NHCA 9 ANNUAL CONFERENCE

FEBRUARY 8-10, 2024

MARRIOTT ALBUQUERQUE | ALBUQUERQUE, NM

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Spectrum is a publication of the National Hearing Conservation Association (NHCA), P.O. Box 3406, Englewood, Colorado 80155, which is published 3 times yearly around May, August and October. A Spectrum Supplement is provided prior to each year's Annual NHCA Conference. The information contained herein is designed to promote action and discussion among members. The information has been obtained from sources believed reliable, and the editors have exercised reasonable care to ensure its accuracy. However, the NHCA does not guarantee that the contents of this publication are correct and statements published do not necessarily reflect the opinion or official position of the NHCA.

Spectrum is available without charge to NHCA members in all categories. Anyone interested in publishing in Spectrum should contact Ashley Montoya at the NHCA office.

NHCA provides leadership, expertise, and education on hearing loss prevention strategies and services to the broader professional community and empowers and supports members through networking and advocacy.

NHCA
HEAR FOR A LIFETIME

The National Hearing Conservation Association

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Welcome to Albuquerque! We are thrilled to have you as part of the 2024 NHCA Annual Conference.

Thank you to our exceptional Program Committee, under the direction of Bill Murphy, Laura Kauth, and Amy Blank, whose commitment to excellence has resulted in a diverse and thought-provoking conference program. Their dedication to curating a program that reflects the latest advancements, best practices, and innovative solutions in hearing health is truly commendable. This conference is a testament to their hard work and passion for advancing the field.

Throughout the conference, I encourage you to take full advantage of the networking opportunities, engage in meaningful discussions, and explore the wealth of knowledge that our presenters and exhibitors have to offer. I am confident that your participation will contribute to the success of this event and further strengthen the bonds within our hearing conservation community.

The NHCA would like to extend our heartfelt gratitude to our sponsors whose generosity has made this event possible. Their support enables us to create a platform for collaboration, knowledge exchange, and professional development. We are fortunate to have partners who share our commitment to the advancement of hearing health.

Get ready for some great vibes, knowledge bombs, and connections.

Let's make this conference one for the books!

Rachel Bouserhal
NHCA President

NHCA
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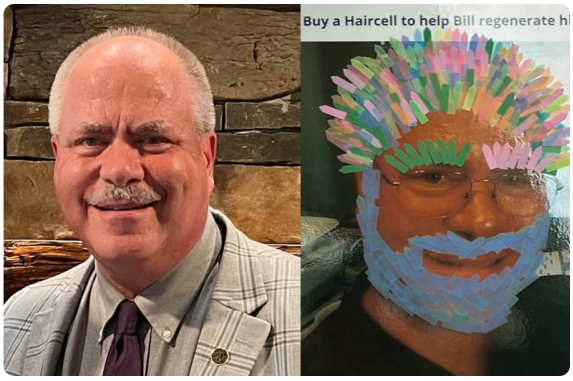
MARRIOTT ALBUQUERQUE | ALBUQUERQUE, NM



Twas the week before Conference and all through the house, not a creature was stirring, not even a mouse… A mouse you ask? That ain't right! My mouse and keyboard have been going nonstop for the past few months. If you don't already know me, I am Bill Murphy, or that guy with Sticky-notes all over his portrait at the last NHCA conference. I will be around the conference wearing one of the snazzy NHCA polo shirts.

On Thursday, we have several workshops. Dick Danielson has assembled a group of presenters to provide an all-day workshop on Hearing Conservation – The Basics and Beyond! Kathy Gates and colleagues from around the world (Canada, New Hampshire, South Africa) are going to provide us with the latest information about boothless audiometry. Laurie Wells and Cameron Fackler will be hosting an Adventure on a World Tour of Hearing Conservation Standards and Regulations. "Visiting" other countries and learning from their approaches to hearing loss prevention can help you create more effective programs for your employees. Since last year's conference the U.S. Department of Defense has published a modification to Instruction for Hearing Conservation, 6055.12. For the first time, hearing protection fit testing (HPFT) is included for service members and employees that have high levels of noise exposure (>95 dBA time-weighted average) or who have suffered a standard threshold shift. Major Kerri Klingseis and colleagues will present about fit testing within the DoD. Who doesn't want to learn about giving effective presentations? Don Finan and Elliott Berger are giving a half-day workshop about "The Art of Presentation."

Thursday evening will reprise the sponsor Meet & Greet. Play the sponsor Bingo and meet those companies that invest in NHCA's mission. Afterwards, join us for the first-ever NHCA film screening of, "The Quietest Year 2021." Director and producer, Karen Akins, will be joining us after the meet and greet reception with our sponsors. The film is about the issue of community noise and how what might seem like an idyllic setting, in rural Vermont, has been affected by noise. The planning committee has previewed the film and it is impactful.

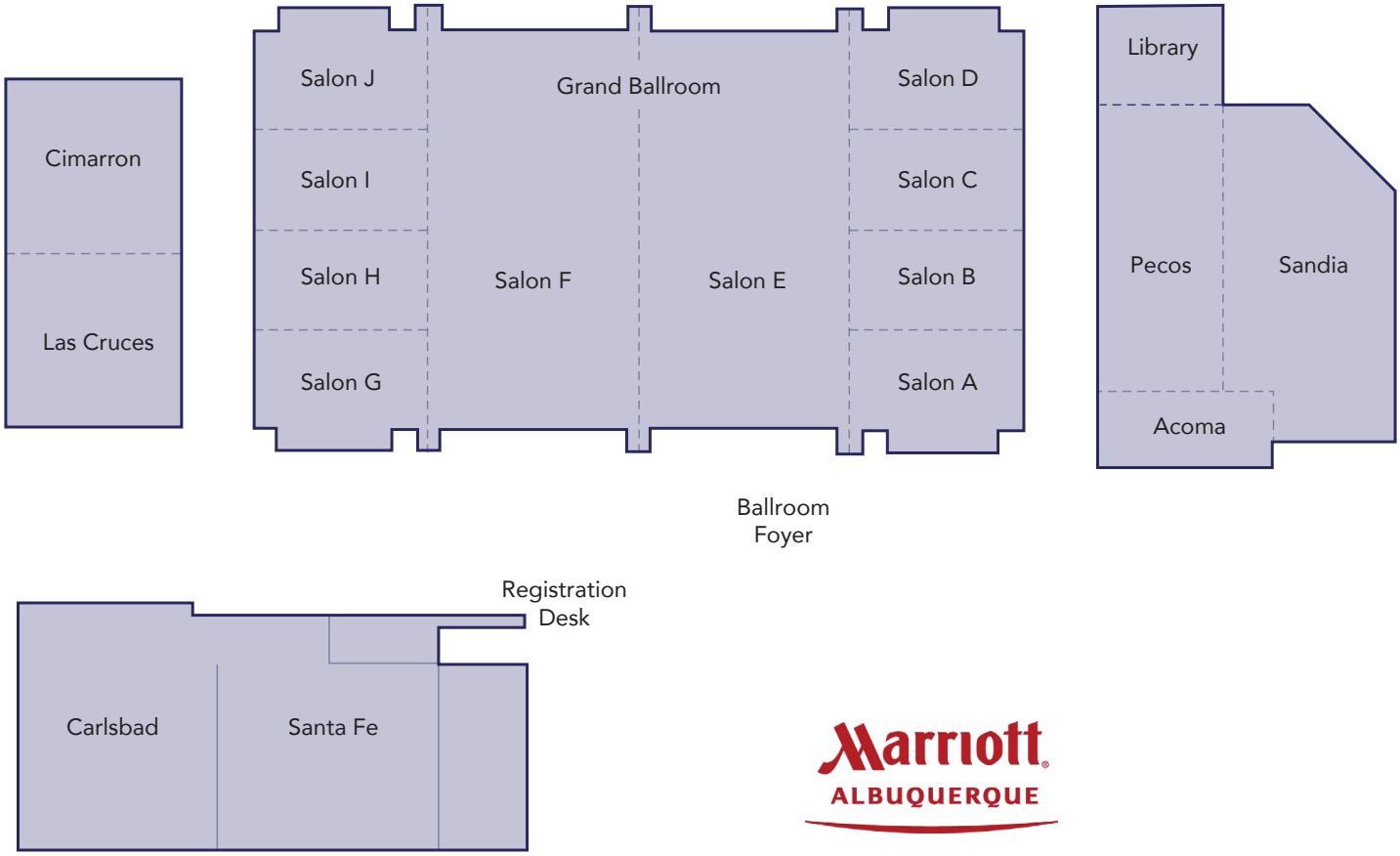
On Friday, NHCA president, Rachel Bouserhal, will welcome you to the conference and introduce Mary McDaniel, who will get our brains thinking about change and how NHCA might need to change. We will have a series of talks in the morning that explore many aspects of hearing conservation and hearing health. Unlike the Postmodern Jukebox, it's not all about the bass; there is so much more that we need to consider to motivate people and develop a renewed awareness of noise and other factors that affect hearing. Our luncheon speaker, Dr. Kent Gee, will share his journey through a world of high-amplitude acoustics – Prepare to be amazed! If you missed this summer's International Hearing Protector Fit-Testing Symposium in Dallas, we have distilled the two-day symposium into a few talks. We want to communicate the wealth of information to the broader membership of the NHCA.

Friday evening will give you a chance to kick back and spend time with your friends and colleagues at the Salt Yard West. There will be a couple of buses from the Marriott to the Salt Yard West. There will be games, food, drink, and all the fun that you can make. We really hope that you will be able to join us.

Saturday morning, you will get to have breakfast and talk shop with others about a wide array of topics. Interested in impulse noise? Wireless/testing? What about hearing conservation for musicians? We are working to arrange topic-oriented tables, as well as inviting our sponsors to talk informally with us. Don't forget to visit the poster session. Eleven of your fellow NHCA members will share their research during the poster session. Then, you must choose between the three, simultaneous breakout sessions: hearing protector development, impulse noise and hearing conservation for musicians, or novel instrumentation for hearing protection. Our Gasaway lecture will be presented by Jérémie Voix. He has worked to develop new products over his career as an engineer in the private industry and as a professor at École de technologie supérieure in Montréal. Our industry advances as new ideas are conceived and transferred into real products. Finally, Saturday afternoon includes: Dangerous Decibels, tinnitus intervention, ototoxicity, and ways to understand the uncertainties in hearing conservation programs.

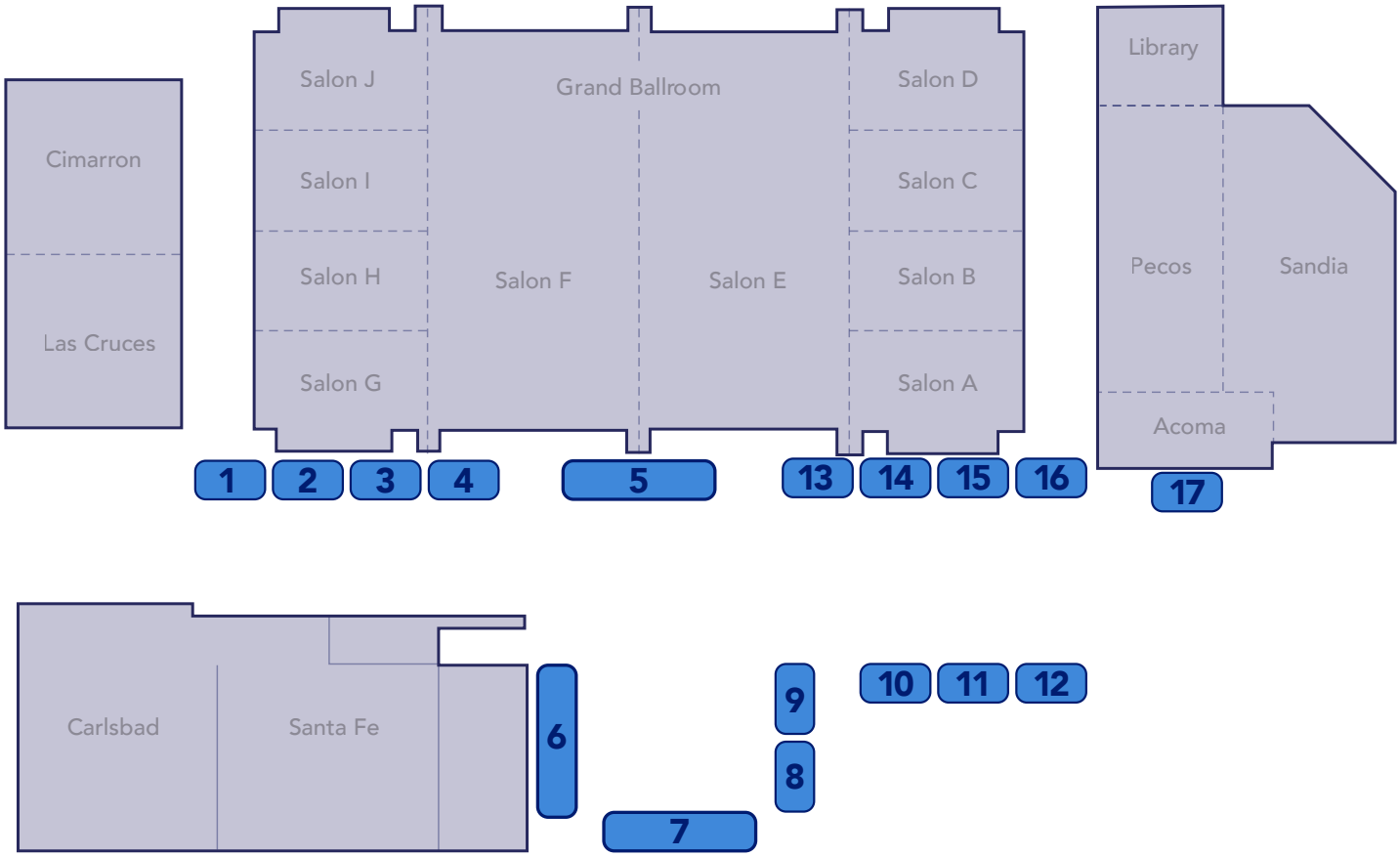
I am looking forward to meeting with the NCHA family in Albuquerque. Bring your thinking cap so that you can learn all that you can from our line-up of speakers!

William Murphy
Conference Program Chair



Marriott ALBUQUERQUE

EXHIBIT HALL FLOORPLAN



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Thursday • February 8 • 2024

7:00am – 8:00am	Workshop Breakfast	Sandia Ballroom
7:00am – 5:30pm	Registration	Registration Desk
	Workshops	
8:00am – 11:00am	Hearing Protector Fit-Testing in the Department of Defense *Speakers: Kerri Klingseis, Stefnie Minatra, Benjamin Sheffield*	Salon G/H
8:00am – 4:00pm	Boothless Audiometry *Speakers: Andy Merkley, Kathy Gates, Renée Lefrançois, Jesse Norris, Laura Prigge, DeWet Swanepoel*	Salon I/J
8:00am – 4:00pm	Hearing Conservation: The Basics and Beyond *Speakers: Richard Danielson, Jackie DiFrancesco, Don Finan, Marjorie Grantham, Teah Richey, Frank Wartinger*	Salon A/B
11:00am – 1:00pm	Lunch on Your Own	
	Workshops	
1:00pm – 4:00pm	Adventure on a World Tour of Hearing Conservation Standards and Regulations *Speakers: Laurie Wells, Cameron Fackler*	Salon G/H
1:00pm – 4:00pm	The Art of Presentation *Speaker: Donald Finan*	Salon C/D
5:00pm – 5:30pm	Student/New Member Meet and Greet	Ballroom Foyer
5:30pm – 7:30pm	Sponsor Reception	Ballroom Foyer
7:30pm – 8:30pm	Screening of "The Quietest Year"	Salon I/J

All Times Mountain Time (MT)

Friday • February 9 • 2024

7:00am – 8:00am	Breakfast	Sandia Ballroom
7:00am – 5:30pm	Registration	Registration Desk
7:00am – 5:30pm	Exhibit Hall	Ballroom Foyer
8:00am – 8:15am	General Session: Opening Remarks *Speakers: William Murphy, Rachel Bouserhal*	Salon E/F
8:15am – 8:45am	KEYNOTE ADDRESS: NHCA - Time for a Change? *Speaker: Mary McDaniel*	Salon E/F
8:45am – 9:05am	National Initiative for Safe Sound - A Novel Project Model for Ensuring Safe Sound *Speaker: John C Panicker*	Salon E/F
9:05am – 9:25am	Assessment of the Association Between Occupational Noise Exposure with Injuries *Speaker: Jie He*	Salon E/F
9:25am – 9:45am	Leading Indicators in Hearing Conservation *Speakers: Andy Merkley, Kathy Gates*	Salon E/F
9:45am – 10:15am	Break with Sponsors	Ballroom Foyer
10:15am – 10:35am	The Promotion of Hearing Health: Opportunities for Partnerships Open to All *Speaker: Thais Morata*	Salon E/F
10:35am – 10:55am	Tinnitus Intervention Among Veterans *Speakers: Sridhar Krishnamurti, Robert Melton, Alexea Mullis*	Salon E/F
10:55am – 11:15am	Hearing Protection Beyond Humans: The K9HPD Effort for Human's Best Friend *Speakers: John Casali, Kichol Lee*	Salon E/F
11:15am – 11:35am	Investigational Inner Ear Medicines: Is Hearing Restoration a Realistic Goal? *Speaker: Colleen Le Prell*	Salon E/F
11:35am – 12:15pm	NHCA Annual Business Meeting	Salon E/F
12:20pm – 1:50pm	LUNCHEON SPEAKER: My Shocking Journey Through a World of High-Amplitude Acoustics: From Gunshots to Rockets to Volcanoes *Speaker: Kent Gee*	Sandia Ballroom

All Times Mountain Time (MT)

Friday • February 9 • 2024

1:50pm – 2:10pm	Practical Implementation of Hearing Protector Fit-Testing - Outcomes of the International Hearing Protector Fit Testing Symposium *Speaker: Theresa Schulz*	Salon E/F
2:10pm – 2:30pm	Standards and Regulations Related to Hearing Protector Fit Testing - Outcomes of the International Hearing Protector Fit-Testing Symposium *Speaker: Laurie Wells*	Salon E/F
2:30pm – 2:50pm	Novel Solutions and Overcoming Barriers - Outcomes of the International Hearing Protector Fit-Testing Symposium *Speaker: William Murphy*	Salon E/F
2:50pm – 3:10pm	The Path Forward for Hearing Protector Fit Testing - Outcomes of the International Hearing Protector Fit-Testing Symposium *Speaker: Amy Blank*	Salon E/F
3:10pm – 3:40pm	Break with Sponsors	Ballroom Foyer
3:40pm – 4:00pm	Effect of Shooting Glasses on Earmuff Attenuation for Impulses *Speaker: Donald Finan*	Salon E/F
4:00pm – 4:20pm	Here, There, and Everywhere: Bringing Hearing Healthcare to the Music Professional *Speakers: Frank Wartinger, Juan Vasquez*	Salon E/F
4:20pm – 4:40pm	Risk Perception or Hazard Perception? Examining Misperceptions of Miners' Personal Exposures to Noise *Speaker: Abas Shkembi*	Salon E/F
4:40pm – 5:10pm	2024 Safe-in-Sound Excellence in Hearing Loss Prevention Awards™ *Speakers: Scott Schneider, Thais Morata*	Salon E/F
6:00pm – 8:30pm	Friday Night Event - The Salt Yard - West *Buses pick-up at 6:00pm*	Meet In Lobby for Buses

All Times Mountain Time (MT)

Saturday • February 10 • 2024

7:30am – 8:30am	Breakfast	Sandia Ballroom
7:30am – 2:00pm	Exhibit Hall	Ballroom Foyer
7:30am – 4:30pm	Registration	Registration Desk
8:30am – 9:30am	Poster Sessions	Las Cruces / Cimarron
Breakout Sessions – 9:30am - 9:50am		
9:30am – 9:50am	Deconstructing and Quantifying Peripheral Supra-Threshold Auditory Phenotypes in Young Adults with Chronic Tinnitus *Speaker: Srividya Grama Bhagavan*	Salon I/J
9:30am – 9:50am	Measuring Hearing Protector Attenuation of Impulse Noise Using Maximum A-Weighted Energy Reduction *Speakers: Gregory Flamme, William Murphy, Kristy Deiters, James Lankford, Deanna Meinke, Michael Stewart, Stephen Tasko*	Salon G/H
9:30am – 9:50am	A Novel Passive Earplug Designed to Increase Compliance and Reduce Attenuation Variability *Speaker: Marc Ramsey*	Salon A/B
Breakout Sessions – 9:55am - 10:15am		
9:55am – 10:15am	Toward a Standard for Assessing Civilian Firearm Suppressor Noise Reduction: Environmental and Procedural Considerations *Speaker: Stephen Tasko, Gregory Flamme, William Murphy, Kristy Deiters.*	Salon G/H
9:55am – 10:15am	Development and Testing of a Novel Inflatable Earplug *Speaker: Anthony Dietz*	Salon A/B
10:15am – 10:45am	Break with Sponsors	Ballroom Foyer
Breakout Sessions – 10:45am - 11:10am		
10:45am – 11:05am	Considerations in Active Noise Reduction Hearing Protectors *Speakers: Hilary Gallagher, Daniel Williams*	Salon I/J
10:45am – 11:05am	Preserving the Hearing Health of Music Students: From Exploring the Risks of Noise Overexposure to Prevention Strategies *Speakers: Milena Kovalski Oliveira, Adriana Bender Moreira Lacerda*	Salon G/H
10:45am – 11:05am	Validation of a Novel Inflatable Earplug through Human Subject Testing *Speaker: Tristan Ziegler*	Salon A/B
Breakout Sessions – 11:10am - 11:30am		
11:10am – 11:30am	Who Monitors the Monitors? *Speakers: Frank Wartinger, Juan Vasquez, Brendan Fitzgerald*	Salon G/H
11:10am – 11:30am	Earphones in the Workplace *Speaker: Martin Robinette*	Salon A/B

All Times Mountain Time (MT)

Saturday • February 10 • 2024

11:40am – 1:10pm	Awards Luncheon	Sandia Ballroom
1:10pm – 1:40pm	GASAWAY LECTURE: Acoustical Paths: From Idea to Invention to Implementation *Speaker: Jérémie Voix*	Salon E/F
1:40pm – 2:00pm	Bringing Certainty to Highly Uncertain Hearing Conservation Programs *Speaker: Olav Kvaløy*	Salon E/F
2:00pm – 2:20pm	Can Dangerous Decibels be Shortened? *Speaker: Eranthi Liyanaduwa Kankanamge*	Salon E/F
2:20pm – 2:40pm	Five Years of the NOISE Study: Audiometric Threshold Shifts in a Military Population by Baseline Hearing and Self-Reported Military Noise Exposure *Speaker: James Schultz*	Salon E/F
2:40pm – 3:00pm	Investigational Inner Ear Medicines: Is Prevention of NIHL a Realistic Goal? *Speaker: Colleen Le Prell*	Salon E/F
3:00pm – 3:30pm	Afternoon Break	Ballroom Foyer
3:30pm – 3:50pm	Advancing a Hearing Conservation Program with Expanded Audiometric Testing *Speaker: Taylor Paige*	Salon E/F
3:50pm – 4:10pm	Identification of Industries with Co-Exposures to Noise and Ototoxicants in the NIOSH Health Hazard Evaluation Database *Speaker: Chandran Achutan*	Salon E/F
4:10pm – 4:30pm	A Systematic Review of Jet fuel (JP-8) Ototoxicity and Designing an Epidemiological Study of Ototoxity Prevalence in British Columbia *Speaker: Helen Wu*	Salon E/F
4:30pm – 4:50pm	General Session: Closing Remarks *Speakers: William Murphy, Rachel Bouserhal*	Salon E/F

All Times Mountain Time (MT)

Remember to Vote for the Outstanding Lecture and Outstanding Poster of the Year Using the Online Ballot

You will receive two ballots at registration to cast your votes for the OLA and OPA for the 2024 Conference. Please make sure to print clearly and turn in your ballot at registration when it is complete.

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LTC Kara M. Cave, Ph.D.

United States Army
Fort Liberty, North Carolina

SAFE·IN·SOUND
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Presenters

Sara Joswiak is an experienced environmental health and safety (EHS) leader working for The Dow Chemical company in their Industrial Hygiene Expertise Center. She is an IH Improvement Leader and is responsible for multiple Dow global standards, including hearing conservation. She has a passion for noise control, hearing conservation management, and protecting workers from noise induced hearing loss. Sara is a strong program and project management professional, Prosci Certified Change Practitioner and holds a master's in public health focused on industrial hygiene and environmental science. Sara is a member of the National Hearing Conservation Association and the American Industrial Hygiene Association and serves on their volunteer Noise Committee.

Vanessa F. Marshall, PE, is a Global Improvement Leader at The Dow Chemical Company, Hardware Discipline Technology Center. She joined Dow Engineering and Construction Services department located in Houston in 1985 as a capital project Mechanical Discipline lead. She led projects where she implemented noise control concepts which reduced the overall noise at the new plant. She partnered with Dow Environmental Health and Safety Industrial Hygiene Expertise Center as a member of their noise control sub-team for over 15 years. She is currently the Mechanical Engineering Discipline Global Improvement leader for Dow and represents Dow as a member of the American Petroleum Institute- Critical Rotating Equipment standards board.

Lieutenant Colonel (LTC) Kara Cave currently serves as the Hearing Program Manager for Fort Liberty and the Army Surgeon General's Consultant for Audiology. As a graduate student, LTC Cave commissioned into the Army in 2004. After completing a clinical externship at Walter Reed Army Medical Center, LTC Cave received a Ph.D. in Audiology from James Madison University in 2005. She earned her Ph.D. in 2019 in Systems and Engineering from Virginia Tech. LTC Cave has served as an Army Audiologist for the last nineteen years.

Stephanie Griffin, PhD
University of Arizona

Ted Madison, MA
University of Minnesota

Benjamin Roberts, MPH, PhD
Benchmark Risk Group

Visit: https://www.safeinsound.us/winners.html

First, the Scholarship Foundation Board would like to send out a huge thank you to all the anonymous reviewers for both the SCA and SRA awards. We really appreciate those who contribute their time and energy every year in helping us chose worthy candidates for these awards.

Second, thank you to those who have donated to the "Buy A Hair Cell" fundraising campaign at the last conference, and to those who donated items for the Scholarship Foundation Silent Auction. We appreciate everyone's contributions. The monies raised for this will help us to provide needed scholarships, and meet travel expenses, for deserving students!

Back by popular demand this year will be the "Buy a Hair Cell" campaign to help us raise money for the Scholarship Foundation. We have some willing long-time NHCAers who graciously agreed to allow the attendees to give them new hair cells! But this year's "Buy a Hair Cell" campaign will come with a bit of a competition twist. So, please don't forget to purchase "hair cells" from those in the red aprons during the conference, as you will be donating to a worthy cause.

NHCA Scholarship Foundation would like to say Congratulations to all of the Student Conference Award and Student Research Award winners! They are as follows:

Ahmed Al Mawazini

Ahmed is a first-year Ph.D. student at the University of Ottawa, Canada, where he also completed a Master's Degree in Audiology, and a Bachelor's degree in Health Sciences. He is also a certified Audiologist, and his research interest lies in speech intelligibility in noise, and hearing loss prevention. Ahmed's doctoral project will focus on developing auditory tests that the professional workforce can use to measure the effect of auditory protection and situational awareness.

Allison Staker Woodford

Allison is a dual Au.D./Ph.D. student at the University of Texas at Dallas. Her undergraduate degree was in Communication Sciences and Disorders, completed at the University of Utah. After fifteen years of life experience – including working with children with Autism, community involvement, and hands-on participation in the ear education of her three children – she has returned to academia with research interests focused on the early detection and prevention of hearing disorders, currently focusing on understanding sound exposure in classical musicians. Allison was the recipient of the 2021 American Academy of Audiology Foundation's Music and Hearing Research Grant. A few of her favorite things including backpacking in the Rocky Mountains, curling up with a good book, going for a long run, or attending a classical musical performance – preferably accomplished by family or friends.

Brynne Stevens

Brynne Stevens is a 2nd year doctoral student at Washington University in St Louis School of Medicine. Originally from Denver, CO, Brynne cultivated a passion for sound that manifested in playing the saxophone, joining a jazz ensemble, and hosting a radio show. She earned her B.S. in Neuroscience from Trinity University. In her professional journey, Brynne aspires to serve the adult population with emphases on noise-induced hearing loss, hearing conservation for musician, and tinnitus services.

And a BIG congratulations to our 2023 Student Research Award Winners, Srivida Bhagavan from the University of Iowa, and Helen Wu from the University of British Columbia!

From all of us on the NHCA Scholarship Foundation Board, we want to say a Big Thank you for the needed donations! If you would like to donate, or become a Board member, please reach out to a member of the NHCA Scholarship Foundation Board, or reach out to the folks at Civica (our management company) who will direct you to us! Again, thank you!

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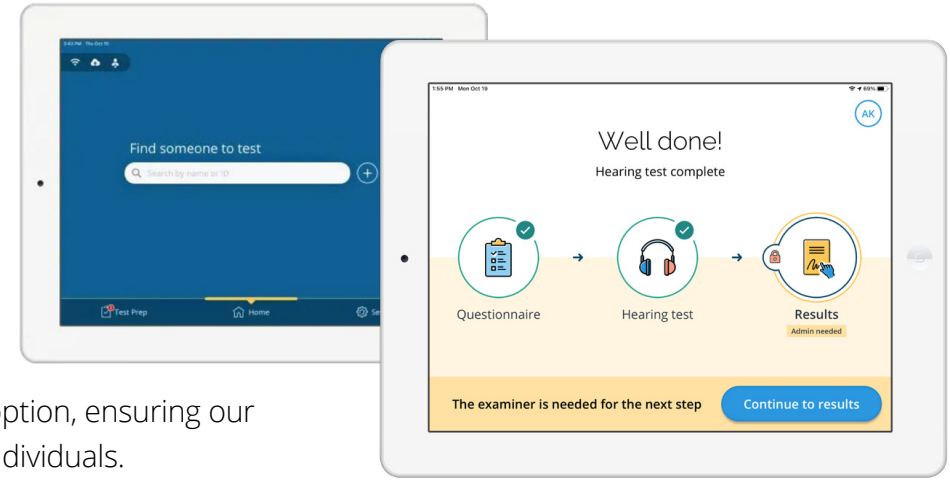

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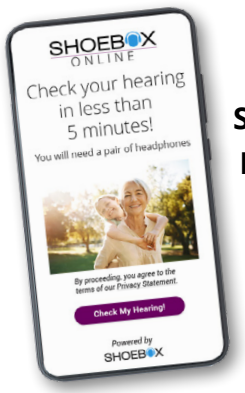

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Hearing Protector Fit-Testing in the Department of Defense

Speakers: Kerri Klingseis, Stefnie Minatra, Benjamin Sheffield

This workshop will discuss the policy, current state, and future implementation of hearing protector fit-testing(HPFT) within the Department of Defense (DoD). The 2.5-hour session will cover the following:
15 minutes: Regulation and Policy Overview
15 minutes: Current state of HPFT in the DoD
45 minutes: Research and Public Health Studies
45 minutes: Implementation / Demonstrations
15 minutes: Panel/Testimonials/Q&A

Boothless Audiometry

Speakers: Andy Merkley, Kathy Gates, Renée Lefrançois, Jesse Norris, Laura Prigge, DeWet Swanepoel

A sound booth has been the gold standard of equipment needed to conduct hearing conservation and audiological examinations. However, the sound booth requires substantial space and limits testing to one location that may be remote from the workplace or inconvenient for management. Several companies have developed novel, portable platforms to assess hearing outside of the sound booth, allowing for improved accessibility and hearing conservation program efficiency. Effective solutions must include capabilities to meet requirements for special populations and markets including U.S. active-duty service members, foreign military,and U.S. military veterans. Expanded awareness and knowledge of boothless audiometry is needed to inform and accelerate its adoption and acknowledge its potential applicability to hearing loss prevention programs and other hearing health services such as school screenings, primary care clinics, and non-clinical sites offering over-the-counter hearing aid services. This workshop will provide an overview of currently available boothless technologies. Attendees will learn about requirements for military members, veterans, occupational workers, and civilians. Participating industry representatives will present overviews of their boothless audiometry systems. Finally, attendees will receive hands-on demonstrations to familiarize themselves with each system and its utility for hearing conservation services.

Hearing Conservation: The Basics and Beyond

Speakers: Richard Danielson, Don Finan, Jackie DiFransesco, Marjorie Grantham, Teah Richey, Frank Wartinger

The BASICS WORKSHOP offers attendees a comprehensive perspective on the substance and conduct of occupational hearing conservation programs. This annual workshop, held on the first day of the conference, is a "short course" that will clarify and illustrate key hearing conservation requirements, practices, and resources. Emphasis will be placed on concepts that may be cited in subsequent platform presentations. The format is designed for a broad audience, from first-time conference attendees, like students or new employees, to experienced hearing conservationists seeking clarification about hot-topic issues from disciplines outside their own specialty.

Adventure on a World Tour of Hearing Conservation Standards and Regulations

Speakers: Laurie Wells, Cameron Fackler

Noise is universally recognized as an occupational hazard that can cause permanent hearing loss, tinnitus, and other negative health effects. However there isn't a globally accepted approach toward protecting the noise-exposed workforce. Differences between the multiple standards and regulations reflect the complexity and make it challenging for multinational companies to set policies for corporate hearing loss prevention programs.
Grab your passport and come on a world tour of hearing loss prevention standards and regulations. Select locations will be "visited" to inform on existing approaches that govern hearing conservation practices and to expand our horizons by exploring what might be possible in the future.
Included in the tour:
1) Compare and contrast select aspects of hearing conservation regulations of multiple jurisdictions including Canada, China, European Union (EU) / United Kingdom (UK), and United States (US).
2) Explain the differences between hearing protector attenuation measurement and labeling requirements and standards in the US and EU / UK.
3) Identify and discuss emerging trends in hearing loss prevention
4) Engage in an interactive activity regarding policy development for hearing loss prevention programs
Content includes but is not limited to: noise exposure limits, hearing protection device use, standards, and attenuation derating schemes, audiometric testing and hearing shift

The Art of Presentation

Speakers: Donald Finan

Marshall McLuhan's famous statement "The medium is the message" is especially true when considering a live presentation. The manner, style, and format of a professional presentation can positively or negatively impact how the message is received and understood. Many presenters at professional meetings fail to consider that how a presentation is delivered can be as important as the content itself. Thoughtful consideration of visual design, organizational strategy, and presentation delivery can yield effective knowledge transfer to our audience while maintaining their interest and attention. Participants in this workshop will explore common pitfalls for both podium and poster presentations and will discuss strategies for avoiding such pitfalls. Participants will also work through a series of example scenarios to practice design and organization skills. While many of us have experience as public speakers, we can all strive to improve so that our presentations will be memorable and valuable to attendees; this is the art of presentation.

Keynote Presentation:

NHCA - Time for a Change?

Speaker: Mary McDaniel

The NHCA was formed by savvy business people wanting to secure their geographic territory in the marketplace to provide hearing conservation services related to newly enacted OSHA regulations. In the ensuing years we've spent countless hours debating the various standards, the pros and cons of 3dB v 5dB, the advantages of fit-testing, whether or not to age-correct, and let's not get started with OSHA recordable issues. All of this debate and discussion is important to our membership but what about our customers, the general public? What have we done to ensure they value their hearing enough to prevent hearing loss? The reality: OSHA, MSHA, DOD, FRA – cannot prevent hearing loss. No employer can prevent hearing loss. Sadly, none of us well-meaning ambassadors of the hair cells can prevent hearing loss (unless we're talking about our own!). The only person who can prevent noise induced hearing loss is YOU. Our job should be to offer all the wherewithal to care enough about your own hearing to not give it away to noise! This talk will focus on the importance of education and motivation in hearing loss prevention and provide strategies for how me might continue to step up our game.

National Initiative for Safe Sound - A Novel Project Model for Ensuring Safe Sound

Speaker: John C Panicker

Introduction: Indian cities are known for high noise levels. Campaign led by doctors has heightened awareness over the past decade. This cost-effective initiative can serve as a blueprint for other emerging nations.
Objective: Spreading the message of safe sound to educate the community through school students.
Method: The National Initiative for Safe Sound (NISS) was established in 2013 through a collaborative effort between the Indian Medical Association (IMA) and the Association of Otolaryngologists of India (AOI). NISS received widespread support from stakeholders, including teachers, audiologists, and NGOs, with a primary focus on educating police officers, school, and college students about the dangers of noise pollution.
Outcome: NISS conducted studies on ambient noise levels in Delhi, Gurgaon, Kochi, and Trivandrum in 2014 and 2019. The findings showed a consistent decrease in ambient noise levels. This has been attributed to increased public awareness of the health implications of noise, as a result of campaign by NISS, resulting in greater police and judicial actions against noise rule violations.
Discussion: The safe sound campaign in India by National Initiative for Safe Sound, was highly effective and cost-efficient, serving as a model for other developing nations.

Assessment of the Association Between Occupational Noise Exposure with Injuries

Speaker: Jie He

This study explored the relationship between workplace noise exposure metrics and non-fatal injury/illness rates across various industries and occupations, utilizing the OSHA/MSHA Action Level (AL) and Permissible Exposure Limit (PEL) criteria. The OSHA/MSHA AL and PEL for Time-Weighted Average (TWA) noise are set at85 and 90 decibels (dBA) over an 8-hour workday, respectively. Using mixed-effects and ridge-regularized negative binomial regression models, significant associations were identified between OSHA/MSHA AL Mean TWA, Maximum TWA, and non-fatal injury/illness rates by occupation. Additionally, a notable link was found between the SD of TWA and injury/illness rates for OSHA/MSHA PEL. However, noise metrics were not significantly correlated with fatality rates. The findings emphasize the relevance of diverse noise metrics in evaluating the effects of noise on worker health. Further research should prioritize prospective cohort studies,advanced statistical modeling, and the exploration of hearing loss and protective measures to strengthen causal conclusions.

Leading Indicators in Hearing Conservation

Speakers: Andy Merkley, Kathy Gates

Noise induced hearing loss (NIHL) is an invisible injury that disrupts communication, degrades job performance,and diminishes overall quality of life. The Defense Health Agency Hearing Center of Excellence (HCE),Prevention and Surveillance Section publishes an annual hearing health surveillance, hearing conservation report. The published report includes primarily lagging indicator metrics used to assess the hearing status of the Department of Defense and individual services. Lagging indicators, "measure the occurrence and frequency of events that occurred in the past, such as the number or rate or injuries, illness, and fatalities." (OSHA, 2023). Leading indicators are, "proactive and preventive measures that can shed light about the effectiveness of safety and health activities and reveal potential problems in a safety and health program." (OSHA, 2023). A recent information request from the Occupational Safety and Health Administration indicates interest in identifying better leading indicators that will guide professionals toward true injury and illness prevention. This presentation provides information about theFY2021 DoD Hearing Health Surveillance report, a review of leading and lagging indicators used in hearing conservation and provides examples of hearing conservation leading indicators that can be implemented in hearing conservation programs to prevent NIHL.

The Promotion of Hearing Health: Opportunities for Partnerships Open to All

Speaker: Thais Morata

Over the past decades, international efforts directed at raising awareness of hearing hazards and reducing the risk of negative hearing outcomes have generated measurable results. Still, there is much to be done to reduce the burden of hearing loss both at individual and societal levels. Expanded science communication requires the planing and production of materials that effectively transfer scientific outputs to health practitioners and broad audiences. The dissemination of these materials requires collective actions which can help inform health decisions and positively impact outcomes. This presentation will highlight opportunities for any individual or organization to participate in national and international outreach efforts promoting hearing health. Partners include governmental departments, international agencies, universities, labor, trade and professional organizations, corporations, and technology developers. Levels of involvement range from minimal (keeping appraised or promoting activities) to extensive engagement. We will describe examples from the CDC Noise-Induced Hearing Loss Citizen Advocate group, the National Occupational Research Agenda, the International Ototoxicity Management Group, the World Hearing Forum, the World Hearing Day and Make Listening Safe. Broad participation in these efforts has led to expanded coordination and collaboration, launched new research partnerships, prevented redundancy, and fostered better utilization of resources.

Hearing Protection Beyond Humans: The K9HPD Effort for Human's Best Friend

Speakers: John Casali, Kichol Lee

Military working canines, numbering over 1600, and law enforcement canines numbering thousands, have auditory and olfactory capabilities that significantly exceed human sensing and are thus critical to many missions. However, NIHL from noise exposures impairs the dog's on-the-job effectiveness, is tragic for its quality of life,and imposes a training investment loss, often $50,000+ per dog. An extensive mission/task analysis was performed to document noise exposures and hearing requirements for canine missions. Whereas human squad members wear electronic hearing protection devices (HPDs), the dog typically has none, except for occasional application of a passive earmuff which collapses the pinnae, compromising auditory situation awareness and handler's commands. Exposure levels are severe, e.g., 108-110 dBC in helicopter transport, 88+ dBA in military vehicles, 170+ dBP from flash-bang-grenades and higher from door-breeching explosives, and 155-165 dBP from small weapons. TTS during missions causes disorientation, missed commands, stress/anxiety, and inability to detect/localize. As a countermeasure, a high-attenuation, ear canal-mounted "K9HPD" is required, with electronic pass-through, high-frequency bandwidth, active-noise-cancellation for helicopter/vehicle transport,-canine-handler radio-communication, and no occlusion of the dog's upright, movable pinnae. Due to canine ear anatomy, "pawing" of body-worn devices, violent movements, and other factors, major challenges exist in developing/testing this much-needed K9HPD.

Investigational Inner Ear Medicines: Is Hearing Restoration a Realistic Goal?

Speaker: Colleen Le Prell

Since the identification of regeneration of sensory hair cells and corresponding return of hearing sensitivity after noise or aminoglycoside induced injury in bird models in the 1980's, there has been tremendous interest in the potential to induce regeneration of hair cells in the mammalian cochlea. Regeneration relies on the use of gene therapy, stem cell based approaches, or small molecule biological therapies that re-initiate developmental sequences that drive cell proliferation and differentiation (i.e., the development of new cells, and the promotion ofa hair cell fate for those new cells). Success in rodent models was slow, but the first human clinical trials have been completed. This session will review clinical trial outcomes and the current status of biological therapies that seek to restore auditory function by repairing or replacing cochlear cells. In addition, this session will provide practical take home messages you can share with patients who have hearing loss and want to know if or when this might benefit them.

Luncheon Speaker:

My Shocking Journey through a World of High-Amplitude Acoustics: From Gunshots to Rockets to Volcanoes.

Speaker: Kent Gee

High-amplitude sound sources have the potential to create sound fields that propagate nonlinearly. Shock waves from gunshots, explosions, military jet aircraft, etc. alter perception, increase hearing loss risk, and cause other impacts. In this presentation, I describe several unique examples of nonlinear noise, including the Hunga Tongavolcano eruption and the Artemis-I launch of NASA's Space Launch System.

Practical Implementation of Hearing Protector Fit Testing - Outcomes of the International Hearing Protector Fit-Testing Symposium

Speaker: Theresa Schulz

Hearing protector fit testing (HPFT) is achieving wider acceptance in civilian and military occupational hearingloss prevention programs. At the International Hearing Protector Fit Testing Symposium, various studies andefforts to implement fit testing with workers and service members were reviewed. Research indicates that fit testing identified persons who did not achieve adequate attenuation and who subsequently improved following instruction. Fit testing was reported to be an effective approach to train new employees to select and properly fit hearing protection suited to the employees' noise exposures. The forthcoming Cochrane Systematic Review found moderate evidence that HPFT with individualized training was effective to improve the personal attenuation rating (PAR) for workers. However, simple instructions had little if any effect on PAR. Only a small number of studies provided high-quality evidence – a research need cited across presentations. Nonetheless, the evidence is sufficient such that the pending Department of Defense Instruction 6055.12 includes regular HPFT for select categories of noise-exposed service members and civilian workers. Efficient implementation of HPFT at a large scale will help develop the business case for fit testing. This session will review evidence for the effectiveness of HPFT and propose methods to implement instructions for workers.

Standards and Regulations Related to Hearing Protector Fit Testing - Outcomes of the International Hearing Protector Fit-Testing Symposium

Speaker: Laurie Wells

Hearing protection fit testing (HPFT) has largely been a voluntary component within a hearing loss prevention program. In 2008, the US OSHA/NHCA/NIOSH Alliance recommended HPD fit testing as a "Best Practice,"however, at that time, managers of hearing conservation programs had few resources that could demonstrate the benefits of fit testing. Subsequently, US OSHA has provided letters of interpretation to clarify the use of HPFT. Traction for HPFT has been gained around the globe both in adoption by employers, and through recognition in standards and regulations in the US and other countries. At the International Hearing Protector Fit Testing Symposium, specific efforts to develop standards and regulations concerning HPFT were presented in Canada,Europe, and the US. One approach is to incorporate HPFT into hearing conservation program management (Canadian Standard Association Z1007:22); to provide information for users of fit-test systems about differencesin methods and technologies of fit-test systems (EN 17479:2018); and in providing performance criterion for manufacturers of fit-test systems (US ASA/ANSI S12.71-2018(R2022). This presentation will review the globalregulatory landscape of hearing protector fit testing and review next steps discussed at the International Hearing Protector Fit Testing Symposium for furthering the role of standards and regulations.

Novel Solutions and Overcoming Barriers – Outcomes of the International Hearing Protector Fit-Testing Symposium

Speakers: William Murphy

Widescale adoption of hearing protector fit testing (HPFT), involves overcoming barriers to implementation. Many challenges were identified and discussed at the International Hearing Protector Fit-Testing Symposium, such as the time and resources for conducting HPFT, scalability, and articulating the return on investment. Efforts to address several of these challenges were presented. For example, laboratory test methods for measuring the attenuation characteristics of a hearing protection device (HPD) must satisfy strict acoustic and equipment requirements imposed by consensus standards. The laboratory methods are not suitable for use in occupational settings. For subjective threshold-based methods, efficiency can be realized by reducing the test time by testing fewer frequencies and creating more efficient psychophysical paradigms. Objective in-ear measurements of attenuation and/or noise exposure holds promise for minimizing the burden to implementing fit testing. Field Microphone-in-Real-Ear methods provide a rapid assessment of HPD attenuation for hearing protectors compatible with the fit-test system. While HPFT estimates attenuation, the worker's actual daily noise exposure is still an estimate. In-ear dosimetry or exposure assessments can provide continuous monitoring of soundexposures. This presentation will review the research pertinent to overcoming barriers to implementation and the challenges for developing better exposure assessment tools.

The Path Forward for Hearing Protector Fit Testing – Outcomes of the International Hearing Protector Fit-Testing Symposium

Speaker: Amy Blank

The International Hearing Protector Fit Testing Symposium (IHPFTS) was an excellent opportunity to learn about the latest technologies and current evidence for the practice of hearing protector fit testing (HPFT). Attendees generated a list of calls to action and hot topics that the National Hearing Conservation Association (NHCA)could use to advance the practice of HPFT. NHCA has a unique diversity of membership to develop a position statement to promote HPFT among health and safety professionals. NHCA can work closely with the Council for Accreditation for Occupational Hearing Conservation (CAOHC) to develop training for HPFT as a part of CAOHC courses or as a separate certification. Regulatory bodies and government agencies need data and strong evidence to support changes to recommendations and regulations. Research studies that incorporate randomized control trials in their study design are highly sought after for systematic reviews and demonstrate the efficacy of HPFT. Partnership with regulatory agencies, occupational medical providers, and insurers can demonstrate the return on investment through reduced incidence of hearing loss claims and lower occupational injury rates. This presentation will review the hot topics and calls to action from the IHPFT Symposium and host a session to continue to plan the path forward.

Effect of Shooting Glasses on Earmuff Attenuation for Impulses

Speaker: Donald Finan

The EPA requirement for hearing protector labels is based on the rescinded ANSI S3.19-1974 standard, which prohibits the use of eyewear during REAT testing that leads to the product label NRR. However, use of protective eyewear is expected during firearm use. This presentation reviews past work regarding the effects of safety glasses on earmuff performance and presents new results from impulses ranging from 139 to 178 dB peak SPL applied to five samples of one common set of safety glasses and earmuffs in earmuff only and earmuff plus safety glasses conditions. Impulse Insertion Loss was less than 10 dB below 400 Hz for earmuffs alone and negligible for the earmuff and safety glasses condition, while safety glasses reduced earmuff attenuation in higher frequencies by approximately 15 to 25 dB. Impulse peak insertion loss values per ANSI S12.42 were reduced from 21 to 39 dB for the earmuff alone to 15 to 22 dB when the safety glasses were added. Additional studies with broad combinations of earmuffs and safety glasses are needed to establish the range over which safety glasses can be expected to compromise earmuff attenuation.

Here, There, and Everywhere: Bringing Hearing Healthcare to the Music Professional

Speakers: Frank Wartinger, Juan Vasquez

This session is a demonstration and review of how telehealth advances are expanding access to hearing wellness care for music industry professionals. Music industry professionals have unique barriers to engagement with traditional hearing healthcare delivery, which has historically contributed to reduced care seeking. To decrease risk of hearing injury and to increase awareness of healthy listening and monitoring behaviors, virtual platforms have been leveraged to remove these barriers and meet this population where they are.

Risk Perception or Hazard Perception? Examining Misperceptions of Miners' Personal Exposures to Noise

Speakers: Abas Shkembi

While perceptions of NIHL risk have been examined in the workplace to understand safety behavior, hazard perception of noise has been overlooked. This cross-sectional study mines of 135 normal-hearing participants across 10 surface study established the prevalence of noise misperception, examined whether different types of noisy environments (e.g., kurtotic, highly variable, etc.) alter workers' misperception of their noise exposures, and to evaluate whether noise misperception is associated with HPD use behavior.
Our findings showed that nearly 1 in 3 workers underestimated their exposure to noise when their true exposure was in fact hazardous (≥ 85 dBA as a Time-Weighted Average) for at least one shift. Work shifts with highly kurtotic noise distributions (>3) had 3.1 (95% CI: 1.1 to 8.4) times significantly higher odds of resulting in misperceived noise; crest factor, variability, and "peakiness" were not significantly associated with noisemisperception. Although not statistically significant, misperception of hazardous noise exposure was associated with 3.2 (95% CI: 0.8 to 12.5) times higher odds of not using HPDs during a work shift. Misperception of noise occurs in the workplace. This hazard misperception may influence risk perceptions and worker behavior, reducing the effectiveness of behavior-related training to prevent NIHL in the workplace.

2024 Safe-in-Sound Excellence in Hearing Loss Prevention Awards™

Speakers: Scott Schneider, Thais Morata

In this 15th round of Safe-in-Sound Awards the National Institute for Occupational Safety and Health (NIOSH)and the National Hearing Conservation Association (NHCA) will recognize organizations that document measurable achievements in hearing loss prevention. The submissions are evaluated against key performance indicators in a rigorous review process designed to capture and evaluate the successes. The attendees will get to hear about the innovative strategies and the success stories from the winners themselves firsthand; information which will be shared later to a broader community. Join us for the remarkable presentations!

Measuring Hearing Protector Attenuation of Impulse Noise Using Maximum A-Weighted Energy Reduction

Speakers: Gregory Flamme

Co-Authors: William Murphy, Kristy Deiters, Donald Finan, James Lankford, Deanna Meinke, Michael Stewart, Stephen Tasko

Hearing protection devices (HPDs) and firearm suppressors can help mitigate risk of hearing loss from small caliber firearms. ANSI S12.42 is the standard for measuring HPD impulse peak insertion loss (IPIL). Noconsensus standard exists for measuring firearm suppressor noise reduction, though the suppressor industry is working toward a standard using maximum accumulated A-weighted energy. A common attenuation metric for different impulse noise reduction technologies would inform the individual and combined impact of these technologies. The maximum A-weighted energy reduction for several HPDs was assessed using firearm impulses from two rifles (.300 Winchester Magnum and 5.56x45) with two acoustical test fixtures (ATFs) and five field microphones positioned on opposite sides of the rifle at four locations (field levels were between 180- and140- dB pSPL). No adjustments were made to account for tissue/bone conduction. Maximum A-weighted energy reduction values for single protection ranged between 17 dB (earmuff with safety glasses) and 43 dB (preformed earplug). Similar to IPIL, maximum A-weighted energy reduction increased with increased impulse levels. Advantages, disadvantages and technical issues associated with the procedure will be discussed.

A Novel Passive Earplug Designed to Increase Compliance and Reduce Attenuation Variability

Speaker: Marc Ramsey

Noise-Induced Hearing Loss is the most prevalent occupational injury in US industry, affecting more than 10million workers. Earplugs are a ubiquitous choice to mitigate exposure. However, optimal use of earplugs requires training, motivation, and patience, substantially limiting their real-world performance. A shallow insertion leads to poor attenuation, high variability, and the occlusion effect. Typically rated for about 30 dB of attenuation,actual earplug performance averages less than 15 dB with variability on the order of 10 dB (95% CI). In many settings, a majority of wearers receive grossly inadequate protection. Inconvenience, discomfort, and degraded communication also lead to low worker compliance. As many as 80% of workers wear HPDs inconsistently,dramatically limiting efficacy. We will review the large body of data around the field performance of earplugs and the human factors that lead to high variability and non-compliance. We will present a novel earplug designed to address these issues, offering substantially improved ease-of-use, comfort, and convenience for untrained users while providing high attenuation and low variability. We will present data from laboratory ear simulators and discuss a human subject trial scheduled for later in the spring. This work is supported by the National Science Foundation.

Tinnitus Intervention among Veterans

Speakers: Sridhar Krishnamurti, Robert Melton, Alexea Mullis

According to the U.S. Centers for Disease Control, over 50 million Americans experience some form of tinnitus,and roughly 20 million people struggle with burdensome chronic tinnitus, while 2 million have extreme and debilitating cases. The intervention of tinnitus has become even more difficult in the recent pandemic. The first part of the presentation will focus on mechanisms underlying tinnitus and the second part will focus on technology options available for tinnitus intervention. The third part will provide intervention outcomes among veterans on a virtual Progressive Tinnitus Management (PTM) study completed. For the study, a small sample size of 17 military members from all branches and across the United States to participate. Veterans and active-duty members were required to undergo an online hearing evaluation. All participants were required to complete the Tinnitus Handicap Inventory (THI) and Tinnitus Functional Index (TFI) before- and after- PTM learning modules. Virtual PTM was completed for at least one hour a week, lasting 4 weeks. THI results for perception and reaction improved for 14 of 17 participants. On TFI, subscales of Intrusiveness, sense of control, and cognitive interference showed the greatest changes after PTM intervention. More details will be provided at NHCA meeting presentation.

Toward a Standard for Assessing Civilian Firearm Suppressor Noise Reduction: Environmental and Procedural Considerations

Speakers: Stephen Tasko

Co-Authors: Gregory Flamme, William Murphy, Kristy Deiters

Currently, no consensus standard exists for measuring firearm suppressor noise reduction (FSNR). NATOdeveloped a military standard to measure suppressor performance for an environment that does not generalize well to the recreational shooter. We propose a FSNR measurement standard using maximum accumulated A-weighted energy. Test environments included an outdoor space and a reverberant (indoor) facility with dimensions expected to provide similar results to the outdoor space. Two standard test barrels (.308 and .223caliber) mounted on a universal receiver system were used. For each environment and caliber, two ammunition types and three suppressors were tested, along with an unsuppressed condition. Ten discharges were recordedfor each condition. Five field microphones were positioned at four locations around the universal receiver. Impulses in quasi-free field and reverberant environments are compared and the impact of combustion gases within the suppressor and the number of discharges to achieve stable estimates of noise reduction are considered. Similar FSNRs were observed in the environments. Clearing the suppressor of combustion gases had variable effects on impulse level, and relatively stable estimates of suppressor attenuation were achieved with seven test discharges.

Development and Testing of a Novel Inflatable Earplug

Speaker: Anthony Dietz

Current foam and flanged earplugs have issues with consistent fitting that translate to reduced attenuation values in the field compared to the experimenter-fit laboratory measurements used to determine attenuation ratings on labels. Custom-fit earplugs demonstrate more consistency, but the required impressions add an additional logistics burden. Furthermore, the deep insertions required for high attenuation and reduced occlusion effect can be uncomfortable with traditional earplugs. A novel inflatable earplug is described that has the potential to improve ease of fit, consistency of fit, and comfort for deep insertions. The earplug comprises a slender stem that slips into the ear canal and a fluid-filled bulb that rests in the concha. Pressing the bulb inflates the tip, creating a comfortable, secure acoustic seal. The measured effects of inflation fluids with varying density and viscosity on attenuation and occlusion effect are presented and compared with those for a foam earplug. These measurements were made on an instrumented biofidelic head with simulated skull, brain, and skin so that both air- and bone-conduction sound transmission pathways are included. The results provide insights into the frequency-dependent sound transmission mechanisms affecting both the attenuation and the occlusion effect of this new type of earplug.

Considerations in Active Noise Reduction Hearing Protectors

Speakers: Hilary Gallagher, Daniel Williams

Selecting an appropriate hearing protection device is an important task for those spending time in hazardous noise. There are many device options available that may or may not reduce the risk of hearing loss or other hearing related disabilities. Understanding the noise environment is an important piece of information needed prior to selecting a hearing protector. Devices with active noise reduction (ANR) may provide additional low-frequency protection. ANR is not required in all noise environments, those with little low-frequency content,although ANR may benefit the user by increasing their perceived comfort and improving speech intelligibility performance. It is also important to determine if other personal protection equipment may be used with the hearing protector (e.g. communication earplugs, spectacles, chem/bio hoods). This information is critical for circumaural, ANR devices as the use of other PPE may create an acoustic leak and some ANR, depending on the design, will become unstable and generate unwanted noise under the hearing protector. This presentation will review ANR attenuation metrics, ANR beneficial noise environments, and new methods to measure the effect of acoustic leaks on ANR performance.

Preserving the Hearing Health of Music Students: From Exploring the Risks of Noise Overexposure to Prevention Strategies

Speakers: Milena Kovalski Oliveira, Adriana Bender Moreira de Lacerda

In this pilot project, we explored the risks associated with noise overexposure in music practice. We used iniciallya questionary, where we found the acknowledgment about hearing prevention and protection from musicians. A test innovative prevention strategies with a group discussion was made including musicians, where we test and talk about the feasibility (e.g. duration, number of sessions, satisfaction) on a small number of musicians. In the long term, the ultimate goal of the project is to implement a program to promote the hearing health and well-being of musicians and music industry professionals by adopting an ecological approach to health promotion with action on the determinants of health, including prevention, early identification and rehabilitation.

Validation of a Novel Inflatable Earplug through Human Subject Testing

Speaker: Tristan Ziegler

The attenuation provided by earplugs in the field can vary widely among wearers and compliance remains a challenge for many hearing conservation programs. For a subset of wearers, none of the current earplug types provide satisfactory performance. Here we compare the fit and performance of a standard foam earplug to that of a novel inflatable earplug that has the potential to improve fit and reduce variability in attenuation for a wide population of wearers. Attenuation measurements were made using a fit check system as well as a Microphone in Real Ear (MIRE) technique. The MIRE technique was also used to measure the occlusion effect. Ear canal length and other anthropometric dimensions were measured, and ear canal impressions were made for both ears of every subject. Each subject also filled in a fit and comfort survey for each type of earplug. We compare the performance of these two types of earplugs across this fit population and compare their comfort and ease-of-use ratings. The results demonstrate the relative advantages of each type of earplug and demonstrate the benefits that may be gained by adding inflatable earplugs to the foam, flanged, and custom earplug types currently provided in hearing conservation programs.

Who Monitors the Monitors?

Speakers: Frank Wartinger, Juan Vasquez, Brendan Fitzgerald

This session will review available resources and techniques for selection, fitting, and verification of in-ear monitors. Musicians rely on monitor systems to perform, however traditional speaker-based stage monitor approaches often result in increased sound exposure for the performers, crew, and ultimately the audience. For decades, in-ear monitors have been employed to replace or supplement traditional monitoring methods. While the adoption of these systems has expanded, the methods to verify and support safe use of them are not as commonly understood. Through live audio demonstrations and interactive listening activities, attendees will learn to leverage clinical audiologic tools and skills to meet this important need.

Earphones in the Workplace

Speaker: Martin Robinette

Music in the workplace is common and has a long and interesting history. With the widespread use of earphones and earbuds, questions often arise about the safety of using such devices in the workplace. A common concern is that use of earphones for personal listening in the workplace may interfere with hearing critical tasks. This presentation will discuss the factors that should be considered when determining the impact of earphone use in the workplace.

Gasaway Lecture

Acoustical Paths: From Idea to Invention to Implementation

Speaker: Jérémie Voix

Following the professional path of a young doctoral candidate in the field of industrial acoustics, who was introduced to the NHCA conference in 2001 and has since risen to prominence as a distinguished professor renowned for his groundbreaking research in in-ear technologies, this presentation offers a unique opportunity to delve into a collection of notable innovations from recent years. These innovations span from the inception of instantly custom-molded earplugs to the ongoing evolution of wearable brain-machine interfaces. Notably, it encompasses the advancement of commercial fit-test methodologies for hearing protectors that have now gained widespread acceptance within the realm of occupational health and safety. In addition to this steadfast pursuit of ideas, inventions, and practical implementations, a journey now steered by the ÉTS-EERS Industrial Research Chair in In-Ear Technologies at Université du Québec, the pivotal role of guiding and nurturing students andresearchers will be underscored.

Bringing Certainty to Highly Uncertain Hearing Conservation Programs

Speakers: Olav Kvaløy

Hearing Conservation Programs (HCP's) typically estimates the various noise environments a worker will encounter during a workday. Environment noise levels and duration of work are considered. This estimation could have an uncertainty of 15dB. In addition, if the worker needs to wear a Hearing Protection Device (HPD),HPD attenuation must be subtracted from the levels in each situation. The HPD attenuation will vary between workers, and also between each fit on the same worker. Attenuation variability can easily be 10dB.
In total, the exposure estimation uncertainty may be a problematic 25dB. Fit-testing, teaching HPD use and close follow-ups of the workers will mitigate, but will not sufficiently eliminate this uncertainty. Even industries with mature HCP's are still recording hearing loss as the most prevalent HSE issue. This situation cannot continue.
There is a more accurate solution to the problem: continuous in-ear monitoring. By monitoring levels behind the HPD barrier, all the above-mentioned uncertainties vanish. In such a system the actual exposure is measured,not estimated. In addition, data from such devices enables previously unavailable opportunities and advanced features to help lower the prevalence of NIHL and improve safety behavior's.

Can Dangerous Decibels be Shortened?

Speakers: Eranthi Liyanaduwa Kankanamge

Introduction: Dangerous Decibels (DD) is designed to teach schoolchildren how to protect themselves from noise. DD has nine modules covering sound, ear anatomy, noise-induced hearing loss, and hearing protection. Typically, it takes about 45 minutes to run.
Objectives: We wanted to know whether shortening the programme by dropping modules one by one would impair its effectiveness.
Study design: A controlled experiment with convenience sampling
Methods: 173 children participated. The control group received the complete DD programme, while each experimental group received DD training, omitting one module. Effectiveness was measured: pre-training, and one-week and three-months post-training.
Results: The control group outperformed other groups. The interconnectedness between modules was evident:the omission of modules like module two, 'What is sound', module five, 'What is that sound' and module eight,'How to use earplugs' not only impacted their respective outcomes but also had a ripple effect across other modules. However, notably, certain modules effectively bridged these gaps. Despite variations in one-week post-training scores, long-term retention of the key messages was similar across groups.
Conclusion: The complete DD programme showed better long-term retention of the key messages, emphasizing the significance of a holistic approach in hearing health promotion.

Five Years of the NOISE Study: Audiometric Threshold Shifts in a Military Population by Baseline Hearing and Self-Reported Military Noise Exposure

Speaker: James Schultz

Little is known about the many hazards leading to hearing changes during and after military service and the many factors that may alter the trajectory over time, especially degree of noise exposure. This study aimed to elucidate longitudinal shifts in pure tone hearing sensitivity within military personnel enrolled in the Noise Outcomes in Service members. Epidemiology (NOISE) Study. This analysis includes 250 participants who completed pure tone audiometry at two time points, five years apart. Threshold shifts (>15 dB at any frequency 250-8,000 Hz) were examined by baseline hearing (normal/abnormal) and self-reported military noise exposure (low/medium/high). Those with hearing loss at baseline had higher odds of experiencing a threshold shift in five years compared to those with normal hearing (unadjusted odds ratio=3.1, 95% CI: 1.3-6.9). Compared to those with low noise exposure, those with medium or high exposure also had higher odds of a threshold shift, but did not reach significance. Military personnel with elevated hearing thresholds at baseline may be at increased risk of further hearing changes. Exposure to medium or high noise may link to worsening threshold shifts but this may evolve more gradually. The complexity of hearing changes in military personnel throughout their life course necessitates longitudinal scrutiny.

Investigational Inner Ear Medicines: Is Prevention of NIHL a Realistic Goal?

Speaker: Colleen Le Prell

Since the identification of biochemical pathways that drive noise-induced cell death in the inner ear in the 1990's,there has been tremendous interest in the potential for development of "otoprotective" drugs. If there were FDA-approved medicines that reliably decreased or prevented noise injury, these medicines could potentially supplement hearing protection devices and more effectively prevent the development of noise-induced hearing loss in soldiers, workers, and musicians. A wealth of pre-clinical data collected in rodent models have shown evidence of benefit, but the outcomes in human clinical trials have been much more mixed. This session will review clinical trial outcomes and the current status of otoprotective drug development efforts. In addition, this session will provide practical take home messages you can share with patients regarding both the drug discovery pipeline and dietary supplements that are currently sold in the absence of supporting clinical data. Dietary supplements that are commercially available to consumers importantly differ from over-the-counter medicines such as acetaminophen in that they have not been evaluated by the FDA for either safety or efficacy and they are marketed with required disclaimers.

Advancing a Hearing Conservation Program with Expanded Audiometric Testing

Speakers: Taylor Paige

US military members inherently have a higher risk of hazardous noise exposure and therefore have a higher incidence of auditory damage. The current study addresses identifying said damage and expands on our pilot study. Paige (2022) completed a traditional auditory evaluation and an expanded test battery on normal hearing military personnel (separated based on exposure to occupational noise). Results indicated members with continuous noise exposure were significantly less likely to have a threshold at 16000 Hz as compared to members without occupational noise exposure or with impulse noise exposure. These findings suggested EHF audiometry may be beneficial to include in diagnostic hearing conservation test protocols. This study also compared Speech-in-Noise (SIN) results among this population, which did not reveal significant findings. Ultimately, there was a limited number of participants. Our current study included more participants and additional SIN tests. We aimed to determine the most sensitive SIN test and whether EHF audiometry is a more sensitive measure of auditory damage due to noise exposure than conventional audiometry or DPOAEs in military members. We also aimed to identify correlations between EHF thresholds and SIN results. At the time of this submission, data collection is complete, and data analyses are currently in progress.

Identification of Industries with Co-Exposures to Noise and Ototoxicants in the NIOSH Health Hazard Evaluation Database

Speaker: Chandran Achutan

The purpose of this study was to determine whether Health Hazard Evaluations (HHEs) containing exposure data could be used to assess cumulative risks in the workplace. We identified and reviewed 28 reports with respect to noise and ototoxicant sampling data. Ototoxic chemicals – solvents, asphyxiants, and metals – interact with noise to exacerbate hearing loss. Manufacturing and construction jobs were of special interest because of recognized opportunities for such co-exposures to occur in these sectors. We established the following screening criteria: (1) noise levels at or above the NIOSH recommended exposure limit (REL) of 85 dBA, and (2)ototoxicant concentrations exceeding 20% of the ACGIH threshold limit value (TLV®) for these chemicals. Although existing HHE reports were limited in number and scope, combined exposures of potential concern were identified across different sectors using our criteria. This included product manufacturing and weapons firing, but also industries or occupations that were new, evolving, or previously unrecognized as having opportunities for such co-exposures, such as electronic waste recycling and various service industries. Recommendations are

provided for improving the identification, sampling, and analysis of combined exposures to noise and ototoxicants in the workplace.

A Systematic Review of Jet fuel (JP-8) Ototoxicity and Designing an Epidemiological Study of Ototoxicity Prevalence in British Columbia

Speaker: Helen Wu

Millions of workers in the United States are exposed to solvents every day, and many of these solvents are potentially ototoxic. To better understand solvent ototoxicity, a systematic review was conducted. The review examining animal exposure to jet fuel (JP-8) was conducted in collaboration with NIOSH researchers who plan to issue international health standards to facilitate improved protection for occupational ototoxic exposures. JP-8 is a hydrocarbon mixture that contains many ototoxicants including solvents ethylbenzene, toluene, and xylene. Six toxicological studies were analyzed, five of which examined JP-8 exposure and noise. All studies reported damage to the auditory system. One study found inner hair cell impairment, while two studies reported outer hair cell impairment. Studies also reported central auditory processing disorder and a decrease in neural firing from auditory stimuli. The authors are subsequently examining a provincial audiometric database to determine the prevalence of hearing loss in workers exposed to ototoxicants based on industry and occupation. Noise and chemical job exposure matrices were used to create occupation and industry exposure groups based on their frequency, probability, and intensity of ototoxicant exposure. An overview of the study design and progress will be presented.

Prevalence of Hearing Loss Among Noise-Exposed Workers within the Construction Sector, 2010-2019

Presenter: Elizabeth Masterson

Background: The purpose of this study is to estimate the prevalence of hearing loss among noise-exposed U.S. workers within the Construction sector.
Methods: Audiograms for 1.6 million workers (29,185 within Construction) from 2010-2019 were examined. Prevalence and adjusted risk for hearing loss as compared with a reference industry (Couriers and Messengers) were estimated for the Construction sector and sub-sectors, and all industries combined.
Results: The prevalence of hearing loss within the Construction sector was 18% compared to 15% for all industries combined. The sub-sectors with the highest prevalences for hearing loss were: Electrical Contractors and Other Wiring Installation Contractors (22%), Industrial Building Construction (22%), Commercial and Institutional Building Construction (22%), and Masonry Contractors (21%).
The sub-sectors with the highest adjusted risks were Other Heavy and Civil Engineering Construction, Finish Carpentry Contractors, Commercial and Institutional Building Construction, and Industrial Building Construction, with risks 64%, 56%, 49%, and 49% higher than the reference industry, respectively.
Conclusions: Hearing loss continues to be a significant issue within the Construction sector. Reducing noise exposure is critical, including buying quieter equipment, keeping moving parts oiled and well-maintained, and enclosing noise sources. Barriers to workers consistently and correctly wearing their hearing protection also need to be addressed.

Fit Testing Results and Training Outcomes: Effects of Training on Personal Attenuation Rating for Uniform Fit Earplugs

Presenter: Conner Jansen
Co-Authors: Amanda Duren, Colleen Le Prell

Significant differences between individual attenuation, measured as a personal attenuation rating (PAR), and labeled noise reduction rating (NRR) have driven recommendations for fit testing in hearing loss prevention programs. Fit testing provides a process to verify individuals can obtain appropriate attenuation. We assessed PAR in participants using earplugs marketed for music appreciation using real ear at threshold (REAT) techniques in sound field before and after training on HPD insertion. After the first HPD insertion, participants were trained to insert HPDs, with PAR reassessed after two trained insertions. Participants were tested with four HPD brands over four sessions with order counter-balanced. For each HPD, some participants have no previous training whereas others were trained on other HPDs. Trained PARs were significantly larger than untrained PARs, suggesting training was effective. Interestingly, study-provided training on other HPDs did not reliably increase initial PAR for HPDs assessed at later study sessions. PAR measures after the first and second training interventions were not reliably different, suggesting most training benefit was accomplished during the first trained insertion. Taken together, these data support recommendations that HPD attenuation should be verified using fit testing, and suggest PAR is reliably improved when training is provided.

Hearing Loss, Environmental Exposures, and Work History in Female Farmers & Ranchers

Presenter: Jan Moore

Progressive and permanent sensorineural hearing loss associated with noise exposure (NIHL) is a chronic health condition in agricultural workers. In terms of hearing health, there is little information about the exposures of noise and other environmental hazards on women primary operators of crop and livestock producers. Hearing loss has been identified as a modifiable risk factors across the lifespan associated with dementia later in life. The purpose of our study is to examine the relationship between long-term noise-induced hearing loss (NIHL) and risk for dementia in independent female farmers and ranchers. This presentation will focus on demographic data, work history, noise exposures, and other co-morbidities associated with NIHL and dementia in 23 women primary and secondary operators of farms and ranches. Our protocol includes audiological assessment, a comprehensive background history, and a survey of communication concerns. Among primary operators, there was a wide range of hearing loss across participants with women participants demonstrating similar hearing status as the men. Some patients exhibited multiple risk factors for dementia. We are continuing to gather data on women operators and examine their unique health and communication concerns.

The Use of In-Ear Dosimetry to Understand Musician's Unique Sound Exposure (MUSE)

Presenter: Allison Woodford

Co-Authors: Colleen Le Prell, Heather Malyuk, Emily Myers

Sound, the product of musicians' art and work, can lead to auditory deficits impacting quality of life from communication difficulty to career implications. However, damage due to sound exposure is 100% preventable. The MUSE study was designed to measure sound exposure near the tympanic membrane providing more accurate assessment of ear-specific exposure, risk inherent in musical activities, and the actions necessary to protect against overexposure. Sound levels were measured both near- and in- the ear while playing the violin, (closer to the left ear), providing insights into potential overexposure and sound level asymmetries. Functional asymmetries were assessed through conventional (0.5-8 kHz) audiometry, questionnaires, and the Words-In-Noise (WIN) test. Early warning signs of auditory damage – extended high frequency (EHF) thresholds and distortion product otoacoustic emission (DPOAE)—were also measured. MUSE will ultimately enroll musicians ranging from pediatric early learners to adult professionals, providing a lifetime approach to musician hearing health. Data presented in this poster are from school aged participants ages 10-17. MUSE builds on previous research exploring music-induced hearing disorders (MIHD) by looking specifically at ear-specific sound levels while playing violin, thus incorporating asymmetric exposure and ear-specific amplification, with the goal of facilitating evidence-based practices for the prevention of MIHD.

Hearing it Out: Can a Webtool Help Prevent Occupational Hearing Loss?

Presenter: Ursula "Asha" Brogan

Occupational Hearing loss affects 22 million Americans each year, despite a wealth of hearing loss prevention solutions. Researchers at the National Institute for Occupational Safety and Health investigated which barriers are holding workers back from utilizing prevention solutions conducted through surveys and in-depth interviews in English and Spanish with construction company employees and workers. They found the biggest barrier was awareness of serious health risks associated with preventable hearing loss. To spread messaging, the team built a new webtool: Preventing Occupational Noise-Induced Hearing Loss. The site provides a place for employers and safety professionals to find easy-to-implement solutions based on the hierarchy of controls. Published in May 2023, the landing page singularly hosted 1,469 visitors in the first three months. The first subpage "Understand Noise Exposure" is the most visited subpage with 1,037 visits from the first reporting period (May 1 – Aug. 31, 2023) emphasizing the need for hearing loss awareness information. Web metrics such as these from the webtool's first year of publication can help researchers better understand which aspects of prevention solutions audiences are spending time reading, helping to infer topics for future intervention campaigns.

Hearing Status Over Time Among Firefighters: Analyses of the Wildland Firefighter Study

Presenters: Kristy Deiters

Co-Authors: David Byrne, Gregory Flamme, Pamela Graydon, Christa Themann

Wildland firefighters work primarily outside densely populated areas to manage wildfires. These workers are exposed to many hazards, including noise, asphyxiants, and organic solvents. The Wildland Firefighter Exposure and Health Effects (WFFEHE) study collected cross-sectional and longitudinal data across multiple domains. This presentation describes factors related to hearing and tinnitus among participants in the WFFEHE. Hearing sensitivity was characterized using the Global Burden of Disease metric and average better ear thresholds at 3, 4, and 6 kHz. Tinnitus was self-reported. Generally, relationships between hearing, tinnitus, systemic inflammation biomarkers, cholesterol, NSAID use, hearing protector use, airway symptoms, cigarette use, rock dust exposure, and previous firefighting were identified. Interleukin (IL) 8, tinnitus, prior exposure to rock dust, increased cholesterol, regular NSAID use, cigarette use, and history of firefighting were related to poorer hearing status. IL-6 and hearing protector use while firing weapons were inversely related to poorer hearing status. Some factors (e.g., arterial stiffness, results for women) were not included in these analyses due to small sample sizes. These results can inform future large-scale studies of hearing and related factors among firefighters.

The Education Level, Promotion, and Attitudes Towards the Wearing of Hearing Protection Devices by High School Band Directors

Presenter: Emily Myers

Co-Author: Colleen Le Prell

Band directors are at risk for Music-Induced Hearing Disorders (MIHD) as a consequence of their sound exposure during band direction as well as any individual rehearsal and performance activities. MIHD can be prevented by use of hearing protection devices (HPDs). The primary purpose of this study was to assess previous education on hearing loss prevention for high school band directors. Relationships between education and use of HPDs, the extent to which directors educate students on MIHD and recommend or require HPD use, and auditory complaints of participating band directors were assessed. The Beliefs About Hearing Protection and Hearing Loss [BAHPHL] scale was modified for use with musicians and used to assess attitudes about HPDs. The Musicians' Hearing Handicap Index (MHHI) was used to collect a self-evaluation of auditory deficits, and the abbreviated Speech, Spatial and Qualities of Hearing scale [SSQ-12] was used to assess hearing in noise ability. Participants were recruited virtually using electronic mail addresses posted on high school band websites. The high school bands were selected using the Bands of America regional and national competition lists and the Horn Rank lists. All data were collected via electronic survey.

Comparing Earplug Attenuation and Speech Perception in Individuals with Normal Hearing and Hearing Loss

Presenter: Ahmed El Mawazini

Co-Author: Christian Giguère

Fit-testing technology is emerging as an important tool to guide the selection of hearing protectors and verify attenuation. The Personal Attenuation Rating or PAR provides a more direct estimate of the protection that individual workers are expected to obtain compared to laboratory measures with a group of test subjects. As such, the PAR value is invaluable for determining the effective noise exposure from the use of hearing protectors and identifying cases of insufficient protection. Another objective when selecting hearing protectors is to be able to communicate verbally and hear the important sounds in one's working environment. This presentation will report on a pilot study aimed at comparing the attenuation produced by earplugs to speech perception outcome in participants with normal hearing and hearing loss, before and after providing fitting instructions. Preliminary results showed that the attenuation achieved was similar between the two groups, but adverse impact on speech perception was more evident in some participants with hearing loss that obtained large attenuation values when properly fitting their earplugs. The goal of this research is to develop tools and provide more detailed guidance on hearing protector selection to control the risk of overprotection.

Acoustic Properties of High-Fidelity Hearing Protection Devices and Music Quality Perception

Presenter: Azalea Coste

Earplugs marketed for music listening vary in both degree and uniformity of attenuation. These acoustic variables are hypothesized to be associated with sound quality. The primary purpose of this study was to examine relationships between acoustic variables and music quality ratings from participants using earplugs in real-world settings. In addition, the role of sound quality and comfort in likelihood of recommending earplugs to others was assessed. Four earplug brands were included with one brand assessed per study visit and earplug order counter-balanced across participants. At each visit, attenuation was measured before and after training on correct earplug insertion. After participants wore the earplugs in loud music environments, they submitted sound level measurements and sound quality ratings via electronic surveys. Although there were no statistically significant differences in overall sound quality ratings across HPDs, the data suggest that music quality ratings decrease as attenuation increases, indicating the importance of music audibility to music listeners. In contrast to previous results collected in a lab setting, relationships between uniformity (flatness across frequencies) and sound quality were not observed. Both sound quality and comfort were statistically significantly associated with recommendation ratings. For music listeners, audibility needs and comfort are key factors.

Using Hearing Aid Algorithms to Improve Speech Intelligibility of Digital Hearing Protectors: A Pilot Study in Lab with Industrial Noise

Presenter: Solenn Ollivier

Co-Authors: Fabien Bonnet, Rachel Bouserhal, Christian Giguère, Hugues Nélisse, Jérémie Voix

Wearing hearing protection devices (HPDs) has become a widespread practice to mitigate noise-induced hearing loss (NIHL) among workers exposed to high noise levels. However, while HPDs effectively reduce noise exposure for most individuals, they can bring challenges for those already afflicted with NIHL. These individuals often face increased difficulties in communication and sound detection while wearing HPDs. Some attempt to overcome these challenges by wearing hearing aids either alone or in conjunction with HPDs (e.g., under earmuffs), but the consequences of such practices on hearing health remain uncertain. To address this issue, a hybrid device combining hearing protection and hearing aid features is needed. Hearing aid algorithms (e.g., Modulation-Based Digital Noise Reduction, Wide Dynamic Range Compression, Fast Dynamic Compressor) have been programmed on an electronic Auditory Research Platform (ARP), which can connect to digital earpieces designed for hearing protection. This study explores the effects of algorithm adjustments on speech intelligibility in typical workplace noise. An adapted Hearing In Noise Test (HINT) is performed on participants with mild-to-moderate and without hearing loss. Speech Reception Thresholds (SRT) and reaction times are compared in various conditions to recommend the optimal algorithm combinations and parameters adjustments compatible with a real-time implementation on the ARP.

Chandran Achutan
CDC/NIOSH

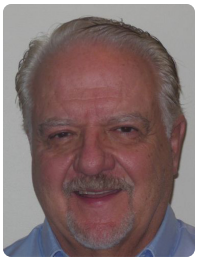
Chandran Achutan, PhD, MS, CIH, is a lead research health scientist with the National Institute for Occupational Safety and Health in Cincinnati, Ohio. He is assigned to the Science Applications Branch where he works on policy documents. Prior to his employment at NIOSH, Dr. Achutan was an Associate Professor at the University of Nebraska Medical Center College of Public Health. He has conducted noise and hearing loss research on farmers and is a former member of the Council for the Accreditation of Occupational Hearing Conservationists. Dr. Achutan earned his doctoral degree in Industrial hygiene from the University of Iowa.

Srividya Grama Bhagavan
University of Iowa

Srividya Grama Bhagavan joined the Ph.D. program at Iowa in fall 2021. She completed her Bachelor's in Speech Language Pathology and Audiology (B.A.S.L.P.) in 2016 from Bangalore University, India, and Master's degree in Audiology and Speech-Language Pathology (M.A.S.L.P) in 2019 from Manipal Academy of Higher Education, Mangalore, India. Prior to joining the Ph.D. program, she worked as an Audiologist and Speech Language Pathologist in renowned hospitals and private clinics in India, where she authored three international publications. Apart from academics, Srividya like to listen to music, read, travel, and hike.

Ursula "Asha" Brogan
NIOSH

Ursula "Asha" Brogan, M.S. is a Health Communication Specialist at the National Institute for Occupational Safety and Health where she works In the Engineering the Physical Hazards Branch within the Division of Field Studies and Engineering. Asha completes a variety of projects to create and disseminate clear communication products such as website tutorials, social media posts, blogs, fact sheets, and infographics. She also helps plan injury and illness prevention campaigns promoting easy-to-implement safety strategies, most recently she completed publication of the webtool Preventing Occupational Noise-Induced Hearing Loss hosted on the CDC Website.



John Casali
Virginia Tech; Hearing, Ergonomics & Acoustics Resources (HEAR), LLC

Dr. Casali is Grado Professor of Industrial & Systems Engineering at Virginia Tech (VT), and a Board-Certified Professional Ergonomist (CPE). He founded the Auditory Systems Laboratory at VT in 1983. He also is CTO of HEAR, LLC, a research/design and litigation support firm. He is a Fellow of the Institute of Industrial Engineers and the Human Factors & Ergonomics Society, the latter presenting him with the 2023 Hansen Outreach Award for applying ergonomics for benefit of humankind, and the 2017 Lauer Safety Award for advancements in safety. He received the 2016 NIOSH-NHCA Safe-in-Sound Award for Innovation in Hearing Conservation. His externally-sponsored research and foundation funding at VT has totaled $15+ million, across over 120 contracts and grants. As a consultant, he served over 80 companies and government agencies, and twice received VT's highest external award for Outreach, recognizing his pro bono work in community and other settings. He has 7 patents and over 200 publications, and has advised 25 Ph.D. and 31 Master's students to graduation. He works with companies, the U.S. military, and government agencies on warning signal issues, hearing protection/earphone design, community noise, ergonomics, and patent/product litigation. He likes being a trial-and-error mechanic to his classic sports cars.

Azalea Coste
University of Texas at Dallas

Azalea Coste is a second year student in the Doctor of Audiology program at the University of Texas at Dallas. She earned her Bachelor of Arts in Communication and Public Relations from George Mason University. Her research interests include recreational noise exposure, hearing loss prevention, and speech-in-noise processing for neurodivergent listeners.

Richard (Dick) Danielson
The University of Texas Medical Branch

Richard (Dick) Danielson PhD, managed a unique program at NASA-Johnson Space Center, where he collaborated to resolve auditory and acoustic issues on the International Space Station and future space vehicles. As a military audiologist, Colonel (Retired) Danielson directed several Army audiology and hearing conservation programs in the U.S. and Europe, and led an Audiology Task Force that deployed for Operation Desert Storm. He has been a faculty member of several medical colleges and universities, the chair of CAOHC, and served in leadership roles for national and state audiology organizations. His has received NHCA's "Outstanding Hearing Conservationist Award" and NASA's Astronaut Personal Achievement Award (the "Silver Snoopy").

Kristy Deiters
Stephenson and Stephenson Research and Consulting (SASRAC)

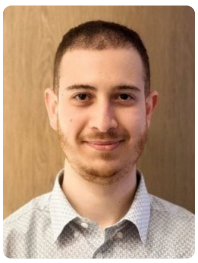
Dr. Kristy Deiters is a research audiologist and consultant with a doctorate in Audiology (Au.D.) from Western Michigan University and a Bachelor of Arts degree in Marketing and Economics from Alma College. Dr. Deiters' research interests range from changes in hearing over time, reliability of hearing thresholds, the dependability of middle ear muscle contractions as hearing protection, and the epidemiology of and risk factors for hearing loss. In 2021, Dr. Deiters and her co-workers received the NIOSH Alice Hamilton Award for Excellence in Occupational Safety and Health (Epidemiology and Surveillance category) for their leadership through science and publishing their work on population-based age adjustment tables for occupational hearing conservation programs.

Anthony Dietz
Paxauris

Dr. Dietz is President and Founder of Paxauris. He received his undergraduate degree in Aeronautical Engineering from the University of Sydney and his doctorate from Oxford University, where he was a Rhodes Scholar. He has served with the Royal Australian Air Force as a Flight Test Engineer and worked as a research scientist at NASA. Later, at Creare, Dr. Dietz led research and development projects on a variety of applications, including the conception and development of a new Flight Deck Cranial for Navy aircraft carrier deck crews. Now at Paxauris, Dr. Dietz is focused on developing and commercializing innovative hearing protection for military, industrial, and consumer applications.

Jackie DiFrancesco
Michael & Associates

Jackie DiFransesco, PhD, AuD, is a research audiologist at Michael & Associates, Inc. She completed her doctoral studies in audiology at the University of Connecticut. She has experience in occupational audiology, as well as with hearing protection research and development (R&D) and regulatory compliance. Her R&D interests include exploring the safety and optimization of hearing protection for workers with hearing loss.



Ahmed El Mawazini
University of Ottawa

Ahmed El Mawazini is a first year Ph.D. student at the University of Ottawa, where he also completed a Master's degree in Audiology and a Bachelor's degree in Health Sciences. He is also a certified audiologist, and his research interest lies in speech intelligibility in noise and hearing loss prevention. Ahmed's doctoral project will focus on developing auditory tests that can be used by the professional workforce to measure the effect of auditory protection and situational awareness.

Cameron Fackler
3M Company Personal Safety Division

Cameron Fackler, Ph.D., is an Acoustical Engineer with 3M's Personal Safety Division, supporting research and development for hearing protection and communications devices. He is especially interested in hearing protector fit testing and hearing protection for impulsive noise. Cameron is active in ANSI and ISO standardization work related to hearing protection. He chairs ANSI Working Group S12/WG 11, which is responsible for the ASA/ANSI standards related to hearing protector attenuation and fit testing.

Donald Finan
University of Northern Colorado

Donald Finan, PhD. is a Professor of Audiology and Speech-Language Sciences at the University of Northern Colorado. He received a BS in speech-language pathology and audiology from Eastern Illinois University and a MS in speech-language pathology from the same institution. He received a PhD in speech physiology and neuroscience from Indiana University – Bloomington. His research interests include measurement of noise and associated auditory exposure, music-induced hearing disorders, technology use in clinical and research settings, and developing innovative tools and pedagogies for speech and hearing science instruction. He has served as one of the founders and the inaugural Coordinator for the American Speech-Language-Hearing Association's Special Interest Group (SIG) 19, Speech Science. He was the NHCA Gasaway Lecturer for 2021.

Brendan Fitzgerald
University of Buffalo

Brendan P. Fitzgerald, MM, AuD, CCC-A serves as clinical faculty in audiology in the Communicative Disorders and Sciences Department at the State University of New York at Buffalo. His clinical interests include evaluation and management of balance disorders and auditory conditions that have an impact on performing artists. Having previously worked as a music educator, his experiences in the classroom and on stage continue to inform his teaching and clinical practice to find effective strategies to manage conditions like hearing loss, tinnitus, hyperacusis, and misophonia. Hearing conservation programs for musicians and noise-exposed workers is also an important aspect of this work. He maintains a clinical appointment at University of Rochester Medical Center as part of their Vestibular Clinic in the Department of Otolaryngology.

Gregory Flamme
SASRAC

Dr. Gregory Flamme is the Senior Scientist and Chief Operating Officer of Stephenson and Stephenson Research and Consulting (SASRAC), which is a company founded by Dr. Mark Stephenson and Dr. Carol Stephenson. Dr. Flamme has a Ph.D. in Audiology from the University of Memphis, completed post-doctoral work in Epidemiology and Biostatistics at the University of Iowa, and was an Associate Professor in the Department of Speech-Language Pathology and Audiology at Western Michigan University prior to joining SASRAC. Dr. Flamme's research interests include the prevention, treatment, and epidemiological study of hearing impairment.

Hilary Gallagher
Air Force Research Laboratory

Hilary Gallagher, biomedical/human factors engineer, started her research career supporting the United States Air Force in 2004. In 2010 she was hired as a civil servant dividing her time between the Air Force Research Laboratory and the F-35 Joint Program Office. Her research is devoted to reducing the risk of noise induced hearing loss by measuring and understanding the noise environment, estimating warfighter noise exposures, evaluating hearing protection device performance, and studying the impact of noise on human health and auditory/cognitive performance.

Kathy Gates
DHA Hearing Center of Excellence

Kathy Gates, Defense Health Agency (DHA) Hearing Center of Excellence (HCE): Dr. Gates supports the HCE Prevention and Surveillance Section. Her primary role is to promote hearing loss prevention initiatives and total worker hearing health promotion. She holds certification as a Council for Accreditation in Occupational Hearing Conservation Course Director and Professional Supervisor.

Kent L. Gee
Department of Physics and Astronomy, Brigham Young University

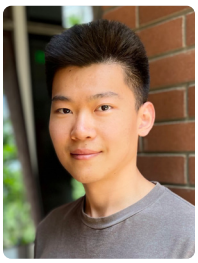
Kent L. Gee, Professor of Physics and Chair of the Department of Physics and Astronomy, joined the faculty at Brigham Young University in 2005 after completing his PhD in Acoustics at Penn State. With his research group, the Physics and Aerospace Student-Centered Acoustics Laboratory (PASCAL), Kent primarily researches high-amplitude noise sources and fields through measurements, analysis, and acoustical imaging methods. Highlights include new holography and vector-intensity methods for studying rockets and military jets, measuring the Artemis-I launch, and applying his work in nonlinear acoustics and jet noise crackle to explain in a Science paper how the massive 2022 Tonga volcano eruption was audible 10000 km away in Alaska. In 2010, Kent received the R. Bruce Lindsay early career award from the Acoustical Society of America "for contributions to the fields of jet noise propagation, nonlinear acoustics, and active control of fan noise." He was named an ASA Fellow in 2015 and an associate fellow by the American Institute of Aeronautics and Astronautics in 2023 "for contributions to the understanding of noise from full-scale supersonic jets." In 2011 and 2015, he received a Brigham Young University Young Scholar Award and Lawrence K. Egbert Teaching and Learning Faculty Fellowship, respectively.

Christian Giguère
University of Ottawa

Christian Giguère is Professor in Audiology and Speech-Language Pathology at the Faculty of Health Sciences at the University of Ottawa. He teaches courses in acoustics, speech science, instrumentation in audiology, and hearing aids. His research interests include speech communication, warning sound perception, hearing protection, and hearing loss prevention. He has authored over 150 journal articles, conference proceedings and book chapters. Professor Giguère is active in standards organizations and member of several national (CSA, ANSI) and international (ISO) technical workgroups on topics related to occupational hearing loss, hearing protection and audiology. He was president of the Canadian Acoustical Association (2007-2013), co-chair of the International Commission on the International Commission on the Biological Effects of Noise (2008-2014), and chair of the Technical Committee on Occupational hearing loss with the Canadian Standards Organization (2016-2022). He is currently Associate Editor with The International Journal of Audiology and Member of the NHCA's Task Force on Auditory Situational Awareness. He is a Distinguished International Member of the Institute of Noise Control Engineering (INCE-USA).

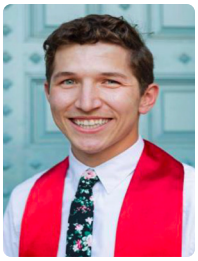
Marjorie Grantham
Examinetics

Marjorie Grantham, PhD, currently serves as an Occupational Audiologist with Examinetics, where she trains CAOHC-certified Occupational Hearing Conservationists and supports more than 3,000 clients in 15,000 facilities nationwide with a team of CAOHC-certified Professional Supervisors of audiometric monitoring programs under OSHA, MSHA, and FRA. Marjorie has 35 years' experience as a hearing conservationist, hearing health educator, public health and preventive medicine leader and manager, hearing science researcher, and Soldier. Her interests include mentoring, eating disorders recovery support, helping others become their best selves, editing, and Zumba.



Jie He
University of Michigan

Jie He is currently working as a Research Associate at University of Michigan, Dr. Neitzel's exposure lab. He earned a Master of Science degree in Environmental Health Sciences with a specialization in Industrial Hygiene from the University of Michigan, where he also held a Graduate Data Science Certificate at 2023. Jie conducted research at the University of Michigan's School of Public Health, exploring the association between occupational noise exposures and injuries. This pivotal research, funded by the National Institute for Occupational Safety and Health (NIOSH), has significant implications for the field of hearing conservation.



Conner Jansen
University of Texas at Dallas

Conner Jansen is a student in the dual AuD/PhD doctorate program at the University of Texas at Dallas. He received a Bachelor of Science at the University of Texas at Austin in Communication Sciences and Disorders with a specialization in audiology, and a minor in American Sign Language prior to joining UTD. His research interests include hearing conservation and hearing loss prevention, and vestibular disorders and diagnostics. He is currently completing his clinical externship at the Stanford Ear Institute as the audiology research fellow.

Eranthi Liyanaduwa Kankanamge
The University of Auckland, New Zealand

Eranthi is a PhD candidate in Audiology at the University of Auckland, New Zealand. Her primary research interests include noise-induced hearing loss and hearing health promotion. She earned her Bachelor's in Audiology and Master's of Public Health in Epidemiology from the University of Kelaniya, Sri Lanka.

Shayla Kaplen
University of British Columbia

Ms. Kaplen is a current Master's student in Occupational and Environmental Hygiene (OEH) at the University of British Columbia (UBC), with a background specializing in biology from UBC. Ms. Kaplen is the recipient of the Daneen Skilling Scholarship issued by the BC Manufacturing Safety Alliance, and was selected to present her practicum project on formaldehyde and xylene exposures at the local American Industrial Hygiene Association (AIHA) meeting. Ms. Kaplen is a contributor to the current epidemiological study assessing the prevalence of hearing loss based on occupational ototoxicant exposure.

Kerri Klingseis
Defense Centers for Public Health - Aberdeen

MAJ Kerri Klingseis is an Army audiologist who has served 14 years on active duty. She is the Hearing Conservation and Readiness Branch Chief at the Defense Health Agency Defense Centers for Public Health – Aberdeen. MAJ Klingseis earned her Bachelor of Science in Communication Disorders from the University of Virginia in 2006, her Doctorate of Audiology from the University of Maryland, College Park in 2010, and her Master of Public Health from the George Washington University in 2020. Previous assignments include Director of the U.S. Army Public Health Course; Response Analysis Lead for the APHC COVID-19 Task Force; Deputy Surgeon for the Maneuver Center of Excellence; Chief of the Fort Benning Hearing Program; Deputy Chief of the Joint Base Lewis-McChord Hearing Program; and Audiology Extern at Walter Reed Army Medical Center. MAJ Klingseis and her husband, Rick, live in Bel Air, Maryland with their sons, Connor age 12 and Carter age 11, and two Westies, Finn and Gracie.

Sridhar Krishnamurti
Auburn University

Sridhar Krishnamurti is Professor and Director of Audiology at Auburn University. He currently serves on the Executive council of NHCA.

Olav Kvaløy
Minuendo AS

Olav Kvaløy has a Masters in electronics/ acoustics, with eight years of experience doing technical audiology in the clinic. His areas of work include hearing aids, tinnitus and calibration. He has 18 years with the acoustics department of the research organization SINTEF, Trondheim, mainly conducting research on hearing protection and hearing aids. He participates in international standardization work , serving on CEN and ISO work groups on hearing protection. He presently serves as the Chief Scientist at Minuendo AS, producing a HPD system.

Adriana Bender Moreira de Lacerda
University of Montréal

Dr Lacerda is an audiologist specialized and an emerging researcher in the field of health promotion, prevention of hearing loss of environmental and occupational origin and audiological diagnosis, she conducted some research in evaluating noise and ototoxic effects of environmental and occupational exposure. She has collaborated on multiple projects in this field and currently supervises a Ph.D. student. Her expertise in the field of workers' hearing health has led to the implementation of various research projects in collaboration with Brazilian, Canadian, American and French researchers, with the aim of preserving the hearing of workers exposed to noise or chemical agents and the early identification of work-related hearing loss. In Brazil, she has participated in studies on the hearing health of orchestra musicians, demonstrating experience and interest in the subject. She is also a member of the Centre de Recherche de l'Institute universitaire de gériatrie de Montréal.

Colleen Le Prell
The University of Texas at Dallas

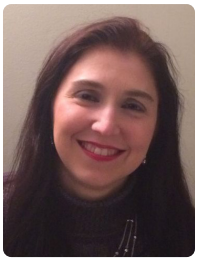
Colleen Le Prell is the Head of the Department of Speech, Language, and Hearing at the University of Texas at Dallas, where she holds the Emilie and Phil Schepps Professorship in Hearing Science. She is also the founding director of a new UTD Clinical Trials Unit, located at the Callier Center for Communication Disorders. She has received funding from government, industry, and philanthropic sources for research that programmatically advances the understanding and prevention of noise-induced hearing loss. Dr. Le Prell previously served as President for the National Hearing Conservation Association (NHCA), currently serves on the CDC-NIOSH National Occupational Research Agenda (NORA) Hearing Loss Prevention Cross Sector Council, and is an invited participant in the World Health Organization (WHO) "Make Listening Safe" campaign. She serves in Associate Editor roles for the Journal of the Acoustical Society of America and the International Journal of Audiology, and she serves on the editorial board for Hearing Research. She also serves as a member of the Auditory System (AUD) Study Section for National Institutes of Health Center for Scientific Review.

Kichol Lee
Hearing, Ergonomics & Acoustics Resources (H.E.A.R) LLC

Dr. Lee is a research assistant professor of Industrial and Systems Engineering at Virginia Tech. He also is chief scientist of HEAR, LLC, a design, testing, and litigation support company. He earned a Ph.D. in Human Factors Engineering at Virginia Tech in 2011. As a manager of the Auditory Systems Lab at Virginia Tech, he conducts various projects related to hearing-related product design and human audition. In recent years, he conducted several human auditory situation awareness military and corporate research projects, and co-developed a portable system for testing user auditory situation awareness with and without hearing protectors, called PASAT: Portable Auditory Situation Awareness Test/Training system. This system is under beta testing at two U.S. Army and one U.S. Marines facility.

Renée Lefrançois
SHOEBOX Ltd.

Renée Lefrançois obtained her degree in Audiology from the University of Ottawa, Canada in 1999. The first fifteen years of her career focused mainly on cochlear implantation; first as a clinician and then managing the Canadian arm of Advanced Bionics LLC. Renée has also been a seasonal lecturer at the University of Ottawa teaching both full courses and individual modules in Audiology. As a founding member of CanHEAR Uganda (2007), Renée delivered hearing health care services and training in several cities in Uganda. In 2014, Renée joined the SHOEBOX Ltd. team as their Director of Audiology. Having obtained her CAOHC PS(A) certification in November 2018, she has spent the last several years focusing on occupational health and is currently managing the professional supervision and clinical review activities for many occupational health customers. Current areas of interest include occupational health, noise-induced hearing loss, tele-audiology, population health, ototoxicity, and the genetics of hearing loss.



Elizabeth Masterson
NIOSH

Elizabeth (Liz) Masterson is a Research Epidemiologist in the Health Informatics Branch of the Division of Field Studies and Engineering at the National Institute for Occupational Safety and Health (NIOSH), Cincinnati, Ohio. She is the Project Officer for the NIOSH Occupational Hearing Loss Surveillance Program and serves as Co-Coordinator for the NIOSH Hearing Loss Prevention Cross-sector Research Program. She also serves on the NHCA Executive Council and the National Occupational Research Agenda Hearing Loss Prevention Cross-sector Council. Liz has a PhD in Environmental Health/Epidemiology from the University of Cincinnati and is certified in Public Health and Occupational Hearing Conservation.

Mary McDaniel
Pacific Hearing Conservation, Inc.

Mary is the owner of Pacific Hearing Conservation, Inc. a consulting firm in Seattle, WA, and has worked exclusively in occupational audiology since 1984. Dr. McDaniel is a Past President of the National Hearing Conservation Association and in 2003 received the NHCA's Michael Beall Threadgill Award for outstanding leadership and distinguished service. She was part of the NHCA's Task Force developing the Guidelines for Recording Hearing Loss. She served on the Council for Accreditation in Occupational Hearing Conservation (CAOHC), is a Past-Chair of the Council, a certified CAOHC Course Director and a Certified Professional Supervisor. She is a member of the American Speech-Language-Hearing Association and was the Chair of ASHA's Special Interest Division in Hearing Conservation and Occupational Audiology. Mary is also a member of the American Academy of Audiology.

Robert Melton
Auburn University

Robert Melton serves on clinical audiology faculty at Auburn University and completed externship training in Albuquerque (NM).

J. Andy Merkley
DHA Hearing Center of Excellence

Dr. John 'Andy' Merkley is a contract Research Administrator with the Department of Defense Hearing Center of Excellence. He holds a Master of Science in Communicative Disorders from Utah State University and a Doctor of Audiology from Central Michigan University. Dr. Merkley's professional associations include AHSA, the Military Audiology Association (MAA) and the National Hearing Conservation Association (NHCA). In addition, Dr. Merkley represents the Military Audiology Association on the CAOHC Council and currently serves as the Council Chair. He is both a certified CAOHC Course Director (CD) and Professional Supervisor of the Audiometric Monitoring Program (CPS/A).

Jan Moore
University of Nebraska Kearney

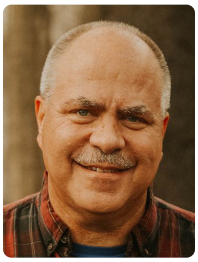
Jan Allison Moore received graduate degrees from the University of Illinois (Ph.D.) and Purdue University (M.S.) and her undergraduate degree from the University of Central Arkansas. She also completed a graduate certificate program in Public Health at the University of Nebraska Medical Center. She was a Fulbright scholar to Canada in 1993. She is a full Professor at the University of Nebraska Kearney. Her current research program in public health focuses on chemical and noise occupational exposures in agricultural workers and concomitant cognitive and balance changes in aging farmers with histories of noise-induced hearing loss.

Thais Morata
NIOSH/CDC

Thais C. Morata is a Senior Research Audiologist and Co-Manager of the Hearing Loss Prevention Program of the National Institute for Occupational Safety and Health, of the Centers for Disease Control and Prevention in the US. She is a Founding Editorial Board Member for the International Journal of Audiology and for the Cochrane Work systematic review group. She has published and lectures extensively in the United States and abroad. She is recognized as a mentor and collaborator with researchers across the globe, and recipient of several awards. Her pioneering research in the area of noise and health has contributed to international occupational safety and health policies. She is currently devoting time to the goals of improving the communication of science to the public through new media and promoting the adoption of evidence-based health practices.

Alexea Mullis
Auburn University

Alexea is a 4th year Au.D student finishing her 4th year externship at VA Atlanta.



William J. Murphy
Stephenson and Stephenson Research and Consulting, LLC

William J. Murphy is a senior scientist with Stephenson and Stephenson Research and Consulting (SASRAC). He received a B.S. in physics and an M.S. in solid-state physics from Iowa State University. He completed a Ph.D. in physics with an emphasis in hearing science from Purdue University. He joined NIOSH in 1992 and was commissioned as a Lieutenant in the United States Public Health Service (USPHS) in 1993. He completed an M.Eng. in acoustics at The Pennsylvania State University in 2012. In 2022, he retired as a Captain in the USPHS and joined SASRAC. His research is focused on measurement and evaluation of impulse noise, testing, rating, and fit-testing of hearing protection devices, and development of audiometric test methods to evaluate the hearing for an occupational setting. He is an active member of the National Hearing Conservation Association and a Fellow of the Acoustical Society of America. He is currently the chair for the ASA's American National Standards Institute (ANSI) Accredited Standards Committee S3 for Bioacoustics and vice-chair for the ASA Committee on Standards.

Emily Myers
University of Texas at Dallas

Emily Myers is a third year AuD student at the University of Texas at Dallas. She received a bachelor of science degree, majoring in Communication Sciences and Disorders, from the University of Arkansas. As a lifelong musician, playing the trumpet for over 12 years, Emily has an interest in working with musicians, noise exposure, and hearing protection. Because of this interest, she conducted research in her undergraduate studies on Noise Exposure and Hearing Protection in Marching Band Students. Emily continues to be involved in hearing conservation research as part of the NOISE lab at UTD.

Alexandra Neltner
NIOSH

Alexandra Neltner is a Research Audiologist at the National Institute for Occupational Safety and Health in Cincinnati, Ohio. She received her clinical doctorate in audiology from the Ohio University in 2022 and is certified by the American Speech-Language Hearing Association. Currently, Alexandra helps manage the audiometric testing of the upcoming 2025 National Health and Nutrition Examination Survey. She also provides audiology expertise to the NIOSH Division of Field Studies and Engineering.

Jesse Norris
Edare

Dr. Norris received his bachelor's and master's degrees in Mechanical Engineering from Virginia Tech. He continued to complete his PhD in an interdisciplinary Biomedical Engineering program between Virginia Tech and Wake Forest University. His doctoral research focused on biomechanics and neural control of human locomotion. In 2008, he accepted an engineering position at Creare (Hanover, NH), a small engineering firm that focuses on applied research and development. At Creare, Dr. Norris applied his signal processing, mechanical design, and software development expertise to a variety of projects. One key SBIR-funded project resulted in the development and transition of a handheld laser scanning system for inspecting F-35 aircraft. This product is now manufactured and sold by Edare (Creare's commercialization affiliate) to F-35 prime suppliers (Lockheed, Northrop, BAE, etc.). Following that effort, Dr. Norris continues to leverage his unique experiences to pursue projects aimed at transitioning research prototypes into commercial products to solve real-world problems. He has been the engineering lead on the development of the WAHTS since its inception as part of a NIH grant with Dr. Odile Clavier. He joined Edare in 2021 to lead the transition of the WAHTS into a product.

Milena Kovalski Oliveira
University of Montréal

I am a Brazilian Audiologyst with 25 years old. I made an internship in Montréal where I could know more about my profession in another country and love even more the research field, also where I could find out about: musicians are different around the world but the musicians problem with hearing are almost the same. I'm a person who like adventures and open to always discover and learn.

Solenn Ollivier
Université du Québec, École de technologie supérieure

Solenn holds an engineering degree from École Nationale Supérieure d'Arts et Métiers (ENSAM, France) and a Master of Science in Biomedical Engineering from Columbia University (NY, USA). Deeply passionate about sciences and their ability to help others she has always been looking to work on projects bringing science and health together and was involved in different innovation challenges. After an internship at École de technologie supérieure (ÉTS) in Montréal with Prof. J. Voix and Dr. H. Nélisse, she decided to pursue a PhD on the development of a protective hearing aid for workers in noisy environment, a collaborative research project between ÉTS, U.Ottawa, U. Laval and IRSST, the Quebec occupational health and safety research institute. Her research focuses on combining hearing aid, hearing protection and continuous monitoring of an individual's noise exposure into a single intra-aural device. The resulting prototype would aim at enhancing research on hearing impairment in noisy workplace environment and could lead to a commercialized device on the emerging high-growth market of over-the-counter hearing aids.

Taylor Paige
University of South Alabama

Maj Taylor Paige is an active duty USAF audiologist and a current PhD candidate in Communication Sciences and Disorders (CSD) at the University of South Alabama. She completed her AuD at Nova Southeastern University and her B.S. in CSD at James Madison University. Additionally, she is certified as a Professional Supervisor and Course Director through the Council for Accreditation in Occupational Hearing Conservation. During her time as a clinical audiologist, she served diligently in diagnostics and hearing conservation, earning the Early Career Professional award from the American-Speech-Language-Hearing Association. Her research efforts have been lauded by the National Hearing Conservation Association with the honor of the 2022 Student research award. Maj Paige's research interests have been focused on noise induced hearing loss, extended high frequency audiometry, and speech in noise testing for noise-exposed populations.

C. John Panicker
National Initiative for Safe Sound

Dr. C. John Panicker, Senior ENT,Head and Neck Consultant and Cochlear Implant surgeon is presently the Director, Good Health ENT Centre, Trivandrum. MBBS-1976, DLO-1978, MS(ENT) - 1985 , all from Trivandrum Government Medical College, Kerala State, India. Honorary Consultant, Sree Chitra Thirunal Institute of Medical Science and Technology, Trivandrum (Govt. of India). He had been Faculty in many National and International Conferences. Past President of State ENT Association(AOI) and Indian Medical Association (IMA), Trivandrum, Former Chief Editor of Kerala Medical Journal, Editorial Member International Journal of Noise & Health, International Journal " Annals of Nursing "; Best Doctor Awardee of Kerala State Government 2007 Distinguished Humanity Service Award, from American Association of Physicians of Indian origin (AAPI). Presently he is: Chairman - National Initiative for Safe Sound (NISS); President, Trivandrum Government Medical College, Alumni Association; Member, Kerala State Road Safety Authority; Member, Kerala state Curriculum Committee; Member, Kerala State Cochlear Implantation Technical committee.

Laura Prigge
Grason-Stadler, Manager of Clinical Education and Training

Laura Prigge is an Application Specialist with GSI. Laura received her Doctorate of Audiology degree from A.T. Still University. Laura's 20+ years of experience includes providing manufacturing support for a leading hearing aid manufacturer as well as technical audiology training and support for an international audiologic equipment company. Prior to that, she managed education and training at another hearing aid manufacturer and conducted audiologic evaluations on children, adults, and geriatric patients at a retail hearing center.

Marc Ramsey
RAPA Technologies LLC

Marc Ramsey received his PhD in Mechanical Engineering from Vanderbilt University. He specializes in physical acoustics and multiphase and compressible flows, but has broad experience developing innovative physical devices across a range of disciplines. He has worked in R&D for over 20 years with organizations including Sandia National Laboratories and Creare LLC. He founded RAPA Technologies in 2020 and is principal investigator on a project funded by the National Science Foundation to develop a novel hearing protection earplug designed to increase compliance and reduce exposure in industrial settings.

Teah Richey
Health Conservation Inc

Teah Richey, AuD, is an occupational audiologist and CAOHC-certified professional supervisor for Health Conservation, Inc., a national mobile health provider specializing in hearing conservation training, audiometric screening, audiometric database analysis and management, noise dosimetry, sound level surveys, pulmonary function, FIT testing and respiratory clearance. As a professional supervisor of audiometric monitoring programs, Dr. Richey supervises CAOHC certified audiology aides/technicians and provides professional review of hearing conservation programs to safeguard employees from hazardous noise exposures as well as provide employers with regulatory compliance and best practices.

Martin Robinette
University of Texas Medical Branch / NASA-JSC

Dr. Robinette is an audiologist with the University of Texas Medical Branch and works at NASA – Johnson Space Center as part of their Health and Human Performance Contract. In that role he provides audiometric and hearing conservation services to noise exposed NASA employees and contractors. He also supports the analysis and mitigation of acoustic and auditory issues experienced in current and future space flight. Prior to his work at NASA, he served as an audiologist and preventive medicine officer for 25 years in the U.S. Army. He received an AuD from Central Michigan and a PhD in Industrial and Systems Engineering (Human Factors) from Virginia Tech.

Scott Schneider
Safe-in-Sound Expert Committee

Scott Schneider has worked on occupational safety and health issues in the Labor Movement for over 40 years. He worked for the Carpenter's Union, The Workers' Institute for Safety and Health, the Center for Construction Research and Training (CPWR) and the Laborers' Health and Safety Fund of North America (LHSFNA), from which he recently retired. Over his career he helped develop standards to protect workers from Asbestos and Silica, fought to protect workers from noise exposure and ergonomic injuries as well as in areas such as work zone safety, fall prevention and improving safety climate in construction. He is a Fellow member of the American Industrial Hygiene Association and was awarded the William Steiger award by the American Conference of Governmental Industrial Hygienists (ACGIH) for his contributions to the field. In 2019, he received the AIHA Social Responsibility Award.

James Schultz
Geneva Foundation, Department of Defense Hearing Center of Excellence

Jim Schultz earned his BA from Columbia College Chicago and his Au.D. from Arizona State University in 2017. Following graduation he provided specialty audiology clinical services in an ENT/Neurotology practice in Phoenix, AZ. In 2020 he began his current role as a research audiologist in support of the Noise Outcomes in Service members Epidemiology (NOISE) Study at the Department of Defense Hearing Center of Excellence at JBSA-Lackland in San Antonio, TX. In 2021 he founded SoundWorks Audiology to provide local audiologic services to the community. He first joined the NHCA as a student member in 2015 and currently serves on the Executive Council as the Secretary/Treasurer.

Theresa Schulz
Defense Health Agency

Dr Theresa Schulz is Prevention and Surveillance Section Lead at the Defense Health Agency (DHA) Hearing Center of Excellence. Her background includes VA, NIOSH, US Army, US Air Force and DoD and well as industry experience in hearing loss prevention. She received her Bachelors and Masters degrees from the University of Texas at Austin and her PhD from The Ohio State University. Theresa is a past-President of the National Hearing Conservation Association. Dr Schulz is a certified Project Management Professional. She is a sought-after speaker and is passionate about sound and hearing health.

Benjamin Sheffield
Defense Centers for Public Health - Aberdeen

Mr. Sheffield is an Auditory Studies Investigator with a dual appointment at the Defense Centers for Public Health - Aberdeen and Walter Reed National Military Medical Center. He holds degrees in Electrical and Mechanical Engineering. After a four-year stint in the defense industry, he was introduced to auditory research as a volunteer in a hearing and speech lab during graduate school at UC Irvine, and now has over 16 years of experience in auditory science. He's been the principal investigator on several studies examining the relationship between hearing impairment and operational performance, and is a project lead on several public health projects, including some you'll hear about today.

Abas Shkembi
University of Michigan School of Public Health

Abas Shkembi, M.S., is a PhD Candidate in Environmental Health Sciences at the University of Michigan School of Public Health. Abas received his M.S. in Industrial Hygiene and his B.S. in Statistics both from the University of Michigan. Abas worked on various research projects Dr. Richard Neitzel's Exposure Research Lab, such as the Apple Hearing Study, a Noise Job Exposure Matrix, and investigated noise exposure, hearing loss, and injuries among surface miners in the US Midwest. His main research interests involve examining occupational and environmental exposures cumulatively, particularly noise, and how historical policies have influenced current-day exposures.

DeWet Swanepoel
University of Pretoria

De Wet Swanepoel is professor in the Department of Speech-Language Pathology and Audiology, University of Pretoria, and senior research fellow at the Ear Science Institute Australia. Prof Swanepoel's research capitalizes on the growth in information and communication technologies to explore, develop and evaluate innovative technologies and service delivery models to improve ear and hearing care. He has published more than 200 peer-reviewed articles, books and book chapters and is funded by the NIH, UK Academy of Medical Sciences, National Research Foundation, and industry. He has received numerous national and international awards in recognition of his work and serves on various boards, committees and working groups for organizations including UNICEF and the World Health Organization. Prof Swanepoel is a past president of the International Society of Audiology and currently serves as Editor-In-Chief for the International Journal of Audiology. He is also founder of a digital health company called the hearX group, a social enterprise with a vision of healthy hearing for everyone, everywhere.

Stephen Tasko
SASRAC

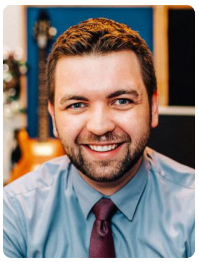
Dr. Stephen M. Tasko is a senior scientist with Stephenson and Stephenson Research and Consulting (SASRAC) and Associate Professor Emeritus in the Department of Speech, Language and Hearing Sciences at Western Michigan University. Dr. Tasko earned his Ph.D. in Communication Disorders from the University of Wisconsin-Madison and completed post-doctoral work in the Audiology and Speech Center at Walter Reed Army Medical Center. Dr. Tasko has a wide range of research interests that include assessment of firearm noise, hearing injury associated impulse noise, mechanisms of middle ear muscle function, and normal and disordered speech motor control.

Juan Vasquez
Earmark Hearing Conservation

Juan Vasquez is an audiologist based in Chicago, IL. He completed his Doctor of Audiology degree in 2019 from Pacific University and had clinical audiology experiences in VA hospital, ENT, and private practice settings throughout the United States, as well as a research internship at National Acoustic Laboratories (NAL) in Australia. Before pursuing a career in audiology he taught, recorded, and performed music with several ensembles. His clinical interests include diagnostics, tinnitus, and hearing loss prevention, particularly for musicians.

Jérémie Voix
Université du Québec (École de technologie supérieure)

A physicist by education and acoustician by calling, Professor Jérémie Voix stands adorned with a constellation of awards and honors. His recent recognition includes the Early Career Award from the International Commission on Acoustics (ICA), lauding his exceptional contributions to ear acoustics, notably in hearing protection, advanced communication, and physiological biosensing through in-ear technologies. Together with his team of researchers and graduate students from the ÉTS-EERS Industrial Research Chair in In-Ear Technologies (CRITIAS), he has published over 60 peer-reviewed journal articles and has been awarded close to 30 patents, many of them actively used by major industrial players. Professor Voix is happily involved in Canadian (CSA Z94, Z1007 and Z107), American (ANSI S12) and international standardization (ISO TC43) activities on hearing protection as well as in global promotion of auditory health with the World Health Organization (WHO). He is also a board member of the Canadian Acoustical Association, an associate member of the International Laboratory for Brain, Music and Sound Research (BRAMS) and a regular member of the Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT), housed at the Schulich School of Music at McGill University.



Frank Wartinger
Earmark Hearing Conservation

Frank Wartinger, AuD., ABAC, is the founder of Earmark Hearing Conservation, a music audiology clinic and CAOHC course provider in Philadelphia. He serves on the CAOHC (Council for Accreditation in Occupational Hearing Conservation) Council representing the American Academy of Audiology, is an adjunct faculty at Salus University and Wayne State University, and co-authored the AAA 2020 Clinical Consensus Document "Audiological Services for Musicians and Music Industry Personnel". Additionally, Dr. Wartinger created and hosts "Talking Ears", a musician-focused hearing health podcast.

Laurie Wells
3M Personal Safety Division

Laurie Wells, Au.D., is a board-certified audiologist and Lead Regulatory Affairs Specialist with 3M Personal Safety Division, where she works with hearing protection and hearing conservation regulatory issues globally. Before 3M, Dr. Wells worked for a consulting firm, Associates In Acoustics, Inc. as Manager of Audiology. The experience of directly interacting with workers at their job sites as well as consulting with corporate level health and safety professionals has allowed her to integrate real-world issues with policy making to better shape effective preventive practices. Dr. Wells served twelve years on the Council for Accreditation in Occupational Hearing Conservation (CAOHC), representing the American Academy of Audiology. She held the offices of Vice Chair of Education, Chair, and Past Chair. She continues to be an active CAOHC Course Director and teaches internationally. She also served several years on the board of the National Hearing Conservation

Daniel Williams
Air Force Research Laboratory

Daniel Williams, Audiologist, is the current Director of Operations for the Cognition and Modeling Branch within the Air Force Research Laboratory. From 2011 to current he has held positions in the Air Force in clinical audiology, hearing conservation program manager, implantable technology. He has past and current research experience that includes noise, acoustics, hearing, tinnitus, vestibular issues and cognitive effects of hearing loss and tinnitus.

Allison Woodford
The University of Texas at Dallas

Allison Staker Woodford is a dual Au.D./ Ph.D. student at the University of Texas at Dallas. Her undergraduate degree was in Communication Sciences and Disorders, completed at the University of Utah. After fifteen years of life experience – including working with children with Autism, community involvement, and hands on participation in the early education of her three children – she has returned to academia with research interests focused on the early detection and prevention of hearing disorders, currently focusing on understanding sound exposure in classical musicians. Allison was the recipient of the 2021 American Academy of Audiology Foundation's Music and Hearing Research Grant. A few of her favorite things including backpacking in the Rocky Mountains, curling up with a good book, going for a long run, and or attending a classical music performance – preferably accompanied by family or friends.

Helen Wu
University of British Columbia

Ms. Wu is a graduate of the Master's in Occupational and Environmental Hygiene (OEH) program at the University of British Columbia, and has a background specializing in pharmacology from the University of Alberta. Ms. Wu is the recipient of WorkSafeBC's Research Training Award for ototoxicity, as well as the NHCA Student Research Award, Board Certified Safety Profession Scholarship (BCSP), and the American Industrial Hygiene Association (AIHA) Scholarship. Ms. Wu is the principal investigator of the ototoxicant, jet fuel, for a large-scale systematic review for the International Ototoxicity Management Group (IOMG) and works closely with world-renowned experts in ototoxicity from the National Institute of Safety and Health (NIOSH).

Tristan Ziegler
Paxauris

Ms. Ziegler received her B.S. in Mechanical Engineering from the University of New Hampshire in 2015. She is currently Project Engineer at Paxauris where she is focused on bringing innovative hearing protection to market. Ms. Ziegler has extensive experience executing and overseeing human subject testing, acoustic testing and data analysis for hearing protection, hearing assessment, and communication devices.

NAME	CONFLICT
Chandrun Achutan	No conflict of interest
Srividya Grama Bhagavan	No conflict of interest
Amy Blank	Past President and Program Task Force, NHCA
Rachel Bouserhal	President, NHCA
John Casali	Employed, Research Contract, Principal Investigator, Virginia Tech
Richard Danielson	Teaching/Speaking, CAOHC OHC Certification Courses
Kristy Deiters	Employer has contract, NIOSH; Volunteer/ Speaker, NIOSH
Anthony Dietz	Salary, Ownership, Paxarius
Jackie DiFrancesco	No conflict of interest
Cameron Fackler	Employed, Ownership interest, 3M
Don Finan	No conflict of interest
Gregory Flamme	No conflict of interest
Hilary Gallagher	No conflict of interest
Kathy Gates	No conflict of interest
Kent Gee	No conflict of interest
Marjorie Grantham	No conflict of interest
Jie He	No conflict of interest
Eranthi Liyanaduwa Kankanamge	No conflict of interest
Kerri Klingseis	No conflict of interest
Sridhar Krishnamurti	Executive Council and Program Task Force, NHCA
Devon Kulinski	No conflict of interest
Olav Kvaløy	Employed, Intellectual Property Rights, Hold Patient on Equipment, and Ownership Interest for Employment at Minuendo AS; Volunteer Membership as Committee Expert on ISo/TC43/ SC1/WG17, CEN/TC159/WG2 and WG6
Adriana Bender Moreira de Lacerda	No conflict of interest
James Lankford	No conflict of interest
Kichol Lee	Consultant, Hearing Ergonomics & Acoustics Resources
Renée Lefrançois	Employed, Management Position, SHOEBOX LTD
Mary McDaniel	No conflict of interest
Deanna Meinke	No conflict of interest
Robert Melton	Employed, Auburn University
Andy Merkley	No conflict of interest
Stefnie Minatra	Employed, Department of Defense
Thais Morata	Employed, NIOSH
Alexea Mullis	No conflict of interest
William Murphy	Royalty and Grants, CDC/NIOSH, Edare; Program Task Force Chair, NHCA; Acoust. Soc. Am. Standards Committee; Consulting, Am. Suppressor Assoc.
Jesse Norris	Employed/Management Position, Ownership Interest, Edare

NAME	CONFLICT
Milena Kovalski Oliveira	No conflict of interest
Taylor Paige	Employed, Grants USAF
John C Panicker	No conflict of interest
Colleen Le Prell	Grants, Research Contract, Sound Pharmaceuticals Inc.
Laura Prigge	Employed, Grason-Stadler, LLC
Marc Ramsey	Employed, Intellectual Property Rights, Owner-ship Interest, RAPA Technologies LLC
Teah Richey	No conflict of interest
Martin Robinette	No conflict of interest
Scott Schneider	No conflict of interest
James Schultz	No conflict of interest
Theresa Schulz	Volunteer, NHCA and HPFT
Benjamin Sheffield	No conflict of interest
Abas Shkembi	No conflict of interest
Michael Stewart	No conflict of interest
DeWet Swanepoel	Consulting, Intellectual Property Rights, Hold Patent, Ownership Interest, for hearX Group
Stephen Tasko	Consulting, American Suppressor Association
Juan Vasquez	No conflict of interest
Jeremie Voix	Contracted Research, Grant Management, Salary; NSERC (the National Science and Engineering Research Council of Canada), EERS Global Technologies Inc., Université du Québec
Frank Wartinger	Consulting, Ownership Interest, SoundTrace
Laurie Wells	Employed, Ownership Interest, 3M
Daniel Williams	No conflict of interest
Helen Wu	No conflict of interest
Tristan Ziegler	Employed, Paxarius
Anne Sommer	Employed at Purdue University; NHCA PTF; ASHA Committee of Ambassadors In Audiology Rep 2021-2023
Shibiao Su	No conflict of interest
Stephen Tasko	Consulting arrangement with American Suppressor Assoc (ASA); presentation relies on data collected prior
Christa Themann	Employed at CDC/NIOSH
Jennifer Tufts	Creare LLC, grant (Independent contractor)
Frank Wartinger	No conflict of interest
Laurie Wells	Employed at 3M; ownership interest; Co-Coordinator of NORA Hearing Loss Prevention Cross-Sector
Helen Wu	No conflict of interest
David Zapala	No conflict of interest
Gregory Zarus	No conflict of interest
Xin Zhang	No conflict of interest

NATIONAL HEARING CONSERVATION ASSOCIATION

The National Hearing Conservation Association's 48th annual conference, February 8 – 10, 2024, is approved for 1.75 CEUS from the organizations listed below. This information is also available online at nhca.civicaconferences.com.

Instructions for receiving CEUs:

1) You must complete the presentation assessments online using the code provided to you at the end of each presentation. **Be sure to document the codes so you can submit them in the assessment, as it's required.**

You will access the LMS to complete the presentation assessments in order to receive your certificate(s) of attendance. The presentations/sessions will be grouped by day because we are approved to offer partial CEU credit by day. The best practice is to complete the assessment at the end of each day.

Benefit: The LMS system will also automatically save your CEU credits to your profile in the NHCA database and you can pull a transcript whenever you need to. And, you can manually add CEUs you earn from other events/ entities to your NHCA profile, so you have all of them in one place for easy access when you need to report them.

2) To visit the NHCA LMS and complete the conference presentation assessments:

a) Visit nhc.mclms.net

b) Click on the login button in the upper right-hand corner. After you login, you will be returned to the same webpage in the LMS. (Note: You need to login because only conference attendees have access to the conference information on the Learning Management System.) You will login using your NHCA Username and Password typically your email and a password. If you are having trouble logging in, click on "Retrieve Username" or "Reset Password." If you are still having trouble, visit us at the Registration Desk or NHCA Booth or contact the NHCA office at nhcaoffice@hearingconservation.org.

c) There will be three packages listed in the LMS – one for each day of the conference. Click on the day you are completing assessments for. Complete assessments for the sessions you attended then take the "Final Survey For Certificate" to receive your CEUs and your certificate via email. The "Final Survey" will ask you for your AAA and/or ASHA Member ID number. You must provide your Member ID number to receive credit as this will need to be provided to AAA and/ or ASHA with the final participant report. If your Member ID is not provided you are not guaranteed to receive credit.

d) Once you complete the assessments and take the "Final Survey" you will receive an email that says "Congratulations, You've earned a Certificate." The email will include your certificate of attendance for that day noting the CEUs you earned.

Day 1 = .60 CEUs
Day 2 = .65 CEUs
Day 3 = .50 CEUs
TOTAL CEUs for conference is 1.75

e) If you are attending the entire conference, you will need to complete the assessments for each day to get the three certificates the total of 1.75 CEUs for the entire conference.

3) Following the conference you will receive an email with a link to an online survey to evaluate the conference overall and submit ideas for future content. As part of the CEU approval process, we are required by AAA and ASHA to conduct a needs assessment survey for planning and development purposes.

AMERICAN ACADEMY OF AUDIOLOGY
Continuing Education in Audiology ™

American Academy of Audiology

National Hearing Conservation Association is approved by the American Academy of Audiology to offer Academy CEUs for this activity. The program is worth a maximum of 1.75 CEUs. Academy approval of this continuing education activity is based on course content only and does not imply endorsement of course content, specific products, or clinical procedure, or adherence of the event to the Academy's Code of Ethics. Any views that are presented are those of the presenter/CE Provider and not necessarily of the American Academy of Audiology.

ASHA CE APPROVED PROVIDER

The National Hearing Conservation Association is approved by the Continuing Education Board of the American Speech-Language-Hearing Association (ASHA) to provide continuing education activities in speech-language pathology and audiology. **See course information for number of ASHA CEUs, instructional level and content area.** ASHA CE Provider approval does not imply endorsement of course content, specific products or clinical procedures.

This course is offered for 1.75 ASHA CEUs (Intermediate level, Professional area).

Sneak Peek: NHCA 2025 Annual Conference

The Executive Council is pleased to announce that Amy Blank, Au.D. has graciously accepted the role of Conference Program Chairperson for NHCA's 2025 Annual Conference.

Amy is not new to hearing conservation or NHCA. She has been in the Army for over 36 years, primarily working as an audiologist and hearing conservationist. Her previous military assignments include Fort Novosel, Fort Liberty, Joint Base Lewis-McChord, South Korea, and Fort Campbell. More recently, Amy was assigned as the Director of the Audiology and Speech Center at Walter Reed National Military Medical Center and as the Chief of the Military Injury Prevention Division at the Defense Center for Public Health – Aberdeen. Additionally, Amy was assigned as the Consultant to the Army Surgeon General for hearing conservation and audiology for four years. Amy enjoys teaching hearing loss prevention and is a senior adjunct professor at Gallaudet University where she teaches a hearing and community noise course to doctoral students. She is the past president of the Military Audiology Association and was the co-conference chair of the 2013 Joint Defense Veterans Audiology Conference. Within NHCA, Amy served as the Director of Membership from 2015-2017 and on the Presidential Trio from 2017-2020.

Planning is well underway for the 2025 conference! Our location is selected in beautiful Charleston, South Carolina. In addition to developing engaging and educational content to further the advancement of hearing loss prevention, the Charleston Marriott venue is just minutes from Charleston's historic district with entertainment and world class restaurants. The hotel reflects the culture and hospitality of the Charleston area while offering modern amenities. The 49th Annual NHCA Conference promises to bring you a fabulous learning opportunity with diverse presentations and exhibitors to further your education, build your relationships, and enhance your professional collaborations.

When asked to comment:

"I am grateful for the opportunity to chair the 2025 NHCA Conference Program. NHCA has always felt like "home" to me. It is a family, and the conference is where I learn more about my chosen career with equally enthusiastic people in both formal and informal settings. I have always appreciated the diverse educational program where I learned from worldwide experts. The prospect of then meeting these experts and spending time with them (and calling more than a few of them my friends) is what makes NHCA unique.

Charleston is a beautiful, historic city. In addition to providing a program filled with educational content from top tier scientists, clinicians, researchers, and industry partners, I hope you have time to explore and enjoy the city. The planning committee hopes to incorporate a hearing loss prevention community outreach event to help celebrate our 49th Anniversary Conference.

Thanks in advance to the entire 2025 Program Committee. It is through their hard work that we all get to experience our annual conference; this team of volunteers is truly remarkable. If you would like to join the team, please reach out to me or Civica. As the saying goes, many hands make light work."

Amy Blank,
2025 Conference Program Chair

Save the Date for the
49th NHCA Annual Conference!

NHCA

ANNUAL CONFERENCE

FEBRUARY 6-8, 2025

CHARLESTON, SOUTH CAROLINA