SPECTRUM

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Get Ready to Connect & Innovate at NHCA 2027 in Sunny Orlando!

by Michelle Alexander
2027 Program Chair

Hello NHCA Members,

As your 2026-2027 Program Chair, I'm thrilled to invite you to the 51st Annual Conference in beautiful Orlando, Florida! We're already hard at work putting together an event that promises to be both inspiring and impactful.

Our theme for 2027 is "Promoting Prevention through Partnerships." This theme reflects our commitment to broadening our reach, fostering new collaborations, and bringing fresh perspectives to the forefront of hearing conservation. We're dedicated to diversifying our membership and conference topics, ensuring that NHCA remains at the cutting edge of our field.

Get ready to dive into compelling sessions covering:
- Ethics in Audiology
- Pharmacology: New Insights and Challenges
- Advancements in Tinnitus Treatments

We believe that by working together across disciplines, we can create a stronger, more resilient future for hearing health.

I'm also incredibly excited to announce that Major Taylor Paige will be joining us as the Program Chair-Elect for 2026-2027. Her dedication and contributions to the Program Committee have been invaluable, and we look forward to her leadership.

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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

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presidential pEARspective

by Jillyen Curry-Mathis
NHCA President

The NHCA turned 50 with February's annual conference in Fort Worth, TX; what an incredible achievement! A handful of experts from multiple disciplines joined forces to tackle the "silent injury" of hearing loss, so common among civilian and military populations…actually, not just tackle it, but prevent it! They set lofty goals and developed various courses of action. As the science of hearing conservation progressed, the organization's collaborative membership grew. As Elliott Berger and Theresa Schulz took us back through NHCA's 50-year history with their Milestones & Momentum keynote, I was stunned to realize not only how far this association has come, but also the number of trails blazed and doors opened. I am so honored to be president of NHCA this year and am extremely motivated to continue its noble work.

NHCA's greatest challenge, in my opinion, is growing the membership. We have so many senior contributors in this group either retired or headed to retirement (sorry all, but let's be real…I'm including myself here…), that a new, revitalizing force mentored by existing, exceptional members is just what NHCA needs for another 50 impactful years. In response to this obvious need, Xin Zhang, a postdoctoral research fellow at the University of Michigan, has stepped up. Partnered with Kristy Deiters, Frank Wartinger, and Madeline Bellocchio, a new task force has been formed, call SEPN, the Student and Early-career Professional Network, with a goal to "…increase student and early-career professional involvement and lifelong NHCA membership", according to Xin. This group is already meeting regularly and brainstorming several potential initiatives, from re-vamping student membership fees to establishing NHCA as the "go-to" provider of educational tools for hearing conservation with gateway content accessible to non-members. The objective is to put NHCA on a student's radar for career resources, alongside the heavy hitters for hearing conservation, such as audiology's ASHA or AAA. The plan is to move forward with initiatives like mentorship, peer-to-peer conference room sharing, and direct university outreach to audiology, industrial hygiene, public health, and engineering programs with short, but informative, materials on the benefits of student membership in NHCA. The early work is exciting, and I'm proud to back this initiative. SEPN is set to collaborate with not only Michele Alexander, the 2027 Program Chair, but also with key Executive Council (EC) board members, such as Melanie Hayes, our Director of Education, and Stephanie Karch, Director of Marketing and Public Relations. If you want to get involved, or have students and new professionals you think would enjoy being part of this task force, I invite you to watch for announcements soon on SEPN's launch and activities.

Circling back to the 50th Conference, I would like to acknowledge not only the success of the conference, but also respond to the valuable feedback we received from attendees. The EC has already acted on several ideas and recommendations for this coming year, including getting back to our roots in terms of a conference format that includes open panel discussions, deliberately highlighting student-led research presentations, considered support to our professional service providers, and delivering a healthy mix of research alongside practical "nuts-and-bolts" education on effective hearing conservation service delivery and management. Further, the board is actively looking at ways to periodically offer free education and CEUs, as applicable to members, while remaining fiscally responsible with our tight budget. The intent is for members to receive a greater return on their annual fees. Suggestions are always welcome and seriously considered. Please do not hesitate to reach out to NHCA.

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NHCA 51st Annual Conference News

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Have an idea for a presentation or a topic you're passionate about? We want to hear from you! Your input is crucial as we shape a program that meets the evolving needs and interests of our community.

Let's make NHCA 2027 a pivotal moment for our organization. Spread the word to your colleagues and associates across all interdisciplinary fields. Together, we can ensure this conference is a springboard for continued commitment to hearing conservation through collaboration.

See you in Orlando!

NHCA
ANNUAL CONFERENCE
APRIL 22-24, 2027
ORLANDO, FLORIDA

presidential pEARspective

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Keep your eye on the Fall Virtual Educational Summit, scheduled for 9 September 2026, at 1100 ET. Early indicators suggest it is shaping up to be exceptionally relevant to our varied professions. The 2025 summit was phenomenal and, I admit, I was a bit disappointed with how many people missed out on some great presentations. If that was you, watch for our 2025 Fall Virtual Educational Summit: A Collection, to be announced.

I am looking forward to the 2026-27 year of NHCA! I have always said to colleagues that there are conferences on hearing loss prevention that I attend primarily to provide mentorship and share strategies. Then there's NHCA, the organization and conference for critical research updates, networking/collaboration, and new strategy implementation/execution based on the latest scientific findings for hearing conservation…and I am committed to making this perspective true for all NHCA members, from our newest recruits to our most senior leaders!

Implementing Group Hearing Protector Fit Testing and Earplug Fit Training at United States Navy Accession Points: Overcoming Compliance Challenges

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Abstract

The United States (U.S.) military instruction for Hearing Conservation Programs requires that personnel undergo hearing protector fit-testing (HPFT) at the time of their initial reference audiogram. For U.S. Navy recruits and officer candidates, HPFT typically occurs during medical in-processing at either Boot Camp or Officer Candidate School, respectively. Conducting HPFT during medical in-processing is logistically challenging due to the high number of personnel that must be evaluated by multiple providers in a short period of time. One solution is to implement combined group (i.e., multi-person) HPFT and earplug fit training. In 2024, a U.S. Navy tiger team was established to identify and implement a group HPFT method that would increase the number of personnel tested simultaneously, reduce the overall test and training duration, reduce the number of retests needed without increasing the in-processing time, scale up to additional clinical sites across the enterprise, and minimize the impact on medical in-processing personnel and activities. In this paper, a program improvement project is described where three, commercially available, group HPFT test systems were evaluated, and the experiential hearing protection device (eHPD) fit-training method was modified for clinical use. Specifically, this paper describes the process used, the workflow developed, and lessons learned along the way.

Introduction

The U.S. military instruction for Hearing Conservation Programs (HCPs) (DoDI 6055.12, Change 1, 2023) requires hearing protector fit-testing (HPFT) for all personnel. One time point identified for HPFT is when the initial reference audiogram occurs. In the U.S. Navy (USN), the initial reference audiogram occurs during medical in-processing at either Boot Camp or Officer Candidate School. However, it is logistically challenging to introduce a new test procedure during this time because medical providers must adhere to the strict predetermined schedule of events for the high volume of personnel. Medical accession points and the providers within these clinics are responsible for completing evaluations for anywhere from 30 to 300 people daily depending on location and time of year.

Unlike USN HCP audiometric equipment (Department of Navy, 2025), there is not yet an instructionally mandated HPFT test system. At present, any HPFT test system that measures and calculates the personal attenuation rating (PAR) may be used. However, due to ongoing medical in-processing demands at USN accession points, it has been determined that an HPFT test system capable of multi-person (i.e., group) testing is warranted.

Prior to the implementation of HPFT, the question asked routinely was, "How do we incorporate a required, new test procedure into the existing clinical workflow?" In 2024, the USN Bureau of Medicine

and Surgery (BUMED) authorized the Naval Submarine Medical Research Laboratory (NSMRL) Regional Hearing Conservation Program of Record to assist and support the USN Occupational Audiology Clinics who are undertaking this mission. This HPFT tiger team included the BUMED HCP director, the USN Regional HCP manager, the Navy and Marine Corps Force Health Protection Command's Occupational Audiology and Hearing Conservation Division Calibration Laboratory, HPFT and HPD fit-training research subject matter experts, and the occupational audiologists (OAs) responsible for implementing this procedure at medical in-processing sites. The HPFT tiger team, led by NSMRL's Dr. Jeremy Federman, identified the need for a group HPFT and HPD fit-training method that would (a) increase the number of personnel tested simultaneously, (b) reduce the overall test and training duration, (c) reduce the number of retests needed without increasing the in-processing time, (d) scale up to additional clinical sites across the enterprise, and (e) minimize the impact on medical in-processing personnel and activities. This paper discusses the tiger team's work to identify a viable clinical workflow and describes the lessons learned along the way.

Methods

The NSMRL Institutional Review Board reviewed this project and determined it to be Program Improvement, which did not meet the definition of human subjects research.

Location

The USN HPFT implementation tiger team first convened at the Navy Medicine Readiness and Training Command New England (NMRTC NE). NMRTC NE completes the medical in-processing, including the initial reference audiogram, for 125-200 officer candidates a month.

Hearing Protector Fit Test System

All commercially available HPFT systems detailed below employed the real ear attenuation at threshold (REAT) test method under headphones (see Table 1). These test systems also permitted the use of any shape or style of earplug during testing.

All HPFT and earplug fit-training activities reported herein were completed outside of NMRTC NE's HCP sound booth in a patient care room. To ensure the test space was viable for threshold testing, ambient noise measurements were conducted and the maximum permissible ambient noise levels (MPANLs) for each headset transducer (see Figure 1) were consulted. When continuous noise monitoring was not feasible due to equipment limitations and/or not advised by the manufacturer, pre-test ambient noise measurements were completed.

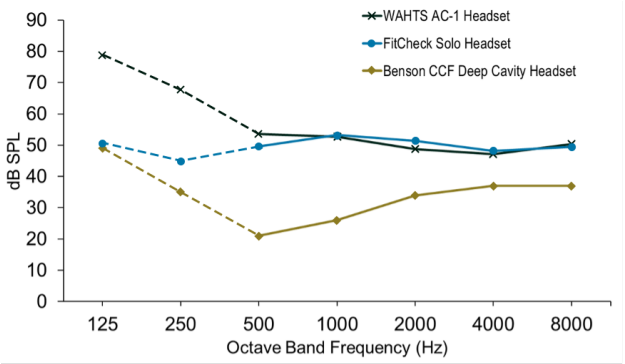

Figure 1. *Manufacturer Reported ANSI S3.1 Maximum Permissible Ambient Noise Levels.*

Earplugs

Four foam earplugs were made available for HPFT and earplug fit-training (see Table 2). As discussed below, each earplug was deemed an appropriate size and style if the "Expert Fit" (see Figure 3 and discussion below) PAR was equal to or greater than the target PAR, which was set at 25 dB.

Manufacturer	Test System	Headset
Benson Medical Instruments Co.	CCF-200 Fit Tester	Benson CCF Deep Cavity
Michael & Associates, Inc.	FitCheck Solo Mobile	FitCheck Solo
WAHTS Hearing, LLC	WAHTS Audhere	WAHTS AC-1

Table 1. *Multi-person HPFT equipment evaluated for use*

Manufacturer	Model	Description	Noise Reduction Rating
3M	E-A-R Classic SuperFit 30	Small, uncorded, cylindrical	30
Howard Leight by Honeywell	X-Treme	One size, uncorded, tapered	32
Moldex	Pura-Fit	Longer one-size-fits-most, uncorded, tapered	33
3M	E-A-R Classic SuperFit 33	Large, uncorded, cylindrical	33

Table 2. *Commercial foam earplugs used*

Overall Procedure

For each evaluated HPFT test system, the procedure depicted in Figure 2 was followed throughout the duration of activities at NMRTC NE. During this time, each manufacturer was invited onsite to provide equipment training. Throughout the implementation process, HPFT methods were refined and software updates were received from the equipment manufacturers. Each HPFT system was evaluated until, at a minimum, 75 officer candidates had completed training and testing. A total of 325 officer candidates completed HPFT and earplug fit training with the test systems reported in this paper . To support the project aim of scalability across the USN enterprise, an HPFT and earplug fit training technical memorandum was developed for each test system (Karch et al., 2025; Karch et al., 2026a; Karch et al., 2026b). These user guides were designed to provide interested readers with the resources needed to replicate the tiger team's full procedure with minimal challenges.

Target PAR

The target PAR (PAR Target) was set at 25 dB and was determined using the individual's known noise exposure and noise exposure limit. Specifically, the published noise level for military weapons used during initial weapon training is 165 peak impulse sound pressure level, in decibels (dBP) (U.S. Army Public Health Command, 2012), and the USN (2019, 2023) permissible exposure limit for impulse or impact noise is 140 dBP.

The formula used to determine the PAR_{Target} was:

$$Noise_{Exposure} - Noise_{Limit} = PAR_{Target}$$

Consistent with the known values mentioned above, the formula to determine the PAR_{Target} was:

$$165\ dBP - 140\ dBP = 25\ dB$$

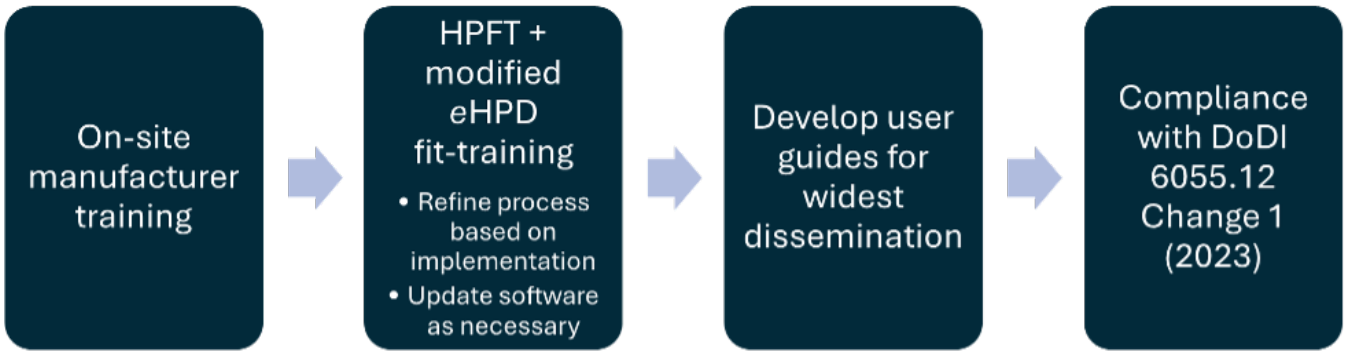

Figure 2. *Procedure completed for each HPFT test system.*

[1]*In this effort, a total of 613 officer candidates completed HPFT and the modified eHPD fit training using 11 HPFT test systems configurations. Not included in this paper were test configurations for which (a) the new HPFT software was released during testing, (b) HPFT was completed in an HCP sound booth, or (c) HPFT was completed in the sound field (i.e., not under headphones).*

Modified eHPD fit-training method

The eHPD fit training method is an individualized hands-on fit training method whereby an expert briefly trains the user on how to properly handle and insert their issued earplugs. It was first introduced as a three-step procedure by Federman and Duhon (2016), then further investigated by Federman et al. (2021), and described by Murphy et al. (2023). In a longitudinal study of the eHPD fit-training method, Federman et al. (2025) found that its use with military training recruits resulted in a "greater proportion of participants able to achieve adequate noise protection (both immediately and one year later) with issued foam earplugs" compared to the typical verbal training.

For clinical use at accession, the eHPD fit training method was truncated to a two-step method and renamed the modified eHPD fit training method. Like the original, the modified eHPD fit training method uses HPFT as a verification tool to ensure that the fitted earplug is appropriate in size and style for the user and that the user can achieve adequate attenuation with the earplug in two steps (Expert Fit and Self-Fit). The first aim, ensuring the earplug is appropriate in size and style, is completed via the "Expert Fit." An expert is an HCP team member who can routinely fit the issued earplug in other people's ears and achieve a PAR that is greater than or equal to the target PAR. The PAR of record for the individual is obtained with the "Self-Fit." The Self-Fit PAR informs the trainer whether the individual can properly fit the issued earplug on his or her own to obtain adequate attenuation (i.e., ≥ target PAR).

Results and Discussion

Workflow

As a result of improvements to the overall process made while implementing this group hearing protector fit testing and earplug fit training, the recommended clinical workflow for HPFT and modified eHPD fit training is shown in Figure 3. The duration of this workflow was test system dependent and ranged from an average of 14 to 20 minutes for HPFT groups of up to four patients. Throughout this project, we discovered that the test and training encounter lengths can be affected by the HPFT system's user interface, test procedures, test instructions, and troubleshooting. Additional factors that impacted test duration were earplug sizing troubleshooting, patient alertness and responsiveness, and elevated ambient noise in the test space.

Referral to an occupational audiologist (OA) occurs at any timepoint within the test/training paradigm where the achieved PAR does not reach or exceed the target PAR. If the Expert Fit PAR is less than the target, it is assumed to be due to the size or style of the earplug and not to the fitting technique. Expert Fit OA referrals allow for earplug size and/or shape troubleshooting in hopes of finding a product that will provide adequate attenuation. The second possible timepoint for referral to the OA is after the Self-Fit test. If the Self-Fit PAR is less than the target, it is assumed that the fitting technique needs improvement. This is when the OA can provide additional coaching or remedial training to assist the patient in improving their fit technique and then repeat the Self-Fit test. This referral process may differ at different occupational audiology clinics.

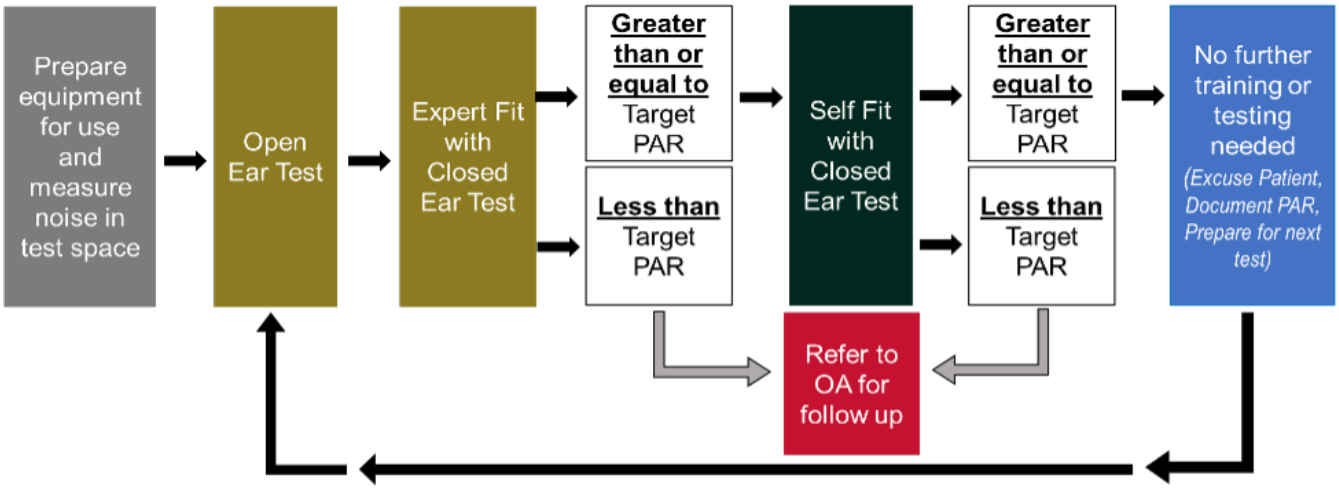

Figure 3. *Developed procedural workflow for multi-person HPFT with modified eHPD. Note: PAR = personal attenuation rating, OA = occupational audiologist.*

Ambient Noise

The effect of elevated noise levels on threshold-based audiometric testing in boothless environments has been a recent focus in the literature (Margolis et al. 2022; Meinke & Martin, 2023). Elevated noise levels in the test environment can also influence threshold-based HPFT by causing falsely elevated thresholds during the unoccluded (i.e., open ear) trials (Murphy, 2025). Conversely, occluded trials are typically unaffected by elevated ambient noise levels. The consequence of elevated, unoccluded thresholds is the calculation of an artificially reduced PAR. Inaccurate PARs can lead to the interpretation that insufficient attenuation was achieved (if a high PAR is sought but low PAR is achieved) or can lead to missing cases where individuals are overprotected with their issued earplugs (if a low PAR is sought but high PAR is achieved). Therefore, it is critical for REAT-based HPFT under headphones that manufacturer MPANLs are referenced and followed. Further, ambient noise should be measured and controlled when conducting any threshold-based hearing tests outside of the audiometric test booth. The reader is referred to Meinke and Martin (2023) for methods to control ambient noise in boothless test environments.

Lighted Ear Inspection and Cerumen Management

Although not included in the developed clinical workflow for group HPFT (see Figure 3), lighted ear inspections (e.g., otoscopy) and cerumen (earwax) removal, if needed, should be completed before conducting fit training and fit testing. Lighted ear inspections can reveal ear canal pathologies and/or the presence of excessive cerumen or foreign debris that would preclude the use of earplugs. They can also provide the examiner with the shape and size of the ear canal, which are fundamental pieces of information for earplug selection and are an essential starting point for the Expert Fit.

Earplugs

Across the USN, earplugs are issued by individual safety offices. As a result, it is likely that over a training recruit or candidate's military career, an alternate earplug will eventually be issued. Federman et al. (2017, March) reported that the skill of earplug fit training obtained via the eHPD fit-training method (formally called ear canal muscle memory) generalized to other earplugs post-training. Therefore, it is expected that the skill achieved during the initial eHPD fit training session will carry over to subsequently issued earplugs, regardless of earplug type or style used.

Because ear canal sizes vary, all personnel should not be expected to use a one-size-fits-most earplug (Federman et al. 2021; Federman et al. 2025). In addition, because one-size-fits-most earplugs can vary in size, shape, and material across manufacturers, two versions of each product were available for use. For the current project, small and large foam earplug sizes were also available, when needed.

Documentation

The U.S. military instruction for HCPs (DoDI 6055.12, Change 1, 2023) requires PARs to be recorded on DD Form 3126, "Hearing Protection Fit-Test Record" and stored in the patient's electronic health record (e.g., MHS GENESIS). However, at the time this project was initiated, the form was still under development, and commercially available HFPT test systems were unable to populate results onto the required DD Form. To document the PAR in the medical record, approval was granted to use MHS GENESIS and its Audiology Readiness Worksheet as part of the reference audiogram encounter. It is in this location that earplug type, size, and name were also documented.

Lessons Learned

In addition to the above, other lessons learned throughout this process included:

- The efforts to integrate HPFT and related equipment into an HCP booth while completing initial audiograms resulted in a significant slow-down in the clinical workflow and were found to be not viable during medical in-processing.
- During in-processing, it remains challenging to complete remedial training and/or testing outside of the initial medical encounter due to the strict training schedules and the uncertain availability for patients on days beyond the initial encounter. It is, therefore, imperative to complete all fit testing and fit training when the candidate/recruit is in the clinic, rather than attempting to have the individual return on another day.
- Trainers should explain to test groups that HPFT and earplug fit training represent a teaching opportunity. Sharing this information tended to relax everyone and made for an engaging and conversational learning experience.

- Some cerumen (earwax) was common. As a result, it can be assumed that an additional set of earplugs per person should be ready if needed for the Self-Fit.
- Obtaining a target PAR of 25 or greater can be easily achieved using the eHPD fit training method when using an earplug with a higher noise reduction rating (NRR, e.g., 29 dB or more).
- Reading on-screen instructions was difficult when not wearing prescription eyeglasses or when eyes had been dilated. To reduce the patient's stress from being unable to read or see the tablet screen, familiarize the test group with the screen layout and provide verbal instructions. Tablet settings may also be configured to augment visual accessibility. Note: altering tablet accessibility for vision can interfere with the HPFT software layout, introducing another challenge to overcome.
- Often the loudest noise source in the test room is the people! Confidently remind patients, testers, and visitors to remain quiet, to speak and/or move quietly, and to leave the room, if necessary.
- No two HPFT systems are the same. Familiarize yourself with the test equipment being used and follow manufacturer test recommendations (e.g., MPANLs, noise monitoring) and equipment limitations (e.g., maximum output, maximum calculated PAR).
- HPFT systems may have components (i.e., tablets, headphones) that require charging. USB charging stations can help when the equipment needing to be charged exceeds the number of outlets available.

Conclusion

HPFT implementation varies by location, so there are site-specific challenges. The three equipment user guides developed from the work at NMRTC-NE are publicly available and aim to assist with operational group earplug fit training and HPFT.

Acronym List

BUMED – Bureau of Medicine and Surgery

dBP – peak impulse sound pressure level, in decibels

eHPD – experiential hearing protection device

HCP – hearing conservation program

HPFT – hearing protector fit testing

HPD – hearing protection device

REAT – real ear attenuation at threshold

MPANLs – maximum permissible ambient noise levels

NMRTC NE – Navy Medicine Readiness and Training Command New England

NRR – noise reduction rating

NSMRL – Naval Submarine Medical Research Laboratory

OA – occupational audiologist

PAR – personal attenuation rating

U.S. – United States

USN – U.S. Navy

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Disclaimers

This work was originally presented at the 50th anniversary National Hearing Conservation Association Annual Conference held in Fort Worth, TX.

The views expressed in this document are those of the authors and do not necessarily reflect the official policy or position of the Department of the Navy, the Department of War, or the U.S. Government.

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This study was reviewed by the Naval Submarine Medical Research Laboratory Institutional Review Board and determined to be a programmatic improvement study and not human subjects research.

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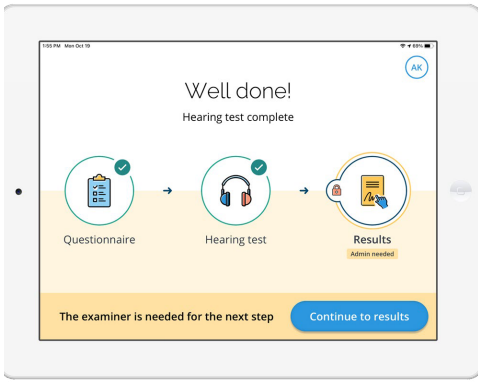

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Outstanding Lecture Award and Outstanding Poster Award

by James Jerome
2026 Program Chair

At each annual NHCA conference, we not only get to hear outstanding presentations, but also have an opportunity to recognize exceptional presenters by casting votes. Based on your votes, I am proud to announce the Outstanding Lecture Award (OLA) and the Outstanding Poster Award (OPA) recipients for the 50th anniversary conference.

The 2026 Outstanding Lecture Award winner is Dr. Anthony Dietz for his presentation entitled: **Surfer's Ear: Prevalence, Prevention, and Consequences.**

In his study, Dr. Dietz reported that Surfer's Ear is a condition prevalent among surfers, swimmers, and others active in water sports, in which bony growths, called exostoses, protrude into the ear canal causing obstruction, trapped fluid, recurrent infections (swimmer's ear), and conductive hearing loss. Initially thought to be due to exposure to cold water, recent studies have also tracked incidence in warm waters. Prevention is preferable to treatment because the condition is cumulative and irreversible without surgery, which involves chiseling out the bony growths, a procedure that can also cause hearing damage. He reviewed the prevalence of this condition, actions that can be taken to prevent its progression, and potential consequences of inaction and of treatment. He also investigated a related aspect of this condition, in which exostoses interfere with earplug fit and prevent a reliable seal. He reported the results of a case study comparing the attenuation provided by earplugs in both a normal ear and an ear with significant exostosis. Foam, flanged, formable, and Fluid™ inflatable earplugs were included in this comparison. The results demonstrated that exostosis reduces the attenuation provided by certain earplugs, which increases the risk of noise-induced hearing loss for those with exostoses who rely on earplugs for hearing protection.

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.

Dr. Dietz will receive a $250 check and a certificate of recognition. NHCA congratulates Dr. Dietz and thanks him for his presentation and contribution to NHCA.

The 2026 Outstanding Poster Award winner is Ms. Amber Wu. Her poster was entitled: **Analysis of Low-Frequency Hearing After Long Duration Spaceflight.**

In her study, she reported that, in efforts to closely monitor the hearing health of astronauts, NASA implemented on-orbit and post-flight hearing assessments, which revealed a trend of low-frequency hearing shifts during and after missions. The purpose of this study was to collect all available 250-500 Hz data to analyze the prevalence and recovery of low-frequency hearing shifts post-flight. Her aim was to identify prevalence of low-frequency shifts in initial post-flight tests, determine the average audiogram and shift magnitude, and assess recovery trends. One-hundred-ninety-eight (198) post-flight assessments were analyzed. Low-frequency hearing shifts were defined as a ≥10 dB shift in 250-500 Hz thresholds. Out of 198 post-flight hearing assessments, full low-frequency hearing shifts occurred in 5% of assessments. Average audiograms showed that both shifts and recovery back to baseline were more evident at 250–500 Hz than at higher frequencies, 1000-8000 Hz.

A best-fit line for shift trends over 600 days post-mission indicated rapid recovery close to baseline within thirty days after return. Inclusion of 250 Hz allowed for more accurate reporting of low-frequency hearing shifts, compared to previous studies using only 500 Hz data (5% vs. 19%). She concluded that further statistical significance tests are needed to determine if there is a complete recovery to baseline.

Ms. Wu finished her undergraduate degree at The University of Texas at Austin, majoring in communication science disorders with a minor in educational psychology. She joined the Doctor of Audiology (AuD) program at The University of Texas at Dallas in 2023, and is currently a 3rd year AuD student. In the summer of 2025, she had the opportunity to complete a summer internship at NASA's Johnson Space Center, Space Medicine Operations Division. Her research interests include audiology in space medicine, noise-induced hearing loss, and musician-centered hearing healthcare.

Ms. Wu will receive a $150 check and a certificate of recognition. NHCA congratulates Ms. Wu, thanks her for her poster presentation and contribution to NHCA, and wishes her all the best in her future endeavors.

Call for Nominations for NHCA Awards

by Andy Merkley
Leadership Advisory Team Member

NHCA wants to celebrate individuals who have made exceptional contributions to the prevention of hearing loss. The call for nominations for the NHCA Lifetime Achievement Award, Michael Beall Threadgill Award, and Outstanding Hearing Conservationist Award is now open. The deadline for nominations is October 15, 2026. A brief description of each award is provided below. If you have any questions or nominations, please email them to: nhcaoffice@hearingconservation.org.

Lifetime Achievement

The NHCA Lifetime Achievement Award, established in 1999, honors the distinguished career of Don Gasaway, and represents the organization's highest recognition. It has been awarded only six times.

Don Gasaway was the first recipient at the 2000 NHCA conference in Denver, Colorado. Subsequent recipients include Alice Suter (2008, Portland, Oregon), Elliott Berger (2013, St. Petersburg, Florida), Robert Dobie (2017, San Antonio, Texas), Michael Santucci (2025, Charleston, South Carolina), and Dr. Theresa Schulz, recognized at the 50th Anniversary Conference in Fort Worth, Texas (2026).

This award honors individuals who have made sustained, extraordinary contributions to hearing loss prevention and to NHCA. Recipients are recognized for a lifetime of impactful work—through research, leadership, mentorship, or service—that advances hearing conservation and demonstrates a lasting commitment to preventing noise-induced hearing loss.

Outstanding Hearing Conservationist

The Outstanding Hearing Conservationist Award was established to recognize exceptional contributions and achievements in the field of hearing conservation. First presented to Aram Glorig, the award is given annually when a deserving candidate is selected by the Nominations Committee. It honors individuals whose work has significantly advanced the practice and impact of hearing conservation.

Michael Beall Threadgill

Originally named the Outstanding Leadership and Service to NHCA Award, this honor was renamed in 1990 in memory of Michael Beall Threadgill, an occupational audiologist deeply committed to his work and to NHCA's mission. As Program Chair for several years, he helped raise the organization's visibility and significantly grow its membership. His death in a private plane crash, at the height of his career, was a profound loss to NHCA and his colleagues.

First presented in 1986 to Alan Feldman, the award recognizes sustained, outstanding leadership and service to NHCA. Recipients are recommended by the Nominations Task Force and approved by the Executive Council.

Volunteers Needed - Lend Your Ears!

Volunteers are at the heart of NHCA's success. We are looking for members who want to make an impact by serving on task forces or the 2027–2028 Executive Council. If you're ready to share your expertise, grow your professional network, and help advance NHCA's vision to "prevent hearing loss and other auditory disorders due to noise and secondary environmental factors in all sectors of society," we encourage you to explore these opportunities by contacting the NHCA office at nhcaoffice@hearingconservation.org.

2026-2027 Nominations Task Force

The Nominations Task Force will convene in Fall 2026, and is seeking two volunteers who are not currently serving on the Executive Council. The Task Force is composed of five members: the President-Elect (Chair), two additional Executive Council members, and two NHCA members who are not on the Council. The Task Force is responsible for nominating candidates for officer positions and delegates-at-large, as well as selecting nominees for NHCA Awards and Recognitions. If you are interested in serving on the Task Force, please contact Dr. Andy Merkley (President-Elect) at jandrewmerkley@gmail.com.

Call for Nominations - Safe-in-Sound Award™

The National Hearing Conservation Association (NHCA), in partnership with the National Institute for Occupational Safety and Health (NIOSH), the Council for Accreditation in Occupational Hearing Conservation (CAOHC), and the American Industrial Hygiene Association (AIHA), is pleased to announce the call for applications for the 2027 Safe-in-Sound Excellence in Hearing Loss Prevention Awards™. These awards honor organizations and individuals who have demonstrated exceptional achievements in hearing loss prevention within work settings.

Award Categories

Excellence in Hearing Loss Prevention Award: Recognizes organizations that have implemented effective and measurable hearing loss prevention programs across any industrial sector.

Innovation in Hearing Loss Prevention Award: Honors individuals or entities that have introduced innovative solutions addressing challenges in occupational hearing loss prevention, including advancements in policy, program development, and outreach.

Eligibility Criteria

Open to organizations and individuals operating within the United States and Canada. Demonstrated commitment to hearing loss prevention through documented results and leadership in the field.

Application Process

Nomination Deadline: June 8, 2026

Application Deadline: August 19, 2026

To apply or nominate a candidate, please send an email to safeinsound.us@gmail.com detailing how the program exemplifies excellence or innovation in hearing loss prevention.

Award Benefits

Recognition at the Annual Conference of the National Hearing Conservation Association.

Opportunity to present award-winning initiatives to a broad audience of occupational health and hearing research professionals.

Inclusion in press releases and publications disseminated to the occupational health community.

About the Partners

NIOSH: www.cdc.gov/niosh/topics/noise

NHCA: www.hearingconservation.org

CAOHC: www.caohc.org

AIHA: www.aiha.org

For more information, please visit the official Safe-in-Sound Awards™ website: Safe in Sound

Join us in recognizing and promoting excellence in hearing loss prevention. Your participation contributes to safer work environments and the well-being of workers across North America.

A Message from the Director of Education

by Melanie Hayes
NHCA Director of Education

Greetings from your new Director of Education! It's hard to believe that our 50th Annual Conference in Fort Worth was already three months ago. It was a wonderful event, and I truly enjoyed meeting so many of you. Among the highlights for me was Frank Lin's keynote address, Transforming Hearing through Evidence, Policy, and Awareness. We all know that occupational noise exposure has numerous health impacts, but his emphasis on hearing loss as a significant, modifiable risk factor for preventing dementia was thought-provoking, given the profound societal and family impacts of dementia. I found it especially meaningful to learn about emerging tools that help individuals understand their hearing levels and this energized me to learn even more about preventing hearing loss.

Another memorable moment was the Gasaway Lecture, delivered by Jennifer Tufts. Her presentation, The Music of the Voice is More Powerful than the Lyrics, was deeply moving and resonated with many of us. We also enjoyed a rich lineup of pre-conference workshops, informative speakers, and engaging poster presentations across a wide range of topics. I enjoyed meeting with our sponsors, networking, and seeing the award winners! I left the conference inspired as I begin my term on the Executive Council.

Our NHCA/CAOHC Webinar Series is also going strong. On April 8, 2026, we hosted a session featuring OSHA experts who answered questions about OSHA Noise Standards. More than 650 people registered by the start of the webinar, and over 275 joined live. The program reached a broad interdisciplinary audience—hearing conservationists, industrial hygienists, safety professionals, scientists, professors, audiologists, physicians, nurses, regulators, and more. If you missed it, the recording is available in the NHCA Learning Center.

Looking ahead, our next webinar will take place on May 13, 2026 at 2:00 p.m. ET. David C. Roskelly and Benjamin Roberts will present Noise and Chemicals and the Risk of Hearing Loss – A Review of the Current Science. This session will also be recorded. Stay tuned, as we continue to develop additional webinar offerings.

The Fall Virtual Educational Summit is scheduled for September 9, 2026. We are exploring session topics such as advances in hearing loss prevention, occupational and clinical audiology, noise-induced hearing loss research, innovations in hearing protection and technology, sound tolerance/tinnitus/auditory health, practical applications for high risk or workplace environments, and ethics for professional practice. The Summit will feature a blend of live presentations, interactive learning opportunities, and on-demand content to support both seasoned professionals and emerging leaders. Full program details will be announced soon.

Speaking of the Fall Summit, last year featured some dynamic speakers. If you couldn't attend, we will be offering an opportunity to catch the highlights. The NHCA's Encore: Highlights from the 2025 Fall Summit will provide a limited-time opportunity to access six expert-led sessions focused on advancing hearing conservation and occupational health. Covering topics from neuroscience and hidden hearing loss to industrial hygiene, gaming-related risks, and ethical practice, the series showcased emerging research, practical tools, and real-world applications. Designed for flexibility, participants can select individual sessions or bundled options and engage with on-demand content throughout May 2026. Overall, the program emphasizes a more comprehensive, forward-thinking approach to hearing loss prevention and workplace health – so be sure to look out for more information coming soon.

If we didn't have a chance to meet in person in Fort Worth, I hope to connect with you next year in Orlando or during a virtual event. For those who don't know me, I am a nurse practitioner with a broad background in family practice and occupational medicine. I spent nine years running a military occupational medicine clinic with the U.S. Navy, and now serve as a medical officer in the OSHA Office of Occupational Medicine and Nursing. I'm eager to hear what you'd like to see from NHCA's education programs. If you're interested in getting involved with planning, there are opportunities for that as well. Feel free to reach out to me at hayes.melanie.e@dol.gov. I look forward to hearing from you.

NHCA Scholarship Foundation News
Your Engagement Makes a Difference

by Christian Giguère
and the Board of the NHCA Scholarship Foundation

On behalf of the Scholarship Foundation, we would like to extend our heartfelt gratitude to everyone who donated at the 2026 Annual NHCA Conference in Fort Worth. Thanks to your generosity and commitment – through the honey jar sale donated by Majorie Grantham, the Tiara & Sash donated by Jim Jerome, the Texas Golden Raffle, and the many donated items for the annual Silent Auction – we raised over $3,000 to support current students and the next generation of hearing loss prevention professionals. With your contributions, our scholars succeed!

And so many memories to share!

CLICK HERE TO DONATE TO THE NHCASF!

Member Spotlight

John Matthew Johnson

Ridgefield, Washington

by Frank Wartinger
NHCA Director of Membership

When did you know you wanted to work in the area of hearing protection/conservation?

I know the exact moment. Having worked and trained employees in occupational safety since the 1970s, I am familiar with the difficulties of inserting a foam earplug, especially in an industrial workplace. One day, I noticed my son, Shawn, had gathered earplugs, molding clay, golf tees, and drinking straws. I asked what he was doing. He said he was making an earplug insertion tool to fit earplugs into our ears. This was the moment that I knew we had an occupational hearing protection tool. Metaphorically, the light in my head lit up! I said… "that is brilliant!". At the time, Shawn and I owned and operated a small environmental haz-mat company, mainly providing passivation/pickling (acid cleaning), and hazardous waste disposal services. We used disposable foam earplugs daily, often in industrial facilities contaminated with dirt, oils, solvents, and manufacturing by-products. It's not unusual for someone to experience ear infections from a dirty earplug. After one serious ear infection, I wasn't able to use an earplug for over a week. During this time, Shawn conceived his insertion tool that we patented and developed into Sert-A-Plug® (inSert-An-earPlug) a unique and effective way to properly fit clean foam earplugs into the ear canal.

What was the main reason you joined NHCA and when was that?

I joined NHCA in 2023, at the guidance of my science advisor Chucri (Chuck) Kardous (retired, NIOSH). He wanted me to be exposed to the caliber of expertise and data available that comes with NHCA membership. I had a great experience at the 2024 conference in Albuquerque, where Chuck introduce his friends and colleagues to Shawn and me – I was hooked! In the summer of 2025 I began writing the NHCA Narrative (Curry-Mathis/Schulz/McCall/Madison) and was recently elected to proudly serve two years on the NHCA Executive Council. I also collaborated with Kirsten McCall, Audiology Consulting and Training, on a poster submission we presented at this year's NHCA conference.

What accomplishments are you most proud of professionally? Personally?

Professionally…(a) Invented/developed the first asbestos danger and caution tapes to assist abatement surveys and mitigate abatement operations while conducting the Nabisco survey in Portland, Oregon, in 1986 (b) trained AFL-CIO members on procedures I developed. (c) placed first in my Congressional Judicial class. First appointed judge (1984) of the newly formed court of the Confederated Tribes of Siletz Indians, but resigned before overseeing any cases to continue my environmental management career.

Personally…Raising my two children and my two grandchildren.

You're on several National Occupational Research Agenda (NORA) committees. Why did you join NORA?

I've been fortunate in my ship repair/environmental management career to have worked with some incredibly talented people – real experts and masters at their craft. In doing so, I found that experts know how to get things done, but masters advance the science of their craft…that's why I accepted when Elizabeth (Liz) Masterson recruited me to serve on the NORA Council to work and collaborate with those hearing loss prevention masters. She also recruited me to tell my hearing loss and tinnitus testimony for part three of the NHCA "Hearing is Quality of Life" video series. I'm also one of many NORA co-authors of the new HPD fit-test document. There is no higher professional satisfaction for me then creating something new, exciting, and relevant to share with your colleagues, peers, and the world.

Do you have a passion project?

I'm creating the bilingual (Athabaskan-English) hearing loss prevention (HLPP) and occupational hearing conservation (OHC) programs for my Confederated Tribes of Siletz Indians (CTSI) from scratch, along with Chuck Kardous. My tribe has forest and maintenance departments that lack basic hearing protection training, so we have produced a bilingual OHC poster and have fit-tested many CTSI employees. We are currently writing the CTSI HLPP/OHC manual. I hope to turn this into a pilot program other communities can emulate.

What would you like to see advanced in HLPP/OHC?

FIT TESTING (shout it out). NIOSH and OSHA both recently supported hearing protection device (HPD) fit testing as a "best practice" to train employees and protect occupational workers from hearing loss.

What is the next phase for your Sert-A-Plug earplug insertion tool?

We are actively seeking occupational Personal Attenuation Rating (PAR) study sites. Successful amateur and COHC subject PAR studies have been completed, resulting in a PAR 28. I hope to partner with the DoD, mining, and manufacturing sectors to further establish Sert-A-Plug as a reliable tool for properly fitting foam earplugs in occupational workplaces and to compile peer-reviewable data.

Lightning round:

- **Best place you have traveled or visited:** Disneyland and Knott's Berry Farm with my grandchildren (22 & 20 years old) the summer of 2025.
- **Favorite musical group:** The Beatles.
- **Favorite animal:** It's a tie... dogs and cats. I have a one-year-old Aussie-doodle, and sister & brother 6-year-old Maine Coon cats.
- **Favorite book:** The People Are Dancing Again: The History of the Siletz Tribe of Western Oregon by Prof. Charles Wilkinson.
- **Favorite sound:** Laughter ;-)

Commercial Member Spotlight
Cameron Fackler and Laurie Wells, 3M

by Frank Wartinger
NHCA Director of Membership

For this Spectrum, we're checking in with Cameron Fackler and Laurie Wells from 3M.

How did you become interested in hearing conservation?

C: Growing up, I loved music and had a passion for the curiosity and discovery of science. Acoustics seemed like a great way to incorporate both. During my graduate studies in Architectural Acoustics at Rensselaer Polytechnic Institute, I tagged along on a research study my advisor was conducting with Bill Murphy from the National Institute for Occupational Safety and Health (NIOSH). An internship at NIOSH introduced me to the field of hearing conservation (as well as another collaborative research study, this time with Elliott Berger and my future 3M colleagues), and I've been hooked ever since!

L: I went to University of Iowa on a music scholarship, but it didn't take me long to realize that I didn't want to be a flute performance major – the odds were against me! Luckily, U of I had an excellent Speech and Hearing Sciences department. I thought audiology was a great fit and got very inspired by the diagnosis and rehabilitation of people with hearing loss. It was later, when I worked at the University of Northern Colorado, that I discovered the sliver of audiology, then called "industrial audiology." Thankfully, Deanna Meinke, an audiologist at the local clinic, befriended me. She was already deep into hearing conservation and she invited me to attend an NHCA conference with her. I owe it to Deanna and NHCA for introducing me to the science of hearing loss prevention and the many mentors in the field.

Tell us a little about your daily work at 3M.

C: As an Acoustical Engineer, I support product development and testing of hearing protection and communications devices. You'll often find me in our acoustics labs evaluating new product features or developing new test methods. Another big part of my role is standards development, including chairing ASA/ANSI S12 Working Group 11 that is responsible

for American National Standards related to hearing protection device attenuation and fit testing. Through WG 11 and other working groups, I've contributed to standards on attenuation measurement, fit testing, impulsive noise, and sound localization.

L: My primary role at 3M is in standards development and regulatory affairs for hearing protection and hearing loss prevention globally. As a major manufacturer of hearing protectors and hearing protector fit testing, 3M is very involved in supporting the science that is fundamental to these standards/regulations. I help coordinate our involvement in various standards committees. I enjoy working with 3Mers from many different countries to help promote sound standards and also to help educate those who use hearing protectors and implement fit testing. In addition, there are fun projects to lead, such as our membership in the World Hearing Forum, and our activities celebrating World Hearing Day for both our 3M noise-exposed workforce and 3M customers.

Any thoughts for NHCA as we head into our 50th year?

C: I love the NHCA family, especially how welcoming everyone is and their eagerness to share knowledge and experience. I've been fortunate to attend every NHCA conference during my time at 3M. Thank you for being here and supporting our field with great opportunities for networking, education, and development. Cheers to the first 50 years and here's to at least 50 more!

L: NHCA has been instrumental in my career in many ways - introducing me to the giants in field and in offering leadership opportunities through the task forces and elected board positions I've served. NHCA has a tremendous mission and dedicated members, which is important since our NHCA work will never be done! There are new challenges and barriers all the time, but also new science, solutions, and passionate people to be discovered. NHCA offers a home to foster the intellect and the heart for hearing now and well into the future. chEARs!

We Are NHCA! A 50-Year Legacy of Leadership in Hearing Conservation

Theresa Schulz
NHCA Past President

For five decades, the National Hearing Conservation Association (NHCA) has advanced a clear and unwavering mission: to prevent hearing loss through education, advocacy, and the promotion of best practices. From its founding in 1976, through today, NHCA's evolving "Spectrum" of activities has reflected both the needs of the moment and the foresight to prepare for the future.

In its early years, NHCA's leaders fought tirelessly to establish and preserve the Occupational Safety and Health Administration (OSHA) Noise Standard from the 1970s to the 1990s. Their advocacy shaped national policy and positioned NHCA as the authoritative voice on hearing conservation. By the late 20th century, the association's influence extended well beyond its membership. NHCA contributed to the National Institute on Deafness and Other Communication Disorders' (NIDCD) strategic direction and became widely recognized as the expert community in hearing conservation.

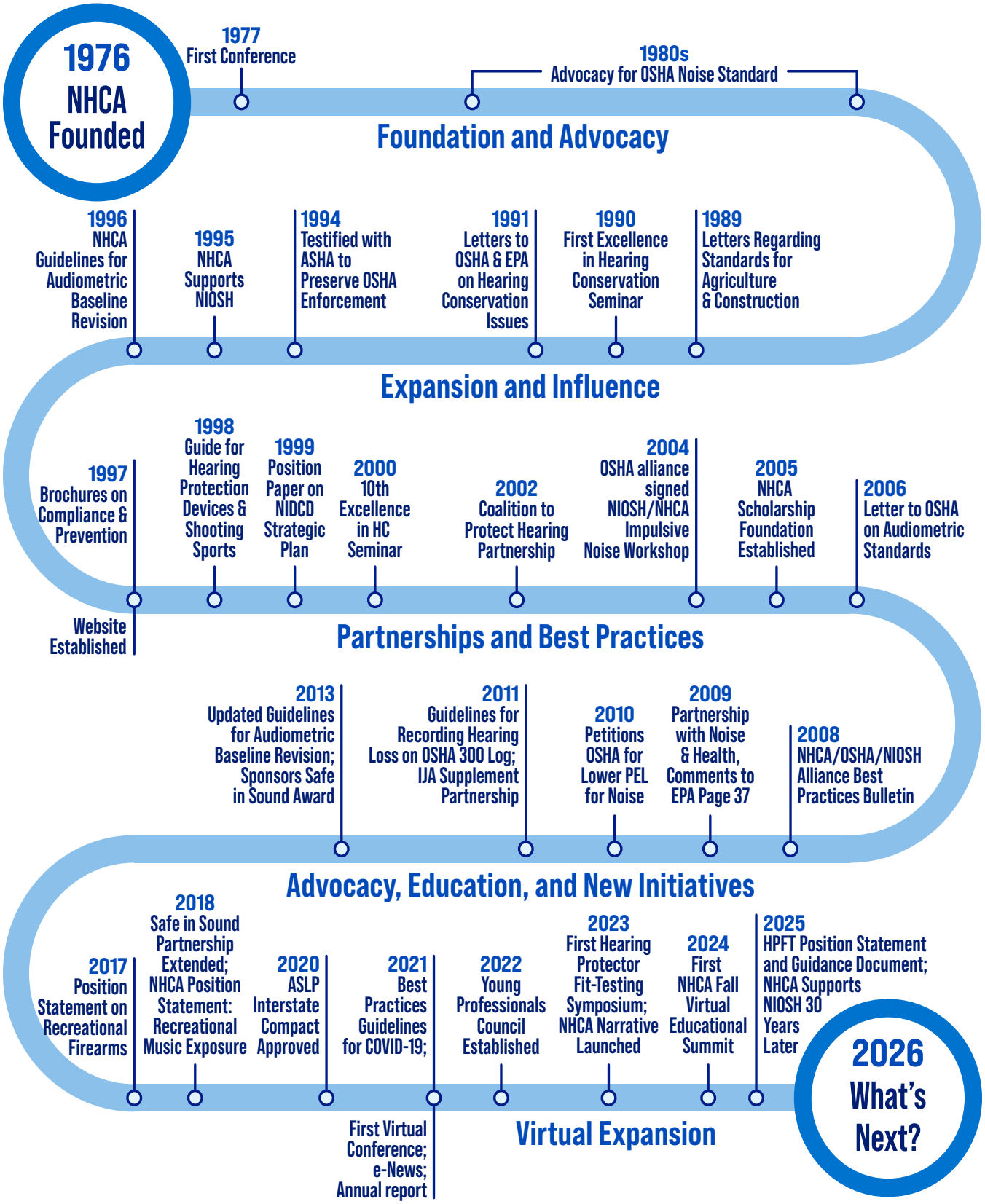
Throughout the 1990s and early 2000s, NHCA expanded its educational reach through Excellence in Hearing Conservation seminars, which brought practical guidance directly to safety professionals. The establishment of the NHCA Scholarship Foundation, in 2005, and the signing of the NIOSH (National Institute for Occupational Safety and Health)–OSHA–NHCA Alliance, in 2008, further strengthened NHCA's commitment to research, professional development, and best practices.

The 2010s marked a renewed era of advocacy and technical leadership. NHCA experts updated key guidelines, advanced policy discussions with OSHA and EPA, and contributed to national recognition programs such as the Safe-in-Sound Excellence in Hearing Loss Prevention Awards™. Task forces addressed emerging issues ranging from recreational firearms, recreational music exposure, and agricultural noise exposure to hearing protector fit-testing standards

In recent years, NHCA has embraced virtual education through online conferences, webinars, and the NHCA Fall Virtual Educational Summit. These initiatives demonstrate NHCA's ability to adapt and thrive in changing environments.

As NHCA turns 50, Don Gasaway's 1983 reminder resonates: "The future of NHCA lies in the hands of its present members." The next chapter will be shaped by the same dedication, expertise, and vision that have defined NHCA since its beginning.

We Are NHCA!



Timeline created by: Theresa Schulz & Nate Hurianek