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Spectrum is a quarterly publication of the National Hearing Conservation Association, 3030 W. 81st Avenue, Westminster, CO 80031. 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 assure 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 Erin Erickson at the NHCA office.

The mission of the National Hearing Conservation Association is to prevent hearing loss due to noise and other environmental factors in all sectors of society.

The National Hearing Conservation Association
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(303) 224-9022
(303) 458-0002 Fax
nhcaoffice@hearingconservation.org
www.hearingconservation.org
On behalf of NHCA’s Executive Council, Program Task Force, and management firm, greetings and welcome to Orlando! Until now, this unimposing, sleepy Florida town has really only been known for a couple of understated theme parks and a few well-dressed tourists. Despite its unassuming, rustic veneer, however, Orlando harbors an almost cultish dedication to the promotion of hearing conservation. How else to explain all the people walking around with stylish, black, vaguely mouse-shaped ear hats? That dedication to hearing conservation is about to pay off – after hosting the 35th annual NHCA conference, I think Orlando is finally poised to become a truly international destination. After all, where else can you “Explore the World of Hearing Loss Prevention” with a sizable percentage of the world’s hearing conservationists?

I’d like to extend a special greeting to our first-time, student, and international attendees, and to acknowledge our sponsors and exhibitors, who play a vital role in supporting the conference. I’d also like to thank the members of the Program Task Force, and particularly Program Chair Thais Morata and Executive Director Erin Erickson, for planning and executing this event. Without their enthusiasm and energy, this might just be NHCA’s 35th annual conference… call.

As always, this conference presents a tremendous learning and networking opportunity. The 2010 conference is special due to its international focus. We’re expecting our most diverse and global group of speakers and attendees ever. Our invited speakers (Hugh Davies, Christine Harrison, and Jean-Luc Doumont) will present international perspectives on occupational and public health, as well as on effective communication. Our presenters hail from such far-flung places as Australia, Belgium, Brazil, Canada, Finland, Sweden, and the Netherlands. Some attendees, like myself, even come from as far away as Seattle, Washington – which is, somehow, about 35 hours away from Orlando by plane!

There’s something here for everyone. Just check out the handy quick-reference table below:

<table>
<thead>
<tr>
<th>If you want to...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get a hearing conservation refresher...</td>
<td>the Thursday “Hearing Loss Prevention - The Basics” workshop is for you!</td>
</tr>
<tr>
<td>Polish your presentation skills...</td>
<td>our Friday luncheon speaker can help!</td>
</tr>
<tr>
<td>Learn about cutting-edge topics like impulse noise and ototoxics...</td>
<td>check out the multiple presentations on these topics [and many more!] in the program!</td>
</tr>
<tr>
<td>Catch up with old friends or network...</td>
<td>you’ll appreciate our coffee breaks, meals, Thursday opening reception, and Saturday Chat sessions!</td>
</tr>
<tr>
<td>Learn about innovations in hearing loss prevention...</td>
<td>don’t miss the Safe-in-Sound Awards on Friday!</td>
</tr>
<tr>
<td>Talk to a vendor or personally thank our sponsors...</td>
<td>check out the exhibit hall on Thursday, Friday, or Saturday!</td>
</tr>
<tr>
<td>Help the next generation of hearing conservationists...</td>
<td>participate in the Scholarship Foundation’s golf tournament, motorcycle ride, or Thursday luncheon!</td>
</tr>
<tr>
<td>Bring home an Orlando souvenir that doesn’t have mouse ears...</td>
<td>be sure to bid on items in the Scholarship Foundation’s Silent Auction!</td>
</tr>
<tr>
<td>Just have a good time...</td>
<td>don’t miss the Friday night event at Shark’s Underwater Grill - Seaworld™!</td>
</tr>
</tbody>
</table>

As you can see, you’re going to be busy! Please let us know if there is anything we can do to make the conference more enjoyable or satisfying.

Sincerely,

Rick Neitzel, PhD, CIH
President
2010 STUDENT TRAVEL AWARDS

The NHCA Scholarship Foundation is pleased to announce the recipients of our 2010 Student Travel Award. The award is available to graduate students who are actively pursuing a degree in a discipline related to hearing conservation and who are enrolled at least half-time in an accredited educational institution. Interested students send a completed application and a letter of recommendation from a professor. Applications are then evaluated by the Scholarship Foundation review committee: James Banach, James Lankford, Mary McDaniel, Susan Megerson and Theresa Schulz. Recipients receive complimentary conference registration and partial reimbursement of travel expenses.

Please welcome this year’s award winners to our annual conference in Orlando:

**Alexander Claussen**  
Southern Illinois University School of Medicine  
2nd year/MD Program

**Amanda Ucci**  
University of Connecticut  
3rd year/AuD Program

**Hannah Keppler**  
Ghent University, Belgium  
4th year/PhD Program

**Emily Wakefield**  
University of Northern Colorado  
4th year/AuD Program

**James Rubas**  
University of Connecticut  
3rd year/AuD Program

**Amanda Ucci**  
University of Connecticut  
3rd year/AuD Program

And as always, we thank our generous sponsors for making this program possible. We will recognize these sponsors at the conference. Our sponsors for 2010 are:

**Gold Sponsor**  
(donation of $1000 or more)  
American Academy of Audiology Foundation

**Silver Sponsor**  
(donation of $500 or more)  
3M Company/E-A-RCAL Laboratory  
Custom Protect Ear Inc.  
James and Vera Lankford  
Workplace Integra

**Bronze Sponsor**  
(donation of $250 or more)  
Benson Medical  
Deanna & Gary Meinke  
Enviromed Corp  
Howard Leight/Sperian  
Pacific Hearing Conservation, Inc.  
Sensaphonics, Inc.

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**NHCA Scholarship Foundation Auctions and 50/50 Split**

Participate in the NHCA Scholarship Foundation’s *Silent AUCTION*, which will be held during the conference! The funds raised through this auction will directly support research and travel (to the conference) for graduate students focusing on applied and practical studies in hearing loss prevention (many of our current NHCA members were assisted by these stipends during their slim years as a grad student). Please bring your item(s) or certificate to the NHCA Conference registration desk. The auction and 50/50 Split will be held in the exhibit hall throughout the conference and culminate on Saturday morning. The NHCA Scholarship Foundation is most appreciative of your contributions for this important event!
Quintin Hecht  
Illinois State University  
Research Project entitled “The Effect of Instruction Methodology on Earplug Fit”

Sneha Hinduja  
State University of New York at Buffalo  
Research Project entitled “The Protective Effect of D-Methionine Against Noise Induced Hearing Loss and Reduction of Neurogenesis in Adult Rat Hippocampus”

Kichol Lee  
Virginia Polytechnic Institute and State University  
Research Project entitled “Investigation of Occlusion Effect (OE)”
Task Forces

NHCA Program Task Force Members:
Thais Morata, Erin Erickson, Kristen Casto, Renee Bessette, Dick Danielson, Brian Fligor, Nancy Gallihugh, Susan Griest, James Jerome, Laura Kauth, James Lankford, David Mayou, Sandra MacLean-Uberuaga, Mary McDaniel, Deanna Meinke, Rick Neitzel, and Theresa Schulz

Interactive Management, Inc.
Erin Erickson, Executive Director

2009-2010 Executive Council
President: Rick Neitzel
President-Elect: Susan Griest
Immediate Past President: Deanna Meinke
Secretary/Treasurer: Orland Purcell
Director of Communications: Laura Kauth
Member Delegates: Tom Lloyd and D. Bruce Kirchner
Commercial Delegate: David Mayou
PSO Delegate: Rick Stepkin
Director of Marketing/Public Relations: Renee Bessette
Director of Education: Kristy Casto
Director of Membership: Carol Stephenson
Associate Delegate: Karen Turner
Student Delegate: Cory Portnuff
Historian: Elliott Berger

Leadership Advisory Team
Deanna Meinke - chair
Elliott Berger (ex-officio)
James Lankford
Ted Madison
Theresa Schulz

Task Forces & Allied Meetings

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Group</th>
<th>Room</th>
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</thead>
<tbody>
<tr>
<td>Tuesday, February 23, 2010</td>
<td>CAOHC, ANSI S12/WG11 Hearing Protectors</td>
<td>Salon 8, Salon 18</td>
</tr>
<tr>
<td>7:00 a.m. - 5:00 p.m.</td>
<td></td>
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</tr>
<tr>
<td>8:00 a.m. - 5:00 p.m.</td>
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<tr>
<td>Wednesday, February 24, 2010</td>
<td>Executive Council Meeting, Scholarship Foundation Task Force, Program Task Force</td>
<td>Salon 14, Salon 16, Salon 18</td>
</tr>
<tr>
<td>8:00 a.m. - 11:00 a.m.</td>
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<tr>
<td>9:30 a.m. - 11:00 a.m.</td>
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<tr>
<td>6:00 p.m. - 7:00 p.m.</td>
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<tr>
<td>Thursday, February 25, 2010</td>
<td>Task Force on Noise-Induced Hearing Loss from Firearm Noise, Scholarship Foundation Award Luncheon, Form 300 Task Force</td>
<td>Salon 12, Salon 11, Salon 16</td>
</tr>
<tr>
<td>11:30 a.m. - 12:30 p.m.</td>
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<tr>
<td>11:30 a.m. - 1:00 p.m.</td>
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<tr>
<td>4:15 p.m. - 5:15 p.m.</td>
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<tr>
<td>Friday, February 26, 2010</td>
<td>Music Induced Hearing Loss Task Force</td>
<td>Salon 16</td>
</tr>
<tr>
<td>5:30 p.m. - 6:30 p.m.</td>
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<td></td>
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<tr>
<td>Saturday, February 27, 2010</td>
<td>Program Task Force, Executive Council Meeting</td>
<td>Salon 16, Salon 13</td>
</tr>
<tr>
<td>5:00 p.m. - 6:00 p.m.</td>
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<td></td>
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<tr>
<td>6:00 p.m. - 9:00 p.m.</td>
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<tr>
<td>Sunday, February 28, 2010</td>
<td>Dangerous Decibels Workshop</td>
<td>Salon 3</td>
</tr>
<tr>
<td>8:00 a.m. - 6:00 p.m.</td>
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</tr>
<tr>
<td>Monday, March 1, 2010</td>
<td>Dangerous Decibels Workshop</td>
<td>Salon 3</td>
</tr>
<tr>
<td>8:00 a.m. - 6:00 p.m.</td>
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</table>
Established in 1990, the Award for Outstanding Contributions to the Field of Hearing Conservation is given to a person whose work is exemplary in our field. It is a pleasure to announce that this year’s recipient is Mark Stephenson, Ph.D., for his contributions to hearing protection research and auditory signal detection.

I hope that you’ll join me in celebrating the contributions of Mark Stephenson to hearing conservation. Mark is the quintessential Renaissance man and so hearing conservation is just one of his areas of expertise. But more about that later.

After undergraduate and graduate degrees from Southern Illinois University, Mark joined the Air Force where he spent much of his career as a researcher primarily at the Armstrong Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio. Mark’s early research was in temporary threshold shifts, auditory temporal integration and long-duration noise exposures.

His other Air Force assignments included the Brooks Air Force Base location of the Armstrong Labs in San Antonio, Texas where he led a branch that planned futuristic technology for the USAir Force Medical Service and Clark Air Base in the Philippines, where he managed the Hearing Conservation Diagnostic Center which served all of Southeast Asia.

Mark’s research talents were recognized during his work at Wright Patterson and he was selected to pursue a doctoral program in audiology and hearing science. Mark made the only correct choice and received his Ph.D. in 1986 from The Ohio State University (where your humble author followed in his footsteps). Mark’s leadership talents were also recognized as he served as the Associate Chief of the USAF Biomedical Sciences Corps, through which he functioned as the director of the USAF audiology, hearing conservation, and speech pathology programs. As the “head audiologist” for the Air Force, Mark mentored those lucky enough to have served at that time (his mentoring continues for many of us).

After serving his country for 20 years in the USAF, during which time Mark volunteered for several experiments above his normal duties, Mark had some health challenges and decided to serve in another way as a civilian researcher at the National Institute for Occupational Safety and Health (NIOSH). He is currently a Senior Research Audiologist at NIOSH and has been appointed for Occupational Safety and Health (NIOSH). He is currently a

Some of Mark’s noteworthy contributions to our field are highlighted here:

- His research in long-duration noise exposures involved a study of the hearing thresholds of the crew of the Voyager. You may recall that in 1986 the Voyager completed a nine day, three minute and forty-four second round-the-world, non-stop and non-refueled flight, setting an absolute world’s record that still holds today.
- He served on the National Academy of Science committee that produced the seminal document “Noise-Induced Hearing Loss and Tinnitus Associated with Military Service from World War II to the Present”
- He chaired the American Academy of Audiology’s (AAA) committee which produced and is now revising the AAA “Position Statement on Preventing Occupational Hearing Loss”
- He serves as the Hearing Conservation Committee Chair on the Accreditation Commission on Audiology Education (ACAIE) to develop an accreditation plan specifically for academic programs offering the Doctor of Audiology (AuD) degree.
- He represented AAA as one of their CAOHC representatives from 2003-2006 and served as Associate Editor of the CAOHC Update newsletter.
- He is active in the Acoustical Society of America Working Groups and Technical Committees helping to develop ANSI Standards on noise and hearing.
- Mark has consulted for numerous government and educational institutions, including: The National Research Council, the British Columbia Board of Worker’s Compensation, U.S. Dept. of Interior, U.S. Dept. of Labor, USAF, US Army, US Navy, National Institutes of Health, Federal Aviation Administration, Federal Bureau of Investigation, NASA, U.S. Dept. of Transportation, Cal/OSHA, The Ohio State University School of Public Health, Wright State University School of Medicine, Michigan Department of Public Health, Institute of Medicine, National Academy of Engineering
- As adjunct faculty, Mark has taught undergraduate, masters and doctoral level students. Courses taught include basic audiology, hearing conservation, psychoacoustics, readings in hearing loss prevention, hearing science, and noise measurement. He has assisted in numerous graduate student research projects, including sitting on doctoral dissertation committees.
- Mark has written and co-authored Technical Reports, book chapters and journal articles too numerous to detail. The 1996 NIOSH Practical Guide and the 1998 NIOSH Criteria Document are, of course, renowned documents in our field.
- Mark serves NHCA in many capacities. He was Vice President and Program Chair in 1999 and he currently serves as NHCA’s ANSI S-3 representative and the liaison to AAA. He is one of the NIOSH representatives to the OSHA/NHCA/NIOSH Alliance.

We are in good company to recognize Mark’s contributions and note this is not the first time we recognize him. If we included the awards from his military career, we’d quickly run out of space. His recent awards include:

- NHCA – Outstanding Scientific Lecturer Award, 2000
- NHCA – Media Award for his appearance on “This Old House”, 2003
- American Academy of Audiology – Special Award for Contributions to the Field of Hearing Conservation, 2004
- City of Cincinnati – Public Service Award, 2007
- Centers for Disease Control and Prevention – Outstanding Employee with a Disability, 2009

Mark Stephenson, Ph.D.
Mark’s interests extend beyond our humble profession. He is an avid astronomer, having published in *Astronomy Technology Today* and *Sky and Telescope*. Mark and Carol are very active in the Bernese Mountain Dog Community participating/competing in agility, rally obedience, draft, tracking, herding, therapy dog, and versatility with their dogs. Mark’s “Renaissance” interests include: bird watching (well technically bird listening but he identified a scarlet tanager on a bird watching trip in Albuquerque before any of the rest of us!); collecting gemstones and meteorites (a hobby his wife, Carol, especially appreciates), and wildlife and astronomical photography.

*by Theresa Y. Schultz, PhD, LtCol, USAF (ret)*
Michael Beall Threadgill Award

The Michael Beall Threadgill Award was established in 1985 to honor those individuals who have contributed in a significant way to the growth and continuing excellence of the National Hearing Conservation Association by their outstanding commitment of time and effort. In 2010, the NHCA is proud to present this prestigious award to Deanna Meinke, PhD.

The Pioneering Family

It is with the pioneering spirit of her forbears that Deanna Meinke embraces life. Her grandmother, a native Coloradaan was a tough and resourceful woman; who grew up in Steamboat Springs, CO, a mining town high in the Rocky Mountains. Going to school in the winter was possible only on cross country skis. While on her honeymoon, Bonnie (Holmes) and her new husband, Vern Holmes faced a frightening and uncertain future. Bonnie’s bravery and grace emanated until her final days in April, 2008. In spite of the hardships MS inflicted upon this family, Deanna’s father resolved that Deanna would go to college and he worked tirelessly to afford her the opportunity. Her father’s steadfastness ultimately had a significant influence on her future career choice. He recalls a pivotal point during her junior year at Colorado State University when she called, distraught with foreboding of the coming day. He listened and offered encouragement; he “toughened her up” so she could do what needed to be done. In the early hours of the next morning, she drew upon the strength of her pioneering ancestors. Through the dark, cold, and snowy streets, she trudged alone across campus. Heart pounding, she slowly descended the concrete steps and shivered, as she grasped the cold steel handle of the heavy door of the anatomy building. Once inside, bolstered by her father’s words, she made up her mind and opened the tank. Overwhelmed by the pungent formaldehyde she held her breath and grabbed the cadaver. Her assignment: dissection. Completing this demanding anatomy course work ignited a passion for understanding the intricacies of the auditory system. Thoroughly tested, Deanna emerged a true pionEAR.

Like a pioneer, Deanna also learned to give, to share, without obligation, as an act of gratefulness. We, the members and community of NHCA, have benefited greatly from Deanna’s outstanding service and wish to honor her as the 2010 recipient of the Michael B. Threadgill Award. As a tribute to her fascination with ear anatomy, her NHCA service is reviewed in three major divisions: the outer, middle, and inner years.

The Outer years: 1988 - 1999

Deanna joined NHCA in 1988. Invited by friend and colleague Linda (Kiyota) Jelden, Deanna attended the 1990 NHCA annual conference, and hasn’t missed one since. During the “outer years,” Deanna credits NHCA with being a powerful resource in her professional growth. As the Manager of Audiology, she developed a hearing conservation component to both the audiology and occupational health departments at the Greeley Medical Clinic. Later she started a private consulting business, Platte Valley Hearing Conservation. Especially valuable to her was that NHCA facilitated the reconnection with her mentors, former Northern Illinois University professors, James Lankford and John Franks. Deanna began collaborating on research projects, building lifelong friendships, and asking more questions. Just as she was invited to a conference, Deanna shared NHCA with other audiology friends, one who eventually became an NHCA President.

The Middle years: 2001 - 2006

Working with children was the impetus for new fervor, propagating her NHCA energy into the middle years. In 2001, Deanna agreed to chair the Hearing Education for Children and Adolescents Task Force (now called Children and Noise Task Force). Recognizing the need for a centralized resource, Deanna positioned NHCA to be the nucleus of the effort to educate and motivate children and parents about hearing. The task force facilitated outreach to educators and access to products designed for classrooms. Educator resource kits were developed and distributed through NHCA. A partnership with the American Academy of Audiology produced the “Crank It Down” brochure, currently one of NHCA’s most popular publications.

The Children and Noise Task Force set the goal for hearing health to be recognized as a public health issue for all ages. Subsequently, Deanna discovered the work of Robert Folmer, Susan Gries, Billy Martin, Judy Sobel (and colleagues) of Dangerous Decibels. Distinguished from other programs, here the concepts of health...
communication theory and the use of outcome measures to identify knowledge, attitude and behavior changes were integrated. Deanna’s introduction of Dangerous Decibels to NHCA catapulted the activity level of the task force, and highly respected Susan Griest became deeply involved in NCHA. She is the second NHCA President Deanna has recruited.

Meanwhile, Deanna continued to build connections between NHCA and other governmental agencies and professional organizations. For example, the American Academy of Audiology (AAA) instituted the DiscovEARy Zone at its annual conventions through the joint efforts of NHCA and AAA members. Interagency collaborations culminated in 2006 with the first ever international research conference targeting Children in Noise. NHCA partnered with the National Institute on Deafness and Other Communication Disorders (NIDCD), the National Institute for Occupational Safety and Health (NIOSH), and Dangerous Decibels, to sponsor a professional two-day event titled: Prevention of Noise Induced Hearing Loss in Children at Work and Play. Research interest and international scientific collaborations fueled the publication of no less than 18 journal articles. Through the tremendous accomplishments of the Children and Noise Task Force, NHCA has achieved notoriety for its expertise and commitment to protect the young hearing of our future workers.

During the middle years Deanna also served NHCA in many other capacities. She has regularly published in Spectrum, presented platform, poster and/or workshop presentations at each conference since 2002, and has been an active participant on several task forces, earning four Golden Lobe awards. Membership includes NHCA Noise Coalition, Occupational Safety & Health Administration (OSHA) Alliance, Program Task Force and most recently, the Task Force on Recreational Firearm Noise. As an active NHCA member, Deanna responded whenever there was an appeal for public comment, expert opinion, or a general cry for help.

In spite of her NHCA activities, a full-time consulting career with Associates In Audioset, Inc., and numerous other professional interests, Deanna was unfulfilled. Her affinity for asking tough questions and a growing frustration at the lack of good data motivated her to enter the University of Colorado doctoral program to complete a life long goal. She graduated in 2005 as Dr. Deanna Meinke, with a PhD in audiology. Soon after, she accepted an assistant professor position with the University of Northern Colorado Audiology & Speech-Language Sciences Department. Her research interests include applications for distortion product otoacoustic emissions as an early indicator of noise-induced hearing loss and other auditory pathologies, early identification of noise-induced hearing loss in youth and young workers, hearing loss prevention training and educational outreach, especially related to health communication theories. A natural candidate for NHCA leadership all along, the conditions became perfect for Deanna’s NHCA energy to reach its resonating frequency in 2007.

The Future PionEARs

Fortunately, like in the auditory system, the transmission of energy doesn’t stop after the inner years! As teacher, researcher, mentor and friend, Deanna is perpetuating her passion. Already, Deanna’s students are NHCA members, poster and platform session presenters, and recipients of NHCA Foundation travel and scholarship awards. The immeasurable time and creativity she has devoted to the NHCA Scholarship Foundation will reach far into the future.

By the way, what is your favorite sound?

Submitted by Laurie Wells, Past President of NHCA, successfully recruited to NHCA and lifelong friendship by Deanna Meinke.
Serenity

"Talk-Through" Serenity Protection protects your workers and your business.

Passive protection reduces loud noises by completely occluding the external ear, but they produce problems for many users, including inability to hear conversations, talk via a radio, reduced situational awareness, inability to locate or identify a sound.

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2010 Safe-in-Sound Excellence in Hearing Loss Prevention Awards™

Thais C. Morata, Ph.D. - Safe-in-Sound Award Director
National Institute for Occupational Safety and Health - Cincinnati, OH
Deanna Meinke, Ph.D. - Safe-in-Sound Award Committee Chair
University of Northern Colorado - Greeley, CO

Etymotic Research, Inc.
represented by Mead C. Killion, Ph.D.

New York City Department of Environmental Protection and Parsons Brinckerhoff (PB), represented by Charles Shamoon, Esq. and Erich Thalheimer, Eng.

College of Music, University of North Texas
represented by Kris Chesky, Ph.D.

Award Presenter:
CAPT Margaret Kitt - Deputy Director for Program
National Institute for Occupational Safety and Health

Dr. Kitt received a Bachelor of Science from The State University of New York at Albany, a Doctor of Medicine from the University of Rochester School of Medicine and Dentistry, and a Master of Public Health from the University of Washington. She is certified by the American College of Preventive Medicine in both Aerospace Medicine and Occupational Medicine. Dr. Kitt was a Senior Flight Surgeon in the U.S. Air Force, serving for 14 years. In 2002, she joined CDC and the U.S. Public Health Service. In 2003, Dr. Kitt worked part-time with the World Health Organization’s Collaborating Center in Reproductive Health on a Health and Human Services (HHS) Secretarial Initiative in Afghanistan. She rejoined NIOSH in April of 2007 working in the Emergency Preparedness and Response Office. Later she became Coordinator for the Afghanistan Health Initiative, at the Office of the HHS Secretary in Global Health Affairs until 2009, when she accepted the position of NIOSH Deputy Director for Program.
NHCA Media Award

The Media Award was established to recognize the efforts of writers and/or producers of news features that serve to heighten public awareness of the hazards of noise. The NHCA Nominations Committee is pleased to announce this year’s winner of the NHCA Media Award: The National Institute on Deafness and Other Communication Disorder’s (NIDCD) “It’s a Noisy Planet, Protect Their Hearing” website. Accepting the award will be Patricia Blessing, NIDCD Communications Director.

In October 2008, the National Institute on Deafness and Other Communication Disorders (NIDCD), part of the National Institutes of Health, launched “It’s a Noisy Planet. Protect Their Hearing”. The Noisy Planet campaign is designed to increase awareness among parents of children ages 8 to 12 (‘‘tweens’’) about the causes and prevention of noise-induced hearing loss (NIHL). With this information, parents and other adults can encourage children to adopt healthy habits that will help them protect their hearing for life.

The Noisy Planet website is a key feature of the campaign. The site offers free educational materials and includes:

- Highlighted features, such as video guest interviews and partner highlights.
- Interactive materials such as educational tools and games for tweens.
- Facts about NIHL and tweens.
- Tips for parents.
- Media materials and downloads.
- User feedback and listserv mechanisms.
- Promotional items, such as posters, car magnets, window clings, desk calendars, pens, and pencils.

To learn more, go to www.noisyplanet.nidcd.nih.gov.
Saturday Breakfast Chat Sessions

HOST
1. Michael Seidemann
2. Laura Kauth
3. Deborah Gabry
4. Tim Rink
5. Amy Stewart
6. Vickie Tuten
7. Jillyen E. Curry-Mathis
8. Don Ciliax
9. Theresa Schulz
10. Rick Neitzel
11. Lee Hager / Kim Breitbach
12. Benj Kanters/Michael Santucci
13. Brad Witt
14. Billy Martin
15. Christine Harrison
16. Susan Griest
17. Marjorie Grantham
18. Chantal LaRoche
19. Dan Gauger
20. Karen Turner
21. Russ Hannula
22. Linda Howarth
23. Jay Buckey
24. Open Table

TABLE TOPIC
1. Forensic Audiology
2. Employee Data OSHA vs HIPAA
3. OSHA Activities Related to HCPs
4. Providing HCP Services
5. Keeping HLP at the Heart of Client Relationships
6. Challenges for HLP in the DoD
7. Traumatic Brain Injury
8. Effective Education in Hearing Conservation
9. HPD’s and the Military
10. Web Site Design
11. CAOHC
12. HLP in the Music Industry
13. Field Verification of HPD Attenuation
14. Tinnitus Issues
15. Northern Exposure HCP's in BC
16. NHCA - A New Decade
17. Localization with Hearing Protection
18. Testing/Accommodating Hearing Impaired Workers
19. The New HPD Rating System
20. International Table
21. HCP Software
22. Dangerous Decibels
23. Otoacoustic Emissions & NIHL
24. “Got Chat”?
### Thursday, February 25, 2010

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:30 a.m. - 5:30 p.m.</td>
<td>Registration and information desk open</td>
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<tr>
<td>Registration Desk C/D</td>
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<tr>
<td>7:30 a.m. - 8:30 a.m.</td>
<td>Continental breakfast</td>
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<tr>
<td>Mezzanine Foyer</td>
<td>регистрационный стол и информация</td>
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<tr>
<td>8:30 a.m. - 11:30 a.m.</td>
<td>Morning workshops</td>
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<tr>
<td>11:30 a.m. - 1:00 p.m.</td>
<td>Lunch (on your own)</td>
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<tr>
<td>1:00 p.m. - 4:00 p.m.</td>
<td>Afternoon workshops</td>
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<tr>
<td>Full Day</td>
<td>Forensics &amp; expert witnessing emphasis for the acoustician/audiologist</td>
</tr>
<tr>
<td>Salon 8</td>
<td>Coordinator: John Casali - Virginia Tech and Ergonomics-Acoustics Co., USA</td>
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<tr>
<td>Full Day</td>
<td>Hands-on fit-testing</td>
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<tr>
<td>Salon 9</td>
<td>Coordinator: William Murphy - National Institute for Occupational Safety &amp; Health, USA</td>
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<tr>
<td>Full Day Seminar</td>
<td>Hearing loss prevention: The basics</td>
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<tr>
<td>Salon 14</td>
<td>Coordinator: James Jerome, Workplace Hearing-Midwest, Inc., USA</td>
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<td>Noise Measurement - Tom Lloyd - Associates in Acoustics, Inc., USA</td>
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<td>The Audiogram - How to Use it - Lynnette Bardolf - US Army Aeromedical Research Laboratory, USA</td>
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<td>Hearing Loss Recordability Issues - Cindy Bloyer - Exametics, Inc., USA</td>
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<td>Effective Hearing Protection - Theresa Schulz - Sperian Hearing Protection, USA</td>
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<td>Education and Motivation - Laura Kauth - Audiology Consultants PC, USA</td>
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<td>Hearing Conservation Regulations and HIPPA - Nancy Gallighugh - Kalamazoo RESA, USA</td>
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<tr>
<td>A.M. Only</td>
<td>PSO member session</td>
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<tr>
<td>Salon 10</td>
<td>Coordinator: Richard Stepkin - Enviromed Corporation, USA</td>
</tr>
<tr>
<td>A.M. Only</td>
<td>Recreational firearm noise exposure</td>
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<tr>
<td>Salon 12</td>
<td>Coordinator: Greg Flamme - Western Michigan University, USA</td>
</tr>
<tr>
<td>P.M. Only</td>
<td>A new approach to teaching physiology and conservation</td>
</tr>
<tr>
<td>Salon 10</td>
<td>Coordinator: Benj Kanters - Columbia College Chicago, USA</td>
</tr>
<tr>
<td>P.M. Only</td>
<td>Hearing Conservation Amendment panel - Challenges persist</td>
</tr>
<tr>
<td>Salon 12</td>
<td>Coordinator: Russ Hannula - Hear/Trak, USA</td>
</tr>
<tr>
<td>A.M. or P.M.</td>
<td>Effective presentations: Structure and delivery</td>
</tr>
<tr>
<td>Salon 13</td>
<td>Jean-Luc Doumont - Principiae, Belgium</td>
</tr>
<tr>
<td>4:00 p.m. - 4:45 p.m.</td>
<td>Committee meetings and networking time</td>
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<tr>
<td>5:30 p.m. - 8:30 p.m.</td>
<td>Opening Reception/Exhibits Open</td>
</tr>
</tbody>
</table>

Ballroom D
Friday, February 26, 2010

7:30 a.m. - 5:30 p.m.  Registration and information desk open
Registration Deck C/D

7:30 a.m. - 8:30 a.m.  Continental breakfast
Ballroom D

8:30 a.m. - 8:40 a.m.  Welcome & opening remarks
Ballroom C

8:40 a.m. - 8:55 a.m.  Current moves in Australia based noise exposure research
Ballroom C

8:55 a.m. - 9:10 a.m.  Noise-induced hearing loss in Asia
Ballroom C

9:10 a.m. - 9:25 a.m.  Prevention of occupational hearing loss in Brazil: state of the art
Ballroom C

9:25 a.m. - 9:40 a.m.  Research on noise-induced hearing loss in Sweden
Ballroom C

9:40 a.m. - 9:50 a.m.  Posters introduction
Ballroom C

9:50 a.m. - 10:20 a.m.  Break/Posters/Exhibits
Ballroom D

10:20 a.m. - 11:00 a.m.  Keynote Lecture
Ballroom C

11:00 a.m. - 11:30 a.m.  NHCA business meeting
Ballroom C

11:30 a.m. - 12:50 p.m.  Luncheon: Effective slides: Design, construction and use
Ballroom B

1:00 p.m. - 2:40 p.m.  CONCURRENT SESSIONS

Salon 10  Concurrent Session - Hearing Loss Prevention in the Military
1:00 - 1:20 p.m.  Hearing changes among military conscripts in the Swedish Army
Per Muhr - Karolinska Institute and the Dept of Audiology Karolinska University Hospital, Sweden

1:20 - 1:40 p.m.  Hearing loss among soldiers exposed to impulses
William Ahroon - US Army Aeromedical Research Laboratory, USA

1:40 - 2:00 p.m.  Improved hearing protection regulations and the prevention of military NIHL/tinnitus
Roderik Mrena - University of Helsinki, Finland

2:00 - 2:20 p.m.  The Army hearing program: supporting the soldier from training to combat
Jillyen Curry-Mathis Army Hearing Program Manager, USA
Vickie Tuten, Office of Surgeon General, USA

2:20 - 2:40 p.m.  Development of a computer-based HLP education program for veterans and military personnel
Robert Folmer - National Center for Rehabilitative Auditory Research Portland VA Medical Center, USA

Salon 11  Concurrent Session - Music & Hearing Loss
1:00 - 1:20 p.m.  TTS subsequent to music player use
Colleen Le Prell - Dept of Communicative Disorders, University of Florida, USA

1:20 - 1:40 p.m.  Portable music players - preferred sound levels and listening habits
Kim Kahari - School of Health and Medical Sciences, Orebro University, Sweden

1:40 - 2:00 p.m.  The use of MP3 players as a possible cause of music-induced hearing loss
Wouter Dreschler - Clinical and Experimental Audiology, Academic Medical Centre, Netherlands

2:00 - 2:20 p.m.  Do negative attitudes toward loud music prevent music-induced hearing loss
Stephen Widen - Institution of Social and Behavioral Studies, Sweden

2:20 - 2:40 p.m.  It takes two: how partnerships help extend the reach of a national NIHL campaign for tweens
Patricia Blessing - National Institutes of Health, USA
Salon 12
Concurrent Sessions - Protection & Communication
1:00 - 1:20 p.m.
Influence of headset, hearing sensitivity, flight workload, and communication signal quality on flight performance and communications: An Army Black Hawk helicopter simulator experiment
Kristen Casto - US Army Aeromedical Research Laboratory, USA

1:20 - 1:40 p.m.
How well do hearing protectors work?
Lee Hager - 3M/Aero Technologies, USA

1:40 - 2:00 p.m.
Comfort and fit of hearing protection products in the industrial environment
Martha Tate - Kimberly-Clark Corporation, USA

2:00 - 2:20 p.m.
Influence of headset, hearing sensitivity, flight workload, and communication signal quality on flight performance and communications: An Army Black Hawk helicopter simulator experiment
Noah Seixas - University of Washington Dept of Environmental and Occupational Health Sciences, USA

2:20 - 2:40 p.m.
Influence of hearing aid use in the workplace on noise exposure estimates
Marshall Chasin - Musician’s Clinic of Canada, Canada
Brian Fligor - Children’s Hospital Boston, USA

Salon 13
Concurrent Sessions - Otototoxicity & Otoprotection
1:00 - 1:25 p.m.
Occupational exposure to chemicals and hearing impairment
Ann-Christin Johnson - Unit of Audiology, Karolinska Institute, Sweden
Thais Morata - National Institute for Occupational Safety and Health, USA

1:25 - 1:45 p.m.
The weight of evidence approach in the case of ototoxic chemicals
Tony Leroux - Ecole d’orthophonie et d’audiologie; Universite de Montreal, Canada

1:45 - 2:10 p.m.
Pharmacologic otoprotective and rescue agents for noise-induced hearing loss
Kathleen Campbell - Southern Illinois University School of Medicine, USA

2:10 - 2:30 p.m.
From bench to bedside and back again: translating otoprotective agents from animal to man
Colleen Le Prell - Dept of Communicative Disorders, University of Florida, USA

2:30 - 2:40 p.m.
Misadventures of a hair cell
Theresa Schulz - Sperian Hearing Protection, USA
Saturday, February 27, 2010

7:30 a.m. - 5:30 p.m.  Registration and information desk open
Registration Desk C/D

7:30 a.m. - 8:30 a.m.  Chat sessions with buffet breakfast
Ballroom B

8:40 a.m. - 9:00 a.m.  Evaluation of the increased accident risk from workplace noise
Esko Toppila - Finnish Institute of Occupational Health, Finland
Ballroom C

9:00 a.m. - 9:20 a.m.  Tools for optimizing the installation of warning sounds in noisy workplaces
Chantal LaRoche - Hearing Research Laboratory, University of Ottawa, Canada
Ballroom C

9:20 a.m. - 9:40 a.m.  Hearing loss in construction industry: comparisons to ISO-1999 predictions
Monique Leensen - M.C.J. Leensen, Academic Medical Centre, Netherlands
Ballroom C

9:40 a.m. - 10:00 a.m.  Otocoustic emissions in a hearing conservation program: applicability in longitudinal monitoring and the relation to changes in pure-tone thresholds
Hiske Helleman - Clinical and Experimental Audiology, Academic Medical Centre, Netherlands
Ballroom C

10:00 a.m. - 10:55 a.m.  Break and posters
Ballroom D

10:55 a.m. - 11:20 a.m.  Classroom noise and acoustics, rekindling the fight for standards
Neil Snyder - American Speech-Language-Hearing Association, USA
Ballroom C

11:20 a.m. - 11:45 a.m.  Hearing protection labeling: EPA rulemaking and an updated ANSI S12.42
Elliott Berger - 3M Occupational Health & Environmental Safety Division, USA
Ballroom C

11:45 a.m. - 12:00 p.m.  Exposure of law enforcement officers to gunfire
Chucri (Chuck) Kardous - National Institute for Occupational Safety and Health, USA
Ballroom C

12:00 p.m. - 12:15 p.m.  Better Protection from Blasts without Sacrificing Situational Awareness
Mead Killion - Etymotic Research, Inc, USA
Ballroom C

12:15 p.m. - 1:55 p.m.  Luncheon and awards
Ballroom B

2:05 p.m. - 2:30 p.m.  Gasaway Lecture: Have Hardhat, Will Travel - Hearing Conservation in the Great White (?) North
Christine Harrison - Occupational Audiologist, WorkSafeBC, Canada
Ballroom C

2:30 p.m. - 2:55 p.m.  Evaluating the effectiveness of hearing conservation by program components
Nicholas Heyer - Battelle Centers for Public Health Research and Evaluation, USA
Ballroom C

2:55 p.m. - 3:20 p.m.  Mass transit noise levels and rider characteristics in New York City
Rick Neitzel - University of Washington, USA
Ballroom C

3:20 p.m. - 3:40 p.m.  Break

3:40 p.m. - 4:00 p.m.  Noise exposure profiles
Warwick Williams - National Acoustics Laboratories, Australia
Ballroom C

4:00 p.m. - 4:20 p.m.  Noise exposure of musicians at the National Ballet Orchestra
Alberto Behar - University of Toronto, Canada
Ballroom C

4:20 p.m. - 4:40 p.m.  DNA and other layman terms related to audiology
Curtis Smith - Professor Emeritus - Auburn University, USA
Judith Blumsack - Auburn University, USA
Ballroom C

4:40 p.m. - 5:00 p.m.  Speech-in-noise screening tests by internet; improving test sensitivity for noise-induced hearing loss
Monique Leensen - Clinical and Experimental Audiology, Academic Medical Centre, Netherlands
Ballroom C

5:00 p.m. - Good Bye  Closing remarks
Ballroom C
Isolation

What does losing your hearing feel like?

When the sounds of the world start to fade away, it can be a very isolating experience. And it doesn’t get better. Get serious about conserving your hearing today, so you can hear what’s going on around you tomorrow.

Listen up. HearForever.
## Sponsors and Booth Locations

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<th>Booth #</th>
<th>Exhibitor</th>
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<tr>
<td>27/28/29</td>
<td>3M</td>
<td>14</td>
<td>Etymotic Research</td>
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<td>10</td>
<td>ACO Pacific</td>
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<td>ASHA</td>
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<td>Phonak LLC, Earcare Div.</td>
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<td>7/8</td>
<td>Benson Medical Instruments</td>
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<td>Quest Technologies</td>
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<td>Casella USA</td>
<td>4/5/6</td>
<td>Sperian Hearing Protection</td>
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<td>CDC/NIOSH</td>
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<td>Tremetrics</td>
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### Exhibit Schedule

**Thursday, February 25**
- Exhibit Set-up and Registration: 7:00 a.m. - 4:00 p.m.
- Exhibits Open/Reception/Silent Auction in Exhibit Hall: 5:30 p.m. - 8:30 p.m.

**Friday, February 26**
- Continental Breakfast/Exhibits Open/Silent Auction: 7:30 a.m. - 8:30 a.m.
- Break/Exhibits Open: 9:50 a.m. - 10:20 a.m.
- Luncheon with Sponsor Introductions: 11:30 a.m. - 12:50 p.m.
- Concurrent Sessions/Exhibit Hall Open: 1:00 p.m. - 2:40 p.m.
- Break/Exhibits Open: 2:40 p.m. - 3:10 p.m.

**Saturday, February 27**
- Buffet Breakfast/Chat Sessions: 7:45 a.m. - 8:40 a.m.
- Exhibits Open/Break/Silent Auction: 8:40 a.m. - 1:45 p.m.
- Exhibit Break down: 2:00 p.m. - 4:00 p.m.
3M - GOLD SPONSOR:
3M is fundamentally a science-based company. We produce thousands of imaginative products, and we’re a leader in scores of markets - from health care and highway safety to office products and abrasives and adhesives. Our success begins with our ability to apply our technologies - often in combination - to an endless array of real-world customer needs. Of course, all of this is made possible by the people of 3M and their singular commitment to make life easier and better for people around the world. For more information visit www.3m.com.

Howard Leight/Sperian Hearing Protection - GOLD SPONSOR:
Howard Leight/Sperian Hearing Protection, LLC is a leading global provider of passive and intelligent hearing protection solutions, and the founder of the HearForever™ initiative. For over 30 years, Howard Leight has pursued the prevention of occupational hearing loss through innovation in hearing protection design, technology, performance and comfort, and the promotion of progressive Hearing Conservation Programs. Leading solutions include the highest attenuating Max® single-use ear plug; patented Air Flow Control™ technology for optimal earmuff attenuation; QuietDose™ personal in-ear dosimetry; and the industry-changing VeriPRO® ear plug fit testing system. Visit: www.howardleight.com.

Benson Medical Instruments Co. - SILVER SPONSOR
Benson Medical Instruments offers Hearing Conservation Compliance Solutions. As a manufacturer of a full line of industrial audiometers and hearing conservation software, Benson Medical focuses on seamless integration. The advantages: faster test speed, quality results (with built-in “Intelligent Testing” procedures), ease of use (with an intuitive, Windows-based user interface), and superior data handling (with SQL Server compatibility and seamless integration with leading databases). Benson Medical offers “Seamless Sound Solutions” for both single clinic and multi-station testing. Visit: www.bensonmedical.com.

National Institute for Occupational Safety & Health/Centers for Disease Control & Prevention (NIOSH/CDC) - SILVER SPONSOR
The National Institute for Occupational Safety and Health (NIOSH) is the federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. NIOSH is part of the Centers for Disease Control and Prevention (CDC) in the Department of Health and Human Services. NIOSH has laboratories and offices in Washington DC, Pittsburgh PA, Morgantown WV, Cincinnati OH, Denver CO, and Spokane WA. Visit: www.cdc.gov/niOSH.

Phonak LLC, Earcare Div - SILVER SPONSOR

Quest Technologies - SILVER SPONSOR
Quest Technologies, a 3M Company, is a world class manufacturer and leader in the field of occupational safety, industrial hygiene and environmental instrumentation. Quest products are used in more than 80 countries worldwide. Quest has a strong reputation of rugged, reliable instrumentation and software systems that monitor and evaluate occupational and environmental health and safety hazards including noise, vibration, heat stress, indoor air quality and toxic/combustible gases. Quest monitoring instruments serve a variety of occupations and industries with clients in mining, research, enforcement, military, education, insurance and manufacturing business sectors. Visit www.questtechnologies.com for further information.
ACO Pacific, Inc. - BRONZE SPONSOR
Leading the Leaders™ - Over the years ACO Pacific, Inc. has taken a quiet approach offering innovative products to North American and International markets. Recent additions: “The SLARM™” - an innovative Sound Level Alarm and Monitor system offering wired and wireless alarm and data, the ACOtron™ preamp family, and the 7052PH-Type 1.5™ Phantom Powered Measurement Microphone Package.™ The “ACOustical Interface”™ System, the “Extremely Random™” Noise Generator, “The Alternative” Family of Type 1 and Type 1.5™ measurement microphones featuring stainless steel or titanium diaphragms, “Simple Intensity™” Systems, the ACOustiCap™, ACOtron™ electronics and more, all aimed at providing both End-Users and OEMs cost effective solutions to their acoustic measurement needs...and the Leaders Followed...™ Visit: www.acopacific.com.

American Industrial Hygiene Association (AIHA) - BRONZE SPONSOR
The American Industrial Hygiene Association is one of the largest international associations serving the needs of occupational and environmental health professionals practicing industrial hygiene in industry, government, labor, academic institutions, and independent organizations. AIHA is devoted to achieving and maintaining the highest professional standards for members; working in conjunction with the American Board of Industrial Hygiene to promote certification of industrial hygienists; administering comprehensive education programs that keep occupational and environmental health and safety professionals current in the field of industrial hygiene; and operating several highly recognized laboratory accreditation programs. Founded in 1939, AIHA is a nonprofit organization with more than 73 local sections and 10,460 members.

American Speech-Language-Hearing Association - BRONZE SPONSOR
ASHA audiologists provide hearing conservation, diagnostic and rehabilitative services and conduct research for those at risk for hearing and /or balance disorders. ASHA promotes safe listening habits when using MP3 players and other similar devices through its “Listen to Your Buds” campaign for children, parents and teachers. Visit: www.asha.org.

Casella USA - BRONZE SPONSOR
Offering a wide range of solutions for the Hearing Conservationist, Larson Davis is a leading supplier of Noise Dosimeters, Sound Level/Octave Band Meters, and Audiometer Calibration systems. Powerful CORTI software drives continuous improvement of the Hearing Conservation Program by identifying at-risk workers, projecting future liability and retrospective allocation.

Council for Accreditation in Occupational Hearing Conservation (CAOHC) - BRONZE SPONSOR
CAOHC is dedicated to the establishment and maintenance of training standards for those who safeguard hearing in the workplace. CAOHC has been the leader in providing standards for occupational hearing conservation programs since its inception in 1973. CAOHC offers national recognition by training and certification to the highest standard for: 1) the certified occupational hearing conservationist (COHC); 2) the Course Director conducting hearing conservation training courses; and 3) the Professional Supervisor of the Audiometric Portion of a Hearing Conservation Program (CSP/A). All hearing conservation team members will find the 4th Edition Hearing Conservation Manual, by Alice Suter PhD vital in the front-line of defense against hearing loss in workers. More information is available about CAOHC on the world-wide web at: www.caohc.org.

Etymotic Research Inc. - BRONZE SPONSOR
Etymotic Research is a longstanding supporter and commercial member of NHCA. Etymotic designs products to measure, improve and protect hearing. Etymotic products most familiar to hearing conservationists include: ER-3A/ ER-5 insert earphones; Musicians Earplugs; ER-20 earplugs (co-developed with Aearo Corp.); ER-200 personal noise dosimeter; ERO-SCAN and OtoRead handheld OAE devices.
G.R.A.S. Sound & Vibration - BRONZE SPONSOR
A broad range of standard measurement microphones, preamplifiers, transducers and accessories. Sound intensity microphones, outdoor monitoring microphones, artificial ears, ear and mouth simulators, CCP preamplifiers, calibrators, etc. The microphone-preamplifier combinations feature built in TEDS, microphone arrays. Microphone systems for measurement of low noise levels below the threshold of hearing.

Larson Davis PCB - BRONZE SPONSOR

Sensear - BRONZE SPONSOR
Sensear is a technology company devoted to applying commercial research and scientific discovery to solve the communication needs of industry and individuals. Through extensive research and client trials, Sensear identified a gap in the global hearing protection market and has created the world’s first technology to enable clear, audible communication while retaining optimum hearing protection in high noise environments. No other product available on the market today allows clear and safe communication in varying types of noise above 85 dB(A).

Tremetrics
Tremetrics designs and manufactures a complete line of innovative hearing/health testing equipment including multimedia and microprocessor audiometers, space-saving mobile testing systems, hearing test booths and health database management software. www.tremetrics.com.
Workshop #1: Full Day
“Forensics & expert witnessing- emphasis for the acoustician/audiologist”
Coordinator: John Casali - Virginia Tech and Ergonomics-Acoustics Co., USA
Dennis Driscoll – Associates in Acoustics Inc., USA
Robert Dobie – University of California-Davis, USA
Robert Randolph - NIOSH, USA
Michael Seidemann – Audiological Associates, Inc., USA

This full-day workshop was designed to introduce NHCA attendees to the practice of serving as an expert witness and/or resource consultant for court litigation, workers compensation cases, and governmental hearings. With a comprehensive set of 125 PowerPoint slides, as well as handouts on retained agreements, regulations governing expert disclosure and reports, and other reference material, the presenters conveyed a broad spectrum of information ranging from business aspects of forensic consulting to case analysis and testimony. Examples from premises liability, products liability, hearing loss, workers compensation, and patent litigation were provided to illustrate salient aspects of the expert’s role. Due to the popularity of this workshop, as well as the fact that not all who requested it were able to attend due to a facility size-imposed enrollment limit, it will be offered again at NHCA 2010 at the request of the NHCA Program Committee. Also planned is the addition of an audiologist with forensic experience to the current panel. Join us if you want to... learn how acoustics and audiology can provide: important input to juries and judges within the U.S. legal system; learn the basics of serving as an expert witness in court; experience the challenge of being cross-examined; understand how to navigate (and survive) the discovery and litigation process in your capacity as an expert witness; understand the basics of writing compelling, scientiﬁc reports for submission to court; learn the basic “business” aspects of serving as an expert for court proceedings; be introduced to the fundamentals of tort law; be exposed to examples of the application of acoustics and/or audiology to cases involving: noise-induced hearing loss, warning signals as implicated in accidents, community noise annoyance, and intellectual property.

Workshop #2: Full Day
“Hands-on ﬁt-testing”
Coordinator: William Murphy - National Institute for Occupational Safety and Health, USA
Elliott Berger, 3M /E.A.R., USA
Evert Dijkstra, Phonak Communications, USA
Mihaela Grigorie, Phonak Communications, USA
Ted Madison, 3M /E.A.R., USA
Greg Moore – Integra, USA
Robert Randolph - NIOSH, USA
Theresa Schulz – Sperian Hearing Protection, USA
Mark Stephenson - NIOSH, USA
Jeremie Voix – Ecole de Technologie Superieure, Dept of Mechanical Engineering, Canada

For over 30 years, hearing conservation professionals have known that the Noise Reduction Rating is not necessarily representative of the protection afforded to the average user of hearing protection. NIOSH developed one of the earliest fit-test systems, however, the system was far from portable. In the mid 1990’s Michael and Associates developed FitCheck for use on a laptop computer. In recent years, other companies have developed systems: VeriPro by Sperian, Sonopass by Sonomax, SafetyMeter by Phonak, MultiFit by NIOSH, INTEGRAtor by Workplace INTEGRAtor, HPD WellFit by NIOSH, and EARFit by 3M. This workshop will present an overview of the technologies available to the hearing conservation professional. During the morning session, attendees will learn about different methods to effect fit-testing and companies will present the features of their particular systems. During the afternoon session, attendees will experience hands-on demonstrations of the various products. Different demonstration areas will be provided for systems that require quiet and for those that do not.

Workshop #3A: AM only
“PSO member session”
Richard Stepkin – Enviromed Corporation, USA

This workshop is geared toward PSO members and prospective members. The workshop will address a number of topics of current interest and concern regarding the effectiveness of your HCPs.

Workshop #3B: PM only
“A new approach to teaching physiology and conservation”
Benj Kanters – Columbia College Chicago, USA

The Hearing Conservation Workshop and HearTomorrow.Org were developed to target a hearing awareness and hearing loss prevention program to students and professionals in the audio and music industries. What evolved, proved be a very effective effort, utilizing a number of new teaching topics, presentation methods, images, animations, and a different “mind-set” where the approach is more artistic and emotional than “medical-safety”. Many of the principles and theories presented in the Workshop are the same as those governing music, audio and acoustics. As such, this audience is particularly adept at understanding this information. In addition, they are quick to understand the importance of developing their own safe listening habits, and equally quick to be concerned about the health and safety of their clients and the listening public. Since the Workshop is directed at an artistic community, and focused primarily on “music-induced hearing loss”, the presentation very quickly takes on an air of “inevitability”. Attendees soon view hearing conservation as much of a no-brainer as sunglasses and sunscreen. There is a clear difference in the tone of a discussion when the topic is one relating to recreation and entertainment, as opposed to employment and work. The NHCA/ HearTomorrow Workshop will be an opportunity to explore these new presentation perspectives, strategies and tools, and look for ways to incorporate them in the
context of health and safety counseling in the workplace and clinic.

Workshop #4A: AM only
“Recreational firearms noise exposure”
Coordinator: Greg Flamme – Western Michigan University, USA
James Lankford – Northern Illinois University, USA
Deanna Melinke – University of Northern Colorado at Greeley, USA
Jacob Sondegaard – USA
Mike Stewart – Central Michigan University, USA
Despite the popularity of recreational shooting, there are relatively few contemporary data concerning the acoustic and auditory risk characteristics of the gunfire produced during these activities. Attendees will learn about the types of recreational firearms, usage habits, gunfire measurement techniques, effects of gunfire noise on hearing, and estimates of hearing protector effectiveness in this presentation.

Workshop #48: PM only
“Hearing Conservation Amendment panel: Challenges persist”
Coordinator: Russ Hannula - HearTrak, USA
Robert Anderson - Anderson Consulting Associates, USA
John Barry, University of Pittsburgh Graduate School of Public Health, USA
Robert Connelly, Audiotronics, Inc., USA
Donald Wolfe, Professional Hearing Health Care of Spokane, USA
A panel of experts, each with many years of on-site experience, has been assembled to discuss important issues still relevant today, such as: a) the role of OSHA; b) noise exposure monitoring/control; c) professional review/recordability; d) effective training measures; e) hot topics such as medical histories, confidentiality, and the SSN; f) baseline revision; and g) using the data to evaluate program effectiveness – are the horses still falling off the cliff?

Workshop #5: AM / Workshop #5 PM
“Effective presentations: Structure & delivery”
Jean-Luc Doumont - Principiae, Belgium
When having to prepare an oral presentation, too many speakers these days seem content with cranking out PowerPoint slides; when their slides are ready, they think they are, too. Yet a presentation is not a set of slides; it is all about someone having something to say to an audience and being able to convey it effectively, with or without slides. To be effective, a presentation must most of all be well-planned, well-structured, and well-delivered; slides are optional. Accordingly, this workshop will focus on these more fundamental aspects: structure and delivery. Building on three simple yet solid principles, it will establish a standard structure that can be used for almost any professional presentation; then discuss how to optimize one’s verbal, vocal, and visual delivery; and finally give tips on how to handle nervousness. Participants can expect to learn much from it regardless of their level of experience.

Workshop #6: All-Day Seminar
“Hearing loss prevention: The basics (Noise Measurement)”
Tom Lloyd, Associates in Acoustics, Inc., USA
This segment will provide an overview of the measurement and control of noise, including an introduction to that dear friend/archenemy of hearing loss prevention (the decibel), the equipment we use to measure noise (sound level meters, dosimeters, octave band analyzers, oh my!), how we can reduce noise exposures, and how all this relates to protecting people’s hearing.

“Hearing loss prevention: The basics (The Audiogram)”
Lynnette Bardolf, US Army (USAARL), USA
The audiometric test is essentially the report card for the hearing loss prevention program. No worker’s hearing has ever been preserved or protected because he or she took a hearing test. How we use that hearing test, how we convey the information, how we track the data becomes critical to the program. This session will go beyond just looking for standard threshold shift. It will provide the technician with information about obtaining a valid result, and will offer the professional supervisor insight into follow-up strategies.

“Hearing loss prevention: The basics (HPDs)”
Theresa Schultz – Sperian Hearing Protection, USA
As hearing conservationists we can measure, assess, document, and counsel, but when it comes to effective intervention, our primary tool, sometimes our only tool, is a hearing protector. Therefore it behooves us to become knowledgeable about the specification of hearing protection devices and their use in hearing conservation programs. This presentation will focus on hearing protector function, how they are tested and rated (with particular reference to the NRR), the performance gains available from the use of dual hearing.

“Hearing loss prevention: The basics (Education & Motivation)”
Laura Kauth, Audiology Consultants PC, USA
While the ideal solution to a noisy environment is to remove the noise, in many situations, it simply isn’t possible. When this is the case, it’s not enough to rely solely on compliance with regulations to reduce risk. We need to educate employees thoroughly on the benefits of hearing conservation and the crucial steps they should take to safeguard their hearing. Employees must participate actively for hearing conservation to be successful; we need to engage and interest them in their own protection. Effective hearing conservation cannot be achieved without the combined efforts of employers, supervisors, and the employees themselves. By focusing on the reasons behind hearing conservation, and providing some different approaches, we can better reach these individuals to make them a part of the solution to preventable hearing loss.
Identification of work-related hearing loss has long been one of the most complicated and controversial areas of government-mandated injury/illness record keeping. Effective in 2000, MSHA provided a new definition of “reportable” hearing loss in its revised noise standard, Part 62. OSHA also defined new criteria for recording occupational hearing loss with its recent revision to 29 CFR 1904 (effective in 2003, with a separate Form 300 column in effect January 1, 2004). This workshop presentation will focus on the basic requirements of MSHA and OSHA record keeping regulations, as well as implications for professional review of audiograms and determination of work-relatedness. Although compliance with record keeping rules is important to the ultimate goal of tracking incidence of work-related hearing loss, emphasis will also be placed on best practices for an effective hearing loss prevention program.

“Hearing loss prevention: The basics (Regulations & HIPAA)”
Nancy Gallilugh, Kalamazoo RESA, USA
This portion of the workshop will provide attendees with an overview of the Health Insurance Portability and Accountability Act (HIPAA) as it relates to the hearing conservation provider, including record keeping, maintaining compliance, and available resources. Also discussed will be a summary of Hearing Conservation Regulations including recordability differences between MSHA and OSHA.

Friday, February 26, 2010

“Current Moves in Australian based Noise Exposure Research”
Warwick Williams – National Acoustics Laboratories, Australia
This paper will present an overview of current major research activities into noise exposure. This includes such areas as: the epidemiology of both work and non-work based ‘noisy’ activities – what is important, how important is it and when is it important?; community, workplace and individual attitudes to noise – what effects do they have?; specific communities such as rural and farming; and ongoing work on hearing protectors.

“Noise-induced hearing loss in Asia”
Adrian Fuente - University of Chile, Medical Faculty - School of Speech and Hearing Sciences, Chile
Noise-induced hearing loss (NIHL) still remains one of the most preventable hearing health conditions in Asia and the rest of the world. Overall, more than four million disability-adjusted life years (DALYs) have been lost to NIHL. Developing Asian countries account for more than half of the years of healthy life lost. However, Asia represents a vast territory and indeed the issue of NIHL is different from country to country. Hearing conservation programs (HCPs) have been successfully run in some countries, whereas in others these programs have been almost totally neglected. Are the citizens of Asian countries aware of the deleterious effects of noise? Are local governments making an effort to prevent NIHL? Are workers who have acquired NIHL eligible for compensation? Is research on NIHL taking place in Asian countries? These questions as well as the challenges for Asia in terms of NIHL prevention will be addressed.

“Occupational hearing loss in Brazil: State of art”
Ana Claudia Fiorini, Pontificia Universidade Catolica de Sao Paulo, Brazil
Occupational hearing loss is one of the most common health problems among Brazilian workers. Brazilian policy includes specific strategies to control the problem across all industries. In every place with occupational risks, it is mandatory to implement health and safety surveillance to protect the workers. The maximum noise exposure level is 85 dBA for eight hours (5 dB exchange rate). When exposures exceed 80 dBA (action level), it is necessary to implement a Hearing Loss Prevention Program. There is no official statistical data about occupational hearing loss in Brazil, but scientific research shows rates varying between 20 to 50% in different industries. In 1998, the Brazilian government created a specific audiometric test program to allow early identification of hearing loss. Several epidemiological studies will be presented along with example hearing loss prevention programs developed in Brazilian industries.

“Research on noise-induced hearing loss in Sweden”
Ann-Christin Johnson - Unit of Audiology, Karolinska Institutet, Sweden
Noise-induced hearing loss (NIHL) is one of the most common occupational health problems in many areas of the world, including Sweden. The overall number of severe NIHL cases has been reduced during the last few decades through hearing conservation efforts; however, the number of reported occupational noise injuries still accounts for 7% of all occupational injuries in Sweden. In addition, the rate of NIHL among Swedish women has increased in the past ten years. To address these problems, Sweden has recently directed some large grants towards studying hearing loss in working life. Funded research projects range from epidemiological studies of the prevalence, risk factors and genetics of NIHL to qualitative studies focusing on the working population with hearing disabilities to experimental studies investigating the mechanisms of hearing loss, effectiveness of prevention strategies, and potential treatments. Several of these projects will be presented along with preliminary results.

Keynote Lecture: “Noise and cardiovascular disease: can hearing conservation programs prevent heart attacks too?”
Keynote Speaker: Hugh Davies - UBC School of Environmental Health, Canada
Research evidence suggests noise is a potent stressor, and is associated with chronic health effects other than hearing loss - including cardiovascular disease. In the first part of this talk, I will review the evidence for these “non-auditory effects” of noise, including our work at UBC in a cohort of 27,000 sawmill workers among whom the relative risk of hypertension was increased 30% and acute myocardial infarction increased 50% in the highest noise-exposed groups. Comparing non-auditory effects with noise-induced hearing loss we then ask the question - are hearing conservation programs helping heart health, too? The answer is perhaps - and only if programs are effective. In the second part of this talk, I will describe how programs are evaluated using standard epidemiologic methods, the findings from one such study conducted at UBC, the limitations of this approach and challenges for the future.
CONCURRENT SESSION - Hearing Loss Prevention in the Military

“Hearing changes among military conscripts in the Swedish Army”
Per Muhr - Karolinska Institute and the Dept of Audiology Karolinska University Hospital, Sweden
Ulf Rosenhall, The Swedish Armed Forces, Sweden

Aims: To estimate the prevalence of hearing impairment (HI), auditory symptoms and ototraumatic factors. Methods: Audiograms were obtained at military conscription in 30,873 men from 1971 to 1995. Audiograms and auditory symptoms were investigated in 839 men at reporting for military service in 2002. Results: The prevalence of HI at 0.5 - 6 kHz decreased during the period 1971 to 1981 from 15.7% to 8.3%, and increased in 1986 to 1995 from 9.8% to 16.3%. In 2002 the prevalence values of HI was 10%, of tinnitus 23.2%, and of sensitivity to noise 15.5%. Conscripts who had experienced tinnitus/TTS after noise exposure had elevated risk of hearing impairment/tinnitus/sensitivity to noise. Conscripts who played loud music had elevated risk of tinnitus but not of hearing impairment. Conclusions: Hearing impairment decreased in the 1980ies and increased again in the 1990ies. Experience of tinnitus/TTS after noise exposure was related to hearing impairment/tinnitus/sensitivity to noise.

“Hearing loss among soldiers exposed to impulses”
William Ahron - U.S. Army Aeromedical Research Laboratory, USA
Melinda Hill - U.S. Army Aeromedical Research Laboratory, USA

US Army hearing conservation rules are designed to protect 95% of exposed populations from hearing loss due to occupational noise exposures. MIL-STD-1474D “Noise Limits” Requirement 4 “Impulse Noise” specifies hearing protection requirements for impulse exposures. Suggestions have been made that the MIL-STD is too restrictive and should be relaxed or replaced. The rule can be relaxed if at least 95% of soldiers are protected from hearing loss. The Defense Occupational and Environmental Health Readiness System hearing conservation database was queried for hearing profiles of soldiers whose military operational specialties would be expected to include impulse exposures. Hearing loss rates in 2007 ranged from 10.5% in infantrymen and 9.4% in cannon crew members to 8.1% in mechanics. The finding that all military occupations evaluated have hearing loss rates in excess of 5% (the implied target for the Army Hearing Program) suggests that relaxing Army impulse or continuous noise protection limits is ill-advised.

“Improved hearing protection regulations and the prevention of military NIHL and tinnitus”
Roderik Mrena - University of Helsinki, Finland

The medical records of 252 non-commissioned officers (NCO) and officers of the Finnish Defense Forces (FDF) examined at the Central Military Hospital from 1984 to 1986 (Period I) and 2003 to 2005 (Period II) were reviewed. Changes in hearing and tinnitus between these two time periods, during which hearing protection regulations were revised, were investigated. Hearing test results improved especially in the high frequencies both in NCOs and in officers between the study periods, in accordance with tightened hearing protection regulations, although the results were milder than expected. Prevalence of tinnitus showed a decline both in officers (68% to 63%) and in NCOs (76% to 72%) between the study periods, in accordance with tightened hearing protection regulations. The Cox regression analysis showed a significantly decreased hazard ratio for constant or disturbing tinnitus for Period II. Hearing protection regulations are useful in preventing hearing loss, and constant or disturbing tinnitus.

“The Army Hearing Program: Supporting the soldier from training to combat”
Jillyen Curry-Mathis, Army Hearing Program Manager, USA
Vickie Tuten - Office of the Surgeon General, USA

The current deployment rate of the U.S. Army has resulted in most combat soldiers completing multiple tours of duty in the current theaters of operation. As a result, permanent hearing loss and tinnitus have continued to rank among the top four injuries in Iraq and Afghanistan. The leadership of the Army Hearing Program has responded to this issue with the development of a relevant, fast-paced preventive program that has allowed it to effectively adapt to the environment of the American soldier, be it in training or combat. An update on the ongoing expansion of this program will be presented by the Audiology Staff Officer to the Surgeon General and two audiologists that have completed very different tours in theater. The sustained operational needs of the soldier will be identified and the experiences, challenges, successes and recommendations for future needs and improvements will be reviewed.

“Development of a computer-based hearing loss prevention education program for veterans and military personnel”
Robert Folmer - National Center for Rehabilitative Auditory Research Portland VA Medical Center, USA

Noise-induced hearing loss and tinnitus continue to be prevalent and costly problems for military personnel and veterans. To reduce the prevalence and burden of these conditions, the Department of Defense and the Department of Veterans Affairs are working together to develop an interactive, computer-based, multimedia hearing loss prevention education program that can be delivered at military bases, primary care or other medical settings. Initial installations of this program will be at the VA Medical Center in Portland, Oregon; Madigan Army Medical Center at Fort Lewis, Washington; and Womack Army Medical Center at Fort Braggs, North Carolina. This presentation will provide information related to the project’s initiation, development and implementation.
CONCURRENT SESSION: Music & Hearing Loss

"ITIS subsequent to music player use"
Colleen Le Prell - Department of Communicative Disorders, University of Florida, USA

Noise-induced hearing loss (NIHL) is a significant clinical, social, and economic issue. Although it was once thought that virtually all NIHL was a consequence of direct mechanical insult, studies in animals have now shown metabolic stress, free radical formation, and reduced blood flow, importantly contribute. Our group has shown that beta-carotene, vitamins C and E, and magnesium combined are highly effective in preventing NIHL and sensory cell death in rodents, delivered either by injection or dietary supplement. Preclinical evidence will be presented, and NIH-funded clinical trials that test the efficacy of these agents in human subjects will be described. Finding safe and effective interventions that attenuate NIHL will reduce one major cause of acquired hearing loss. As the potential for therapeutics that protect the inner ear receives increasing attention in the popular press, patients will be increasingly likely to seek professional advice about the use of these and other agents.

"Portable music players - Preferred sound levels and listening habits"
Kim Kähäri - School of Health and Medical Sciences & Institute for Medical Disability Research, Örebro University, Sweden

The use of portable music players (PMPs) and the risk for acquired noise-induced hearing disorders is a widely discussed topic today. This is a case study done at Stockholm Central Station. People passing by were invited to measure their preferred PMP listening level using a KEMAR manikin. They were also asked to answer a questionnaire about their listening habits. Fifty seven persons (38 men and 19 women) took part in the questionnaire study. The average age of the men was 33 and the average age of the women was 31; they started to use PMPs on regular basis in their early twenties. Results showed that the most common headphone types were ear canal headphones and canal phones/ear buds. Fifty four percent of the study population used their PMP on daily basis and 60 second LeqA levels corrected for free field ranged from 69-102 dB with a mean value of 80 dB.

"The use of MP3 players as a possible cause of noise-induced hearing loss"
Wouter Dreschler - Clinical and Experimental Audiology, Academic Medical Centre (AMC), Netherlands

The use and sound exposure of MP3-players have been investigated by a self-test on the internet (www.mp3check.nl). This site allows the users to estimate the sound exposure and corresponding risk for hearing damage on the basis of the type of mp3-player, the type of headphones, the musical style selected, the use (in hours per day and in days per week) and the average setting of the volume control. The responses of 100,000 users have been analyzed. 22% of the users choose a volume setting in the upper 20% of the volume range and almost 10% of the users listen to his/her mp3-player for more than 10 hours per week. Based on acoustical measurements of a large number of musical fragments, high-beat, headphones, and the range and linearity of the volume controls, a fairly accurate estimate of the individual sound exposure can be obtained, based on the parameters of the individual use supplied. The results show that the sound exposure from the mp3-players alone exceeds an equivalent level of 80 dB(A) (40 hours/week) in 24% of the cases. In 8% of the cases the equivalent sound levels exceeded 90 dB(A). There were marked differences between the different musical styles.

"Do Negative Attitudes Toward Loud Music Prevent Music-Induced Hearing Loss"
Stephen Widen - Dept of Psychology and Organizational Studies, Institution of Social and Behavioral Studies, Sweden

Attitudes have been identified as an important variable for understanding risk-taking behavior or health preventive behavior. One interesting focus for research is therefore to investigate possible associations between young peoples’ attitudes, risk-taking behavior related to noisy activities, and hearing problems such as threshold shifts or self-experienced hearing symptoms. In a study among 258 college students we have measured attitudes towards noise, use of hearing protection, and self-reported hearing symptoms. After completing the questionnaire a hearing screening, including pure-tone audiometry and tympanometry, was conducted. Attitudes were significantly related to self experienced hearing symptoms, but not to threshold shift itself. Negative attitudes and noise sensitivity was in turn, significantly related to a higher degree of hearing protection use. It can be concluded that self experienced hearing symptoms are important for the formation of the individual attitude and may serve as an important variable in health preventive work.

"It takes two: How partnerships help extend the reach of a national NIHL campaign for tweens"
Patricia Blessing - National Institutes of Health, USA

In October 2008, the National Institute on Deafness and Other Communication Disorders (NIDCD), part of the National Institutes of Health, launched the health campaign “It’s a Noisy Planet. Protect Their Hearing.” This education campaign encourages parents of tweens (children 8-12) to teach their children about the causes and prevention of noise-induced hearing loss (NIHL). Tweens are at the age at which they are developing their own attitudes and habits related to their health, including their hearing health. The ability to reach the greatest number of people possible in a national campaign is a challenge that is not readily accomplished by one organization. An integral goal of the campaign is to identify, cultivate, and define strategic partnerships with other national organizations to help disseminate campaign messages and materials. These partnerships vary in scope and substance. How they have garnered increased exposure to the campaign among adults and tweens will be described.

CONCURRENT SESSION: Protection & Communication

"Influence of headset, hearing sensitivity, flight workload, and communication signal quality on flight performance and communications: An Army Black Hawk helicopter simulator experiment"
Kristen Casto - U.S. Army Aeromedical Research Laboratory, USA

Intense cockpit noise, in-flight workload, and hearing loss all likely influence overall pilot performance. However, hearing loss flight waiver decisions for U.S. Army helicopter pilots are largely based solely on audiometric evaluation results. Twenty Army helicopter pilots participated in a study that yielded results supporting a conclusion that factors other than hearing thresholds and word recognition ability in a quiet environment should be considered when evaluating pilots’ flight safety with regard to hearing sensitivity. Rather,
the synergistic effects of flight workload and communication signal quality with individual hearing levels should be considered when making continued flight recommendations and headset choice recommendations. Results also support a recommendation for hearing-impaired pilots to use assistive communication technology and to not fly with only passive headsets.

“How well do hearing protectors work? Compiled field fit testing results”
Lee Hager - 3M/Aero Technologies, USA
Field Attenuation Measurement Systems (FAMS) have enabled hearing conservationists to assess individual hearing protection device (HPD) performance. Another outcome of the data from these systems has been large scale assessment of real-world HPD performance. Seven studies in five facilities, yielding test results for nearly 400 workers, are analyzed to assess: individual HPD performance compared to NRR; range of HPD performance by HPD type/material; ease of fitting by HPD type/material as assessed by binaural difference (difference between left ear and right ear fitting results); where available, comparison of individual HPD performance to noise exposure to assess sufficiency.

“Comfort and Fit of Hearing Protection Products in the Industrial Environment”
Martha Tate - Kimberly-Clark Corporation, USA
Improved comfort of hearing protection devices (HPDs) should encourage wearer compliance and optimum hearing protection. Assessing the comfort of the devices, though, has been problematic and generally restricted to in-lab testing. We extend methods for the assessment of protective apparel comfort to HPDs in actual work environments. The importance of end-user evaluation in comfort research will be discussed. Over time, multiple studies were completed and will be reviewed. The hearing protection comfort and use studies demonstrated highly repeatable differences between commercial and experimental products. Much of the work required product wear during one or more full shift of work. To reduce testing time and throughput, the comfort evaluations were tracked on an hourly basis. Results became consistent and stabilized after 2 hours of wear. Screening studies were then conducted with multiple products screened in a single shift. A series of such evaluations, using the same products at different locations, showed highly repeatable results (r=0.99) validating the method.

“Interventions to increase use of hearing protectors in construction”
Noah Seixas - University of Washington Dept of Environmental and Occupational Health Sciences, USA
Noise-induced hearing loss (NIHL) is a well-characterized risk associated with exposure to high levels of noise. Construction industry workers have average exposure levels well above the levels associated with increased risk. However, the highly variable nature of construction noise makes its assessment and control particularly challenging. The degree of protection afforded by hearing protective devices (HPDs) in the industry is very low, primarily because of failure of most workers to use HPDs. This study evaluated the effectiveness of three different interventions intended to increase use of HPDs: a single training session based on a modified Health Promotion Model (HPM); a series of brief toolbox training talks designed to reinforce the main training messages; and use of a personal noise level indicator. Training, either alone or in combination with toolbox training, had minimal effect on HPD use. However, training in combination with use of the noise level indicator resulted in substantially increased use of HPDs among construction workers. HPD use can substantially reduce the risk of NIHL, but only if adequate support for proper and timely use of HPDs is provided.

“Influence of hearing aid use in the workplace on noise exposure estimates”
Marshall Chasin - Musician’s Clinic of Canada, Canada
Brian Fligor - Children’s Hospital Boston, USA
Wearing personal hearing protection is perhaps one of the most important elements in a hearing conservation program, but what about those workers with hearing loss who use hearing aids in high-noise environments? How does this affect their noise exposure? The answer depends on several parameters which will be addressed. Factors considered in this presentation will be (1) venting or earmolds; (2) using the newer “thin” tubes vs. conventional #13 tubing in behind-the-ear hearing aids; and (3) the use of compression to minimize gain in high noise environments (and how the attack and release times can be set). For these factors, the increase in dosage will be calculated for three conditions: (a) a worker wearing hearing aids, turned on (b) a worker wearing hearing aids, turned off and (c) wearing their hearing aids turned on but also using earmuffs over the hearing aids.

CONCURRENT SESSION: Ototoxicity and Otoprotection

“Occupational exposure to chemicals and hearing impairment”
Ann-Christin Johnson - Unit of Audiology, Karolinska Institutet, Sweden
Thais Morata - National Institute for Occupational Safety and Health, USA
The ototoxicity of chemicals in the workplace and their interaction with noise were examined in a review coordinated by the Nordic Expert Group. Types of chemicals that have been studied for their ototoxicity include: solvents, metals, asphyxiants, carbon monoxide, organotins, PBCs, and pesticides. Hearing may be affected by high concentrations of chemicals even in the absence of noise. Reports from animal experiments confirmed earlier observations that chemicals can interact synergistically with noise or potentiate noise effects on the auditory system. Combinations of chemical exposure with noise and other stressors may lower the concentration of the chemical exposure necessary for induction of an auditory effect. Existing evidence has prompted the proposal of new guidelines and standards on hearing loss prevention. A new concept of creating an ototoxicity notation has been proposed. This presentation will examine these recent developments and discuss alternative strategies for preventing auditory effects of exposure to ototoxic chemicals.
There is accumulating epidemiological evidence that exposure to some solvents, metals, asphyxiants and other substances in humans is associated with an increased risk of hearing loss. This project was undertaken to develop a toxicological database allowing the identification of possible ototoxic substances present in the work environment. Critical toxicological data were compiled for chemical substances included in the Quebec Occupational Health Regulation. The data were evaluated only for realistic exposure concentrations. In total, 181 studies covering 29 substances were evaluated using a weight of evidence approach. Human and animal studies indicate that lead, styrene, toluene and trichloroethylene are ototoxic and for regulatory purposes it is safe to assume that ethyl benzene, n-hexane and xylene are possibly ototoxic at concentrations that are relevant to the occupational setting. In a second phase of the project, the effect of combined exposure to noise and chemical substances was evaluated and integrated to the database.

**“Pharmacologic otoprotective and rescue agents for noise-induced hearing loss: Current research”**

Kathleen Campbell - Southern Illinois University School of Medicine, USA

This presentation will review current research in otoprotective and rescue agents for noise-induced hearing loss including Dr. Campbell’s own research with D-methionine as an otoprotective agent. However an overview of the various types of otoprotective agents currently being developed will be provided. Some of the protective agents are used only to elucidate mechanisms rather than to directly create patient therapies. Other agents have only animal data while others are in clinical trials. No agents are currently FDA-approved to prevent noise-induced hearing loss but several look promising. In the future, pharmacologic therapies may augment noise abatement and physical hearing protector programs. Dr. Campbell owns several patents for protective agents which are now in clinical trials. Her patents are owned by her employer and licensed by Molecular Therapeutics. However, she also collaborates and assists others developing various types of otoprotective agents.

**“From bench to bedside and back again: Translating otoprotective agents from animal to man”**

Colleen Le Prell - Department of Communicative Disorders, University of Florida, USA

Noise-induced hearing loss (NIHL) is a significant clinical, social, and economic issue. Although it was once thought that virtually all NIHL was a consequence of direct mechanical insult, studies in animals have now shown metabolic stress, free radical formation, and reduced blood flow importantly contribute. Our group has shown that beta-carotene, vitamins C and E, and magnesium combined are highly effective in preventing NIHL and sensory cell death in rodents when delivered either by injection or dietary supplement. Pre-clinical evidence will be presented, and NIH-funded clinical trials that test the efficacy of these agents in human subjects will be described. Finding safe and effective interventions that attenuate NIHL will reduce one major cause of acquired hearing loss. As the potential for therapeutics that protect the inner ear receives increasing attention in the popular press, patients will be increasingly likely to seek professional advice about the use of these and other agents.

**“Misadventures of a hair cell”**

Theresa Schulz - Sperian Hearing Protection, USA
Kathy Campbell – Southern Illinois University School of Medicine, USA
Renée Bessette – Sperian Hearing Protection, USA
Laura Kauth – Audiology Consultants, USA
Dick Danielson – NSBRI, USA
Mary McDaniel – Pacific Hearing Conservation, USA

Apoptosis, necrosis, reactive oxygen species, antioxidants D-met, NAC, ebselen, ACE mg, Prevention vs Rescue vs Regeneration... Are you confused about the latest cellular and molecular research regarding noise-induced hearing loss? This short skit might help you understand the drama of hair cells and the molecular heroic contenders to protect them from the evils of oxidation. Come join us for the fight of good vs evil in the life and death of our beloved hair cells.

**Afternoon Sessions**

**“An Overview of the NORA National Manufacturing Agenda with an Emphasis on Hearing Loss and Prevention”**

CAPT. W. Gregory Lotz - National Institute for Occupational Safety and Health, USA
Lee Hager - 3M/Aero Technologies, USA

Over 16 million people are employed in the Manufacturing Sector of the United States, based upon the U. S. Department of Labor, Bureau of Labor Statistics data as of December 2008. Workers are at risk for illness and injuries, and one of the leading conditions is work-related hearing loss. The NORA Manufacturing Sector Council has developed ten strategic goals designed to address the most prevalent occupational safety and health issues and to promote the greatest opportunities for elimination and reduction of the incidence of occupational illness, injuries, hazardous exposures, and fatalities within the manufacturing workplace. In this presentation, we will summarize these goals and the process whereby other organizations and individuals can get involved in advancing one or more of these goals through partnerships or with new ideas and solutions to common hazards.
Data from 5344 participants in the National Health and Nutrition Examination Survey (NHANES) 1999-2004 were used to assess the odds of self-reported compromised hearing status by audiometric configurations were at greater risk of compromised hearing status than suggested by the conventional 5:1 weighting of the better ear. There is a mismatch between the degree of conventionally-defined hearing impairment and subjective experience.

"Introducing NIOSH surveillance program for occupational hearing loss"
SangWoo Tak - NIOSH, DSHEFS, Surveillance Branch, USA
NIOSH proposed the first ever nationwide surveillance program for occupational hearing loss (OHL) using data from audiometric testing service providers in the US. Since the OSHA Hearing Conservation Amendment was enacted in 1981, no one has attempted to utilize for surveillance purposes the audiometric data collected nationwide by US audiometric testing programs. To develop a national surveillance system on OHL, we seek to aggregate audiometric testing data into a national data repository and estimate incidence/prevalence rate of OHL and average change in hearing ability per industry sector. This program will: 1) Measure the average change in hearing ability per year, by industry sector, 2) Identify industrial sectors and sub-sectors with the highest levels of OHL; 3) Measure trends in OHL by industrial sectors and sub-sectors. Results from this program will guide the development of intervention priorities by government and non-governmental groups to reduce OHL. Surveillance data and results will be disseminated through the NIOSH website and through publications in scientific and trade journals. Reports will be made to audiometric service providers.

"The threshold for hearing problems: Results from NHANES (1999-2004)"
Greg Flamme - Western Michigan University, USA
Data from 5344 participants in the National Health and Nutrition Examination Survey (NHANES) 1999-2004 were used to assess the odds of self-reported compromised hearing status by audiometric configuration (Ciletti & Flamme 2008). Relative to the best configuration, significantly greater rates of compromised hearing status were observed for all configurations (minimum odds ratio among men = 1.8), even configurations considered indicative of normal hearing or a minimal hearing impairment by conventional standards. People with asymmetric configurations were at greater risk of compromised hearing status than suggested by the conventional 5:1 weighting of the better ear. There is a mismatch between the degree of conventionally-defined hearing impairment and subjective experience.

"Hearing loss prevention training, noise measurements and audiological exams improves work conditions among industrial fishermen in the south of Brazil"
Evelyn Alcibu - Fundaçao Ministry of Labor, Brazil
Since 2007, hearing loss prevention training and education, conducted through research among industrial fishing fleets, has been given to commercial fishermen in a community south of Brazil. It has proven to be effective in identifying noise and hearing problems. There are around 6000 industrial fishermen working for 215 fishing companies. Among them, 3500 fishermen are unionized. An occupational health program conducted in 2007, 2008 and 2009 included noise measurements in fishing vessels and audiological exams. Results indicated exposure levels from 85 to 114 dBA, noise-induced hearing loss among 51% of 365 unionized fishermen, and no auditory rest during working periods varying from 20 to 30 days of ocean fishing. In 2009, the Port Authority began requiring audiometric testing prior to issuing or renewing a fishing license. This is the first step in improving the severe working conditions.

"Daily noise exposure monitoring to reduce risk of occupational hearing loss"
Peter Rabinowitz - Yale University, USA
Sharon Kirsch - Yale Occupational and Environmental Medicine Program, USA
Noise-induced hearing loss continues to occur despite the existence of OSHA-compliant hearing conservation programs. We report experience with a novel device to assess the daily at-ear noise exposure of industrial workers using a dosimeter and microphone inside of hearing protection. We also report on an assessment of the use of the device is having an impact on the risk of noise induced hearing loss.

"2010 Safe-in-Sound Excellence and Innovation in Hearing Loss Prevention AwardsTM"
Thais Morata - National Institute for Occupational Safety and Health, USA
Deanna Meinke – University of Northern Colorado at Greeley, USA
In 2007, the National Institute for Occupational Safety and Health (NIOSH) partnered with the National Hearing Conservation Association (NHCA) to create the Safe-in-Sound Award™ for Excellence and Innovation in Hearing Loss Prevention (www.safeinsound.us). The objectives of this initiative are to recognize organizations that document measurable achievements and to share leading edge information to a broader community. Hearing health practices were evaluated against key performance indicators in a rigorous systematic review process designed to capture and evaluate the successes. The 2010 Safe-in-Sound Excellence and Innovation in Hearing Loss Prevention Awards™ will be presented. Each of the award recipients will accept their awards and briefly present their success stories. What better chance is there to learn from those in the forefront of our efforts to prevent work-related noise-induced hearing loss?
“Evaluation of the increased accident risk from workplace noise”
Esiko Toppila - Finnish Institute of Occupational Health, Finland
Ilmari Pyykko – University of Tampere, Finland
Rauno Paakkonen - Finnish Institute of Occupational Health, Finland

Noise increases accident risk because it reduces speech intelligibility, the ability to hear warning signals, and detection of the direction from which sound is coming. Hearing protectors and hearing loss can exacerbate these effects of noise. To reduce accident risk, occupational industrial hygienists need to identify worksites where the above-mentioned factors may cause accidents. Speech intelligibility can be evaluated using, for example, ANSI standard S3.5-1997, which takes into account the hearing loss and the effect of hearing protectors. For warning signals, ISO standard 7731:2003 can be used; but the effect of hearing protectors must also be evaluated. Occupational health personnel can identify workers susceptible to accident risk by using a standardized questionnaire which identifies the reduced detection of sound direction and speech intelligibility. Also, the audiometric results are needed by the occupational hygienists. The paper gives some applications of accident prevention.

“Tools for optimizing the installation of warning sounds in noisy places”
Chantal LaRoche - Hearing Research Laboratory, University of Ottawa, Canada
Christian Giguere – Hearing Research Laboratory, University of Ottawa, Canada
Rida Al Osman – Hearing Research Laboratory, University of Ottawa, Canada
Yun Zheng - Hearing Research Laboratory, University of Ottawa, Canada

Warning sounds are necessary to promptly alert workers of events that can compromise safety in the workplace. Unfortunately, the use of warning signals in industry is often submitted to intuitive installation practices with little regard to the many factors contributing to an intelligible warning. For warning signals, ISO standard 7731:2003 can be used; but the effect of hearing protectors must also be evaluated. Occupational health personnel can identify workers susceptible to accident risk by using a standardized questionnaire which identifies the reduced detection of sound direction and speech intelligibility. Also, the audiometric results are needed by the occupational hygienists. The paper gives some applications of accident prevention.

“Hearing loss in construction industry: comparisons to ISO-1999 predictions”
Monique Leensen – M.C.J. Leensen, Msc Clinical and Experimental Audiology, Academic Medical Centre (AMC), Netherlands
J.C. van Duivenbooden, Clinical and Experimental Audiology, ENT department Academic Medical Centre (AMC), Netherlands

Occupational noise-induced hearing loss (NIHL) in Dutch construction industry is examined by retrospective analyses of 29,644 audiograms of construction employees. Noise-exposed workers had greater hearing losses compared to their non-noise exposed colleagues and to the reference population reported in ISO-1999. Noise exposure level estimates could only explain a small proportion of hearing loss. Our results showed only minor increase in hearing loss when the daily noise exposure level raised from 80 dBA towards 96 dBA. Duration of noise exposure was a better predictor than noise exposure levels. This relation of duration and hearing loss found was similar to ISO-1999 predictions when looking at durations of ten years or more. For the first decade, ISO-1999 predicts a steep increase from normal hearing to NIHL. In this population NIHL was already present at the beginning of employment and increased at the same rate as is predicted for longer exposure durations.

“Otoacoustic emissions in a hearing conservation program: General applicability in longitudinal monitoring and the relation to changes in pure-tone thresholds”
Hiske Helleman - Clinical and Experimental Audiology, Academic Medical Centre (AMC), Netherlands
Wouter Dreshcler - Clinical and Experimental Audiology, Academic Medical Centre (AMC), Netherlands

The hearing status of workers (N=233) in a printing office was assessed twice with a seventeen-month interval by pure tone audiometry and otoacoustic emissions (OAEs). In a population with pre-existing hearing loss, a substantial percentage of participants did not have measurable emissions in the higher frequency region (any more). The first research question was how a quality criterion of OAE-measurements based on a minimum signal-to-noise-ratio (SNR) would affect their applicability for monitoring the total population. Secondly, the effects of noise exposure were investigated through overall changes in the audiogram and in OAE-measurements. Our results suggest that – at the group level – OAEs show more change (deterioration) than audiometry. The third goal was to analyze changes at an individual level and compare these to the results on group level. Finally, the possibility of screening for susceptibility to NIHL was examined. Based on an analysis of the data, recommendations will be formulated.

“Classroom noise and acoustics: Rekindling the fight for standards”
Neil Snyder - American Speech-Language-Hearing-Association, USA

The session will focus on the public and personal health issues related to hearing loss in schools. Since the establishment of the American National Standards Institute (ANSI) approved Standard S12.60-2002 [Acoustical Performance Criteria, Design Requirements, and Guidelines for School], the adoption of the standard by states and local education agencies has been limited. Attendees will learn about the American Speech-Language-Hearing-Association’s (ASHA) efforts to raise awareness of the ANSI standard among the public and policy makers in Washington, D.C. ASHA employed a wide variety of tools to achieve policy victories including social networking sites, briefings, grassroots efforts, model legislation, and other tools. Attendees will be able to better understand the legislative process, politics of acoustics, other efforts to adopt the ANSI standard across the country, and the impact of noise on all individuals in a school building.
“Hearing protector labeling:  EPA rulemaking and an updated ANSI S12.42”
Elliott Berger - 3M Occupational Health & Environmental Safety Division, USA
Hearing protector labeling requirements in the United States have been cast in stone since 1979, but all that changed in 2009 with the publication of a proposed rulemaking change by the U.S. Environmental Protection Agency on August 5, 2009. The EPA’s intent was to address substantial concerns that have been voiced over the years, especially during a 2003 public workshop. These include: 1) the lack of labeling for electronic hearing protection devices (HPDs) for which traditional NRRs have been inapplicable, 2) the relatively poor correlation between labeled NRRs and the attenuation realized by typical users, 3) the limitations in the existing test methodology which is based upon ANSI S3.19-1974, 4) the need for larger subject pools to test earplugs, and 5) the Agency’s concern regarding the inadequacy of its present once in a product lifetime testing requirement. The EPA proposed rule incorporates new ANSI standards (ANSI S12.6-2008 and S12.68-2007) for testing and computing NRRs, and creates its own test procedures for electronic and impulsive devices since none existed at the time of publication. However, simultaneously with the publication of the EPA rule, ANSI submitted to ballot an updated standard S12.42 with methods to evaluate electronic devices and HPD performance in impulsive noise. This paper will summarize the key features of the new EPA proposed rule as well as the three new ANSI standards, and the interaction of these key parts. At press time the final EPA rule has not been announced; a status report will be provided at conference.

“Exposure of law enforcement officers to gunfire”
Chucri (Chuck) Kardous - National Institute for Occupational Safety and Health, USA
The National Institute of Occupational Safety and Health (NIOSH) conducted noise exposure evaluations of law enforcement personnel to gunfire. Shooters conducted typical live-fire exercises at indoor firing and outdoor firing ranges using a representative assortment of small firearms. Relevant impulse noise metrics such as peak level, B-duration, number and mixture of impulses, spectral content, energy, kurtosis, and temporal spacing were examined. Peak sound pressure levels ranged from 155-168 decibels (dB). A-weighted equivalent sound levels (LeqA) ranged from 124-128 dB(A). The contribution from secondary gunfire was approximately 1-9 dB(A).

Gasaway Lecture: “Have hardhat, will travel:  Hearing conservation in the Great White (?) North”
Christine Harrison, Occupational Audiologist, WorkSafeBC, Canada
From my early student days, when I bought a pair of steel-toed boots, a high-visibility vest, and a hardhat (with hearing protection, of course) and entered a world that combined audiological assessment with front-line, blue collar, stompin’ around the bush… I was in heaven! Born and bred in the same communities around British Columbia as my patients, I have been largely able to span the schism between our genders and ages. Thirty-odd years later (I first met Elliott Berger in 1978, while still in diapers) I remain blessed with a career that allows me to use my grey cells while keeping in touch with the people we purport to help — workers who toil in sometimes outrageously intense, loud noise. Enormous ups and downs have sometimes marked my work; but like a barnacle, I have stuck it out. I will share some of these experiences and how they have shaped me.

“Evaluating the effectiveness of hearing conservation by program components”
Nicholas Heyer – Battelle Centers for Public Health Research and Evaluation, USA
We studied the effectiveness of specific hearing conservation program (HCP) components in preventing noise-induced hearing loss (NIHL) at three unionized plants from 1970 through 1999. Each had different levels of implementation of the various program components. Components included hearing protection use, audiometric surveillance, noise monitoring, worker training, and engineering controls. Audiometric and work-history databases were combined with historical noise monitoring data for each plant. Changes in production and HCP implementation were collected through audits, interviews and focus groups. Noise exposure was modeled using duration of
work stratified within five-decibel exposure categories. This noise metric proved to be a better predictor of NIHL than the equivalent continuous noise level (Leq). Enforced use of hearing protection was found to significantly reduce NIHL, while worker training had no significant impact, and audiometric testing was mildly associated with increased hearing loss. The data did not allow us to evaluate noise monitoring or engineering controls.

“Mass Transit Noise Levels and Rider Characteristics in New York City”
Rick Neitzel – University of Washington, USA
Robyn Gershon – Columbia University Mailman School of Public Health, USA
Julie Pearson – Columbia University Mailman School of Public Health, USA
Lori Magda - Columbia University Mailman School of Public Health, USA
Marina Zeltser - Columbia University Mailman School of Public Health, USA
Allison Canton - Columbia University Mailman School of Public Health, USA
Muhammad Akram - Columbia University Mailman School of Public Health, USA
Jaclyn Spitzer – Columbia University Medical Center, USA
Peter Rabinowitz – Yale University School of Medicine, USA
Martin Sherman – Loyola College in Maryland, USA

To evaluate the potential for noise-induced hearing loss (NIHL) resulting from use of mass transit, we measured noise levels in New York City (NYC) transit systems and compared them to exposure guidelines designed to protect the public from NIHL. Noise levels were measured via dosimetry in a representative sample of subways, buses, and commuter railroads. Of the transit types evaluated, subway cars and platforms had the highest associated equivalent continuous average (Leq). All transit types had Leq levels appreciably above 70 dBA, the threshold above which NIHL is considered possible. In addition to evaluation of noise levels, a convenience sample of 933 subjects completed self-administered surveys on transit ridership patterns and hearing health. The median duration of transit use was 1.1 hours/day for those who rode subways exclusively and 0.6 hours/day for those who exclusively rode buses. Median durations of daily transit use were greatest among those who used multiple types of transit. More than 8% of respondents reported experiencing tinnitus frequently after riding mass transit, and a significant association was found between ridership duration and tinnitus (p < 0.05). Given sufficient exposure durations, commuters using mass transit have the potential to exceed the recommended exposure limits of the World Health Organization and the United States Environmental Protection Agency. These results suggest that mass transit noise exposure has the potential to cause NIHL among some riders.

“Noise Exposure Profiles”
Warwick Williams - National Acoustics Laboratories, Australia

What is and why would we be interested in a ‘noise exposure profile’? A noise exposure profile is a tool to demonstrate the effects of cumulative noise exposure over the life-time. Using the tenants of ISO 1999 Acoustics – Determination of occupational noise exposure and estimation of noise induced hearing loss as a starting point noise exposure profiles allow a clear and immediate demonstration of the effects and consequences of excessive noise exposure. This work will show the rational and development of a simple profile including both work and non-work related noise exposures and how the information revealed can be used to better direct hearing loss prevention programs.

“Noise Exposure of Musicians at the National Ballet Orchestra”
Alberto Behar, University of Toronto, Canada

With more 70 dancers and its own orchestra, The National Ballet of Canada ranks as one of the world’s top international dance companies. The company performs annual fall, winter and summer seasons plus The Nutcracker. The 68 player’s strong orchestra plays an average of 300 hr per year, including rehearsals and performances. Rehearsals are performed in three venues, one of them in a ballet rehearsal room with little or no absorption. Performances are in the 2006 year built Four Seasons Centre for the Performing Arts, Canada’s first purpose-built ballet opera house. In previous noise exposure surveys performed by the authors’ Laboratory, it was found that the sound levels may pose potential risk of hearing loss to the players. The present survey was performed at the request of the National Ballet, since the musicians complained of excessive sound levels. The survey was performed using 5 dosimeters Quest Mod 300, during 2 rehearsals and 9 performances of the ballet Romeo and Juliet by Sergei Prokofiev. Dosimeters were worn by designated musicians during the entire venue. Some dosimeters were worn by the same musician during all venues, while others were rotated among the musicians. Details of the measurements as well as their results will be presented at the Conference.

“DNA and other Layman Terms Related to Audiology”
Judith Blumsack – Auburn University, USA
Curtis Smith, Professor Emeritus – Auburn University, USA

DNA is a term that is familiar to a layman. In this presentation, a case is described in which “DNA” was used to convey a complex idea in a way that attorneys, judges and jurors can understand. A second case is presented to demonstrate how a visual aid can achieve a similar goal. In this latter case, the concept of signal-to-noise ratio becomes readily understandable with a visual representation. The overall purpose of this talk is to illustrate the value of making use of the familiar to render technical concepts understandable to laymen.

“Speech-in-noise screening tests by internet; improving test sensitivity for noise-induced hearing loss”
Monique Leensen - Clinical and Experimental Audiology, Academic Medical Centre (AMC), Netherlands
Koenraad Rhebergen - Clinical and Experimental Audiology (AMC), Amsterdam
Ad Snik - Department of Audiology, Radboud University Medical Centre Nijmegen, Netherlands
Jan A.P.M. de Laat - Audiological Cere, Leiden University Medical Centre Leiden, Netherlands
Wouter Dreshler - Clinical and Experimental Audiology (AMC), Amsterdam

The Dutch national hearing association (www.hoorstichting.nl) has developed a hearing-screening test by internet. This test is an
automatic adaptive speech-in-noise test using nine different CVC words presented in stationary broadband noise. In a multi-centre study the value of this test in discovering beginning noise-induced hearing loss, is investigated. In addition, the possibility of enhancing the test sensitivity for beginning NIHL using different forms of noise filtering is examined. Therefore, the stationary broadband noise is spectrally filtered by both high pass and low pass filters (cut-off frequency 1.4 kHz), and temporally filtered by 16 Hz modulation. In the study, 50 normal hearing and 50 subjects with different degrees of NIHL performed the tests. Results suggest that both the low pass filtered noise and the 16 Hz modulated noise are more sufficient to discover NIHL in an early stage. However, further analyses and field research should confirm this.

**Poster Presentations**

“Evaluation of feedback noise through fire department 911 dispatcher headsets”
Chandran Achutan, University of Nebraska Medical Center, USA
Chucri (Chuck) Kardous – National Institute of Occupational Safety & Health, USA
This NIOSH study determined if feedback noise that 911 dispatchers hear through their headsets was hazardous to their hearing. We analyzed similar headset models from the manufacturer of the headsets sold by the suppliers and tested actual feedback noise recordings. The headsets were adequate for intended purposes, although the Plantronics H251N provided the best sound quality. Repeated exposure to peak SPLs found in the recordings may cause dispatchers to develop transient symptoms.

“Evaluation of Noise Exposure at a Metal Conduit Manufacturer”
Scott Brueck – National Institute for Occupational Safety and Health, USA
Manuel Rodriguez, National Institute for Occupational Safety and Health, USA
NIOSH investigators conducted a health hazard evaluation to assess noise exposures at a metal conduit manufacturer. Most noise was generated by metal impact and production equipment. Additionally, a pneumatic steam cannon generated impulse noise exceeding 136 dB. Of the 35 personal noise dosimetry measurements collected during the evaluation, 33 measurements exceeded the NIOSH Recommended Exposure Limit, 29 exceeded the OSHA Action Level, and 6 exceeded the OSHA Permissible Exposure Limit. The company had a hearing conservation program and employees were provided with hearing protection; however, some did not insert earplugs properly and some did not wear any hearing protection. A review of employee audiograms indicated that nearly 10% of the employees had an OSHA-defined standard threshold shift. Recommendations included installing engineering controls to reduce noise, requiring hearing protection when exposures exceed 85 dBA, wearing dual hearing protection near the steam cannon, and using NIOSH criteria to determine hearing threshold shift.

“Field-deployable auditory assessment system for tracking noise-induced hearing loss”
JC Buckey – Dartmouth Medical School, USA
Deanna Meinke – University of Northern Colorado at Greeley, USA
R.J. Kine-Schoder – Creare Inc., USA
O.H. Clavier – Creare Inc., USA
D.L. Alvarenga –Dartmouth Medical School, USA
This poster will describe a new project of research and hardware development to detect and prevent noise-induced hearing loss. The research effort uses cochlear mapping and repeatability testing to determine the best distortion product otoacoustic emission parameters for detecting and monitoring noise-induced hearing loss. The hardware effort focuses on developing a laptop-based, single-probe, field-deployable auditory assessment system incorporating pure-tone audiometry, otoacoustic emissions, in-ear noise level measurements, probe position checks and middle-ear assessments using reflectance. Work supported by ONR Grant N00014-09-1-0859

“Occupational noise exposure and work accidents in a Brazilian city”
Adriano Dias - Botucatu Medical School, Dept of Public Health, Brazil
A hospital-based case-control study was conducted in Brazil to examine the relationship between occupational noise exposure and accident risk. Data were collected from 600 cases and 822 controls (who had a non-occupational accident or had accompanied someone who suffered an accident). Prevalence, attributable fraction, and adjusted odds ratios were calculated across four levels of exposure. After adjustment for occupational and non-occupational factors, logistic regression models showed an association between accident risk and worker noise exposure.

“Daily noise exposures among college-level musicians”
Greg Flamme – Western Michigan University, USA
Edward Roth – School of Music; Western Michigan University, USA
Amanda Nordgren – Department of Speech Pathology and Audiology; Western Michigan University, USA
Kristy Delters – Department of Speech Pathology and Audiology; Western Michigan University, USA
Musicians often have exposures to high sound levels, particularly during ensemble rehearsals and performances. Average daily noise exposures (% dose and Leq A24) for 45 undergraduate music majors were assessed using noise dosimetry. Average daily doses ranged from 15% to 2700%, with a mean of 479%. The 5th and 95th centiles of Leq A24 were 75.4 and 93.3 dB, (80.1 - 98.1 dBA) respectively. Exposure varied by musical instrument and gender, but not by self-reported rehearsal time.

“Hearing thresholds by age, gender, frequency, and ethnicity in non-industrial noise exposed adults”
Greg Flamme – Western Michigan University, USA
Kristy Delters – Department of Speech Pathology and Audiology; Western Michigan University, USA
US Public Health Survey data (1960-1962) were used to derive estimates of hearing thresholds by age in an unscreened population in
ANSI S3.44 and ISO 1999. We used audiometric data from NHANES (1999-2004) to identify the distributions of hearing thresholds by age, gender, and ethnicity among adults with normal tympanograms and no significant history of occupational noise exposure. Distributions were fitted with asymmetric sigmoid curves to identify trends across frequency and demographic group.

“Evaluating Tinnitus in Industrial Hearing Loss Prevention Programs”
Luciana Giacobe Steinmetz – Universidade Tuiuti do Parana, Brazil
Bianca Simone Ziegelholm – Universidade Tuiuti do Parana, Brazil
Jair Marques - Universidade Tuiuti do Parana, Brazil
Thais Morata, National Institute for Occupational Safety and Health, USA
Adriana Bender M. Lacerda - Universidade Tuiuti do Parana, Brazil

Noise measurements, a questionnaire, a Brazilian version of the Tinnitus Handicap Inventory (THI), and audiometry were conducted with 52 workers enrolled in a hearing conservation program who suffered from tinnitus. Significant correlations were observed between; periodicity of tinnitus and noise level; degree of tinnitus and chemical exposure; overall THI score and each scale; emotional scale and functional scale scores, THI score and general health. An evaluation of tinnitus in the workplace could benefit tinnitus sufferers.

“Hearing Impairment after Prolonged Exposure to Noise. A Retrospective Study in Pilots”
Aram Hellstadius - Karolinska Institutet Section of Audiology, Dept of Clinical Science, Intervention and Technology, Sweden
Ann-Christin Johnson - Unit of Audiology, Karolinska Institutet, Sweden

Hearing impairment based on audiometric data was investigated in a retrospective study among 180 military pilots and other flying personnel. Audiometric data was collected from medical records of yearly hearing measurements and noise exposure assessment is based on yearly flight time hours combined with noise measurements in the airplanes. Preliminary results will be presented regarding: a) the prevalence of NIHL among the studied group, b) the progress of audiometric threshold elevation related to noise exposure assessment.

“Spectrotemporal Integration in Normal and Hearing Impaired Listeners”
Evelyn Hoglund – Ohio State University, Department of Speech and Hearing Science, USA
Lawrence Feth – Ohio State University, Department of Speech and Hearing Science, USA

Recent work on spectrotemporal integration by listeners with normal hearing has shown that detection thresholds for brief tonal signals improve as the number of bursts is increased, regardless of time and frequency presentation. The current study measured thresholds for spectral integration, temporal integration, and spectrotemporal integration in listeners with noise induced hearing loss as well as in normal hearing listeners. The effect of noise-induced hearing loss on spectrotemporal integration of brief tone bursts is demonstrated.

¿Oyes y Entiendes?: Communication Strategies Between Occupational Hearing Conservationists and Spanish-Speaking Workers
Emily Wakefield - University of Northern Colorado at Greeley, USA
Deanna Meinke - University of Northern Colorado at Greeley, USA
Kathryn Bright - University of Northern Colorado at Greeley, USA
Mark Guiberson - University of Northern Colorado at Greeley, USA
Hortensia Soto-Johnson - University of Northern Colorado at Greeley, USA

The increasing number of minorities working in noisy environments, particularly Spanish-speaking individuals, creates a challenge in terms of providing adequate hearing loss prevention programs (HLPPPs). A written survey was distributed to 3000 CAOHC certified OHCs; 300 were completed and returned. The survey investigated interactions between OHCs and Spanish-speaking workers specific to the audiometric testing, hearing protection and training program components of HLPPPs. Initial data analysis indicates that there is a significant difference between the services provided by Spanish-speaking and non-Spanish-speaking OHCs. This data suggests that Spanish-speaking workers may not be receiving comparable care to their English-speaking co-workers. Au.D. capstone research supported by a scholarship from the NHCA Foundation.

“The effect of recreational noise exposure and hearing loss in youth”
Hannah Keppler - Ghent University/ Faculty of Medicine and Health Sciences/ ENT Department, Belgium

It is widely accepted that excessive noise exposure can cause noise-induced hearing loss. Besides occupational noise exposure, recreational noise exposure especially during music-related activities is a cause for concern. The results of the current study include: (1) an evaluation of the effect of different types of recreational noise exposure on the auditory system of youth, and (2) an investigation of the effect of attitude regarding noise exposure, as well as use of hearing protector devices.

“Validity of a temporary threshold shift (TTS) detector for use in iPods and other portable audio devices”
Chantal LaRoche – Hearing Research Laboratory, University of Ottawa, Canada
Chrysal Vegiardi – Hearing Research Laboratory, University of Ottawa, Canada
Christian Giguerre - Hearing Research Laboratory, University of Ottawa, Canada
Les Blomberg - Hearing Research Laboratory, University of Ottawa, Canada

The objective of the study was to validate the use of a tool incorporating TTS measurements as a preventive measure to provide feedback to portable device users. Hearing thresholds were measured prior to and following a one-hour exposure to music from the individual’s own portable devices, in a 70-dBA bus noise. Listening levels were adjusted by the participants and exposure levels were measured using a KEMAR manikin coupled to a sound level meter. Two threshold measurement methods were used and compared. Results will be presented.
“Speech-in-noise screening tests by internet; improving test sensitivity for noise-induced hearing loss”
Monique Leensen – Clinical and Experimental Audiology, Academic Medical Centre, Netherlands

The Dutch national hearing association (www.hoorstichting.nl) has developed a hearing-screening test by internet. This test is an automatic adaptive speech-in-noise test using nine different CV words presented in stationary broadband noise. In a multi-centre study the value of this test in discovering beginning noise-induced hearing loss, is investigated. In addition, the possibility of enhancing the test sensitivity for beginning NIHL using different forms of noise filtering is examined. Therefore, the stationary broadband noise is spectrally filtered by both high pass and low pass filters (cut-off frequency 1.4 kHz), and temporally filtered by 16 Hz modulation. In the study, 50 normal hearing and 50 subjects with different degrees of NIHL performed the tests. Results suggest that both the low pass filtered noise and the 16 Hz modulated noise are more sufficient to discover NIHL in an early stage. However, further analyses and field research should confirm this.

“Environmental noise level analysis of call center station”
Teresa Momenshohn – Santos – IEAA – Institute of Hearing Studies, Brazil
Marielaine Gimenes – Santos – IEAA – Institute of Hearing Studies, Brazil
Valerie Moura – Santos – IEAA – Institute of Hearing Studies, Brazil

The aim of this research was to measure the noise of a Call Center station in order to know the telemarketing operator exposition.. Method: noise was measured with a Bruel & Kajäer (type 2236) sound pressure level meter during one minute, through 69 different points. Results: we found the Leq varied from 67.4 dB(A) to 72.1 dB(A). They were above the level for offices suggested by Brazilian Norms and Techniques Association (30 -60 dBA).

“The use of Personal sound stereo system and the presence of tinnitus”
Teresa Momenshohn – Santos – IEAA – Institute of Hearing Studies, Brazil
Mariana Nogueira – Santos – IEAA – Institute of Hearing Studies, Brazil
Camila Lamas – Santos – IEAA – Institute of Hearing Studies, Brazil
Mariane Gutierre Molinaro – Santos – IEAA – Institute of Hearing Studies, Brazil
Thaysa Freitas – Santos – IEAA – Institute of Hearing Studies, Brazil
Gabriela Bueno – Santos – IEAA – Institute of Hearing Studies, Brazil

Aim: to investigate the association between the use of personal sound system (PSS) and the presence of tinnitus. Method: sample was composed by 199 individuals. All of them answered a questionnaire about use of PSS and tinnitus. Results: out of 199, 101 referred the use of PSS, median time of use was 1.9 hours/day. Tinnitus was present in 53 subjects; it was constant in 3 and occasional in 20.

“Tinnitus and auditory complaint in a population that attends noisy exposure”
Teresa Momenshohn – Santos – IEAA – Institute of Hearing Studies, Brazil
Larissa Poli Moreira – Santos – IEAA – Institute of Hearing Studies, Brazil
Mariana Pelegrini Biserra– Santos – IEAA – Institute of Hearing Studies, Brazil
Andrea Paz – Santos – IEAA – Institute of Hearing Studies, Brazil
Neury Hayashi – Santos – IEAA – Institute of Hearing Studies, Brazil

To investigate the occurrence of tinnitus and auditory complaint in a population that attends noisy environments. Method: 200 people invited to answer a questionnaire about auditory complaint, tinnitus, and attendance to noisy shows and/or workplaces. Results: Out of 200, 29 referred not to hear well, 31 presented tinnitus, 77 attended noisy shows and 57 works in noisy places. Association between tinnitus and noisy shows was 6:77, and tinnitus and noisy workplace was 9:57.

“Auditory sensitivity to individuals with opiate abuse and noise exposure”
Vishakha Rawool – Dept. of Speech Pathology & Audiology, West Virginia University, USA
Carrie Dluhy – Virginia Medical Center, USA

Auditory thresholds were obtained from 23 men with a history of opiate abuse. Twelve of these individuals reported non-occupational noise exposure, 7 reported occupational noise exposure, and 4 reported no noise exposure. Fifty percent of the individuals without noise exposure, 66% of those with non-occupational noise exposure and 100% of those with occupational noise exposure had auditory thresholds of 25 dB HL or worse at least one test frequency. MANOVA revealed no main effects, but a significant interaction was apparent between the noise exposure type and frequency. Post-hoc analyses with the LSD test revealed that occupational noise exposure resulted in significantly higher auditory thresholds at 0.5, 2, 3 and 6 kHz when compared to no noise exposure. Thresholds of men with occupational noise exposure were also significantly higher at 0.25, 1, 2, 3 and 6 kHz when compared to the thresholds of individuals with hobby-related noise exposure.

“Reduced Susceptibility to Noise in Carriers of German Waltzing Guinea Pig”
Asa Skjonsberg – Dept of Clinical Sciences, Intervention and Technology, Sweden

We have earlier shown that the carriers of the German waltzing guinea pig strain were less affected to noise trauma compared to control animals from other guinea pig strains. In this blind study, we used littermates as control animals. We confirmed that the symptom-free heterozygote offspring of German waltzing guinea pig seem to have some auditory protective mechanisms connected to their genetic background.
“Long-term occupational noise and antihypertensive medication: a register-based study”
Z.A. Stokholm – Danish Ramazzini Center, Dept of Occupational Medicine, Aarhus University Hospital, Sweden
K.L. Christensen - Department of Internal Medicine and Cardiology, Aarhus University Hospital, Sweden
J.P. Bonde - Department of Occupational and Environmental Medicine, Copenhagen University, Bispebjerg Hospital, Sweden
In an ongoing study, we aim to establish whether exposure to occupational noise is a cause of chronic arterial hypertension. This, an 8-year follow-up of 158 136 employees from 620 companies is currently being conducted. Cumulative noise exposure will be estimated from the employment duration and the degree of the noise exposure. This information will then be related to the number of redeemed prescriptions for antihypertensive drugs during follow-up, as a proxy of hypertension. Prescription data are obtained from a national registry.

“Employee satisfaction with two sound transmission HPDs”
Jennifer Tufts – University of Connecticut; Dept of Communication Sciences, USA
This study compared employee satisfaction with two sound transmission HPDs at a plastic film manufacturing plant in Rhode Island. Both HPDs offered custom earmolds and a volume control for ambient awareness. One of the HPDs integrated radio communication via an in-the-ear microphone and dedicated radio connection. Satisfaction with the employee’s customary passive HPD was also evaluated. Employee ratings along the dimensions of comfort, communication, convenience, and situational awareness will be discussed.

“Unintentional Traumatic injury and hearing acuity among central Ohio cash grain farmers: A Case-Control Study”
Marie Vetter – Chicago Hearing Services, USA
This case-control study examined the relationship between unintentional injury and hearing threshold levels among male farmers using data from OFFHS. The most marked result was thresholds poorer than 25 dB for 6000Hz in the left ear resulted in a 3.35 increased risk for injury using multivariable logistic regression. Hearing conservation programs and audiometric testing at 6000Hz for this population will help to reduce the incidence of hearing loss, therefore, likely reducing injury risk among agricultural populations.

SAVE THE DATE

2011 NHCA Conference
February 24-26, 2011
Phoenix Marriott Mesa
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Mesa, AZ 85201

Conference details to come...
Chandran Achutan, PhD  
University of Nebraska Medical Center, USA  
Dr. Chandran Achutan is an Assistant Professor at the University of Nebraska Medical Center College of Public Health, in Omaha, Nebraska. Prior to that he was a staff scientist in the Hazard Evaluations and Technical Assistance Branch of NIOSH. Dr. Achutan is a member of the AIHA Noise Committee and a member of the Accreditation of Occupational Hearing Conservationists.

William Ahroon, PhD  
U.S. Army Aeromedical Research Laboratory, USA  
William A. Ahroon is a Research Psychologist with over 30 years of experience in hearing research and on the effects of noise on hearing. Since 1999, he has been employed as a senior hearing scientist at the U.S. Army Aeromedical Research Laboratory, Fort Rucker, Alabama where he conducts research on hearing hazards, hearing protection, auditory performance in noise, and bioacoustic and noise standards. Dr. Ahroon holds a Ph.D. in Experimental Psychology from Binghamton University and has been elected a Fellow of the Acoustical Society of America. He serves on a number of national and international committees and working groups in the areas of hearing, hearing protection, and acoustics.

Evelyn Albizu  
Fundacentro/Ministry of Labor, Brazil  
Civil Engineer, Safety Engineer, Industrial Hygienist, specialist in Environmental, Education and Development, master in Civil Construction in Built Environment by the Federal University of Parana/Brazil, and doctoral student at the University Tuiuti of Parana/Brazil. Researcher of Fundação Jorge Duprat Figueiredo de Segurança e Medicina do Trabalho – Fundacentro, Ministry of Labor in Brazil.

LTC Lynnette Bardolf, PhD  
US Army (USAARL), USA  
Lynnette Bosse Bardolf was born 27 May 1964 in Grand Rapids, Michigan. The youngest of seven children, she grew up mostly in Jacksonville, Florida, graduating from Fletcher High School in 1982. She earned her B.S. in communication Disorders and her M.S. in Audiology from the Florida State University (FSU) in 1989 and 1990, respectively. Also a graduate of the FSU Army Reserve Officer Training Corps (ROTC) as a Distinguished Military Graduate, she received a commission as a 2nd Lieutenant in the Army’s Medical Service Corps in 1989. Upon graduating in December 1990 with her M.S. in Audiology, Lynnette entered the active duty Army as a 1st Lieutenant at Ft. Sam Houston, TX in January 1991. As an Army audiologist for the past 18+ years, and currently ranked a Lieutenant Colonel (LTC), Lynnette’s past assignments took her to Colorado, Alabama, Germany, and Hawaii working as a clinical audiologist and hearing conservationist serving active duty military, military retirees, and military family members in all branches of the U.S. military.

Alberto Behar, P.Eng., CH  
University of Toronto, Canada  
Alberto Behar is a Professional Engineer and Certified Industrial Hygienist. As an acoustical consultant, he has been active for over 40 years in the field of hearing conservation and noise and vibration measurement, assessment and control. He designed and helped implement the highly successful noise control program in Ontario Hydro, which has been running since 1982. There he developed an original sampling strategy for measuring noise exposures now included in the CSA Standard Z.107-86. As a part of the program, he has also developed and presented training programs for workers and awareness sessions for management. He has advised on hearing tests (implementation, review, calibrations of equipment) and hearing protectors (criteria for approval and training programs). Alberto is a chairman and member of several CSA and ANSI committees and working groups and is also the Canadian representative at the ISO committee on Hearing Protectors, and Noise Exposure Measurements. Alberto is Research Associate with the Sensory Communication Group, IBBME, University of Toronto and since 2004 Adjunct Assistant Professor at the Department of Public Health Sciences, University of Toronto.

Elliott Berger, MS  
3M Occupational Health and Environment, Safety Division, USA  
Elliott H. Berger, MS, is the Senior Scientist for Auditory Research at E+A+R/Aeearo/3M. For over 30 years he has studied hearing protection, hearing conservation, and related topics, and has presented his research in numerous lectures and publications. He chairs the ANSI working group on hearing protector attenuation, served as a National Academy of Science committee evaluating hearing loss in the military, is Past-President of the National Hearing Conservation Association, a Fellow of both the Acoustical Society of America and the American Industrial Hygiene Association, and a recipient of the National Hearing Conservation Association’s Outstanding Hearing Conservationist Award. Among his favorite sounds is his terrier, Sophie, munching on a sesame brittle treat.

Renee Bessette, COHC  
Sperian Hearing Protection, USA  
Renee Bessette is the marketing manager for Howard Leight/Sperian Hearing Protection, LLC, a global leader in Hearing Conservation solutions. She is responsible for global brand management and marketing communications for the Howard Leight brand. Renee holds a BA in journalism from the University of Rhode Island; she received CAOHC certification in 2005; and is a Certified Occupational Hearing Conservationist [COHC]. Renee is also the director of public relations and marketing for the National Hearing Conservation Association [NHCA]. She previously held the commercial member delegate position on NHCA’s executive council. Renee has authored several hearing related articles for U.S. and Canadian safety and PPE publications. Her passion for Hearing Conservation dates to her friends’ own experience with tinnitus and noise-induced hearing loss while involved in the music industry.
from the University of Cincinnati. From Wittenberg University and an M.S. in Environmental Health. 11 years at the Georgia Tech Research Institute in Atlanta as an representative the Board of Trustees of the American Academy of Audiology. 1981, Cindy holds an MS in Audiology from the UW-Stevens Point. CAOHC CD since 1992 and a certiﬁed member of ASHA since 1981. Cindy holds an MS in Audiology from the UW-Stevens Point. 1990s, she held the position of deputy director to the NIDCD’s communication chief and assisted in the management of the WISE EARS!® health education campaign to increase awareness about noise-induced hearing loss in workers and the public. In her role as director, she initiated the development of a new public education campaign to prevent NIHL in tweens (children ages 8 to 12), entitled It’s a Noisy Planet. Protect Their Hearing. 

An audiologist since 1980, Cindy has worked solely in the area of hearing conservation since 1991. She heads the Audiology department of Examinetics where she and her staff work with over 5000 facilities nationwide ensuring regulatory compliance and program excellence. A member of NHCA since 1991, a CAOHC CD since 1992 and a certiﬁed member of ASHA since 1981, Cindy holds an MS in Audiology from the UW-Stevens Point. 

Dr. Blumsack is an Associate Professor in the Department of Communication Disorders at Auburn University. She received her undergraduate degree from the University of Michigan and her MS and Ph.D. degrees from Florida State University. Dr. Blumsack’s interests include hearing conservation, rehabilitative audiology, and educational audiology. She is a member of the Board of Trustees of the American Academy of Audiology Foundation and an Educational Audiology State representative. 

Mr. Brueck is an industrial hygienist with the Health Hazard Evaluation Program at NIOSH in Cincinnati, Ohio. The HHE program evaluates workplaces to address health concerns from exposures to chemicals, biological agents, noise, and ergonomic stressors. Mr. Brueck has worked at NIOSH for almost 9 years. Prior to NIOSH, he spent 11 years at the Georgia Tech Research Institute in Atlanta as an industrial hygienist for the OSHA-sponsored Safety and Health Consultation Program and was an instructor in safety and health related continuing education courses. He has a B.A. in Biology from Wittenberg University and an M.S. in Environmental Health from the University of Cincinnati. 

LTC Kristy Casto, PhD U.S. Army Aeromedical Research Laboratory, USA 

Kristen Casto is an Army audiologist assigned to the U.S. Army Aeromedical Research Laboratory at Fort Rucker, Alabama. She received a Ph.D. in Human Factors Engineering from Virginia Tech in 2009. Her research interests include the communication challenges of the hearing impaired Soldier, battlefield communication devices, Army aviation communications, and pharmacological intervention of acute acoustic injury. She is certiﬁed by the American Speech-Language-Hearing Association (ASHA) and is a Fellow of the American Academy of Audiology (AAA). She is a member of the Human Factors and Ergonomics Society and the Military Audiology Association. Lieutenant Colonel Casto has served as Hearing Conservation Program Manager and

Jay C. Buckey, Jr. MD Dartmouth Medical School 

Dr. Jay C. Buckey, Jr., is a Professor of Medicine at Dartmouth Medical School and an adjunct professor at Dartmouth’s Thayer School of Engineering. He served as a ﬂight surgeon in the U.S. Air Force Reserve for 8 years, and ﬂew on the Space Shuttle Columbia in 1998 on the Neurolab mission. Currently, he is the principal investigator on a Navy study of noise-induced hearing loss.

Kathy Campbell, PhD Southern Illinois University School of Medicine, USA 

Kathleen Campbell, Ph.D., Professor and Director of Audiology Research at SIU School of Medicine served on the AAA Board of Directors, received an AAA Presidential Citation, a Medical Innovators Award and is an ASHA fellow. She authored Essential Audiology for Physicians and edited/authored Pharmacology and Ototoxicity for Audiologists. She has received a number of grants from NIH and other agencies for her research in otoprotective agents and is the inventor of the protective agent D-methionine patents.

John Casali Ph.D., CPE, CIE Virginia Tech and Ergonomics-Acoustics Co., USA 

Dr. Casali is the Grado Chaired Professor of Industrial and Systems Engineering at Virginia Tech, and a Board-Certiﬁed Professional Ergonomist (CPE) and Industrial Ergonomist (CIE). After receiving his Ph.D. in Human Factors Engineering, he developed the Auditory Systems Laboratory, a versatile acoustics research facility at Virginia Tech. He is a Fellow of the Human Factors and Ergonomics Society and the Institute of Industrial Engineers, and was the 2007 President of the National Hearing Conservation Association. He was also the recipient of the NHCA’s Outstanding Hearing Conservationist Award in 2009, and has twice received NHCA’s Outstanding Lecture Award as well as the Media Award. Dr. Casali holds 5 patents and has authored over 150 publications. He is on the Scientiﬁc Advisory Boards of Personics, Inc. and the Oxford Research Institute. He enjoys working with companies and community groups on warning signal issues, hearing protection and earphone design, community noise, ergonomics, and patent/product liability litigation. Occasionally, he likes to fish offshore in the Atlantic and serve as a trial-and-error mechanic to his old sports cars.

Scott E. Brueck, M.S., CIH National Institute for Occupational Safety and Health (NIOSH), USA 

Mr. Brueck is an industrial hygienist with the Health Hazard Evaluation Program at NIOSH in Cincinnati, Ohio. The HHE program evaluates workplaces to address health concerns from exposures to chemicals, biological agents, noise, and ergonomic stressors. Mr. Brueck has worked at NIOSH for almost 9 years. Prior to NIOSH, he spent 11 years at the Georgia Tech Research Institute in Atlanta as an industrial hygienist for the OSHA-sponsored Safety and Health Consultation Program and was an instructor in safety and health related continuing education courses. He has a B.A. in Biology from Wittenberg University and an M.S. in Environmental Health from the University of Cincinnati.
Director of Clinical Audiology at a variety of military installations; Ft. Riley, Kansas (1st Armor Division), Ft. Rucker, Alabama, (U.S. Army Aeromedical Center and U.S. Army flight training center), Ft. Campbell, Kentucky (101st Airborne (Air Assault) Division), and Schofield Barracks, Hawaii (25th Infantry Division (Light)) and Tripler Army Medical Center in Honolulu, Hawaii.

Marshall Chasin, AuD., M.Sc., Reg., CASLPO, AuD  
Musicians Clinic of Canada, Canada  
Dr. Marshall Chasin, AuD., M.Sc., Reg. CASLPO, AuD is an Audiologist and the Director of Auditory Research at the Musicians’ Clinics of Canada in Toronto, the Coordinator of Research at the Canadian Hearing Society, and the Director of Research at ListenUp Canada. He is an Associate Professor in the School of Communication Sciences & Disorders, Faculty of Health Sciences (Audiology) at the University of Western Ontario, and Adjunct Professor at the University of Toronto (in Linguistics) specializing in Acoustic Phonetics. Marshall has been involved with hearing and hearing aid assessment since 1981. In 2003, he obtained his AuD from the Arizona School of Health Sciences. Marshall has lectured extensively on implantable hearing aids, hearing aids, music and noise exposure, and is frequently on TV and radio (he’s the good looking balding guy sometimes on Much Music). Marshall has won several awards over the years including the 2009 President’s Award for outstanding contributions to the field from the Canadian Academy of Audiology; 2003 Professional Leadership Award for clinical and research work with musicians and performing artists from the Audiology Foundation of America; 1991 Eve Kassirer Award for outstanding professional achievement from the Canadian Association of Speech-Language Pathologists and Audiologists; and the 1999 Honours of the Association from the Ontario Association of Speech-Language Pathologists and Audiologists.

Kris Chesky, Ph.D.  
Safe-in-Sound Award Winner  
College of Music, University of North Texas, USA  
Kris Chesky holds degrees from the Berklee College of Music and the University of North Texas. After completing his undergraduate degree in trumpet/jazz studies, he worked as a bandleader and sideman. During graduate studies at UNT, Dr. Chesky studied music therapy with TWU Professor Donald Michel while working for a psychiatric in-patient hospital in Fort Worth. After completing his doctorate, he conducted research on the pain-relieving effects of music vibration at the UNT Health Sciences Center, UT-San Antonio and at Cook Children’s Hospital of Fort Worth. Dr Chesky is currently Associate Professor within the UNT College of Music and Director of the Texas Center of Music & Medicine. He oversees and lectures courses in music medicine including an undergraduate course titled “Occupational Health: Lessons for Music”. Dr. Chesky is Executive Director of the Health Promotion in Schools of Music project (www.unt.edu/hpsm).

CAPT. Jillyen Curry-Mathis, AuD  
Army Hearing Program Manager, USA  
CPT Curry-Mathis completed her Au.D. at the University of Florida and went active duty in the US Army in 2003, with an assignment to Fort Stewart. She has presented on the development of an effective Army Hearing Program at multiple leadership levels and professional conferences, to include the MEDCOM Chief of Staff. In 2008, CPT Curry had the opportunity to deploy with 3rd Infantry Division for an “insider’s perspective” and subsequently PCS’d to Fort Jackson to work within the TRADOC environment. She is currently working with the TRADOC Directorate to develop effective, Army-wide training performance objectives for basic training soldiers and their leadership/cadre while systematically expanding Fort Jackson’s Operational Hearing Services.

Hugh Davies, PhD, MSc, CIH  
UBC School of Environmental Health, Canada  
Dr. Hugh Davies is an occupational hygienist who specializes in exposure assessment. He studies the health effects of noise, both auditory and non-auditory, and is currently studying combined exposures to traffic noise and air pollution, and how they jointly impact cardiovascular health. He is planning a longitudinal study of the effect of noise on early child development. Dr Davies teaches graduate classes in occupational hygiene, exposure assessment, and grantsmanship. He is the chair of the physiological effects team of the International Commission on the Biological Effects of Noise.

Adriano Dias  
Botucatu Medical School, Dept. of Public Health, Brazil  
Field of expertise: Epidemiology and Occupational Epidemiology  
Academic degree(s): Doctor in Public Health, Epidemiology.  
Current employment position: Epidemiology Professor and Research Office Coordinator in Botucatu Medical School, Brazil

Jean-Luc Doumont, PhD  
Principiae, Belgium  
An engineer (Louvain) and a doctor in applied physics (Stanford), Jean-luc Doumont is Principe’s more visible face. Over the years, he has run several hundred training sessions, thus addressing thousands of attendees in English, French, Dutch, and Spanish, on topics of scientific, technical, or business communication, pedagogic approaches, statistical thinking, and related themes. Jean-luc is one of the very few trainers in the field to combine a top-notch technical background with acclaimed communication and teaching skills. Thanks to this unusual combination, he approaches professional communication in an innovative, engineering-like way that contrasts sharply with the tradition of the field, rooted in the humanities. He is thus well received by engineers, scientists, and managers, who say that they are “on the same wavelength” - a prerequisite to effective learning. An articulate, entertaining, and thought-provoking presenter, Jean-luc is a popular keynote or invited speaker worldwide.

Wouter Dreschler, PhD  
Clinical & Experimental Audiology, Academic Medical Centre (AMC), Netherlands  
Wouter A. Dreschler is full professor in Audiology, University of Amsterdam. His experimental research targets to clinical applications of new techniques in prevention, diagnosis, therapy, or rehabilitation of the (impaired) auditory system. A number of projects are devoted to the prevention of hearing loss with special focus on the role of
Ana Claudia Fiorini
Pontificia Universidade Católica de São Paulo, Brazil

Ana Claudia Fiorini is an audiologist involved in hearing loss prevention efforts as a clinician, a consultant, an educator and a researcher. Her primary responsibilities are academic teaching and research in undergraduate and graduate training programs for speech-language pathology and audiology at the Pontifícia Universidade Católica de São Paulo. She also provides hearing conservation program consultation. Her expertise is in hearing conservation program design, regulatory compliance audits, software implementation, workers’ compensation claims review and research. In addition, she is vice-President of the Brazilian Acoustical Society and Past President of the Brazilian Academy of Audiology.

Greg Flamme, PhD
Western Michigan University, USA

Greg Flamme is an Assistant Professor in the Department of Speech Pathology and Audiology at Western Michigan University. His research interests include the study of hearing and other health outcomes in a rural Midwestern cohort, hearing loss prevention strategies for rural adolescents, everyday exposures to risk factors for hearing impairment, and hearing aid benefit and satisfaction.

Brian Fligor, ScD
Children’s Hospital Boston, USA

Brian’s primary research interests are investigating causes of acquired hearing loss from ototoxicity and noise, particularly in the pediatric population. His work on potential for noise-induced hearing loss from using portable media players with headphones has received considerable popular media attention, including being spoofed on David Letterman’s show in 2005. Additional research not associated with music-induced hearing loss includes causes of hearing loss from medical interventions, genetics, and environmental factors. Efforts to date have identified specific risk factors for sensorineural hearing loss in graduates of extracorporeal membrane oxygenation (ECMO). He is a member of the Children’s Oncology Group (COG) and assisted oncologists at the Dana Farber Cancer Institute study ototoxicity in children treated with cisplatin chemotherapy for osteosarcoma; based on this work, COG is reviewing new ototoxicity grading scales for reporting of adverse events from chemotherapy.

Robert Folmer, PhD
National Center for Rehabilitative Auditory Research Portland VA Medical Center, USA

Robert Folmer earned his Ph.D. in Speech and Hearing Science from the University of California, San Francisco. In 1997, he joined Oregon Health & Science University where he maintains an appointment of Associate Professor. At OHSU, Dr. Folmer was part of the team that developed the Dangerous Decibels hearing loss prevention education program. He joined the NCRAR in 2007 and serves as Program Manager for the joint VA/Department of Defense Hearing Loss Prevention Initiative.

Andrian Fuente, PhD
University of Chile, Medical Facility – School of Speech and Hearing Sciences, Chile

Bachelor Degree in Speech Pathology and Audiology, University of Chile (2000). Diploma in Occupational Health, University of Chile (2006). Ph. D. in Audiology, University of Hong Kong (2009). Assistant professor (2007-present) at the School of Speech and Hearing Sciences, Medical Faculty, University of Chile. Adjunct Assistant Professor (2009-present) at the Department of Otorhinolaryngology, Head and Neck surgery, Chinese University of Hong Kong. Postdoctoral Fellow (2009-present) at the School of Health and Rehabilitation Sciences, University of Queensland, Brisbane, Australia. Research publications in the topic of solvent-induced hearing loss and auditory processing.

Nancy Galliugh, MS, CCC-A
Kalamazoo RSA USA

Nancy Galliugh received her Bachelor of Arts degree from Indiana University and her Master of Science degree from Western Illinois University. As a member of the staff of Constance Brown Hearing Centers for thirteen years, she supervised the industrial audiology program, provided clinical audiology services, and managed the educational audiology program. She currently administers educational audiology services to hearing impaired students through Kalamazoo Regional Educational Service Agency.

Luciara Giacobe Steinmetz, MS
Universidade Tioiti do Parana, Brazil

Luciara is an audiologist, with degrees from the Universidade Federal de Santa Maria (B.A,) and Universidade Tuiuti do Paraná (M.S.) in Brazil. She has been working with hearing loss prevention since 2002. She has worked as a corporate audiologist for a meat-packing company, and as clinician, and educator (academic teaching in undergraduate programs for speech-language pathology and audiology). Her research interest is the accommodation of workers who suffer from tinnitus.

Lee Hager
3M/Aero Technologies, USA

Lee brings nearly 20 years of experience to his position as Hearing Loss Prevention Consultant for Sonomax Hearing Healthcare, Inc., including consultation regarding the quality and integrity of hearing conservation programs. He has served as President of the National Hearing Conservation Association (NHCA); chair of the Noise Committee of the American Industrial Hygiene Association (AIHA); NIOSH National Occupational Research Agenda (NORA) Noise Team member; and with ANSI Working Group S12 WG11 on hearing protector evaluation and labeling issues.

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Russ Hannula
HearTrak, USA
Russ Hannula is President of The Hawkwa Group, Inc. and author of the HearTrak data management system. He has worked with hundreds of hearing conservation service providers since 1983, supporting their audiometric data collection and analysis needs. Prior to writing HearTrak, Russ provided noise measurement and control consulting services to several hundred manufacturing companies.

Christine Harrison, M.Sc., AuD
Occupational Audiologist, Worksafe BC, Canada
Christine Harrison is the Manager of Certification Services for WorkSafeBC (formerly the Workers’ Compensation Board of British Columbia, Canada). In her previous position as an occupational audiologist, she managed hearing conservation programs for over 15,000 employers and 250,000 workers, including the construction industry. As the guardian of a 3 million plus audiogram database, she was particularly proud of her program’s conversion from a 30-year old paper based audiometric data input system to an electronic one—a major milestone. She’s not so proud that she was around when the paper based system was implemented! She is still a legislative representative to the Canadian Standards Association Z94.2—Hearing Protection Devices and was a member of a technical advisory subcommittee to the CSA Z107.56—Procedures for the Measurement of Occupational Noise.

Hiske Helleman, MsC
Clinical & Experimental Audiology, Academic Medical Centre (AMC), Netherlands
Ms. Hiske W. Helleman
MSc (Applied Physics)
Registered as clinical physicist – audiology
Field of expertise: Cochlear Implants and Occupational Audiology
PhD student
Field of expertise: Otoacoustic emissions in noise-induced hearing loss
Current employment: parttime clinical physicist – audiologist in Academic Medical Centre, Amsterdam, parttime PhD student.

Nicholas Heyer, PhD
Battelle Centers for Public Health Research and Evaluation, USA
Dr. Heyer is a Ph. D. Epidemiologist currently working at Battelle’ Centers for Public Health Research and Evaluation in Seattle. He also has a Masters degree in Industrial Hygiene and has spent 25 years studying the health effects of occupational and environmental exposures.

Evelyn Hoglund, PhD
Ohio State University, Dept. of Speech and Hearing, USA
Evelyn Hoglund received her PhD in 2007 from The Ohio State University. She is currently a research scientist in the Psychoacoustics Lab in the Department of Speech and Hearing Science. Her work focuses on the role of spectrotemporal integration in the detection and processing of complex sounds.

Ann-Christin Johnson, PhD
University of Audiology, Karolinska Institutet, Sweden
Ann-Christin Johnson, born 1955, in Sweden. Master of Pharmacy, Master of Toxicology. Ph.D. in Medical Science
Academic position: Associated professor in Audiology, Program director and Senior Lecturer at the Audiology program at the Karolinska Institutet in Stockholm, Sweden.
Area of expertise: 20 years experience in occupational safety and health issues with focus on organic solvents as ototoxicants and interactive effects of solvents and noise on auditory sensitivity of both human [epidemiological field-studies] and experimental animals.

Kim Kähärä, PhD
School of Health and Medical Sciences and Institute for Medical Disabilities Research Örebro University, Sweden
Kim is an Audiologist who graduated as Ph. D. at the Faculty of Medicin at Göteborg University, Sweden in 2002 with the thesis: “The influence of music on hearing - A study in classical and rock/jazz musicians”. Today, she has a position as Associate Senior Lecturer at the School of Health and Medical Sciences and the Institute for Disability Research at Örebro University. From the 1st of February 2010 she will start a new position at the Department of Clinical Neuroscience and Rehabilitation at Göteborg University. She supervises three doctoral students and co-workers within the Swedish Institute for Disability Research, which is a multidiciplinary group of researchers located at Linkoping and Örebro University. Research projects are partly being done at the Ahsåns research laboratories located at Örebro University hospital, and in field. Her main interest is to work with multi disciplinary, applied research focused on leisure time noise such as music and health, Mp3 listening and effects on hearing and specific hearing and sound problems addressed to musicians and listeners. Her focus lies on preventive actions and education that stress the benefits of a preserved hearing. Her latest project the “Acoustic project” received the European “Good practice award” in 2005 and a Swedish “Year of Design award” in 2006. Further, she did receive a personal recognition by the Swedish Acoustical Society by the “Sound award” in 2006.

Benj Kanters, MM
Columbia College Chicago, USA
He earned his BS in Speech and his MM in Music Technology, both from Northwestern University. He has been on the faculty of Columbia College since 1993, after 20 years in the audio and music industries, including 14 years as adjunct professor of audio at Northwestern University’s Schools of Speech and Music. In 1970, he was partner and sound engineer with the Chicago area concert club, Amazingrace. In 1980, he was partner and chief managing engineer of Studiomedia Recording Co. in Evanston. His experience also includes; concert production in large venues; audio engineering for live, and broadcast media, and advertising and public relations to both the professional and consumer audio markets. In 2004, he began researching best practices in the emerging field of audio archiving and restoration, and is now consulting libraries and music institutions in the design and operation of audio archive and preservation systems. After studying hearing physiology in graduate school, he continued to research developments in the field, and found an equal interest in hearing loss and conservation. In 2000 he developed the
course Studies in Hearing to teach hearing physiology to students majoring in audio and acoustics, the only such course offered in any college program of its kind. In 2007, he founded The Hearing Conservation Workshop, visiting colleges and universities to teach hearing physiology and conservation to future audio and music industry professionals.

**CDR Chuck Kardous, MS, PE**
**National Institute for Occupational Safety and Health, USA**
Chuck is an active-duty Commander with the U.S. Public Health Service and is currently stationed at the National Institute for Occupational Safety and Health (NIOSH) in Cincinnati, Ohio. He is a senior research electrical engineer with the hearing loss prevention team, division of applied research and technology. He received a bachelor and master degrees in Electrical Engineering from Wright State University and the University of Cincinnati and is a registered professional engineer with the state of Ohio. He has been with the hearing loss prevention team for the last 16 years; his main areas of research include embedded communication and hearing protection systems, instrumentation development, and studying the effects of impulsive noise on hearing. He has published over 23 peer-reviewed journal articles, book chapters, NIOSH documents and technical reports. He has received a patent for an impulse noise monitoring device to measure exposure to high-intensity impulsive sounds.

**Laura Kauth, MA, CCC-A**
**Audiology Consultants P.C., USA**
Laura Kauth is an audiologist and co-owner of Audiology Consultants, P.C. Laura earned her bachelor’s degrees in English, psychology, and biology at the University of Iowa in 1994, and her M.A. in audiology in 2000. Laura is a certified course director for the Council for Accreditation in Occupational Hearing Conservation (CAOHC). She has been an active member in NHCA since 2000, and currently serves as the Director of Communications.

**Hannah Keppler**
**Ghent University/Faculty of Medicine and Health Science/ENT Department, Belgium**
Academic Degree:
Master of Logopaedic and Audiological Sciences – Audiology, Ghent University, Belgium
Current employment position:
PhD Student at Ghent University, Belgium
Faculty of Medicine and Health Sciences, ENT-department
Field of expertise: I study the effects of recreational noise exposure on the auditory system of young people. Moreover, I investigate the usefulness of otoacoustic emissions to detect minimal cochlear damage after exposure to loud recreational noise on short- and long-term.

**Mead Killion, PhD**
**Safe-in-Sound Award Winner**
**Etymotic Research, Inc., USA**
Mead Killion, Ph.D. founded Etymotic Research, Inc. in 1983. Prior to starting Etymotic, he worked for over 20 years for a major electronic component manufacturer where he designed hearing aid transducers, including microphones that were so accurate they were also used in recording and broadcast studios. Dr. Killion earned degrees in mathematics from Wabash College and the Illinois Institute of Technology, and completed his doctorate in audiology at Northwestern University. He was awarded an honorary doctor of science (Sc.D) degree from Wabash College. Dr. Killion teaches an advanced course in hearing aid electroacoustics at Northwestern University, where he is an adjunct professor. He has also taught audiology graduate students at Rush University and has directed graduate research at City University of New York Graduate School. Dr. Killion has lectured on hearing protection and hearing aids in 19 countries. He is a Fellow of the Acoustical Society of America and the Audio Engineering Society and has received numerous awards for his contributions to the field of hearing. He is an accomplished choir director, violinist and jazz pianist. He holds over 60 patents.

**Chantal LaRoche, PhD**
**Hearing Research Laboratory, University of Ottawa, Canada**
Chantal LaRoche, Ph.D is a full time professor in the Audiology/Speech-Language Pathology Program at University of Ottawa. She obtained a Ph.D. in biomedical sciences (Audiology) from the University of Montreal in 1989. Her research projects are oriented towards the perception of warning sounds (eg. fire alarms, reverse alarms) in noisy backgrounds; the effects of noise on hearing and health; the impact of hearing protection and hearing aids on communication; and the development of functional evaluation tools for hearing-critical jobs.

**Colleen Le Prell, PhD**
**Department of Communicative Disorders, University of Florida, USA**
Colleen Le Prell, Ph.D. is an Associate Professor in the Department of Communicative Disorders and Director of The Hearing Research Center at the University of Florida. Dr Le Prell has served as the Principal Investigator on Research grants sponsored by the National Institutes of Health, the American Hearing Research Foundation, the National Organization for Hearing Research, as well as University-sponsored awards; she has also supervised industry contracts. Her laboratory conducts investigations in two key areas. One set of projects is exploring the neurochemistry of a central auditory pathway termed the lateral olivocochlear efferent pathway. Other studies in Dr. Le Prell’s laboratory focus on mechanisms of cell death in the inner ear and interventions that prevent cell death and associated hearing loss. Dr. Le Prell is the Principal Investigator on trials conducted at the University of Florida, and she is coordinating research activities at three foreign study sites. Her research includes collaborations with investigators at the University of Michigan, Harvard University, Washington University in St. Louis, and the Southern Illinois University School of Medicine; international research partners include the Karolinska Institute, the Swedish Armed Forces, the Universidad de Castilla-La Mancha, NATO commanders at Los Llanos airbase in Albacete, Spain, and Solemat, a Spanish health care company.

**Monique Leensen, MsC**
**M.C.J. Leensen, MsC Clinical and Experimental Audiology, Academic Medical Centre (AMC), Netherlands**
Ms. Monique C. J. Leensen
MSc (Biomedical Health Science)
PhD student
Field of expertise: Speech-in-noise tests and
occupational noise-induced hearing loss
Current employment: PhD student in Academic Medical Centre, Amsterdam.

Tony Leroux, PhD
Ecole d’orthophonie et d’audiologie, Universite de Montreal, Canada
Tony Leroux (Ph.D. Carleton) is Associate Professor at the School of Speech-Language Pathology and Audiology at the University of Montreal (Québec, Canada) and researcher at the Centre de recherche interdisciplinaire en réadaptation (Institut Raymond-Dewar).

One of his areas of research interest is the effect of noise on hearing and health. His recent work has focused on the influence of combined exposure to noise and industrial chemical substances on hearing.

Tom Lloyd
Associates in Acoustics, Inc., USA
Mr. Lloyd has been a senior consultant of Associates in Acoustics, Inc. since 1998. His primary responsibilities include conducting engineering noise control surveys, data analysis, research, and design of recommendations for noise control. In addition, he conducts environmental and community noise surveys, as well as employee noise exposure assessments for both hearing conservation and regulatory compliance. He also teaches noise control and hearing conservation training seminars, which are customized to the particular needs of the client or attendees.

CAPT. W. Gregory Lotz, PhD
National Institute for Occupational Safety and Health, USA
CAPT W. Gregory Lotz is the Director, Division of Applied Research and Technology (DART), National Institute for Occupational Safety and Health, and the Manager of the Institute’s Manufacturing Sector research program. CAPT Lotz received a B.S. degree in Physics from Heidelberg College and M.S. and Ph.D. degrees in biophysics from the University of Rochester School of Medicine and Dentistry. After 15 years of research and leadership at the Naval Aerospace Medical Research Laboratory in Pensacola, Florida, CAPT Lotz joined NIOSH in 1992 as Chief of the Radiation Section. Later, he served as Chief, Physical Agents Effects Branch, and then as DART Associate Director for Science before assuming his current role in 2007.

Deanna Meinke, PhD
University of Northern Colorado at Greeley, USA
Dr. Deanna Meinke is currently an Associate Professor of Audiology and Speech-Language Sciences at the University of Northern Colorado. Presently, she serves as immediate past-president for the National Hearing Conservation Association and chairs the National Institute for Occupational Safety and Health (NIOSH) “Safe-in-Sound Expert Committee”. Her research interests include the prevention of noise-induced hearing loss throughout the lifespan and the use of distortion product otoacoustic emissions for the early detection and monitoring of noise-induced hearing loss. Her passion for hearing loss prevention targeting children is highlighted by her collaborations with colleagues from the Oregon Health & Science University in the delivery of Dangerous Decibels® educator training workshops in the U.S. and Canada.

Teresa Momenshohn dos Santos, PhD
IEEA - Institute of Hearing Studies, Brazil
Master of Speech Pathology & Audiology by Catholic University of São Paulo, master and PhD in Communication Disorders by the Federal University of São Paulo. Currently is the Director of Hearing Studies Institute and professor at the Catholic University of São Paulo. Has experience in the area of audiolog, with emphasis on evaluation of the hearing, working mainly on the following themes: child’s hearing evaluation, the assessment of auditory processing, environmental noise as a factor of learning problems and attention.

Thais Morata, PhD
National Institute for Occupational Safety and Health, USA
Thais C. Morata is an audiologist who has been working in hearing loss prevention since 1987. She works at the National Institute for Occupational Safety and Health and is a mentor and collaborator with researchers all across the globe. She has been Associate Editor for the International Journal of Audiology since 2003. Thais is Director for the Safe-in-Sound Excellence in Hearing Loss Prevention Awards™. In 2008 she received NHCA’s Outstanding Hearing Conservationist Award for her contributions to hearing loss prevention and the evaluation of the effects of exposure to ototoxic chemicals.

Roderik Mrena, MD
University of Helsinki, Finland
Dr. Mrena completed his ENT-specialization at the University of Helsinki. In addition to surgical experience, he has Education and Training in Occupational Health Services, and currently works as a consulting otolaryngologist in a medical center specializing in occupational health services. Dr. Mrena is also a qualified TRT graduate, one of only 20 in Finland. At the University of Helsinki, Dr. Mrena has published several papers on tinnitus.

Per Muhr
Karolinska Institute and the Department of Audiology Karolinska University Hospital, Sweden
Per Muhr is an occupational hygienist and employed at an occupational health care centre in The Swedish Armed Forces. His main task is to support the organisation in preventing occupational risks. He is also engaged in a research project in cooperation with the Karolinska Institute. His thesis aims to describe changes in hearing in young Swedish men from the seventies to the nineties and also to describe the influence on hearing from military noise.

CAPT. William Murphy, PhD
National Institute for Occupational Safety and Health, USA
Captain Murphy (USPHS) is co-leader of the NIOSH Hearing Loss Prevention Team in the Division of Applied Research and Technology in Cincinnati, OH. His primary interests are fundamental acoustics, hearing loss, hearing protection devices (HPDs) and noise control engineering. He has led research efforts to measure the attenuation of FIPDs and pioneered the analysis of laboratory and field attenuation measurements of HPDs.
Rick Neitzel, PhD, CIH
University of Washington, USA

Rick is a Research Scientist in the University of Washington (UW) Department of Environmental and Occupational Health Sciences. He received a PhD in Environmental and Occupational Hygiene from UW in 2009. He has been conducting research on noise and hearing loss in the construction industry since 1997. His research interests include quantitative and subjective exposure assessment in occupational and non-occupational settings and development and evaluation of effective occupational health interventions and controls.

Peter Rabinowitz, MD
Yale University, USA

Peter Rabinowitz is Associate Professor of Medicine and Director of Clinical Services at the Yale Occupational and Environmental Medicine Program, Yale University School of Medicine. He received his MD from the University of Washington School of Medicine, and has completed residencies and is board certified in Family Medicine, General Preventive Medicine, and Occupational and Environmental Medicine. His education and training in noise induced hearing loss, however, has come “on the job” and through the auspices of NHCA and the kindness and generosity of its members. He has recently represented the American College of Occupational and Environmental Medicine on the Council for Accreditation in Occupational Hearing Conservation (CAOHC), and helped develop the CAOHC certification course for Professional Supervisors of the audiometric component of hearing conservation programs. He is currently the Principal Investigator on a NIOSH funded research project to evaluate the effectiveness of daily noise exposure monitoring to prevent NIHL.

Vishakha Rawool, PhD
Dept. of Speech Pathology and Audiology
West Virginia University, USA

Vishakha Rawool obtained her PhD from Purdue University and completed a post-doctoral fellowship at Johns Hopkins University. She is currently a Professor in the Department of Speech Pathology & Audiology at West Virginia University and teaches several courses including a course titled “Industrial Audiology”. She has several publications to her credit and has extensive clinical experience in providing comprehensive audiological services to all populations including infants and older adults.

Theresa Schulz, PhD
Sperian Hearing Protection, USA

Theresa is the Hearing Conservation Manager for Sperian Protection. She received her BS (1981) and MA (1983) degrees from the University of Texas at Austin and her PhD (1994) from Ohio State University. She was recognized as the US Air Force Outstanding Audiologist of the Year in 1989 and 1998, and received the Elizabeth Guild Award for Contributions to Military Hearing Conservation in 1996. She was nominated by the Air Force for the 2003 National Public Service Award and received the military’s Outstanding Volunteer Medal in 2004 and NHCA’s Michael Beall Threaddgill award in 2009 for her extensive work to prevent noise-induced hearing loss both in the military and in the public sector. For those who ask – where is Theresa now? She still lives in southwestern PA with her husband, 4 cats, and abundant wildlife.

Theresa is a die-hard NHCAer having served the association in many roles, she is currently serving on the NHCA Foundation. Dr Schulz provides consultation in hearing loss prevention issues and hearing conservation programs and is a frequently requested, enthusiastic speaker on hearing conservation.

Noah Seixas, PhD
University of Washington Dept. of Environmental and Occupational Health Sciences, USA

Noah Seixas is Professor of Exposure Sciences at the University of Washington, School of Public Health. Dr. Seixas received an MS in Industrial Hygiene at Harvard School of Public Health in 1982 and a PhD in Industrial Health from the University of Michigan in 1990. Dr. Seixas has taught at the University of Washington since 1993, and currently serves as Director of the Northwest Center for Occupational Health and Safety. His research activities involve exposure assessment and control with a range of applications including silica exposure, noise in the construction industry, and injury risk prevention, and safety and health among precariously employed workers.

Charles Shamoon, Esq.
Safe-in-Sound Award Winner
New York City Department of Environmental Protection, USA

Mr. Charles Shamoon, Esq. is an attorney with the New York City Department of Environmental Protection (NYC DEP). He has been involved with noise mitigation issues and enforcement since the late 1980’s. In that time he has assisted in defending many court challenges to the previous and current NYC noise codes. Mr. Shamoon has an engineering degree from New York University and also received noise training from the Rutgers Noise Technical Center. In 2002 Mr. Shamoon joined the NYC DEP team that was charged by the Mayor with updating the 30-year-old outdated noise code. The new code was passed by the City Council and became effective in July 2007. More recently, Mr. Shamoon has made presentations on noise control measures at NoiseCon, the Transportation Research Board, and the 2009 CPWR/NIOSH Workshop.

Anna Skjönsberg
Department of Clinical Services, Intervention and Technology, Sweden


Lic. audiologist, PhD in audiology.

Positions: Senior lecturer at the audiology program at the Karolinska Institutet, Stockholm, Sweden.

Lic. audiologist at the audiology department, Karolinska University hospital, Stockholm, Sweden.

Research area: the influence of the genetic background regarding susceptibility to noise exposure and other environmental factors.

Curtis Smith, PhD
Professor Emeritus - Auburn University, USA

Dr. Smith is Professor Emeritus at Auburn University and former Director and Chief Audiologist of the Auburn University Speech and Hearing Clinic. He received his MS and Ph.D. degrees from the University of Southern Mississippi. He is owner of the Auburn Audiology Center in Auburn, Alabama. Dr. Smith has also served as Director of Audiology for the Brooke Army Medical Center in San Antonio, Texas. Dr. Smith’s interests include hearing
Neil Snyder
American Speech-Language-Hearing Association (ASHA), USA
Neil Snyder is the Director of Federal Advocacy for the American Speech-Language-Hearing Association. In this capacity, he is the key advocate on Capitol Hill monitoring both authorization and appropriations legislation. Mr. Snyder joined ASHA in August 2000 after working on Capitol Hill for over ten years. Most recently, he was the Legislative Director for Congressman Chaka Fattah of Pennsylvania. Neil was responsible for monitoring, among other legislative issues, education, health, telecommunications and banking for Congressman Fattah. Neil received a B.S. in Political Science from Guilford College in Greensboro, North Carolina. In addition, Neil is expecting to receive his Masters of Public Administration from the University of Southern California in May of 2001.

Richard Stepkin, MS, CCC-A
Enviromed Corporation, USA
Richard L. Stepkin is a Graduate of Florida State University in 1972. He has been a full time Occupational Audiologist ever since. He was a Military Audiologist for three years. In 1977, he started Enviromed Corp and has been growing ever since. Enviromed provides services in mobile audiometry, noise surveys and education training in hearing conservation nationwide. Richard is one of the original members of NHCA and was Program Chair in 1981. He served on the CAOHC Executive Board 2001-2004. He has been a long-time member of the PSO and participated on various PSO topics.

Zara Ann Stokholm
Danish Ramazzinni Center, Dept. of Occupational Medicine Aarhus University Hospital
Zara Ann Stokholm is a PhD Student at the Department of Occupational Medicine, University Hospital of Aarhus in Denmark. She is currently researching the possible health effects of exposure to occupational noise.

SongWoo Tak, ScD
NIOSH, DSHEFS, Surveillance Branch, USA
SongWoo Tak is an epidemiologist in the surveillance branch at the National Institute for Occupational Safety and Health. He received a ScD. in work environment from University of Massachusetts Lowell, an MPH in occupational health from the Seoul National University, Prior to joining NIOSH he served as an Epidemic Intelligence Officer at the Centers for Disease Control and Prevention. His current projects focus on surveillance for occupational hearing loss and workplace noise exposures.

Martha Tate, PhD
Kimberly-Clark Corporation, USA
Martha is a Research Technical Leader at Kimberly-Clark Corporation. She works in two fields, human factors and skin measurement. Current research includes the relationship between protective apparel and the wearer, and bioengineering and the skin. She is Associate Editor of the Journal of Cosmetic Science, serves on Board of Directors of the International Society of Biophysics and Skin Imaging, and Committee on Scientific Affairs of the Society of Cosmetic Chemists. She worked in the cosmetic industry before joining Kimberly-Clark. She was manager of claims substantiation for skin and hair care products for L’Oreal. She is known for hair research done while a scientist at TR/Princeton. Her education includes a Ph.D. in Textile Science from the University of Wisconsin-Madison, M.S. from University of Georgia, and B.S. from Mercer University.

Erich Thalheimer, Eng.
Safe-in-Sound Award Winner
Parsons Brinckerhoff, USA
Mr. Erich Thalheimer, INCE Bd.Cert., is a degreed mechanical engineer who has been involved in all aspects of acoustical engineering for over 25 years. He is Board Certified by the Institute of Noise Control Engineering (INCE), and has won numerous awards for his work. In the 1990s, Mr. Thalheimer managed the noise control program for the Central Artery/Tunnel Project (The Big Dig), which then led to his assisting the FHWA to develop a new national policy and assessment procedure for construction noise, entitled Roadway Construction Noise Model. More recently, he assisted the New York City Department of Environmental Protection (NYC DEP) to update and improve the City’s Construction Noise Rules which took effect in July 2007. Mr. Thalheimer is currently a senior professional associate with Parsons Brinckerhoff, a world-wide infrastructure.

Esko Toppila, PhD
Finnish Institute of Occupational Health, Finland

Jennifer Tufts, PhD
University of Connecticut
Dept. of Communication Sciences
This study compared employee experiences with two sound transmission HPDs at a manufacturing plant in Rhode Island. Both HPDs offered custom earmolds and a volume control for ambient awareness. One of the HPDs offered integrated radio communication via an in-the-ear microphone and dedicated radio connection. We will compare employee ratings of the sound transmission HPDs along the dimensions of comfort, efficacy, and satisfaction. Ratings of the sound transmission HPDs will also be compared with those of the employees’ customary passive HPDs.
COL Vickie Tuten, AuD  
Office of the Surgeon General, USA

COL Vickie Tuten has been an Audiologist for approximately 25 years serving the majority of her career as an Army Audiologist. She obtained her Bachelor’s and Master’s degree at the University of North Carolina and her AuD through Central Michigan University. Her past assignments as an Army audiologist have included Forts Eustis, Drum, Hood, Bragg, and Brooke Army Medical Center. She is currently assigned as an Audiology Staff Officer to the Proponentive Office for Preventive Medicine at the Office of the Surgeon General in Falls Church, Virginia. She has served as past Treasurer for the National Hearing Conservation Association. She is currently one of the military representatives on the Council for Accreditation of Occupational Hearing Conservationists (CAOHC) and past Vice Chair for Education on the Executive Committee for the same certifying organization. She is the current President of the Military Audiology Association.

Marie Vetter, AuD
Chicago Hearing Services, USA

Marie Vetter earned her B.A. degree from the University of North Dakota. She continued with studies at The Ohio State University where she earned a Doctor of Audiology (Au.D) degree with a specialization in Public Health in June 2009. Marie’s education included an externship at Sensaphonics Hearing Conservation. She is currently employed at Chicago Hearing Services and the University of Chicago.

Emily Wakefield
University of Northern Colorado at Greeley, USA

Emily Wakefield is an Au.D. doctoral candidate in Audiology and Speech-Language Sciences at the University of Northern Colorado (UNC). She is currently completing a fourth year clinical experience at Boulder Valley Ear, Nose and Throat in Boulder, CO and plans to complete her degree in Spring 2010. Her service and outreach interests consist of hearing loss prevention education, multiculturalism and professional development in occupational audiology. In her graduate studies, Emily has researched occupational hearing conservationists’ service delivery practices utilized with Spanish-speaking individuals.

Stephen Widen, PhD
Department of Psychology and Organizational Studies, Institution of Social and Behavioral Studies, Sweden

I got my PhD in psychology at the University of Göteborg, Sweden in 2006. My main interest in research is within the field of risk-taking, health and audiology. My research has been mostly focused on young people’s attitudes, perceived susceptibility, risk perception and behavior connected to leisure time noise exposure. I work as a lecturer at the university West and at Örebro university.

Warwick Williams, PhD
National Acoustics Laboratories, Australia

Warwick’s work has been involved with ‘noise’ at the National Acoustic Laboratories in Australia for the last twenty years. Research areas include noise exposure and noise exposure reduction; barriers to noise exposure reduction; education and prevention activities; and hearing protector use and effectiveness. He has a PhD and a Master of Engineering Science and Master of Arts. He is an Australian representative on several International Standards working groups and committees.
CONTINUING EDUCATION CREDIT INFORMATION

35th Annual NHCA Conference
February 25-27, 2010
Rosen Plaza Hotel
Orlando, FL

The following organizations have approved continuing education credit for this conference:

Continuing Education Board of the
American Speech-Language-Hearing Association (ASHA)
1.6 CEUs (full conference and workshops)
1.0 CEUs (conference only)
.5 CEUs (workshops only)

American Academy of Audiology (AAA)
1.6 CEUs

American Academy of Audiology (AAA)
1.6 CEUs

The 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 1.6 CEUs. Academy approval of this continuing education activity does not imply endorsement of course content, specific products, or clinical procedures.

American Board of Industrial Hygiene (ABIH)
.5 Industrial Hygiene CM points per half day
3.0 total Industrial Hygiene CM Points

Board of Certified Safety Professional (BCSP)
This conference could qualify for BCSP COC points. See the BCSP COC Guide for details, available for download on the COC page at www.bcsp.org/coc.

Please stop by the registration desk at the completion of the conference to pick up your Certificate of Completion.
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