A Passion to Preserve

February 15th-17th, 2007
Hyatt Regency
Savannah, Georgia

NHCA

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Spectrum is a quarterly publication of the National Hearing Conservation Association, 7995 E. Prentice Avenue, Suite 100, Greenwood Village, CO 80111-2710. 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.

Thank you to our sponsors:
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The National Hearing Conservation Association
7995 E. Prentice Avenue, Suite 100
Greenwood Village, CO 80111-2710
303.224.9022 (v)
303.770.1614 (f)
e-mail: nhca@gwami.com
www.hearingconservation.org

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On behalf of the NHCA Executive Council, our Management Firm (Great Western Management Association), and especially, all members of the Program Task Force who developed the program for this conference, welcome to the premier annual event in hearing loss prevention. NHCA has been holding this conference for 32 years, and over that period, many of us “veterans” of the organization have looked forward to those gatherings with great anticipation and left with a renewed commitment to our own efforts in hearing conservation. But whether you are here for the first time or the 32nd time, I am confident that you will be stimulated and energized by the comprehensive array of lectures, posters, workshops and other learning opportunities. Also, you will have ample social time and “chat sessions” to renew and make new acquaintances with your professional colleagues and friends. Take advantage of all the opportunities that NHCA has in store for you over the next three days, and I’m sure that you will leave the conference armed with a renewed vigor and increased knowledge about our collective mission to prevent hearing loss due to noise and other environmental factors in all sectors of society.

This conference’s offerings are outstanding, thanks to the efforts of NHCA’s Program Task Force, chaired by Greg Flamme. Indeed, you will learn about the latest in techniques, methods, and technologies for hearing loss prevention, both from a practitioner as well as a research perspective. This conference also will cover a broad array of applications that need the attention of hearing loss prevention efforts, ranging from industry, to commercial fishing, to the military, to leisure life, and to the aircraft cockpit.

Don’t forget to take full advantage of the NHCA Exhibit Hall, where the newest hearing conservation-related products and services are displayed, along with knowledgeable experts to provide assistance. Furthermore, take time to join in the social activities, highlighted by the opening reception on Thursday and the evening dinner event at Old Fort Jackson on Friday.

A major benefit of NHCA is the networking opportunities that it provides, and this benefit is a testimony to the commitment and cooperation of its members. Make an effort to talk with others during the breaks and luncheons, and take full advantage of the wealth of expertise that is reflected in our attendees.

If you happen not to be a member of NHCA, please accept our invitation to join at this time. Stop by the conference registration desk and sign up! Also, it is important to recognize that NHCA’s success is dependent upon its volunteer service and leadership, and as such, there are many roles to fill on committees and in offices of the organization. So, if you are interested in serving NHCA with your talents and time, please let that be known at the registration desk, or speak to me or one of the other officers. We will be more than happy to assist you in finding a special role within NHCA.

As President of NHCA, I convey my most sincere thanks to you for attending, and thus for helping make this another successful NHCA conference. Also, please join me in giving special recognition to all those noted below who have worked throughout the year to plan this event.

John G. Casali, Ph.D., CPE
President

NHCA PROGRAM TASK FORCE MEMBERS:
Elliott Berger, Steve Eberle, Nancy Gallihugh, Jim Jerome, Laura Kauth, Sandy MacLean Uberauga, Ted Madison, Rachel McArthur, Deanna Meinke, Rick Neitzel, Andrea Wagner
Greg Flamme, Program Task Force Chair
Brian Fligor, Director of Education

Great Western Association Management Inc.:
Karen Wojdyla, NHCA Executive Director
Sheryl McLandsborough, NHCA Administrator

NHCA SCHOLARSHIP FOUNDATION AUCTIONS AND RAFFLE

Participate in NHCA’s Silent Auction, Live Auction and Raffle! Bid on items to help support the NHCA Scholarship Foundation. Look for the raffle ticket sellers in special aprons. Bring your item(s) or a certificate to the conference registration desk. The auctions and raffle are being held in the exhibit hall throughout the conference and culminating on Saturday morning.
2007 STUDENT TRAVEL AWARDS

The NHCA Scholarship Foundation is pleased to announce the recipients of our 2007 Student Travel Award. The award is available to 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 complete a one-page application and send one letter of recommendation. Applications are then evaluated by the Scholarship Foundation review committee, John Casali, Jim Jerome, James Lankford, Vern Larson, and Mary McDaniel (committee members who are affiliated in any way with a candidate recuse themselves from evaluating that candidate). Recipients receive complimentary conference registration and partial reimbursement of travel expenses.

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

Top Awards:

- **Elizabeth Baum**
  - Washington U.
  - St. Louis /CID (AuD)
  - Advisor: Maureen Valente, PhD

- **Stephanie Griffin**
  - U. Washington
  - (MS – Industrial Hygiene)
  - Advisor: Noah Seixas, PhD

- **Cory Portnuff**
  - U. Colorado
  - (AuD/PhD – Speech, Language,
  - Hearing Sciences)
  - Advisor: Kathryn Arehart, PhD

Runners-up:

- **Khaled Alali**
  - Virginia Tech
  - (PhD – Human Factors
  - Engineering & Ergonomics)
  - Advisor: John Casali, PhD

- **Benson Davis**
  - U. Cincinnati (AuD)
  - Advisor: Doug Martin, PhD

- **Darrin Worthington**
  - Northwestern (AuD)
  - Advisor: Susan Erler, PhD

And as always, a very special thanks goes to our generous sponsors for making this program possible: 3M, The American Industrial Hygiene Association Noise Committee, Dr. John Casali, E-A-R Company (Aearo), Examinetics, Howard Leight/Bilsom, James and Vera Lankford, Quest Technologies, Shure, Sonomax, and Workplace Hearing.

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- Association Administrator: Sheryl McLandsborough

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- Elliott Berger – Ex-Officio
- Historian: Elliott Berger

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**OSHA Liaison**: Carol Stephenson
**Website Liaison**: Rick Neitzel
**Member Services Council**: Michael Santucci, Chair; Renee Bessette; Susan Griest; Rachel McArthur; Orland Purcell; Kathryn Schmidt Miller; Karen Turner
**Task Force on Children and Noise**: Deanna Meinke
**Task Force on Music-Induced Hearing Loss**: Brian Fligor
Richard “Dick” Price was a distinguished Senior Scientist and Guest Researcher for the US Army Research Laboratory, Human Research and Engineering Directorate, Aberdeen Proving Ground, Maryland and having retired, consults, publishes, and conducts research on the evaluation of auditory hazard. His extensive body of auditory research reverberates throughout the world influencing standards, guidelines and designs for a variety of diverse military and civilian products such as air bags, toys, bicycle horns, vehicles, weapons, communication equipment and hearing protection. These familiar items impact hearing health of individuals throughout the world daily.

As an undergraduate at the University of Delaware Dick developed an interest in physiological psychology, which in 1960 concentrated on hearing when he became a student of Dr. E.G. Wever at Princeton University, first as a Princeton National Fellow and then as a National Institute of Mental Health Fellow. His interest in the effects of intense sound on the ear grew out of a graduate seminar and his dissertation research on middle ear muscle activity in the rabbit, which added to the quantitative knowledge regarding the protective characteristics of the middle ear muscle reflex.

Following graduate school, Dick joined the Army research program as a 1LT G. Richard Price stationed at the US Army Human Engineering Laboratory, Aberdeen Proving Ground, MD. He established an electrophysiological research laboratory, which had the distinction of becoming the Army’s first AAALAC Accredited animal research facility. Early on, Dick realized the effects of intense sound on the ear were a critical problem not only for the Army, but also for society as a whole. However, at that time the profession possessed only a sketchy understanding of the fundamental mechanisms responsible for noise induced hearing loss. What resulted over years of diligent effort was a two-pronged approach to the noise problem that moved basic research to application.

First, the insightful 1LT Price established a basic research program to discover the mechanisms of loss within the inner ear. Once his team understood that mechanical stress within the cochlea was the operative mechanism and that the conductive path was non-linear, then his team’s emphasis moved toward establishing an appropriate metric. The result of that program was a mathematical model of the ear designed to reproduce the multiple non-linearities in the conductive path and to predict mechanical stress within the cochlea. Dick’s team first developed and validated the model for the cat ear. His team naturally worked next to transform the Auditory Hazard Assessment Algorithm for the Human (AHAAH) into a human version, validating the model with the available human data. This novel model provides not only a numerical rating of hazard but also a movie of the cochlear movement designed to graphically illustrate the noise event and promote engineering insight into making exposures safer.

AHAAH is unique in that the model uses a computer program as the basis for a noise standard and is considered more accurate than existing methods in predicting intense noise hazards. The methodology is gaining acceptance internationally as a noise standard. In fact, the Society of Automotive Engineers uses AHAAH for airbag design and the US Army uses this model to evaluate unprotected exposure to intense sounds. As a result of Dr. Price’s research, the US Army is producing a revised MIL-STD-1474 that includes AHAAH. Dick’s research team continues to develop additional versions that will include varieties of hearing protection. The heuristic value is evident as ear model development continues to spawn new areas of research within government and university laboratories.

Secondly, Dr. Price’s military experience illuminated the challenges researchers face in discovering and quantifying the importance of the sense of hearing to the combat soldier. Dick understood the military would never take hearing conservation seriously unless research could document and demonstrate the significance of hearing as it relates to battle task performance and mission success in one of the most acoustically complex landscapes on earth - combat. Dick’s research team tackled the challenge and began experimentation by systematically degrading soldier and tank crew hearing. They documented the consequences of degraded hearing on situation awareness, speech communication and coordinated activity on the battlefield. In the process, his team also created a sound propagation model as well as a non-detectability standard for the Army.

These landmark studies linked mission success to hearing and crew communication.
These studies resonated with military commanders, soldiers and hearing conservationists. The insightful results provided a foundation to justify hearing conservation program command emphasis, auditory and hearing protection research and headgear redesign. In conjunction with the hearing conservation community over many years, Dick’s work helped raise the level of awareness and concern about the importance of hearing conservation within research and development command. Human noise exposure issues now frequently dictate the design, acceptance and use of weapons, aircraft, vehicles, headgear, hearing protection and communication systems. The military now recognizes the link between the sense of hearing and successful operational performance.

Dr. Price’s research program is particularly notable for its breadth of interest and the fact that it now has been successful at all levels of research. Good fortune, accompanied by persistence over many years, allowed Dick to produce a useful product that is transforming sound measurement and analysis. He has opened the doors to design and acceptance of more effective hearing protection and technologies that promote better communication. In other words, Dick moved basic research to application!

Dr. Price is recognized internationally as an authority on intense sound exposure having presented over 60 invited seminars or professional presentations worldwide. The contributions realized from Dick’s focus on predicting the auditory effects from intense sound are evident in over 85 published papers and 7 book chapters. However, the general public may not realize the military acquisition community and materiel developers often rely upon his numerous classified and unclassified military and NATO technical reports.

Dr. Price’s exemplary efforts, tireless dedication and selfless service in conducting basic research and moving the results into application are extraordinary. Without question, Dr. Price’s research has resulted in improved communication, situational awareness and hearing loss avoidance both on the battlefield and in civilian settings and will continue to save both lives and hearing in the coming years.

By Nancy L. Vause
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 2007, the NHCA is proud to present this prestigious award to Dr. James Lankford.

“Dedication is not what others expect of you, it is what you can give to others”. unknown

There are times in life when paths cross, new opportunities arise and future directions change because of one individual. For NHCA, the organization’s opportunities and future directions have changed because of James Lankford’s generosity, leadership and optimism. There are many individual members of NHCA who recognize the impact James has had in their professional growth, research, teaching and public outreach. This Michael B. Threadgill award not only recognizes James Lankford’s publicly evident contributions to NHCA, but also the innumerable unseen contributions to individual member’s personal lives.

James Lankford, Ph.D. was first exposed to the topic of hearing loss prevention in 1967 while enrolled in a graduate level “Industrial and Military Audiology” class at Oklahoma University taught by Gerald Studebaker. Subsequently, during his thirty-plus year career as an audiology professor at Northern Illinois University (NIU) in DeKalb, James served as a researcher, teacher, model audiologist, clinical coordinator, thesis supervisor and program coordinator. James ultimately retired as Dean of the College of Health and Human Sciences. His teaching and consulting responsibilities expanded to include hearing conservation in the early 1970’s when several Northern Illinois businesses contacted the university for assistance in setting up hearing testing programs for noise-exposed workers. NIU began offering training courses to occupational nurses who were assuming responsibility for audiometric monitoring programs and to graduate students in audiology with fellow teacher/researcher, John Franks, Ph.D.

It was teaching and research that ultimately led James to join NHCA in 1987. He looked to the organization and its members to keep him apprised of contemporary hearing conservation information and to gain insight into the future of hearing loss prevention efforts. NHCA proved to be a wealth of resources and he drew upon the practical experience and generosity of fellow members while building the NIU mobile van services. His re-acquaintance with former students (Tom Thunder, Sue Zurales, Natalie Stukas, among others) and multiple collaborations led to a 10-year audiometric testing project conducted at the Farm Progress Shows which rotated between Illinois, Iowa and Indiana. James’ personable demeanor and genuine smile established rapport with the attendees whether they were 14 or 95 years old. His research addressing noise-induced hearing loss among agricultural workers contributed significantly to the field of hearing loss prevention. A natural fit for James, agriculture embodied his personal philosophies. NHCA is fortunate to have a member and leader in James Lankford, for he is one who truly knows how to plant, grow, nurture and harvest a crop of hearing conservationists. The following is a liberal adaptation of “How to Farm Hearing Conservationists”;

SOIL PREPARATION: Choose a welcoming organization (NHCA) with a positive climate, sheltered from divisive controversy and receptive to new seedlings.

James’ initial attraction to NHCA emerged from his philosophy that the audiology profession should strike a balance between prevention and rehabilitation. He was particularly attracted to the organization’s preventive focus and cross-disciplinary membership composition. He eagerly joined and became personally involved with NHCA because the organization appeared to have potential, was growing and having an impact. He appreciated the opportunity to interact and learn from those working in the field while providing hearing conservation services directly to the public.

PLANTING: Spread the concepts and enthusiasm for hearing loss prevention in multiple settings and geographical regions. Try new techniques as necessary to maintain hearing conservation program quality and remain adaptive to climate changes. Collaborate and promote research to support new varieties.

Throughout the years James Lankford has spread his enthusiasm for hearing loss prevention in educational, agricultural and medical settings in both the U.S. and South Africa. His professional presentations routinely end with a NHCA slide and distribution of NHCA resources such as our practical guides. The NHCA “Noise and Hearing in the Farming Community” practical guide was originally created as a result of his experience at Farm Progress Shows. Thanks to James, an updated version of the practical guide was recently released. He also is an advocate for professional involvement in government activities. While president of NHCA, he traveled to Washington D.C. on two occasions to facilitate the original NHCA/OSHA alliance that currently exists between the two organizations.
James is exemplary of all good farmers; they seldom fully retire, they love their work and like to stay in the field doing what they enjoy best. They tend to avoid attention and are quick to attribute their success to the doings of others and the grace of God. NHCA is fortunate to continue to harvest from James’ passion, knowledge and dedication. It is with sincere appreciation that NHCA extends the Michael B. Threadgill award to James Lankford, Ph.D. If you listen closely you may hear a “Holy Mackerel!” exclamation from afar.

Submitted by a Seedling….Deanna Meinke
COMMITTEE & ALLIED MEETINGS

WEDNESDAY, FEBRUARY 14

Time:
8:00 a.m. – 11:30 a.m. Executive Council Scarbrough One
6:00 p.m. – 9:00 p.m. Program Committee Sloane

THURSDAY, FEBRUARY 15

4:00 p.m. – 5:00 p.m. Task Force on Children & Noise Sloane
4:00 p.m. – 5:00 p.m. Music-Induced Hearing Loss Percival
4:00 p.m. – 5:30 p.m. Scholarship Foundation Savannah

FRIDAY, FEBRUARY 16

No Committee Meetings Scheduled

SATURDAY, FEBRUARY 17

5:00 p.m. – 6:00 p.m. Program Committee Sloane
6:00 p.m. – 9:00 p.m. Executive Council Scarbrough One

SUNDAY, FEBRUARY 19

8:30 a.m. – Noon ANSI S12/WG11 Hearing Protector Sloane

EXHIBIT SCHEDULE – REGENCY CDEF

THURSDAY, FEBRUARY 15

Exhibit Set-up and Registration
11:00 a.m. – 4:00 p.m.

Exhibits Open
Opening Reception in Exhibit Hall
5:30 p.m. – 8:30 p.m.

FRIDAY, FEBRUARY 16

Continental Breakfast/Exhibits Open
7:30 a.m. – 8:30 a.m.

Break/Exhibits Open
10:00 a.m. – 10:30 a.m.

SATURDAY, FEBRUARY 17

Exhibits Open/Break
10:00 a.m. – 11:00 a.m.

Exhibit Dismantling
12:00 noon – 4:00 p.m.

Luncheon with Exhibitor
Introductions in Harborside Center
12:00 noon – 1:30 p.m.

Break/Exhibits Open
2:25 p.m. – 3:10 p.m.

CHAT SESSIONS BEING HELD DURING SATURDAY MORNING BREAKFAST

Harborside Center – 7:45 a.m. – 8:45 a.m.

Fit Testing HPD Performance in the Field
Elliott Berger

Noise Level Assessment
Lee Hager

Hearing Impaired Worker’s Safety
Sandra Uberuaga

Diagnostic Audiology in HCP’s
Richard Stepkin

Professional Supervision of OHC’s
Gaye Chinn

Marketing HCP Services
Tim Rink

Client Relations
Merlyn Lubiens

Professional Audiogram Review
Amy Stewart

Determining Work Relatedness
George Cook

Best Practices
Mark Stephenson

HCP Assessments
Randy Tubbs

Training Techniques & Tools
Beth Cooper

Students & First Timers

Real World HPD Attenuation

Soldier Acoustic Trauma

Hearing Loss Prevention in the Schools

Non Occupational Noise Exposure

University Coursework on HLPP

Chemicals & Hearing Loss

Hearing Loss in Fire Fighters

OSHA Construction Standard

CAOHC

Musicians & Hearing Loss

GOT CHAT?

Andrea Wagner

Kevin Michael

Nancy Vause

Nancy Gallilugh

Rick Neitzel

Deanna Meinke

Laura Kauth

Iris Langman

Carol Stephenson

Vickie Tuten

Michael Santucci
HT Pro Hearing Conservation Software was designed by professional hearing conservationists who understand your software requirements. HT Pro provides a user-friendly data entry environment as well as an intuitive wizard for generating reports. This software also incorporates the latest computer technology to minimize time required to maintain hearing conservation records and meet demanding government mandated requirements.

HT Pro software interfaces with most current industrial audiometers and includes multi-lingual voice prompts during tests when used with Tremetrics audiometers. Voice instructions guide your employees through the testing process. Additional languages and dialects are easy to add without any software changes.

**HT Pro user support**

While HT Pro can add to the efficiency of your hearing conservation program, one of its most essential resources is user support. Workplace Applications provides a knowledgeable and audiologically trained staff that is available to assist you in testing and reporting. Software support is available by visiting the [www.HTpro.com](http://www.HTpro.com) website.

**Features**

- Extensive use of wizards to guide you in data entry
- Powerful reporting and graphing capabilities with color printouts
- Built-in Help files with detailed instructions for instant answers to software use questions
- OSHA 300, 300A, and 301 logging and reporting
- Separate left and right baseline revisions
- Automatic baseline revision
- PDF and e-mail reports
- Multilingual employee reports
3M Occupational Health and Environmental Safety Division

The 3M approach to hearing protection is simple: maximize the comfort, value, and convenience of 3M™ Hearing Protection products to achieve longer wear time and greater protection. Our product line includes disposable, reusable, and banded ear plugs and ear muffs. Stop by the 3M exhibit to see our comfortable, conformable Soft Foam Ear Plugs 1120 and recently introduced products including the 3M Foam Earplug Dispenser and the Jar of Ear Plugs. Backed by 3M Foam Earplug Dispenser and 3M™ Foam Earplugs, 3M has a history of introducing products including the 3120 and recently introduced products including the 3M Foam Earplug Dispenser and the Jar of Ear Plugs. Backed by 3M Company history, the 3M Occupational Health and Environmental Safety Division is a global leader in personal protection. Our product line includes disposable, reusable, and banded ear plugs and ear muffs. Stop by the 3M exhibit to see our comfortable, conformable Soft Foam Ear Plugs 1120 and recently introduced products including the 3M Foam Earplug Dispenser and the Jar of Ear Plugs. Backed by 3M Company history, the 3M Occupational Health and Environmental Safety Division is a global leader in personal protective equipment. Visit us at www.3M.com/occsafety.

Representatives:
Ted Madison, Yolla Levitt, and Rebecca Slisz
3M Occupational Health and Environmental Safety Division
3M Center, Building 235-02-E-91
Saint Paul, MN 55144-1000
651.755.5575 (phone)
651.736.7344 (fax)
tkmadison@mmm.com
www.3M.com/occsafety

American Industrial Hygiene Association (AIHA)

Founded in 1939, the American Industrial Hygiene Association (AIHA) is the premier association of occupational and environmental health and safety professionals. AIHA’s 12,000 members play a crucial role on the front line of worker health and safety every day. Members represent a cross-section of industry, private business, labor, government and academia.

Representatives:
Mark H. Schiering, CHI and Dennis P. Driscoll, PE
AIHA contact: Aimee O’Grady
2700 Prosperity Avenue, Suite 250
Fairfax, VA 22031-4307
703.846.0795 (phone)
703.207.8558 (fax)
aogrady@aiha.org
www.aiha.org

American Academy of Audiology (AAA)

The American Academy of Audiology represents over 10,000 audiologists and is dedicated to providing quality hearing care services through professional development, education, research, and increased public awareness of hearing and balance disorders. To learn more about the audiology profession and how audiologists are helping the 31 million Americans who experience hearing loss, please visit the Academy’s web site at www.audiology.org

Representatives:
CPT Jiltyn Curry-Mathis, Au.D. and Dick Danielson
AAA contact: Sydney Davis
11730 Plaza America Drive, #300
Reston, VA 20190
703.790.8466 (phone)
703.790.8631 (fax)
sdavis@audiology.org
www.audiology.org

American Speech-Language-Hearing Association (ASHA)

ASHA is the professional, scientific, and credentialing organization representing over 115,000 audiologists, speech-language pathologists, and hearing and speech scientists who provide hearing conservation, diagnostic, rehabilitative, and consultative services and conduct research for children and adults who are at risk for or have hearing, balance, speech, language, and/or swallowing disorders. Approximately 45 percent of ASHA’s audiologists provide hearing conservation services for industry. For more than a decade, ASHA coordinated the efforts of the Coalition to Protect Workers’ Hearing, which addresses federal regulatory initiatives from OSHA, NIOSH, MSHA, and agency reform efforts by Congress. ASHA has a Special Interest Division on Hearing Conservation.

Representatives:
Sharon Beamer, AuD, CCC-A and Mona Thomas
ASHA contact: Pam Mason
10801 Rockville Pike
Rockville, MD 20852
301.897.0135 (phone)
301.897.7354 (fax)
pmason@asha.org
www.asha.org

Benson Medical Instruments Co.

Benson Medical Instruments manufactures a full line of industrial audiometers, hearing conservation software, and accessories with advantages in testing speed, quality, ease of use, and data handling. We offer solutions for both a single clinic and for multi-station mobile testing.

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Council for Accreditation in Occupational Hearing Conservation (CAOHC)

CAOHC is dedicated to the establishment and maintenance of training standards for those who safeguard hearing in the workplace. CAOHC has been a...
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 defense against hearing loss in workers. More information is available about CAOHC on the worldwide web at: www.caohc.org

Representatives:
Vickie Tuten, AuD and Thomas Hutchison, MA, MHA, FAAA
CAOHC Contact:  Barbara Lechner
525 E. Wells Street, Suite 1100
Milwaukee, WI  53202-3823
414.276.2146 (phone)
414.276.6974 (fax)
info@caohc.org
www.caohc.org

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Aearo Technologies
(E-A-R & Peltor)
5457 W. 79th Street
Indianapolis, IN  46268
317.692.6974 (phone)
317.692.6604 (fax)
marc_santoro@aearo.com

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Representatives:
Bruce Allan and Glenn Folsom
15 Allison Avenue
Morrisburg, Ontario, K0C 1X0
 CANADA
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Etymotic Research designs and manufacturers products that measure, improve and protect hearing. With over 100 patents issued and pending, Etymotic Research has received widespread recognition for its design in high fidelity sound reproduction, hearing preservation, hearing aid design, directional and array microphones and consumer products that enhance listening to music.

Representative:
Patty Niquette
61 Martin Lane
Elk Grove Village, IL  60007
847.228.0006 (phone)
847.228.6836 (fax)
etymotic.com

G.R.A.S. Sound & Vibration
G.R.A.S. has concentrated its efforts and expertise on the development and, etproduction of front-end acoustic products. This includes in principle all products necessary for the precise and reliable measurement, and recording of acoustic signals, from the transducer to the input of the A/D converter. The main line of instrumentation includes a broad range of standard measurement microphones and preamplifiers, all designed and manufactured in accordance with international standards. These are complemented by a wide range of more specialized transducers and accessories for more specific applications such as sound intensity microphones, artificial ears, ear and mouth simulators, telephone-testing equipment, HATS, pistonphones and calibrators.

Representative:
Patty Niquette
61 Martin Lane
Elk Grove Village, IL  60007
847.228.0006 (phone)
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Howard Leight
From our beginnings as a one-man operation more than 30 years ago, Howard Leight has grown into one of the largest manufacturers of in-ear hearing protection in the industrial market and the recognized innovator in protection and fit. Our complete line of Single-Use, Multiple-Use, Detectable and Banded earplugs includes options that provide a unique Comfort Profile for every user, every environment. Since 2001 we’ve been part of the Bacou-Dalloz™ Hearing Safety Group. Combining the innovation and expertise of Howard Leight earplugs and Bilsom Earmuffs, the Bacou-Dalloz Hearing Safety Group is a world leader in hearing safety.

Representatives:
Renee Bessette, Brad Witt, Steve Gilder, John Jenkins and Peter Franzen
Howard Leight / Bilsom
10 Thurber Blvd.
Smithfield, RI  02917
401.757.2265 (phone)
401.757.2912 (fax)
rbessette@bacou-dalloz.com
www.hearingportal.com

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Representative:
Tim Hedlund
420 Hayward Avenue. N.
Oakdale, MN  55128
800.872.8986 (phone)
651.735.2790 (fax)
info@hearingcomponents.com
www.hearingcomponents.com

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Representatives:
Rob Brauch
3425 Walden Avenue
Depew, NY 14043
888.258.3222 (phone)
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Moldex-Metric, Inc.
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Representatives:
James Gallegos, Jeff Birkner and Mark McLain
10111 W. Jefferson Blvd.
Calvera, CA 90232
800.421.0668 (phone)
310.842.8671 (fax)
www.moldex.com

* National Institute for Occupational Safety and Health; Centers for Disease Control and Prevention (NIOH/CDC)
The National Institute for Occupational Safety and Health (NIOH) is the federal agency responsible for conducting research, disseminating information, and issuing recommendations regarding prevention of work-related disease injury. NIOH is part of the Centers for Disease Control and Prevention (CDC) and also investigates potentially hazardous working conditions when requested by employers or employees. Headquartered in Washington, D.C., NIOH has offices in Atlanta, Georgia, and research divisions in Cincinnati, Ohio; Morgantown, West Virginia; Bruceton, Pennsylvania, and Spokane, Washington.

Representatives:
Carol Stephenson and Theresa Schulz
4676 Columbia Pkwy., C-10
Cincinnati, OH 45226
513.533.8581 (phone)
513.533.8560 (fax)
cstephenson@cdc.gov
www.cdc.gov/niosh

❖ National Institute on Deafness and Other Communication Disorders (NIDCD)
The National Institute on Deafness and Other Communication Disorders (NIDCD) conducts and supports biomedical and behavioral research training in the normal and disordered processes of hearing, balance, smell, taste, voice, speech, and language. For more information on NIDCD programs visit our website at www.nidcd.nih.gov

Representative:
Charlotte Ball
31 Center Drive, MSC 2320
Bethesda, MD 20892-2320
301.496.7243 (phone)
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Representatives:
Elliott Berger, Allan Gross, Lee Hager, Brian Myers and, Marc Santoro
Aearo Technologies
(E-A-R & Peltor)
5457 W. 79th Street
Indianapolis, IN 46268
317.692.6974 (phone)
317.692.6974 (fax)
marc_santoro@aearo.com
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Quest Technologies is a design, manufacturing and marketing company with distribution in over 50 countries worldwide. Quest has built a strong reputation for rugged and reliable instrumentation and software systems that monitor and evaluate occupational and environmental health & 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.

Representatives:
Jim Banach and Paul James
1060 Corporate Center Drive
Oconomowoc, WI 53066
262.567.9157 (phone)
262.567.4047 (fax)
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Representative:
Jack Foreman
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PROGRAM

Thursday, February 15

7:30 a.m. – 5:30 p.m.  Registration and Information Desk Open  Regency Ballroom Foyer

7:30 a.m. – 8:30 a.m.  Continental Breakfast  Mezzanine West

8:30 a.m. – 11:30 a.m.  Morning Workshops

A.M. or P.M.  1.  Build Your Own Multi-Media Resources for Effective Hearing Conservation Training
Beth A. Cooper, PE, INCE. Bd. Cert., NASA John H. Glenn Research Center at Lewis Field, Cleveland, OH

A.M. only  2.  Bettering Your Business
Jeffrey Goldberg, Custom Protect Ear, Inc., Surrey, BC, Canada
Howard Raphael, Custom Protect Ear, Inc., Surrey, BC, Canada

A.M. only  3.  Hearing Loss Prevention - Beyond the Basics
Session 1 - Noise Exposure Assessment for Extended Work Shifts
Dennis P. Driscoll, PE, Associates in Acoustics, Inc., Evergreen, CO
Session 2 - Hearing Conservation Software
James J. Jerome, MA, CCC-A, Hearing Safety- Midwest, Inc., Fishers, IN

P.M. only  4.  Work-Relatedness in Reference to the OSHA 300 Log
George R. Cook, AuD, CCC-A, Workplace Group, Greensboro, NC

P.M. only  5.  Bone Conduction Mechanisms and Applications
Stefan Stenfelt, Ph.D., Linköping University, Linköping, Sweden

8:30 a.m. – 4:00 p.m.  6.  All Day Seminar – Hearing Loss Prevention: The Basics  Verelst/Vernon/Sloane Room
Effective Hearing Protection - Elliott H. Berger, MS, E-A-R/Aearo Technologies, Indianapolis, IN
Noise Measurement - Rick Neitzel, MS, CIH, University of Washington, Seattle, WA
The Audiogram – How to Use It – Timothy A. Swisher, Hearing Safety, Pittsburgh, PA
Education & Motivation - Laurie Wells, MS, FAAA, Associates in Acoustics, Inc., Loveland, CO
Hot Topics Q&A - COL Nancy L. Vause, Ph.D., USA Medical Research & Material Command, Frederick, MD and LTC Lynnette B. Bardolf, Ph.D., CCC-A, USA Aeromedical Research Lab, Ft. Rucker, AL

9:45 a.m. – 10:15 a.m.  Workshop & Seminar Break with Refreshments  Mezzanine West

11:30 a.m. – 1:00 p.m.  Lunch (on your own)

1:00 p.m. – 4:00 p.m.  Afternoon workshops – see workshops listed above

2:15 p.m. – 2:45 p.m.  Workshop & Seminar Break with Refreshments

4:00 p.m. – 5:30 p.m.  Committee Meetings and Networking Time

5:30 p.m. – 8:30 p.m.  Opening Reception in the Exhibit Hall  Regency Ballroom CDEF
Friday, February 16

7:30 a.m. – 5:30 p.m.  Registration and Information Desk Open  Regency Ballroom Foyer

7:30 a.m. – 8:30 a.m.  Continental Breakfast in the Exhibit Hall  Regency Ballroom CDEF

8:30 a.m. – 8:40 a.m.  Welcome and Opening Remarks  Regency Ballroom AB
John G. Casali, Ph.D., Virginia Tech, Blacksburg, VA
NHCA President
Gregory A. Flamme, Ph.D., Western Michigan University, Kalamazoo, MI
Program Chair

8:40 a.m. – 8:50 a.m.  Poster Introductions  Regency Ballroom AB
Nancy Gallihugh, MS, Constance Brown Hearing Centers, Kalamazoo, MI

8:50 a.m. – 9:40 a.m.  Disability Workplace Preparedness: Emergency Response Preparedness and Other Hearing Conservation Issues for the Hearing-Impaired Worker  Regency Ballroom AB
Deborah Gabry, OSHA Dept. of Labor, Washington, DC

9:40 a.m. – 10:00 a.m.  No Ear Left Behind  Regency Ballroom AB
Dan Gauger, Bose Corporation, Framingham, MA

10:00 a.m. – 10:30 a.m.  Break – Exhibits, Silent Auction, Posters  Regency Ballroom CDEF

10:30 a.m. – 11:25 a.m.  Intense Impulse Noise: Hearing Conservation’s Poison Gas  Regency Ballroom AB
G. Richard Price, Ph.D., Auditory Hazard Analysis, Charlestown, MD

11:25 a.m. – 11:55 a.m.  NHCA Business Meeting  Regency Ballroom AB
John G. Casali, Ph.D., Virginia Tech, Blacksburg, VA

12:00 Noon – 1:30 p.m.  Luncheon – The Use of Acoustical Phenomena to Make Strategic and Tactical Decisions During the Civil War  Harborside Center
Dr. Charles D. Ross, Dean, College of Arts & Sciences, Longwood University, Farmville, VA

CONCURRENT SESSIONS

1:40 p.m. – 2:25 p.m.  Criteria for Individual Hearing Protector Fit Testing Protocol  Vernon Room
Lee Hager, Sonomax Hearing Healthcare, Inc., Portland, MI
Jeremie Voix, Ph.D., Sonomax Hearing Healthcare, Inc., Montreal, Quebec, Canada

1:40 p.m. – 2:25 p.m.  Do Active Noise Reduction Headsets Really Make a Difference in Speech Intelligibility, Protected Exposure Levels, and the Workload for Pilots in Low-Frequency Cockpit Noise?  Verelst Room
Jeff A. Lancaster, Ph.D., Virginia Tech, Blacksburg, VA
John G. Casali, Ph.D., Virginia Tech, Blacksburg, VA
R. Brian Valimont, Ph.D., Virginia Tech, Blacksburg, VA
Dan Gauger, Bose Corporation, Framingham, MA
1:40 p.m. – 2:25 p.m. The Debate: Should Flat Frequency Attenuating Earplugs Always be Recommended for Musicians?
Michael Santucci, MS, Sensaphonics Hearing Conservation, Inc., Chicago, IL
Patricia Niquette, MA, Etymotic Research, Inc., Elk Grove Village, IL
Kris Chesky, Ph.D., University of North Texas, Denton, TX
Brian J. Fligor, ScD, Children’s Hospital Boston, Boston, MA

1:40 p.m. – 2:25 p.m. NIOSH Hearing Loss Prevention Research: Findings from the National Academy Review
Mark Stephenson, Ph.D., NIOSH/CDC, Cincinnati, OH

2:25 p.m. – 3:10 p.m. Break – Exhibits, Silent Auction, Posters

3:10 p.m. – 3:55 p.m. Methods of Developing and Validating a Field-MIRE Approach for Measuring Hearing Protector Attenuation
Elliott H. Berger, MS, E-A-R/Aearo Technologies, Indianapolis, IN
Jeremie Voix, Ph.D., Sonomax Hearing Healthcare, Inc., Montreal, Quebec, Canada

3:55 p.m. – 4:40 p.m. Hearing Loss: A Risk Factor for Farm Work-Related Traumatic Injury
Nancy L. Sprince, MD, MPH, University of Iowa College of Public Health, Iowa City, IA

4:40 p.m. – 5:30 p.m. Committee Meetings and Networking Time

6:00 p.m. – 10:00 p.m. Special Event: Old Fort Jackson
Enjoy an evening of food, fun and entertainment at the historic Old Fort Jackson on the Savannah River. The trolley will depart the hotel beginning around 5:45 p.m. Return to the hotel is scheduled for 10:00 p.m.

Saturday, February 17

7:30 a.m. – 5:30 p.m. Registration and Information Desk Open

7:45 a.m. – 8:45 a.m. Chat Sessions during Buffet Breakfast
Coordinated by Sandra C. MacLean Uberuaga, MA, CCC-A, Washington Audiology Services, Seattle, WA and Alaska Occupational Audiology & Health Services, Inc., Anchorage, AK

9:00 a.m. – 9:20 a.m. Why Are Joe’s Earplugs Working?
Brad Witt, MA, Howard Leight Industries, San Diego, CA

9:20 a.m. – 9:40 a.m. Ecological Validation of the Use of Screening Distortion Product Otoacoustic Emissions as a Measurement of Cochlear Function Changes in a Group of Noise Exposed Mine Workers
Anita Edwards, Council for Scientific and Industrial Research, Natural Resources and the Environment Department, Johannesburg, South Africa

9:40 a.m. – 10:00 a.m. Do Young People have Worse Hearing Today?
Christine Harrison, B.A., M.Sc., Aud(C), R.A., WorkSafe BC, Vancouver, BC, Canada

10:00 a.m. – 11:00 a.m. Break – Last Chance for Exhibits, Silent Auction, Attended Posters

11:00 a.m. – 11:20 a.m. Combat Hearing Loss Mitigation

11:20 a.m. – 11:40 a.m. Kids & Noise: Past Perspectives and Future Directions
Deanna K. Meinke, Ph.D., University of Northern Colorado, Audiology & Speech-Language Sciences, Greeley, CO
William Hal Martin, Ph.D., Oregon Health & Science University, Portland, OR
11:40 a.m. – 12:10 p.m.  
**Noise Levels and Hearing Protection Use aboard Two Large Commercial Fishing Vessels**  
Rick Neitzel, MS, CIH, University of Washington, Seattle, WA

12:10 p.m. – 1:30 p.m.  
**Awards Luncheon**  
*Michael Beall Threadgill Award*  
*2006 Media Award*  
*2006 Outstanding Poster Award*  
*Outstanding Hearing Conservationist Award*  
*2006 Outstanding Lecture Award*  
*2006 Golden Lobe Awards*

John G. Casali, Ph.D., Virginia Tech, Blacksburg, VA  
NHCA President

Theresa Y. Schulz, Ph.D., NIOSH, Pittsburgh Research Laboratory, Pittsburgh, PA  
NHCA President-Elect

1:40 p.m. – 2:00 p.m.  
**Gasaway Lecture**  
James E. Lankford, Ph.D., DeKalb, IL

2:00 p.m. – 2:20 p.m.  
**Safe Hearing in Noise with i-Pods**  
Bob Oliveira, Ph.D., Hearing Components, Oakdale, MN  

2:20 p.m. – 2:40 p.m.  
**Break**

2:40 p.m. – 3:20 p.m.  
**Results from the NIOSH/EPA Interlaboratory comparison of ANSI S12.6-1997 Methods A and B**  
Dan Gauger, Research Manager, Reduction, Bose Corporation, Framingham, MA  
Co-authors: William J. Murphy (NIOSH), Elliott Berger (Aearo/E-A-R)  
Brad Witt (Howard Leight Industries), Rich McKinley (US Air Force Research Laboratory)  
Samir Gerges (Federal University of Santa Catarina, Brazil)  
William Ahroon (US Army Aeromedical Research Laboratory)

3:20 p.m. – 3:40 p.m.  
**Recordable Hearing Loss in the US: Update 2005**  
Lee Hager, Sonomax Hearing Healthcare, Inc., Portland, MI

3:40 p.m. – 4:00 p.m.  
**Federal Railroad Administration Occupational Noise Exposure Regulation, 2007**  
Theresa Y. Schulz, Ph.D., CPS/A, NHCA President-Elect

4:00 p.m. – 4:20 p.m.  
**Modeling the Noise-Induced Hearing Loss of a U.S. Navy Population**  
Jennifer Tufts, Ph.D., CCC-A, University of Connecticut, Storrs, CT  
Lynne Marshall, Ph.D., Naval Submarine Medical Research Laboratory, Groton, CT  
Paul Weathersby, Ph.D., Naval Submarine Medical Research Laboratory, Groton, CT

4:20 p.m. – 4:40 p.m.  
**Effectiveness of an Improved Combat Arms Earplug**  
Mary S. Binseel, U.S. Army Research Laboratory, MD  
CPT Kara M. Cave, U.S. Army Research Laboratory, MD  
Dr. Tomasz R. Letowski, U.S. Army Research Laboratory, MD

4:40 p.m. – 4:50 p.m.  
**Pop Up**

4:50 p.m. – 5:00 p.m.  
**Closing Remarks**  
John G. Casali, Ph.D., Virginia Tech, Blacksburg, VA  
NHCA President

Brian Fligor, ScD, CCC-A, Children’s Hospital Boston, Boston, MA  
Director of Education
Build Your Own Multi-Media Resources for Effective Hearing Conservation Training
Beth A. Cooper, PE, INCE Bd. Cert., NASA John H. Glenn Research Center at Lewis Field, Cleveland, OH

Hearing conservationists who provide annual training for employees year after year often find it challenging and time-consuming to continually update and enliven training materials. Relying on ready-made training products may be easy, but it won’t help convey a message that is tailored to the concerns and personalities of each target audience. Being able to easily produce new customized training resources that inform and motivate a broad spectrum of employees is an essential capability for hearing conservation educators.

In this workshop, hearing conservationists will learn to build customized training resources for use in a classroom or individual training environment, employing common PC software applications, particularly Microsoft PowerPoint®. The workshop will focus on building linked modules that incorporate original and entertaining multimedia content.

This workshop will help anyone, including CAOHC-certified Course Directors, prepare and package current and relevant hearing conservation information for an entertaining and effective delivery.

Bettering Your Business
Jeffrey M. Goldberg, President, Custom Protect Ear, Inc., Surrey, BC, Canada
Howard Raphael, General Manager, Custom Protect Ear, Surrey, BC, Canada

A short course in analyzing your business and developing a business growth and develop plan for PSOs and Consultants.

If you have taken a personal development course (or wanted to), if you find you enjoy your work and your life better when you do it well, if you think you could be happier, make more money, and be less frustrated by running your business and your life with a plan, then perhaps this course is for you. This session will deal with how to analyze your current situation and make plans for growth and change that can succeed. It will provide you with the what to, who to, and how to plan for change and growth in your business whether you are a consultant or company. No previous business planning experience is necessary.

Hearing Loss Prevention - Beyond the Basics
Session 1 - Noise Exposure Assessment for Extended Work Shifts
Dennis P. Driscoll, PE, Associates in Acoustics, Inc., Evergreen, CO

Determining employee time-weighted average (TWA) noise exposures for facilities with 8-hour work shifts can be a fairly straightforward procedure. However, confusion often reigns when extended work shifts (i.e., 10-hour, 12-hour days) exist. To handle exposure data for workdays greater than 8 hours there are several available options. This section will present the three most common procedures for managing exposure data for extended work shifts. Several spreadsheet routines will be provided to students and demonstrated during the presentation.

It has long been recognized that, especially with large employee populations, no hearing conservation program can run efficiently without the use of a hearing conservation data management application. These applications can be dedicated, stand-alone products, a module in a multi-functional product, or a web based product. Many are sold with the understanding that the distributor’s audimetric review services must be used. Scenarios will be presented on how each type of application is used. Because these applications are databases, employee and statistical reports can be easily compiled and printed. Report features and tips on how to shop for the right application will be presented. The intent of this topic is to educate the prospective consumer to be a better shopper and not to promote any brand name application.

Work-Relatedness in Reference to the OSHA 300 Log
George R. Cook, AuD, CCC-A, Workplace Group, Greensboro, NC

This workshop will better equip the Occupational Audiologist or Physician to determine hearing loss work-relatedness for OSHA 300 Log recording purposes. In-depth review of relevant sections of the 1910.95 OSHA Noise Standard and 1904.10 Recording Criteria for Cases involving Occupational Hearing Loss is provided. The workshop will focus on: Defining work-relatedness; Guidelines for recording; Configurations of noise-induced hearing loss and other pathologies which can result in a noise-induced configuration; TWA defined and issues with TWAs; Role of historical hearing tests; Case-by-case questionnaire; and the Importance of the interview. Actual cases will be reviewed by workshop participants to provide experience with real-world work-relatedness issues.

Bone Conduction Mechanisms and Applications
Stefan Stenberg, Ph.D., Dept. of Neuroscience and Locomotion, Div. of Technical Audiology, Linköping University, Linköping, Sweden

Hearing by bone conduction influences several aspects of our hearing - from diagnosis of hearing impairment to the perception of our own voice, limitations of hearing protection devices, communication systems, and hearing aids. The workshop will provide current knowledge about the physiology for bone conduction perception, ways to stimulate and bone conduction transducer design. Moreover, applications for bone conduction stimulation will be discussed with examples as hearing aids and bone conduction microphones. Also, the impact of bone conduction transmission with the usage of hearing protection devices is investigated in detail.

All Day Seminar - Hearing Loss Prevention - The Basics
This workshop will feature experts in the field of hearing loss prevention discussing the essential elements of an effective hearing loss prevention program. The seminar is designed to provide information that is useful to the audiometric technician as well as the professional supervisor. Whether you’re new to the field or have been practicing hearing conservation for years, this workshop is guaranteed to offer something of interest. The interaction that is encouraged with audience participation, between rookies and veterans, makes this exchange all the more valuable.
Effective Hearing Protection

Elliott H. Berger, M.S., E-A/R/Aearo Technologies, Indianapolis, IN

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 protectors, the effects of hearing protectors on speech communications, and useful tips on fitting today’s popular products. The attendee will also learn about current developments such as flat and moderate attenuation hearing protectors, and earmuffs with active noise reduction (ANR) circuity.

Noise Measurement

Rick Neitzel, MS, CHI, University of Washington, Dept. of Environmental and Occupational Health Sciences, Seattle, WA

In this segment, Rick will provide an overview of the measurement 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!), and how all this relates to protecting people’s hearing.

The Audiogram - How to Use It

Timothy A. Swisher, Hearing Safety, Pittsburgh, PA

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 professional supervisor insight into follow-up strategies.

Hearing Loss Recordability Issues

Cindy Bloyer, CCC-A, Examinetics, Inc., Overland Park, KS

Identification of work-related hearing loss has long been one of the most complicated and controversial areas of government-mandated injury/illness recordkeeping. 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 recordkeeping regulations, as well as implications for professional review of audiograms and determination of work-relatedness. Although compliance with recordkeeping 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.

FRIDAY, FEBRUARY 16

Disability Workplace Preparedness: Emergency Response Preparedness and Other Hearing Conservation Issues for the Hearing-Impaired Worker

Deborah Gabry, OSHA, Dept. of Labor, Washington, DC

Employees with disabilities face unique workplace challenges, especially during and in the aftermath of an emergency. The needs of employees with disabilities are often overlooked in emergency preparedness planning, response and recovery phases. Each person’s disability is unique and, therefore, a generic safety solution does not work. Planning teams must account for all types of disabilities. Accommodations should be specific to each type of disability and different accommodation strategies may be called for at different phases of a response. Special assistance may be needed for mobility, accessing emergency information, notification, communication, evacuation and for reuniting with their service animals. Ensuring that people with disabilities are represented in the employer’s emergency preparedness planning committee and that they have an integral part in developing a workplace plan is critical for safe evacuation. They are the best resource for what accommodations and devices work best for them.

The workplace has changed since OSHA’s Hearing Conservation standard was issued; the workforce is aging, hearing loss is increasing, and many employees—especially hearing-impaired employees are concerned about their readiness to evacuate safely in an emergency. Accommodations and communication devices are available but may not be part of an employer’s industrial hearing conservation program or emergency response plan. Decisions on accommodation options for alerting devices, training and communication aids, as well as the use of specialized hearing protectors and the use of hearing aids in the workplace requires a team approach among management, employees, and the professional in charge of the hearing conservation program on a case by case basis. This presentation highlights workplace safety considerations for emergency response evacuation, accommodations available, OSHA’s role, and the creation of the Interagency Coordinating Council (ICC) on Emergency Preparedness and Individuals with Disabilities, established under Presidential Executive Order 13347 in the Department of Homeland Security. It will also highlight technical assistance resources.

No Ear Left Behind

Dan Gauger, Research Manager, Noise Reduction, Bose Corporation, Framingham, MA

Many publications have shown large differences between the rated performance of hearing protectors and the performance determined in real-world studies. This may be a consequence of the present NRR definition that specifies experimenter-fit attenuation testing. Anecdotes from business and technology will illustrate that selection of metrics can drive change in undesirable or desirable directions. A case will be made that the hearing protection needs of noise-exposed workers will be best addressed by adopting a two-number rating system, as recommended to the EPA by ANSI S12/WG11, if and only if this new rating is based on S12.6-1997 Method B (naive-subject fit); that a Method A (experimenter-supervised fit) based rating will not accomplish this goal. If adopted, a Method B / two-number rating paradigm should drive innovation, leading over time to better hearing protectors that are easy to use and deliver field performance that is more consistent with the rated value.
Intense Impulse Noise: Hearing Conservation's Poison Gas
G. Richard Price, Ph.D., Auditory Hazard Analysis, Charlestown, MD

The impulse noise analogy to “poison gas” fits because permanent hearing loss can develop in only milliseconds of really intense exposure. Adequate evaluation of intense exposures, though critical, remains somewhat problematic; however, prophylactic measures are increasingly available and can be surprisingly effective. Hearing conservation can make a real difference!

Luncheon Speaker
The Use of Acoustical Phenomena to Make Strategic and Tactical Decisions during the Civil War
Dr. Charles Ross, Dean, College of Arts and Sciences, Longwood University, Farmville, VA

“Acoustic Shadow” is a broad term describing situations in which a potential listener does not hear a nearby sound. This phenomenon can be caused by a variety of factors such as temperature and wind gradients and variations in terrain and foliage. In the U.S. Civil War, acoustic shadows affected command decisions and the outcome of a number of major battles. The presentation examines the specific causes and ramifications of the battleground acoustic anomalies.

Do Active Noise Reduction Headsets Really Make a Difference in Speech Intelligibility, Protected Exposure Levels, and Workload for Pilots in Low-Frequency Cockpit Noise?
Jeff A. Lancaster, Ph.D., Auditory Systems Laboratory, Virginia Tech, Blacksburg, VA
John G. Casali, Ph.D., CPE, Auditory Systems Laboratory, Virginia Tech, Blacksburg, VA
R. Brian Valimont, Ph.D., Dorris & Associates, Atlanta, GA
Dan Gauger, Bose Corporation, Framingham, MA

Active Noise Reduction (ANR) is no longer an emerging technology, and it is now incorporated into many headsets for application to severe noise environments. But experimental research is lacking as to the comparison of ANR-based headsets to ‘traditional’ passive communications headsets within actual dynamic environments, especially those of operational flight wherein pilots depend on the products. Measures of speech intelligibility, protected exposure level (PEL), and pilots’ perceived workload were collected for three ANR headsets (Bose Aviation X, Sennheiser HMEC 300, LightSPEED Thirty 3G) and one passive headset (David Clark H10-135) in a long-duration (3.5-hour) instrument flight simulation (along with 6 flight performance measures which are reported elsewhere). One headset was used per each of 4 flights, instrument-rated pilots served as subjects, and the FAA-certified iGATE™ flight simulator environment imposed 95 dBA Cessna 172 cockpit noise. Speech intelligibility was measured by the number of times air traffic control (ATC) commands were transmitted for 100% accurate pilot readback. PEL measures were obtained on an acoustical test fixture both with and without ATC communications input to the headset; such PEL measures have utility for relative comparisons between headsets, but of course are not readily generalizable to exposures actually experienced by the human ear. Speech intelligibility results showed that at a Speech Transmission Index (STI) value of 0.30, pilots required greater numbers of ATC command transmissions to respond accurately when wearing the passive headset than when wearing any of the 3 ANR headsets, while at STI values of 0.50 and 0.70 there were no headset differences. The PEL measures with communications input indicated that the exposure level needed to attain 80% speech intelligibility for the passive David Clark headset was 93.1 dB—a value approximately 10 dB greater than the PEL for any of the 3 ANR headsets. PEL measures without communications input showed minimal differences among headsets, ranging from 76.3 dBA (Sennheiser) to 80.1 dBA (David Clark). Pilots’ ratings of workload under the 3 ANR headsets were at least one point lower (i.e., lower workload) than for the passive headset, on a 9-point Modified Cooper-Harper rating scale. The results not only revealed that there are substantial differences between ANR and passive headsets as to in-cockpit speech intelligibility and PEL, but also revealed that different ANR designs can result in significant differences in user preferences and task-related performance.


The Debate: Should Flat Frequency Attenuating Earplugs Always be Recommended for Musicians?
Pro:
Michael Santucci, MS, Sensaphonics Hearing Conservation, Inc., Chicago, IL
Patricia Niquette, MA, Etymotic Research, Inc., Elk Grove Village, IL

Noise-induced hearing loss (NIHL) from exposure to high levels of music is an acknowledged occupational hazard for musicians. Levels from both amplified and non-amplified instruments can result in a noise over-exposure (by standard damage-risk criteria); hearing loss as a function of time and level has been documented in musician cohorts. The ubiquitous NIHL prevention strategy of using hearing protection devices is complicated in musicians by their need for accurate auditory monitoring. Flat-frequency attenuating earplugs (Musicians Earplugs) can overcome this complication by providing musicians with decreased exposure levels that are essentially uniform across the frequency spectrum. The argument for always recommending Musicians Earplugs for musicians is numerous and include “they’re going to play loud anyway,” and “use of hearing protector raises awareness of risk.” However, arguments against a blanket recommendation include lack of consistent verification of flat attenuation and lack of evidence that the earplugs protect hearing without negatively impacting performance.

Con:
Michael Santucci, MS, Sensaphonics Hearing Conservation, Inc., Chicago, IL

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Methods of Developing and Validating a Field-MIRE Approach for Measuring Hearing Protector Attenuation
Elliott H. Berger, M.S., E-A-R/Aearo Technologies, Indianapolis, IN
Jérémie Voix, P.Eng., Ph.D., Sonomax Hearing Healthcare, Inc., Montreal, Quebec, Canada

Numerous studies have shown that the reliability of using laboratory measurements to predict individual, or even group hearing protector attenuation, for occupationally exposed workers, is quite poor. This makes it difficult to properly assign hearing protectors for critical high-noise environments, as well as for lower noise levels when one wishes to closely match attenuation to actual exposure. An alternative is the use of field measurement methods, a number of which have been proposed and are beginning to be implemented. We examine the pros and cons of the various techniques, review existing measurement devices and focus on the development and testing of a field microphone-in-real-ear (F-MIRE) approach in which a dual-element microphone probe is used to measure noise reduction by quickly sampling the levels outside an earplug minus the levels inside, with appropriate adjustments to predict real-ear attenuation at
Hearing Loss: A Risk Factor for Farm Work-Related Traumatic Injury
Nancy L. Sprince, MD, MPH, University of Iowa College of Public Health, Dept. of Occupational and Environmental Health, Iowa City, IA

Compared with other workers, farmers are at increased risk for hearing loss. To assess whether hearing difficulties increase farmers’ risk for work-related traumatic injuries, we first completed a case-control study, nested in the Agricultural Health Study, and then analyzed data from the prospective Certified Safe Farm study. Results of the case-control study (431 cases; 473 controls) showed that hearing difficulties or wearing a hearing aid were risk factors for all three major injury subgroups (machinery-related, livestock-related, and falls). The prospective study (n=150) assessed hearing through audiometry and self-report. Three years of follow-up confirmed the cross-sectional association between hearing difficulty and agricultural injury and found that several components including hearing loss in the better ear, hearing symmetry, and fair/poor self-reported hearing were related to agricultural injury. Control of noise exposure to prevent hearing loss may also help prevent work-related agricultural injuries.

Why Are Joe’s Earplugs Working?
Brad Witt, MA, Howard Leight Industries, San Diego, CA

A plethora of studies show the disparity between rating numbers and real-world performance of hearing protectors. But a significant core of workers demonstrates the anomaly: field attenuations that equal or exceed the NRR. Using field attenuation measures from several facilities, we looked for common denominators influencing whether earplug-wearers in the field achieve rated attenuation. Individual factors (type of earplug, experience and age of user, exposure level) as well as program factors (training methods, compliance procedures) are examined to determine what the safety manager can do to give workers the best possible chances of attaining the rated protection value.

Ecological Validation of the Measurement of Cochlear Susceptibility in a Group of Noise Exposed Mineworkers using Screening Distortion Product Otoacoustic Emissions
Anita Edwards, Researcher, Council for Scientific and Industrial Research, Johannesburg, South Africa

Participants with varying degrees of pre-existing NIHL, who work in a blacksmith workshop on a gold mine in South Africa, were tested pre- and post shift, to ecologically validate the use of Distortion Product Otoacoustic Emissions as a measure of changes in cochlear functioning in an industrial, non-clinical environment. The research
found that in normal hearing and early NIHL participants, an average of 60% of the measures obtained were useful measures of cochlear function change. In employees with mild to severe hearing losses DPOAEs were shown to not be a useful measure of cochlear function changes. 30% of the employees showed deterioration in DPOAEs despite wearing Hearing Protection Devices (HPD). 2000Hz and 3000Hz were found to be the most useful frequencies in this non-clinical environment and for this population. The results of this preliminary research indicate that DPOAE screening measures may be useful for measuring temporary cochlear change after noise exposure, which may be useful in assessing HPD effectively.

Do Young People Have Worse Hearing Today
Christine Harrison, B.A., M.Sc., Aud(C), R.A., Occupational Audiologist, Hearing Loss Prevention Section, Provincial Programs and Technical Services, Industry & Labour Services, WorkSafeBC

The popular press has inundated the public with cautionary tales of declining hearing abilities in the youth, with various sources of blame postulated: concerts, nightclubs, and the use of MP3 music devices. However, the perceived threat of personal music devices is not new; for the past 25 years, employers in British Columbia have complained that their young workers are “blasting” their ears off the job. Little research documenting hearing threshold results for young workers exists, and the question remains: do young people of today have worse hearing than before? WorkSafeBC collects, and stores in a mainframe database, the hearing tests for noise exposed workers in the province of British Columbia, and over 2 million audiograms are in the database from 1978 to present. This paper reports on 2 cohorts of young workers, aged 15-24 years, from1985 and 2005. Two cohorts of aged 44-49, have also been chosen. The extent of the existence of high frequency, ‘notched’ hearing loss, as well as the hearing protection use by these 4 groups of workers is presented here. The effect on the odds ration of several off the job noise exposure factors is also reported.

Combat Hearing Loss Mitigation

The US armed forces need versatile devices to protect service members from hearing loss caused by occupational noise exposure. While the cost to the Nation is soaring, the cost to Soldiers’ wellbeing is incalculable. Hearing loss prevention on the battlefields of Iraq and Afghanistan requires ingenuity to ensure mission performance is uncompromised while protecting service members’ hearing. The Army’s Rapid Equipping Force (REF) recently partnered with the US Army Medical Command to provide new hearing protection devices to Soldiers in combat. Advanced hearing devices simultaneously protect Soldier’s hearing from loud acoustic events while allowing them to communicate on radios and sense ambient sounds to maintain situational awareness. Without such devices presents an insidious Catch-22: Soldiers sacrifice hearing protection if it hampers their situational awareness. Without hearing protection, hearing suffers, which permanently precludes situational awareness.

Kids & Noise: Past Perspectives and Future Directions
Deanna K. Meinke, Ph.D., University of Northern Colorado, Audiology & Speech-Language Sciences, Greeley, CO
William Hal Martin, Ph.D., Oregon Health Sciences University, Portland, OR

In October 2006, an international gathering of researchers, audiologists, physicians, educators, students and other interested persons convened in Covington, Kentucky for the first ever scientific conference on “Noise-Induced Hearing Loss in Children at Work and Play”. The event proved to be the catalyst for a renewed and expanded interest in exploring the research needs, risk assessments,
Reference: A copy of the final presentation will be available on the conference CD.
Modeling the Noise-Induced Hearing Loss of a U.S. Navy Population
Jennifer Tufts, Ph.D., CCC-A, University of Connecticut, Dept. of Communication Sciences, Storrs, CT
Lynne Marshall, Ph.D., Naval Submarine Medical Research Laboratory, Groton, CT
Paul Weathersby, Ph.D., Naval Submarine Medical Research Laboratory, Groton, CT

Our team is developing a tool for estimating the economic impact of noise-induced hearing loss (NIHL) due to new weapons systems being developed for the U.S. Navy. NIHL continues to be costly in terms of military performance, individual quality of life, and actual dollars. According to the Veterans Benefit Administration, disability payments to retired military with NIHL and tinnitus exceeded $1B in FY 2005. Nevertheless, at this time, such costs are not taken into account in system-acquisition planning. To model these costs, we must first predict the amount of NIHL to be expected if a new system is deployed. This presentation will describe the first steps of this effort, namely, the application of ANSI S3.44-1996 "Determination of Occupational Noise Exposure and Estimation of Noise-Induced Hearing Impairment" to a specific U.S. Navy population, and the assumptions and adjustments necessary to match the predicted hearing levels from ANSI S3.44 with the actual hearing levels of the Navy population.

Effectiveness of an Improved Combat Arms Earplug
Mary S. Binseel, M.S., Team Leader, Auditory Research Team, US Army Research Laboratory, APG, MD
CPT Kara M. Cave, Ph.D., US Army Research Laboratory, APG, MD
Dr. Tomasz R. Letowski, US Army Research Laboratory, APG, MD

This study investigates the performance of a modified version of the Combat Arms Earplug (CAE). U.S. Army Soldiers must operate in environments which can go from quiet to noisy in a moment. They also operate in environments where the predominant noise hazard can be either continuous or impulse noise. The current earplug of choice to address these varying protection needs is the CAE. The CAE is a two-sided earplug which provides linear attenuation for steady-state noise exposure on one side and nonlinear protection for impulse noise protection on the other. Although feedback from the field has been favorable regarding the functioning of the CAE, other concerns such as fit, comfort, and size have been raised. In order to address these concerns, the Army Research Laboratory provided funding to address these issues. The new CAE which resulted was evaluated for attenuation of continuous and impulse noise, performance in localization and speech intelligibility tasks, and Soldier acceptance on issues such as ease of use, perceived protection, equipment compatibility, sizing, and comfort. Results of these experiments will be discussed.
1. **Assessment of Noise Exposures to Kennel Workers in Animal Shelters**  
*Chandran Achutan, NIOSH, Cincinnati, OH*  
*Randy L. Tubbs, Ph.D., NIOSH, Cincinnati, OH*

This study examined noise level exposures among kennel workers at two animal shelters and a veterinarian’s office where animals are boarded in addition to being provided medical care. More than half of the personal dosimetry measurements exceeded the daily allowable dose of 100% as calculated by the NIOSH criterion. About 25% of the measurements also exceeded the OSHA Action Level. Recommendations on how to protect the workers’ hearing such as enrolling employees in a hearing loss prevention program and wearing hearing protectors were made to the workers and employers at each site.

2. **Firefighters’ Perspectives on Noise Exposure and Hearing Loss: Focus Group Study**  
*OiSaeng Hong, Ph.D., School of Nursing, University of Michigan, Ann Arbor, MI*  
*Angela Giotto, B.S., University of Michigan, School of Public Health, Ann Arbor, MI*  
*Rebecca Hulea, M.S., Anderson Consulting Associates, Inc., Lansing, MI*

This qualitative study identified major sources of noise exposure to firefighters (FFs) and their perceptions and opinions on the problem of noise exposure, hearing loss, and hearing protection strategies. Two focus groups were conducted with FFs at two fire stations in Michigan during the 2006 summer. FFs believed in the importance of hearing protection but showed poor compliance with wearing it, and had a lack of understanding for the effect of noise exposure on hearing.

3. **Active Noise Reduction Headphone Attenuation Measurement: Comparison of Physical and Psychophysical Protocols and Effects of Microphone Placement**  
*Chuck H. Perala, Ph.D., AEP, U.S. Army Research Laboratory, Fort Knox, KY*  
*John G. Casali, Ph.D., CPE, Virginia Tech, Blacksburg, VA*  
*Jeff A. Lancaster, Ph.D., Virginia Tech, Blacksburg, VA*  
*Dan Gauger, Bose Corporation, Cambridge, MA*

Active Noise Reduction (ANR)-based headphones cannot be tested and labeled as hearing protection devices under the existing *psychophysical* headphone testing standard, real-ear attenuation at threshold (REAT). This research focused on determining if the *physical* headphone testing standard, microphone in real-ear (MIRE), may be appropriately used to measure the total attenuation of ANR headphones. Three different microphone locations were tested using MIRE: in-concha, in ear canal-shallow, and in ear canal-deep (i.e., with a probe tube-mounted microphone). Statistical analyses indicated no effect of microphone location on MIRE attenuation values, except for amplification in the ear canal-deep location at 8KHz. In regard to ANR attenuation measurements, the results provide support for using a MIRE insertion loss protocol for ascertaining the active component of attenuation performance, and for combining those data with REAT data for passive attenuation performance.

4. **Dosimetry Measurements Obtained on Commercial Regional Jet Aircraft**  
*Randy L. Tubbs, Ph.D., NIOSH, Cincinnati, OH*

NIOSH received a health hazard evaluation request from flight attendants at a regional airline to investigate noise levels that they were experiencing during their work shifts. A NIOSH investigator placed noise dosimeters on each of the two attendants assigned to a flight crew for most of their daily schedule. The number of flights measured was restricted because of the necessity to place and remove the dosimeters at the base airport each day. This dosimeter schedule usually entailed measuring four of five of the flights on which the flight attendants were scheduled for a particular day for a total of 20 dosimeter profiles collected during the five-day site visit. In most instances, the NIOSH recommended exposure limit was not exceeded during the measurement period. However, when the dosimeter data were extrapolated to estimate the complete daily noise exposures, three of the 20 measurements exceeded the NIOSH limit and an additional three were found to be greater than 90% of the daily allowable dose. Because of this potential for excessive noise exposure, the NIOSH investigator recommended that a hearing loss prevention program be initiated for the flight attendants at this regional airline.

5. **Field Test of Latino-Based Multimedia to Prevent NIHL**  
*Madeleine J. Kerr, Ph.D., RN, University of Minnesota, School of Nursing, Minneapolis, MN*  
*Eve Halterman, University of Minnesota, School of Nursing, Minneapolis, MN*  
*Cheryl Robertson, University of Minnesota, School of Nursing, Minneapolis, MN*

Effective hearing loss prevention is needed for 1.4 million U.S. Latino construction workers. We evaluated a preliminary Spanish language interactive multimedia program to prevent NIHL. Eight Latino construction workers participated in a Spanish language focus group following participation in the program. Representative quotes found in the data will be presented. Reactions to the content, user interface, program theme and language used are guiding development of the final intervention trial version of the multimedia program.
Khaled Alali, M.S., Virginia Tech, Blacksburg, VA
Jeff A. Lancaster, Ph.D., Virginia Tech, Blacksburg, VA
John G. Casali, Ph.D., CPE, Virginia Tech, Blacksburg, VA

Construction workers, during the performance of their duties, are commonly exposed to backup alarms produced by various mobile equipment when moving in reverse. An experiment was conducted in free-field conditions toward estimation of the distance at which listeners wearing a high-attenuation earmuff could detect a backup alarm signal. For different types of equipment, a relationship was determined between the time available for workers to avoid the vehicle from different distances, and the vehicle’s backing velocity. Based on this information, and the detection data as measured in linear distance, a feasibility evaluation was made as to whether workers could be expected to avoid different types of vehicles.

7. Hearing Protection Attenuation as a Function of Personal Training
Benson Davis, AuD Student, University of Cincinnati, Cincinnati, OH
Dayna Richards, AuD Student, University of Cincinnati, Cincinnati, OH

This experiment investigated the effects of personal training and supervised fitting on the attenuation performance of hearing protection devices (HPDs). Data were collected as part of a larger study, “The EPA Inter-laboratory Study of Hearing Protector Attenuation”, coordinated by the National Institute for Occupational Safety and Health (NIOSH). The goal of this associated project was to determine the potential benefit of having clinical audiologists personally train patients in the proper use of HPDs.

8. Novel Vacuum Earplug (PumPlug™)
Martin L. Lenhardt, AuD, Ph.D., Biomedical Engineering, Otolaryngology, Emergency Medicine, Richmond, VA

Military noise is intense (~145 dB SPL); deep custom fitted earpieces that configure to specialized helmets are a current approach. Alternative, for use in carrier noise, I developed an earplug that creates a vacuum in the canal, ensuring a tight fit and displacing the tympanum laterally reducing its displacement for low frequency sound, much like the effect of the Stapedius Muscle. Speech is transmitted with an array of piezofilm microphones and delivered by bone conduction.

9. Output Levels of Portable Digital Music Players
Cory D.F. Portnuff, B.S., University of Colorado at Boulder
Brian J. Fligor, ScD, CCC-A, Children’s Hospital, Boston, Harvard Medical School, MA

While the popularity of digital music players is rising, little research has been published to provide guidance to users to reduce the risk of music-induced hearing loss. This study reports the output levels of five digital music players from three manufacturers through both stock earphones and accessory earphones. Differences between styles of earphones and genres of music are also reported. Guidelines for minimizing risk of music-induced hearing loss from using these systems are presented.

10. Noise Exposure Levels for Musicians
Vanessa Miller, Student, Central Michigan University, Mt. Pleasant, MI
Michael Stewart, Ph.D., Central Michigan University, Mt. Pleasant, MI
Mark Lehman, Central Michigan University, Mt. Pleasant, MI

This study surveyed 26 student musicians and one student director regarding musical practice and playing habits, knowledge of hearing conservation practices, use of hearing protective devices (HPD), and whether they experienced tinnitus after exposure to loud music. In addition, noise exposure levels during practice and sporting events (football and basketball games) at which they played were monitored with a dosimeter simultaneously set to measure noise levels using two different measurement criteria (OSHA and NIOSH). Forty-eight percent of the subjects reported practicing or playing their instrument over ten hours a week. The majority of musicians (74%) reported having been taught about the effects of noise on hearing and health, however, less than a third of the subjects used ear protection while playing their instruments and those that did used it inconsistently. Sixty three percent of subjects reported experiencing tinnitus after exposure to loud music. Finally, 8-hour time weighted averages (TWA) and daily noise doses were significantly higher using the NIOSH measurement criteria compared to the OSHA measurement criteria. Both measurement criteria yielded values that exceeded a 100% daily noise dose for all subjects. Overall these results indicate that university student directors and musicians appear to be at high risk for permanent noise-induced hearing loss secondary to excessive exposure to loud music. These results support the need for on-going hearing conservation programs to educate student musicians and student directors about the dangers of excessive exposure to loud music.

11. Analysis of Protected and Unprotected Impulsive Noise Events
CDR William J. Murphy, Ph.D., NIOSH, Cincinnati, OH
CDR Chuceri A. Kardous, M.S., NIOSH, Cincinnati, OH
David Byrne, M.S., NIOSH, Cincinnati, OH
Edward L. Zechman, M.S., NIOSH, Cincinnati, OH

The use of firearms has been cited as a significant contributor to recreational noise exposure and has been identified as a principal cause of occupational hearing loss among military and law enforcement personnel. Gunshots and acoustic shock tube impulses were recorded in free-field and underneath a range of hearing protection devices (HPDs) on an acoustically isolated mannequin. In this poster, several damage risk criteria were used to evaluate the risk of hearing loss for measurements of the impulse underneath the HPD. A, B, C and D-durations were computed for the protected and un-protected waveforms. The protected impulses were analyzed with the US Army Auditory Hazard Assessment Algorithm for Humans, and yielded estimates of the allowed number of shots from between 5 and 500 per day. Unprotected impulses ranged from 145 to 176 dB peak (re 20 µPa). Hazards for different types of protectors will be compared.
Chandran Achutan, Ph.D. - Poster Presenter
Since 2002, Dr. Chandran Achutan has been an industrial hygienist with the National Institute for Occupational Safety and Health. His primary responsibility is to conduct health hazard evaluations at workplaces around the country. Dr. Achutan is currently evaluating noise exposures and hearing loss among animal shelter workers.

Khaled Alali, M.S. – Poster Presenter
Khaled Alali is a Ph.D. student in the Department of Industrial and Systems Engineering at Virginia Tech. He holds a B.S. in Mechanical Engineering from Kuwait University and a M.S. in Industrial and Systems Engineering-Human Factors Engineering/Ergonomics option from Virginia Tech. Mr. Alali is currently working on his PhD degree in Industrial and Systems Engineering under the human factors/ergonomics option. His research topic is related to backup alarm localization in the construction industry.

Eli T. Alford, colonel, US Army (retired)
Eli Alford served for 25 years in Army combat arms and operations research and systems analysis. He served in Army field artillery units and in analytical assignments at the Center for Army Analysis, Army Human Resources Command, Army Staff, and Office of the Joint Chiefs of Staff. Mr. Alford is a graduate of the Virginia Military Institute and the University of Southern California, and was an Army fellow at Harvard University’s Kennedy School of Government.

LTC Lynnette B. Bardolf, Ph.D., CCC-A
Lynnette Bosse Bardolf was born 27 May 1964 in Grand Rapids, Michigan. The youngest of 7 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 16+ 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. Lynnette’s career has afforded her many wonderful opportunities including a military mission to Nairobi, Kenya, in January 1999, to provide audiology services to victims of the August 1998 Embassy bombings there; and a recent coveted opportunity to pursue her Ph.D. at the University of Florida, where she graduated with a Ph.D. in Audiology in August 2006. Currently, Lynnette is assigned to the United States Army Aeromedical Research Lab (USAARL) at Ft. Rucker, Alabama as a research audiologist.

Elliott H. Berger, M.S.
Elliott H. Berger, M.S., is the Senior Scientist for Auditory Research at E-A-R. 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 on 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, a Board Member of the Council for Accreditation in Occupational Hearing Conservation, and a recipient of the National Hearing Conservation Association’s Outstanding Hearing Conservationist Award. Among his favorite sounds is the occasional and rapidly disappearing pristine silence to be heard in the deserts of the southwest.

Mary S. Binseel, M.S.
Mary S. Binseel is Team Leader of the Auditory Research Team of the US Army research laboratory. She holds a B.S. in Industrial Engineering from Rensselaer Polytechnic Institute, an M.B.A. from Worcester Polytechnic Institute, and an M.S. in Operations Research from The George Washington University. Her research interests include hearing protection for dismounted Soldiers and auditory skills enhancement.

Cindy Bloyer, CCC-A
Cindy Bloyer is Manager of Occupational Audiology Services for Examinetics, Inc. She holds a BS in Communicative Disorders and an MS in Audiology from the University of Wisconsin-Stevens Point. She has over 25 years experience in the field of audiology and holds the certificate of clinical competency in audiology from the American Speech Language & Hearing Association. Cindy is a CAOHC course director and is active in several professional organizations. She has been a member of ASHA since 1981 and a member of NHCA since 1991 and is a frequent speaker at various state and corporate Health and Safety conferences.

David C. Byrne, M.S., CCC-A
David Byrne received a B.A. in physics from the University of Pittsburgh and an M.S. in audiology from Penn State University, with additional graduate study in acoustics. He served on active duty in the U.S. Army, and also worked in the Bio-Acoustics Division at the U.S. Army Environmental Hygiene Agency. David later held the position of Senior Consultant with Associates in Acoustics, Inc. He has been a Research Audiologist with NIOSH for the past seven years, first at NIOSH’s Pittsburgh Research Laboratory, and now at the Robert A. Taft Laboratories in Cincinnati.
John G. Casali, Ph.D., CPE
Dr. John Casali is the John Grado Professor of Industrial and Systems Engineering at Virginia Tech. After receiving his Ph.D. in Human Factors Engineering at Virginia Tech, he developed the Auditory Systems Laboratory, an acoustics research facility that specializes in hearing protection, auditory displays, and communications devices. He is a Fellow of the Human Factors and Ergonomics Society and the Institute of Industrial Engineers, and is President of NHCA. He has received NHCA’s Media award. His research at Virginia Tech has been sponsored by various government agencies and corporations to a total of over $5.5 million. He serves on several standards committees for ANSI and the National Fire Protection Association dealing with personal protection equipment. Dr. Casali holds three patents and has authored over 150 publications. He enjoys consulting with companies and community groups on warning signal issues, hearing protection, community noise, and patent litigation, at least between periods of fishing and pretending to be a mechanic to his British sports cars.

Kris Chesky, Ph.D.
Dr. Kris Chesky is Co-founder and Director of Education and Research for the Texas Center for Music and Medicine at the University of North Texas. As a faculty member in the UNT College of Music, he supervises a unique graduate program in music medicine and teaches an undergraduate course titled: “Occupational Health: Lesson from Music”. Dr. Chesky’s research has been funded by the National Endowment for the Arts, the Grammy Foundation, NAMM, and others. He established the Health Promotion in Schools of Music project in 2003 with the Performing Arts Medicine Association. This project serves an advisory role for NASM accredited schools of music in the US. He serves on the Board of Directors for the Performing Arts Medicine Association, the Scientific Review Board for the Medical Problems of Performing Artists journal, the Editorial Review Board for International Trumpet Guild journal and is a member of the Music Induced Hearing Loss task force of the National Hearing Conservation Association. Originally from Massachusetts, Kris earned his bachelor’s degree in Jazz trumpet from Berklee College of Music in Boston. He earned his master’s and doctorate in music education from the University of North Texas. Kris is married to Dr. Aimi Chesky and they have three young children – Karissa, Lilia, and Kason.

George R. Cook, AuD, CCC-A
Dr. George Cook has over 35 years of experience in the occupational health setting. He has served as Senior Occupational Audiologist consultant visiting plants to establish or evaluate hearing conservation programs. He has developed criteria, program logic and report formats for audiogram interpretation and pioneered the use of PC software used in plant medical departments. He now is Chairman of the Board of Directors for Workplace Group, providing occupational hearing conservation services to businesses and employers. During Dr. Cook’s career he has written numerous articles about hearing conservation and hearing tests, and is a member of the NHCA and ASHA. He is a certified CAOHC course instructor and licensed in several states.

CPT Kara Cave
CPT Kara Cave is a clinical audiologist currently assigned to the Army Research Laboratory (ARL) in Aberdeen Proving Ground, MD. CPT Cave earned her B.A. from Boston College in 1999 and her clinical Ph.D. in Audiology from James Madison University in 2005. Before her assignment to ARL she completed her residency at Walter Reed Army Medical Center. CPT Cave’s current research focuses on hearing protection devices and blast-related otologic injury.

Benson Davis – Poster Presenter
Benson Davis is a third year AuD. student at the University of Cincinnati. He received his undergraduate education at Ohio University in Athens, OH in Hearing, Speech, and Language Sciences. His interests are in working with adults with hearing loss and providing them with the ability to hear better through the use of hearing aids. He has also gained a passion for hearing conservation through his training and research. He hopes to employ this passion someday by stressing the importance of hearing protection to his patients. He loves the great outdoors, hunting and fishing, and his beautiful fiancée, Jyl Quaintance.

Beth A. Cooper, PE, INCE.Bd.Cert.
Beth Cooper is an acoustical engineer at the NASA Glenn Research Center, providing hearing conservation and noise control technical expertise to hearing conservation programs at NASA’s field centers. She develops and publicly distributes resources and training tools for use by hearing conservationists and noise control professionals and is a frequent presenter of workshops and seminars on hearing conservation topics, with a special interest in multimedia presentation techniques and tools for effective hearing conservation training.

Dennis P. Driscoll, PE
Dennis Driscoll has both a Bachelor or Science and Master of Science degrees from North Carolina State University. Since 1980, his specialties in acoustics include measurement of equipment noise levels and employee noise exposures, the design of engineering controls, and environmental surveys. From 1980-1988 he managed Amoco Corporation’s hearing conservation program, and has been an acoustical consultant to industry since 1988. Toward professional certification, he is a registered Professional Engineer and a Board Certified Noise Control Engineer. He is a Past President of the National Hearing Conservation Association (NHCA), a Fellow Member of the American Industrial Hygiene Association (AIHA), past Chair of the AIHA Noise Committee, and recently completed a five year term as a Council Member of the Council for Accreditation in Occupational Hearing Conservation.

Anita Edwards
Mrs. Anita Edwards, researcher at the Council for Scientific and Industrial Research, South Africa with a specific interest in the prevention of Noise Induced Hearing Loss. Academic background is a Bachelor of Speech and Hearing Therapy from the University of the Witwatersrand and a Masters from the University of Pretoria, currently working on a PhD. Worked in a private Audiology practice, in gold mining as an Occupational Audiologist and as a lecturer in Audiology.
Deborah Gabry
Ms. Deborah Gabry is currently a senior health scientist with OSHA. She headed up the hearing loss unit in the Office of Federal Workers Compensation Programs at the DOL, and then joined the office of health standards to develop the 1983 Hearing Conservation Amendment for general industry. Currently, in the Directorate of Science, Technology and Medicine, she works on developing technical assistance guidance, safety and health information bulletins, and presents on a variety of topics to various professional organizations and trade associations. She was also instrumental in producing a computer animated training video that was selected for an award at the World Safety Congress among 300 international submissions. Ms. Gabry is also the liaison between OSHA and the Department of Homeland Security’s Inter Agency Coordinating Council on Emergency Preparedness for individuals with disabilities, Subcommittee on Emergency Preparedness in the Workplace.

Lee D. Hager
Lee Hager brings nearly 20 years of experience to his position as Hearing Loss Prevention Consultant for Sonomax Hearing Healthcare, including consultation regarding the quality and integrity of hearing conservation programs. He has served as President of NHCA; chair of the Noise Committee of AIHA; NIOSH National Occupational Research Agenda team member; and with ANSI S12/WG11 on hearing protector evaluation and labeling issues. He presents and publishes regularly on noise and hearing, having received the AIHA Noise Committee Outstanding Lecture Award in 2003 and NHCA’s Threadgill Award in 2004.

Eve Halterman – Poster Presenter Co-Author
Eve Halterman is owner and director of Spanish in Focus, LLC. She has an MBA with a BA in psychology. She is a Spanish language translator and focus group facilitator. She serves as consultant to the UM Hearing Protection Study (Kerr) on cultural and language concerns.

Christine Harrison, M.Sc., Aud(C)
Christine Harrison is the sole occupational audiologist for the province of British Columbia, Canada, and works for WorkSafeBC (formerly the Workers’ Compensation Board). She currently oversees hearing conservation programs for over 10,000 employers and 250,000 workers. Her particular areas of professional interest include speech and communication challenges in noisy industry, use (and non-use) of hearing protection in different industries and age groups, as well as adult motivation. In her ‘spare’ time, she is an active leader in Girl Guides of Canada/Guides du Canada and can be found hiking and camping around all parts of the world with girls from 8 to 18 years of age.

Oi-Saeng Hong, Ph.D., RN – Poster Presenter
Dr. Oi-Saeng Hong is Associate Professor and Director of Occupational Health Nursing Program, University of Michigan Center for Occupational Health and Safety Engineering. Her primary research

Jeffrey M. Goldberg
Jeffrey M. Goldberg, President, Custom Protect Ear Inc., began in 1969 when he conceived, created and built the first Cash and Carry retail chain Canada and continued to build this company for the following 15 years. Concentrating on plumbing, heating, hardware, tools and electrical products, this chain evolved to six major plumbing centers with sales to both consumers and contractors. In 1985, Jeffrey then created the Goldberg & Pegg Plumbing Corporation in order to capitalize on the market demand for lower priced plumbing fixtures. This corporation created supply relationships in Central America and Asia and sold its branded products to contractors and distributors throughout Canada. In 1988, Jeffrey joined the Goldberg & Pegg Plumbing Corporation with Western Pottery, based in Los Angeles, California, to create a North American wide manufacturer & distributor of plumbing fixtures. Western Pottery had offices situated in Vancouver, Los Angeles and Bangkok, Thailand. Under Jeffrey’s’ sales direction, the merged company almost trebled its sales by 1994. In 1996, Western Pottery was taken public and Jeffrey became Vice President, Sales and Marketing and was responsible for all product, promotional and sales aspects of the corporation, to include a sales force of 50 agents directly under Jeffrey’s’ authority. In 2002, Jeffrey purchase Custom Protect Ear Inc., and became involved in all aspects of the business as President. Custom Protect Ear is North America’s foremost manufacturer of custom molded hearing protection. Community service is also important to Jeffrey and he has been a board member of Vancouver Talmud Torah, a Jewish Parochial school, Fund Raising chairman for Schara Tzedek Synagogue, member of the working cabinet for the central fund raising campaign of the Jewish Federation of Greater Vancouver and Board Member of both the Jewish Federation of Greater Vancouver and Jewish Community Centre of Greater Vancouver.

Brian J. Fligor, ScD, CCC-A, FAAA
Brian Fligor, ScD, is the Director of Diagnostic Audiology at Children’s Hospital Boston. His primary research interests are investigating causes of acquired hearing loss, particularly in the pediatric population. A background as a biomedical engineer and a hack guitarist in a Boston-based rock band led Dr. Fligor spent his final years of graduate school at Boston University investigating the output levels of commercially available portable compact disc players. The study was published in 2004 and has since been cited numerous times by the popular media, including a skit on The David Letterman Show. Dr. Fligor completed his clinical fellowship in Audiology at Children’s Hospital Boston in 2002 concurrently with completing his dissertation work. He completed a post-doctoral fellowship in Pediatric Audiology in 2004 and was promoted to Director of Diagnostic Audiology in 2005.

Dan Gauger
Dan Gauger is Research Manager, Noise Reduction at Bose Corporation where he has worked since 1980. A graduate of MIT (MS, BS EE) he has spent most of his career involved in engineering and management activities connected with active noise reduction and audio headphones. He is an indefatigable participant in ASA S12 WGs 11 and 14 and has several patent applications in process. Outside of work he is a second-degree black belt and passionate practitioner of Aikido which he also teaches weekly. Other avocations include photography, snowboarding and maintaining his Vermont woodpile.
is the prevention of noise-induced hearing loss in the working population. In the past 10 years, she has been developing and testing theory-based behavioral interventions to increase workers’ use of hearing protection. Dr. Hong applies innovative approaches such as tailoring and multimedia computer technology (expert system, virtual reality, internet) in designing and implementing hearing protection interventions and works with a multidisciplinary team of scientists from various areas including audiology and hearing science, industrial hygiene, computer engineering, and instructional design.

James J. Jerome, MA, CCC-A
James (Jim) Jerome has been the president of Workplace Hearing- Midwest, Inc (formerly Hearing Safety- Midwest, Inc), in Indianapolis, Indiana, since July 2002. Prior to that he worked as an occupational audiologist for an industrial hygiene and safety group for four years, a US Army audiologist for twenty-one years, and a school audiologist for five years. As a military audiologist, Jim received the 1995 Military Audiology Association’s Founder’s Award for outstanding audiologist of the year. He has been a certified member of the American Speech-Language-Hearing Association (ASHA) since 1975, a certified course director with CAOHC since 1985, and a member of NHCA since 1999. Jim holds an undergraduate degree in speech pathology from the University of Wisconsin- Milwaukee (1971) and a masters degree in audiology from Western Illinois University (1973).

Madeleine J. Kerr, Ph.D., RN – Poster Presenter
Madeleine Kerr is associate professor at the University of Minnesota School of Nursing. Her nursing doctorate (University of Michigan) focused on worker health promotion, emphasizing NIHL. She is the principal investigator of the UM Hearing Protection Study, currently developing and evaluating a computer-based educational program to prevent NIHL among Latino construction workers. She teaches population-focused assessment and interventions and public health informatics.

Jeff A. Lancaster, Ph.D.
Dr. Jeff Lancaster is Research Assistant Professor of Industrial and Systems Engineering at Virginia Tech, and Laboratory Manager of the Auditory Systems Laboratory, an acoustics research facility. He holds the M.S. and Ph.D. in Human Factors Engineering/Ergonomics, is a member of the Human Factors and Ergonomics Society and NHCA. He has conducted numerous experimental investigations into hearing protection devices and augmented devices for both basic and applied research. He has substantial experience with real-ear-attenuation-at-threshold (REAT), microphone-in-real-ear (MIRE), and acoustic test fixture (ATF) testing protocols for hearing protection. He also conducts research into flight safety, particularly as it relates to communications issues and pilot workload.

James Lankford, Ph.D.
Dr. James Lankford is professor emeritus from Northern Illinois University where he taught audiology classes for 31 years. He holds PhD and MS degrees in audiology from the University of Oklahoma and a BS degree in biology from Oklahoma Christian University of Arts and Sciences. During the last 10 years of his tenure at NIU he was dean of the College of Health and Human Sciences. His principle interest in research has been on preventing noise-induced hearing loss and has worked with the farming community for 16 years with this primary goal. He is a former president of the National Hearing Conservation Association, a former president of the Illinois Academy of Audiology and has consulted with professional organizations, educational institutions, government as well as business and industry. He and his wife, Vera, have two children and are proud grandparents of Trevor, their 5 year old grandson and Jersey, their 2 year old granddaughter. And, James likes to turkey hunt and has just written a book entitled, “Turkey Quest” which details some of his experiences.

Martin L. Lenhardt, AuD., Ph.D. – Poster Presenter
Marty Lenhardt holds a B.S. in Biology and a M.A. in Audiology from Seton Hall University in N.J., an Au.D. From Kirksville College of Osteopathic Medicine, a Ph.D. in Psychoacoustics/Speech Science from Florida State University and a postdoctoral fellowship in Otolaryngology and Biomedical Engineering at the John Hopkins University. Marty is presently Professor of Biomedical Engineering, Otolaryngology and Emergency Medicine at Medical College of Virginia, of Virginia Commonwealth University in Richmond. Marty is a principal in two bio tech companies at the university’s Research Park. He co-authored, with the late Dan Johnson, the OSHA ultrasonic hearing standards.

Tomasz R. Letowski
Dr. Tomasz Letowski is a Senior Research Scientist at the Human Research and Engineering Directorate, U.S. Army Research Laboratory, Aberdeen Proving Ground, Maryland. He received a Doctor of Philosophy Degree in Acoustics from Wroclaw Technical University in 1973 and a Doctor of Sciences Degree in Technical Sciences from Warsaw Technical University in 1986. In 1997 he was awarded a Professor Degree in environmental engineering by the Congress of the Republic of Poland. His main areas of interest are psychoacoustics, auditory training, and speech communication in noise. He is an author or co-author of more than 150 publications and four patents and is very active in IEC and ISO standardization communities.

Lynne Marshall, Ph.D.
Dr. Lynne Marshall is a Senior Research Audiologist at the Naval Submarine Medical Research Laboratory in Groton, Connecticut. She also is a Jayhawker from the University of Kansas, where she obtained master’s degrees in Speech Pathology and in Audiology, and a Ph.D. in Speech and Hearing Science. Following a clinical fellowship year in audiology at the Upstate Medical Center in Syracuse, New York, she spent several years in Omaha, Nebraska, where she was Clinical Coordinator of Audiology at the University of Nebraska Medical Center, a faculty member at the University of Nebraska, and also did postdoctoral work at Boys Town National Research Hospital. At the Naval Submarine Medical Research Laboratory she first did auditory sonar research, and now is working on the potential role of otoacoustic emissions in Hearing Conservation Programs, a hearing-loss simulator for Hearing Conservation applications, and a model to estimate the Life-Cycle costs of hearing loss for designers of weapons systems and platforms (e.g., ships).
Vanessa Miller –Poster Presenter

Vanessa Miller is a 3rd year doctoral student in Audiology at the University of Iowa, and she is currently working toward her doctorate in audiology. She has authored technical articles in audiology and consumer publications.

Rick Neitzel, MS, CIH

Rick is a Research Scientist in the University of Washington (UW) Department of Environmental and Occupational Health Sciences and a Certified Industrial Hygienist. He is also pursuing a PhD in Environmental and Occupational Hygiene at UW. He has served as Director of Communications for NHCA, and sits on the Noise Committee of the American Industrial Hygiene Association. His research interests include noise exposure and hearing loss in construction, subjective evaluation of noise, and development of effective hearing conservation interventions.

Patricia Niquette

Patricia Niquette works as a research audiologist at Etymotic Research. She has had a broad range of experience in all areas of audiology including pediatric and educational audiology, industrial hearing conservation, university teaching and private practice. Ms. Niquette received her master’s degree from the University of Iowa, and she is currently working toward her doctorate in audiology. She has authored technical articles in audiology and consumer publications.

CDR William J. Murphy, Ph.D. – Poster Presenter

Commander William Murphy 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. Recently, he has researched the impulse response of both nonlinear and linear hearing protectors and has developed software to measure the attenuation of HPDs and pioneered the analysis of laboratory and field attenuation measurements of HPDs.

Bob Oliveira, Ph.D.

Bob Oliveira, Ph.D., is the founder/president of Hearing Components, which conducts research on the human ear canal. It also designs and manufactures unique products that make personal hearing devices, e.g., hearing aids, cell phones, earphones, stethoscopes, etc., work better. Hearing is improved and/or protected. NIH has awarded Dr. Oliveira seven SBIR grants (~$3 Million) to define the activity and geometry of ear canals and conduct related product development to improve the physical fitting of personal hearing and hearing protection devices. Hearing Components has many patents which it licenses while selling associated consumable products like the Comply™ Canal and Snap Tips.

Chuck H. Perala, Ph.D. – Poster Presenter

Dr. Chuck H. Perala is a human factors engineer and researcher with the U.S. Army Research Laboratory’s Human Research and Engineering Directorate. He holds a BS degree in Industrial Engineering from North Carolina A&T State University, and MS and PHD degrees in Industrial and Systems Engineering, with a concentration in Human Factors Engineering, from Virginia Tech. He is a board-certified associate ergonomist, a second-year scientific member of the ARL-HRED Human Use Committee, and a member of the Human Factors and Ergonomics Society and the Alphi Pi Mu, and Tau Beta Pi engineering honor societies. Dr. Perala has worked for the U.S. Department of Defense for over 20 years; as a Soldier and civilian. He is currently assigned to the ARL-HRED field office at Fort Knox, Kentucky, where he supports the U.S. Army Armor Center and School with human factors engineering related issues pertaining to armored vehicles and mounted soldier systems.

Cory D.F. Portnuff, B.S. – Poster Presenter

Cory Portnuff is a graduate student in Audiology at the University of Colorado at Boulder, working on his Au.D./Ph.D. His research interests focus on noise-induced hearing loss across the lifespan, with a particular emphasis in children. Cory’s past work also includes epidemiologic research on auditory neuropathy/dyssynchrony.

G. Richard Price, Ph.D.

Dr. Richard Price is a consultant for Auditory Hazard Analysis and a Guest Researcher for U.S. Army Research Laboratory, Aberdeen Proving Grounds, MD. Dr. Price’s research has focused primarily on the effect of intense sounds on the ear, to include both the effects on hearing sensitivity as well as on changes in performance. His basic research program, begun in the 1960’s, has led to an understanding of the loss mechanisms operating in the inner ear and the effect of the conductive path from the free field to the inner ear on the energy arriving at the cochlea. These insights have been combined in a mathematical model of the ear that predicts auditory hazard from virtually any intense sound. This
Howard Raphael
Howard Raphael is the General Manager of Custom Protect Ear and has been involved with the company for four years. He is involved in all facets of CPE’s operation and is responsible for the day to day operations of the Company. Over the past 30 years, Mr. Raphael has been the owner/operator of numerous small businesses in the food, rope, clothing, pet food, condo development and investments businesses.

Dayna Richards – Poster Presenter
Dayna Richards is a third year AuD. student at the University of Cincinnati. She received her Bachelors of Science Degree in Communications from Ohio University. She is interested in working in a practice setting that will provide diagnostic and rehabilitative services for adults with hearing loss and balance disorders. She has a strong interest in the field of hearing conservation and plans to incorporate this interest into the treatment of her patients. She has a wonderful husband, Tal, and two daughters (Scout - 17 months and Romy – 7 weeks).

Cheryl Robertson – Poster Presenter Co-Author
Cheryl Robertson is assistant professor at the University of Minnesota School of Nursing. She holds a PhD in nursing from the University of Minnesota. Her research focuses on global health and refugee health concerns. She is co-investigator on the UM Hearing Protection Study (Kerr), leading the qualitative research methods.

Dr. Charles Ross
Charles D. Ross is Dean of the College of Arts and Sciences and Professor of Physics at Longwood University in Farmville, Virginia. He is the author of three books about science and technology and the U.S. Civil War. His work on unusual acoustics in the Civil War has been featured on the History Channel, National Public Radio, Newsweek and many other media outlets. His expertise in outdoor acoustics also led to his being retained as a consultant by the F.B.I. and Los Angeles Police Department.

Michael Santucci, M.S., F-AAA
Michael Santucci is an Audiologist and founder of Sensaphonics Hearing Conservation. Sensaphonics designs, develops and manufactures custom in-ear monitors and musicians earplugs for the Dave Matthews Band, Eminem and hundreds of other top touring performers as well as local club bands. He serves as a consultant to NASA, the Indy Racing League, and the Chicago Board of Trade and designs specialized, custom ear pieces to meet their specialized applications. Michael has a BS in Speech and Hearing Science from University of Iowa and a MS in Audiology from Illinois State University. Michael was the first recipient of the prestigious Larry Mauldin Award for Excellence in the Hearing Healthcare Field for his work in raising awareness of the damaging effects of loud music on hearing.

Theresa Y. Schulz, Ph.D., CPS/A
Dr. Theresa Schulz has been an active member of NHCA for 23 years, currently serving as President-Elect. She is also the Past Chair of the Council for Accreditation in Occupational Hearing Conservation (CAOHC), a Certified Professional Supervisor for Audiometric Monitoring (CPS/A), a certified member of the American Speech-Language-Hearing Association, and a fellow in the American Academy of Audiology. Theresa received her BS (1981) and MA (1983) degrees from the University of Texas at Austin and her PhD (1994) from Ohio State University. Theresa was nominated by the Air Force for the 2003 National Public Service Award and received the military’s Outstanding Volunteer Medal in 2004 for her extensive work to prevent noise-induced hearing loss (NIHL) both in the military and in the public sector. Her new position as Manager of the Audiology Team at the National Institute of Occupational Safety and Health, Pittsburgh Research Laboratory in Pittsburgh, PA brings her back to public service and continues her work to prevent NIHL. Theresa was one of several NHCA members who provided recommendations during the public-comment phase of the Federal Railroad Administration’s rulemaking process.

Kenneth E. Smith, Ph.D.
Kenneth E. Smith, Ph.D. has been in private practice (Audiology) for more than 30 years in the Kansas City area. A past President of the Academy of Doctors of Audiology, he maintains an active teaching role in the Au.D. program and has worked as a consultant to industry for more than 15 years. In that role, he specializes in applied research relevant to new products.

Nancy L. Sprince, MD, MPH
Nancy Sprince, MD, MPH is the Director of the Heartland Center for Occupational Health and Safety at the University of Iowa. Dr. Sprince is a Professor of Occupational and Environmental Health, Internal Medicine and Nursing at the University of Iowa. She also directs the Occupational Medicine Residency Training Program at the University. Her research interests include occupational injury prevention and occupational respiratory diseases. Recent work has focused on risk factors for traumatic injury among farmers.

Stefan Stenfelt, Ph.D.
Dr. Stefan Stenfelt is professor of technical audiology at Linköping University in Sweden. He received his PhD in biomedical engineering at Chalmers University of technology (Göteborg, Sweden) and has done a post doc at Stanford University. His research has primarily focused on understanding the mechanism of hearing by bone conduction. He has close to 100 publications and conference contributions on topics as bone conduction physiology, middle and inner ear mechanics, hearing aids, and electrophysiological measuring methods.

Mark R. Stephenson, Ph.D.
Dr. Mark Stephenson is a Senior Research Audiologist at the Centers for Disease Control and Prevention’s National Institute for Occupational Safety and Health (NIOSH). In this capacity, he is
responsible for coordinating the NIOSH hearing loss prevention research programs. He joined NIOSH in 1993 after having completed a 20-year career in the USAF. Mark spent most of his Air Force career at the Aerospace Medical Research Laboratory where he investigated the effects of hazardous noise and hearing protector performance. At the time of his retirement from the USAF, he was serving as an Associate Chief of the USAF Biomedical Sciences Corps, through which he functioned as the director of the USAF audiology programs. In 1986, Mark received a Ph.D. in audiology from Ohio State University.

**Michael Stewart, Ph.D. – Poster Presenter**

Dr. Michael Stewart received his MA degree in audiology from Western Michigan University and his Ph.D. degree in audiology from Michigan State University. He has been a supervising audiologist in hearing conservation since 1979 and currently operates a private practice in East Lansing, Michigan which provides clinical, educational and industrial audiology services. He is also a professor in the Department of Communication Disorders at Central Michigan University where he teaches doctoral-level classes and conducts research in various aspects of recreational and industrial hearing conservation.

**Timothy Swisher, M.A., CCC-A, FAAA**

Tim Swisher is an occupational audiologist and president of Hearing Safety. He received his B.S. at Indiana University of Pennsylvania and his M.A. in Audiology at Western Illinois University. He began his audiological career as an Army audiologist, retiring as a major after 20 years service. He credits his time in the service as developing his primary interest in hearing conservation and expanding his skills as a hearing conservationist. In his current capacity he provides full time hearing conservation consultant services and is an active CAOHC course director.

**Randy L. Tubbs, Ph.D. – Poster Presenter**

Dr. Randy Tubbs is a psychoacoustician with NIOSH, having served in this position for the last 20 years of his 29 year career as an officer in the U.S. Public Health Service, reaching the rank of Captain. He is responsible for addressing all of the occupational noise and vibration exposure requests in support of NIOSH’s Health Hazard Evaluation program. He received his A.B. in Experimental Psychology from the University of Michigan - Flint, and the M.A. and Ph.D. degrees in Experimental Psychology from Miami University, Oxford, Ohio. Dr. Tubbs has been active in research on the effects of noise on hearing, on hearing conservation programs, and on occupational vibration exposures. He is retiring from the USPHS in the Spring of 2007 and will be moving on to greener pastures.

**Jennifer Tufts, Ph.D., CCC-A**

Dr. Jennifer Tufts is an assistant professor in the Department of Communication Sciences at the University of Connecticut. She holds a B.A. in music and mathematics from Holy Cross College, Worcester, MA, and an M.S. and Ph.D. in audiology from Penn State University. She has also completed postdoctoral clinical and research training at Walter Reed Army Medical Center in Washington, DC. Her current research areas include hearing loss prevention in diverse populations, and the effects of hearing loss on music perception.

**R. Brian Valimont, Ph.D.**

Dr. Brian Valimont is a Principal Consultant in human factors engineering at Dorris & Associates based in Atlanta, Georgia. He holds the M.S. and Ph.D. in Human Factors Engineering/Ergonomics, and is a member of the Human Factors and Ergonomics Society. He is a licensed commercial pilot, and holds instrument and multi-engine ratings with over 400 hours of private and commercial flight time logged. He has also been extensively involved in aviation-related research on a variety of topics, including information acquisition and retention, pilot workload, augmented reality, flight simulation, safety, and communications issues.

**Jérémie Voix, P. Eng., Ph.D.**

Dr. Jérémie Voix is an Acoustics Engineer with field experience in industrial noise reduction projects. He holds a Bachelor’s degree in Fundamental Physics from Université des Sciences et Technologies de Lille (France) and a Master’s degree in Applied Sciences in Acoustics from Université de Sherbrooke (Canada). He was recently awarded a Doctorate, with great distinction, from the École de Technologie Supérieure (Montréal, Canada), for his work on the development of a “smart earplug”. Jérémie is currently working for Sonomax as Vice-President of Scientific Research and is foreseeing the day when all in-ear devices (hearing aid, hearing protector, cell phone and music player) will combine into one.

**Laurie Wells, MS, FAAA**

Laurie Wells is a board certified audiologist and the Manager of Audiology for Associates in Acoustics, Inc. She has served NHCA in the past on the Nominations, Steering, Publications, and Editorial committees and in elected offices as Secretary and Vice-President, President-Elect and currently as NHCA President. As a hearing loss prevention consultant, Laurie provides professional audiology review and audiometric database management, advises on hearing conservation issues including hearing protection, workers' compensation, employee education, recordkeeping, noise measurement, and hearing loss management in the work place. Laurie is a CAOHC course director and has directed multiple courses in the U.S. and Europe.

**Brad K. Witt, MA**

Brad Witt is Audiology Manager at Howard Leight Industries in San Diego, part of the Bacou-Dalloz Hearing Safety Group. As an audiologist in Hearing Conservation for 25 years, he provided OSHA-standard services to 200 worksites. He served as President of NHCA, and in his present position, manages the Howard Leight Acoustical Lab. In this role the past two years, he has taught 80 hearing conservation courses to professional and end-user groups on five continents.
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