AUDIOLOLOAY GOV The magazine of, by, and for audiologists

Updating Your Pediatric Toolbox

PEDIATRIC AMPLIFICATION Overcoming Barriers

YOUNG CHILDREN WITH HEARING LOSS Improving Listening at Home

STRESS MANAGEMENT 101 Preventing Burnout

Atlanta Awaits...

Register by February 16 and SAVE! Jam-packed with relevant, timely learning and expert-led sessions...this must-attend event also offers connections, discussions, and interactive fun!

NEW! Beyond the Booth Series: A Blueprint for Career Growth and Leadership Development Wednesday, April 17, 10:30 am–2:45 pm

Earn CEUs...with education featuring professional development best practices, skills enhancement, and leadership strategies...all designed to help you grow and thrive as a professional in audiology! No extra fee required.

NEW! Not-So-Secret After Party Thursday, April 19, 9:00–11:00 pm

Join us for an after-hours 90s-style night cap. Let your hair down to classics from TLC and Beastie Boys! Open to all—no extra fee.

"Coffee Talk" Roundtable Discussions Friday, April 19, 9:45–11:15 am

Solve problems, learn, and share best practices with colleagues... walk away with new contacts and innovative strategies that meet your needs through these facilitated conversations.

AMERICAN ACADEMY OF AUDIOLOGY AAAS + Hearteches APRIL 17-20 www.AAAConference.org | ATLANTA, GA

#AAAConf24





130+ Exhibitors with **Innovative Tech** and **Solutions**





20% Amplification, Assistive Listening Devices, and Hearing Aid Focused Sessions **10%** Networking Events, Discussion Forums, and Peer-to-Peer Engagement Programming

000



100+ Learning Modules, Mini Modules, and

Mini Modules, and Research Podiums





Fourth Annual INDUSTRY INNOVATIONS SUMMIT



presented by AudiologyOnline

FEBRUARY 2024

Earn 20+ hours with this month-long LIVE event!

Join thousands of your peers at the Industry Innovations Summit. Learn from experts as they share insight into trends and innovations in hearing technology. Anyone can watch the live webinars; membership is required to earn CEUs.

Register and get open access to:

- Live CE courses from title sponsor CareCredit & Allegro Credit and from participating sponsors CaptionCall, Cochlear, GSI, ReSound, Sennheiser, Signia, Starkey, & Widex
- Courses may be offered for AAA, ASHA, & IHS CEUs
- Industry roundtable & live Q&A sessions with experts from leading companies



REGISTER NOW: AudiologyOnline.com/Summit24



"Really interesting findings, and discussed in an engaging, easy-to-understand manner."

Litany F., AudiologyOnline member



AUDIOLOGYONLINE UNLIMITED CEU ACCESS

855-382-6468



12

22

32

Updating Your Pediatric Audiology Toolbox Readers are encouraged to investigate the tools mentioned in this article, add them to their "toolbox," and incorporate them into daily practice. These tools serve as opportunities to significantly improve the quality of care provided to children who are d/Deaf or hard of hearing as the science advances.

CONTENTS

By Shelley R. Moats and Madeline Brimmer

Overcoming Barriers to Pediatric Amplification On the national level, access to audiological care for children who are d/Deaf or hard of hearing and their families is restricted by financial, logistical, and systemic barriers. A pro bono clinic in Chicago has demonstrated the use of a bimodal service delivery model to address several of these issues.

By Megan Worthington and Kirsten A. Petrarca

Improving Listening at Home in Young Children with Hearing Loss

Acquisition of spoken language is a key aspect in the lives of children with hearing loss developing spoken language. This article shows that accessing proper early intervention services is vital for children with hearing loss and that family-centered intervention programs that teach caregivers how to create language-rich homes.

By Carlos Benítez-Barrera and Isabel Olleta

42

Stress Management 101 Job burnout may impact a provider's well-being and the quality of care to their patients. Early intervention is imperative in preventing burnout or long-term consequences of stress. This article provides the foundation for how to effectively manage the internal experience of stress to allow for a more fulfilling life.

By Kyle H. Shepard



What's Trending!

Alison Morrison

- **08** PRESIDENT'S MESSAGE
- **11 CALENDAR**
- **11 MAKING CONNECTIONS**
- 53 CODING AND REIMBURSEMENT

Academy News

- 56 ETHICS
- **59 AUDIOLOGY ADVOCATE**
- 61 SCHOLARSHIP WINNERS 2023
- **64 GUIDELINES UPDATE**

Expanding Ethical Spaces: Frequently Asked Questions By Melissa Ferrello

The Power of Unity By Bopanna Ballachanda Academy and Other Audiology-Related Events

Introduction to New Auditory Osseointegrated

Device Codes for 2024 By Anna Marie Jilla and

Making Connections and Effective Messaging to Ensure the Future of the Profession By Susan Pilch

Jerry Northern Pediatric Audiology and Empowering Students

Academy Clinical Practice Guidelines and Strategic Documents: Ways to Get Involved By Angela Shoup

COVER ART

SUZANNE CHANESMAN

EDITORIAL MISSION

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

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

Send article ideas, submissions, questions, and concerns to Erin C. Schafer, editor-in-chief, at dr.erinschafer@gmail.com.

Information and statements published in *Audiology Today* are not official policy of the American Academy of Audiology unless so indicated.

COPYRIGHT AND PERMISSIONS

Materials may not be reproduced or translated without written permission. To order reprints or e-prints, or for permission to copy or republish *Audiology Today* material, go to www.audiology.org/news-and-publications or contact us at editor@audiology.org.

© Copyright 2024 by the American Academy of Audiology. All rights reserved.



BE Debrox.

Keep your patients' ears clear from ear wax!



Recommend Debrox[®] for safe, gentle and easy ear wax removal at home





AUDIOLOGY

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

Editor-in-Chief

Erin C. Schafer, PhD | dr.erinschafer@gmail.com

Associate Editors Rebekah Cunningham, PhD M. Samantha Lewis, PhD Bre Myers, AuD, PhD

> Editor Emeritus Jerry Northern, PhD

Executive Editor Amy Miedema, CAE | amiedema@audiology.org

Managing Editor Valentina Such, MA

Editorial Consultant Kathie Felix

Art Direction Suzanne Chanesman

Advertising Sales

Eric Gershowitz | eric.gershowitz@wearemci.com | 410-584-1938

AMERICAN ACADEMY OF AUDIOLOGY OFFICE

Main Office 11480 Commerce Park Drive, Suite 220, Reston, VA 20191 Phone: 800-AAA-2336 | Fax: 703-790-8631

AMERICAN ACADEMY OF AUDIOLOGY MANAGEMENT

Executive Director

Chief Operating Officer

Vice President of Communications and Membership

Vice President of Meetings, Education, and Business Development

> Senior Director of Government Relations

Senior Director of Membership and Student Academy of Audiology

> Senior Director of Sales and Business Development

> Senior Director of Finance and Administration

> > American Academy of Audiology Foundation

> > > American Board of Audiology

Accreditation Commission for Audiology Education Patrick E. Gallagher, MBA pgallagher@audiology.org

Kitty Werner, MPA kwerner@audiology.org

Amy Miedema, CAE amiedema@audiology.org

Anne Poodiack apoodiack@audiology.org

Susan Pilch, JD spilch@audiology.org

Rachael Sifuentes, MA, CAE rsifuentes@audiology.org

Glenn Feder gfeder@audiology.org

Larry Burner Iburner@audiology.org

Erin Reyes ereyes@audiology.org

Andrew Stafford astafford@audiology.org

Andrew Stafford astafford@audiology.org

BOARD OF DIRECTORS

PRESIDENT Bopanna Ballachanda, PhD, ABA Certified Texas Health Sciences Center bballachanda@gmail.com

PRESIDENT-ELECT Patricia Gaffney, AuD, CH-AP Nova Southeastern University patricia.gaffney@yahoo.com

PAST PRESIDENT

Virginia Ramachandran, AuD, PhD Oticon Inc. virginia.ramachandran@gmail.com

MEMBERS-AT-LARGE

Meagan Bachmann, AuD, MHL, ABA Certified, CISC, CH-AP Heuser Hearing Institute melewis@wakehealth.edu

Saunja Burt, AuD Oticon, Inc. saunjaburt@gmail.com

Lt Col Kwame Curtis, AuD, CPS/A Cresendo Hearing qumungis@yahoo.com

Ursula Findlen, PhD, ABA Certified Nationwide Children's Hospital ursula.findlen@nationwidechildrens.org

Wafaa Kaf, MBBCh, MSc, PhD Missouri State University wafaakaf@missouristate.edu

Kaitlyn Kennedy, AuD, ABA Certified, PASC Texas Ear Clinic kkennedy0991@gmail.com

Nichole Kingham, AuD, ABA Certified Eastside Audiology and Hearing Services drkingham@gmail.com

Lachelle Lazarus, AuD University of Maryland Medical Center lachelle.lazarus@umm.edu

Chizuko Tamaki, AuD, PhD Gallaudet University chizukotamaki@gmail.com

EX OFFICIOS

Patrick E. Gallagher, MBA Executive Director American Academy of Audiology pgallagher@audiology.org

Janna Hines Orr President, Student Academy of Audiology jannahines.saa@gmail.com

Audiology Today (ISSN 1535-2609) is published bimonthly by the American Academy of Audiology, 11480 Commerce Park Drive, Suite 220, Reston, VA 2019; Phone: 703-790-8466. Periodicals postage paid at Herndon, VA, and additional mailing offices.

Postmaster: Please send postal address changes to Audiology Today, c/o Membership Department, American Academy of Audiology, 11480 Commerce Park Drive, Suite 220, Reston, VA 20191.

Members and Subscribers: Please send address changes to membership@audiology.org.

The annual print subscription price is \$129 for institutions in the US (\$154 outside of the US) and \$62 for individuals in the US (\$116 outside of the US). Single copies are \$15 for individuals in the US (\$20 outside the US) and \$25 for institutions in the US (\$30 outside the US). For subscription inquiries, call 703-790-8466 or 800-AAA-2336. Claims for undelivered copies must be made within four (4) months of publication.

Full text of Audiology Today is available on the following access platforms: EBSCO and Ovid.

Publication of an advertisement or article in Audiology Today does not constitute a guarantee or endorsement of the quality, safety, value, or effectiveness of the products or services described therein or of any of the representations or claims made by the advertisers or authors with respect to such products and services.

To the extent permissible under applicable laws, no responsibility is assumed by the American Academy of Audiology and its officers, directors, employees, or agents for any injury and/or damage to persons or property arising from any use or operation of any products, services, ideas, instructions, procedures, or methods contained within this publication.

Help your patients enjoy the phone again with CapTel[®]

"This phone is my lifeline. It's so easy to use. I don't know what I would do without it."

> — Betty CapTel user in California

how was your trip to the vineyard? the pictures looked really beautiful

Cotion

وي الله 🗢

CapTel 2400i

CapTel® **Captioned** Telephone

1-800-233-9130 | www.captel.com



FEDERAL LAW PROHIBITS ANYONE BUT REGISTERED USERS WITH HEARING LOSS FROM USING INTERNET PROTOCOL (IP) CAPTIONED TELEPHONES WITH THE CAPTIONS TURNED ON. Advanced speech recognition software is used to process calls, and, in certain circumstances, a live communications assistant may be included on the call. There is a cost for each minute of captions generated, paid from a federally administered fund. No cost is passed on to the CapTel user for using the service. CapTel captioning service is intended exclusively for individuals with hearing loss. CapTel* is a registered trademark of Ultratec, Inc. (v2.7 01-23)

The Power of Unity

AMERICAN ACADEMY OF-

DIOLOGY

n the realm of professional advancement, the notion of unity consciousness is a guiding light that beckons us to embrace interconnectedness. It reminds us that we can no longer "go it alone" as we strive to build our professional lives and transcend the limitations of our past.

The phrase, "power of unity," is first attributed to Founding Father John Dickinson in his pre-Revolutionary War song, "The Liberty Song," first published on July 7, 1768, in the Pennsylvania Journal and Pennsylvania Gazette newspapers.

The power of unity holds for audiology and audiologists. The American Academy of Audiology, the American Speech-Language-Hearing Association, and the Academy of Doctors of Audiology jointly introduced the Medicare Audiology Access Improvement Act (MAAIA) bill in the House of Representatives and the Senate. This legislation would improve outcomes for beneficiaries by allowing direct access to audiological services and streamlining Medicare coverage policies so that audiologists can provide the full range of Medicare-covered diagnostic and treatment services that correspond to their scope of practice. The legislation would also reclassify audiologists as practitioners, which is consistent with other Medicarerecognized nonphysician providers, and it would permanently make audiologists eligible to provide services through telehealth.



What do we need to do to pass this bill? I would like all audiologists to contact their elected officials to support this bill (www. audiology.org/advocacy/legislativeaction-center). There are many hurdles to getting a bill of this significance passed. However, we can pass the bill if we unite and stand together. It is easy to have good intentions, but what we need is the action to drive the powerful statement that we are united.

Unity is a state of being that calls upon each one of us to recognize the interconnected web of life in all its forms. It encourages us to extend a hand to our fellow audiologists, embrace diversity, and cultivate compassion and empathy within ourselves and our patient population. Let

VISUAL DISTRACTION DISPLAYS Exactly What's Needed For Clinical OAE/'s

When conducting challenging pediatric assessments with OAEs, the Otoport's visual distraction displays help to keep the child quiet and compliant. The child is encouraged to remain quiet as they watch an onscreen cartoon gradually filling with color, or pieces of a puzzle coming together or people jumping in a boat - like the traditional Audiology silent play activity. Uniquely, if they become noisy during the test, the colors quickly fade and the play activity is backtracked. There are 6 carefully designed 'noise-linked' animations to engage the child by positive reinforcement. Otoports have real clinical value with older children alerting you to the possibility of both conductive and cochlear losses.







т: 1-800-659-7776 е: info@otodynamics.com www.otodynamics.com





us awaken to the power of unity consciousness, for together we shall transcend the limitations of the past and usher in the future brimming with opportunities for audiologists.

Most of all, let us continue to see where our divisions are within our communities and where we can place our differences aside to have a unified voice. We all must start somewhere to add the cooperative strengths needed to create the professional life we wish to live and pass on to the next generation. The American Academy of Audiology is committed to serving all audiologists. We are constantly working toward addressing the needs of audiologists.

We want to see unity in our members to support peace and tranquility in our professional lives. Please join me in ensuring that the cause of audiology and audiologists is more significant than ever by joining hands and being united. If we can send a bill with the utmost agreement, we can work on other important issues that need to be addressed.

The year 2023 was a great year for all; it was a new beginning for me and an assurance from the membership to lead the organization to success. Let all audiologists not "go it alone" but build a better future for audiology by the power of unity.

We are at the beginning of the new year; let us be thankful for all the great things to come in 2024. (\$

Bopanna Ballachanda, PhD, ABA Certified President | American Academy of Audiology

January 17

eAudiology Web Seminar Mental Health First Aid for Patients Across the Lifespan www.eaudiology.org

January 25–26

Convention Illinois Academy of Audiology Naperville, Illinois https://www.ilaudiology.org/ 2024-conference

January 26

eAudiology Web Seminar Music Audiology: Hearing Care for Special Ears www.eaudiology.org

February 15

Due Date Research Grants in Hearing and Balance www.audiology.org/foundation/ our-work/research-and-education

February 16

Early-Bird Registration Ends AAA 2024+HearTECH Expo Atlanta, Georgia www.aaaconference.org

What's Trending!



14,731



Published on November 8

www.facebook.com/theamericanacademyofaudiology

In our member survey, we learned that some members didn't feel a connection to the Academy. This video may help strengthen that bond with you, our valued member.





Published on November 17

www.twitter.com/academyofaud





Senator Warren issued a press release today highlighting her comments during a meeting of the Senate Finance Committee in support of the Medicare Audiology Access Improvement Act.

Published on November 9

www.linkedin.com/company/american-academy-of-audiology

The Medicare Audiology Access Improvement Act would improve outcomes for beneficiaries by allowing direct access to audiological services and streamlining Medicare coverage policies.

Published November 20

5,700 0



www.instagram.com/academyofaud

Updating Your Pediatric Audiology Toolbox

Readers are encouraged to investigate the tools mentioned in this article, add them to their "toolbox," and incorporate them into daily practice. These tools serve as opportunities to significantly improve the quality of care we provide to children who are d/Deaf or hard of hearing as the science advances.

BY SHELLEY R. MOATS AND MADELINE BRIMMER

n the world of pediatric audiology, access to spoken communication with hearing devices, including individual phonemes of speech, can make or break a child's ability to perceive—and therefore produce sounds of speech with accuracy.

Speech and language deficits experienced by children who are d/Deaf or hard of hearing (D/HH) are directly related to a reduction in auditory input, which in turn affects academic achievement, social-emotional development, and post-secondary occupational success (Tomblin et al, 2014). This underscores the importance of ensuring appropriate audibility for every child who is D/HH by using evidence-based procedures for fitting different types of hearing devices.

For families who choose a listening and spoken language focus for their child, early and consistent auditory access is a critical piece of the puzzle in ensuring that speech, language, and communication skills are optimized (Wolfe, 2020). In this article, we summarize evidence-based strategies used to fit hearing aids, program cochlear implants (CIs), collaborate with parents and caregivers, and collaborate with our speech-language pathology (SLP) colleagues to ensure the best outcome for every child we serve.

Strategies for Optimizing Aided Hearing

Aided hearing can impact perception and production of speech, working memory and vocabulary, incidental learning or "overhearing," social-emotional development, and academic achievement (Davis et al, 1986). As pediatric audiologists, we have an obligation to follow the evidence. Fortunately, our colleagues have provided multiple evidence-based tools that we can use in the clinic or provide to our SLP colleagues and patient's caregivers to ensure that hearing devices are providing optimal access to communication.

One strategy to ensure an accurate pediatric hearing aid fitting is the use of the root-mean-square error values.

> There is ample evidence that children with mild hearing loss receive significant benefit from amplification. Recent compelling evidence from the Outcomes of Children with Hearing Loss (OCHL) study (McCreery et al, 2020) provides further support for aiding mild losses. Children with unaided speech intelligibility index (SII) of less than 80 have a higher risk for

significantly lower language scores than age-matched, typically hearing peers.

Furthermore, McCreery (2021) discussed that individual ear canal acoustics can significantly change unaided SII values in infants and children, highlighting the critical role of real-ear-to-coupler difference (RECD) measures. For example, an infant with a mild hearing loss may have a significant change in unaided SII values when individual ear canal acoustics are considered alongside thresholds obtained in dB HL.

One strategy to ensure an accurate pediatric hearing aid fitting is the use of the rootmean-square error (RMSe) values. The RMSe value quantifies the average deviation from fitting targets (e.g., Desired Sensation Level [DSL] v5 or National Acoustic Laboratories NAL-NL2) at 500, 1,000, 2,000, and 4,000 Hz, with smaller deviations suggesting a better fit. In one study, RMSe deviations greater than 5 dB for soft (50 dB SPL) and average (65 dB SPL) input levels resulted in poorer aided speech perception in quiet compared to fittings with smaller RMSe values less than 5 dB (McCreery et al, 2020).

Poorer speech perception also was found with RMSe deviations from recommended maximum power output values (McCreery et al, 2020), potentially due to the upward spread of masking or distortion cues introduced into the amplified signal. A more recent study (Wiseman et al, 2023) suggests that using an RMSe cutoff value of less than 3 dB may yield better language outcomes by further optimizing aided audibility.

FIGURE 1 provides an example of an infant hearing aid fitting where RMSe values are less than 3 dB for all input levels, indicating an excellent match to DSL v5 targets and optimal audibility.

Additional consideration is needed for more severe hearing losses to determine if hearing aids will allow appropriate access to spoken language. As the degree of hearing loss increases, or the configuration of hearing loss becomes more steeply sloping, it can be challenging to meet RMSe criteria or even come close to matching on-ear pediatric targets through 8,000 Hz. Frequency-lowering technology can be considered in this situation to improve access to high-frequency speech sounds; however, performance must be monitored closely as frequency lowering can increase distortion for some device users (Glista and Scollie, 2018).

If hearing devices are working well as documented by

listening check and on-ear or simulated on-ear verification, but speech perception and production errors become an issue, unaided hearing thresholds and aided speech perception capabilities should be re-evaluated. Also, a change in hearing device may be considered if needed. Specifically, children who do not meet current U.S. Food and Drug Administration CI guidelines could benefit from a formal CI evaluation to determine if an off-label recommendation would be appropriate.

For unilateral hearing loss (UHL), consideration of unaided and aided SII should also be taken into consideration. McCreery et al (2020) suggest use of an audibility-based criterion for UHL. For unaided SII ranging from 0 to 80, amplification FIGURE 1. A two-month-old patient with bilateral mildmoderate sensorineural hearing loss was fit with hearing aids using realear-to-coupler difference and simulated real-ear measurements. For all input levels in both ears, the rootmean-square error value is less than 3 dB, indicating a close match to target and excellent aided audibility.





FIGURE 2. The rainbow audiogram (copyright Sylvia Rotfleisch, 2018) is a visual representation of speech acoustics based on the pure-tone audiogram. should be considered. If the unaided SII is between 0 and 50, complete a simulated hearing aid fitting and ensure that the aided SII is at least 50. However, an aided SII of 50 or greater does not imply that benefit will be received from hearing aid use. Additional measures are needed to validate benefit.

For UHL fittings with more severe hearing loss, audiologists should be aware of potential crossover of amplification to the hearing ear. Additionally, recent CI guidelines from the American Cochlear Implant Alliance Task Force suggest that a child with UHL and aided SII of greater than 65 should receive a CI evaluation (Park et al, 2022).

In regard to ensuring audibility for pediatric CI recipients, additional resources are now available from the Knowledge and Implementation in Pediatric Audiology (KIPA) Group (Davidson et al, 2023). KIPA issued a consensus statement indicating the following:

- Detection thresholds for speech or frequency-specific stimuli including warble tones, frequency-specific hearing assessment noise (FRESH), or pediatric filtered noise should fall between 20–30 dB HL; if not, reprogramming is indicated. Additional dial corrections are needed if narrowband noise is used for testing due to the difference between effective masking level and dB HL.
- Identification tasks using speech stimuli can be completed based on the child's age and developmental status.
- Recommended procedures for setting CI stimulation levels to ensure patient comfort and appropriate dynamic range to further facilitate accurate speech perception.

Collaborative Tools for Assessing Audibility

The Rainbow Audiogram

The rainbow audiogram (FIGURE 2) was developed as a training tool for speech acoustics for auditory-verbal certified professionals and is now part of the Hearing First training curriculum (Rotfleisch, 2018). The rainbow audiogram is a visual representation of speech acoustics that can establish a shared language for audiologists and SLPs to communicate about patient errors in auditory perception and speech production. In many facilities, audiology and SLP teams routinely collaborate and share patients. In our

The rainbow audiogram is a visual representation of speech acoustics that can establish a shared language for audiologists and SLPs to communicate about patient errors in auditory perception and speech production. experience, advantages of using the rainbow audiogram include the following:

- Establishing a common language between providers who share patients with hearing loss
- Ability for SLP to communicate to audiologists in a concise manner the frequency ranges in which hearing devices may need adjustment because of associated speech perception errors
- Allowing the audiologist to quickly target necessary adjustments, which is particularly helpful for younger and difficult-to-test patients

The LMH-10 Test

The Low-Mid-High or LMH-10 sound test, developed by Madell and Hewitt (Madell, 2021), expands on the Ling 6 sound test with the addition of four phonemes that capture common perceptual errors.

The LMH-10 can be used by audiologists, SLPs, and parents/caregivers alike. In our clinic, we often use LMH-10 identification as a quick check following any changes to hearing aid or CI settings to ensure that any auditory access issues have been addressed.

This test is used in conjunction with evidence-based measures for verification and validation of hearing devices including real-ear measurements, SII and RMSe measurements, objective measures used to set levels for CIs, aided speech perception scores, aided sound field measurements, and auditory skill development questionnaires.

The LMH-10 sounds should be administered in the auditory-only condition with each hearing device alone and with both devices together. Observation of detection can be used for very young children, with progression to an imitation/identification task as appropriate by either pointing to a picture or repeating the sound.

Using the rainbow audiogram and LMH-10 test provides for a shared language for communication between professionals, or between professionals and parents, so that errors in speech perception can be quickly identified and resolved with appropriate programming modifications. For example, the SLP may share that a child consistently produces /u/ for /m/ on the LMH test. The SLP might recommend programming changes to optimize auditory access to the 250–350 Hz range or between 2,500 and 3,500 Hz.

The audiologist, as noted above, can use similar tasks when in clinic to identify issues with auditory perception and optimize auditory access. Parents can be trained to complete and record results of the LMH task to share with their child's audiologist or SLP.

Case Study: RB, Three-Year-Old Female with Bilateral Cls

RB was born at term with no risk factors for hearing loss and failed her newborn hearing screening bilaterally. A natural sleep auditory brainstem response test completed at three months of age confirmed bilateral profound sensorineural hearing loss. RB was fit with bilateral hearing aids at five months using DSL pediatric targets, RECD, or simulated real-ear measurements. RB enrolled in early intervention services as soon as the hearing loss was confirmed. Aided sound field testing and completion of the LittlEARS auditory skill development questionnaire (Coninx et al, 2009) at age seven months indicated little to no benefit from hearing aids. RB's parents elected to proceed with bilateral CIs. RB was implanted at 10 months and activated at 11 months. Objective measurements were used to set RB's initial CI map parameters and further refine maps.

RB began sessions with our in-house SLP starting at six months of age and has continued to receive speech-language services in clinic, as well as from her home state's early intervention program. New speech perception and production errors were noted by both RB's parents and the clinic-based SLP in summer 2023, which led to recommendations for reprogramming based on the rainbow audiogram. Now that RB is a toddler, the window for her productive participation during her appointments is variable, which underscores a need for efficiency in making programming changes.

At a recent appointment with the SLP, RB was making speech production errors in manner, place of production, and voicing with her right CI processor only, and substitution errors were noted (d/t, k/g) with her left CI processor only.

Based on this information and the rainbow audiogram, RB's map levels were

Jerry Northern Scholarship in Pediatric Audiology

The Jerry Northern Scholarship in Pediatric Audiology will award \$10,000 each to three full-time graduate students who show exceptional promise as clinical audiologists with a focus on pediatric audiology.

Applications are due by **April 30, 2024**. www.AudiologyFoundation.org



\$30,000 In Funds Available Updating Your Pediatric Audiology Toolbox

updated using behavioral testing and loudness scaling in the frequency range of interest for each CI map (~500 Hz and 1,500–3,000 Hz for right device; 2,000–6,000 Hz for left device). Perception of LMH-10 sounds was informally assessed with each individual CI processor following reprogramming to ensure both audibility and correct perception.

Following adjustments to the map levels in these frequency ranges, RB's parents and SLP noted significant improvement in both speech perception and production with each CI processor individually and in the bilateral CI condition. This improvement was noted for both informal measures, such as observation and parent report, as well as improvement on the Iowa Medial Consonant Test (Geller et al, 2021) completed by the SLP. RB was scheduled for formal speech perception testing to confirm that mapping changes were successful in providing access, thereby reducing errors in speech perception and production.

Update Your Toolbox!

In closing, use of evidence-based measures, as well as collaboration between various professionals and parents/caregivers, optimizes outcomes for children who are D/HH. As new research is published and recommendations for evidence-based practice are constantly being updated, it is critical that providers learn and implement changes to



best support their patients. However, it can be difficult and time consuming to filter through new information to determine how or why new practices can and should be executed in the clinic.

Readers are encouraged to investigate the tools mentioned in this article, add them to their "toolbox," and incorporate them into daily practice. These tools serve as opportunities to significantly improve the quality of care we provide to children who are D/HH as the science advances. ©

Shelley Moats, AuD, PASC, is a pediatric audiologist with Norton Children's Medical Group in Louisville, Kentucky. She is the 2022 recipient of the Marion Downs Pediatric Audiology Award from the American Academy of Audiology.

Madeline Brimmer is a fourth-year audiology extern at Norton Children's Medical Group in Louisville, Kentucky. She will graduate from The Ohio State University with her AuD in May 2024.

References

Coninx F, Weichbold V, Tsiakpini L, et al. (2009) Validation of the LittlEARS auditory questionnaire in children with normal hearing. *Int J Pediatr Otorhinolaryngol* 73(12):1761–1768.

Davidson L, Scott M, Sindrey D, et al. (2023) Essential elements of best practice for cochlear implant fitting in children: clinical considerations for behavioral methods of verification and validation. Knowledge and Implementation in Pediatric Audiology (KIPA). http://kipagroup.org/wp-content/uploads/2023/08/ CI-Fitting-for-KIPA-final.pdf (accessed October 19, 2023).

Davis JM, Elfenbein J, Schum R, Bentler R. (1986) Effects of mild and moderate hearing impairments on language, educational, and psychosocial behavior of children. *J Speech Lang Hear Disor* 51:53–62. Geller J, Holmes A, Schwalje A, et al. (2021) Validation of the Iowa Test of Consonant Production. *J Acoust Soc Am* 150(3):2131–2153.

Glista D, Scollie S. (2018) The use of frequency lowering technology in the treatment of severe-to-profound hearing loss: a review of the literature and candidacy considerations for clinical application. *Semin Hear* 39(4):377–389.

Madell J. (2021) The LMH test for monitoring listening– Jane Madell and Joan Hewitt. Hearing Health Matters. hearinghealthmatters.org (accessed October 19, 2023).

McCreery R, Walker E, Stiles D, Spratford M, Oleson J, Lewis D. (2020) Audibility-based hearing aid fitting criteria for children with mild bilateral hearing loss. *Lang Speech Hear Serv Sch* 51(1):55–67.

McCreery R. (2021) 20Q: Developments in pediatric amplification—audibility, mild hearing loss, and more. Audiology Online. www.audiologyonline.com/articles/20q-developmentsin-pediatric-amplification-27873 (accessed October 24, 2023).

Park L, Griffin A, Sladen D, Neumann S, Young N. (2022) American Cochlear Implant Alliance Task Force Guidelines for clinical assessment and management of cochlear implantation in children with single-sided deafness. *Ear Hear* 43(2):255–267.

Rotfleisch S. (2018) Soda bottles and submarines: essential speech acoustics. Hear to Talk. www.hear2talk.com/ presentations/soda-bottles-submarines.php (accessed October 24, 2023).

Tomblin J, Oleson J, Ambrose S, Walker E, Moeller M. (2014) The influence of hearing a on the speech and language development of children with hearing loss. *JAMA Otolaryngol Head Neck Surg* 140(5):403–409.

Wiseman K, Walker E, Spratford M, Brennan M, McCreery R. (2023) Comparing criteria for deviation from hearing aid prescriptive targets in children. *Int J Audiol.* In press.

Wolfe J. (2020) Entrain the brain: optimize listening and spoken language outcomes of children with hearing loss. Hearing First (accessed October 18, 2023).

Overcoming Barriers to Pediatric Amplification

BY MEGAN WORTHINGTON AND KIRSTEN A. PETRARCA



On the national level, access to audiological care for children who are d/Deaf or hard of hearing and their families is restricted by financial, logistical, and systemic barriers. A pro bono clinic in Chicago has demonstrated the use of a bimodal service delivery model to address several of these issues.



he practice of fitting appropriate amplification for children who are d/Deaf or hard of hearing (D/HH) acquiring spoken language is well supported in the literature and by professional entities, including the American Academy of Audiology (Ching et al, 2013). The youngest of these children are served by state-led early intervention programs that use funding from Part C of the Individuals with Disabilities Education Act to provide necessary therapies and assistive technologies (i.e., traditional hearing aids).

Within the field of audiology, discontinuity most often occurs when children are first referred to audiology and when children are scheduled for follow-ups with the audiologist.

When children transition out of these programs, school districts shoulder the responsibility to provide appropriate

services and accommodations. However, the responsibility to obtain appropriate—and costly-amplification falls to the families. Medicaid's Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) benefit will provide coverage for children younger than 21 years, and mandated coverage by public insurance coverage has extended to 26 states (Centers for Medicare and Medicaid Services, 2014; National Center for Hearing Assessment and Management, 2017).

Unfortunately, despite the expansion of both private and public insurance coverage for pediatric audiological services and interventions, various barriers to appropriate care persist for children and their families.

Barriers to Pediatric Hearing-Health Care

Of the multitude of barriers that impede children's and family's access to audiological care, there are several financial, logistical, and systemic barriers that can be addressed and overcome by audiologists. These are lack of insurance, the distance between the patient and the provider, the nonmedical costs of travel, and discontinuity of care.

Lack of insurance is a seemingly insurmountable barrier to audiological care. Given the high



cost of hearing aids, many families rely on insurance to minimize out-of-pocket costs. However, the number of uninsured children in the United States has been on the rise since 2016. According to the most recent report from the Georgetown University Health Policy Institute (Alker and Corcoran, 2020), there were approximately 4.4 million uninsured children in the United States in 2019, and that number was expected to increase in the following years.

The distance between the patient and the provider, whether in a rural or urban setting, has negatively impacted timeliness of diagnosis and intervention and increased the risk of loss to follow-up by as much as 37 percent (Bush et al, 2014; Spivak et al, 2009). Furthermore, with distance and travel come variable nonmedical costs. These can include travel expenses (i.e., gas or fare for public transportation), lodging expenses, missed work, and missed school (Bush et al, 2017; Elpers et al, 2015). These costs can complicate a family's ability to consistently follow up with their provider or care team, particularly if frequent follow-ups are required.

Finally, discontinuity of care can take on many forms. Throughout the process of obtaining health care, parental reports have identified multiple points of contact that can lead to opportunities for the development of barriers (Sobo et al, 2006). Within the field of audiology, discontinuity most often occurs when children are first referred to audiology and when children are scheduled for follow-ups with the audiologist.

With regard to the former, discontinuity occurs when inappropriate referrals are made or, in some cases, referrals are omitted altogether. With regard to the latter, discontinuity occurs when children and families are seen by multiple providers, leading to disjointed care. Oftentimes, these multiple points of contact are necessary, such as when the child's birth hospital, follow-up provider, early intervention therapist, audiologist, and educational audiology team exist in different networks with limited opportunities for interprofessional communication.

Student Community Outreach Program of Excellence

In Chicago, Illinois, the Student Community Outreach Program of Excellence (SCOPE) is a faculty-led, pro bono clinic that provides educational opportunities for graduate audiology and speech–language pathology students and relevant care for underserved populations. Audiologists and speech–language pathologists collaborate with one another and other specialists, such as developmental behavioral pediatricians, to provide optimal, evidence-based care to children and their families.

SCOPE's pediatric hearing loss outreach program serves children who have aged out of state-led early intervention programs and are unable to access audiological care due to a lack of insurance or other reasons. In 2021, a proposed protocol was developed for this program that used a bimodal service delivery model, including in-person



hearing aid fittings and virtual follow-ups (Petrarca and Worthington, 2022).

SCOPE and its implementation of tele-audiology services allowed providers to overcome several barriers to care for pediatric patients and their families, including lack of insurance and nonmedical costs (i.e., transportation costs, lodging costs, and missed work). Since publication of the protocol in 2022, the first group of patients have been successfully fit with appropriate amplification and have benefited from the use of virtual follow-ups.

Proposed Solutions

SCOPE is a unique clinical setting, but some of the practices implemented across its outreach programs can be adopted in other clinics to address and overcome several of the barriers that children who are d/Deaf or hard of hearing and their families face in accessing audiological care. These are tele-audiology, collaborative care, and informational resources.

Tele-audiology can be implemented in clinics to varying degrees. Manufacturersupported platforms can be used to provide synchronous tele-audiology services in lieu of in-person follow-ups, as appropriate. This practice can help overcome the barriers of distance and nonmedical costs, while encouraging timely follow-up when concerns arise for device function.

Collaborative care can take form through various actions both within and outside the clinic.

During tele-audiology appointments, clinicians can use the time to answer questions regarding routine use and maintenance of hearing technology and provide additional counseling and reinstruction. Minor programming changes could also be completed if manufacturer-specific tele-audiology platforms are used. However, these changes should be limited as device output cannot be verified virtually.

Datalogging can also be checked during these encounters, leading to discussions about wear times and individualized solutions. Although a robust tele-audiology program may not be feasible for all clinics, implementation of even one tele-audiology follow-up can be a significant first step toward addressing and overcoming the barriers.

One of the most common and helpful informational resources clinics may provide is a list of local Medicaid providers or local programs covering hearing aids.

> Collaborative care can take form through various actions both within and outside the clinic. Within the clinic, steps can be taken to reduce nonmedical costs for the families and improve continuity of care. For example, appointments in a multispecialty clinic or within a unified health-care system could be coordinated to minimize the number of trips that families

must make. Currently, the providers in Rush's SCOPE clinic partner with the developmental pediatrics department to provide hearing evaluations for patients being assessed for autism. The appointments are added on in previously blocked time slots to allow flexibility to see patients during the comprehensive clinic.

Additionally, follow-ups could be scheduled with a stable team of providers to avoid a disjointed service delivery across visits. Outside of the clinic, it is necessary to provide education to other health-care providers, such as pediatricians, to ensure appropriate, timely referrals for children who are at-risk for congenital or progressive hearing loss. This can be accomplished by sharing information about risk factors for childhood hearing loss and appropriate referrals for audiological evaluations. Establishing partnerships with those outside providers and local organizations is also important to bridge the gaps as families navigate these systems.

Informational resources are a small, but mighty, initiative that a clinic can undertake to combat a lack of insurance and nonmedical costs for families. Clinics can have information on enrollment processes for public insurance; insurance coverage; and supplemental financial resources, including grants, hospital-based financial assistance, or resources from local organizations. One of the most common and helpful informational resources clinics may provide is a list of local Medicaid providers or local programs covering hearing aids.

While these types of resources are helpful, they must be updated on a regular basis in families' preferred languages. Providers also can communicate and collaborate to set up referrals for families. In collecting and organizing this information, participating providers should be contacted to ascertain what materials families may need to ensure that their referrals are accepted by that facility. By providing families with additional information and next steps, access to care can become more feasible.

Conclusion

Demands on health-care providers and clinical staff are constantly increasing. Audiologists and clinics need to do more with less regarding time and resources. However, taking small steps toward bridging the gaps for children who are d/Deaf or hard of hearing and their families navigating the health-care system can yield significant outcomes. With countless contact points where children and their families can fall through the cracks, we have a responsibility to bridge those gaps whenever possible.



Megan Worthington, AuD, is an assistant professor and the clinical education manager for the audiology program in the Department of Communication Disorders and Sciences at Rush University, Chicago, Illinois. She is also a clinical supervisor and the audiology coordinator for the Student Community Outreach Program of Excellence (SCOPE) at Rush University Medical Center.

Kirsten A. Petrarca, AuD, is a clinical audiologist at Penn State Health Milton S. Hershey Medical Center, Hershey, Pennsylvania. She is a recent graduate of Rush University, Chicago, Illinois.

References

Alker J, Corcoran A. (2020) Children's uninsured rate rises by largest annual jump in more than a decade. Georgetown University Health Policy Institute Center for Children and Families. https://ccf.georgetown.edu/wp-content/ uploads/2020/10/ACS-Uninsured-Kids-2020_10-06-edit-3.pdf (accessed October 16, 2023).

Bush ML, Kaufman MR, McNulty BN. (2017) Disparities in access to pediatric hearing health care. *Curr Op Otolaryngol Head Neck Surg* 25(5):359–364.

Bush ML, Osetinsky M, Shinn JB, Gal T, Ding X, Fardo D, Schoenberg N. (2014) Assessment of Appalachian region pediatric hearing health-care disparities and delays. *Laryngoscope* 124(7):1713–1717.

Centers for Medicare and Medicaid Services. (2014) Early and Periodic Screening, Diagnostic, and Treatment (EPSDT)—a guide for states: coverage in the Medicaid benefit for children and adolescents. www.medicaid.gov/sites/default/files/2019-12/ epsdt_coverage_guide.pdf (accessed October 16, 2023).

Ching T, Galster J, Grimes A, et al. (2013) American Academy of Audiology clinical practice guidelines: pediatric amplification. https://audiology-web.s3.amazonaws. com/migrated/PediatricAmplificationGuidelines. pdf_539975b3e7e9f1.74471798.pdf (accessed October 16, 2023).

Elpers J, Lester C, Shinn JB, Bish ML. (2015) Rural family perspectives and experiences with early infant hearing detection and intervention: a qualitative study. *J Community Health* 41(2):226–233.

National Center for Hearing Assessment and Management. (2017) Hearing aid legislation. www.infanthearing.org/legislation/ hearingaid.html (accessed October 16, 2023).

Petrarca KA, Worthington, M. (2022) Pediatric amplification: a proposed protocol for in-person hearing aid fittings and virtual follow-ups. *Am J Audiol* 31(3S):864–875.

Sobo EJ, Seid M, Reyes Gelhard L. (2006) Parent-identified barriers to pediatric health care: a process-oriented model. *Health Serv Res* 41(1):148–172.

Spivak L, Sokol H, Auerbach C, Gershkovich S. (2009) Newborn hearing screening follow-up: factors affecting hearing aid fitting by 6 months of age. *Am J Audiol* 18(1):24–33.

Questions? Comments? Thoughts?

Year-round engagement is a post away.

The community is an exclusive resource provided as a benefit for Academy members. Log in and join the discussion, post a question, and connect with your colleagues.





https://audiologycommunity.audiology.org

Improving Listening at Home

in Young Children with Hearing Loss



As professionals working with children with hearing loss who are developing spoken language, our primary goal is to support these young individuals in their journey in developing language skills. Spoken language acquisition is a crucial building block for their communication, education, and overall well-being. Language is the key to expressing thoughts, connecting with others, and achieving lifelong learning potential. Thus, the acquisition of spoken language is a key aspect in the lives of children with hearing loss developing spoken language.

BY CARLOS BENÍTEZ-BARRERA AND ISABEL OLLETA

Overcoming Language Barriers for Children with Hearing Loss

Despite advancements in hearing devices, such as hearing aids or cochlear implants, the path to language proficiency for children with hearing loss can be challenging (Geers et al, 2009). The severity of their hearing loss, how early they have access to sound, and how consistently they use their devices all affect their language development (Geers et al, 2009). Therefore, accessing proper early intervention services is vital for children with hearing loss (Yoshinaga-Itano, 1999). In addition, recent insights emphasize

the importance of family involvement for children's development. Research shows that the more children with hearing loss interact with their caregivers in language-rich environments, the better their language skills are later in life (Holzinger et al, 2020). For that reason, family-centered intervention programs that teach caregivers how to create language-rich homes are highly recommended for families who want their children with hearing loss to learn spoken language (Nickbakht et al, 2021). The combined focus on early intervention and family-centered support has enabled many children with

hearing loss to develop language skills equivalent to their peers with typical hearing (Geers et al, 2009).

The advancements made in our field in the last 20–30 years are remarkable. Nowadays, we see more children with hearing loss in mainstream classrooms and fully participating in society than ever before (Marlatt, 2014). We should congratulate professionals and families for such achievement. However, there is still a significant proportion of children with hearing loss who, despite receiving early intervention and family-centered services, struggle developing spoken language (Geers et al,



2009). Recent theories of language acquisition suggest that one possible factor explaining these language delays might be the quality of children's auditory environments (Houston, 2022). This is because hearing devices do not provide high-quality acoustic input in noisy settings (Torkildsen et al, 2019). Thus, trying to learn language in a crowded, noisy room can be extremely challenging for children with hearing loss (McCreery et al, 2019). In fact, recent research findings show that homes of children with hearing loss are noisier than desired, preventing them from accessing language input of interest (Benítez-Barrera et al, 2020). The American Speech-Language-Hearing Association (2005) recommends +15 dB speech-to-noise ratios (SNRs) in learning environments—that is, to guarantee language learning speech needs to be consistently 15 dB higher in level than the background noise in these settings. Interestingly, researchers found that the SNRs in homes of children with hearing loss are well below the recommendation (Benítez-Barrera et al, 2020) (FIGURE 1). Therefore, as clinicians, we need to go one step beyond current practices and ensure that children with hearing loss are raised in

FIGURE 1. Distribution of home conversation signal-to-noise ratios for children with hearing loss. Only 20 percent of the home conversations had a signal-to-noise ratio above the +15 dB recommendation from the American Speech-Language-Hearing Association.
TABLE 1. Strategies to Create Auditory-riteriary Environments for Children with Hearing Loss			
STRATEGY	IMPLEMENTATION		
Minimizing background noise	 Turn TV and electronic devices off when not actively using them. Close windows to reduce outside noise from entering the home. Arrange furniture and/or carpets strategically to help absorb sound. Use curtains, drapes, or blinds to reduce outside noise from entering the home. 		
Maximizing communication	 Talk closely to the child during conversations to maximize the signal-to-noise ratio. Face the child when talking to allow lipreading. Keep the object(s) you are referring to in sight to provide visual linguistic context. Speak naturally to maximize comprehension. 		
Establishing quiet interactions	 Designate specific areas in the home as quiet zones where loud activities are limited. Establish quiet hours when activities that generate noise are minimized. Dedicate at least 30 minutes daily to engage in one-on-one play-based communication interactions with your child. 		

te Auditeur Friendle Freinene ente fen Obildere mith Hernigeler

environments that allow them to consistently hear language input clearly.

Creating Auditory-Friendly Home Environments

In addition to facilitating early access to sound, fostering consistent device usage, and implementing family-centered intervention, it is important to empower families with the knowledge and resources to create auditory-friendly home environments for young children. Early childhood years are essential to facilitate not only access to language but also critical auditory skills, including selective attention and spatial hearing (Hug and Arias, 2009; Introzzi, 2019). Practical recommendations to enrich auditory experiences include minimizing background noise, engaging in close and personal communication with the child, and creating designated quiet times for one-onone conversations (Cole and Flexer, 2019).

Minimizing background noise allows the child to focus on the subtleties of language, providing a higher quality communication environment for learning. Close and

personal communication not only increases the SNR but also fosters trust and active participation, laying the foundation for meaningful interactions and language acquisition. Designated quiet times ensure focused, uninterrupted language input in a quiet setting, also reinforcing the child's language skills.

Although these strategies might be familiar to many clinicians working with children with hearing loss, it is crucial to underscore their significance, especially when working with children with hearing loss struggling with developing language. TABLE 1 summarizes the strategies and how they can be implemented. By prioritizing these fundamental strategies in our clinical practice and promoting their consistent application at home, we can better equip children with hearing loss for success in their lifelong language development journey.

Innovative Solutions: Remote Microphone Systems

It is worth noting innovative solutions, such as personal hearing assistive technology (HAT), to improve children's access to language input at home. Personal HAT consists of microphones and transmitters worn or placed by speakers of interest, such as a teacher, and receivers integrated into the child's hearing device (Benítez-Barrera et al, 2018). The speech signal travels wirelessly from the transmitter to the child's hearing device, effectively overcoming negative effects of distance and background noise on the speech signal (Benítez-Barrera et al, 2018). This optimizes SNRs for the child.

Traditionally, HAT has been associated with frequency-modulated (FM) systems, where a radio frequency signal is used to transmit the desired audio signal from the transmitter to the receiver (Wolfe



et al, 2013). However, in recent years, FM systems have been gradually replaced by remote microphone (RM) systems, most of which employ digital signal transmission. RM systems offer several advantages, including (1) enhanced control over the audio signal data; (2) the ability to analyze and manipulate the transmitted signal; (3) immunity to interference from other FM signals (e.g., radio frequencies); (4) coexistence of multiple systems in the same vicinity without interference; and (5) the capacity to transmit a wider bandwidth of the desired signal (Wolfe et al, 2013). More importantly, many RM systems provide high-quality adaptive gain adjustments according to noise levels in the environment, which is especially beneficial in high-noise environments (Wolfe et al, 2013). Notably, research has shown that RM systems compared with traditional FM systems offer enhanced access to speech for individuals with hearing loss (Thibodeau et al, 2020; Wolfe et al, 2013).

Nowadays, HAT and particularly RM systems are widely recognized in educational settings but are not commonly used at home (Walker et al, 2019). This is due to some limitations in the technology when adapted

FIGURE 2. Children with hearing loss had access to approximately 11 more caregiver words per minute (approximately 5,000 words per day) when using the remote microphone (RM) system than when not using the device. * p < .05.

for home use. For example, these systems might not effectively support the use of multiple microphones, occasionally restricting a child's ability to hear other people not wearing a microphone. Moreover, in certain home scenarios, using RM systems might not be ideal. For example, if a child with hearing loss is playing in the bedroom with siblings while mom is on the phone in the living room, hearing mom's conversation through the RM system could be disruptive for the child.

Finally, RM systems do not preserve binaural and spatial cues that are important for sound processing. RM systems are well suited for situations involving distance, noise, and reverberation as indicated by the American Academy of Audiology (2011). However, it is essential not to overlook the fact that, for the development of sound localization or speech-in-noise skills, an omnidirectional hearing experience that preserves spatial cues is necessary (American Academy of Audiology, 2011). This implies that, although RM systems excel at enhancing access to speech in challenging listening situations, they might be detrimental for the development of certain auditory skills if overused. Nevertheless, recent research has shown that, despite these limitations, using RM systems in the home environment can substantially enhance the child's language learning experience (Benítez-Barrera et al, 2018, 2019; Curran et al, 2019; Thompson et al, 2020).

Early childhood years are essential to facilitate not only access to language but also critical auditory skills, including selective attention and spatial hearing.

Moeller et al (1996) were early pioneers in the investigation of HAT use in the home environment. Using FM systems, they observed that some children with hearing loss who used the device for more than two years experienced significant improvements in language development compared with children who did not use it. However, families noted several practical challenges linked to the use of FM system in the home environment, including issues such as discomfort while using the system and the tendency for cords to break. More recently, Benítez-Barrera et al (2018, 2019) studied HAT use in homes of children with hearing loss with the new RM system technology. They found that using RM systems at home provided the children with hearing loss access to an additional 5,000 words a day. They also reported that RM systems made children more interested in talking to their caregivers. Parents reported that their children were more aware of what was happening around them, which resulted in caregivers talking more to their child (FIGURE 2). Interestingly, families did not encounter the challenges previously noted by Moeller et al (1996), likely due to advancements in HAT.

Curran et al (2019) confirmed these findings. They showed that children with hearing loss who used an RM system at home during early childhood had better language skills compared with those who did not use it. Given this evidence, it is important for clinicians to consider recommending using RM systems at home to help children with hearing loss develop their language skills. That said, clinicians should also be aware of the limitations of using RM systems at home. We should train families in using the technology wisely. For example, RM systems could be used during noisy but language-rich activities, such as dinner, but avoided when the child is not engaging directly with the person(s) wearing the microphone to prevent disruptions and allow the child to experience binaural and spatial hearing. The family should also be aware that visual cues are important for communication. Face-to-face interactions should be encouraged while using the RM system to facilitate lipreading, learning speech articulatory patterns, or word learning among others (Yu and Smith, 2012).

TABLE 2 summarizes home and community listening environments in which the use of an RM system is indicated for children with hearing loss. Overall, research on RM systems shows that they can really help children with hearing loss develop their language skills at home. By dealing with their limitations and teaching families how

APPROPRIATE CONTEXTS (DOs)	NOT APPROPRIATE CONTEXTS (DON'Ts)				
 Mealtime (e.g., dinner) Playtime (e.g., board games, reading) Car Kitchen activities Outside activities where access to distance speech from the adult is important (e.g., park) Stroller Therapy sessions 	 Large group activities where access to language from multiple talkers is important (e.g., birthday party) Situations in which the child is not interacting with the person wearing the transmitter microphone Continuous use (allow the child to experience sound through their hearing devices only) 				

TABLE 2. Recommendations for Remote Microphone System Use in the Home and the Community

to use them effectively, we can provide better language support at home.

Conclusion

As clinicians, we play a critical role in the language development of children with hearing loss. Language proficiency is an educational necessity and is vital for their overall quality of life. We must not only provide early intervention and encourage hearing device use but also guide families in creating auditory-friendly homes. Exploring innovative technologies, such as homefriendly RM systems, can be the missing link in helping these children reach their full potential. By addressing these multifaceted factors, we can empower children with hearing loss to excel in both their education and social interactions, fostering a brighter future for all our patients. @

Carlos Benítez-Barrera, PhD, is an assistant professor in the Department of Communication Sciences and Disorders at the University of Wisconsin-Madison. His research is conducted at the Waisman Center, where he explores the impact of daily auditory experiences on the language and cognitive development of children with hearing loss.

Isabel Olleta is a speech language pathologist and audiologist with a master's degree in early intervention and special education. She currently serves as the Director of the Isabel Olleta Speech and Hearing Center, located in Logroño, Spain. Her professional expertise is centered on providing specialized care to both children and adults with hearing loss.

References

American Academy of Audiology. (2011) Remote microphone hearing assistance technologies for children and youth from birth to 21 years. www.audiology.org/wp-content/ uploads/2021/05/HAT_Guidelines_Supplement_A. pdf_53996ef7758497.54419000.pdf (accessed November 8, 2023). American Speech-Language-Hearing Association. (2005) Guidelines for addressing acoustics in educational settings. www.asha.org/practice-portal (accessed December 2, 2022).

Benítez-Barrera CR, Angley GP, Tharpe AM. (2018) Remote microphone system use at home: impact on caregiver talk. *J Speech Lang Hear Res* 61(2):399–409.

Benítez-Barrera CR, Thompson EC, Angley GP, Woynaroski T, Tharpe AM. (2019) Remote microphone system use at home: impact on child-directed speech. *J Speech Lang Hear Res* 62(6):2002–2008.

Benítez-Barrera CR, Grantham DW, Hornsby BW. (2020) The challenge of listening at home: speech and noise levels in homes of young children with hearing loss. *Ear Hear* 41(6):1575–1585.

Cole EB, Flexer C. (2019) *Children with Hearing Loss: Developing Listening and Talking, Birth to Six.* 4th ed. San Diego, CA: Plural Publishing.

Curran M, Walker EA, Roush P, Spratford M. (2019) Using propensity score matching to address clinical questions: the impact of remote microphone systems on language outcomes in children who are hard of hearing. *J Speech Lang Hear Res* 62(3):564–576.

Geers AE, Moog JS, Biedenstein J, Brenner C, Hayes H. (2009) Spoken language scores of children using cochlear implants compared to hearing age-mates at school entry. *J Deaf Stud Deaf Educ* 14(3):371–385.

Holzinger D, Dall M, Sanduvete-Chaves, Saldana D, Chacon-Moscoso S, Fellinger J. (2020) The impact of family environment on language development of children with cochlear implants: a systematic review and meta-analysis. *Ear Hear* 41(5):1077–1091.

Houston DM. (2022) A framework for understanding the relation between spoken language input and outcomes for children with cochlear implants. *Child Dev Perspect* 16(1):60–66.

Hug MX, Arias C. (2009) Estudios sobre localización auditiva en etapas tempranas del desarrollo infantile [Studies about auditory localization in early stages of the child development]. *Rev Latinoam Psicol* 41(2):225–242.

Introzzi I, Aydmune Y, Zamora EV, Vernucci S, Ledesma R. (2019) Mecanismos de desarrollo de la atención selectiva en población infantile [The development mechanisms of selective attention in child population]. *Rev CES Psicol* 12(3):105–118. Marlatt E. (2014) The evolution of the education of deaf and hard of hearing children into speech–language pathology, educational audiology, and special education. *Am Ann Deaf* 158(5):484–485.

McCreery RW, Walker EA, Spratford M, Lewis D, Brennan M. (2019) Auditory, cognitive, and linguistic factors predict speech recognition in adverse listening conditions for children with hearing loss. *Front Neurosci* 13:1093.

Moeller MP, Donaghy KF, Beauchaine KL, Lewis DE, Stelmachowicz PG. (1996) Longitudinal study of FM system use in nonacademic settings: effects on language development. *Ear Hear* 17(1):28–41.

Nickbakht M, Meyer C, Scarinci N, Beswick R. (2021) Familycentered care in the transition to early hearing intervention. *J Deaf Stud Deaf Educ* 26(1):21–45.

Thibodeau LM. (2020) Benefits in speech recognition in noise with remote wireless microphones in group settings. *J Am Acad Audiol* 31(6):404–411.

Thompson EC, Benítez-Barrera CR, Angley GP, Woynaroski T, Tharpe AM. (2020) Remote microphone system use in the homes of children with hearing loss: impact on caregiver communication and child vocalizations. *J Speech Lang Hear Res* 63(2):633–642. Torkildsen JVK, Hitchins A, Myhrum M, Wie OB. (2019) Speechin-noise perception in children with cochlear implants, hearing aids, developmental language disorder, and typical development: the effects of linguistic and cognitive abilities. *Front Psychol* 10:2530.

Walker EA, Curran M, Spratford M, Roush P. (2019) Remote microphone systems for preschool-age children who are hard of hearing: access and utilization. *Int J Audiol* 58(4):200–207.

Wolfe J, Morais M, Schafer E, et al. (2013) Evaluation of speech recognition of cochlear implant recipients using a personal digital adaptive radio frequency system. *J Am Acad Audiol* 24(8):714–724.

Yoshinaga-Itano C. (1999) Benefits of early intervention for children with hearing loss. *Otolaryngol Clin North Am* 32(6):1089–1102.

Yu C, Smith LB. (2012) Embodied attention and word learning by toddlers. *Cognition* 125(2):244–262.



Looking for a Job or Externship?

On HEARCareers.org, you can...

- Sign up for job/externship alerts.
- Post your resume.
- Apply for new opportunities.





Stress Management 101

We live in a time of abundance where our access to information has never been greater. For many people, this increased access does not correlate with improved psychological well-being because stress, burnout, substance abuse, and mental health disorders are high. Early intervention is imperative in preventing burnout or longterm consequences of stress. Everyone experiences stress, but its management varies significantly. This article provides the foundation for how to effectively manage the internal experience of stress to allow for a more fulfilling life.

BY KYLE H. SHEPARD

udiologists are generally empathetic, altruistic, and adept at problem-solving. Ironically, these positive qualities can also contribute to an increased risk of stress injuries—notably, burnout. Occupational stress, contributing to burnout, causes disruptions in personal life, professional work, and job turnover (Delaney et al, 2023). Burnout is a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can lead to a deterioration (Maslach and Schaufeli, 1993). There is vast consensus in the literature that burnout is a concern for providers and that it impacts both their own well-being and their quality of care. In civilian health-care settings, burnout was reported by 33 percent to 50 percent of physicians and nurses and 53 percent of primary care clinicians and

staff (Brindley et al, 2019; Costa and Moss, 2018; Reith, 2018).

Physiology and Neuroplasticity

The physiology of stress is one of the original functions of our central nervous system. The emotional brain, or limbic system, houses our sympathetic nervous system that is responsible for activating the fight-flightor-freeze response. This automatic reaction to perceived stressors was designed to help us survive dangerous situations. When activated, heart rate and blood pressure increase, breathing rate changes, and pupils dilate. Following stress, the parasympathetic nervous system then works to restore everything to baseline (Cleveland Clinic, 2019).

After millions of years of evolution, the rational brain (i.e., neocortex) evolved from the limbic system to create the modern "

human brain (Goleman, 2005; Salovey et al, 2004). To this day, physiological stress responses still play out the same, regardless of the trigger. Physical, social, cognitive/emotional, or spiritual roots of stress all induce the same reaction. The only factors that differ are the intensity and duration of the response (Cleveland Clinic, 2019).

Duration of stress, intensity, and function are the most important considerations when determining levels of intervention to manage stress and improve function.

> Neuroplasticity is the ability of the nervous system to change its activity in response to intrinsic or extrinsic stimuli by reorganizing its structure, functions, or connections (Mateos-Aparicio and Rodríguez-Moreno, 2019). As audiologists, we are familiar with the concept of neuroplasticity as it relates to critical windows of speech and language development, tinnitus

management, or degradations in the auditory cortex following hearing loss that can then be reversed with hearing aids (Engineer et al, 2013; Karawani et al, 2022; Martin et al, 2022). Our brain has the incredible ability to strengthen or weaken neural connections based on inputs. This applies to everything we do. Our thoughts, habits, and skills are all products of neuroplasticity and prone to further adaptation. With practice, we can intentionally cause plasticity in our stress physiology (Greenberg, 2017; Kays et al, 2012).

Stress Continuum

The stress continuum (FIGURE 1) is a classification system developed by the Navy and Marine Corps to help individuals recognize when they or others have been injured by stress and may benefit from support or intervention (Nash et al, 2011).

The basic assumption underlying the stress continuum is that acute and chronic responses to stressors lie along a spectrum from wellness and thriving to illness and disability that can change over time. Placing stress responses on a continuum counters the belief that a stress response is dichotomous—either normal or pathological (Nash et al, 2011). The stress continuum model identifies and codifies the spectrum of stress responses through four color-coded stress response zones. The green "ready" zone encompasses adaptive coping and effective/ optimal functioning. This does not suggest the absence of stress, but rather control over the stress response (Litz, 2014; Nash et al, 2011). The yellow "reacting" zone encompasses mild distress and promotes resilience when reactions are reversed. The orange "injured" zone encompasses more severe or persistent distress from wear and tear (burnout), inner conflict, loss, or trauma. Injuries result from stressors that exceed

FIGURE 1. Stress continuum (Nash et al, 2010).

(Green)

DEFINITION

- Optimal functioning
- Adaptive growth
- Wellness

FEATURES

- At one's best
- Well trained and prepared
- In control
- Physically, mentally, and spiritually fit
- Mission focused
- Motivated
- Calm and steady
- Having fun
- Behaving ethically

Leader

Responsibility

REACTING (Yellow)

DEFINITION

- Mild and transient distress or impairment
- Always goes away
- Low risk

CAUSES

Any stressor

FEATURES

- Feeling irritable, anxious, or down
- Loss of motivation
- Loss of focus
- Difficulty sleeping
- Muscle tension or other physical changes
- Not having fun

Individual, Shipmate, Family Responsibility



- More severe and persistent distress
- or impairment
- 200.00000000
- Higher risk

CAUSES

- Life threat
- Loss
- Moral injury
- Wear and tear

FEATURES

- Loss of control
- Panic, rage, or depression
- No longer feeling like normal self
- Excessive guilt, shame, or blame

+.\<u></u>

Red

DEFINITION

- Clinical mental disorder
- Unhealed stress injury causing life impairment

TYPES

- Post-traumatic stress disorder
- Depression
- Anxiety
- Substance abuse

FEATURES

- Symptoms persist and worsen over time
- Severe distress or social or occupational impairment

Caregiver Responsibility

(in intensity or duration) an individual's biological, psychological, social, or spiritual coping capacities. The red "ill" zone includes stress illnesses that do not heal without professional help and include various types of mental health illnesses (Nash et al, 2011).

From molecular level to physiology, pain and stress are intermingled. Pain management interventions aim to improve pain just enough for the patient to regain function so that nonmedical interventions can then be used. If a patient is experiencing pain that is 8 out of 10, improving it to a 5 may allow the patient to personally rehabilitate (FIGURE 2). These same strategies can be used preventively in response to stressors. Using the continuum to promote self-awareness and early

identification will help manage, recover, and refine intervention strategies for stress (Mayer and Stevens, 1994). Duration of stress, intensity, and function are the most important considerations when determining levels of intervention to manage stress and improve function. Moving left on the continuum with the appropriate intervention is always the goal.

Managing Stress

After identifying that we are stressed using the relevant features from the stress continuum, we can now begin to use a system I have devised to return to optimal functioning. The first step is to differentiate the stress response from the stressor, the associated external or internal events causing the response. People often focus efforts on modifying or





eliminating stressors in their lives. It can be very helpful to lay out the stressor or cause of one's stress (e.g., poor work–life balance) and the stress response (e.g., feelings of inadequacy or guilt).

In my experience, separating stress from stressor can allow one to distinguish things that are controllable versus things outside of one's control. For example, communication is always in our control. Depending on the stressor, seeking clarification or explaining what we are experiencing can improve a situation. When communicating with someone who is the stressor, however, it is important to be rational and maintain composure. If you are emotionally responding to stress, withholding communication until emotions settle can prevent saying or doing anything unintended. Outside of communication, acceptance or avoidance of stressors is often the only other thing within our control. We ultimately have two options: accept and optimize within the stressor or avoid it.

Following acceptance, we can allow the passage of time and use of our support systems and coping strategies to improve function. Coping strategies can either add or remove value from our lives. Negative coping strategies, such as binge drinking or substance abuse, will never provide sustainable benefits. Exercise is a culturally accepted, promoted form of coping for good reason. However, if one exercises in excess or uses it to escape controllable solutions to resolve a problem, it can become negative. Setting intention and moderation behind a coping strategy makes it positive rather than negative.

We have the most control over our own stress and, therefore, should develop individual solutions that are most effective in reversing negative impacts of stress. Recommended strategies to manage stress are mainly focused on adjusting perspective. Awareness of our mood promotes rational brain support. Our thoughts have power. Thoughts lead to emotions. Emotions lead to our attitude, words, and actions. Over time, this pattern develops habits, and habits influence our personality and character. Eventually, our habits become our legacy. One's attitude is a decision based on permitted thoughts. Without intention, our subconscious, and often our conscious, thoughts are habitual. With intention, we can transform our thoughts into productive patterns to handle stress and instill beneficial habits over time. Management options include the following.

Challenge Negative Thinking Patterns

To prevent an automatic emotional response to a stressor, challenge your negative thinking pattern (Greenberg, 2017; Neff and Germer, 2017; Neff et al, 2020; Thorn, 2019). What advice would you give a friend in the same situation? Consider it for yourself. Simply considering the advice may shift your perspective and improve an emotional response.

Intentional Breathing

Breathing is a subconscious function of the brainstem, and stress may cause altered breathing. Consciously taking control of our autonomic system with intentional breathing may change a physiological response to stress while promoting the rational brain (Ashhad et al, 2002; Fincham et al, 2023; Grossman and Christensen, 2007; Zelano et al, 2016). Some well-researched intentional breathing strategies are as follows:

- Boxed breathing: cycles of inhaling, holding, exhaling, and holding for the same number of seconds per cycle
- Physiological sigh: cycles of two inhales through the nose following by extended exhale through the mouth
- Nasal breathing

Detach Emotionally

Temporary distractions or breaks from responding to our stress allow the power of time and our parasympathetic nervous system to improve a negative stress response. Tabling concern about a stressor can allow our rational brain to focus on and positively respond to something else before returning to the issue at hand (Kubala and Jennings, 2023; Meredith et al, 2019; Thorn, 2019).

Positive Affirmation

Say a positive affirmation or word to yourself in response to a difficult event or common stressors—"I can do hard things" or "I am resilient" (Cascio et al, 2016; Rasmussen et al, 2006).

Realistic Optimism

For significant events, this strategy requires a habit of using internal optimism and positive thinking patterns in response to stressors (Nes and Segerstrom, 2006; Rasmussen et al, 2006; Strutton and Lumpkin, 1992). For example, the loss of a job can offer opportunity, or breakups may lead to a better understanding of what you are looking for in a partner. This practice is also best honed with less significant or indirect stressors to prepare oneself for inevitable orange zone injury in the future.

Goal Setting

Goal setting gives direction to the immediate and distant future and also is an empowering way to shift perspective (Doerr, 2018; Rasmussen et al, 2006). At the American Academy of Audiology, we have become familiar with objectives and key results (OKRs) as a tool for setting personal and professional goals. OKRs are similar to SMART (Specific, Measurable, Attainable, Realistic, and Time-Sensitive) goals. OKRs add the idea of "stretch" goals, which may not be attainable. With the right perspective, setting optimistic goals provides the opportunity to "fail up" that leads to improvement and healthy perspectives on failure.

Do Not Expect Yourself Out of Others

This is a powerful perspective setter to use whenever your stressor is another person. Personal and professional conflicts often happen due to differences in perspective.



The world would suffer without diversity, and approaching problems from a different perspective potentiates progress. Acceptance that everyone does not think like us is a great way to decrease emotional reactions to conflicts with other people (Robson, 2022).

Practice Empathy

Empathy, or taking on another person's perspective, is an important skill for audiologists. Stressors in the clinical setting along with other life stressors may contribute to professional burnout and lack of empathy. To avoid burnout, consider every encounter as a new opportunity to practice empathy. There is the old adage that you never step in the same river twice because it is no longer the same river, and you are no longer the same person. Everyone has a unique perspective that changes throughout their life and so do you. Practice empathy (Ciaramicoli, 2016; Ciaramicoli and Ketcham, 2000; Riess, 2017).

Most Charitable Interpretation

Using most charitable interpretation in response to stressful events or people is essentially exercising extreme empathy (Brown, 2017; Kennedy, 2022). Intentionally trying to think of the most generous reason a person is behaving a certain way may allow for a lessened emotional response to a stressor. Someone may cut you off on the highway because of ego or it may be a parent who just received a concerning call about a child. Regardless of the reason, using the most charitable interpretation to consider the reasons behind a stressor will decrease the emotional response.

These strategies can be excellent tools to recover from negative effects of stress. They are skills that we can become competent in over time. Noel Burch developed the four stages of the competence model, stating we fall into one of the four stages for all potential skills in life (Adams, 2021):

- Unconsciously incompetent—We do not know what we do not know. We are inept and unaware of it.
- Consciously incompetent—We know what we do not know. We start to learn at this level when awareness of how inept we are shows how much we need to improve.
- 3. Consciously competent—Try the skill out, actively experiment, and practice it. We now know how to do the skill the right way, but we need to think and work hard to do it.
- 4. Unconsciously competent—If we continue to practice and apply the new skills, eventually we arrive at a stage where they become easier and, given time, even natural.

The best way to develop a skill is to practice using it in response to a self-created stressor. Deliberate discomfort causes neuroplasticity to improve resilience over time. Intentionally inducing stress in some capacity, with proper use of coping strategies, trains the mind and body to effectively respond to future stressors. Whether it is a sauna, cold showers, exercise, public speaking, meditation, a difficult conversation you have been putting off, driving in traffic, fasting, dedicated time without technology, or something uniquely beneficial to you that delays gratification, will begin to cause beneficial neuroplasticity in your stress response. Entering a situation that typically causes emotional distress with a prepared, rational mind changes how you respond to adversity. Setting aside time to gradually challenge yourself is both self-care and resilience training that will lead to fulfillment and prevention of stress injuries.

In summary, stressors are inevitable. However, everyone can become more aware of stress and push themselves by practicing intentional stress while utilizing a management strategy to build resilience over time. You cannot be brave without experiencing fear and you cannot be resilient without experiencing stress. §

Lieutenant Commander (LCDR) Kyle H. Shepard, AuD, ABA Certified, is an audiologist for the United States Navy. LCDR Shepard has been a stress management/resilience instructor for the Navy for seven years and ran the stress management program (Caregiver Occupational Stress Control [CgOSC]) for Naval Hospital Guam for two and a half years that became recognized for several best practices and the #1 Navy Medicine CgOSC program at the time.

References

Adams L. (2021) Learning a new skill is easier said than done. Gordon Training International. www.gordontraining.com/freeworkplace-articles/learning-a-new-skill-is-easier-said-than-done (accessed September 24, 2023).

Ashhad S, Kam K, Del Negro CA, Feldman JL. (2002) Breathing rhythm and pattern and their influence on emotion. *Annu Rev Neurosci* 45(1):223–247.

Barczy A. (2022) What is a pain scale? MI Blues Perspectives. https://mibluesperspectives.com/stories/mental-health/how-pain-is-measured (accessed October 13, 2023). Brindley PG, Olusanya S, Wong A, Crowe L, Hawryluck L. (2019) Psychological 'burnout' in healthcare professionals: updating our understanding and not making it worse. *J Intensive Care Soc* 20(4):358–362.

Brown B. (2017) *Rising Strong: How the Ability to Reset Transforms the Way We Live, Love, Parent, and Lead.* New York, NY: Random House Publishing Group.

Cascio CN, O'Donnell MB, Tinney FJ, et al. (2016) Selfaffirmation activates brain systems associated with self-related processing and reward and is reinforced by future orientation. *Soc Cogn Affect Neurosci* 11(4):621–629.

Ciaramicoli AP, Ketcham K. (2000) *The Power of Empathy: A Practical Guide to Creating Intimacy, Self-Understanding, and Lasting Love.* New York, NY: Dutton Adult.

Ciaramicoli AP. (2016) *The Stress Solution: Using Empathy and Cognitive Behavioral Therapy to Reduce Anxiety and Develop Resilience.* Novato, CA: New World Library.

Cleveland Clinic. (2019) What happens to your body during the fight-or-flight response? https://health.clevelandclinic.org/what-happens-to-your-body-during-the-fight-or-flight-response/amp (accessed October 18, 2023).

Costa DK, Moss M. (2018) The cost of caring: emotion, burnout, and psychological distress in critical care clinicians. *Ann Am Thorac Soc* 15(7):787–790.

Delaney E, Gerardi R, Beauchamp M, Tellez G, Ram V. (2023) Promoting resilience and psychological wellbeing of military providers: the Navy Medicine Caregiver Occupational Stress Control (CgOSC) program. *Mil Psychol* 35(3):223–232.

Doerr J. (2018) *Measure What Matters: How Google, Bono, and the Gates Foundation Rock the World with OKRs.* London, England: Portfolio Penguin.

Engineer ND, Moller AR, Kilgard MP. (2013) Directing neural plasticity to understand and treat tinnitus. *Hear Res* 295:58–66.

Fincham G, Strauss C, Montero-Marin J, Cavanagh K. (2023) Effect of breathwork on stress and mental health: a metaanalysis of randomised-controlled trials. *Sci Rep* 13(1):432.

Goleman D. (2005) *Emotional Intelligence*. 10th ed. New York, NY: Bantam Books.

Greenberg M. (2017) *The Stress-Proof Brain: Master Your Emotional Response to Stress Using Mindfulness and Neuroplasticity.* Oakland, CA: New Harbinger Publications.

Grossman D, Christensen L. (2007) *On Combat: The Psychology and Physiology of Deadly Conflict in War and Peace.* 2nd ed. Belleville, IL: PPCT Research Publications.

Karawani H, Jenkins K, Anderson S. (2022) Neural plasticity induced by hearing aid use. *Front Aging Neurosci* 14:884917.

Kays JL, Hurley RA, Taber KH. (2012) The dynamic brain: neuroplasticity and mental health. *J Neuropsychiatry Clin Neurosci* 24(2):118–124.

Kennedy B. (2022) *Good Inside: A Guide to Becoming the Parent You Want to Be.* New York, NY: HarperCollins.

Kubala J, Jennings KA. (2023) 16 simple ways to relieve stress. *Healthline* (July 12). www.healthline.com/nutrition/16-ways-relieve-stress-anxiety (accessed November 3, 2023).

Litz BT. (2014) Resilience in the aftermath of war trauma: a critical review and commentary. *Interface Focus* 4(5):20140008.

Martin KC, Ketchabaw WT, Turkeltaub PE. (2022) Plasticity of the language system in children and adults. *Handb Clin Neurol* 184:397–414.

Maslach C, Schaufeli WB. (1993) Historical and conceptual development of burnout. In: *Professional Burnout: Recent Developments in Theory and Research*. London, England: Routledge, 1–16.

Mateos-Aparicio P, Rodríguez-Moreno A. (2019) The impact of studying brain plasticity. *Front Cell Neurosci* 13:66.

Mayer JD, Stevens AA. (1994) An emerging understanding of the reflective (meta-) experience of mood. *J Res Pers* 28(3):351–373.

Meredith GR, Rakow DA, Eldemire ER, Madsen CG, Shelley SP, Sachs NA. (2019) Minimum time dose in nature to positively impact the mental health of college-aged students, and how to measure it: a scoping review. *Front Psychol* 10:2942.

Nash W, Westphal R, Watson P, Litz B. (2010) *Combat and Operational Stress First Aid: Caregiver Training Manual.* Washington, DC: U.S. Navy, Bureau of Medicine and Surgery. Nash WP, Steenkamp M, Conoscenti L, Litz BT. (2011) The stress continuum model: a military organizational approach to resilience and recovery. In: *Resilience and Mental Health: Challenges Across the Lifespan*. Cambridge, England: Cambridge University Press.

Neff KD, Germer C. (2017) Self-compassion and psychological wellbeing. In: *The Oxford Handbook of Compassion Science*. Oxford, England: Oxford University Press.

Neff KD, Knox MC, Long P, Gregory K. (2020) Caring for others without losing yourself: an adaptation of the Mindful Self-Compassion Program for Healthcare Communities. *J Clin Psychol* 76(9):1543–1562.

Nes LS, Segerstrom SC. (2006) Dispositional optimism and coping: a meta-analytic review. *Pers Soc Psychol Rev* 10(3):235–251.

Rasmussen HN, Wrosch C, Scheier MF, Carver CS. (2006) Selfregulation processes and health: the importance of optimism and goal adjustment. *J Pers* 74(6):1721–1747.

Reith TP. (2018) Burnout in United States healthcare professionals: a narrative review. *Cureus* 10(12):e3681.

Riess H. (2017) The science of empathy. *J Patient Exp* 4(2):74–77.

Robson D. (2022) *The Expectation Effect: How Your Mindset Can Change Your World.* New York, NY: Henry Holt and Company.

Salovey P, Brackett MA, Mayer JD. (2004) *Emotional Intelligence: Key Readings on the Mayer and Salovey Model.* Lake Worth, FL: National Professional Resources.

Strutton D, Lumpkin J. (1992) Relationship between optimism and coping strategies in the work environment. *Psychol Rep* 71(3):1179–1186.

Thorn B. (2019) 11 healthy ways to handle life's stressors. American Psychological Association. www.apa.org/topics/ stress/tips (accessed November 3, 2023).

Zelano C, Jiang H, Zhou G, et al. (2016) Nasal respiration entrains human limbic oscillations and modulates cognitive function. *J Neurosci* 36(49):12448–12467.

Evolving Industry: Pediatric Audiologists to Stay on the Forefront of Research, Best Practices

By Jace Wolfe

THE FIELD OF AUDIOLOGY CONTINUES TO EVOLVE and expand, with employment of audiologists projected to grow 11 percent in the next decade—much faster than the average for all occupations.¹ As such, there is a greater need to elevate the standard of pediatric audiology protocols and care to achieve optimal listening and spoken language (LSL) outcomes for children with hearing loss.

To stay on the forefront of innovation, professionals need to future-proof their practice and take it to the next level as a new collaborative standard of care emerges in the industry. For pediatric audiologists, it's simply not an option to fall behind on the latest research, best practices, and evidence-based protocols yet many simply don't have the time to dive into the peer-reviewed journals or travel to in-person conferences.

In the past, online learning presented more barriers than solutions with high costs, time-consuming courses, or outdated information. Hearing First has removed these barriers with its 2024 course catalog (HearingFirst.org/Catalog).

The evidence-based courses are tailored for the busy pediatric audiologist, focusing on the most relevant clinical topics at an intermediate to advanced learning level. Led by world-renowned pediatric hearing-health-care experts, learning is offered at no cost with continuing education credits available for the American Academy of Audiology, the American Speech-Language-Hearing Association, and AG Bell.

¹ Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Audiologists, at www.bls.gov/ooh/healthcare/ audiologists.htm.

CONTENT PROVIDED BY HEARING FIRST.

Jace Wolfe, PhD, is the senior vice president of innovation, at the Oberkotter Foundation and Hearing First.

Advance Your Career

The ABA is offering the certification exam **May 6–20, 2024,** through web access with live remote proctoring.

Pediatric Audiology Specialty Certification (PASC) Exam

- Demonstrate to colleagues, patients, and employers that you have a high level of knowledge and expertise.
- Add distinction to your career accomplishments.

Applications due **March 12, 2024**. Exam Registrations due **April 9, 2024**.

Visit www.audiology.org/americanboard-of-audiology to find out more.



CODING AND REIMBURSEMENT



Introduction to New Auditory Osseointegrated Device Codes for 2024

By Anna Marie Jilla and Alison Morrison

n January 1, 2024, audiologists will have two new Current Procedural Terminology (CPT) codes to report for services related to the activation, fitting, programming, and verification of auditory osseointegrated devices (AODs). AODs are the U.S. Food and Drug Administration– approved bone conduction devices and can be indicated for individuals with conductive or mixed hearing losses or for single-sided deafness of sensorineural type. AODs can also come in various forms (e.g., surgical, nonsurgical, percutaneous, transcutaneous, etc.). The objective of this article is to offer

insights to inform use of these new procedure codes by audiologists.

New Service and Procedure Codes

Effective January 1, 2024, audiologists will have two new CPT codes that can be used to report services or procedures related to the activation, fitting, programming, and verification of AODs (TABLE 1). Previously, AOD-related services were typically reported using the unspecified code: 92700—unlisted otorhinolaryngological procedure. With these new codes, 92700

CODING AND REIMBURSEMENT

TABLE 1. New Auditory Osseointegrated Device Service and Procedure Codes (Effective January 1, 2024)

CPT CODE	DESCRIPTOR	
92622	Diagnostic analysis, programming, and verification of an auditory osseointegrated sound proces- sor, any type; first 60 minutes	
92623	Diagnostic analysis, programming, and verification of an auditory osseointegrated sound proces- sor, any type; each additional 15 minutes	
NOTES : Report each 15-minute increment in 92623 separately. Code 92623 is an add-on code and must be reported in conjunction with the base service code (92622).		
Do not report 92622, 92623 in conjunction with 92626, 92627.		
For diagnostic analysis of cochlear implant, with programming or subsequent reprogramming, see 92601, 92602, 92603, 92604.		
For evaluation of auditory function for surgically implanted device(s) candidacy or postoperative status of a surgi- cally implanted device(s), use 92626.		

For aural rehabilitation services following auditory osseointegrated implant, see 92630, 92633.

should no longer be used to report the AOD-related services.

Frequently Asked Questions

What Types of Services Are Included in the Description of These Codes?

Professional work involved in CPT codes 92622 and 92623 encompasses the activation, fitting, programming, and

verification of AODs (American Medical Association, 2023a, 2023b), including inputting of audiometric values and data into programming software, connection of the devices for



programming, physical fitting of the device securely to the skull, and in situ measurement or other verification and validation procedures. Codes 92622 and 92623 should not be billed in conjunction with 92626 or 92627.

Can These Codes Be Used for Both Surgical and Nonsurgical AODs? Can These Codes Be Used for Both Percutaneous and Transcutaneous Surgical AODs?

Yes. The code descriptor specifies that these codes can be used to report AOD services and procedures for "any type" of AOD device.

Do I Need to Use a Modifier if I Am Only Fitting or Programming One AOD Monaurally?

Codes 92622 and 92623 are timed codes. Generally, it is not customary to use the

CODING AND REIMBURSEMENT

-52 (Reduced Services) with timed codes. Therefore, these codes (92622 and 92623) do not require differential reporting when performed either monaurally or binaurally because this is accounted for in the timed component.

Is There a Minimum Amount of Time I Need to Spend Providing Services in Order to Report 92622?

Codes 92622 and 92623 are time-based codes. For reporting the 92622 code (first 60 minutes), audiologists will need to perform related procedures and/or services for a minimum of 31 minutes to report this code. Generally, the -52 Reduced Services modifier is not recommended for use with 92622 if evaluations or procedures last less than 31 minutes. For assessment or services lasting longer than 60 minutes, 92623 is used for each additional 15-minute increment thereafter. It is inappropriate to bill 92623 (add-on code) in isolation without the use of 92622 (base code).

Are There Any Additional Documentation Requirements for Timed Codes?

Providers should include documentation of start and stop times in the patient's medical record. Start and stop times should reflect when providers are active in the services or procedures outlined in the description. Note that counseling is not included as part of the work of this code. Time spent in counseling should not be included in time spent in procedure. § 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.

Alison Morrison, AuD, is a clinical associate professor and audiology clinic coordinator at the University of Georgia in Athens, Georgia.

CPT codes, descriptions, and other data are Copyright 1966, 1970, 1973, 1977, 1981, 1983– 2024 American Medical Association. All rights reserved. CPT© is a registered trademark of the American Medical Association.

DISCLAIMER

The information provided in this article by the American Academy of Audiology Coding and Reimbursement Committee is to provide general information and educational guidance to audiologists. Action taken with respect to the information provided is an individual choice. The American Academy of Audiology hereby disclaims any responsibility for the consequences of any action(s) taken by any individual(s) as a result of using the information provided, and the reader agrees not to take action against, or seek to hold, or hold liable, the American Academy of Audiology for the reader's use of the information provided. As used herein, the "American Academy of Audiology" shall be defined to include the Academy's directors, officers, employees, volunteers, members, and agents.

References

American Medical Association. (2023a) CPT Assistant (November). Chicago, IL: American Medical Association Press.

American Medical Association. (2023b) CPT 2023 Professional Edition (October). Chicago, IL: American Medical Association Press. ACADEMY NEWS

Expanding Ethical Spaces: Frequently Asked Questions

By Melissa Ferrello

AMERICAN ACADEMY OF AUDIOLOGY

> he Ethical Practices Committee (EPC) of the American Academy of Audiology (Academy) educates members on the Code of Ethics and its real-world applications. The EPC updates the code and supporting guidelines as needed.

> The EPC created a "Frequently Asked Questions" (FAQs) section (2023) to help members and consumers navigate both ethics and the process for filing complaints or inquiries. It is available on the Ethics section of the Academy website. This section is separated into sections including EPC Process, Business Practice, Supervision and Mentorship, Credentials and Labeling, and Telehealth. This article aims to highlight several of the FAQs and to review what the EPC can offer members.

What Is the Difference Between an Ethics Inquiry and an Ethics Complaint?

An inquiry is a question from an Academy member about an ethical behavior, not an actual complaint against another Academy member.

A complaint is an allegation lodged against an Academy member for possible noncompliance with the Academy's Code of Ethics.

The EPC welcomes both inquiries and complaints. Inquiries can be questions submitted in generalities or about a specific situation. Oftentimes, these are from members confirming best practices on ethical issues, anywhere from guiding through industry relationships, working with students in clinical practice, or questions about ethics in billing.

The EPC works with the Coding and Reimbursement Committee (CRC) when ethical questions regarding billing or coding arise. A complaint is an allegation made against a member the reporter believes to have violated one of the principles in the Academy Code of Ethics. These inquiries remain anonymous outside of relevant parties who are required to sign waivers of



confidentiality to facilitate working through the complaint. Members are required (under Principle 8, Rule 8c) to inform the EPC if they are aware of anyone violating the Academy Code of Ethics.

Does Attending a Dinner with a Manufacturer Who Pays for All Food and Drinks Cross Any Ethical Lines, Even if There Was Discussion Regarding Their Products?

Social aspects of the Academy's Annual Conference and similar conferences are meant to facilitate discussion among members and serve professional interest.

Sponsored activities, such as after-hours dinners or parties, can create educational and networking opportunities, but should be experienced with no overt or covert feelings of obligation. Conflicts of interest are defined as "incentives that cause, or can appear to cause, a loss of independent judgment, a loss of impartiality, or a loss of objectivity."

Sponsored events that are private or "invitation only" should be avoided. Events that are open to all attendees, held in typical convention or seminar locations, and which are not extravagant, would be acceptable to attend. See the "American Academy of Audiology Ethical Practice Guideline for Relationships with Industry for Audiologists Providing Clinical Care" (September 2017). Members should also refer to their employer's guidelines.

One of the more frequent inquiry topics to the EPC is regarding relationships with industry. It can feel like a gray area, and guidance has changed through the years and after research on topics such as acceptance of gifts (Katz and Merz, 2010). Despite most recipients having pure intentions, studies show the appearance of gift acceptance can be perceived as a bias toward those that bestowed the gift. Generally, all that should be allowed are provisions for necessary and reasonable meals and travel associated with legitimate and necessary product educational/training experiences (which are not technically considered gifts).

Are There Any Ethical Issues in How You Address Your Credentialing in Marketing and Correspondence, Including "Double Doctoring" in Ads (e.g., Dr. Jane Doe, AuD)?

The main consideration is transparency to avoid misleading the consumer of an individual's qualifications. Consumers should be able to recognize what your "Dr." title and degree mean. See Federal Trade Commission (FTC) Guides (2023) and the Academy's "Position Statement on Use of the Term 'Doctor' in Advertising," as well as your state's laws and regulations, which may be more restrictive.

The Committee understands the need for marketing place of practice. In all things, members must use transparency and good judgement with patients and consumers. Parts of Principle 6 of the Code of Ethics



apply in these cases, including: "Members shall comply with the ethical standards of the Academy with regard to public statements or publication."

Conclusion

These are just a few of the FAQs the Committee has posted to the Academy website. There are also some coming attractions from your EPC. First, a working group within the EPC is completing significant updates to the "American Academy of Audiology Ethical Practice Guideline for Relationships with Industry for Audiologists Providing Clinical Care," last updated in September 2017. This guideline includes recommendations on acceptance of gifts, conflicts of interest, and consulting relationships, among other topics. This will be available to members in the coming months.

Please join us for this year's AAA 2024+HearTECH Expo Featured Session in Atlanta, presented by members of the EPC. Topics will include ethics of referrals for implantable hearing technologies, ethics of social media, and gold standards in areas such as real-ear measurements and hearing device fittings.

It is the responsibility of each audiologist to keep ethics and professionalism in the forefront of mind in every interaction. When in doubt, ask for advice.

Members of the Academy can always reach out to the EPC at ethics@audiology. org. It can be a simple question or query and does not have to be a formal complaint to elicit a response from the EPC. The EPC looks forward to hearing from you. **9** Melissa Ferrello, AuD, is an audiologist at Children's Hospital of Philadelphia, with practice in pediatric audiology for nearly 20 years. She serves as chair of the Academy's Accessibility Task Force, is the immediate past chair of the Ethical Practices Committee, and serves on several committees/subcommittees within the American Academy of Audiology. Her areas of clinical interest include cochlear implants, hearing device technologies, and electrophysiologic evaluations.

References and Resources

American Academy of Audiology. (2017) American Academy of Audiology ethical practice guideline for relationships with industry for audiologists providing clinical care. www.audiology. org/wp-content/uploads/2021/06/2017_09-Revised-Guideline_ CURRENT.pdf (accessed November 2, 2023).

American Academy of Audiology. (2022) Position statement on use of the term "doctor" in advertising. www.audiology.org/ practice-guideline/position-statement-on-the-use-of-the-termdoctor-in-advertising (accessed November 2, 2023).

American Academy of Audiology. (2023) Code of Ethics of the American Academy of Audiology. www.audiology.org/ wp-content/uploads/2023/05/AAA-Code-of-Ethics-and-Non-Compliance-Procedures-2023-04-1.pdf (accessed November 2, 2023).

American Academy of Audiology. (2023) Ethics FAQs. www. audiology.org/wp-content/uploads/2023/11/Ethics-Committee-Approved-FAQs-4.2023.pdf (accessed November 2, 2023).

American Academy of Audiology. (2023) Ethics: Professional Standards. www.audiology.org/about/academy-membership/ ethics-2/ (accessed November 2, 2023).

Federal Trade Commission. (2023) Advertising and marketing. www.ftc.gov/business-guidance/advertising-marketing (accessed November 2, 2023).

Hamil, T, Abel D, Fleisher C, Freeman B, et al. (2012) *Ethics in Audiology: Guidelines for Ethical Conduct in Clinical, Education, and Research Settings.* Reston, VA: American Academy of Audiology.

Katz D, Caplan AL, Merz JF. (2010) All gifts large and small: toward an understanding of the ethics of pharmaceutical industry gift-giving. *Am J Bioethics* 10(10):11–17.



AUDIOLOGY ADVOCATE

Making Connections and Effective Messaging to Ensure the Future of the Profession

By Susan Pilch

o ensure the continued success and future growth of the profession, it is critical that audiologists are aware of legislative and regulatory issues that may be impeding day-to-day practice and are wellversed in potential "fixes" or solutions that may be employed and are being advanced by the professional association to remove barriers. It is equally as important that audiology advocates have the requisite know-how in advocacy skills and effective messaging.

Making Connections

The first step to effective advocacy is to identify your elected representatives. An easy tool to use is to access https://myreps. datamade.us and enter your zip code. The tool will identify the representative and senators who represent you in Congress, as well as your state-level representatives. This article focuses on congressional outreach and messaging. There are many ways to connect with your members of Congress (MOCs):

- Access the American Academy of Audiology Legislative Action Center.
 Enter your zip code and follow the prompts to send a personalized message to your MOCs.
- Call Congress! Dial 866-272-6622 to connect with the Capitol Switchboard. They can connect you to the office, and you can leave a message.

AMERICAN ACADEMY OF-AUDIOLOGY

> Send an e-mail. Find the dedicated website for your representative and senators. There is a section on each website to leave a message.

You can also set up a virtual or in-person meeting. When you call or email the office, identify yourself as a constituent and request a virtual meeting with the health staffer. You can also set up a meeting with the MOCs in their district office. The dedicated website for each MOC includes a listing and phone number for their district offices.

The United States Congress takes breaks called recesses when senators and representatives leave Washington, DC, to spend time in their home district. Schedule a meeting during one of these times or invite your MOC to your audiology workplace! The House of Representatives recess schedule can be found at www.house.gov/legislative-activity, and the Senate recess schedule can be found at www.senate.gov.

Effective Messaging

When speaking or communicating with an MOC or a staffer, it is important to speak as both a constituent and an audiologist. As a constituent, frame your argument or position around how your position or "ask" would benefit patients and providers in your state/district. As an audiologist, explain how improving access to audiology care/ hearing-health care would have measurable effects on both overall health and mental health.

Advocacy is personal, and stories and anecdotes help break down policy issues and make them relatable. For example, when advocating for the Medicare Audiology Access Improvement Act, you may want to include an anecdote about the barriers your Medicare patients encounter when trying to access the services of an audiologist. It is important to explain not only how the legislation would benefit audiology but also how the legislation would assist all the people in the MOC's district.

At the end of any meeting or conversation, offer to serve as an issue expert on hearing-health care. Thus, you are not just "asking" or "requesting" but establishing a two-way relationship with the office. Finally, after any meeting or conversation, follow up with supporting materials, such as an issue brief or summary of the topics of discussion.

Advocate for the Medicare Audiology Access Improvement Act

All audiology advocates are needed to amplify and highlight the Medicare Audiology Access Improvement Act. This legislation would reclassify audiologists as "practitioners" in Medicare, remove the physician referral requirement, and allow audiologists to provide covered audiology treatment services. This legislation would also add audiologists as "practitioners" to Federally Qualified Health Center and rural health clinics. To push this critical legislation across the finish line, audiologists need to take action to advance the profession and improve patient access to care. **\$**

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



Congratulations to the 2023 Jerry Northern Scholarship Winners

merican Academy of Audiology's Foundation is pleased to announce the recipients of the 2023 Jerry Northern Scholarships in Pediatric Audiology, awarded to students who show exceptional promise as clinical audiologists with a focus on the specialty of pediatric audiology.

I am so proud and pleased with this opportunity to support audiology pediatric-oriented students. This scholarship program has been a great way to give back to the profession that has done so much for me. Working with the AAA Foundation has been effortless, enjoyable, and mutually rewarding, and I hope the success of this program will inspire others to become Foundation benefactors.

—Jerry Northern, Academy Founder

The recipients each received a \$10,000 scholarship and a \$500 travel stipend to attend the Academy's annual conference. We look forward to acknowledging these outstanding students at AAA 2024+HearTECH Expo in Atlanta, Georgia.



2023 SCHOLARSHIP RECIPIENT Rebecca Hales James Madison University



2023 SCHOLARSHIP RECIPIENT Haily Kingsbury University of Iowa



2023 SCHOLARSHIP RECIPIENT Aimee Miller University of Florida

The AAA Foundation will accept applications for the 2024 Jerry Northern Scholarships in Pediatric Audiology for the 2024–2025 academic year beginning January 2024. Applications are due April 30, 2024. @



Congratulations to the 2023 Empowering Students Scholarship Winners

ith its vision to support advancements in hearing and balance science that enhance the experiences of life, the AAA Foundation is committed to supporting audiology doctoral students as they continue their academic careers, learn exceptional clinical skills, and explore contemporary avenues of research.

To support the students, the AAA Foundation offers a variety of scholarship programs each year and is thrilled to announce the recipients of the 2023 Empowering Students Scholarship Program.

Oticon, Inc. (Oticon Hearing Foundation) is proud to partner with the American Academy of Audiology Foundation Empowering Students Scholarship Program.

Joining with the Foundation to support the success of Black audiology graduate

students is an important step to creating a profession that draws on the strengths of all segments of our population. A more inclusive and diverse profession brings a broader perspective to hearing-health care that improves our ability to provide life-changing benefits to patients from all backgrounds.

The Empowering Students Scholarship Program, generously sponsored by Oticon Hearing Foundation, provides six \$5,000 scholarships to students who show exceptional promise as clinical audiologists. Oticon, Inc. designates up to \$20,000 of





the available funds for Black/African American students.



2023 SCHOLARSHIP RECIPIENT Lily Arnpriester Arizona State University



2023 SCHOLARSHIP RECIPIENT Aailyah Gladney Illinois State University



2023 SCHOLARSHIP RECIPIENT Susan Ihekweme University of North Texas



2023 SCHOLARSHIP RECIPIENT Analisa Johnson University of the Pacific



2023 SCHOLARSHIP RECIPIENT Eric Mitchell University of Minnesota—Twin Cities



2023 SCHOLARSHIP RECIPIENT Amanda Tolen University of North Carolina—Chapel Hill

The AAA Foundation will accept applications for the Empowering Students Scholarships for the 2024–2025 academic year beginning January 2024. Applications are due April 30, 2024. ©







NOW Accepting Applications!

New Investigator Grant Up to **\$20,000**

DUE DATE: February 15, 2024.

NOTE: Priority will be given to grant proposals for research to provide evidence on the value of hearing screening or about patient safety and direct access to audiology services, as well as reflect an academic-clinical research partnership.

Student Investigator Grants Vestibular and Balance Science SPONSORED IN PART BY THE American Institute of Balance

Up to **\$5,000**

DUE DATE: March 15, 2024.

KEYWORDS: RESEARCH GRANTS

www.audiology.org



GUIDELINES UPDATE

Academy Clinical Practice Guidelines and Strategic Documents: Ways to Get Involved

By Angela Shoup

s shared in the July/August issue of Audiology Today, the Guidelines and Strategic Documents Committee (GSDC) is busy updating the infrastructure and resources for producing evidence-based clinical practice guidelines and strategic documents that meet the current expectations of rigor in document development.

Although members of the GSDC work to support document development, broader member engagement is necessary to ensure that subject-matter expert contributions and stakeholder perspectives are included. Member involvement is critical in the development of these documents, and there are many opportunities to participate.

Some members choose to lend their time and expertise by serving on a writing group charged with developing a specific document. For those who may not choose to serve on a writing group, there are other critical ways that member volunteers can participate in the process and provide invaluable input.

See TABLE 1 for examples of opportunities for participation in development of these critical documents tailored for a variety of schedules and levels of expertise. I challenge

TABLE 1. Find a Level of Commitment That Works for You						
5 minutes	2 weeks	30 days	18–22 months			

you to identify ways that work for you to be part of advancing the field of audiology and impacting clinical practice.

Topic Nomination

Have you identified a need for guidance on an area of practice? Anyone can submit a document topic for consideration at the Academy's website (www.audiology.org/practice-resources/ practice-guidelines-andstandards/clinical-document-development-and-methodology).

When developing documents to support clinical practice, there are a variety of potential types to consider.

Clinical practice guidelines are appropriate for topics where there is a wealth of evidence to be evaluated to support generation of clinically appropriate evidence-based recommendations. Where there is less available evidence, but guidance is critically needed, a clinical consensus statement may be developed. For these documents,

FIGURE 1. Volunteer with the GSDC to set the standard of hearing and balance health care as noted in the Academy Member Value Proposition.

AMERICAN ACADEMY OF-

AUDIOLOGY



Setting the Standard for Hearing and Balance Health Care

The American Academy of Audiology serves as the collective voice of audiology. We are committed to advancing the science, practice, and accessibility of hearing and balance health care for our patients.

We do this by:

Uniting across the audiologic specialties;

- Building relationships that advance optimal practice;
- Providing world-class educational opportunities;
- Advocating for our profession and those we serve; and
- Supporting the growth of our profession through research and academic initiatives.

The Academy is the home for all current and future audiologists. We are comprised of members from diverse backgrounds with wide-ranging practice focuses who work in a variety of settings across the globe.

As a membership-driven organization, the Academy's values, priorities, and initiatives are determined by members. Audiologists shape the Academy's legislative agenda, educational offerings, program features, and direction. Audiologists determine how the Academy works to optimize care for patients. We are the world's largest organization of, by, and for audiologists.

Why JOIN the American Academy of Audiology?

MAKE AN IMPACT



audiology and advocate for your profession and your patients through legislative initiatives, public awareness and outreach programs. We can accomplish much more together than any of us can accomplish alone

Join the collective voice of

SECURE THE FUTURE

Stay on the cutting edge by supporting innovative research initiatives. Ensure that audiologists write the next chapter for our profession through development of

academic and professional guidelines and standards. Support patient access to care and the future of clinical practice by influencing payment policies.

EXCEL IN YOUR PROFESSION



Move yourself and the field forward through continuin educational offerings, skills development, research publications, practice management guidance, grants, and scholarships. Advance your career through mentorship, specialty certification, volunteer opportunities, and leadership training.

10.26.21

identified experts are assembled who combine available research evidence and clinical expertise to reach a consensus on mutually agreed upon foundations to guide practice. See our website for a complete listing of document types and descriptions.

Submit your recommendations for topics that need to be addressed at the Academy website on the Clinical Document Topic Nomination Form (www.audiology.org/practice-resources/ practice-guidelines-and-standards/clinical-document-development-and-methodology/ guidance-for-document-topic-selection-and-prioritization).

Nominated topics are assessed by the GSDC under guidance from the Academy Board of Directors and prioritized based on several factors, including available resources, volunteers, and timeliness.

Peer Review

AMERICAN ACADEMY OF AUDIOLOGY

> Once a draft document has been developed, the manuscript undergoes select peer review by subject-matter experts for feedback and comments. The select peer review occurs over a specified time frame, typically 30 days. Reviewers submit comments on the content and clinical applicability for consideration by the authors. Due to the short time frame, select peer review provides an opportunity for participants to provide their expertise in a concentrated, limited time commitment.

Public Comment

After select peer review by subject-matter experts, to ensure documents receive broad stakeholder input, clinical documents are released for public comment, generally for a period of 30 days. During this time, stakeholders are invited to review the draft manuscript before publication and provide feedback and comments. The comments are then reviewed by the authors and considered in final edits of the manuscript. This critical period is a way to create transparency in the process and ensure that diverse stakeholder perspectives, including consumers, are incorporated.

Authorship

The most direct participation in document development is authorship through serving as a member of a writing group. Participating on a document writing group is a larger time commitment but offers a valuable opportunity to share your expertise and contribute to the advancement of the field of audiology. Documents developed by Academy writing groups are used by clinicians, patients, regulatory groups, payers, and policy makers to inform hearing and balance care.

The Academy, the Board of Directors, and the Guidelines and Strategic Documents Committee invite you to be part of setting the standard for hearing and balance health care. Join us to make an impact, secure the future, and excel in your profession.

Angela Shoup, PhD, is the executive director of the Callier Center for Communication Disorders and a professor in the Department of Speech, Language, and Hearing, School of Behavioral and Brain Sciences at The University of Texas at Dallas. She is a clinical professor of Otolaryngology at the University of Texas Southwestern Medical Center. She served as president of the American Academy of Audiology and is the chair of the Academy's Guidelines and Strategic Documents Committee. Z

these Corporate Partners helps make the Academy's many initiatives possible. Please consider supporting the companies that are supporting your professional association.

life-changing technology

ReSound GN

The generous support from

AMERICAN ACADEMY OF AUDIOLOGY

SILVER

ΡΗϿΝΑΚ

Starkey

Hear better. Live better.

life is on

GOLD

HAMILEN CAPTEL

(HPSO

(**)** Interacoustics

SHOEB

JIgnia

Gsycle

SOUND LIKE NO OTHER

ACADEMY PARTICIPANTS SUPPORT OUR PROFESSION

The Academy's Loyalty Media Programs offer organizations the opportunity to connect with Academy members and the audiology community.

You can find participants featured here in *Audiology Today* magazine, on our website (www.audiology.org), and at Academy events. Consider supporting the companies that support your association.

Current Loyalty Media Program companies include:

audiologyonline









For more information about the program, contact Eric Gershowitz at eric.gershowitz@wearemci.com.

Advertiser Index

AudiologyOnline www.AudiologyOnline.com	2
Auditec, Inc. www.auditec.com	30
Hearing First Hearingfirst.org/catalog	52
Oticon, Inc. www.oticon.com	C3
Otodynamics www.otodynamics.com	9
Prestige Consumer Healthcare www.debrox.com	5
Ultratec CapTel www.captel.com	7

Academy Products and Services Index

AAA 2024+HearTECH Expo Registration www.aaaconference.org	C2, 1
AAA 2024+HearTECH Expo Marion Downs Lecture in Pediatric Audiology www.aaaconference.org	29
AAAF Jerry Northen Scholarship in Pediatric Audiology www.audiologyfoundation.org	19
ABA Pediatric Certificate Exam www.boardofaudiology.org	52
Audiology Community www.audiology.org	31
Corporate Partners www.audiology.org	67
HearCareers.org www.hearcareers.org	41
Membership Renewals www.audiology.org	C4
Research Grants in Hearing and Balance www.audiologyfoundation.org	63
Student Academy of Audiology Conference www.studentacademyofaudiology.org	20

Our commitment is to you, your patients and the future of hearing care!

We focus on the most valuable component of hearing care, you!

At Oticon we believe hearing care professionals are the most essential element for successful outcomes. You, and only you, have the expertise to tailor the best possible solution for each patient.

That's why we're committed to helping your practice and patients thrive by pushing boundaries in:



Partnership Dedicated to ensuring your practice and patient success



Products & Innovation Leading the industry forward by breaking conventions and constantly launching life-changing products



Thought leadership

Freedom to think unlimited thoughts that drive our research and improve the future of hearing care

For more details contact your Oticon Account Manager 800.526.3921 or visit oticon.com/professionals





RENEW your Academy membership today and stay connected to YOUR professional home!

AMERICAN ACADEMY OF AUDIOLOGY

VISIT www.audiology.org/renewals