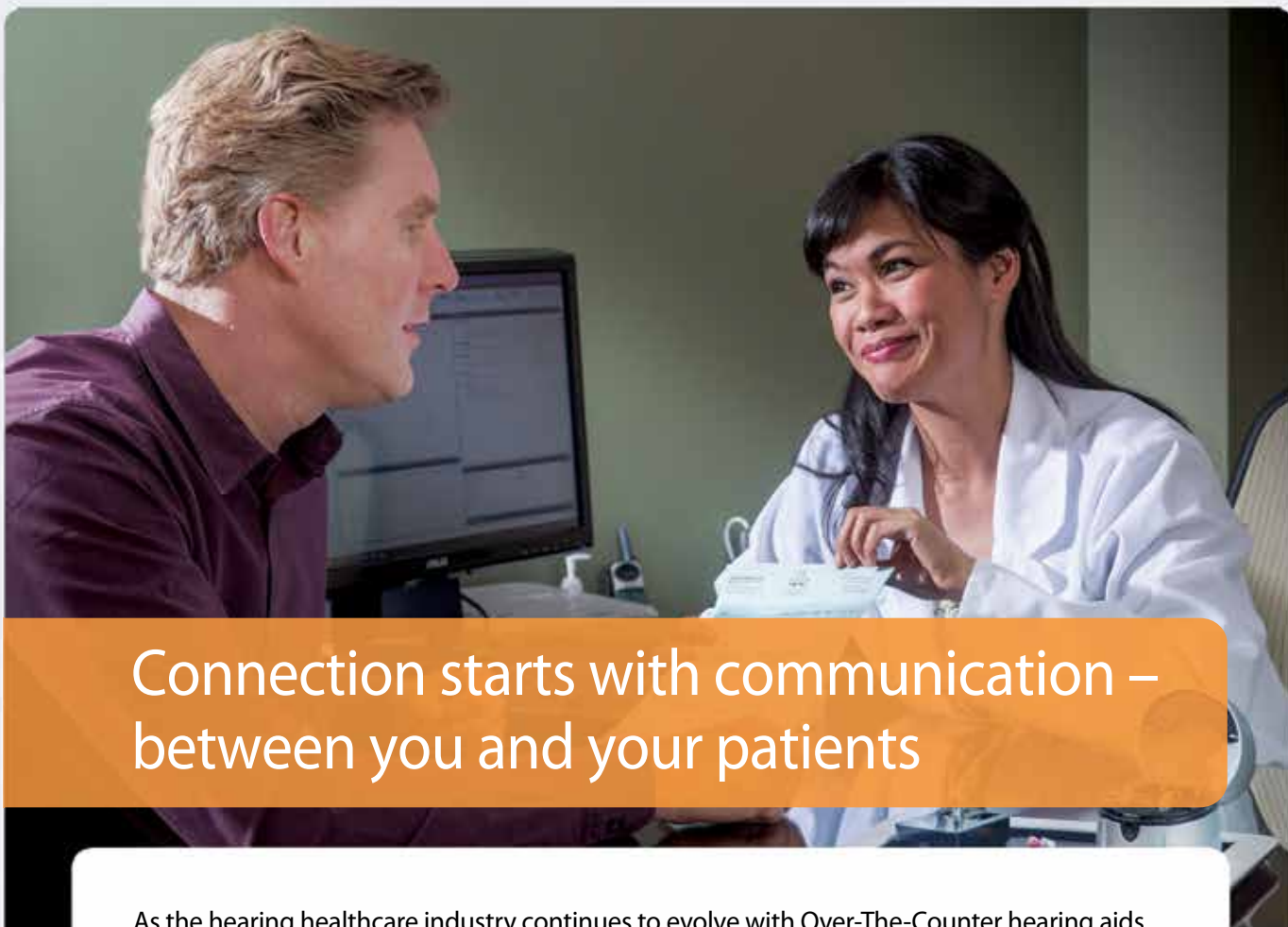
Only Partly the Answer

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THERAPY  
APPROACH**

Children with APD

**AUDIOLOGY  
EXTERNSHIP**

Student Perspectives



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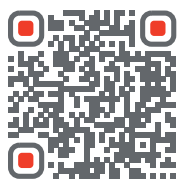
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**EDITORIAL MISSION**

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

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

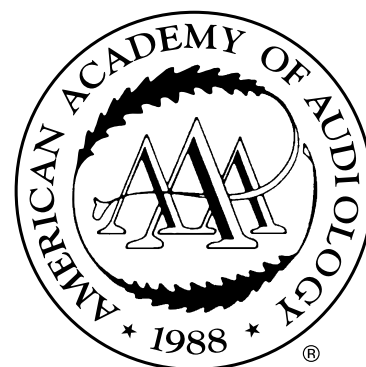
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## ADVERTISEMENT

### ADVANCEMENTS IN CERUMEN REMOVAL

In a study, in vitro model demonstrates significant improvement in the topical treatment of impacted cerumen

**Soham Roy MD, FACS, FAAP**  
Otolaryngologist



#### Who suffers from earwax impaction?

18 million individuals will experience impacted cerumen and at least 8 million ear irrigations are performed each year, according to the 2008 clinical practice guideline. While epidemiological studies vary, it is generally accepted that about 10% of children, 5% of normal healthy adults, and up to 57% of older patients in nursing homes will experience impacted cerumen.

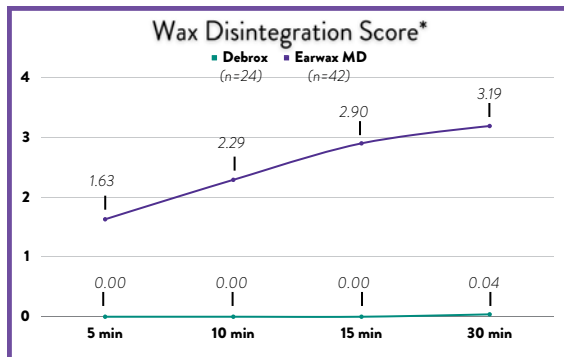
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Human cerumen was collected following a protocol approved by an external ethics review board. Once collected, similar-sized samples were placed into test tubes. One mL of Earwax MD or Debrox® was added to the test tubes and allowed to incubate at room temperature for up to 30 minutes. Disintegration scores were recorded at 5, 10, 15, and 30 minutes. Disintegration was measured on a scale of 0 to 4, with grade 0 showing no disintegration and grade 4 showing complete disintegration.

#### The evidence of success



#### The statistically significant results

The time course study for disintegration scores demonstrated that Earwax MD was effective at quickly breaking down cerumen under room temperature conditions. Samples incubated in Earwax MD demonstrated significantly higher disintegration scores than the two comparators at every time point measured ( $P < 0.0001$ ). Photographic representation of human cerumen samples also shows rapid disintegration.

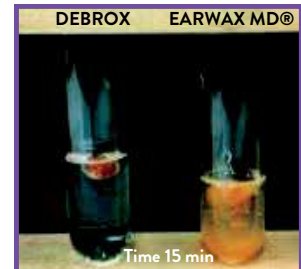
#### The Conclusion

Earwax MD provides rapid disintegration of human cerumen samples with breakdown beginning as early as 5 minutes. Conversely, the commercially available product, Debrox®, containing carbamide peroxide 6.5%, had minimal effects on the cerumen samples.

#### In a separate clinical study

A separate clinical study in humans demonstrated the significant efficacy of Earwax MD in clearing impacted cerumen. Greater than 50% of patients with at least 50% impaction had total clearance after one 15-minute treatment and rinse, with 86% of patients showing total clearance with only two 15-minute treatments. The statistically significant results of Earwax MD make this new product a viable option for both in-office and at-home treatment of impacted earwax.

Dr. Roy is board certified by the American Board of Otolaryngology-HNS and is a fellow of the American Academy of Otolaryngology-HNS, the American College of Surgeons, and the American Academy of Pediatrics. Dr. Roy is not a paid consultant for Eosera, Inc.



\*Data on File



# Lies, Damn Lies, and Headlines

**W**hen I first saw the article by Dr. James Jerger in this issue of *Audiology Today*, “Raymond Carhart and the ‘Gray Fox,’” I knew that I had to read it. I was drawn in by the intriguing title, only to find out (spoiler alert) that it was about the importance of an intriguing title. Raymond Carhart appears to have been ahead of the curve in understanding the power of conveying importance when it comes to research findings.

Marketing of health-care research and related stories has become ubiquitous. The public relations arms of the numerous stakeholders involved in any health-care issue seek to capitalize on the enthusiasm that we all share for increasing our knowledge. In some cases, when accurate, this can be good as it generates awareness of important health-care topics. In other cases, when misleading, the consequences can be harmful.

We recently have seen examples of both outcomes with the popular media reporting on over-the-counter (OTC) hearing aids. Frankly, it’s been a tough year for audiologists who are repeatedly confronted with the worst of the headlines and stories that dismiss or ignore the importance of our services, wildly embellish the cost of our treatment, characterize licensed health-care professionals as middlepersons, cast doubt on our motivations, and erroneously accuse us of failing to meet the needs of individuals with hearing loss. For those seeking



some sanity amidst all the noise, I highly recommend another article in this issue of *Audiology Today*, “Over-the-Counter Hearing Aids Are Only Partly the Answer” by Todd A. Ricketts and Erin M. Picou. The authors seek to clarify many of the myths and assumptions that have been reported on this topic.

Experiencing media “edits” can be especially frustrating to those researchers or interviewees whose input has been mischaracterized in some way. I’ll never forget when a colleague let me know that Chuck Norris (yes, that Chuck Norris) had incorrectly referenced a study that we had conducted. I wondered, as Dr. Jerger did, “Had the authors actually read the article in question?”

As much as we dislike it when it is done to us, there is also the temptation to take

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mental shortcuts in our consumption of research. As professionals, we must set an example in our own judicious use of the work of others, fully comprehending the methodologies and results of studies, rather than relying on the author's interpretation or the narrative of the reporter discussing the study, lest we unwittingly become part of the problem.

Unfair and ugly news cycles are a fact of life, and it can be easy to become angry and frustrated amid the drama. But I urge each of us to keep our thoughts and focus on the patients who we serve. Regardless of the challenges caused by sensationalist stories, we know the names and faces of those patients whose lives have been changed every day because of our care. Keep up the great work! 🇺🇸

*Virginia Ramachandran*

Virginia Ramachandran, AuD, PhD  
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# What's Trending!

 14,982


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How is human noise affecting whales? Hearing is a primary sense of orientation for whales, and if their environment becomes filled with noise from humans, navigating becomes impacted.

Published February 7

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13,341



Please join us in extending our heartfelt congratulations to the 2023 honors and awards recipients, and thank you to all who submitted a nomination for these outstanding professionals.

Published February 8

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 18,769


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There is some emerging evidence in a recent meta-analysis and systematic review where researchers found that hearing aid users had lower hazards of cognitive decline relative to non-users.

Published February 1

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5,000



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Examining the relationship between sociodemographic factors and academic factors on an offer of admission to a graduate program in Communication Sciences and Disorders (CSD); are they related?

Published February 2

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Four hands of different skin tones (light, medium, dark, and very dark) are arranged in a circle, with fingers pointing towards the center, framing the text. The background is a light, neutral color.

# Hiring a Diverse Workforce

| and Why Is It  
Important?

Having a great job includes more than equitable pay and responsibilities; a diverse work environment is a rising priority. People want to work in spaces that are diverse and reflective of themselves. The recent wave of racial and social unrest is forcing organizations to assess the importance of having a diverse workforce, evaluate, and improve their practices. This article provides practical steps to hiring a diverse workforce and the benefits to both the employer and the employees.

BY JULIANA M. MOSLEY-WILLIAMS

**T**he COVID-19 pandemic changed the lives of many, and subsequently revealed the health inequity pandemic that society has been forced to address over the past few years. Similarly, a third pandemic of racial and social unrest evolved as a result of a series of racially motivated murders at the hands of law enforcement and private citizens.

The response led to nationwide and international protests, calling for justice and an end to racial profiling and discrimination. Companies, health-care systems, school districts, nonprofit organizations, institutions of higher learning, and other employers also were pressured to produce

their diversity numbers as a means of substantiating any claims of a diverse mission. Essentially, employees were seeking a more inclusive workplace and accountability from their employers beyond the performative statements that were being released with each racially motivated incident covered by national news.

Glassdoor, a website for workplace conversation and research, with a mission of radical transparency in making a positive workplace, conducted its 2020 Diversity Hiring Survey (online) with 2,745 U.S. adults between August 25 and August 31. Motivated by the racial unrest of 2020 and the increased interest in workplace diversity, the survey sought to determine the importance of diversity when people are job seeking and if employers are sufficient in fostering a diverse workforce (Glassdoor Team, 2021).

The survey revealed that 76 percent of employees and job seekers report a diverse workforce is an important factor when evaluating companies and job offers. Given this finding, what factors should employers consider in hiring a diverse workforce?

## Steps to Diverse Hiring

As companies consider where and how to begin increasing the diversity of their workforce, the question, “Where do we begin?” often arises. Resources, both human and financial, often determine an organization’s readiness. In an ideal world, the following steps discussed would be implemented in order, but the reality is that employers should prioritize starting where they are with what they have.

Considering the question, “Who is missing in the organization?” is a great place to

begin. Diversity in the workplace considers race/ethnicity, gender, age, ability, sexual orientation, and religion. Regardless of the types of diversity that are being sought, knowing the purpose, developing a plan, and being intentional in action will guide the organization to its desired destination.

## Setting the Atmosphere

Creating a culture of respect and inclusion is imperative, and setting the atmosphere begins with a mission. Employers should review the company/organization’s mission and value statements to assess if the elements of diversity, equity, and inclusion (DEI) are stated or implied, and make revisions as needed. Discussions and focus groups at all employment levels regarding the benefits of a more diverse workplace may be necessary to gain perspective and garner support for increasing diversity and focused inclusivity.

## Strengthening Training

Professional development is no longer a buzz phrase, but a staple of most organizations. Investing in the knowledge, growth, and development of a workforce benefits the employees in their professional competence and strengthens the backbone of the business (Crawford, 2016). It also encourages employees to stay interested in the work and helps generate new ideas and ways of working.

Adding diversity, equity, and inclusion-based training to the professional development agenda further enhances

employees individually and leads to an organizational culture of belonging. Specifically, training focused on unconscious or implicit bias is critical and can reduce treatment and decisions based on bias.

The framework of cultural humility, conceptualized by physicians, Drs. Melanie Tervalon and Jann Murray-Garcia (1998), also may be employed as a training tool to help employees see the vastness of culture and move from a competent orientation of others' culture to self-evaluation and understanding of one's own cultural identities.

They defined cultural humility as "a lifelong commitment to self-evaluation and critique, to redressing power imbalances...and to developing mutually beneficial and non-paternalistic partnerships with communities on behalf of individuals and defined populations."

### Stabilizing Strategy

Employers should develop or revise a strategy that focuses on recruitment, retention, and the rewards of hiring a diverse workforce. While diversity is always present due to the uniqueness of humanity, emphasis on underrepresented groups (people of color; gender; Lesbian, Gay, Bisexual, Transgender, and Queer [LGBTQ+]; and persons with disabilities) is imperative in this discussion.

#### Recruitment

Recruitment of diverse applicants begins with job descriptions and postings. Is the language inclusive, appreciative of difference, and void of bias? Are you

posting in the same places, but hoping to attract different candidates?

Employers have to "be where the people are," meaning it is important to reach out to diverse networks and "try something new to get a new result" (Cooks-Campbell, 2021). Also, it is important to highlight the existing diversity to help attract the diversity being sought.

Consider who is involved in the application review, interview, and hiring process. To reduce bias, standardize the interview process through the use of a question template, timing, and interview delivery (in-person or virtual). Consistency is key.

#### Retention

Retention of a diverse workforce is built on the foundation of inclusion. The time and resources spent to attract employees from underrepresented backgrounds is only as good as the strategies executed to retain them. Diversity will not last without inclusion.

The corporate or organizational culture has to exude the spirit of inclusion, which comes with creating opportunities for employees to be active participants in the planning and implementation of initiatives. People have to believe their voices and perspective will be heard, valued, and considered. In addition, employees need to be able to share, show up, and serve as their authentic selves, which moves the culture from inclusion to one of belonging.

#### Reward

The reward of diversity and inclusion is a culture of belonging. According to Tony Bond, executive vice president, chief

diversity and innovation officer of Great Place to Work, “Belonging in the workplace is an employee’s sense that their uniqueness is accepted and even treasured by their organization and colleagues” (Bond, 2022).

The rewards for the organization come in the forms of desired business performance and employee well-being, as evidenced in research conducted by Great Place to Work. The research reveals that when employees experience belonging in the workplace they are (Bond, 2022):

- Three times more likely to feel people look forward to coming to work;
- Three times more likely to say their workplace is fun;
- Nine times more likely to believe people are treated fairly regardless of their race;
- Five times more likely to want to stay at their company a long time.

## Why Is Hiring a Diverse Workforce Important?

Workforce diversity ensures that organizations represent their customers/clients, allowing them to better understand their needs and tailor products and services more appropriately. It provides employers the opportunity to garner a wide variety of opinions, which enhances organizational culture and problem-solving.

### Representation Matters

The tagline, representation matters, birthed from the recent racial and social unrest

experienced in the United States, serves as a mantra for many people who represent identities that are underrepresented or historically marginalized. While the United States is one of the most diverse countries, many sectors including government, health care, higher education, and corporate leadership do not reflect the larger population.

A microcosm of the macrocosm is simply not achieved. Representation is more than a desire for some, but a demand, and it has benefits. Kevin Nadal, distinguished professor of psychology at The City University of New York, states “representation can serve as opportunities for minoritized people to find community support and validation” (Nadal, 2021).

People fear what they do not know or understand, often due to lack of experience, which leads to bias, microaggressions, prejudice, and discrimination. Representation offers the counter by reducing stereotypes and microaggressions of persons from underrepresented identities. It also has the empowering effects of increasing self-esteem for marginalized groups (Nadal, 2021).

### Replication...Diversity Breeds Diversity

To attract diversity, organizations should consider highlighting their existing diversity. According to the Glassdoor study mentioned previously, 32 percent of employees and job seekers would not apply for a position at a company where there is a lack of diversity among its workforce (Glassdoor Team, 2021).

When diversity is present and valued, it breeds diversity of thoughts and



perspectives among the workforce. Diverse workforces tend to be more creative and innovative, as the team has more experiences to draw upon. Likewise, those experiences lead to diversity of skills and abilities, which can positively impact performance and reach of the organization. Finally, the more diversity within the organization leads to more diversity as the ability to attract new employees expands through their networks.

## The Right Thing to Do

Several benefits of hiring a diverse workforce have been explored, with the final

reason and perhaps the most important: it is the right thing to do. It should be a goal of every employment sector to reflect the population that benefits from their products and services. Providing opportunity for various people with differing experiences creates possibilities for organizations and their people to grow, learn, and lead through differences and becomes more than envisioned.

If diversity of thought, perspectives, and experiences, as well as increased creativity, innovation, skills, and reach, are the fruits of a diverse workforce, the right thing to do is also the smart thing to do. Ultimately, diversity will positively affect the outcome of business productivity and services.

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## Conclusion

The importance of diversity in the workplace may not have a long history in this country due to a storied past of exclusion and discrimination that has plagued society. But with knowledge comes power, and with power comes responsibility. Like the vaccines created to prevent the spread of COVID-19, an intentional diverse workforce can counter exclusion of marginalized groups, shifting underrepresentation to proportional representation.

In this quest for increased diversity and improved inclusion, which includes hiring more people across the spectrum of race/ethnicity, gender, age, ability, sexual orientation, and other cultural backgrounds, organizations will need patience to accompany their plans. Lack of a diverse workforce did not happen overnight and neither will be the remedy of more diversity.

As a reminder, an organization looking to diversify its workforce should start by setting the atmosphere (connecting mission to the principles of DEI); strengthening training (professional development focused on reducing bias and increasing inclusion); and stabilizing strategy (the recruitment and retention of a diverse workforce, where an environment of belonging is the reward). Ultimately, the commitment to diversity and inclusion must be coupled with intentional and thoughtful planning that leads to doing better, being better, and getting it right. 🗣️

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*consultant, having presented nearly 100 times, to include a TEDx Talk on Cultural Humility. Juliana earned a PhD in educational leadership and MA in curriculum and teacher leadership from Miami University of Ohio, and BS in business education from Ball State University.*

## References

- Bond T. (2022) Belonging in the workplace: what does it mean and why does it matter? [www.greatplacetowork.com/resources/blog/belonging-in-the-workplace-what-does-it-mean-and-why-does-it-matter](http://www.greatplacetowork.com/resources/blog/belonging-in-the-workplace-what-does-it-mean-and-why-does-it-matter) (accessed December 18, 2022).
- Cooks-Campbell A. (2021) What a diversity recruiting strategy is—and how to improve it. [www.betterup.com/blog/diversity-recruiting](http://www.betterup.com/blog/diversity-recruiting) (accessed December 18, 2022).
- Crawford M. (2016) Why professional development matters to the success of a company. *Bus J.* [www.bizjournals.com/bizjournals/how-to/growth-strategies/2016/09/professional-development-matters-success-company.html](http://www.bizjournals.com/bizjournals/how-to/growth-strategies/2016/09/professional-development-matters-success-company.html) (accessed December 18, 2022).
- Glassdoor Team. (2021) What job seekers really think about your diversity and inclusion stats. [www.glassdoor.com/employers/blog/diversity](http://www.glassdoor.com/employers/blog/diversity) (accessed December 18, 2022).
- Nadal KLY. (2021) Why representation matters and why it's still not enough. *Psych Today.* [www.psychologytoday.com/us/blog/psychology-the-people/202112/why-representation-matters-and-why-it-s-still-not-enough](http://www.psychologytoday.com/us/blog/psychology-the-people/202112/why-representation-matters-and-why-it-s-still-not-enough) (accessed December 18, 2022).
- Tervalon M, Murray-García J. (1998) Cultural humility versus cultural competence: a critical distinction in defining physician training outcomes in multicultural education. *J Health Care Poor Underserved* 9:117–125.



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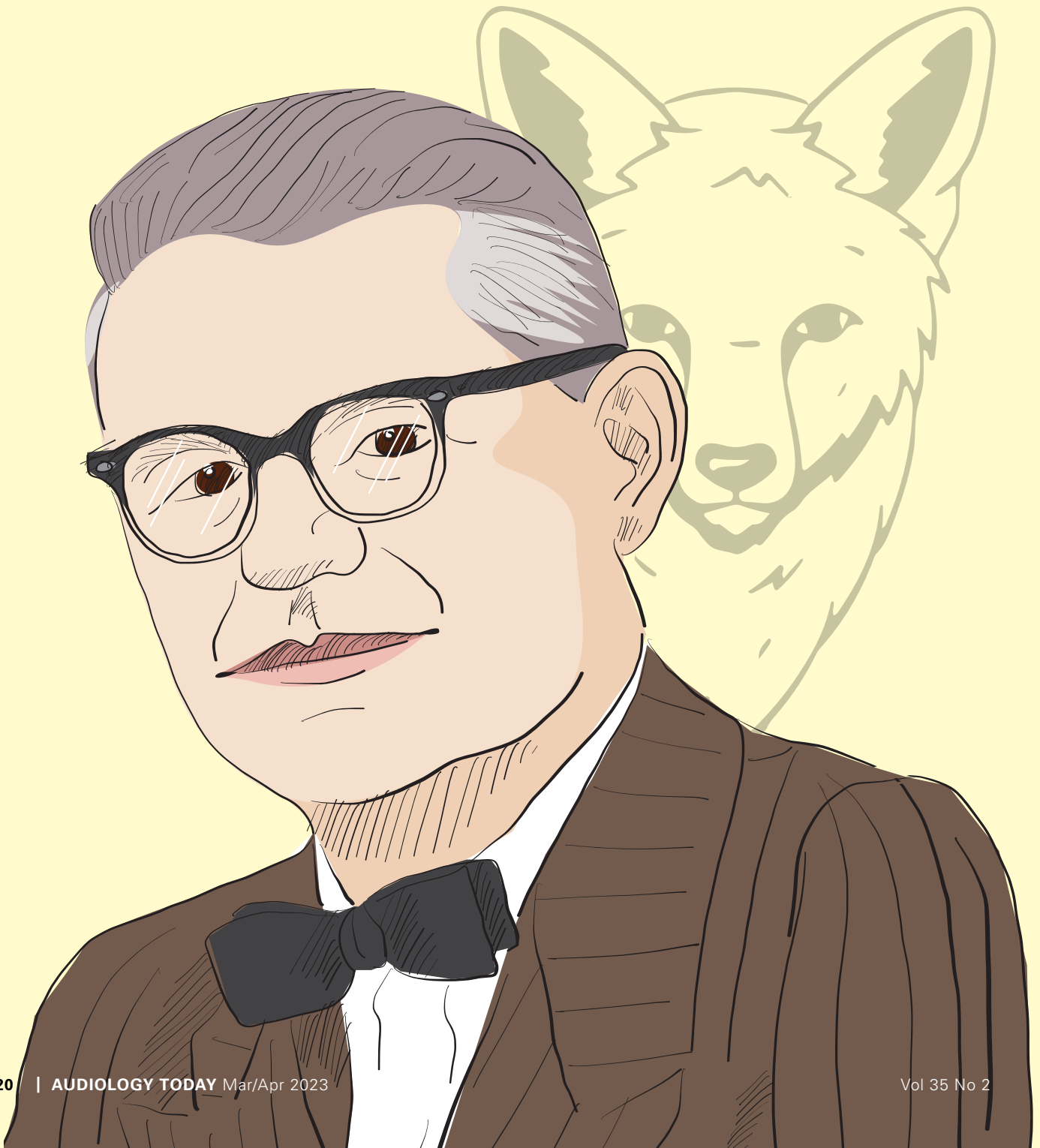


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# Raymond Carhart

*and the “Gray Fox”*

BY JAMES JERGER





*At the time of publication of “Preferred Method for Clinical Determination of Pure-Tone Thresholds,” I had no inkling of the long-term consequences wrought by the addition of that single word, “preferred,” to the title of the paper.*

From 1954 to 1960, I was on the faculty of Dr. Raymond Carhart’s audiology program at Northwestern University. These were the exciting formative years of our profession—years in which Dr. Carhart virtually invented audiology as we now know it.

No one would ever have described Carhart as verbose; he was a man of very few words. When he came into the graduate student office, those of us with military experience silently came to attention. My fellow graduate student, Robert Harrison, who lacked a sense of propriety, often referred to Dr. Carhart as the “Gray Fox.” Harrison suggested that

Carhart resembled the cunningly shrewd fox who lies in wait, quiet and motionless, and then, at the right moment, pounces on his prey. I thought about this as I walked to his office in response to his request for a brief meeting. What had I done wrong? One never knew.

These brief meetings usually ended in a new graduate-student project, generally involving a good deal of subject testing, elaborate statistical analyses of the data, and development of the first draft of a paper based on our findings. In those days, we had just completed the execution of a five-factor analysis of variance on data gathered in more than 90 young adults with normal





*We recommended that the Hughson-Westlake ascending technique should be continued as the method of choice for defining pure-tone auditory thresholds.*

hearing. Deriving the necessary sums of squares with a manual calculator taxed everyone's patience. We were not keen to undertake another such project.

As it turned out, however, he wanted to suggest that “we” write a paper on a useful way to measure pure-tone thresholds in a clinical context. We all knew he meant the following: skip the detailed psychophysical tedium and keep it short (three runs upward from silence to detection to define threshold, i.e., detectability for clinical purposes). This was the method suggested by Hughson and Westlake (1944). We recommended, in our paper, that it continue to serve as the accepted standard procedure for obtaining the pure-tone thresholds defining the clinical audiogram. We based our conclusion on a study we had conducted in 36 young

adults with normal hearing. We compared three thresholds: ascending, descending, and ascending-descending at three audiometric frequencies—250, 1k, and 4k. There were no significant differences among those three averaged threshold-seeking techniques. On this basis, we recommended that the Hughson-Westlake ascending technique should be continued as the method of choice for defining pure-tone auditory thresholds.

I had some misgivings about the loss of rigor for the sake of a shortened procedure, but I proceeded with the preparation of a manuscript. I titled it “Method for Clinical Determination of Pure-Tone Thresholds.” I then submitted it to Dr. Carhart for his approval. I expected red ink on every page, but he suggested just one change. To the left of the word “Method,” he wrote “Preferred.” The corrected title now read “Preferred Method for Clinical Determination of Pure-Tone Thresholds.” At the time, I had no inkling of the long-term consequences wrought by the addition of that single word, “preferred,” to the title of this paper.

I did wonder who, other than Ray Carhart, “preferred” this method, but thought it best to squelch that question. We submitted the manuscript to

the *Journal of Speech and Hearing Disorders*; it appeared in that journal in 1959. Since then, an excellent document from W.R. Wilson and his coauthors in 1974 prepared a tutorial on pure-tone audiometry that eventually became the American National Standard ANSI S3.21-2004. It basically reaffirmed the ascending approach by Hughson and Westlake to manual threshold audiometry. I thought that was the end of the story. Audiologists were already familiar with the method. Our article, I thought, would quickly fade into oblivion.

### Fast-Forward to 2022

ResearchGate, a networking site for scientists and researchers, is now a popular

platform. Using the site, you can find references to current literature citations by author and can generally obtain a copy of the publication in which your own publication has been cited. My name comes up often in ResearchGate because of the continuing popularity of my 1970 article on impedance audiometry. But every few weeks you will find reference to “Preferred Method for Clinical Determination of Pure-Tone Thresholds.” This baffles me. The article dealt with no profound issue challenging the profession. It was a clinical shortcut, nothing more! Why has reference to our modest article endured for such a long period of time? Why have so many authors, over a period spanning more than 60 years, felt

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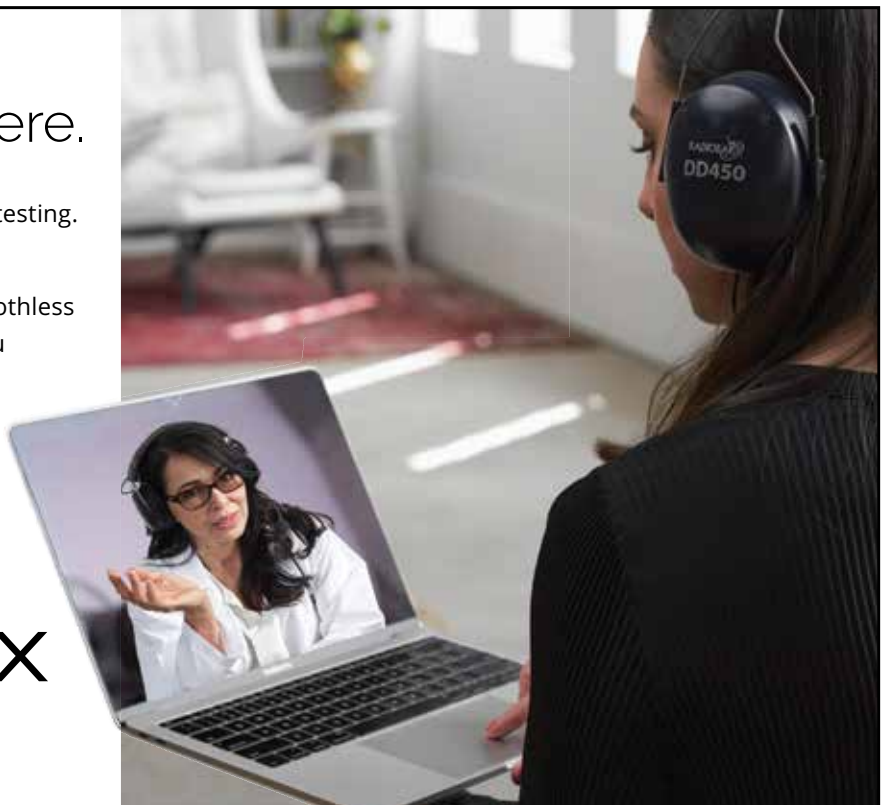
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compelled to justify their testing method? My colleagues and I would hardly think it necessary to cite any authority for how we created audiograms. Had the authors actually read the article in question?

Why, I asked myself, had Dr. Carhart insisted that we add the word “preferred” to the title of the article. But then I remembered Harrison’s warning, “Beware of the Gray Fox.” Somehow, he had sensed that many authors would interpret that word “preferred” beyond its actual significance.

Perhaps, I thought, authors who felt compelled to cite our article believed that it must include official approval of some sort—for example, from the American Speech-Language-Hearing Association or the American Academy of Audiology. But Dr. Carhart had cleverly manipulated future author behavior by using the wrong word at the right time.

After the addition of one well-chosen word, “preferred,” to the title, our modest 1959 article continues to be cited as the “preferred” methodology for the measurement of pure-tone thresholds. It continues to be cited by other researchers more than 60 years after it was first published. Is that because Dr. Carhart added the

key word “preferred” to the title? Had the Gray Fox sensed that the word “preferred” would outlast him by so many years? We will never know. 



*Why has reference to our modest article endured for such a long period of time?*

*James Jerger, PhD, is the Academy founder, former associate professor in the Audiology Program of the School of Communication at Northwestern University, professor of audiology at the Baylor College of Medicine, and former emeritus distinguished scholar-in-residence in the School of Behavioral and Brain Sciences of The University of Texas at Dallas. He has been a frequent contributor to the literature in audiology. He and his wife Susan Jerger now enjoy retirement in Lake Oswego, Oregon. He can be reached at jamesjerger4@gmail.com.*

## References

ANSI/ASA S3.21-2004. (R2019) *Methods for Manual Pure-Tone Threshold Audiometry*. Melville, NY: Acoustical Society of America.

Carhart R, Jerger J. (1959) Preferred method for clinical determination of pure-tone thresholds. *J Speech Hear Dis* 24(4):330–345.

Hughson W, Westlake H. (1944) Manual for program outline for rehabilitation of aural casualties both military and civilian. *Trans Am Acad Ophthalmol Otolaryngol* 48(Suppl.):1–15.

Over-the-counter hearing aids were motivated by a perceived lack of affordability and accessibility in the hearing aid market. This article reviews recent research into hearing aid cost and service delivery models and demonstrates that cost might not be a primary barrier to hearing aid adoption. Data suggest further exploration of remote hearing-health-care services, limited-support service delivery models, and individualization of service models to provide patient-centered care, among others, as potentially critical ways to improve accessibility for many patients.

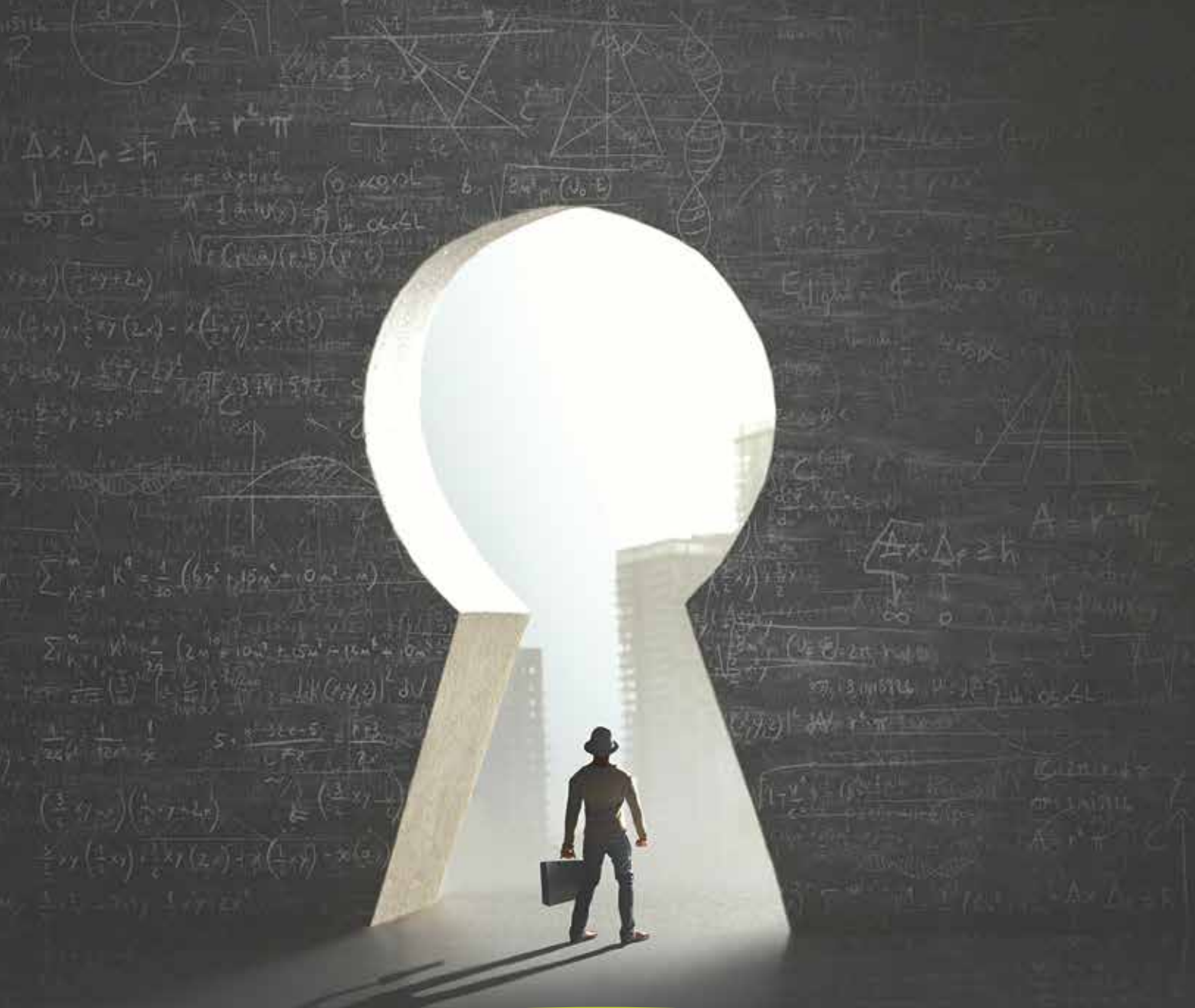
BY TODD A. RICKETTS AND ERIN M. PICOU

**T**his is a time of rapid changes for audiology. Perhaps most notable right now is the advancement of direct-to-consumer devices that do not require professionals to dispense. These changes are the direct result of the establishment of the Food and Drug Administration (FDA) category of over-the-counter (OTC) hearing aids

for adults with perceived mild-to-moderate hearing loss.

The category became effective October 17, 2022, but the field has been abuzz preparing for hearing aid service delivery changes for more than a decade (e.g., Donahue et al, 2010). This article will examine what is new in research related to hearing aid cost and service delivery models and will also preview some future findings by briefly describing ongoing projects in our





# over-the-Counter Hearing Aids

Are Only Partly the Answer

laboratories. In addition, because success with hearing aids is one of the ultimate goals of hearing-health care, we also will consider the role of cost and service in hearing aid outcomes, specifically satisfaction.

## Hearing Aid Adoption

### Is cost a primary barrier to hearing aid adoption?

Several notable reports proposed that hearing aid cost is a driving factor limiting hearing aid adoption rates (e.g., Donahue et al, 2010; Grundfast and Liu, 2017). Yet, the data supporting cost as a primary barrier are not clear. Some have argued that cost is not the primary limiting factor in hearing aid adoption because, even in countries where hearing aid costs are partially or fully subsidized, adoption rates are still low (Valente and Amlani, 2017).

Recently, the MarkeTrak 2022 survey results support this, demonstrating small differences in hearing aid adoption rates in the United States (~38 percent) compared with countries with universal health care (44 percent; Jorgensen and Barrett, 2022). In addition, when asked if they would pursue hearing aids if they were fully covered by insurance, only about half of survey respondents indicated they were likely to pursue hearing aids (Windmill, 2022).

It also appears that cost and perceived hearing difficulty interact. People with greater perceived hearing difficulties are more likely to be influenced by costs than are people with mild-moderate perceived difficulty, where cost

might be a less influential factor for adoption (Jorgensen and Novak, 2020). Given these data showing that cost might not be a primary barrier for people with perceived mild-moderate hearing difficulties, it will be interesting to see whether access to OTC hearing aids removes enough of the affordability barrier to be truly meaningful, especially given the relatively high price point of many of the first-generation products we have seen to date (often \$1,000–\$2,000).

### Is access to professionals a barrier to hearing aid adoption?

In addition to device acquisition cost, access to professional services has been identified as a barrier. For example, Windmill (2022) reported that lack of coverage or cost of the hearing test is a commonly reported barrier to hearing aid adoption. Fortunately, there are many ongoing research efforts to explore ways to reduce accessibility barriers to professional services.

For example, a recent scoping review summarized work demonstrating that, under ideal conditions, several automated methods of hearing assessment have similar accuracy, reliability, and time efficiency as current manual methods (Wasmann et al, 2022). These automated assessment methods could increase accessibility by increasing the number of people who can get their hearing tested and ultimately seen by audiologists.

Similarly, recent systematic and scoping reviews have demonstrated that many current telehealth tools (also referred to as m-health or tele-audiology services)

can be effective solutions for providing remote care and are similar to in-person appointments, particularly for hearing aid follow-up care (Tao et al, 2018). Researchers also are exploring further enhancement of telehealth hearing applications via, for example, machine learning and virtual reality (DiFabio et al, 2022).

Although these remote or distance support tools have the potential to increase accessibility for some people, there are numerous barriers to implementation, including licensing and reimbursement challenges (Hall, 2020). Furthermore, access to even current

distance support services remains more common in high income areas, demonstrating that much work remains to remove current barriers to accessibility of professional services (Frisby et al, 2022).

### Can alternative service delivery models increase hearing aid adoption rates?

If access to hearing testing is expanded through remote testing or automation and hearing aids are more affordable because they are available directly without the need of a professional, one would hope that hearing aid adoption rates would increase.



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1. Zwolan TA, Schvartz-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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Is there evidence to support this hypothesis? Not yet.

The 2022 MarkeTrak survey was conducted prior to the official establishment of the OTC hearing aid category, so there is no clear answer regarding the effects of direct-to-consumer hearing aid availability on hearing aid adoption rates. The data that are available reflected low-market penetration of direct-to-consumer devices available at that time, which were greatly underrepresented relative to devices fit in a traditional, in-person fit model (Picou, 2022).

One of the top reasons hearing aid owners report that they acquired hearing aids was they trusted their hearing-care professional, second only to “hearing test clearly demonstrated” a need for a hearing aid (Jorgensen and Barrett, 2022). In the direct-to-consumer service delivery models, the effects on adoption rates of not having a clear hearing test result or a hearing-care professional making recommendations are unclear.

It will be interesting to see how these adoption rates look in the next few MarkeTrak surveys, which will be conducted after the OTC category of hearing aids has been established for a couple of years.

## Satisfaction

### Does service delivery method affect ratings of satisfaction?

It is critically important that steps taken to improve accessibility and affordability do not significantly and negatively affect hearing aid outcomes, such as satisfaction. In one of the seminal papers in this area, Humes and colleagues (2017) compared a full-service and limited-service delivery model wherein patients chose their own hearing aid based on a limited selection of hearing aid gain configurations.



**In addition to device acquisition cost, access to professional services has been identified as a barrier.**

Their results demonstrated that the limited-service delivery model was more efficacious than a placebo condition but resulted, on average, in lower ratings of satisfaction than the full-service model.

More recently, the MarkeTrak survey provides some insight into the impact of service delivery on satisfaction. Although there were not many people in the direct-to-consumer models because of the timing of the survey, hearing aid satisfaction ratings were generally similar regardless of how the hearing aids were dispensed; 85, 84, and 82 percent of people were satisfied with their self-fit, remote-fit, or in-person-fit hearing aids, respectively (Picou, 2022). However, despite high rates of satisfaction, the majority of respondents agreed that having help from professionals would be beneficial.

Among people who were fit in person, more than 86 percent of hearing aid owners said their hearing-care professional played an important role. Interestingly, more than 70 percent of device owners who acquired their devices directly (self-fit or personal sound amplifiers) reported that having a hearing-care professional's help would have been at least "moderately" helpful (Picou, 2022).

Importantly, those data also highlight individual variability; not all respondents thought professional services would be helpful. Not all patients want or need the

same solution when it comes to professional support for their hearing-health care (Oosthuizen et al, 2022). There has been a more recent focus on person-centered care, which includes truly seeing and treating the individual (Weinstein, 2015). This necessarily includes addressing communication needs by tailoring our services for each individual patient.

While some individuals with perceived mild-to-moderate hearing loss might pursue OTC solutions and have satisfactory outcomes without a professional, focusing only on this single service model leaves many patients without the support they want and need. Similarly, taking the all-or-none approach relative to the current audiology best practice hearing aid service model also ignores the individualization of hearing-health care necessary to meet the needs and optimize accessibility of as many patients as possible.

Direct-to-consumer and hybrid models are emerging to meet the needs of some patients (Helfer et al, 2022), but there is still much to learn relative to optimizing our services for each individual, including those that prefer remote care (Abrams and Callahan, 2022). Recent and ongoing research is expected to provide unprecedented opportunities for the provision of evidence-based, individualized hearing-health-care services. This includes exploration of a variety of nontraditional service models aimed at provision of professional services that individual patients need most. This includes current collaborative research we are pursuing that is being led by Yu-Hsiang Wu at the University of Iowa.

Preliminary analysis of some of these data demonstrates that one OTC model



introduces additional barriers to satisfaction related to service, for at least some listeners, which are not present in the audiology best practice model (Auriemma et al, 2022). For example, some patients expressed dissatisfaction with their device skills or fitting, which were directly attributed to a lack of professional support. This work continues with the goal of identifying patient attributes for prediction of individually optimized service levels.

Person-centered care also motivates consideration of other patient challenges. One off-shoot of our collaborative work with Iowa is examining how we might modify hearing-health care to better serve patients experiencing cognitive decline. Emerging evidence suggests that use of hearing aids (and cochlear implants) is associated with a decrease in hazards of long-term cognitive decline (Yeo et al, 2022).

While we await definitive evidence that hearing aids might delay cognitive decline in older adults, many of these individuals are increasingly interested in amplification. However, our preliminary findings, as well as those of other research groups (e.g., Gregory et al, 2020), point to barriers in current service models for those experiencing,

or concerned about, cognitive decline. A streamlined hearing aid acquisition process, including acquisition through OTC and limited professional service channels, combined with a more targeted and expanded follow-up care model, may have promise.



**It is critically important that steps taken to improve accessibility and affordability do not significantly and negatively affect hearing aid outcomes, such as satisfaction.**

#### **Is cost related to satisfaction?**

Once fitted, cost has an interesting association with hearing aid satisfaction. The majority of people who do adopt hearing aids are largely satisfied with the value and out-of-pocket price paid (Picou, 2022). In that seminal study by Humes and colleagues (2017),



purchase price had no effect on outcomes, including rates of satisfaction. More recently, and based on larger data sets, it appears cost is positively related to satisfaction.


**While we await definitive evidence that hearing aids might delay cognitive decline in older adults, many of these individuals are increasingly interested in amplification.**

For example, Bannon and colleagues (in press) found that, among hearing aid owners who completed online surveys of benefit and satisfaction, those who reported paying more for their hearing aids also were more likely to report higher ratings of satisfaction. Combined,

these data suggest that lowering the cost of hearing aids would not be expected to increase hearing aid satisfaction.

## Conclusion

Recent work suggests cost might not be a primary barrier to hearing aid adoption and the potential for increasing adoption rates by reducing (or eliminating) hearing aid costs might be overstated. This, however, still is an exciting time in the field because scientists and clinicians are working to reduce a wide range of barriers to hearing aid adoption.

Most notably, these efforts are aimed at reducing barriers and improving accessibility through remote or automated hearing-health-care services, implementing limited-support service delivery models for populations that can benefit from hearing aids without significant professional help, and individualizing service models to better fit the needs of each patient. As the field continues to change, we will continue to seek out the best, evidence-based solutions to optimize person-centered care. 

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## References

- Abrams HB, Callahan C. (2022) Health behavior and motivational engagement models can explain and modify tele-audiology uptake. *Am J Audiol* 31(3S):1043–1051.
- Auriemma C, Wu YH, Ricketts, TA. (2022) Examining barriers to satisfaction in adults receiving over-the-counter hearing aids. Poster presentation at the American Auditory Society Meeting. Scottsdale, Arizona.
- Bannon L, Picou EM, Bailey A, Manchaiah V. Consumer survey on hearing aid benefit and satisfaction. *J Speech Lang Hear Res*. In press.
- DiFabio DL, O'Hagan R, Glista D. (2022) A scoping review of technology and infrastructure needs in the delivery of virtual hearing aid services. *Am J Audiol* 31(2):411–426.
- Donahue A, Dubno JR, Beck L. (2010) Accessible and affordable hearing health care for adults with mild to moderate hearing loss. *Ear Hear* 31(1):2–6.
- Frisby C, Eikelboom R, Mahomed-Asmail F, Kuper H, Swanepoel DW. (2022) m-health applications for hearing loss: a scoping review. *Telemed e-Health* 28(8):1090–1099.
- Gregory S, Billings J, Wilson D, Livingston G, Schilder AG, Costafreda SG. (2020) Experiences of hearing aid use among patients with mild cognitive impairment and Alzheimer's disease dementia: a qualitative study. *SAGE Open Med* 8:2050312120904572.
- Grundfast KM, Liu SW. (2017) What otolaryngologists need to know about hearing aids. *JAMA Otolaryngol–Head Neck Surg* 143(2):109–110.
- Hall JW. (2020) Professional liability and tele-audiology services. *Hear J* 73(6):18–19.
- Helfer KS, Mamo SK, Clauss M, Dunn L. (2022) Objective and subjective benefit of direct-to-consumer hearing devices in middle-aged adults. *Am J Audiol* 31(2):348–358.
- Humes LE, Rogers SE, Quigley TM, Main AK, Kinney DL, Herring C. (2017) The effects of service-delivery model and purchase price on hearing-aid outcomes in older adults: a randomized double-blind placebo-controlled clinical trial. *Am J Audiol* 26(1):53–79.
- Jorgensen L, Novak M. (2020) Factors influencing hearing aid adoption. *Sem Hear* 41(1):6–20.
- Jorgensen LE, Barrett RE. (2022) Relating factors and trends in hearing device adoption rates to opportunities for hearing health-care providers. *Sem Hear* 43(4):289–300.
- Oosthuizen I, Manchaiah V, Launer S, Swanepoel DW. (2022) Hearing aid experiences of adult hearing aid owners during and after fitting: a systematic review of qualitative studies. *Trends Hear* 26:23312165221130584.
- Picou EM. (2022) Hearing aid benefit and satisfaction results from the MarkeTrak 2022 Survey: importance of features and hearing-care professionals. *Sem Hear* 43(4):301–316.
- Tao KF, Brennan-Jones CG, Capobianco-Fava DM, et al. (2018) Tele-audiology services for rehabilitation with hearing aids in adults: a systematic review. *J Speech Lang Hear Res* 61(7):183–849.
- Valente M, Amlani AM. (2017) Cost as a barrier for hearing aid adoption. *JAMA Otolaryngol–Head Neck Surg* 143(7):647–648.
- Wasmann JW, Pragt L, Eikelboom R, Swanepoel DW. (2022) Digital approaches to automated and machine learning assessments of hearing: scoping review. *J Med Internet Res* 24(2):e32581.
- Weinstein B. (2015) Meeting the hearing health-care needs of the oldest older adult. *Am J Audiol* 24(2):100–103.
- Windmill IM. (2022) The financing of hearing care: what we can learn from MarkeTrak 2022. *Sem Hear* 43(4):339–347.
- Yeo BSY, Song HJJMD, Toh EMS, et al. (2022) Association of hearing aids and cochlear implants with cognitive decline and dementia: a systematic review and meta-analysis. *JAMA Neurol* (Dec 5):e224427.

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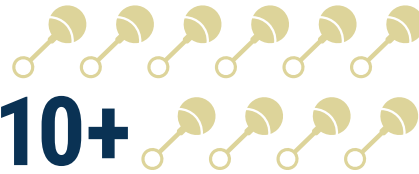
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# Incremental Therapy Approach

*for Children Identified  
with Auditory Processing  
Disorder*





This article discusses a case study of an 11-year-old boy diagnosed with auditory processing disorder. Evaluation, treatment approaches, and monitored progress throughout therapy are reviewed. The article also illustrates the importance and effectiveness of multiple auditory training techniques that may result in incremental improvements and have the potential to improve an individual's well-being and future abilities.

BY ANGELA LOUCKS ALEXANDER, CLAIRE LARIVIERE, AND FATIMA ABBAS

**L**ittle by little, a person can travel far (adapted from a Spanish saying) (Aubron-Bülles, 2021). And when that person is little, sometimes a little help is all it takes.

We do not expect a child to develop or learn anything the first time on their own (for example, helping them stand and then take their first steps). We guide them through experiences and repetitions until, at some

point, they master a new milestone. When development does not occur as quickly, easily, or linearly, there can be frustration and confusion about the next step in the process.

Auditory processing disorder (APD) is a communication problem related to deficits in sound processing at the level of the brain (Katz, 2007). We may never know why auditory processing difficulties occur

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in a specific individual or how each different behavioral or neurodivergent factor might affect a person; however, we can get started with a treatment protocol and measure the effects and improvements from that intervention systematically.

The experience of treating each client from an intrasubject perspective allows us to gather more experiences and data to become better diagnosticians and therapists for future clients.

We have multiple lenses and schools of thought to view auditory processing. Some of these lenses are specific and finely tuned. Others have larger pieces of the puzzle in their lens. We believe the future of auditory

processing is in zooming out and seeing how all the pieces fit together. When working with pediatric brains, it is essential to consider the small incremental changes that can add up to improved sensory processing. The future of auditory processing work will focus on each individual's difficulties and on obtaining strategies to improve them regardless of age, cognition, co-occurring conditions, or audiogram. The best way to do this is to view the client from multiple angles and to use a series of targeted treatments to achieve the necessary outcomes.

The following is a case study demonstrating an incremental approach to auditory processing treatment using multiple auditory training techniques. Although this article focuses on a pediatric case, it is important to note that the same principles apply to adults.

**TABLE 1.** Reported Communication Concerns by the Child's Parents

#### REPORTED PARENT CONCERNS

Inconsistencies in his listening skills and academic abilities.
Teachers complain that he does not listen in class.
Difficulties following multiple or multipart instructions.
Cannot respond when there is noise in the background.
Difficulty concentrating on tasks when there is noise in the background.
Need to be alone and in quiet to be able to complete his homework.
Some reading and spelling difficulties.
Attention and concentration issues.
When learning to read, he had difficulties with phonics.
Difficulties with breaking words down into sounds or putting them together.
Difficulties with reading complex words.
Difficulties understanding complex language in texts.
Difficulties following the coaches' instructions during various sports, games, or practices.

## Case Study

### Case History

Nate is an 11-year-old boy who was referred for an APD assessment after hearing concerns were noted in a routine hearing assessment following a suspected injury to the eardrum. Nate reported significant listening difficulties both at home and at school, particularly in the classroom when background noise was present. TABLE 1 summarizes the parents' concerns.

Nate's early history was unremarkable; his motor milestones were within normal limits. His speech milestones were slightly late but still within the normal range. No known history of otitis media

was noted. There was a family history of presbycusis. His family reports no other disorders, delays, or diagnoses.

In the audiometric assessment, the otoscopic examination revealed clear canals bilaterally, and no abnormalities were noted. Impedance audiometry indicated type A tympanograms bilaterally. Acoustic reflex thresholds were present in all conditions assessed. Pure-tone testing showed normal hearing thresholds bilaterally. Speech recognition in quiet using a 10-item Arthur Boothroyd (AB) word list (Boothroyd, 1968) in each ear was within normal limits. Despite Nate's good speech recognition scores, the evaluator noted some unusual speech sound errors in his responses. Nate also struggled with the speech-in-noise test, and screening test results indicated moderate difficulty hearing in noise. As these results and the reported listening difficulties were red flags for APD, Nate was referred for a full auditory processing assessment.

## APD Assessment Procedures

Following the discussion of Nate's main concerns and case history, the patient was assessed using a comprehensive test battery. Due to the large number of tests included in the test battery, only the tests that showed abnormal results are detailed below and were repeated on retest.

### Initial Assessment

#### THE BUFFALO MODEL CENTRAL TEST BATTERY

The subtests used from the central test battery (CTB) (Katz, 2001) to assess Nate included the following:

- The speech-in-noise test with the W-22 words at a +5 dB signal-to-noise ratio,
- The staggered spondaic word (SSW) test, and
- The phonemic synthesis (PS) test.

Normative on the speech-in-noise test suggest that an 11-year-old should score 84 percent in the right ear and 82 percent in the left. As shown in TABLE 4, Nate has severe listening difficulties in noise in the right and left ears.

The SSW assessed Nate's ability to integrate information presented to both ears simultaneously. Nate's total number of errors (NOE) (92) was substantially poorer than the 10 errors expected for children his age (TABLE 4). The results indicated significant difficulties in speech sound (phonemic) awareness, auditory memory, and dichotic listening abilities.

On the PS test, Nate showed poor phonemic awareness and severe difficulty combining speech sounds to make words (TABLE 4).

#### FEATHER SQUADRON

Feather Squadron is an automated testing application that examines a variety of basic auditory skills using an iPad (Barker and Purdy, 2015). The scores indicated significant auditory weaknesses in seven key areas of the assessment when compared to same-aged peers (TABLE 4). Moreover, four areas could not be tested; this observation is consistent with the family's report regarding his difficulty following instructions.



#### TEST OF AUDITORY PROCESSING SKILLS-4

According to the publisher's website, the test of auditory processing skills-4 (TAPS-4) provides information about language processing and comprehension skills across three intersecting areas: phonological processing, auditory memory, and listening comprehension (Martin et al, 2018).

Nate showed significant areas of concern across all domains tested on the TAPS-4 (see TABLE 2).

#### AUDITORY BRAINSTEM RESPONSE TESTING

Due to the severe results and unusual pattern of responses on the central test battery, there was a concern that these errors were potentially indicative of an issue with the integrity of the auditory nerve. Nate was sent back to his referring audiologist for an auditory brainstem response (ABR) testing.

No ABR waveforms could be identified at 35 dB sound pressure level (SPL) or lower. The audiologist was able to obtain tracings at higher intensities. The obtained waves were recorded at normal latencies at high intensities, however, with poor morphology.

#### ASSESSMENT SUMMARY

Nate was assessed across 27 different areas of auditory processing. Four areas could not be tested, 21 showed poor performance relative to normative data, and 2 were within normal limits (TABLE 4).



The future of auditory processing work will focus on each individual's difficulties and on obtaining strategies to improve them regardless of age, cognition, co-occurring conditions, or audiogram.

#### **Round 1 of Therapy**

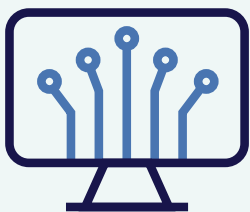
Given the reported communication difficulties and APD red flags identified in the test results, auditory training was recommended for this patient and was based primarily on the Buffalo Model auditory training. This included phonemic training program, words-in-noise training, phonemic synthesis



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therapy, and memory training (Katz, 2007). Therapy in this model targets the following:

- Improving the ability to hear the difference between similar English phonemes,
- Improving tolerance to background noise,
- Improving the ability to decode speech sounds in quiet and in noise,
- Sound blending skills,
- Rote auditory memory, and
- Auditory working memory.

Due to the significant reading and spelling difficulties noted, as well as the patient's age (and the fact that he would be moving to high school in the following years), a strong focus was placed on developing phonemic awareness skills through explicit instructions using an adjusted version of the Heggerty program (Heggerty, 2003). Emphasis was placed on rhyming, onset fluency, blending, isolating final and medial phonemes (sounds), segmenting, and adding phonemes.

Nate attended auditory training sessions one hour per week for 14 weeks.

#### OUTCOMES FROM ROUND 1 OF THERAPY

A reassessment was scheduled upon completion of Nate's first round of therapy. The results indicated significant improvement in all areas assessed. However, retest results continued to suggest severe APD (TABLE 4).

#### REASSESSMENT SUMMARY

Of the 27 test parameters reassessed, compared to normative values, 17 tests

showed poorer-than-expected scores, 5 were normal, and 4 were superior (TABLE 2).

On the CTB re-evaluations, speech-in-noise skills improved by 4 SD in each ear, and scores on the SSW improved by 20 SD. The PS test showed an improvement of 8.8 SD quantitatively and 6.3 SD qualitatively.

Feather Squadron results showed similar improvements. During the initial assessment, Nate performed so poorly that some tests could not be administered. On retest, all tasks could be administered and showed

**TABLE 2.** Results Severity Scale Based on Standard Deviation

<b>Superior</b> > +1.0	15.9% of the same age population performed better on this task.
<b>Normal</b> 0 to +.99	16–49% of the same age population performed better on this task.
<b>Slight</b> –.49 to –.01	50–69% of the same age population performed better on this task.
<b>Mild</b> –.5 to –.99	70–84% of the same age population performed better on this task.
<b>Moderate</b> –1 to –1.49	84.1–94% of the same age population performed better on this task.
<b>Moderately severe</b> –1.5 to –1.99	94.1–97.7% of same age population performed better on this task.
<b>Severe</b> –2 to –2.49	97.8–99.9% of the same age population performed better on this task.
<b>Extremely severe</b> –2.5 to –2.99	>99.9% of the same age population performed better on this task.
<b>Profound</b> –3 to –3.99	>99.9% of the same age population performed better on this task.
<b>Critical</b> –4 to –4.99	>99.9% of the same age population performed better on this task.
<b>Catastrophic</b> –5.00 and below	>99.9% of the same age population performed better on this task.

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only 6 areas of concern compared to the 11 noted previously. The TAPS-4 retest revealed results within normal limits.

Based on the re-evaluation results, and due to the persistence of some concerns, a second round of therapy was recommended (one-hour session, once a week for 14 weeks).

### Round 2 of Therapy

The second round of therapy focused on Nate's individual errors and difficulties and aimed to improve his tolerance to background noise, discrimination of similar phonemes (m/n, f/th [voiceless], v/th [voiced], v/w, p/h, t/k), and the ability to accurately identify speech sounds in noise (with a specific focus on the phonemes /h/, /p/, /t/, and /k/).

As with the first round, a strong focus was placed on developing phonemic awareness skills through explicit instructions. This time, the emphasis was placed on blending, adding, deleting, and substituting phonemes.

Nate also completed Acoustic Pioneer's app Zoo Caper Skyscraper. Zoo Caper is an adaptive game that was used to gradually improve dichotic listening skills during the

second round of therapy (Barker and Bourland Hicks, 2020).

#### OUTCOMES FROM ROUND 2 OF THERAPY

After the second round of therapy, results of the reassessment indicated further improvements in all areas assessed. Nate showed tremendous improvement in his dichotic listening skills, and his reassessment showed that these skills now fall at age-appropriate levels. The incremental progress that we always look for, especially in children, was clearly showing on his retests. However, Nate still qualified as having APD.



Although this article focuses on a pediatric case, it is important to note that the same principles apply to adults.

#### ASSESSMENT SUMMARY

TABLE 2 shows the severity scale used to categorize the assessment results based on the SD of the scores from the mean.

Speech-in-noise skills improved by 3.4 SD in the



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right ear and 4 SD in the left, whereas speech-in-quiet skills improved to 100 percent in both the right and left ears (TABLE 4). On the SSW, significantly fewer errors were recorded (14), indicating an improvement of 1.6 SD. PS skills improved by 1 SD quantitatively and 2 SD qualitatively, placing Nate in the normal score range. Feather Squadron results showed a similar pattern of improvements.

#### SECOND REASSESSMENT SUMMARY

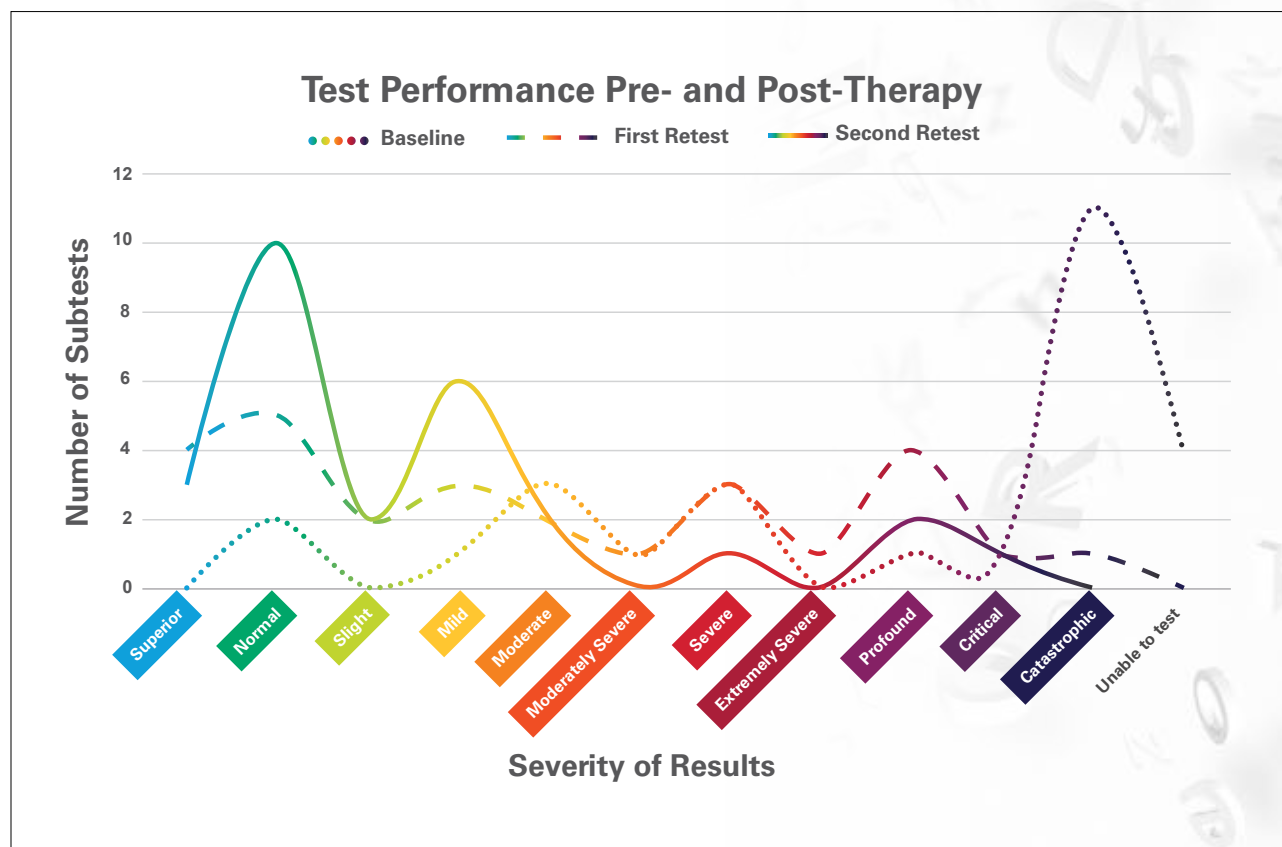
Of the 27 test parameters reassessed, compared to normative values, 14 tests showed

poorer-than-expected scores, 10 were normal, and 3 were superior (TABLE 4). By the end of the second round of therapy, an average change of 6.24 SD was observed across all tests from the initial assessment, indicating considerable improvements in scores following therapy.

FIGURE 1 summarizes the results progress throughout the three assessments that took place.

TABLE 3 summarizes the behavioral improvements that were observed by his parents following Round 2 of therapy. Additionally,

**FIGURE 1.** Progression of test performance pre- and post-therapy.



Nate expressed that he is now able to hear and understand his teacher’s speech even with background noise.

**Next Step: Plans for Round 3**

Following two rounds of therapy, and based on the reassessments, “the results” leave an interestingly unusual pattern, which will require using different techniques that have not already been employed.

**Discussion**

Nate could have been discharged from services after his initial audiometric testing showed normal hearing sensitivity had his referring audiologist not upskilled herself to recognize APD. She reached out to her network to find a clinician who could diagnose and treat this client. The concept of APD is often characterized by a specific pattern of results on auditory processing tests. However, this case study illustrates that an

individual may present with difficulties on all subtests yet still demonstrate improvement through auditory training. This can be a challenging scenario, as some professionals may interpret these severe results as indicative of a more global delay rather than APD specifically. In this particular case, the clinician’s dual qualifications as both an audiologist and speech-language pathologist were beneficial. However, it should be noted that the majority of the therapies employed were within the scope of practice of audiologists. It is important to shift away from a mindset of identifying reasons not to provide assistance and instead focus on offering solutions to those individuals and families struggling with severe difficulties.

Although hearing aids or assistive listening devices are often assumed to be the main or only recommendation for clients with APD, many evidence-based, auditory training techniques are available to address

**TABLE 3.** Progress of Parents’ Concerns Following Two Rounds of Therapy

DESCRIPTION	GREATLY IMPROVED	MODERATELY IMPROVED	SLIGHTLY IMPROVED	STAYED THE SAME OR N/A	GOT WORSE
Following instructions	✓				
Concentrating in noise	✓				
Understanding complex text	✓				
Listening in class		✓			
Responding in noise		✓			
Reading		✓			
Attention		✓			
Concentration		✓			
Breaking words into sounds		✓			
Following coaches’ instructions		✓			
Ability to do homework in noise			✓		
Spelling			✓		
Building words from sounds			✓		

auditory-skill deficits. Although most clinicians utilize one to two therapy approaches, if any, this case study demonstrated how, by using tailored and targeted therapies in serial progression, we can make incremental changes to the auditory system, regardless of potential co-occurring conditions. By gathering baseline data on tests and interviews and providing reassessments to monitor progress, it was possible to help this patient improve his listening abilities.

Although the majority of the therapies employed are within the scope of practice of audiologists, audiologists also may consider collaborating with speech-language pathologists to manage clients with APD. However, by implementing therapies sequentially and potentially collaborating with speech-language pathologists, the clinician can document potential benefits and gain clinical knowledge. An active role in administering auditory processing tests and auditory training programs also aids us in becoming better diagnosticians.

Many of us became audiologists to act as scientists who could help solve complex problems. We believe that the future of audiology is not just in high-tech but also in low-tech solutions—namely, auditory training and auditory processing services. We must look for where a human is needed and where ingenuity, troubleshooting, problem-solving, and care are critical. We foresee ourselves as the directors of hearing rehabilitation with more solutions than just amplification. Moreover, you may find that initiating these services will help you become the auditory specialist you have always wanted to be. 🎧



### Academy Coding Resources for APD

Visit the Academy's website for more information on auditory processing disorders (APD) coding.

[www.audiology.org/practice-resources/coding/coding-frequently-asked-questions](http://www.audiology.org/practice-resources/coding/coding-frequently-asked-questions)

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## References

Aubron-Bülles M. (2021) "Little by little, one travels far" is not a J.R.R. Tolkien quote. TThnsdwohatdw, Part 2. <https://thetolkienist.com/2013/04/06/little-by-little-one-travels-far-is-not-a-j-r-r-tolkien-quote-tthnsdwohatdw-part-2> (accessed December 9, 2022).

Barker MD, Purdy SC. (2015) An initial investigation into the validity of a computer-based auditory processing assessment (Feather Squadron). *Int J Audiol* 55(3):173–183.



**TABLE 4. Summary of Test Across Three Test Sessions**

TEST	TEST PORTION	TASK	INITIAL ASSESSMENT	SD BELOW MEAN	SEVERITY SCALE	
Central Test Battery	W-22 Words	Right Ear - Quiet	44%		Catastrophic	
		Right Ear - Noise	12%	-11.1	Catastrophic	
		Left Ear - Quiet	40%		Catastrophic	
		Left Ear - Noise	36%	-6	Catastrophic	
	SSW Test	Total NOE	92	-24	Catastrophic	
		Right Noncompeting	10	-16	Catastrophic	
		Right Competing	29	-18	Catastrophic	
		Left Competing	35	-16.35	Catastrophic	
		Left Noncompeting	18	-25	Catastrophic	
	Phonemic Synthesis	Quantitative	6	-9.4	Catastrophic	
Qualitative		3	-9.8	Catastrophic		
Feather Squadron	Automated Testing—Nonlinguistic Area	Lateralization	50 dB		Mild	
		Tonal Pattern Temporal Processing	12%	-7.7	Catastrophic	
		Tonal Memory	CNT	CNT	CNT	
		Rapid Tones	CNT	CNT	CNT	
		Dichotic Double Sounds - Right	70%	-1	Moderate	
		Dichotic Double Sounds - Left	65%	-1.3	Moderate	
	Automated Testing—Linguistic Area	Word Memory	2 in a row	-3	Profound	
		Rapid Speech	15%	0.5	Normal	
		Dichotic Double Words - Right	50%	-5.4	Catastrophic	
		Dichotic Double Words - Left	50%	-4.1	Critical	
		Speech in Noise (without localization cues)	Could not perform	Could not perform	CNT	
		Speech in Noise (with localization cues)	Could not perform	Could not perform	CNT	
Test of Auditory Perceptual Skills-4 (TAPS-4)	Auditory Memory Index	Numbers Forward	5	-2.05	Severe	
		Numbers Backwards (Working Memory)	2	-1.34	Moderate	
		Word Memory	6	-2.05	Moderately Severe	
		Sentence Memory	9	0.39	Normal	
	Phonological Processing Index	Phonological Blending	6	-1.7	Moderately Severe	
		Phonological Deletion	4.5	-2.05	Severe	

Barker MD, Bourland Hicks C. (2020) Treating deficits in auditory processing abilities. *Lang Speech Hear Serv Sch* 51(2):416–427.

Boothroyd A. (1968) Developments in speech audiometry. *Br J Audiol* 2(1):3–10.

Heggerty M. (2003) Primary Extension Curriculum.

Heggerty. [https://heggerty.org/curriculum/primary-extension/?fbclid=IwAR2oE\\_7-WpcoxU\\_h3XbuOqSP7vx3uTHwPi9-gn3vLSbqi6RRtcdJVOvNz4o](https://heggerty.org/curriculum/primary-extension/?fbclid=IwAR2oE_7-WpcoxU_h3XbuOqSP7vx3uTHwPi9-gn3vLSbqi6RRtcdJVOvNz4o) (accessed December 9, 2022).



	FIRST RETEST	SD BELOW MEAN	SEVERITY SCALE	SECOND RETEST	SD BELOW MEAN	SEVERITY SCALE	TOTAL CHANGE IN SD
	96%			100%			0
	36%	-7.4	Catastrophic	52%	-4	Critical	7.1
	88%			100%			0
	58%	-2	Severe	80%	-0.3	Slight	5.7
	18	-3.6	Profound	14	-2	Severe	22
	1	-1.3	Moderate	0	0.33	Normal	16.33
	7	-4	Critical	2	-0.66	Mild	17.34
	9	-3.25	Profound	9	-3.25	Profound	13.1
	1	-0.7	Mild	3	-3.57	Profound	21.43
	22	-0.55	Mild	24	0.5	Normal	9.9
	15	-3.52	Profound	19	-1.42	Moderate	8.38
	20 dB		Normal	20 dB		Normal	0
	87.50%	-0.4	Slight	87.50%	-0.4	Slight	7.3
	3 in a row	-2	Severe	5 in a row	-0.5	Mild	1.5
	100 ms	-2	Severe	50 ms	-0.7	Mild	1.3
	60%	-2.8	Extremely Severe	75%	0.9	Normal	1.9
	55%	-3.1	Profound	70%	-0.5	Mild	0.8
	4 in a row	-1.5	Moderately Severe	5 in a row	-0.5	Mild	2.5
	10%	0.8	Normal	10%	0.8	Normal	0.3
	90%	1.7	Superior	95%	0.8	Normal	6.2
	100%	0.7	Normal	85%	0	Normal	4.1
	-13 dB	-0.3	Slight	-11 dB	0.3	Normal	0.6
	-11 dB	-0.7	Mild	-11 dB	-0.7	Mild	0
	14	2.32	Superior				4.37
	10	2.4	Superior				3.74
	17	2.56	Superior				4.61
	19	0.64	Normal				0.25
	20	-0.37	Normal				1.33
	13	-1.34	Moderate				0.71
Average change in SD:							6.261153846

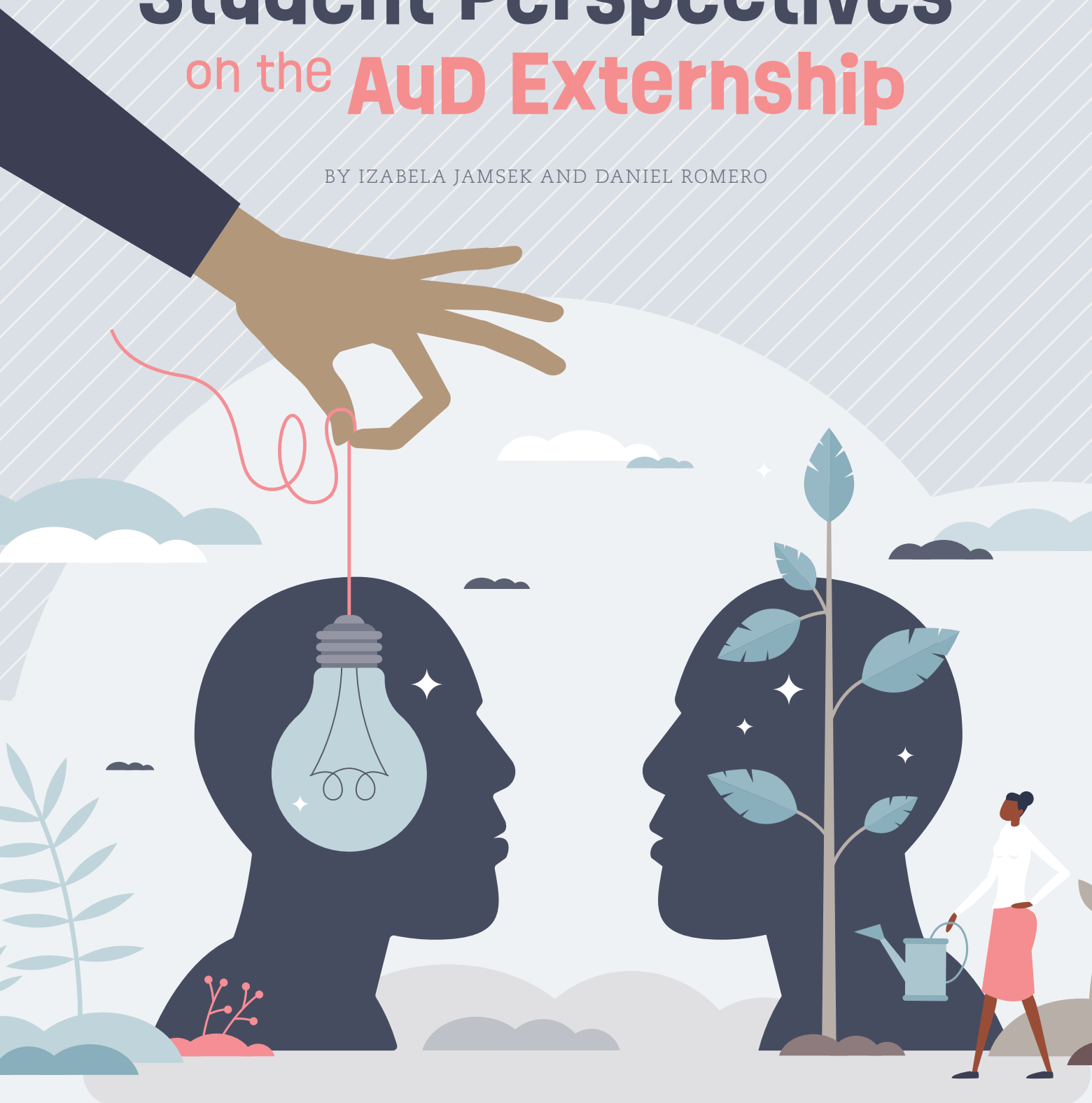
Katz J. (2001) *Central Test Battery*. Vancouver, WA: Precision Acoustics.


Katz J. (2007) APD evaluation to therapy: the Buffalo Model. Audiology Online. [www.audiologyonline.com/articles/apd-evaluation-to-therapy-buffalo-945](http://www.audiologyonline.com/articles/apd-evaluation-to-therapy-buffalo-945) (accessed December 9, 2022).

Martin N, Brownell R, Hamaguchi P. (2018) TAPS-4: a language processing skills assessment. PRO-ED. [www.proedinc.com/Products/14755/taps4-a-language-processing-skills-assessment.aspx](http://www.proedinc.com/Products/14755/taps4-a-language-processing-skills-assessment.aspx) (accessed December 9, 2022).

# Mixed Methods Analysis of **Student Perspectives** on the **AuD Externship**

BY IZABELA JAMSEK AND DANIEL ROMERO





As the externship process continues to evolve, keeping student perspectives in mind to improve standardization and decrease burden and stress is paramount for success. Taking these steps would tremendously improve student experiences, learning, and opportunities throughout the year, ultimately leading to the intended successful and invaluable externship experience.



**T**he process of applying for an audiology externship has been changing and ever-evolving since the externship was first implemented across all AuD programs (Academy, 2006). Over the years, the Student Academy of Audiology (SAA) has administered surveys to gather, track, and report on student experiences (Dubaybo et al, 2017; Lewis et al, 2019). Two such surveys have identified areas to improve the externship application, such as

increasing uniformity in the application process as well as decreasing the financial burden to address disparities in educational access and decrease stress and pressure for students. Since the last data collection, the COVID-19 pandemic has had an unprecedented effect on typical academic and business operations, thus increasing the need to document and further understand student experiences and perspectives during the current application process. An independent,

volunteer network of AuD programs and externship sites, termed the Audiology Clinical Education Network (ACEN), premiered a standardized externship application timeline for summer–fall 2021 with more than 30 participating sites. To assess the effects of these events and compare with past student experiences, the SAA disseminated its third externship application survey in the winter of 2021–2022 to its membership and AuD programs. The purpose of the survey was to get a better understanding of current benefits and remaining burdens of the externship application process and to document any changes from previous years.

## Study Method

This survey was structured to obtain discrete numerical (quantitative) data and individual descriptive (qualitative) data. Qualitative data can deepen understanding of group trends by providing insights into individual perspectives, as well as an individual's experience of the world (Wolgemuth et al, 2015). This approach allows examination of the research questions in more detail and can illuminate potential contributing factors to group trends that should be examined further in future research.

To reliably and methodically categorize and contextualize qualitative data, rigorous data collection and coding methods of the

**TABLE 1.** Themes Gathered Reflecting the Current Externship Application Experience

THEME	DESCRIPTION
<b>1. Expanded standardization</b>	Introduction of ACEN provided clear, streamlined application timelines for a greater amount of externship sites that allowed students to consider more sites overall, shorten the time period dedicated to externship application work, and allow more planning ahead of time as to what to expect before and during the process.
<b>2. Effective communication</b>	When communicating with externship sites during the application process, many students desired changes to communication expectations between sites and students to reduce stress and uncertainty during the process, including confirmation of application reception, rejection, and status during the process.
<b>3. Alleviate daily impact</b>	Continued burdens on students during the application process and externship year have included financial and workload burden. This year, some relief to these burdens this year was provided by sites offering the option for virtual interviews/visits. Further work to alleviate daily impact on students is needed, with many students reporting their site choice is constrained by lack of funding or underfunded externship positions.
<b>4. Accessible resources</b>	Students reported resources that were helpful for planning their applications and participating during the application process. In addition, the relative level of support for the application process provided by their AuD program had a large impact on student experiences.
<b>5. Desire for personal and professional growth</b>	Students reported opportunities for personal and professional growth during the application process.

	STUDENT QUOTES
	<p><i>"Overall, it was a better process for students than in the past. It allowed us time to weigh options and choose the best fit rather than taking a maybe not so great option just due to fear of being without an externship."</i></p> <p><i>"It took a huge weight off of my shoulder... knowing that after the [joint] submission date I could be mostly done with the bulk of my applications."</i></p> <p><i>"[Standardized timelines] allowed me to apply to more placements that interested me rather than being limited by conflicting deadlines."</i></p> <p><i>"Having the same application due date... allowed me to plan out what I needed without taking up the majority of my time, so... I was not putting application materials together for six straight months. I felt this timeline respected me as a student."</i></p> <p><i>"Having a more streamlined timeline gave me an idea of when to expect a reply from sites."</i></p>
	<p><i>"It would be beneficial to have a standard practice for emailing the receipt of application materials, with the disclosure of reaching out for the interview or not. It adds stress to students to be unsure of the number of locations actually applied to."</i></p> <p><i>"Not hearing back from sites about a rejection was frustrating. Even after emailing, I did not hear back from some sites about my application status."</i></p>
	<p><i>"More transparency about compensation in application postings. As many (if not all) AuD students took out loans, finances are a huge consideration. I needed an externship that I would not have to take out another year of loans for living expenses. It was disappointing to interview with a facility that advertised funding [and learn that] the amount was too small to cover even a few months of rent. Unfortunately, I felt like I wasted their time because despite liking the facility I knew I would not be able to accept an offer."</i></p> <p><i>"It was frustrating that many facilities were not upfront about funding [amount]. They would simply list 'stipend or funding available.'"</i></p> <p><i>"...I didn't have to travel for in person interviews, saving me time and money."</i></p>
	<p><i>"Resources from SAA about the application process and students that had already completed the application."</i></p> <p><i>"I really liked the use of the cover letter or CV review through SAA."</i></p> <p><i>"HearCareers[.org] made it easy to see the deadlines and required documents."</i></p> <p><i>"During this externship process, what stands out as the most positive has been the support my university program gave me throughout the process. From individual meetings to discuss sites, to guidance through deadlines, and mock interviews, the support of my professors and program overall made this process a little bit less stressful."</i></p> <p><i>"Did not feel adequately supported by my program."</i></p> <p><i>"Not enough preparation and felt like I was on my own for a lot of it."</i></p>
	<p><i>"It also allowed me to look deeper into what my goals for my future were in audiology."</i></p> <p><i>"... it helped me develop skills I can use whenever I am in the real-world interviewing for jobs."</i></p> <p><i>"I felt like I finally gained confidence in myself and was able to hone my interview skills."</i></p> <p><i>"Personally, meeting audiologists and learning about their practices while also practicing interview skills was a positive for me."</i></p>



participant responses must be used (Elliott, 2018). Qualitative data were obtained in this study via open-ended questions to encourage respondents to freely express themselves.

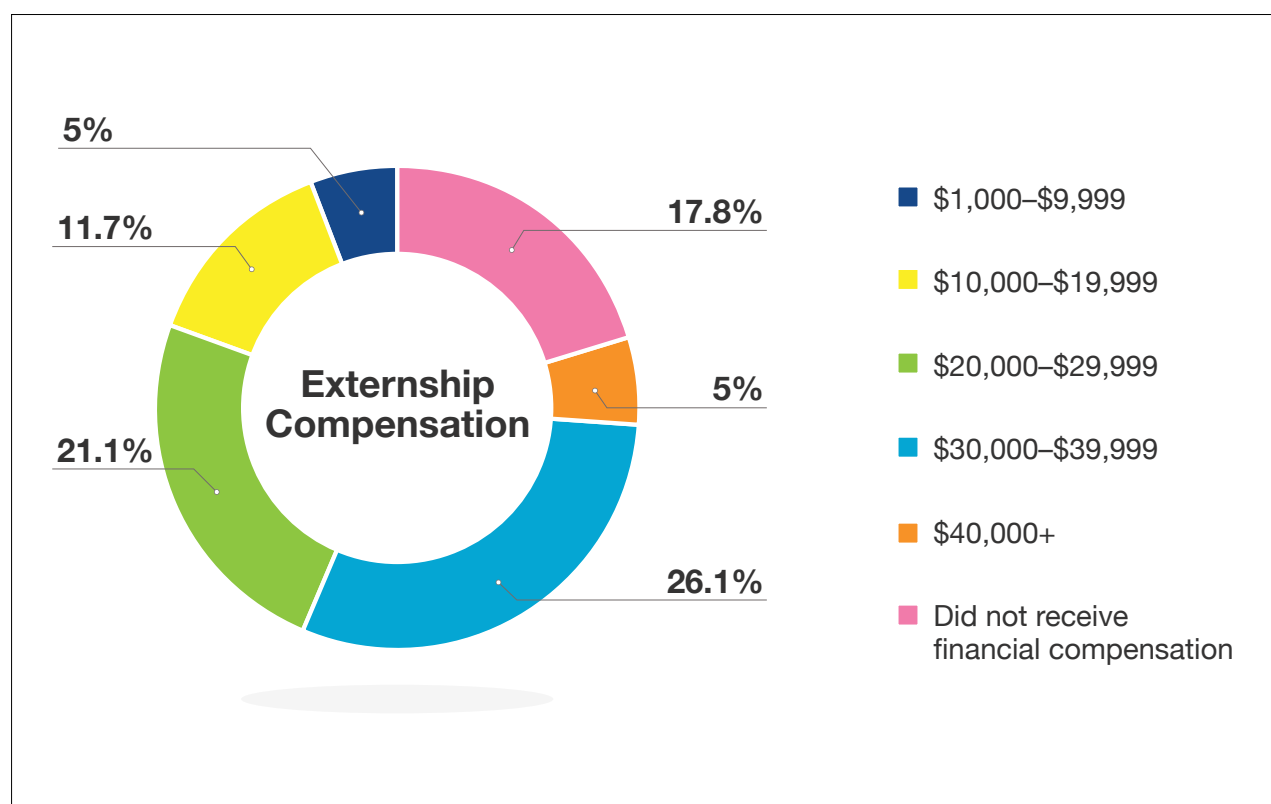
The study survey was created in Qualtrics software including questions related to demographics and externship applications, such as number and location of applications and aspects of accepted externship sites. The survey consisted of a series of open-ended questions relating to participants' experiences during the externship application process, including

thoughts on positives, negatives, and changes to the externship application experience.

The survey was emailed out through the SAA and ACEN contact lists, as well as to program contacts for each of the 79 AuD programs listed on the Academy website. At least one question of the survey was answered by 339 students. One hundred seventy-nine (179) respondents from 63 AuD programs across 32 states completed questions past the demographic information and were included in this study.

Quantitative data were analyzed with descriptive statistics.

FIGURE 1. Externship compensation distribution.



The authors independently categorized the qualitative responses into emergent themes. The authors then compared results and created a cohesive, agreed-upon set of themes covering the majority of meaningful participant responses (Vaughn and Turner, 2016).

## Results and Discussion

The 179 survey respondents represented 63 programs in 32 states. The respondents provided a broad constellation of perspectives to describe current and up-to-date student experiences while applying for externship positions in summer–fall 2021. Their aggregated responses can also serve as new resources and information to inform and improve the externship application process and planning for students in future years.

Five major themes were extracted from the survey regarding the students' experiences and perspectives when applying for externships. These themes can be found in TABLE 1 with descriptions and example excerpts below.

### 1 Expanded Standardization

The most frequent theme reported by students was about the impact of the inaugural ACEN on the externship application process. ACEN is a voluntary network of externship sites agreeing to common, uniform application timelines to standardize the application process and reduce burden on all stakeholders, including students.

More than 80 externship sites participated in ACEN for the initial fall 2021 application cycle.

Seventy-seven percent of our sample applied to at least one ACEN-participating externship site. This high percentage indicates participation in ACEN was widely adopted and suggests the network contained sites of interest to most students.

Forty-eight percent of our respondents who applied to ACEN sites believed ACEN improved the externship-application process for students. The remainder of the respondents reported the process was not better, about the same, or were unsure.

Due to the shortened, more concentrated timeline for applications and interviews, students had more time to plan out the process and make decisions about sites, as well as consider more potential sites overall. Without the uniform timeline, students typically had to accept the first site that offered a position, thus reducing site choice at both the application and interview stage.

The primary weakness of the ACEN process reported by students this year was the stress and adjustment to unexpected changes to any part of the agreed-upon timeline. Depending on the site, some students received early or late offers and/or lack of communication about changes to the process, which affected students' ability to make externship site decisions like they thought they would be able to with network participation.

In addition, some students reported the timeline was too early in the year, causing difficulty during application preparation and requests for letters of recommendation. Students also reported that too few

sites were included in the network to make the impact of uniform timelines felt.

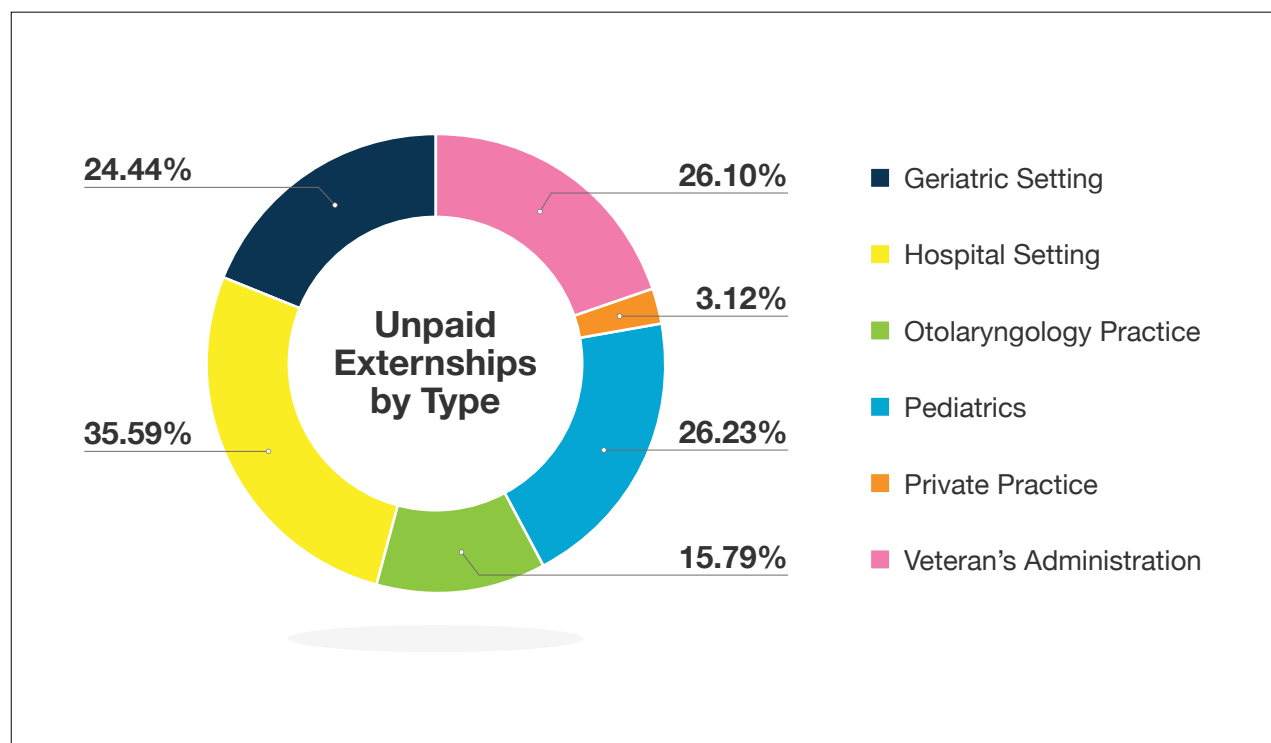
ACEN modified their timeline and process for the 2022 application period in response to feedback from all participants. These changes were largely in line with student wishes. The timeline for applying was moved a few weeks later into the fall, and the time window for accepting offers was made shorter.

Based on student experiences and comments, planning ahead of time by ranking applications in the order of preferred acceptance before receiving offers would be a

good strategy to maximize the benefits of the ACEN.

One last area of improvement needed for the ACEN process mentioned by students was to have some sort of recourse or someone to contact if externship sites deviate from agreed-upon timelines and processes. Because ACEN is a voluntary network, all sites' adherence to guidelines is not guaranteed. Students may reduce anxiety with proactive behavior and communication (such as e-mailing sites or calling point of contacts), and reporting agreement changes to their AuD program.

FIGURE 2. Unpaid externship positions by setting.



## 2 Effective Communication

A critical factor impacting the externship experience was communication with externship sites. A great number of students experienced difficult or deteriorating communication with externship sites, which caused a negative experience. Some of this may have been due to confusion with the rules of the ACEN timeline for participating sites, but many students did not receive any (confirmatory or negative) communication with sites after applying or interviewing, regardless of ACEN participation. This led to extreme stress for many students because they were unsure whether they were still being considered for that externship. Furthermore, some students who experienced poor communication from sites or were told that they did not receive the position were subsequently contacted after the deadlines and offered positions. This created a difficult situation where many students had already accepted positions without knowing they would get another chance at a site they wanted. Many of these unclear logistics of the ACEN timeline and other overlapping timelines may improve in subsequent years, but students are still encouraged to apply only to sites they would accept, and continue to reach out to sites for clarification about their status in the process.



If sites are not responding, reaching out to students' respective AuD program coordinators to decide next steps is another good option. For the field, standardizing communication expectations

between students and sites would be a goal to reduce this stressful aspect of the externship application process. More education for sites and associated audiologists about the opportunity they have to positively or negatively impact students would be useful to improve the explicit communication from externship sites.

## 3 Alleviate Daily Impact

A critical theme illustrated by students was the additional workload and financial cost of the externship application while still having full academic and clinical loads. Externship sites and AuD programs should be understanding of the workload that externship applications place on students, especially with many site applications being compressed into a more concentrated amount of time when a part of ACEN. Students did, however, appreciate that the shortened, universal period allowed for less work during other times of the year. A majority (63 percent) of externship applicants in 2015 reported applying to between 5 and 10 externship sites (Dubaybo et al, 2017). In 2021, respondents reported a larger variation in the number of applications, which ranged from 1 to 20 sites. However, 49 percent of respondents applied to between 5 and 10 sites with a median of 8 applications. Applying to a greater number of sites did not seem to affect the amount of externship positions offered; in fact, when respondents reported more than 10–11 applications, the percentage of offers for number of applications was

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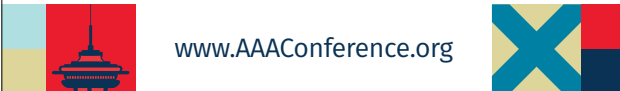
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typically lower than with fewer applications. A likely interpretation reported by students is that lack of initial application acceptances required application to more sites.

Past and current surveys seem to suggest that students should focus their applications on the sites that they are most interested in and qualified for, rather than casting a wide net as an application tactic. Reducing the number of applications would also decrease student stress and workload during the application process.

In addition to workload, financial factors during the externship application process and during the externship itself factored into students' planning and experiences during the process. Some students reported eased financial burden and improved schedule flexibility from externship sites holding virtual interviews. In-person interviews during one application season for an individual student have been reported to cost up to and exceeding \$2,000 (Dubaybo et al, 2017). However, some students expressed that decision-making might have been easier if they had in-person interviews and site visits. Given the survey findings, in future years, sites may consider optional site visits with virtual interviews as the norm to ease scheduling and financial burdens.

Regarding the role of financial compensation in externships, in SAA's 2015 externship survey (Dubaybo et al, 2017) and in 2021, more than half of survey respondents (54 percent in 2015 and 59.4 percent in 2021) reported "presence of stipend" as one of the most important factors in their decision to choose an externship site.

Students in our survey requested that all sites be required to list financial



compensation in their application posting, because it is such a critical factor to decision-making. Not all sites list financial compensation or always inform students during the application process, which can have a negative impact for both sites and students. Investigating reported financial compensation in our sample parallels Lewis and colleagues' SAA survey (2019) results. Both in 2019 and 2021, the top three reported financial compensation categories for students' final externship site choices were \$30,000–\$39,000, \$20,000–\$29,999, or not receiving any financial compensation at all (FIGURE 1). Looking further into the results of our sample, private practice settings had the fewest unpaid positions (FIGURE 2).

Lewis et al (2019) reported that the lack of financial compensation for externships negatively affected students who often had to obtain additional jobs or student loans. In addition, the majority of students who took unpaid or underpaid externships reported higher household incomes than other students. Our results indicate that this stratification may also segment different types of students into different types of externship sites, possibly creating disparities in different audiology specialties due to access to the education. Future investigations should look into specifically why certain sites do not offer sufficient compensation and how to ameliorate that to provide equal access to externship experiences for audiology students.

Overall, students would greatly benefit from efforts to reduce student burden during the application and interview process. Providing more uniform financial

compensation also would improve access to experiences in the field for all students.

## 4 Accessible Resources

Navigating an externship application process was a novel experience for many students, and students reported feeling the most prepared and least stressed when they had adequate resources and support to approach this unprecedented time in their education.

The primary beneficial online resources to prepare students for externship applications were reported to be HEARCareers and SAA website resources, including their externship guide, advice from individual students via blog, and resume review. Respondents reported that having comprehensive, centralized information about site applications was beneficial for planning and was sorely missed when information was lacking for some externship sites (e.g., no posting on HEARCareers.org). Beginning fall 2022, ACEN began to list their participating sites, position descriptions including salary and supervisor qualifications, and open positions after the first round of offers. The field should work on centralizing application information and preparation resources to provide the most information and planning ability to students.

A large factor that played into students' feeling of preparation was their AuD programs. Many students reported that site research, mock interviews, application planning, and more were provided by their AuD programs, while other students

reported a lack of guidance. A more standardized role of externship coordinators in AuD programs would help more students feel prepared and supported during this part of their education.

Even after good preparation, students reported a variety of factors causing pressure to accept externship offers. Compared to almost half of respondents (44.81 percent) in the Lewis et al study (2019) who did not feel pressure to accept externship offers, only 14.9 percent of respondents felt no pressure. The majority of our respondents felt pressure, primarily from their AuD programs, to accept the first position offered. Additionally, 40.6 percent of respondents indicated that the timeline of

the application process (including both the amount of time to make a decision when offered and application timelines varying between sites) was a factor that caused them to feel pressure to accept an offer, a facet of the application process that has undergone much change since 2019, the COVID-19 pandemic, and the introduction of ACEN.

These results indicate a potential increase in pressure felt during the externship process in a relatively short amount of time. Even with changes to the externship process, stress and pressure during the externship process have not alleviated. For now, a good strategy for students may be to use as many available resources as possible to prepare and consider a few sites with later application dates outside of ACEN to apply to as well to buffer stress and pressure.

## AUDITORY RECORDINGS FOR



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## 5 Desire for Personal and Professional Growth

Many students reported that the opportunity to practice professional interaction in the form of emails and interviews was a benefit to the externship process. In addition, many felt affirmed by their communication with audiologists at the externship sites where they applied.

Overall, the application process motivated students to set professional goals for the future.

## Limitations, Considerations, and Future Directions

This study has several limitations. Thematic coding of qualitative survey data may

be influenced by personal biases of coders, and may overrepresent positive and negative experiences of self-selected respondents motivated to complete the survey.

This and previous surveys indicate that while the externship application process can be a positive, educational experience, there are still issues related to the process, logistics, workload toll, and financial burden associated with the application and externship. These issues contribute to unequal access to externship for AuD students.

This survey suggests that potential opportunities to improve equity rests in providing adequate financial compensation during the externship and reducing financial and workload burden during the application process, such as making in-site visits optional and ensuring open and timely communication between students and sites. As the externship process continues to evolve, keeping student perspectives in mind to improve standardization and decrease burden and stress is paramount for success. Taking these steps would tremendously improve student experiences, learning, and opportunities throughout the year, ultimately leading to the intended successful and invaluable externship experience. 🎧

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## References

- American Academy of Audiology. (2006) Clinical education guidelines for audiology externships. [www.audiology.org/publications-resources/document-library/clinical-education-guidelines-audiology-externships](http://www.audiology.org/publications-resources/document-library/clinical-education-guidelines-audiology-externships) (accessed October 12, 2022).
- Dubaybo F, Johnson K, Palumbo D, Kadolph A, Milligan C, De La OM. (2017) 2015 Externship survey analysis. [www.audiology.org/news-and-publications/audiology-today/articles/academy-news-2015-externship-survey-analysis](http://www.audiology.org/news-and-publications/audiology-today/articles/academy-news-2015-externship-survey-analysis) (accessed October 12, 2022).
- Elliott V. (2018) Thinking about the coding process in qualitative data analysis. *Qual Report* 23(11):2850–2861. <http://proxy.lib.ohio-state.edu/login?url=https://www.proquest.com/scholarly-journals/thinking-about-coding-process-qualitative-data/docview/2155621346/se-2> (accessed October 12, 2022).
- Knudsen LV, Laplante-Lévesque A, Jones LL, et al. (2012) Conducting qualitative research in audiology: a tutorial. *Intl J Audiol* 51(2):83–92.
- Lewis J, Camera S, DeBacker JR. (2019) Say the word “survey”: inspiring data-driven change for audiology externships. [www.audiology.org/news-and-publications/audiology-today/articles/saa-spotlight-say-the-word-survey-inspiring-data-driven-change-for-audiology-externships](http://www.audiology.org/news-and-publications/audiology-today/articles/saa-spotlight-say-the-word-survey-inspiring-data-driven-change-for-audiology-externships) (accessed October 12, 2022).
- Vaughn P, Turner C. (2016) Decoding via coding: analyzing qualitative text data through thematic coding and survey methodologies. *J Library Admin* 56(1):41–51.
- Wolgemuth JR, Erdil-Moody Z, Opsal T, et al. (2015) Participants' experiences of the qualitative interview: considering the importance of research paradigms. *Qual Res* 15(3):351–372.

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## Remote Hearing Assessments: An Evolution in Hearing Care Accessibility and Patient-Centric Care

By Renée Lefrançois

Two truths are overly common when it comes to the identification of hearing loss. Firstly, hearing loss is an invisible condition, and is often left undiagnosed for years. Secondly, early detection is a crucial condition in optimizing overall outcomes. Remote audiometry expands access to audiological care, providing patients and clinicians with a strong starting point for assessment and treatment options.

Web-based screening solutions can provide an engaging first step for people curious about hearing loss and their own levels of hearing. These solutions also may provide an autonomous and patient-driven engagement point that directs individuals along an effective path for hearing care.

Thanks to advancements in technology, today's health care is not as limited by physical proximity as past care models. As a result, clinicians have much broader options in terms of when and where they can provide services, all while providing a high level of clinical care.


The capability to perform remote audiometric diagnostic testing and the high level of connectivity delivered by tele-audiology platforms unlock a riveting new bridge to services. Remote audiometric testing is a key mechanism in achieving greater access to hearing-health care across the globe.

The future of audiology can be optimized with online screening and remote tele-audiology solutions. Learn more about how remote audiometry can improve patient experience, and expand the reach of audiological services, by connecting with SHOEBOX at [www.shoebox.md](http://www.shoebox.md).

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*Renée Lefrançois, MSc, Reg. CASLPO, CAOHC PS/A, AuD candidate, is the director of audiology with SHOEBOX Ltd., in Ottawa, Ontario, Canada.*



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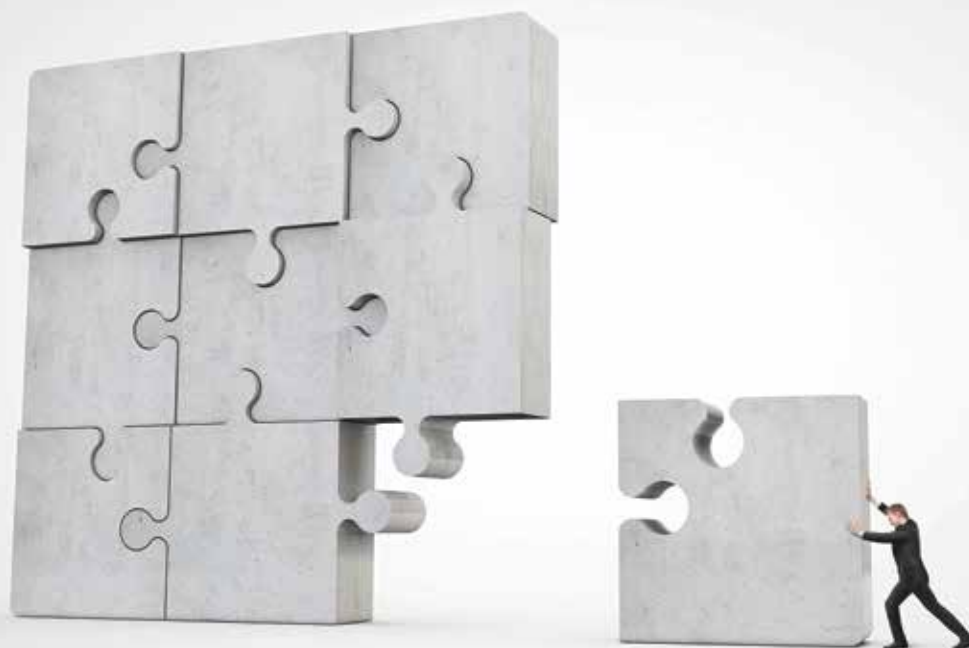
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# Medicare National and Local Coverage Determinations: A Tutorial for Audiologists

By Anna Marie Jilla and Carrie Kovar

**T**his article provides an overview of the United States Medicare coverage determination structure at both the national and local levels. The national and local coverage determinations may change periodically. Readers are encouraged to reference the Centers for Medicare and Medicaid Services (CMS) website for the most up-to-date coverage policies (Centers for Medicare and Medicaid Services, 2021b).

## Background on Medicare and Administrative Structure

The Medicare program is the single largest health insurer of Americans and

provides health coverage for individuals 65 years of age and older and those with other qualifying conditions. Medicare is a federally sponsored health plan that coordinates health-care benefits for over 63 million beneficiaries (Tarazi et al, 2022).

CMS is responsible for coordinating benefits but engages operational assistance through Medicare Administrative Contractors (MACs) (FIGURE 1) to process Medicare Part A and Part B claims for beneficiaries. MACs are granted contracts for processing claims by CMS and are defined through regional jurisdictions that may span multiple states. MACs can be seen

as the intermediary between beneficiaries, providers, and CMS (Centers for Medicare and Medicaid Services, 2021a).

As a federally contracted entity, MACs have a fiduciary responsibility to CMS for maintaining the financial solvency of the Medicare program. Thus, it is the job of the MAC to process claims for beneficiaries as defined under Medicare national

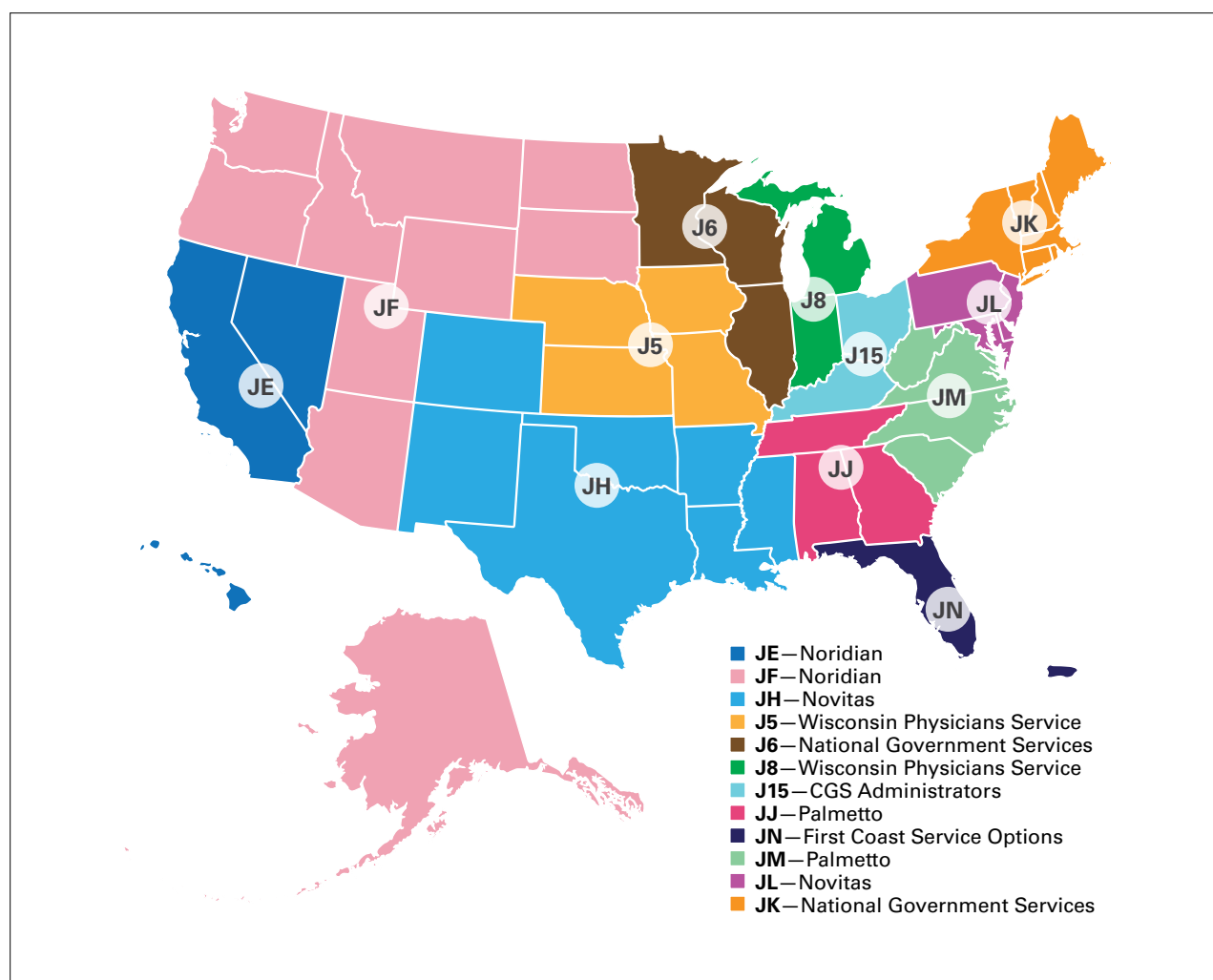
coverage determinations (NCDs) and manage medical policies for coverage through Medicare local coverage determinations (LCDs).

## What Are Medicare NCDs and LCDs?

Medicare provides health insurance coverage and payment for diagnostic tests that are considered reasonable and medically necessary for

**FIGURE 1.** A/B Medicare Administrative Contractor (MAC) jurisdictions as of June 2021. No changes since June 2021.

Source:  
[www.cms.gov/Medicare/Medicare-Contracting/Medicare-Administrative-Contractors/Who-are-the-MACs](https://www.cms.gov/Medicare/Medicare-Contracting/Medicare-Administrative-Contractors/Who-are-the-MACs).



the diagnosis or treatment of an illness or injury and that fall within a statutorily defined benefit category to improve the functioning of a malformed body part or covered preventative services (Centers for Medicare and Medicaid Services, 2019a).

An NCD is a coverage policy set forth from CMS that applies equally to all Medicare beneficiaries in all states, including those enrolled in Original Medicare (Parts A and B) and Medicare Advantage (Part C) plans. National coverage policies may be initiated internally by CMS or by an external request. There are few NCDs that affect audiologists, but an example outside of audiology would be blood glucose testing

for management of patients with diabetes. Under this NCD, all Medicare beneficiaries would have identical benefits covering blood glucose testing a specified number of times per year with a linked diagnosis code, which supports medical necessity for the procedure. MACs must follow NCDs as outlined by CMS. In the absence of an NCD, coverage determinations fall to the MAC to determine the LCD policy.

An LCD is a coverage policy developed by a MAC that defines covered items or services and their respective substantiations to indicate medical necessity. LCDs outline which services meet Medicare coverage requirements. Typically, LCDs

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are highly specific and are designated per item or service. LCDs will vary given the MAC and geographic jurisdiction of their contracts. LCDs serve as the workhorse of Medicare coverage policy. About 90 percent of coverage determinations are made through LCDs. It is important to note that if a specific item or service is not covered under an LCD, this does not mean it is not covered. Claims may be adjudicated by the MAC on a case-by-case basis.

### **Does the NCD and LCD Apply to All Claims on Behalf of Medicare Beneficiaries?**

Yes. NCDs apply to all Medicare claims, regardless of the geographic region in which they were provided. LCDs will also apply to Medicare claims, but the coverage determination policies will vary by MAC geographic jurisdiction.

### **Are the MACs Different in Their LCDs? Why?**

The LCDs may differ from one MAC jurisdiction to another. These coverage policies vary because they are coordinated by different contractors in varied geographic regions. Each MAC has the responsibility of outlining their specific LCDs and making that information available to the public.

### **How Can I Find the LCD for My MAC? How Can Changes Be Made to LCDs?**

CMS provides the Medicare Coverage Database on their website (Centers for Medicare and Medicaid Services, 2023).

This repository provides LCD coverage policies and is searchable by state,

keyword, and procedure or diagnosis codes. CMS has created a Medicare Learning Network Educational Tool with detailed instructions on how to use the Medicare Coverage Database (Centers for Medicare and Medicaid Services, 2022).

In January 2019, CMS implemented multiple changes to the LCD process to address reconsideration of existing LCDs and consideration of requests for new local coverage determination policies (Centers for Medicare and Medicaid Services, 2019b). Some of these changes were required by statute, whereas others were the result of input received through formal rulemaking. The changes were meant to increase transparency in the LCD process and included process reforms and notification protocols for LCD consideration, implementation of standard timelines, and increased opportunities for stakeholder involvement in the process. An outline of the LCD process may be found in an example from Novitas Solutions (Novitas Solutions, 2022).

MACs will hold Contractor Advisory Committee (CAC) meetings to review LCDs, and associated clinical evidence. A sample overview of the Noridian CAC process is available (Noridian Healthcare Solutions, 2023). Note that MACs may review the same topic for a coverage determination policy in association with another MAC by conducting a multijurisdictional CAC meeting.

### **How Can I Support Efforts to Improve Medicare Payer Policies?**

The Academy tracks and responds to LCD policy changes or other carrier actions that might affect the provision of hearing and balance health services to Medicare


beneficiaries. However, local-level member involvement is key to ensuring that audiology is adequately represented before local Medicare contractors. We encourage you to get to know the relevant medical directors of your MAC. Build a relationship and offer yourself as a resource. Check out your MAC website for opportunities to join the MAC's CAC. 🗣️

*Anna Marie Jilla, AuD, PhD, ABA Certified, is the current chair of the American Academy of Audiology Coding and Reimbursement Committee. Dr. Jilla is the Jo Mayo Endowed Assistant Professor of Audiology at Lamar University in Beaumont, Texas.*

*Carrie Kovar is a government relations consultant to the American Academy of Audiology.*


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## References

Centers for Medicare and Medicaid Services. (2019a) Chapter 13—Local coverage determinations. In: *Medicare Program Integrity Manual*. [www.cms.gov/regulations-and-guidance/guidance/manuals/downloads/pim83c13.pdf](https://www.cms.gov/regulations-and-guidance/guidance/manuals/downloads/pim83c13.pdf) (accessed January 19, 2023).

Centers for Medicare and Medicaid Services. (2019b) Local coverage determinations (LCDs). MLN Matters Number: MM10901 Revised. [www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNMattersArticles/downloads/MM10901.pdf](https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNMattersArticles/downloads/MM10901.pdf) (accessed January 19, 2023).

Centers for Medicare and Medicaid Services. (2021a) Medicare Administrative Contractors. [www.cms.gov/Medicare/Medicare-Contracting/Medicare-Administrative-Contractors/MedicareAdministrativeContractors](https://www.cms.gov/Medicare/Medicare-Contracting/Medicare-Administrative-Contractors/MedicareAdministrativeContractors) (accessed January 19, 2023).

Centers for Medicare and Medicaid Services. (2021b) Medicare Coverage Center. <https://www.cms.gov/Center/Special-Topic/Medicare-Coverage-Center> (accessed January 19, 2023).

Centers for Medicare and Medicaid Services. (2022) How to use the Medicare Coverage Database. The Medicare Learning Network. [www.cms.gov/Outreach-and-Education/MLN/Educational-Tools/MLN901347-How-to-MCD/mcd/mcd/index.html](https://www.cms.gov/Outreach-and-Education/MLN/Educational-Tools/MLN901347-How-to-MCD/mcd/mcd/index.html) (accessed January 19, 2023).

Centers for Medicare and Medicaid Services. (2023) Welcome to the MCD Search. [www.cms.gov/medicare-coverage-database/search.aspx](https://www.cms.gov/medicare-coverage-database/search.aspx) (accessed January 19, 2023).

Noridian Healthcare Solutions. (2023) Contractor Advisory Committee (CAC). <https://med.noridianmedicare.com/web/jea/policies/lcd/cac> (accessed January 19, 2023).

Novitas Solutions. (2022) The local coverage determination (LCD) development process. [www.novitas-solutions.com/webcenter/portal/MedicareJH/pagebyid?contentId=00006144](https://www.novitas-solutions.com/webcenter/portal/MedicareJH/pagebyid?contentId=00006144) (accessed January 19, 2023).

Tarazi W, Welch WP, Nguyen N, et al. (2022) Medicare beneficiary enrollment trends and demographic characteristics. Issue Brief HP-2022-08. Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services.



## Erratum

We apologize for an error published in the January/February 2023 issue of *Audiology Today*.

On page 57 of that issue, first column, third paragraph, the text should read: "Currently, audiologists who are mandated reporters must report only under the **Quality** and Improvement Activities categories of the **Merit-Based Incentive Payment System**."



AUDIOLOGY ADVOCATE

# New Year, New Congress, and New Challenges and Opportunities

By Susan Pilch

**2**023 marks the start of the 118th Congress and a shift in the balance of power on Capitol Hill. The November 2022 mid-term elections resulted in Republicans taking control of the House of Representatives, holding 221 seats compared to 214 seats held by Democrats. The Senate remains under Democratic control with Democrats holding 51 seats and Republicans holding 49. These changes combined with numerous retirements will result in a reshuffling of Committee assignments on the relevant Committees of jurisdiction.

## Status and 2023 Outlook for the Medicare Audiology Legislation

Despite hopes that the provisions of the Medicare Audiologist Access and Services

Act would make it into the 2022 end-of-year omnibus funding legislation, these provisions were ultimately not included in the package. With the start of any new Congress, all legislation will need to be reintroduced. The Medicare audiology bill will be reintroduced with the same legislative language. This legislation would grant audiologists “practitioner” status in Medicare, remove the physician referral requirement, and allow audiologists to provide and be reimbursed for diagnostic and treatment services.

Senate sponsors will continue to be Senators Warren and Grassley. The lead Republican House sponsor, Representative Rice, did not win re-election in 2022, and the Academy is again partnering with the

Academy of Doctors of Audiology (ADA) and the American Speech-Language-Hearing Association (ASHA) to reintroduce the Medicare audiology bill, secure a lead House sponsor, and lobby to secure additional support for the bill. Once the bill is introduced, the Academy, ADA, and ASHA will seek out any and all opportunities to advance this legislation either on its own or by attaching it to other pieces of “must-pass” legislation.

### **Allied Health Workforce Diversity Act—ENACTED**

The provisions of this legislation that will provide stipends and scholarship money to students typically underrepresented in the fields of audiology, physical therapy, occupational therapy, respiratory therapy, and speech-language pathology were included in the 2022 end-of-year omnibus package that was ultimately signed into law.

In the fall, the provisions of this legislation were included in the PREVENT Pandemics Act. Portions of the PREVENT Pandemics Act (including the allied health diversity act) were incorporated into the large end-of-year package. It will be necessary to monitor the implementation of these provisions moving forward.

### **EHDI Reauthorization—ENACTED**

On December 20, 2022, President Biden signed legislation to reauthorize the Early Hearing Detection and Intervention (EHDI) Act into law through 2026. In addition to reauthorizing the program, the legislation requires the Government Accountability Office (GAO) to prepare a report assessing program performance, particularly for medically underserved populations.

### **Limited Direct Access in Medicare**

The Academy will build upon productive dialogue held with the Centers for Medicare and Medicaid Services (CMS) staff in late 2022 to navigate the new limited direct access provisions that were included in the final Physician Fee Schedule Rule.

Under this new construct, “non-acute,” nonvestibular services (36 codes) may be provided without a physician order. These “direct access” services will use existing Current Procedural Terminology (CPT) codes with current fee schedule values plus a new modifier to identify services provided without physician order. Beneficiaries will be allowed one such service per calendar year.

The Academy issued additional guidance to members in December 2022 and will continue to share explicit guidance issued by CMS.

### **Audiology/Speech-Language Pathology Interstate Licensure Compact**

The Academy will continue its support of the interstate licensure compact and state legislation to “join” the compact. At this time, 23 states have passed legislation to participate in the compact. The Compact Commission was formed once the requisite number of states passed implementing legislation for the compact and since its inception has been focused on drafting bylaws and producing a request for information (RFI) to secure a secretary or entity to manage the day-to-day aspects of the compact.

The Compact Commission also has been investigating potential grant monies that may be available as well as dialoging with other compacts (nursing) to discuss

the feasibility of “sharing” or using the same data platform that will be necessary to process and issue actual privileges to practice in other compact states.

## Possibility of Legislation to Expand Medicare

Over the past few years, there has been increased interest in expanding Medicare to cover additional services, including hearing, vision, and dental. However, the cost associated with these potential expansions has been a significant source of discussion and disagreement among congressional members.

Increased public awareness relative to the importance of hearing health, and the availability of over-the-counter hearing aids could spur the introduction of legislation in the 118th Congress to expand Medicare coverage of testing and/or treatment options (e.g., hearing aids). However, given the Republican control of the House of Representatives, final passage of such legislation may be unlikely.

The Academy, along with ADA and ASHA, will continue to message that audiology services and the provisions of the Medicare audiology bill are foundational and must be included for any expanded coverage to be meaningful to beneficiaries.

## The Academy Needs Your Voice and Support

2023 promises to be another action-packed year in the area of advocacy. The Academy will work to secure the reintroduction of the Medicare audiology bill, navigate the implementation of limited direct access in Medicare, secure

additional state participation in the interstate licensure compact, and draft member guidance on all of these topics!

The Academy needs your support and involvement and will need you to reach out to your elected federal representatives to secure support for the Medicare audiology bill once it has been introduced. There also may be audiology-related legislation introduced in your state that could impact your practice. Involvement with your state audiology organization helps to bolster legislative activity at the federal level and elevate the profession. The Academy will continue to work on your behalf in 2023 and beyond. Our results indicate that this stratification may also segment different types of students into different types of externship sites, creating socioeconomic disparities in different audiology specialties due to access to the education. [📖](#)

*Susan Pilch, JD, is the senior director of government relations for the American Academy of Audiology.*





# 2023 Honors and Awards

## JOIN YOUR COLLEAGUES AND FRIENDS AS WE HONOR THESE INDIVIDUALS.

Learn more about these recipients on the Academy's website ([www.audiology.org/about/academy-honors-and-awards](http://www.audiology.org/about/academy-honors-and-awards)), where they share videos and extended biographical information. We will also honor them at the AAA 2023+HearTECH Expo, April 19–22, in Seattle, Washington. Learn more about registration for this event at [www.AAAConference.org](http://www.AAAConference.org).

### Honors of the Academy

Awarded to one audiologist and one non-audiologist for their exceptional support of the field of audiology and/or the patients we serve by focusing on issues that directly affect the profession and/or consumers with hearing loss and balance disorders. The recipient shall have made notable contributions in one or more of the following areas: outstanding clinical practice and/or patient care, teaching, or mentoring; advocacy; research; and/or exceptional service to the profession of audiology.

#### Catherine V. Palmer, PhD

*Professor and Interim Chair, Department of Communication Science and Disorders, University of Pittsburgh; Professor, Department of Otolaryngology, University of Pittsburgh; and Director, Audiology UPMC*



Catherine V. Palmer, PhD, is an eminent leader in the field of audiology, whose contributions in clinical practice, research, education, and advocacy for the profession clearly warrant her selection for the 2023 Honors of the Academy.

As a clinician and researcher, Dr. Palmer is recognized internationally as a passionate, yet approachable, advocate for evidence-based audiological care. Her research productivity in amplification and interventional audiology continues while she maintains her own patient load and expertly manages 26 audiology office locations.

Since 1991, her innovative contributions in teaching and mentoring at the University of Pittsburgh have inspired dozens of doctoral students and she has earned the Provost's Award for Excellence in Mentoring. Dr. Palmer's advocacy for audiology was demonstrated when she became the face of our profession during uncertainties related to the impact of over-the counter (OTC) hearing aids. She led the Academy's task force in responding to the FDA ruling for OTCs and she tirelessly interacted with policymakers and audiologists to bring clarity to this new and nebulous area.

Her service to the profession of audiology will be most remembered and appreciated for her extraordinary efforts as the Academy's president during the



COVID-19 pandemic. Under her keen leadership, the Academy produced a wealth of resources for audiologists who sought to keep their offices open by implementing safe practices and alternate care models such as tele-audiology. Dr. Palmer's calm and instructive communications, and her heroic guidance, were truly critical for guiding the profession of audiology during that historic and disruptive period.

## Jerger Career Award for Research in Audiology

Awarded to an individual for innovative research contributions in the field of audiology/hearing and balance sciences, whose work has had groundbreaking impacts on the field and/or practice of audiology.

### Richard Tyler, PhD

*Professor, Department of Otolaryngology, Department of Communication Sciences and Disorders, the University of Iowa*



Richard Tyler, PhD, is the 2023 recipient of the Jerger Career Award for Research in Audiology. He is an audiologist who has made contributions to translational research over his 40-plus-year career. After earning his PhD at the University of Iowa, he became the scientist-in-charge of the Clinical Outstation at the Institute of Hearing Research in Nottingham, United Kingdom. Subsequently, Dr. Tyler has had a prolific academic career as a faculty member and director of audiology at the University of Iowa, where he has mentored numerous graduate students and clinical fellows.

Dr. Tyler is known for his seminal research contributions in the areas of cochlear implants, tinnitus, and

hyperacusis, having published 290 peer-reviewed manuscripts, including the development of the Spatial Hearing Questionnaire and the Tinnitus Primary Functions Questionnaire.

He has been successful in securing research funding from private and federal agencies and is a sought-after speaker at national and international conferences. In addition, Dr. Tyler founded the highly successful annual International Conference on the Management of Tinnitus and Hyperacusis Patient, educating clinicians on the most current evaluation and management strategies for the treatment of tinnitus and hyperacusis.

Dr. Tyler's nominators describe him as having the "insightful, inquisitive, and creative mind of a disruptor," who has made tremendous scientific and clinical contributions to the profession of audiology and hearing science.

## Marion Downs Pediatric Audiology Award

Awarded to an audiologist for exceptional contributions in pediatric audiology either as an educator or mentor, clinician, advocate, or scientist.

### Marlene Bagatto, AuD, PhD, Reg. CASLPO, AUD(C)

*Assistant Professor, School of Communication Sciences and Disorders, National Centre for Audiology, Faculty of Health Sciences, University of Western Ontario*



Marlene Bagatto, AuD, PhD, of the University of Western Ontario and the National Centre for Audiology is the recipient of the 2023 Marion Downs Pediatric Audiology

Award. As noted by one of her nominators, Dr. Bagatto is one of the “world’s foremost experts in the provision of early hearing detection and intervention (EHDI) services and research in children with hearing loss.”

Her contributions to pediatric audiology are exceptional and include serving on a team that has developed and refined the desired sensation level method, including the widely used real-ear-to-ear-coupler difference (RECD) measure for fitting hearing aids in children, the development of a pediatric outcome measurement protocol, participating in the implementation of the world’s first universal screening of congenital cytomegalovirus and genetics for hearing loss in Ontario, and recently providing fitting guidance for bone-conduction hearing devices.

She has been the author or co-author of nearly 100 professional publications, with 43 of these articles appearing in peer-reviewed journals. In addition to her research and clinical work, Dr. Bagatto has a significant history of leading the profession and being an advocate for those we serve, including being the chair of the Canadian Infant Hearing Task Force, a past president of the Canadian Academy of Audiology, and co-chairing the Sound Foundation International Pediatric Conferences. Dr. Bagatto is known among her colleagues as being humble and kind, and her impact has touched the lives of children globally.

## Clinical Excellence in Audiology Award

Awarded to a clinical audiologist whose dedication and clinical excellence have resulted in improved quality of life for individuals with

hearing or balance dysfunction, who has distinguished his or herself through innovation in service provision, superior clinical education, and/or effective efforts to educate and inform the public about, prevention and intervention of hearing loss, dizziness, and/or tinnitus.

### Kelly Baroch, AuD

*Inpatient and Perioperative Services Program Coordinator  
and Pediatric Audiologist III, Cincinnati Children’s*



Kelly Baroch, AuD, is the 2023 recipient of the Clinical Excellence in Audiology Award.

She has worked as a clinical audiologist at the Cincinnati Children’s Hospital for 23 years where she serves as the inpatient infant hearing program coordinator and audiology inpatient and perioperative coordinator.

In addition to these roles, Dr. Baroch served as a member of the national NICHQ committee that studied and recommended quality care practices for early hearing detection and intervention (EHDI) programs. Her leadership in this area provided her with the opportunities to serve as consultant for numerous children’s hospitals nationwide in developing and implementing clinical environments that meet the needs of EHDI programs to improve testing success and reduce unnecessary follow-up appointments.

While Dr. Baroch’s clinical accomplishments impact clinics across the country, her colleagues are proud to highlight that she is singlehandedly responsible for developing the Cincinnati Children’s Hospital NICU/CICU audiology program. Her success in developing this program

has provided her with the opportunity to be an invited lecturer to schools, hospitals, and professional conferences where she has the opportunity to educate audiologists, students, and those outside of our profession to help raise the standard of care for critically ill pediatric patients.

Dr. Baroch's work has improved our knowledge base of the field of audiology, helped countless infants receive better hearing-health care, and most importantly provided counseling and support to parents of these infants in times when it was needed the most.

## Humanitarian Award

Awarded to an individual who has made significant voluntary and/or philanthropic contributions to underresourced communities through the provision of audiology or ear and hearing services, philanthropic development of educational programs, and/or other service-oriented activities. Work that is done in conjunction with the nominee's employment is usually not considered as being relevant for this award.

### Michael Mallahan, AuD, ABA Certified

*Northwest Audiology Consultants*



Michael Mallahan, AuD, ABA Certified, is this year's recipient of the 2023 Humanitarian Award.

Dr. Mallahan learned early in life to be of service to others through his parents' example. Every Friday dinner was a mission meal. The family ate only white rice, and the savings were donated to the missions. From that early foundation

he learned to serve those in need around the corner and around the world.

In 1998, he was part of a team that started a newborn hearing screening program in Snohomish County, Washington. He helped secure a federal grant to provide training and equipment for that program, which has ensured its growth and continuation. He has been a strong advocate for the early hearing detection and intervention in Washington state.

Dr. Mallahan is now in his 20th year of service to children in Guatemala helping to provide access to the ear and hearing care they need. More than 5,000 children have received hearing aids in addition to ear, nose, and throat surgeries. He has traveled to Guatemala with colleagues and students to educate and train local volunteers to take over caring for the children fit with hearing aids. These Guatemalans are now able to identify, fit, and provide follow-up care to children with hearing loss throughout the country. In coordination with the only Guatemalan audiologist, newborn hearing screening has been expanding over the last five years due to generous Rotary International global grants.

He continues to be involved locally, assisting with St. Vincent de Paul, leading Irish Soccer Club, refereeing games in the community, and as a Rotarian with the Mill Creek Rotary Club.

Dr. Mallahan has been in both formal and informal leadership positions within the American Academy of Audiology, as well as the Washington State Academy. He has mentored many audiologists during his career, focusing on teaching

the importance of providing support to those needing audiology services regardless of their circumstances.

Overall, Dr. Mallahan is being recognized with the Humanitarian Award for the notable example he sets for the profession in raising the standard for hearing care in his community and globally, reminding us of the importance of giving back.

## Outstanding Educator Award

Awarded to an individual who has made significant contributions to audiology through his or her dedication and skills to the education of audiology students. The individual may be a clinical or academic educator but should be a university lecturer, faculty, or adjunct faculty member of an accredited AuD/ PhD program in the United States.

### Patricia Gaffney, AuD

*Professor, Department of Audiology, Nova Southeastern University, Fort Lauderdale, Florida*



Patricia Gaffney, AuD, is the 2023 recipient of the Outstanding Educator Award. She has distinguished herself as

a superior professor at Nova Southeastern University, where her demanding clinical and didactic courses, clinical supervision, and research mentorship have earned her high respect from her students and her faculty colleagues.

Dr. Gaffney is highly recognized for her contributions in the areas of vestibular assessments and treatment. Her passion for vestibular diagnostics led her to develop a unique Vestibular Specialization Seminar that is one of only

a handful of audiology doctoral programs to offer such specialized education.

Her expertise in clinical and academic training are valued for her leadership of her university's interprofessional team of optometry, pharmacy, medicine, and physical therapy. She challenges and engages her audiology students in journal clubs and case studies, and she is often sought as a guest lecturer at conferences and in other academic programs.

Her students have learned to appreciate the importance of professional involvement, through Dr. Gaffney's commitment in leadership roles. She has served as the president of the Audiology Practice Standards Organization, and on boards of the American Balance Society, the American Academy of Audiology, and the AAA Foundation.

Her nominators reported that Dr. Gaffney's teaching philosophy is, "When you produce good audiologists, that speaks for itself in the profession. When I teach, that is in the forefront of my mind." Dr. Gaffney is clearly demonstrating that philosophy through her commitment to excellence in teaching.

## Samuel F. Lybarger Industry Award

Awarded to an individual who has made important contributions to research, engineering, or other technological achievements within the field of audiology. He or she should have been or should be employed by a company or corporation in the hearing/balance health-care field but must have made contributions that extend beyond their

service to the company by furthering the field of audiology.

### Michael Santucci, AuD

*President, Sensaphonics Hearing Wellness*



Michael Santucci, AuD, merits the 2023 Samuel F. Lybarger Industry Award for his innovative contributions in

engineering, technology, and advocacy for promoting hearing health among musicians, their crew, and music enthusiasts.


As a young audiologist and musician in the 1980s, Dr. Santucci saw an unrecognized appreciation for protecting the hearing health of performers working in the unregulated music industry. He then founded Sensaphonics and dedicated his life to increase acceptance of effective hearing loss prevention approaches, without compromising musical experiences. He has now pioneered multiple products that meet those targets.

He was the first audiologist to work with professional musicians, using the custom high-fidelity “musicians ear plug,” the ER-15 filter, embedded in medical-grade silicone. Dr. Santucci developed unique in-ear monitors (IEM) with drivers that improve bass response without requiring high-volume inputs. His line of IEMs with ambient in-ear mikes allow performers and engineers to mix ambient sound without removing one “ear” to reconnect with audiences or other performers during a loud concert.

Beyond his technological achievements, Dr. Santucci has extended himself with public outreach and education in national and global hearing-related initiatives. He

chaired the Academy’s 2020 task force that produced our consensus for recommended audiology best practices targeting musicians and music-industry personnel.

While serving on the Academy’s Foundation Board, he inspired the Music and Hearing Research Grant Program for research in music-induced hearing disorders, and he secured contributions from guitars autographed by famous musicians. He is internationally respected and recognized by the World Health Organization, the National Hearing Conservation Association, and the Audio Engineering Society for his efforts regarding safe listening practices and promoting the safe use of personal audio devices.

He has truly championed audiology’s recognition of the opportunities in, and importance of, preventing hearing loss among musicians and their audiences. 



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