VeriPRO

Fit for the real world.
Welcome to New Orleans!
Astor Crowne Plaza, New Orleans, LA

First Floor / Lobby

Second Floor

Second Floor Mezannine
## Table of Contents

- Program Schedule......................................................................................................................... 5
- Exhibitor layout/floor plan................................................................................................................ 6
- Sponsors........................................................................................................................................ 9
- Michael Beall Threadgill Award....................................................................................................... 10
- IJA Sponsors.................................................................................................................................. 11
- Student Conference Awards & Sponsors......................................................................................... 13
- Student Research Awards & Sponsors............................................................................................ 14
- Scholarship Foundation General Endowment.................................................................................. 16
- Safe-in-Sound Awards....................................................................................................................... 18
- Safe-in-Sound Award Winner Bios.................................................................................................. 19
- Scholarship Foundation Fundraisers................................................................................................ 20
- Conference Volunteer Schedule....................................................................................................... 21
- Thursday Workshop Abstracts and Speaker Bios............................................................................. 22
- Friday Conference Abstracts............................................................................................................ 26
- Saturday Conference Abstracts........................................................................................................ 29
- Friday and Saturday Platform Presenter Bios................................................................................ 33
- Poster Descriptions and Presenter Bios.......................................................................................... 38
- Task Force Chairs/Organizational Liaisons

### NHCA Program Task Force Members:

### Interactive Management, Inc.
- Erin Erickson
- Nicole Plese

### 2011-2012 Executive Council
- President: Tim Rink, Ph.D.
- President-Elect: Laura Kauth, CCC-A, M.A.
- Immediate Past President: Susan Griest, M.P.H.
- Secretary/Treasurer: Kathryn Schmidt-Miller, CCC-A
- Director of Communications: Richard Stepkin, CCC-A, FAAA, M.S.
- Member Delegates: Sheryl Foust Whiteman & Patricia Niquette, Au.D.
- Commercial Delegate: Jeffrey Goldberg
- PSP Delegate: Carolyn Tolley, M.S., CCC-A
- Director of Marketing/Public Relations: Renee Bessette
- Director of Education: LTC Kristen Castro, Au.D., Ph.D.
- Director of Membership: COL Lynnette Bardolf, Ph.D.
- Associate Delegate: David Stern, C.O.H.C.
- Student Delegate: Cory Portnuff, Au.D., Ph.D.
- Historian: Elliott Berger, I.N.C.E. Bd.Cert., M.S.

### Leadership Advisory Team
- Susan Griest, M.P.H. - Chair
- Rick Neitzel, Ph.D., C.I.H.
- Deanne Meinke, Ph.D., CCC-A
- David Mayou

### Editorial Staff
- Richard Stepkin, CCC-A, FAAA, M.S. - Editor
- Elliott Berger, I.N.C.E. Bd.Cert., M.S.
- Rena Glaser, M.A.
- Mary McDaniel, Au.D., CCC-A
- Laurie Wells, Au.D., FAAA, PS/A

### Task Force Chairs/Organizational Liaisons
- Children and Noise Task Force: Deanna Meineke, Ph.D., CCC-A
- Legislation Task Force: Amanda Azman, Ph.D.
- Music-Induced Hearing Disorders Task Force: Brian Fligor, Sc.D.
- Nominations Task Force: Tim Rink, B.A., CCC-A, M.A., Ph.D.
- Public Inquiry Respondent: Kathy Schmidt-Miller, CCC-A
- Prevention of Noise-Induced Hearing Loss from Firearm Noise Task Force: Michael Stewart, Ph.D.
- Publications Task Force: Richard Stepkin, CCC-A, FAAA, M.S.
- Website Task Force: Larry Kauth, M.A., CCC-A
- Confidentiality Task Force: Cindy Bloyer, CCC-A, M.S.
- Baseline Revision Task Force: Mary McDaniel, Au.D., CCC-A
- AAA: Dick Danielson, Ph.D.
- AAOHN: Pegeen Smith, R.N., M.S., C.O.H.N.-S
- ACOEM: Bruce Kirchner, C.O.H.C., F.A.C.O.E.M., M.D., M.P.H.
- AIHA: Laurel Davis, M.P.H., C.I.H.
- ASHA: Ted Madison, M.A., CCC-A
- ANSI S3: Theresa Schulz, Ph.D., CCC-A
- ANSI S12: Joe Cissna, C.I.H., M.S.
- CAOHC: Madeleine Kerr, Ph.D., R.N.
- MAA: Vickie Tuten, Au.D.
- NHCA Foundation: Mary McDaniel, Au.D., CCC-A
- OSHA: Alice Suter, Ph.D.
The following organizations have been contacted for continuing education credits, all are pending approval:

**American Academy of Audiology (AAA)**
2.45 CEUs
The National Hearing Conservation Association is approved by the American Academy of Audiology to offer Academy CEUs for this activity. The program is worth a maximum of 2.45 CEUs. Academy approval of this continuing education activity does not imply endorsement of the course content, specific products, or clinical procedures.

**AmericanSpeech-Language-Hearing Association (ASHA)**
1.8 CEU (full conference and workshops)
1.2 CEUs (conference only)
.6 CEUs (workshops only)

**Continuing Education Board of the American Speech-Language-Hearing Association (ASHA)**
1.8 CEU (full conference and workshops)
1.2 CEUs (conference only)
.6 CEUs (workshops only)

**American Association of Occupational Health Nurses (AAOHN)**
17.25 CNE Contact Hours

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

**American Board of Industrial Hygiene (ABIH)**
0.5 Industrial Hygiene CM points per half day
4.0 total Industrial Hygiene CM Points

---

**Friday Night Event - MARDI GRAS WORLD**

**FRIDAY, FEBRUARY 24, 2012**

**SCHEDULE OF EVENTS:**
5:30 p.m. - Shuttles arrive at hotel for guest pick up
5:45 p.m. - First shuttle departs
6:00 p.m. - Guests arrive at Mardi Gras World and walk through float warehouse
6:45 p.m. - Guests arrive at Old Oaks Mansion for dinner, drinks and entertainment
8:45 p.m. - First shuttle departs for Astor Crowne Plaza
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 a.m. - 5:30 p.m.</td>
<td>Registration and information desk open</td>
<td>Astor Foyer</td>
</tr>
<tr>
<td>7:30 a.m. - 8:30 a.m.</td>
<td>Continental breakfast</td>
<td>Astor Foyer</td>
</tr>
<tr>
<td>8:30 a.m. - 11:30 a.m.</td>
<td>Morning workshops</td>
<td>Rooms vary - see below</td>
</tr>
<tr>
<td>9:45 a.m. - 10:15 a.m.</td>
<td>BREAK</td>
<td>Astor Foyer</td>
</tr>
<tr>
<td>11:30 a.m. - 1:00 p.m.</td>
<td>Lunch (on your own)</td>
<td></td>
</tr>
<tr>
<td>11:30 a.m. - 1:00 p.m.</td>
<td>Scholarship Foundation Awards Luncheon *By invitation only</td>
<td>St. Ann</td>
</tr>
<tr>
<td>1:00 p.m. - 4:00 p.m.</td>
<td>Afternoon workshops</td>
<td>Rooms vary - see below</td>
</tr>
</tbody>
</table>

AM and PM workshop offerings, registration required. See conference help desk regarding workshops if you did not pre-register for a workshop you wish to attend.

**Full Day 1.**

- **Hearing Loss Prevention: The Basics | St. Charles B**
  - Hearing Loss Prevention: The Basics | St. Charles B
  - Noise Measurement and Instrumentation | USA
  - The Audiogram - How to Use it | USA
  - Hearing Loss Recordability Issues | USA
  - Effective Hearing Protection | USA
  - Education and Motivation | USA
  - Hearing Conservation Regulations and HIPAA | USA

**Full Day 2.**

- **The HearTomorrow Audio Workshop: Audio System Theory for Hearing Professionals | St. Charles A**
  - Presenter: Benj Kanters, M.M. - Columbia College Chicago | USA

**A.M. Only 3(A).**

- **Noise Measurement and Instrumentation | Iberville**
  - Presenter: Lee Hager - 3M | USA

**P.M. Only 3(B).**

- **Noise Measurement and Instrumentation | Iberville**
  - Presenter: Lee Hager - 3M | USA

**A.M. Only 4(A).**

- **Hearing Protection Device Field Attenuation Estimation Systems - Round Robin Evaluations | Toulouse A, B**
  - Presenters: William Ahroon, Ph.D. - US Army Aeromedical Research Laboratory | USA
  - MAJ Kel Kratzer, Au,D, CCC-A - Womack Army Medical Center | USA
  - CPT Michelle Vincent, Au.D. - Bayne Jones Army Community Hospital | USA
  - CPT Angela Fullbright, Au,D, CCC-A - Carl R. Darnell Army Medical Center | USA
  - CPT M. Joel Jennings, M.S., CCC-A, F/AAA - William Beaumont Army Medical Center | USA
  - CPT Kara Cave, B.A, Ph.D. CCC-A, F/AAA - Blanchfield Army Community Hospital | USA

**P.M. Only 4(B).**

- **Laissez les Bons Temps Rouler - Building Alliances to Save Hearing | Toulouse A, B**
  - Presenter: John Allen, Ph.D. - NASA | USA

**A.M. Only 5(A).**

- **PSP Workshop: Mobile Unit Infectious Controls Update and Panel Discussion | Bourbon**
  - Presenter: A.U. Bankaitis, Ph.D., FAAA - Oaktree Products, Inc. | USA

**P.M. Only 5(B).**

- **Hearing Protection for Recreational Firearm Shooters | Bourbon**
  - Presenters: Deanna K. Meinke, Ph.D. - University of Northern Colorado | USA
  - Michael Stewart, Ph.D. - Central Michigan University | USA
  - Gregory A. Flamme, Ph.D. - Western Michigan University | USA
  - CPT William J. Murphy, Ph.D. - National Institute for Occupational Safety and Health / USPHS | USA
  - James E. Lankford, Ph.D. - Northern Illinois University | USA
  - Jacob Sondergaard, M.Sc., B.Eng. - G.R.A.S. Sound & Vibration | USA
  - Donald S. Finan, Ph.D. - University of Northern Colorado | USA

**2:15 p.m. - 2:45 p.m.**

- BREAK | Astor Foyer

**4:00 p.m. - 5:00 p.m.**

- Committee Meetings and Networking

**4:00 p.m. - 5:30 p.m.**

- **NHCA Meet and Greet (Students, New members and First Timers) *By invitation only | Presidential Suite 644/645**

**5:30 p.m. - 8:30 p.m.**

- **Exhibits Open/Exhibitor's Reception | Astor Ballroom I, II, III**
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 a.m.</td>
<td>Registration and information desk open</td>
<td>Astor Foyer</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>Continental Breakfast</td>
<td>Astor Ballroom I, II, III</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>Welcome and opening remarks</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>Intervention Effectiveness Research in Hearing Loss Prevention</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>How Should Hearing Conservation Program Effectiveness Be Assessed?</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>8:10 a.m.</td>
<td>Welcome and opening remarks</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>8:20 a.m.</td>
<td>Intervention Effectiveness Research in Hearing Loss Prevention</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>9:10 a.m.</td>
<td>Don’t Trash Your Hearing - Cultural Issues and Hearing Loss Prevention in Public Sector Solid Waste Services</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>9:45 a.m.</td>
<td>How Should Hearing Conservation Program Effectiveness Be Assessed?</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>10:00 a.m.</td>
<td>Keynote Lecture: Noise Induced Hearing Loss and Tinnitus Prevention: Engaging Communities and Changing Cultures</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>10:30 a.m.</td>
<td>Strategies for Building Hearing Awareness Advocacy Among Music and Sound Professionals</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>11:00 a.m.</td>
<td>NHCA Business Meeting</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>Hosted Luncheon: “The Nerve to Serve: Say Hello to Humor and Goodbye to Burnout”</td>
<td>Grand Ballroom D</td>
</tr>
<tr>
<td>2:30 p.m.</td>
<td>Radomized, Controlled Study of NIHL and Tinnitus Prevention Interventions in Elementary School Students</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>3:00 p.m.</td>
<td>The Need for Engineering Noise Control</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>3:25 p.m.</td>
<td>Break</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>3:50 p.m.</td>
<td>Risk of NIHL from MP3 Player Use: Evaluating Long-Term Dosimetry Measurements</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>4:15 p.m.</td>
<td>Children and Adolescents’ Habits, Preferences and Protective Behaviors Regarding Loud Sound Exposures: Inherited Culture?</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>4:40 p.m.</td>
<td>2012 Safe-in-Sound Excellence in Hearing Loss Prevention Awards</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>5:15 p.m.</td>
<td>Break/Posters/Committee Meetings/Networking Time</td>
<td>Grand Ballroom A, B, C</td>
</tr>
<tr>
<td>5:15 p.m.</td>
<td>Hosted Luncheon: “The Nerve to Serve: Say Hello to Humor and Goodbye to Burnout”</td>
<td>Grand Ballroom D</td>
</tr>
<tr>
<td>5:45 p.m.</td>
<td>Friday Night Off-Site Event</td>
<td>Mardi Gras World</td>
</tr>
</tbody>
</table>

**Friday, February 24, 2012 Conference Schedule**
Saturday, February 25, 2012 Conference Schedule

7:30 a.m. - 5:30 p.m.  Registration and Information Desk Open | Astor Foyer

7:45 a.m. - 8:45 a.m.  Roundtable Chat Sessions with buffet breakfast | Grand Ballroom D

**TOPIC** | **MODERATOR** | **TOPIC** | **MODERATOR**
--- | --- | --- | ---
Music-Induced Hearing Loss | Cory Portnuff | Membership Enhancement Teams | Lynnette Bardolf/Tim Rink
Engineering Controls | Tom Lloyd | First Timers | Sheryl Whiteman
New Technology | Theresa Schulz | Military Auditory Situation Awareness | John Casali
Hearing Conservation for the Hearing Impaired Worker | Vishakha Rawool | Field Verification | Brad Witt
CAOHC | Laurie Wells | Fit Testing | Elliott Berger
Tinnitus Issues | Susan Giest | Music School Arena | Kris Chesky
Effective Hearing Conservation Training | Rick Neitzel | Evidence Based Hearing Loss Prevention | Thais Morata
Otitotoxicity | Laura Kauth | Military Issues | Kristy Castro
Researcher's Table | Jennifer Tufts | OSHA Updates | Alice Suter
Classroom Acoustics | Scott Lake | Audiogram Review & Follow-Up | Dick Danielson
Children and NIHL | Deanna Meinke | Traumatic Brain Injury | Patty Niquette
International | Karen Turner | Safe-in-Sound Award™ | Dennis Driscoll

Making NHCA more relevant to Commercial Members | Jeffrey Goldberg | Got Chat? | Open Table

8:45 a.m. - 9:10 a.m.  What Are They Hearing? Australian Young Adults’ Leisure Noise Exposure and Attitudes to Hearing Loss Prevention | Megan Gilliver, Ph.D. | Grand Ballroom A, B, C
9:10 a.m. - 9:35 a.m.  Reactions to Noise in Day-Care Centers in Sweden | Ann-Christin Johnson, Ph.D. | Grand Ballroom A, B, C
9:35 a.m. - 10:00 a.m.  Impact of Daily Noise Exposure Monitoring on Individual Noise Exposures | Michael McTague, M.P.H. | Grand Ballroom A, B, C
10:00 a.m. - 10:25 a.m.  Need for Special Support for Workers with Hearing Loss in Noisy Occupations | Vishakha Rawool, Ph.D. | Grand Ballroom A, B, C
10:25 a.m. - 10:50 a.m.  Break (Exhibit Hall Closes at End of Break) | Astor Ballroom I, II, III
10:50 a.m. - 11:15 a.m.  Myths and Misconceptions About Hearing Protection | Elliott Berger, M.S., I.N.C.E. Board Certified | Grand Ballroom A, B, C
11:15 a.m. - 11:40 a.m.  Developing an Educational Toolkit for Military Hearing Preservation | Lynne Marshall, Ph.D. | Grand Ballroom A, B, C
11:40 a.m. - 12:05 p.m.  Military Hearing Protection-Enhancement Devices: Can the Soldier Detect and Identify the Gunshot and Other Threats? | John Casali, Ph.D., C.P.E., Grado Chaired Professor | Grand Ballroom A, B, C
12:05 p.m. - 1:15 p.m.  Hosted Luncheon and Awards | Grand Ballroom D
1:15 p.m. - 1:50 p.m.  Gasaway Lecture: InsPEaration | Dennis P. Driscoll, P.E., Brd. Cert., I.N.C.E. | Grand Ballroom A, B, C

**BREAKOUTS**

**Military/Firearms** | **HPDs/Fit Testing**
--- | ---
2:00 p.m. - 2:25 p.m.  The Influence of Military Service on Auditory Health and the Efficacy of a Hearing Conservation Program  | Per Muhr, Ph.D. | St. Charles B  | An Acoustical Analysis of the Frequency-Response and Attenuation Patterns of Musician Earplugs  | Kris Chesky, Ph.D. | St. Charles A
2:25 p.m. - 2:50 p.m.  Evaluation of Different Hearing Protection at Firing Ranges  | Leif Olsen, M.P.H., C.I.H., C.H.M.M. | St. Charles B  | The Occlusion Effect of Earplugs per Insertion-Depth, Earplug Type, and Excitation-Source  | Kichol Lee, M.S. | St. Charles A
2:50 p.m. - 3:15 p.m.  Comparison of Impulse Peak Insertion Loss Measurements from Three Acoustic Test Fixtures  | CAPT William J. Murphy, Ph.D. | St. Charles B  | We Build Airplanes!...What Does Hearing Conservation Have to Do with Me?  | Raoul Calimlim, C.I.H. | St. Charles A
3:15 p.m. - 3:45 p.m.  Break | Astor Foyer
3:45 p.m. - 4:10 p.m.  Use of a Head Simulator to Measure the Hearing Protection Performance of Helmets Developed for High Noise Environments  | Anthony Dietz, Ph.D. | St. Charles B  | Custom Designed and Manufactured Hearing Protection: History, Terminology and Benefits to Corporations and Hearing Conservation Professionals  | Scott Lake, M.S.E., B.S.M.E., G.M.I. | St. Charles A
4:35 p.m. - 5:00 p.m.  Impulse Noise Levels Generated by Starter Pistols  | Jacob Sondergaard, M.Sc., B.Eng. | St. Charles B  | Optimal Hearing Protection with State of the Art Custom HPD’s and State of the Art Fit Testing  | Mihaela Grigorie, Ph.D. | St. Charles A
5:00 p.m.  Closing Remarks | St. Charles B  | Closing Remarks | St. Charles A

**NHCA SPECTRUM**

VOLUME 29, SUPPLEMENT III, 2012
## 2012 Exhibitor Booth Listings and Map

<table>
<thead>
<tr>
<th>Booth #</th>
<th>Exhibitor</th>
<th>Booth #</th>
<th>Exhibitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,9,10,11</td>
<td>3M</td>
<td>15,16,17,18</td>
<td>Howard Leight By Honeywell</td>
</tr>
<tr>
<td>6</td>
<td>ASHA</td>
<td>21</td>
<td>Mimosa Acoustics</td>
</tr>
<tr>
<td>3,4</td>
<td>Benson Medical Instruments</td>
<td>2</td>
<td>Phonak</td>
</tr>
<tr>
<td>26</td>
<td>CAOHC</td>
<td>20</td>
<td>Sensear, Inc.</td>
</tr>
<tr>
<td>12</td>
<td>Casella USA</td>
<td>23,24,25</td>
<td>Scholarship Foundation Silent Auction</td>
</tr>
<tr>
<td>7</td>
<td>CDC/NIOSH</td>
<td>1</td>
<td>Tremetrics</td>
</tr>
<tr>
<td>22</td>
<td>Eckel Industries of Canada</td>
<td>5,27</td>
<td>Troy Acoustics Corp</td>
</tr>
<tr>
<td>19</td>
<td>G.R.A.S. Sound &amp; Vibration</td>
<td>13,14</td>
<td>Westone Laboratories</td>
</tr>
</tbody>
</table>

### Diagram

- **Astor Ballroom I, II, III**
- **Astor Foyer Entrance**
- **Astor Gallery Entrance**
- **Astor Foyer Entrance**
- **Anode Ballroom I, II, III**
- **Anode Foyer Entrance**
- **Anode Gallery Entrance**
- **Service Entrance**
- **FOOD**
- **POSTERS**
- **Canal Balcony**
- **Astor Ballroom I, II, III**
- **Astor Gallery Entrance**
Thank You to our 2012 Sponsors:

**Premium Sponsor | Platinum**

3M | HOWARD LEIGHT by Honeywell

**Event Sponsor | Silver**

BENSON MEDICAL INSTRUMENTS | Troy Acoustics Corporation | Westone

**Vendor Reception | Bronze**

ECKEL NOISE CONTROL TECHNOLOGIES

**Workshop Sponsors**

TREEMETRICS | G.R.A.S. Sound & Vibration | PHONAK life is on | CAOHC

American Speech-Language-Hearing Association | Sensear | Casella USA | Mimosa Acoustics

**Speaker Travel Sponsors**

NIOSH
3M – The Power to Protect Your World. 3M provides cutting edge health and safety products for many industries, helping to protect workers’ health with reliable, comfortable safety solutions. Our industry leading personal protection equipment (PPE) has long offered safety products designed to meet the highest industry standards of excellence. 3M has brought together the leading names in hearing conservation; 3M™, E-A-R™, Peltor™ and Quest – to lead the world in Detection, Protection and Validation solutions. Visit 3M at www.3m.com/hearing where you can read articles, download hearing conservation materials, watch videos and learn about 3M™ hearing conservation solutions.

Howard Leight is a leading global provider of passive and intelligent hearing protection solutions, and is the founder of the HearForever® initiative. For over 30 years, the company and its predecessors have pursued the prevention of occupational noise-induced hearing loss through innovation in hearing protection design, technology, performance and comfort, and the promotion of progressive Hearing Conservation Programs. Leading solutions include the highest attenuating Max® single-use earplug; patented Air Flow Control™ technology for optimal earmuff attenuation; QuietDose™ personal in-ear dosimetry; and the industry-changing VeriPRO® earplug fit testing system. Visit us online at howardleight.com and hearforever.org.

Benson Medical Instruments designs and manufactures occupational audiometers and hearing conservation software, focusing on seamless integration. The results are faster test speed, greater repeatability, unsurpassed ease of use, and powerful data transfer. We offer affordable solutions for a single clinic, as well as multi-site companies and mobile group testing.

The National Institute for Occupational Safety and Health (NIOSH) is one of the centers within the Centers for Disease Control and Prevention, CDC. NIOSH conducts Research in occupational Safety and Health and provides National and World Leadership to Prevent Workplace Illnesses and Injuries.

Troy Acoustics Corporation offers Engineering Noise Control Solutions specializing in shooting ranges, equipment enclosures, manufacturing facilities, or any noisy environment. “At Troy we treat the space to protect the person.”

Westone Laboratories has specialized in custom earplugs and earpieces as well as other products to protect and enhance hearing, facilitate communication, and support hearing care professionals since 1959. Our dedication to absolute quality, uncompromising service, and The Golden Rule have made us a world leader in our industry.

Eckel Industries of Canada Limited product line includes audiometric booths, rooms for hearing evaluation and multiple room suites, featuring cam-locking panel construction.

American Speech-Language-Hearing Association: Over 14,000 ASHA certified audiologists provide research, hearing conservation, diagnostic and rehabilitative services for individuals hearing loss and/or balance disorders.

CAOHC’s mission is to promote hearing loss prevention by enhancing the quality of occupational hearing loss prevention practices, with focus on providing oversight and support to those who train occupational hearing conservationists; the course directors, and those who supervise hearing conservationists and interpret problem audiograms; the professional supervisors.

Casella USA is one of the leading suppliers of Industrial Hygiene, Occupational Health and Environmental products. Casella provides clients with measuring instruments and other products related to the main business areas of environmental monitoring, health and safety applications and industrial hygiene topics.
G.R.A.S. Sound and Vibration: A broad range of standard measurement microphones, preamplifiers, transducers and accessories. Sound intensity microphones, outdoor monitoring microphones, artificial ears, ear and mouth simulators, CCP preamplifiers, calibrators, etc. The microphone-preamplifier combinations feature built-in TEDS, microphone arrays. Microphone systems for measurement of low noise levels below the threshold of hearing.

Mimosa Acoustics manufactures state-of-the-art auditory diagnostic systems for evaluating middle and inner-ear health. Our HearID auditory diagnostic system incorporates modules for testing both middle-ear and inner-ear characteristics.

Phonak Communication, a leader in passive and active custom hearing protection with communication and ambient awareness, all verifiable with Safety Meter. www.phonak-communications.com

Sensear: Bridging the gap between hearing protection and high noise communication, Sensear’s innovative SENS (Speech Enhancement, Noise Suppression) technology enhances speech while suppressing harmful background noise.

Tremetrics designs and manufactures a complete line of innovative hearing/health testing equipment including multimedia and microprocessor audiometers, space-saving mobile testing systems, hearing test booths and health database management software.
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 2012, the NHCA is proud to present this prestigious award to Laurie Wells.

“Art and science have their meeting point in method”
Earl Edward George Bulwer-Lytton (Caxtoniana, 1875)

A bright moon can guide our paths at night and bright sunshine can direct our travels through life’s flower gardens. For NHCA, Laurie Wells is both moonlight and bright sunshine. The Michael B. Threadgill award not only recognizes Laurie Wells’ accomplishments and contributions to NHCA, but also the light she brings into the lives of those that have had the luxury of knowing her personally. I would be willing to wager that Laurie knows more NHCA members personally and can recall the names of their family members, when their birthdays are and what their favorite drink, food, sound or earplug than anyone else in the organization. Her approachable personality readily engages all persons, whether they are NHCA members, professional colleagues or noise exposed workers. Her often subtle ability to inspire and motivate people to action is unique and highly effective.

Laurie Wells, Au.D., completed her Master’s of Science degree in 1985 at the University of Arizona in Tucson and a Doctor of Audiology degree in 2007 from the Salus University, School of Audiology. She is board certified in Audiology by the American Academy of Audiology and Clinically Certified by the American Speech-Language-Hearing Association. Specifically related to hearing loss prevention; Laurie is a Council for Accreditation in Occupational Hearing Conservation (CAOHC) certified course instructor and professional supervisor. In addition, Laurie is also gifted and trained artistically. She is an accomplished fiber artist (weaver) and enjoys performing music with her husband Sal, by accompanying his performances with her flute and voice. In these ways she enlightens both our eyes and our ears and brightens our lives.

A Candle in the Distance
Laurie’s path towards becoming a hearing conservationist began when she relocated from Arizona to Colorado in 1990. Her new job duties at the University of Northern Colorado Speech-Pathology and Audiology Clinic (July, 1991) included supervising graduate students in the audiology clinic, but also providing occupational audiology services to local employers. This was a new area of expertise for Laurie and I had the personal pleasure of bringing Laurie to her first NHCA conference in Cincinnati, Ohio in 1992. Like many of us, she hasn’t missed one since. This is especially noteworthy since many of the conferences are held on her birthday, February 25th. The light she brings to NHCA grows brighter each year as more candles adorn her birthday cake (you may ask her about the number).

Currently, Laurie is the Manager of Audiology for Associates in Acoustics, Inc., a professional consulting firm specializing in hearing loss prevention through occupational audiology, noise measurement and noise control efforts. In addition, Laurie has represented the American Academy of Audiology on the CAOHC Council since 2007 and is currently the Vice-Chair-Education. Her professional experience, hearing loss prevention expertise and creative teaching strategies have enabled her to present to numerous audiences both nationally and internationally. She has served as a NHCA ambassador or “hair cell ambassador” as Laurie likes to say, in Belgium, China, Czech Republic, France, Hungary, India, Spain and the West Indies. Her light and has been spread worldwide.

Energy and Light for NHCA
Laurie’s endless energy, diverse talents and quick aptitude were welcomed by NCHA. Her contributions are as varied in color as her elaborate weavings. In 1999, Laurie began a seven (yes 7) year service on the NHCA Executive Council and held the following offices; Secretary (2 years), Vice-President (2 years), President Elect, President and she ultimately completed her term as Past President in early 2007. In these roles, Laurie planned multiple Excellence Seminars, which were an earlier version of the NHCA “Hearing Loss Prevention: The Basics” workshop held regionally around the U.S. This program planning experience was leveraged by NHCA in 2002 and 2003 when she volunteered to be Conference Program Chair for two (yes 2) consecutive annual conferences (Dallas, TX and Seattle, WA). Aside from her service on the Executive Council, she has contributed to NHCA as an Associate Editor of Spectrum, Long-Term Advisory Task Force Chair, Leadership Advisory Team member, Spectrum contributor, silent auction and raffle organizer, NHCA Strategic Planning contributor and Recordable Hearing Loss Task Force member. Most recently Laurie received the NHCA Outstanding Lecture Award for 2011. It takes enormous energy to create light and sustain the effort she has devoted to NHCA over the years. Somewhere she hides an eternal flame for NHCA.

Continued on page 14
Light-hearted Creativity

As the quote above states, “Art and science have their meeting point in method”. Laurie’s successful teaching methods are the result of her creative approach to integrating the science of hearing loss prevention with the art of modifying individual behaviors. Her fun-filled approach to teaching (ask her to sing “Wild Thing” while demonstrating hair cell damage with pipe cleaners), her fast-paced word-play (ask her to recite a limerick), her modeling how to wear an earmuff properly (ask her about earmuffs with a purple boa attached) or demonstrating how to properly roll-down a foam earplug (ask her how to make a cheese mouse) teach and entertain us. She does not generate these ideas without forethought and creative contemplation. It is her established knowledge base, thoughtful introspection, watchful observation, flexibility and empathy with her audience that motivates her to think “outside the ear” in terms of assuring that others learn from her while having fun. Her joyful light has connected her individually to people around the world, and awakened their personal desire to prevent noise-induced hearing loss.

Birthday Sunshine

Laurie, we the members of NHCA, wish to reflect your light back on you by presenting you with the 2012 Michael Beall Threadgill Award. Enjoy the limelight and the joy your colleagues have in raising our glasses in a toast of appreciation for all you do for NHCA as an organization and nurturing our individual relationships. Celebrate your personal accomplishments in terms of the number of NHCA friendships as well as years. ChEARs to you! Oh, and Happy Birthday Laurie!

Submitted in Friendship by Deanna Meinke, Ph.D.
NHCA, in cooperation with the National Institute for Occupational Safety and Health (NIOSH) developed in 2010 the first supplement on hearing loss prevention of the International Journal of Audiology, highlighting the research presented at NHCA’s 35th Annual Conference. The widely anticipated supplement was distributed at the 36th Annual Conference in Mesa, Arizona in 2011, and received acclaim from attendees.

Following the positive feedback received from our members, NHCA and NIOSH decided to prepare a second dedicated supplement providing a complete description of an invited subset of presentations given at the 36th Annual Conference, which focused on the theme “Innovation and Technology”. The second supplement will be distributed at the 37th NHCA Annual Conference. The co-editors, Thais Morata and Colleen Le Prell, would like to publicly express their appreciation to the authors and the peer reviewers for their dedication to making this supplement a success. The editors of IJA, Ross Roeser and Jackie Clark, have been personally instrumental in guiding the publication and making the supplement a reality.

This would not have been possible without a grant from the Oticon Foundation and the financial underwriting provided by the following sponsors; ASI Health Services, the Council for Accreditation in Occupational Hearing Conservation (CAOHC), Etymotic Research Inc., HCI Inc. National Mobile Health Programs, HTI Inc. Mobile Audiometric Services, MED Compass, Mimosa Acoustics, MobileEar Inc., NHCA, and NIOSH. Please thank these organizational representatives personally for the journal copies you have received at this conference.
The NHCA Scholarship Foundation is pleased to announce the recipients of our 2012 Student Conference Award. The award is available to graduate students who are actively pursuing a degree in a discipline related to hearing conservation and who are enrolled at least half-time in an accredited educational institution. Interested students complete a one-page application and send one letter of recommendation. Applications are then evaluated by the Scholarship Foundation review committee: John Allen, William Clark, Nancy Green, Theresa Schulz, and Jennifer Tufts. Recipients receive a complimentary conference registration and a $800 stipend to cover travel and lodging expenses.

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

Rachael Baiduc
Ph.D. candidate
Communication Sciences and Disorders
Northwestern University

Jennifer Eggebrecht
Au.D. candidate
Audiology and Speech Language Sciences
University of Northern Colorado

Stephanie Phelps
Ph.D. candidate
Community Health/Nursing
University of California, San Francisco

Thank You Student Conference Award Sponsors

Silver Sponsors | Donation of $500 or more

3M James & Vera Lankford Sensaphonics HOWARD LEIGHT
by Honeywell

Bronze Sponsors | Donation of $250 or more

TRE-METRICS Health Metrics, Inc. Audiometric Baseline Consulting

Deanna Meinke, Ph.D. Benson Medical Instruments
Theresa Schulz, Ph.D. Pacific Hearing Conservation
Krisztina Bucsi Johnson | East Tennessee State University
Research Project entitled: “Hearing Loss in the Dental Office: The Effects of High Speed Dental Drills on Dentists’ Hearing”

I guess that you could say that I am a nontraditional student. I grew up in Bekescsaba, Hungary—a small town in the far southeastern part of the country. After graduating from high school in Hungary, I worked as a professional tailor there for four years. I came to the U.S. in 1998 after meeting my future husband, a visiting American English teacher. I earned my B.S. degree in Microbiology in 2008 from East Tennessee State University (ETSU). I am currently a graduate student in ETSU’s Au.D. program, where my primary research interest is investigating the effects—both medical and financial—of occupational noise. I am particularly interested in understanding the effects of high speed dental drills on dentists’ hearing and the importance of hearing protection in the dental office.

Kari Elizabeth Morganstein | University of Florida
Research Project entitled: “Micronutrient Intervention to Reduce Noise-Induced Hearing Loss: Measurement of Temporary Threshold Changes Induced by Use of a Digital Audio Player”

Kari Morgenstein is a third year Doctor of Audiology student at the University of Florida. She is currently the president of the National Student Academy of Audiology (SAA) and Community Service Co-Chair for the University of Florida’s SAA Chapter. Kari worked with Dr. Robert Withnell in his Auditory Physiology Lab as an undergraduate student at Indiana University. Currently, Kari is a Research Assistant for Dr. Colleen Le Prell and works on various projects looking at the effects of significant noise exposure and hearing loss.
Thais C. Morata, Ph.D. - Safe-in-Sound Award™ Director
National Institute for Occupational Safety and Health - Cincinnati, OH
Deanna Meinke, Ph.D. - Safe-in-Sound Award™ Committee Chair
University of Northern Colorado - Greeley, CO

Safe-in-Sound Award™ Committee:
John Franks, Ph.D. - Lytlesound - Cincinnati, OH
Lee Hager - 3M - Portland, MI
James Lankford, Ph.D. - Northern Illinois University - DeKalb, IL
Rick Neitzel, Ph.D., C.I.H. - University of Michigan - Ann Arbor, MI
Scott Schneider, C.I.H. - Laborers’ Health and Safety Fund of North America - Washington, DC

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

Dr. Kitt received a Bachelor of Science from The State University of New York at Albany, a Doctor of Medicine from the University of Rochester School of Medicine and Dentistry, and a Master of Public Health from the University of Washington. She is certified by the American College of Preventive Medicine in both Aerospace Medicine and Occupational Medicine. Dr. Kitt was a Senior Flight Surgeon in the U.S. Air Force, serving for 14 years. In 2002, she joined NIOSH and the U.S. Public Health Service. Dr. Kitt’s assignments at NIOSH have included the Division of Respiratory Disease Studies, Associate Director for the NIOSH Emergency Preparedness and Response Office, and her current position as the Deputy Director for Program.
Safe-In-Sound Award™ Winner Biographies:

Dan Westrum, M.S., C.I.H.
3M Stationary Products Division
Dan Westrum has been an industrial hygienist for 27 years working in consulting, government, retail, and manufacturing. He is currently an industrial hygienist at the 3M Hutchinson, Minnesota, manufacturing plant. As the plant industrial hygienist, responsibilities include: assessment and control of chemical and noise exposure, review of new chemicals and process changes, and personal protective equipment and respiratory protection. Dan has a Master of Science degree from the University of Minnesota and has been a certified industrial hygienist (CIH) for 22 years.

Hendra Harapan, M.P.H., C.I.H.
3M Corporate
Hendra Harapan has been an industrial hygienist for 26 years. He has been working in 3M Company Corporate Industrial Hygiene with Division and Plants assignments. His prior experience includes international responsibilities for European Subsidiaries and regional industrial hygiene assignments for South/Central America and Asia Pacific. Hendra holds a Master of Public Health degree from the University of Minnesota and has been a Certified Industrial Hygienist (CIH) for 22 years.

Chris Bruni, C.I.H., C.S.P.
Bechtel National, Inc.
Chris Bruni is an Industrial Health and Safety Professional with 28 years of experience. Chris has worked as a Health and Safety Manager with US West, Lucient Technologies and General Electric and is now Lead, Program Industrial Hygienist for Bechtel National, Inc. at the Hanford, Waste Treatment Plant construction site. Mr. Bruni has a Bachelor of Science degree in Industrial Safety Management from Indiana University of Pennsylvania and a Masters of Public Health degree in Industrial Hygiene from the University of South Florida. He holds certifications as a Certified Safety Professional and a Certified Industrial Hygienist.

Scott Nickerson, C.S.P.
Bechtel National, Inc.
Scott Nickerson is an Industrial Health and Safety Professional with 22 years of experience. Scott has worked at several Department of Energy (DOE) sites: Nine years at Rocky Flats Plant, Golden, Colorado working for EG&G and The Alpha Group, Six years at Pacific North West National Laboratory located in Richland, Washington operated by Battelle and is currently the Lead, Field Industrial Hygienist on Bechtel project “Waste Treatment Plant” on the Hanford DOE site. Mr. Nickerson has a Bachelor of Science degree in Civil Engineering with an Environment Emphasis from Metropolitan State College of Denver and is a Certified Safety Professional.

Lori Michelin, M.S.
Colgate Palmolive
Lori Michelin is the Worldwide Director, EOHS and Product Sustainability. Lori is responsible for ensuring the regulatory compliance of all of Colgate-Palmolive’s environmental, health and safety activities on a global basis. Lori’s focus is to drive Colgate’s efforts to improve safety performance and reduce the environmental impact of our operations, products and packaging. She holds a B.S. degree in civil engineering from Pennsylvania State University and an MS degree in civil engineering from Villanova University.
Friday Night Event Scholarship Foundation Fundraisers:

Tarot Card Readings / ($10 per reading)  
Join NHCA President-Elect Laura Kauth during the Friday Night Event in Grand Oaks Mansion and learn valuable knowledge which will help you change your future! Tarot cards show you what will happen if you change nothing and keep doing things the way you have been doing them. If the cards see danger ahead, by taking action you can avoid the danger before it can strike! If the cards predict good times, you must still make a conscious effort to continue doing what you are doing now, or the prediction will go unfulfilled! Tarot cards never tell you what is going to happen - they tell you what it seems will happen based on your current situation! Pre-purchase your Tarot card reading ticket when registering for the NHCA conference! Tickets will also be sold at the event. Funds collected will benefit the NHCA Scholarship Foundation.

Fortune Teller Readings / ($10 per reading)  
Join NHCA member Ted Madison for a night of predictions and magic! Learn what your future holds during the Friday Night Event at the Grand Oaks Mansion! Pre-purchase your Fortune Teller reading ticket when registering for the NHCA conference! Tickets will also be sold at the event. Funds collected will benefit the NHCA Scholarship Foundation.

MatchGame Night / ($20 per person)  
Join NHCA during the Friday Night Event in the Iberville room of the Grand Oaks Mansion for an evening of entertainment! Contestants can win fabulous prizes for matching their “fill in the blank” answers to those of our NHCA Expert Celebrities.

MatchGame Night Host: The amazing Scott Lake, M.S.E., B.S.M.E., G.M.I.  

Become a part of the fun!  
Become a contestant! - $50.00  
Write the “fill-in-the-blank” statements to be used during the game - $25.00  
Attend as a member of the audience - $20.00

$100 Donation Package Deal Includes: 1 contestant admission, 1 “fill in the blank” question submission, 1 Tarot card reading, 1 Fortune teller reading and 1 photo contest entry.

Conference Fundraisers:  
***NOTE: The annual golf tournament will not be held during the 2012 Conference. This is due to the timing of the conference in relation to Mardi Gras and recommended travel dates. You are certainly welcome to plan your own golf outing with fellow NHCAer’s if time allows in your schedule!

Photo Contest  
Several weeks prior to the conference, attendees were asked to submit either a baby photo or photo of their desk to Mary McDaniel. This year the NHCA Scholarship Foundation will be holding a photo contest throughout the conference which should add a little comic relief and get you looking at your fellow hearing conservationists in a different light! Photos will be presented during the conference so plan to submit your vote to Mary McDaniel on “Who’s Who?”. The winner will be announced during the Saturday Awards Luncheon and will receive an iPad2!!! There is a $20 pay to play fee for the photo contest. All proceeds will benefit the Scholarship Foundation.

50/50 Split  
Donate to the 50/50 Split during the conference! 50% of the proceeds will benefit the NHCA Scholarship Foundation!

SilentAUCTION  
Participate in the NHCA Scholarship Foundation’s SilentAUCTION, which will be held during the conference! The funds raised through this auction will directly support research and travel (to the conference) for graduate students focusing on applied and basic studies in hearing loss prevention (many of our current NHCA members were assisted by these stipends during their slim years as a grad student). Please bring your item(s) or certificate to the NHCA Conference Registration desk. The auction will be held in the exhibit hall throughout the conference and culminate on Saturday morning. The NHCA Scholarship Foundation is most appreciative of your contributions for this important event!
Organizing and running the conference is a big job and we couldn’t do it without our volunteers! Thank you to the volunteers who dedicated their time during the conference to help with registration, moderating and other event logistics. We truly appreciate your support!

### Thursday, February 23rd

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Volunteer</th>
<th>Timer</th>
<th>Microphone</th>
<th>Microphone</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 - 8:30 a.m.</td>
<td>Registration</td>
<td>Courtney Harper</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>7:30 - 8:30 a.m.</td>
<td>Registration</td>
<td>Cathy Porter</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>7:30 - 9:00 a.m.</td>
<td>Registration</td>
<td>Nancy Gallihugh</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>7:30 - 9:00 a.m.</td>
<td>Registration</td>
<td>Lauren Driscoll</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Moderators</th>
<th>Timer</th>
<th>Microphone</th>
<th>Microphone</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL DAY</td>
<td>The Basics</td>
<td>Mary McDaniel</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Friday, February 24th

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Volunteers</th>
<th>Timer</th>
<th>Microphone</th>
<th>Microphone</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 - 8:00 a.m.</td>
<td>Registration</td>
<td>Nancy Gallihugh</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>7:00 - 8:00 a.m.</td>
<td>Registration</td>
<td>Courtney Harper</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>7:00 - 8:00 a.m.</td>
<td>Registration</td>
<td>Kelly Jahn</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>7:00 - 9:00 a.m.</td>
<td>Registration</td>
<td>Lauren Driscoll</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Moderators</th>
<th>Timer</th>
<th>Microphone</th>
<th>Microphone</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 - 10:00 a.m.</td>
<td>General Session</td>
<td>Jeffrey Goldberg</td>
<td>Dennis Sekine</td>
<td>Cheryl Nadeau</td>
<td>Lauren Driscoll</td>
</tr>
<tr>
<td>10:30 - 12:00 p.m.</td>
<td>General Session</td>
<td>Elliott Berger</td>
<td>Paul Riedel</td>
<td>Kelly Jahn</td>
<td>Brian Black</td>
</tr>
<tr>
<td>1:10 - 3:00 p.m.</td>
<td>General Session</td>
<td>Alice Suter</td>
<td>Dan Westrum</td>
<td>Cassie Ford</td>
<td>Diane Bachman</td>
</tr>
<tr>
<td>3:25 - 4:40 p.m.</td>
<td>General Session</td>
<td>Cindy Bloyer</td>
<td>Catrena Laney</td>
<td>Jesse Norris</td>
<td>John Byram</td>
</tr>
</tbody>
</table>

### Saturday, February 25th

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Volunteers</th>
<th>Timer</th>
<th>Microphone</th>
<th>Microphone</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 - 9:00 a.m.</td>
<td>Registration</td>
<td>Lauren Driscoll</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Moderators</th>
<th>Timer</th>
<th>Microphone</th>
<th>Microphone</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:45 - 10:25 a.m.</td>
<td>General Session</td>
<td>Michael Santucci</td>
<td>Dan Gauger</td>
<td>Alberto Behar</td>
<td>Lauren Driscoll</td>
</tr>
<tr>
<td>10:50 - 12:05 p.m.</td>
<td>General Session</td>
<td>Marjorie Grantham</td>
<td>Vishakha Rawool</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>2:00 - 5:00 p.m.</td>
<td>Military Breakout</td>
<td>Dick Danielson</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>2:00 - 5:00 p.m.</td>
<td>HPD Breakout</td>
<td>Laura Kauth</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Thursday, February 23, 2012
Workshop Presentations and Biographies

7:30 a.m. - 5:30 p.m.
Registration and information desk open | Astor Foyer

7:30 a.m. - 8:30 a.m.
Continental Breakfast | Astor Foyer

8:30 a.m. - 11:30 a.m.
MORNING WORKSHOPS | Rooms vary - see below

9:45 a.m. - 10:15 a.m.
BREAK | Astor Foyer

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

11:30 a.m. - 1:00 p.m.
Scholarship Foundation Awards Luncheon *By invitation only | St. Ann

1:00 p.m. - 4:00 p.m.
AFTERNOON WORKSHOPS | Rooms vary - see below

2:15 p.m. - 2:45 p.m.
BREAK | Astor Foyer

FULL DAY WORKSHOP #1 - (8:30 a.m. - 4:00 p.m.)
“Hearing Loss Prevention: The Basics (Noise Measurement)” | St. Charles B
Presenter: Tom Lloyd, B.S. - Associates in Acoustics, Inc. | USA
This section provides an overview of using sound measurement instrumentation and methods to conduct a noise survey for evaluating employee exposure and identifying noise sources for control. Topics discussed include setup and use of a sound level meter and noise dosimeter, how to take measurements for a noise exposure survey, who is included in a hearing conservation program, and how to conduct a sound survey for noise control evaluation.

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

“Hearing Loss Prevention: The Basics (Effective Hearing Protection)” | St. Charles B
Presenter: Timothy Swisher, B.S., CCC-A, FAAA, M.A. – Hearing Safety | USA
As hearing conservationists we can measure, assess, document, and counsel. However, 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 identifying types of hearing protectors, regulatory requirements, appropriate fitting procedures and techniques, and the NRR rating system.

“Hearing Loss Prevention: The Basics (Education and Motivation)” | St. Charles B
Presenter: Nancy Gallihugh, M.S., CCC-A - Kalamazoo RESA | USA
While the ideal solution to a noisy environment is to remove the noise, in many situations, it simply isn’t possible. When this is the case, it’s not enough to rely solely on compliance with regulations to reduce risk. We need to educate employees thoroughly on the benefits of hearing conservation and the crucial steps they should take to safeguard their hearing. Employees must participate actively for hearing conservation to be successful; we need to engage and interest them in their own protection. Effective hearing conservation cannot be achieved without the combined efforts of employers, supervisors, and the employees themselves. By focusing on the reasons behind hearing conservation, and providing some different approaches, we can better reach these individuals to make them a part of the solution to preventable hearing loss.

“Hearing Loss Prevention: The Basics (Hearing Loss Recordability Issues)” | St. Charles B
Presenter: Cindy Bloyer, CCC-A, M.S. - Examinetics, Inc. | USA
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.

“All Hearing Loss Prevention: The Basics (Regulations and HIPAA)” | St. Charles B
Presenter: Mary McDaniel, Au.D., CCC-A - Pacific Hearing Conservation, Inc. | USA
This portion of the workshop will provide attendees with an overview of the Health Insurance Portability and Accountability Act (HIPAA) as it relates to the hearing conservation provider, including recordkeeping, maintaining compliance, and available resources. Also discussed will be a summary of Hearing Conservation Regulations including recordability differences between MSHA and OSHA.

FULL DAY WORKSHOP #2 - (8:30 a.m. - 4:00 p.m.)
“The HearTomorrow Audio Workshop: Audio System Theory for Hearing Professionals” | St. Charles A
Presenter: Benjamin Kanters, M.M. - Columbia College Chicago | USA
The HearTomorrow Audio Workshop will teach audio and audio system theory to professionals in the hearing science industries in much the same way as the Hearing Conservation Workshop teaches hearing physiology and conservation to audio and music professionals. The workshop will cover the following topics: Acoustics and Sound (from the perspective of audio and music), microphones and speakers, analog and digital signals, and signal processing, including amplifiers, mixers, equalizers, compressors and gates, delay and reverb. Wherever possible, audio principles will be explained using the language and theories of hearing physiology, psychoacoustics and cognition.

HALF DAY WORKSHOP #3(A) - A.M. ONLY (8:30 a.m. - 11:30 a.m.)
“Noise Measurement and Instrumentation” | Iberville
Presenter: Lee Hager - 3M | USA
Understanding of noise exposure underlies effective hearing conservation practice. Understanding of the hazard and risk factors leads to more effective means of treating the symptoms - in our case, hearing loss. Effective design and management of noise exposure assessment campaigns facilitates appropriate selection of hearing conservation program enrollees and promotes effective application of noise control resources. This course will describe statistical and other approaches to data analysis, appropriate sample selection protocols, and data application to promote effective hearing loss prevention. Upon completion, the participant will be able to demonstrate effective development and design of noise exposure assessment campaigns, including sample selection, design, implementation, instrument selection, and data management, to facilitate effective hearing loss prevention.

HALF DAY WORKSHOP #3(B) - P.M. ONLY (1:00 p.m. - 4:00 p.m.)
“Noise Measurement and Instrumentation” | Iberville
Presenter: Lee Hager - 3M | USA
Understanding of noise exposure underlies effective hearing conservation practice. Understanding of the hazard and risk factors leads to more effective means of treating the symptoms - in our case, hearing loss. Effective design and management of noise exposure assessment campaigns facilitates appropriate selection of hearing conservation program enrollees and promotes effective application of noise control resources. This course will describe statistical and other approaches to data analysis, appropriate sample selection protocols, and data application to promote effective hearing loss prevention. Upon completion, the participant will be able to demonstrate effective development and design of noise exposure assessment campaigns, including sample selection, design, implementation, instrument selection, and data management, to facilitate effective hearing loss prevention.

HALF DAY WORKSHOP #4(A) - A.M. ONLY (8:30 a.m. - 11:30 a.m.)
“Hearing Protective Device Field Attenuation Estimation Systems - Round Robin Evaluations” | Toulouse A, B
Presenter: William Ahroon, Ph.D. - US Army Aeromedical Research Laboratory / USA
MAJ Kel Kratzer, Au.D., CCC-A - Womack Army Medical Center / USA
CPT Michelle Vincent - Bayne Jones Army Community Hospital / USA
CPT Angela Fulbright, Au.D., CCC-A - Carl R. Darnall Army Medical Center / USA
CPT M. Joel Jennings, MS, CCC-A, F/AAA - William Beaumont Army Medical Center / USA
CPT Kara Cave - B.A., Ph.D., CCC-A, F/AAA - Blanchfield Army Community Hospital / USA
The purpose of the workshop is to report on a round-robin evaluation of five hearing protective devices (HPD) field attenuation estimation systems (FAES) (or fit-check systems) from several commercial vendors and one government agency. The systems were used by Army audiologists as an adjunct to their normal hearing conservation programs. Routine audiometric assessments are conducted as part of the Army Hearing Program. When a Soldier is determined to have a standard threshold shift during these assessments, follow-up testing is conducted by a certified audiologist. In addition to standard audiometric testing, this follow-up appointment includes an examination of the Soldier’s HPD and additional training on the proper care and use of the HPD. The round-robin evaluation inserted HPD FAES as a tool in the HPD retaining process. Each Army audiologist engaged in the round-robin evaluations will provide a review of the team’s results and observations from one of the FAES.

HALF DAY WORKSHOP #4(B) - P.M. ONLY (1:00 p.m. - 4:00 p.m.)
“Laissez Les Bons Temps Rouler – Building Alliances To Save Hearing” | Toulouse A, B
Presenter: John Allen, Ph.D. - NASA | USA
Do you think that government agencies and private groups cannot work together? Do you think the meaning of “leveraging resources” means, “I want to leverage your resources.”? Do you think that hearing conservation has to be expensive? Do you think that NHCA has no voice at the national level? Do you think that “cut and paste” is only fun in elementary school? If your answer to any of these questions in “yes”, you need to come to this workshop. The OSHA Alliance program is designed to provide parties an opportunity to participate in a voluntary cooperative relationship with OSHA for purposes such as training and education, outreach and communication, and promoting national dialogue on various aspects of workplace safety and health. Through the Alliance Program, OSHA works with groups committed to safety and health, including businesses, trade or professional organizations, unions and educational institutions. The goal is to leverage resources and expertise to develop compliance assistance tools and resources and share information with employers and employees to help prevent injuries, illnesses and fatalities in the workplace. The power of alliance and leveraging of influence is evident in our NHCA/OSHA/NIOSH Alliance. Results of this Alliance include a Best Practices document, “Hearing Protection-Emerging Trends: Individual Fit Testing” providing general information on fit-testing of hearing
protectors. In addition, the Alliance has worked with the Shipyard Council of America Alliance and OSHA to develop a toolbox talk on hearing protection for their small shipyard members. Efforts are underway to convert the toolbox talk into a Spanish version and to modify it for use for other industries, such as the construction field, landscaping, and agriculture. The Alliance has identified a number of other activities it would like to pursue. This workshop will describe the paths taken by each organization to get to this point; how the Alliance was initially formed; some of the “growing pains” experienced; the challenges that it realized in trying to develop products when dealing with three different organizations; and, the additional products it hopes to produce. But more than that, participants (not “attendees” but “participants”) will help identify and begin to develop other projects that would benefit the nation and the hearing conservation field. Yes, you, the participant will actually work across agencies, organizations, and with people you may not yet know, and come away with a product – or the really good beginnings of a product – that can be used by the hearing conservation field. When you are done, you’ll realize that you too are part of an Alliance!

HALF DAY WORKSHOP #5(A) - A.M. ONLY (8:30 a.m. - 11:30 a.m.)
“PSP Workshop: Mobile Unit Infectious Controls Update and Panel Discussion” | Bourbon

Presenter: A.U. Bankaitis, Ph.D., FAAA - Oaktree Products, Inc. | USA

Dr. Bankaitis will provide attendees with an update on the issues and solutions of infectious contamination, cross-contamination for both the technician and the employee in a multi-station mobile test environment. In addition, she will provide a pamphlet specifically for mobile testing companies. Following Dr. Bankaitis will be a panel of mobile testing service providers for Q&A.

HALF DAY WORKSHOP #5(B) - P.M. ONLY (1:00 p.m.- 4:00 p.m.)
“Hearing Protection for Recreational Firearm Shooters” | Bourbon

Presenters:  Deanna K. Meinke, Ph.D. - University of Northern Colorado | USA
Michael Stewart, Ph.D. - Central Michigan University | USA
Gregory A. Flamme, Ph.D. - Western Michigan University | USA
CAPT William J. Murphy, Ph.D. - National Institute for Occupational Safety and Health / USPHS | USA
James E. Lankford, Ph.D. - Northern Illinois University | USA
Jacob Sondergaard, M.Sc., B.Eng. - G.R.A.S. Sound & Vibration | USA
Donald S. Finan, Ph.D. - University of Northern Colorado | USA

High level impulse noise from recreational firearms presents unique challenges when it comes to selecting and fitting effective hearing protection. This practical workshop is designed to familiarize attendees with several aspects of recreational firearm use relevant to reducing the risk of noise-induced hearing loss (NIHL) in this population. Specific topics will include: impulse noise measurement and signal characteristics, firearm and ammunition factors that influence sound pressure levels, attenuation measurement, acoustic environment considerations, shooting habits of recreational firearm users and their familiarity with hearing protector types, and how to effectively counsel recreational firearm users regarding selection and use of appropriate, commercially-available hearing protective devices (HPDs) for different shooting activities. Data regarding the effectiveness of various types of HPDs specifically designed for the shooting sports in attenuating firearm noise to safe levels will also be presented.

4:00 p.m. - 5:00 p.m.
Committee Meetings & Networking

4:00 p.m. - 5:30 p.m.
NHCA Meet & Greet (Students, new members and first timers)
*By invitation only | Presidential Suite Room 644 & 645 (6th Floor)

5:30 p.m. - 8:30 p.m.
Exhibits Open/Exhibitor Reception | Astor Ballroom I, II, III
Workshop Presenter Biographies

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

John Allen, Ph.D. - NASA | USA
Dr. Allen received a B.A. from the University of Maryland (1975), a M.A. from The Catholic University of America (1977), and a Ph.D. in Audiology and Bioacoustics from Baylor College of Medicine (1996). He joined the US Air Force in 1980. Colonel Allen then served as the Commander of the Air Force DoD Medical Element at Andrews AFB. He was detailed by the Air Force to NASA from Sept. 2001 to Dec. 2005, where he served as the Program Exec. for Crew Health and Safety in the Space Operations Mission Directorate (SOMD). He retired from the Air Force in Feb. 2006 and was hired by NASA to continue on in the same capacity. He currently serves as a liaison between the NASA Human Exploration and Operations Mission Directorate and the NASA Office of Chief Health and Medical Officer. While on active duty he was a member of the DoD Hearing Conservation Working Group, and served for six years as Consultant to the Air Force Surgeon General in Audiology, Speech Pathology, and Hearing Conservation. He is the NHCA representative on the OSHA/NIOSH/NHCA Alliance and conducts clinical audiology evaluations once a month at Malcolm Grow USAF Medical Center, Andrews AFB.

A.U. Bankaitis, Ph.D., FAAA - Oaktree Products, Inc. | USA
A.U. Bankaitis earned her masters degree in audiology from Cleveland State University in 1990 and immediately moved to Cincinnati to pursue her doctorate at the University of Cincinnati while simultaneously completing her CFY at the University of Cincinnati Medical Center. Her involvement in infection control was somewhat of an accident; she happened to be in the right place at the right time. Within the first year of her doctoral studies, a relationship was established with the Infectious Disease Center at the University of Cincinnati to study the effects of varying degrees of HIV on the auditory system. In the absence of readily accessible information, she educated herself in the area of infection control with specific application to audiology and speech-language pathology and started sharing that knowledge with her colleagues.

COL Lynnette Bardolf, Ph.D. - US Army | USA
COL Lynnette Bardolf graduated with her B.S. in Communication Disorders in 1989 and with her Master’s Degree in Audiology in Dec 1990 both from the Florida State University (FSU) and earned her Ph.D. in Audiology from the University of Florida in 2006. She entered the active duty Army in January 1991. With over 20 years of military service, COL Bardolf’s past assignments took her to Colorado, Alabama, Germany, Hawaii. She has worked mostly in the clinical and hearing conservation realm, and some as an audiology researcher. Currently, COL Bardolf is assigned at the United States Army Aeromedical Center/Lyster Army Health Clinic at Ft. Rucker, AL. She has been married for 20 years to LTC M. Keith Bardolf (U.S. Army) and has three daughters.

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

CPT Kara Cave, B.A., Ph.D., CCC-A, F/AAA - Blanchfield Army Community Hospital | USA
CPT Kara Cave is currently the Chief of the Fort Campbell, KY Hearing Program. Her previous assignments include: Walter Reed Army Medical Center, Washington, D.C.; Army Research Laboratory, Aberdeen Proving Ground, Maryland; 10th Combat Support Hospital, Baghdad, Iraq; and Fort Bliss, Texas. She received her B.A. from Boston College in 1999 and her Ph.D. in Audiology from James Madison University in 2005.
Lee Hager - 3M | USA
Lee brings over 25 years experience to his position as Hearing Conservationist for 3M, including consultation with Fortune 50 companies on hearing conservation program effectiveness. He is currently chair of the Council for Accreditation in Occupational Hearing Conservation (CAOHC), is past president of the National Hearing Conservation Association (NHCA), and is past chair of the Noise Committee and a Fellow of the American Industrial Hygiene Association (AIHA). In his role with 3M, he provides technical support on hearing protection issues and hearing protector fit testing as well as training in hearing loss prevention. He publishes regularly and presents internationally on noise and hearing issues. Most of all, he cares about your ears.

CPT M. Joel Jennings, M.S., CCC-A - William Beaumont Army Medical Center | USA
CPT M. Joel Jennings, M.S., CCC-A is currently serving as the installation Hearing Program Manager at Ft. Bliss Texas. He has served in the Army since 2005. CPT Jennings is a 1992 graduate of the University of Texas at Austin and the University of Texas at Dallas. Over the years, CPT Jennings has gained valuable experience in non-profit, private practice, governmental and industry settings.

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

CPT Angela Fulbright, Au.D., CCC-A - Carl R. Darnall Army Medical Center | USA
CPT Angela N. Fulbright is the Deputy Program Manager for the Army Hearing Program at Ft. Hood. She has served in the Army for 10 years. Her first five years in the military were spent in the field of Military Intelligence as a linguist, and the last five years she has served in the Army Hearing Program at Ft. Polk and Ft. Hood. She has over nine years of experience in audiology, combined military and civilian employment with special interests in areas of the effects of noise on hearing, tinnitus, and central auditory processing disorders. CPT Fulbright holds an Au.D. from Salus University.

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

Donald S. Finan, Ph.D. - University of Northern Colorado | USA
Donald Finan is an Associate Professor of Audiology and Speech-Language Sciences at the University of Northern Colorado. He obtained a Ph.D. in speech physiology and developmental neuroscience from Indiana University and completed a post-doctoral fellowship at Purdue University. His research interests include measurement of noise in relation to auditory exposure, normal speech motor control over the lifespan, vocal dosimetry, the use of technology in clinical settings, and developing innovative tools for speech science instruction.

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

Donald S. Finan, Ph.D. - University of Northern Colorado | USA
Donald Finan is an Associate Professor of Audiology and Speech-Language Sciences at the University of Northern Colorado. He obtained a Ph.D. in speech physiology and developmental neuroscience from Indiana University and completed a post-doctoral fellowship at Purdue University. His research interests include measurement of noise in relation to auditory exposure, normal speech motor control over the lifespan, vocal dosimetry, the use of technology in clinical settings, and developing innovative tools for speech science instruction.
Mary McDaniel, Au.D., CCC-A - Pacific Hearing Conservation, Inc. | USA
Mary M. McDaniel, Au.D., CCC-A, is the owner of Pacific Hearing Conservation, Inc. a consulting firm, in Seattle, Washington and has worked exclusively in occupational Audiology since 1984. Dr. McDaniel is a Past President of the National Hearing Conservation Association and in 2003, the recipient of the NHCA’s Michael Beall Threadgill Award for outstanding leadership and distinguished service. She served on the Council for Accreditation in Occupational Hearing Conservation (CAOHC), is Past-Chair of the Council, and has been a certified CAOHC Course Director since 1992. She is a member of the American Speech-Language-Hearing Association, Past Chair of ASHA’s Special Interest Division in Hearing Conservation and Occupational Audiology, and currently sits on the Steering Committee of Special Interest Group 8 - Public Health Issues Related to Hearing and Balance. Mary is also a member of the American Academy of Audiology and the Acoustical Society of America. She received her Au.D. from A.T. Still University, Arizona School of Health Sciences, and at her graduation, Dr. McDaniel was presented a Professional Leadership Award from the Audiology Foundation of America.

Deanna K. Meinke, Ph.D. - University of Northern Colorado | USA
Dr. Deanna Meinke is currently an Associate Professor of Audiology and Speech-Language Sciences at the University of Northern Colorado. She obtained her Ph.D. in audiology from the University of Colorado and an M.S. degree from the University of Northern Illinois. She is a past president of the National Hearing Conservation Association (NHCA) and the Colorado Academy of Audiology. Presently, she chairs the National Institute for Occupational Safety and Health (NIOSH) “Safe-in-Sound Expert Committee” and is the 2010 recipient of the NCHA’s Threadgill Award. Her research interests include the prevention of noise-induced hearing loss targeting children, recreational firearm sound levels and the use of distortion product otoacoustic emissions for the early detection and monitoring of noise-induced hearing loss.
Timothy Swisher, B.S., CCC-A, FAAA, M.A. - Hearing Safety | USA
Tim Swisher has worked in hearing conservation for 40 years. His initial experience was as an Army audiologist where he retired as a Major. He attributes this military experience as providing his knowledge and understanding of hearing conservation. Since that time he has worked in audiology private practice with emphasis on hearing loss prevention. Tim is currently self-employed as president of Hearing Safety based in Pittsburgh, Pennsylvania. Dedicated to providing hearing conservation services, Tim has been consistently acknowledged as one of the most active CAOHC Course Directors.

CAPT William J. Murphy, Ph.D. - National Institute for Occupational Safety and Health / USPHS | USA
CAPT William Murphy is a co-leader of the Hearing Loss Prevention Team in the Engineering and Physical Hazards branch of the Division of Applied Research and Technology at the National Institute for Occupational Safety and Health. His research has specialized in measurement and rating of hearing protection devices, fit testing of hearing protection devices and in the assessment of impulse noise and its effects on hearing. He has served as an officer in the Commissioned Corps of the United States Public Health Service since 1993.

Jacob Songergaard, M.Sc., B.Eng. - G.R.A.S. Sound & Vibration | USA
Jacob Songergaard, M.Sc., B.Eng. Field Application Engineer at G.R.A.S. Sound & Vibration, brings experience from the factory in Denmark to the North American office in Cleveland, Ohio. He is the point of contact regarding all technical issues from North and South American customers and specializes in providing solutions specific to acoustic applications. His specific area of interest is in impulsive noise acoustic measurements and addresses transducer selection, sound transduction, recording and signal processing with specific application towards gunshots and explosives.

CAPT Michelle Vincent, Au.D. - Bayne Jones Army Community Hospital | USA
CPT Michelle M. Vincent is the Chief of the Army Hearing Program at Ft. Polk/JRTC. She was an educational audiologist prior to joining the Army in 2007. CPT Vincent graduated from Wichita State University in 2003 with an MA in Audiology and in 2009 from Salus University with an Au.D. CPT Vincent has also served in Operations and Readiness and competed on the 2007 and 2011 All Army and Armed Forces Judo Teams.

Michael Stewart, Ph.D. - Central Michigan University | USA
Dr. Stewart received his MA degree in audiology from Western Michigan University and his Ph.D. degree in audiology from Michigan State University. He has owned and operated a private practice in audiology specializing in hearing conservation services and audiological rehabilitation of the hearing-impaired for the past twenty years. He is also a professor in the Department of Communication Disorders at Central Michigan University where he teaches doctoral-level classes in audiology and conducts research in various aspects of recreational and industrial hearing conservation.

Timothy Swisher, B.S., CCC-A, FAAA, M.A. - Hearing Safety | USA
Tim Swisher has worked in hearing conservation for 40 years. His initial experience was as an Army audiologist where he retired as a Major. He attributes this military experience as providing his knowledge and understanding of hearing conservation. Since that time he has worked in audiology private practice with emphasis on hearing loss prevention. Tim is currently self-employed as president of Hearing Safety based in Pittsburgh, Pennsylvania. Dedicated to providing hearing conservation services, Tim has been consistently acknowledged as one of the most active CAOHC Course Directors.

Jacob Songergaard, M.Sc., B.Eng. - G.R.A.S. Sound & Vibration | USA
Jacob Songergaard, M.Sc., B.Eng. Field Application Engineer at G.R.A.S. Sound & Vibration, brings experience from the factory in Denmark to the North American office in Cleveland, Ohio. He is the point of contact regarding all technical issues from North and South American customers and specializes in providing solutions specific to acoustic applications. His specific area of interest is in impulsive noise acoustic measurements and addresses transducer selection, sound transduction, recording and signal processing with specific application towards gunshots and explosives.

Michael Stewart, Ph.D. - Central Michigan University | USA
Dr. Stewart received his MA degree in audiology from Western Michigan University and his Ph.D. degree in audiology from Michigan State University. He has owned and operated a private practice in audiology specializing in hearing conservation services and audiological rehabilitation of the hearing-impaired for the past twenty years. He is also a professor in the Department of Communication Disorders at Central Michigan University where he teaches doctoral-level classes in audiology and conducts research in various aspects of recreational and industrial hearing conservation.
Friday Conference Abstracts

Friday, February 24, 2012
Platform Presentation Descriptions

7:00 a.m. - 5:30 p.m.
Registration and Information Desk Open | Astor Foyer

7:00 a.m. - 8:00 a.m.
Continental Breakfast | Astor Ballroom I, II, III

8:00 a.m. - 8:20 a.m.
Welcome and Opening Remarks | Tim Rink, B.A., CCC-A, M.A., Ph.D. and Jim Jerome, CCC-A, M.A. | Grand Ballroom A, B, C

GENERAL SESSION - MORNING

8:20 a.m. - 8:45 a.m.
“Intervention Effectiveness Research in Hearing Loss Prevention” | Grand Ballroom A, B, C
Presenter: Thais Morata, Ph.D. - National Institute for Occupational Safety and Health | USA
The American Recovery and Reinvestment Act of 2009 included a provision for federal funding to investigate how effective health interventions are, and called on the Institute of Medicine to identify a list of priorities for such research. Research on hearing loss interventions was placed in the highest priority group. There is consensus in the intervention effectiveness literature that some interventions improve the use of hearing protection devices compared to non-intervention; there is low quality evidence that legislation can reduce noise levels in workplaces, and contradictory evidence that prevention programs are effective in the long-term. Most reported interventions focus on the use of hearing protection devices, and effectiveness depends on the quality of the implementation of prevention programs. Substantial noise control can be achieved in the workplace, with no evidence of this practice in the literature.

8:45 a.m. - 9:10 a.m.
“How Should Hearing Conservation Program Effectiveness Be Assessed?” | Grand Ballroom A, B, C
Presenter: Peter Rabinowitz, M.D., M.P.H. - Yale University | USA
Michael McTague, M.P.H. - Yale University | USA
Christine Dixon-Ernst, M.S. - Alcoa | USA
Currently there is no agreed upon standard for assessing the effectiveness of hearing conservation programs. The lack of clear and consistent methodology for such assessment hampers ongoing quality improvement and comparison between programs. In this presentation, we review the strengths and weaknesses of different assessment approaches including qualitative methods (audits, focus groups), and quantitative methods (Calculation of hearing loss rates, noise exposure levels, and test variability). We propose a “mixed method” approach for the assessment of hearing conservation program effectiveness that combines the best of qualitative and quantitative approaches.

9:10 a.m. - 9:35 a.m.
“Don’t Trash Your Hearing - Cultural Issues and Hearing Loss Prevention in Public Sector Solid Waste Services (A Case Study)” | Grand Ballroom A, B, C
Presenter: Connie Muncy, C.I.H., M.S., E.H.S. Mgmt. - Montgomery County Environmental Services | USA
Public Sector Solid Waste Services organizations harbor not only a variety of insidious and unique hearing loss hazards, but also a variety of unique barriers to hearing loss prevention. Come share the successful journey of a Public Sector Safety Officer and former Safe-In-Sound award winner who is newly assigned to managing safety at a Public Solid Waste Operation. Join us as we overcome the initial shock and awe of our first introduction to a Public Solid Waste Operation. Tag along as we persevere through frustrations of the research and evaluation process and the reverberations of cultural issues until we reach final success.

9:35 a.m. - 10:00 a.m.
“Play It Down - A Community Project by the Baptist Memorial Health Care Foundation in an Effort to Reduce the Rate of Hearing Loss in American Teens” | Grand Ballroom A, B, C
Presenter: Megan Morris - Baptist Memorial Health Care Corporation | USA
Ashley Compton - Baptist Memorial Health Care Corporation | USA
Lori Simpson - Baptist Memorial Health Care Corporation | USA
Ericca Hardee, Au.D., CCC-A - Baptist Memorial Health Care Corporation | USA
Play It Down is a national teen hearing loss campaign built in an effort to modify behavioral habits in teens in order to reduce their rate of hearing loss. The campaign is designed to educate teens by reaching out to them in their plugged environment of apps, movies, television and radio. The project includes an interactive application, also known as an app, to educate users and promote habit changes. The app has three components, including an interactive hearing test for teens to age their ears. For more information about the campaign and to download the app, please visit www.playitdown.org.

10:00 a.m. - 10:30 a.m.
Break | Astor Ballroom, I, II, III
are particularly prevalent among small companies. Although opponents of requirements for engineering controls maintain that they are particularly difficult for widespread and serious gaps in compliance with requirements such as audiometric testing, training, record keeping, and exposure measurement. These failures administrative controls. Studies of small and medium companies have found clinically significant hearing losses in all age brackets. Several have found “Noise Control Issues in the Workplace”

10:30 a.m. - 11:05 a.m.

KEYNOTE LECTURE: Noise Induced Hearing Loss and Tinnitus Prevention: Engaging Communities and Changing Cultures | Grand Ballroom A, B, C

Presenter: William Hal Martin, Ph.D. - Oregon Health and Science University | USA

NIHL and related tinnitus prevention lie at the heart of NHCA. As an organization we are continually seeking way to reduce noise levels, regulate exposures, create innovative, protective technologies and educate the masses about their risks for NIHL and how to protect themselves from noise injury. Education can be effective at reducing risks, but its effectiveness can be limited when the culture of the community surrounding the exposed individual resists the practice of protective strategies. Social norms significantly impact all of our behaviors, including our listening practices and protecting (or lack thereof) our ears. Few NIHL prevention efforts target individuals in the context of their communities and cultures. This presentation will give examples of community based NIHL and tinnitus prevention in practice and show how changing culture can improve hearing health behaviors.

11:05 a.m. - 11:30 a.m.

“Strategies for Building a Hearing Awareness Advocacy Among Music and Sound Professionals” | Grand Ballroom A, B, C

Presenter: Ben Kanter, M.M. - Columbia College Chicago | USA

This presentation will introduce attendees to the language, knowledge and mindset of this very important, aurally aware group. By understanding how musicians and audio engineers work with, and think about, music and sound, they can be easily taught to appreciate what is arguably their most important “tool of the trade.” They will, in turn, become role models of hearing conservation to their audiences and clients. The success of The Hearing Conservation Workshop has proven that once taught how their hearing works (and how it breaks), engineers and musicians develop a sense of “ownership” of their ears, and as a result, become concerned about their hearing health.

11:30 a.m. - 12:00 p.m.

NHCA Business Meeting | Grand Ballroom A, B, C

12:00 p.m. - 1:10 p.m.

“The Nerve to Serve: Say Hello to Humor and Goodbye to Burnout” | Grand Ballroom D

Presenter: Jody Urquhart - I Do Inspire | Canada

Humor helps. The ability to laugh at life helps us deal with daily disappointments and setbacks. Humor gives professionals the nerve to serve in our increasingly complex and challenging environment. Join us as we demonstrate how humor helps you stay in control, stay positive, and maintain balance and perspective. In this humorous and inspiring session participants will learn how to: Laugh at the tough stuff; Say hello to humor and goodbye to burnout; Use appropriate humor as a tool not a weapon; Play along the way and enjoy work; Be compelled to use humor, laughter, and play to breathe new passion into work; Use their Amuse System to Boost their Immune System; Use humor to create rapport and win trust and loyalty; Know that a sense of humor is invaluable in promoting flexibility, resilience, and coping skills; Use humor to stay in control; Use play to be in the moment (where time flies) and there is no stress. Laughter and humor effectively and inexpensively counter stress, improve morale, and create a work environment that is friendlier, less stressful, and more productive.

GENERAL SESSION - AFTERNOON

1:10 p.m. - 2:35 p.m.

“Noise Control Issues in the Workplace” | Grand Ballroom A, B, C

Moderator: Alice Suter, Ph.D. - Alice Suter & Associates | USA

This session will consist of individual presentations by noted authorities in both the government and private sectors. Following, speakers will form as a panel and have the opportunity to question each other as well as answer questions from the audience.

“The Need for Engineering Noise Control” | Grand Ballroom A, B, C

Presenter: Alice Suter, Ph.D. - Alice Suter & Associates | USA

Despite significant advances in hearing protection technology, “Hearing Conservation Programs” are not an adequate substitute for engineering and administrative controls. Studies of small and medium companies have found clinically significant hearing losses in all age brackets. Several have found widespread and serious gaps in compliance with requirements such as audiometric testing, training, record keeping, and exposure measurement. These failures are particularly prevalent among small companies. Although opponents of requirements for engineering controls maintain that they are particularly difficult for small companies to implement, the per-worker costs of hearing conservation requirements for small companies are much greater than for large companies, and the use of engineering and administrative controls is likely to be more cost-effective than HCPs for small businesses. Hearing protection devices (HPDs) can be effective in certain circumstances, but they are too often rejected for a variety of reasons: discomfort, unreliability, and the potential cause of safety hazards, especially among workers who have already incurred noise-induced hearing loss. HPDs can have an adverse effect on the ability to hear speech and warning signals and can seriously impact the ability to localize necessary signals.

“OSHA’s Perspective” | Grand Ballroom A, B, C

Presenter: John Hermanson, Regional Administrator - Occupational Safety and Health Administration (OSHA) | USA

Mr. Hermanson, Regional Administrator, will discuss OSHA’s position on noise control and hearing conservation, including the Administration’s experience with input from the Stakeholder’s Meeting expected for the fall of 2011.

“Is Noise Control Feasible for Industry?” | Grand Ballroom A, B, C

Presenter: David Sarvadi, J.D., M.S.C. - Keller and Heckman LLC | USA

On October 19, 2010, OSHA proposed to modify a long-standing interpretation of the Noise standard, 29 C.F.R. § 1910.95, arguing that intervening court cases required it to modify its interpretation of the word “feasible” in paragraph (b)(1) to be consistent with Supreme Court precedent interpreting the same word in the statute at section 6(b)(5). Moreover, a 1991 Supreme Court case determined that when interpreting OSHA standards, courts (and by implication, the Occupational Safety and Health Review Commission) should defer to the view of the Secretary of Labor unless it is unreasonable or plainly inconsistent with the language of the statute or regulation. Under the new interpretation, OSHA would interpret the word “feasible” as “capable of being done,” or “achievable” and proposed to require employers to adopt all “feasible” engineering controls allowing them to rely on hearing protection programs only if the resulting noise

NHCA SPECTRUM

VOLUME 29, SUPPLEMENT III, 2012
exposures were not below the Permissible Exposure Limit. Henceforth, employers would be in violation of the standard unless the adoption of the controls would be liable for citation if “administrative or engineering controls ... will not threaten the employer's ability to remain in business or if the threat to viability results from the employer's having failed to keep up with industry safety and health standards.” Industry opposed that approach, specifically because the change, in its view, constituted a major change in the regulation that would require notice and comment rulemaking, and because OSHA had not shown that engineering and administrative controls were more effective than an effective hearing conservation program.

“Where Noise Control is Feasible and How it Works” | Grand Ballroom A, B, C
Presenter: Dennis Driscoll, P.E., Brd. Cert., I.N.C.E. - Associates in Acoustics | USA
Noise control engineering is like other engineering disciplines; i.e., there is a logical procedure that is followed to identify the problem, develop feasible noise control methods, selection of materials, installation and evaluation. All of the noise control techniques that we might like to consider may not be possible due to some production, maintenance, physical or economic constraint. Thus, for any type of solution, it requires interaction with plant personnel to be sure that what we are recommending will actually be workable from their standpoint. There are many proven technologies readily available for retrofit within industry. This presentation will cover one of the most common and significant concerns, responsible for at least 30 percent of noise problems in manufacturing plants: pneumatic and compressed air systems. In my 32 years of experience, the use of compressed air is the easiest source of excessive noise to remedy and represents the greatest potential for exposure reduction. In addition, companies often see return on their investment in less than one year.

“The ‘85-3 Coalition’ – Promoting Needed Improvements in US Hearing Loss Prevention” | Grand Ballroom A, B, C
Presenter: Rick Neitzel, Ph.D., C.I.H. - University of Michigan | USA
The “85-3 Coalition” is a group of interdisciplinary hearing loss prevention professionals who promote evidence-based hearing health practices and who publicly recognize real-world efforts towards making workplaces quieter, healthier, and more productive. The goal of the Coalition is to bring greater visibility to the need for increased hearing loss prevention efforts in the US through the development of a website that will highlight progressive companies, agencies, and nations that have adopted the “85-3” criterion for hearing loss prevention. “85-3” refers to an 85 dBA 8-hour average exposure limit measured using a 3 dB exchange rate, criteria that have long been advocated by scientists, consensus groups, and many non-US governments. The 85-3 Coalition will recognize and publicly acknowledge the companies, agencies, and nations that are committed to employing best practices rather than simply complying with minimal (and inadequate) U.S. occupational noise regulations. By publicizing the actions of these exemplary organizations, we hope to encourage others to follow their example and to create a movement for adoption of US occupational noise policies that better protect worker health.

“Economic Impact of Noise” | Grand Ballroom A, B, C
Presenter: Ruth Ruttenberg, Ph.D. - Ruth Ruttenberg & Associates | USA
The economics are clear: effective noise control in the workplace saves millions of health care dollars. In many industries it saves companies money as well. Nonetheless, the short-run quarterly bottom line seems to dominate industry thinking, and political pressure by industry has prevented regulations that fully protect hearing. It is more than 35 years since the Occupational Safety and Health Administration first held hearings to protect workers in the United States from hearing loss and the other health effects associated with noise at work. At the time, the Environmental Protection Agency and many countries around the world, as well as scientific experts, strongly recommended an 85 dBA time-weighted average for an eight hour day and a 3 dBA doubling rate. OSHA's proposed regulation was for general industry only (omitting construction and maritime) and sought a 90 dBA limit with a 5 dBA doubling rate. It defied good science and good economics. This presentation focuses on the contradiction in logic when government and industry continue allowing high level noise environments, even though reducing noise can save money as well as health. (Since approximately half of every health care dollar is from the federal government, higher health care costs affect everyone). Findings that will be discussed include: Noise can be responsible for a range of diseases as well as hearing loss, and noise prevention can thus reduce health care expenditures; workers compensation payments for hearing loss are significant; engineering controls that reduce noise often simultaneously reduces vibration and thus extend the useful life of plant and equipment; many substitute materials can easily reduce noise at little or reduced cost; e.g., substituting plastic for metal in many types of manufacturing equipment.

2:35 p.m. - 3:00 p.m.
“Randomized, Controlled Study of NIHL and Tinnitus Prevention Interventions for Elementary School Students” | Grand Ballroom A, B, C
Presenter: Susan Griest, M.P.H. - Oregon Health & Science University | USA
Judith Sobel, Ph.D. - Portland State University | USA
Linda Howarth, B.A. - Oregon Health & Science University | USA
William Hal Martin, Ph.D. - Oregon Health & Science University | USA
Noise-induced hearing loss (NIHL) and related tinnitus pose significant health risks to millions of Americans. Establishing healthy behaviors during childhood is easier and more effective than trying to change unhealthy behaviors during adulthood. Educational intervention for children based upon health communication theory and applied to NIHL and tinnitus prevention, are few. Using a randomized, controlled design, for Dangerous Decibels interventions were developed and evaluated for their effectiveness in producing both short term and prolonged changes in knowledge, attitudes and behaviors regarding exposure to sound and appropriate use of hearing protective strategies in elementary school students. Classroom programs were presented by school nurses or high school students with identical training and experience. A web-based Virtual Exhibit was evaluated as well as the impact of a 12-component Museum Exhibition. Based on results of the four-intervention evaluation, a second evaluation was conducted using paired combinations of the most effective interventions. Results from both evaluations will be presented with recommendations for future intervention strategies and research direction.

3:00 p.m. - 3:25 p.m.
Break | Astor Ballroom I, II, III

3:25 p.m. - 3:50 p.m.
“The Potential of “MP3” Insert Earphones to Cause Hearing Loss” | Grand Ballroom A, B, C
Presenter: John Franks, Ph.D. - Lytlesound | USA
Jeffrey Goldberg - Custom Protect Ear | Canada
Most insert earphones sound better than the “earpads” that come with many personal stereos and MP3 players such as iPods and smart phones. Some of the earphones sound better and have better bass output than others, even in the sub $100 class. There is a tendency for music listeners to want to hear bass, something small earphones can have trouble delivering. In order to compensate, listeners turn the volume of their music higher, significantly high enough to pose a risk to their hearing. Some of these earphones claim to reduce noise as well. This presentation examines the performance of the six most popular insert earphones,
based on sales, in terms of frequency response, output capabilities, as well as noise reduction, and assigns a rating system in terms potential threat to the hearing of the user for four different music formats: classic rock, hard rock, classical, and acoustic jazz.

**3:50 p.m. - 4:15 p.m.**

“Risk of NIHL from MP3 Player Use: Evaluating Long-Term Dosimetry Measurements” | **Grand Ballroom A, B, C**

**Presenter:** Cory D. Portnuff, Au.D., Ph.D. - University of Colorado at Boulder | USA
Brian Fligor, Sc.D. - Children’s Hospital Boston/Harvard Medical School | USA

Risk of hearing loss from listening to music from MP3 players has been a popular topic in the media, but there is limited peer-reviewed research substantiating the degree of risk purported. This presentation reports original research using a new method for obtaining week-long dosimetry measures of MP3 player use as a means to document hearing loss risk. In addition, self-reported listening level and duration will be compared to objective measures of exposure. These self-reported and objective dosimetry measures will be analyzed in light of subjects’ knowledge, beliefs, and behaviors regarding MP3 player use and hearing loss risk. From this and previous research completed by the authors, recommendations for both personal player usage and ongoing needs for public education will be discussed.

**4:15 p.m. - 4:40 p.m.**

“Children and Adolescents’ Habits, Preferences and Protective Behaviors Regarding Loud Sound Exposures: Inherited Culture?” | **Grand Ballroom A, B, C**

**Presenter:** Keila Knobel, Ph.D. - State University of Campinas | Brazil
Maria Cecilia Marconi Pinheiro Lima - State University of Campinas | Brazil

The aim of this study was to understand mediators for noise-induced-hearing-loss (NIHL), risk and protective behaviors among Brazilian children and its change across children’s ages. 671 children from 6 to 14 years old (50.8% male, mean age 9.42) and their parents were randomly selected and interviewed about demographic and background information, self-reported hearing complaints, habits, preferences and protective behaviors regarding loud sound exposures. Children were exposed to parties and concerts with loud music (54.5%), carnival (40.2%), firecrackers (39.8%) and loud music at home or in the car (33.8%), with earphones (21.1%), and during religious rituals (28.1%). Most of the children (82.6%) cited efficient protective behaviors they could use in noisy places, such as covering the ears (46.9%), walking away (19.9%), both (7.9%) or using hearing protectors (6.1%). Linear regression was performed to identify auditory complaints and behaviors that increase according to children’s aging. There was moderate positive correlation regarding tinnitus perception (R2=0.696), satisfaction with loud music (R2=0.6812) and knowledge about the existence of HPD (R2=0.7666). A strong positive correlation was found concerning voluntary exposure to loud music (R2=0.9009). Beliefs, values and knowledge are transmitted from one generation to the next. 93.5% of the parents and 88% of the children say that loud sounds can damage the hearing. The conflict stands on the fact that children do not like loud sounds but are involuntarily exposed to it during childhood, and as they get older they tend to like loud music and to voluntarily listen to it. So, the culture of manifesting joy by making noise or putting loud music is also inherited. The notion that loud sounds damage the ears is not enough for children or for adults to avoid it. Society as a whole is in need of deep and continuous education about noise pollution and NIHL.

**4:40 p.m. - 5:15 p.m.**

“2012 Safe-In-Sound Excellence in Hearing Loss Prevention Awards” | **Grand Ballroom A, B, C**

**Presenter:** Thais C. Morata, Ph.D. - National Institute for Occupational Safety and Health | USA
Deanna Meinke, Ph.D. - University of Northern Colorado | USA
Dan Westrum, M.S., C.I.H. - 3M Stationary Products | USA
Hendra Harapan, M.P.H., C.I.H. - 3M | USA
Chris Brun, C.I.H., C.S.P. - Bechtel National, Inc. | USA
Scott Nickerson, C.S.P. - Bechtel National, Inc. | USA
Lori Michelin, M.S. - Colgate Palmolive | USA
Maria Cecilia Marconi Pinheiro Lima - State University of Campinas | Brazil

In 2007, the National Institute for Occupational Safety and Health (NIOSH) partnered with the National Hearing Conservation Association (NHCA) to create the Safe-in-Sound Award™ for Excellence and Innovation in Hearing Loss Prevention (www.safeinsound.us). The objectives of this initiative are to recognize organizations that document measurable achievements and to share leading edge information to a broader community. Hearing health practices were evaluated against key performance indicators in a rigorous systematic review process designed to capture and evaluate the successes. The 2012 Safe-in-Sound Excellence and Innovation in Hearing Loss Prevention Awards™ will be presented. Each of the award recipients will accept their awards and briefly present their success stories. What better chance is there to learn from those in the forefront of our efforts to prevent work-related induced hearing loss?

**5:15 p.m. - 5:45 p.m.**

Breaks | Posters | Committee Meetings | Networking Time

**5:45 p.m. - 9:00 p.m.**

Friday Night Off-Site Event | **MARDI GRAS WORLD**

**SCHEDULE OF EVENTS:**

5:30 p.m. - Shuttles arrive at hotel for guest pick up
5:45 p.m. - First shuttle departs
6:00 p.m. - Guests arrive at Mardi Gras World and walk through float warehouse
6:45 p.m. - Guests arrive at Old Oaks Mansion for dinner, drinks and entertainment
8:45 p.m. - First shuttle departs for Astor Crowne Plaza
### GENERAL SESSION - MORNING

**8:45 a.m. - 9:10 a.m.**

**“What Are They Hearing? Australian Young Adults’ Leisure Noise Exposure and Attitudes to Hearing Loss Prevention” | Grand Ballroom A, B, C**

**Presenter:** Megan Gilliver, Ph.D. - The HearingCRC and National Acoustic Laboratories | Australia

Elisabeth Beach, Ph.D. - National Acoustic Laboratories | Australia

This paper reports the results of a recent study by NAL examining the leisure listening behaviour of young adults (aged 18-35 years). A representative sample of 1,000 participants completed an online survey investigating participants' leisure noise exposure, as well as their reported personal hearing health, perceived risk of hearing loss, and their attitudes and engagement with noise reduction behaviour. Self-reported exposure patterns suggested that over 13.2% of participants may be exposed to an unacceptable noise dose from leisure activities, exceeding that allowed by workplace noise limits. Noise reduction behaviour was related to general understanding of hearing health and beliefs about the importance of hearing and the potential for leisure noise to cause damage. Importantly, the results highlight a need for prevention campaigns to move beyond an emphasis on education about general threats to hearing, to messages that personalise the risk and motivate healthy hearing behaviours.

**9:10 a.m. - 9:35 a.m.**

**“Reactions to Noise in Day-Care Centers in Sweden” | Grand Ballroom A, B, C**

**Presenter:** Ann-Christin Johnson, Ph.D. - Karolinska Institutet | Sweden

Reports from the Swedish Work Environment Authority show that every second female pre-school teacher report exposure to annoying noise at their workplace. Studies on employees in different day-care centers are reported. Questionnaires regarding experience of and reactions to the sound environment at work was distributed by the webb (N≈100) or in paper (n=36). In the smaller study noise and hearing thresholds (pure tone audiometry) were measured. The web-based questionnaire contained a speech-in-noise test. Results showed noise levels between 76 and 83 dBA, the main source of the noise being the children playing. All personnel experienced a noisy work environment; they experienced headache, stress and fatigue. About 1/3 of the 36 women in the first study showed elevated PTA thresholds compared to non-noise exposed women. However, some of the hearing loss could be explained by other noise exposures. The results from the web-based sample will be presented.

**9:35 a.m. - 10:00 a.m.**

**“Impact of Daily Noise Exposure Monitoring on Individual Noise Exposures” | Grand Ballroom A, B, C**

**Presenter:** Michael McTague, M.P.H. - Yale University | USA

Peter Rabinowitz, M.D., M.P.H. - Yale University | USA

Deron Galusha, M.S. - Yale University | USA

Christine Dixon-Ernst, M.S. - Alcoa | USA

Recently developed technology allows noise exposed workers to monitor, on a daily basis, their noise “dose” received inside of hearing protection during each workshift. Daily noise exposure monitoring inside of hearing protection gives workers feedback about the effectiveness of their hearing protector use as well as the presence of potentially harmful noise levels in their work environment. Such feedback may assist workers in taking steps to reduce exposures. We compare
the trend of noise exposure among users of this technology in two settings: a mandatory use program, and a voluntary use program. In both programs, there was a reduction in the frequency of noise exposures in excess of the OSHA action level over the first six months of use.

10:00 a.m. - 10:25 a.m.
“Need for Special Support for Workers with Hearing Loss in Noisy Occupations” | Grand Ballroom A, B, C
Presenter: Vishakha Rawool, Ph.D. - West Virginia University | USA

Many workers who suffer from hearing loss continue to work in noisy occupations (e.g. miners). Such workers need to be supported to allow them to continue to work in a highly productive and safe manner. Individuals with poorer hearing have a greater need for recovery from fatigue and distress at work. The extent to which workers are able to recover from fatigue and distress at work can predict psychosomatic complaints, emotional exhaustion, sleep problems and duration of absences due to sick leaves. Compared to the general population, hearing impaired workers are worse off on several job environment indicators including high levels of noise, haste, and psychological strain. This presentation will include a review of research that establishes the need for special support for workers who have acquired hearing loss either from noise and/or other ototoxic in the context of the Job Demand-Control (JDC) model or the job strain model.

10:25 a.m. - 10:50 a.m.
Break (Exhibit Hall Closes at End of Break) | Astor Ballroom I, II, III

10:50 a.m. - 11:15 a.m.
“Myths and Misconceptions About Hearing Protection” | Grand Ballroom A, B, C
Presenter: Elliott Berger, M.S., I.N.C.E. Board Certified - 3M | USA

As someone who has kept up with the literature in the field of hearing conservation for over 30 years, I have had the opportunity to learn much, but also to observe common myths and misconceptions that cause confusion in the application of hearing protection devices (HPDs). This talk will address five common fallacies: 1) HPDs must be ANSI certified or otherwise approved (false in the U.S.); 2) The 7-dB correction used when applying the NRR is a “real-world” correction (false); 3) Earmuffs provide better protection than earplugs from sound that excites the bone-conduction pathways, and real-ear attenuation at thresholds tests cannot reveal bone-conduction issues (mostly false); 4) For the best fit and protection, roll-down foam earplugs must be held in place during expansion in the ear canal (false); 5) Level-dependent HPDs are designed for impulse noise and therefore provide better protection from gun shots and blasts than conventional passive (non-electronic) HPDs (false). Explanations will be provided to unravel these statements and clarify the facts.

11:15 a.m. - 11:40 a.m.
“Developing an Educational Toolkit for Military Hearing Preservation” | Grand Ballroom A, B, C
Presenter: Lynne Marshall, Ph.D. - Naval Submarine Medical Research Laboratory | USA
Patrick Zurek, Ph.D. - Sensimetrics Corporation | USA
Jens Jorgensen, B.A. - Sensimetrics Corporation | USA
Michel Jackson, Ph.D. - Sensimetrics Corporation | USA

Most military hearing loss could be avoided by the instinctive use of appropriate hearing-protective devices, yet most do not bother. Our Military Hearing Preservation (MHP) Training Kit addresses the Navy’s directive to improve awareness of the effects of noise on hearing, as well as individual accountability in preventing noise-induced hearing loss. Our objectives are to develop an accurate, personalized experience of potential future hearing loss for personnel in military hearing-conservation programs, and to improve the capability of military audiologists and their technicians to easily provide customized training to both individuals and groups. The MHP Training Kit contains three tools: 1) a designer for creating custom presentations, 2) a player for delivering presentations with minimal audiologist involvement, and 3) a program for demonstrating simulated hearing losses interactively. Audiologists can customize the choice of modules, training time, preventive or remedial training, and choose from a vast sound library. Service-specific versions are being developed.

11:40 a.m. - 12:05 p.m.
“Military Hearing Protection-Enhanced Devices: Can the Soldier Detect and Identify the Gunshot and Other Threats?” | Grand Ballroom A, B, C
Presenter: John Casali, Ph.D., C.P.E., Grado Chaired Professor - Virginia Tech, Auditory Systems Laboratory | USA
Dr. John Keady, Ph.D., J.D., M.B.A. - Innovation Research & Development, Inc. | USA
Jay Clasing, MAJ - U.S. Army | USA

An in-situ experiment was conducted in a specially-prepared quiet, flat, open, rural field to determine the effects of current HPDs and tactical communications and protection systems (TCAPS) on auditory detection and identification of 3 critical military threat signals: gunshots from a silencer-equipped weapon, AK-47 rifle’s high-frequency cocking, and conversational Arabic. Devices included: Combat Arms earplug in its nonlinear (open) rocker position, Etymotic EB-15 earplug on high gain, Com-Tac II electronic muff on high gain, Nacre Quiet Pro+ on high gain, and Atlantic Signal Dominator on high gain. On each trial with a device or open ear, subjects walked along a 3000-ft line of distance markers toward the auditory threat, stopping to listen when instructed. On approach to the threat, the linear distance at first detection was measured, followed by a continued approach until positive identification occurred. Then the subject reversed direction, retreating away from the threat until detection was lost. Specific statistically-significant detection and identification differences were revealed among devices, as well as compared to the open ear, and are reported. One particularly notable effect was that protectors with significant high-frequency attenuation can compromise detection of auditory threats, particularly those with high-frequency spectral bias. Certain devices also demonstrated asymmetrical detection effects, with detection distances achieved on retreat longer than on approach. The results have implications for selection of HPDs and TCAPS for applications where preservation of auditory situational awareness is essential.

12:05 p.m. - 1:15 p.m.
Hosted Luncheon and Awards | Grand Ballroom D

1:15 p.m. - 1:50 p.m.
GASAWAY LECTURE: “InspEAration” | Grand Ballroom A, B, C

Don Gasaway, before his retirement, was arguably the best motivational speaker on hearing conservation. Don had a knack for taking any complex topic and presenting it in an engaging and thought-provoking manner, as skilled as anyone I have ever seen. The Gasaway Lecture was established to honor Don and promote the values he brought to NHCA and our profession as a whole. Don certainly was an InspEAration to me and helped steer me toward active participation in NHCA. Don was deeply passionate about the role of employee education, training, and motivation. He was committed to training the trainer (us) on methods to effectively teach and motivate our audience, whether that audience was company management or the frontline employee. I am deeply honored to present...
The acoustic test fixtures used for measurements of the attenuation provided by earplugs and earmuffs are not suitable for helmet measurements, which require a helmet to attenuate the sound transmitted along bone-conduction and other pathways that bypass double hearing protection. In such noise fields, a helmet is needed to attenuate the sound transmitted along bone-conduction and other pathways that bypass double hearing protection.

The design of a head simulator that responds to both air- and bone-conducted sound is presented. Results that the helmet be mounted on an anatomically accurate head. Furthermore, contributions from bone-conduction and other bypass transmission pathways correspond to the use of this simulator during the development of hearing protection for aircraft carrier deck crews and for helicopter crews are discussed along with exposure at the start and the end of the military service. Audiometry at conscription was studied as well as the efficacy of the Hearing Conservation Program (HCP). 839 conscripts were recruited for the study at reporting. They were exposed to noise from weapons and vehicles and used earmuffs/plugs. Questionnaires and audiometry were studied at the start and the end of the military service. The incidence values of hearing impairment were 14.5% before and 24% after the service and of tinnitus 23% and 32% respectively. We suggest improvements regarding the HCP including inclusion criteria for military service and the education program.

Noise from weapons fire can exceed 160 decibels near the shooters hearing zone. As a result, double hearing protection is recommended for both students and instructors at firing ranges. However, challenges of comfort, fit and the ability to communicate while wearing double protection have made the use of double protection difficult. The study evaluated different hearing protection requirements for both students and instructors while seeking to improve hearing protection and facilitate training. The size and shape of different hearing protection devices as well as passive and active hearing protection were evaluated for performance. Challenges of fit were different for students and instructors due to the various types of headgear worn while shooting. In addition, the training provided in hearing conservation was evaluated. The goal of this study was to raise awareness within the military community to the limitations of current hearing protection and to reinforce the importance of training and fit when using hearing protection devices.

Acoustic test fixtures (ATF) for testing the impulse peak insertion loss (IPIL) of a hearing protector are described by American National Standard ANSI S12.42-2010. The self-insertion loss, ear simulator design (canals, microphone and temperature), hardness of the area surrounding the pinna and the anthropometric shape of the head has been specified in the standard. The IPILs of four protector conditions were evaluated with three ATFs during the outdoor field study using firearm noise. The Etymotic Research ER20 musicians’ earplug and electronic (EB1 earplugs), the Peltor Tactical Pro earmuffs and a combination of the TacticalPro and ER20 protectors were tested at 130, 150 and 170 dB peak sound pressure level with the Institute de Saint Louis (ISL) heated and unheated fixture and the GRAS 45CB heated ATF. IPILs exhibited good agreement across all three fixtures for earplugs. Significant differences were observed between the fixtures for the earmuff-only condition. These differences were more evident for the double-protection condition. [Portions of this work were supported by the U.S. EPA Interagency Agreement DW75921973-01-0.]

Exposure to certain high noise environments can be sufficient to cause hearing damage despite the use of double hearing protection (earplugs and earmuffs). In such noise fields, a helmet is needed to attenuate the sound transmitted along bone-conduction and other pathways that bypass double hearing protection. The acoustic test fixtures used for measurements of the attenuation provided by earplugs and earmuffs are not suitable for helmet measurements, which require that the helmet be mounted on an anatomically accurate head. Furthermore, contributions from bone-conduction and other bypass transmission pathways must be included in the attenuation measurements. The design of a head simulator that responds to both air- and bone-conducted sound is presented. Results from the use of this simulator during the development of hearing protection for aircraft carrier deck crews and for helicopter crews are discussed along with corresponding human subject test results. [This work was sponsored by the US Navy and the US Air Force.

The National Institute for Occupational Safety and Health (NIOSH) and other health researchers have documented the inadequacy of using personal noise
dosimeters to measure impulse noise during weapons firing. The goal of this study was to raise awareness within the military community to the limitations of using personal dosimeters to measure impulse noise at firing ranges, and to characterize the impulse noise from a variety of military issue firearms used at both indoor and outdoor firing ranges using more appropriate instrumentation. Sound measurements were collected using Quest Technologies Q-300 personal dosimeters, The Edge egS personal dosimeter and the SoundPro DL-1 sound level meter with 1/4 inch microphone at both indoor and outdoor firing ranges. Preliminary data indicates a difference of 5-20 dB between dosimeters and a type I sound level meter (SLM) fit with a 1/4 inch microphone capable of measuring impulse noise associated with weapons fire.

4:35 p.m. - 5:00 p.m.
“Impulse Noise Levels Generated by Starter Pistols” | St. Charles B
Presenter: Jacob Sondergaard, M.Sc., B.Eng. - G.R.A.S. Sound & Vibration | USA
Greg Flamme, Ph.D. - Western Michigan University, College of Health and Human Services | USA
Amir Khan - National Institute of Occupational Safety and Health | USA
Julia Vernon - National Institute of Occupational Safety and Health | USA
Deanna Meinke, Ph.D. - University of Northern Colorado | USA
Donald Finan - University of Northern Colorado, Audiology & Speech-Language Sciences | USA
James Lankford, Ph.D. - Northern Illinois University, Allied Health & Communication Disorders Dept. | USA
Michael Stewart, Ph.D. - Central Michigan University, Communication Disorders Department | USA
CAPT William J. Murphy, Ph.D. - National Institute for Occupational Safety and Health / USPHS | USA

A starter pistol is commonly used in athletic events to generate a loud impulse signaling participants that the event (i.e. race) has started. The impulses generated from typical .22 and .32 starter pistols firing blanks were compared to impulses generated from .22 and .32 revolvers, respectively, firing both black powder blanks and standard velocity projectiles. The results indicate that the starter pistols generate higher peak sound pressure levels at the shooter’s left ear than the standard revolvers for all types of ammunition evaluated. Hence, a typical starter pistol is not inherently less hazardous to hearing than a traditional firearm. The use of hearing protection devices (HPDs) by event personnel when firing a starter pistol is recommended. Finally, starter pistol noise exceeded levels considered safe and acceptable for numerous athletes, therefore alternative lower-level signaling devices should be considered for sporting events.

5:00 p.m. - GOOD BYE!
CLOSING REMARKS | St. Charles B

BREAKOUT SESSION - HPDs/Fit Testing

2:00 p.m.- 2:25 p.m.
“An Acoustical Analysis of the Frequency-Response and Attenuation Patterns of Musician Earplugs” | St. Charles A
Presenter: Kris Chesky, Ph.D. - University of Northern Texas | USA
Amyn Amlani, Ph.D. Audiology - University of Northern Texas | USA
Amir Brgula, Masters in Electrical Engineering - University of Northern Texas | USA

Due to a wide variability in exposure levels associated with live music performance in schools and professional settings, recommending and selecting the optimum filter strength for custom-fitted musician earplugs is challenging for clinicians, educators, and musicians. To help address this problem and to supplement published attenuation characteristics of musician earplugs based on Real-Ear Attenuation at Threshold procedures, the purpose of this study was to objectively evaluate level-dependent attenuation and frequency response patterns over a wide range of intensity levels for each of the four different filter strengths (ER9, ER15, ER20 and ER25). Based on objective and highly controlled acoustical analysis of prerecorded live musical pieces processed through a monaurally fit KEMAR, and with four different filters and nine intensity levels per filter, this presentation will offer new information regarding how musician earplugs attenuate high-levels of sound, and suggestions for recommending and selecting filter strength to use in various musical situations.

2:25 p.m. - 2:50 p.m.
“The Occlusion Effect of Earplugs per Insertion-Depth, Earplug Type, and Excitation-Source” | St. Charles A
Presenter: Kichol Lee, M.S. - Virginia Tech | USA

The occlusion effect (OE) of earplugs can cause enough annoyance to certain people so that they decide not to use them. The effects of insertion depth (shallow/ deep), earplug type (foam/ balloon), and excitation source (bone vibrator/ vocal utterance) on the OE were investigated via an objective measurement method. The shallowly inserted earplugs produced greater levels of OE. Also, there was an interaction effect between insertion depth and earplug type.

2:50 p.m. - 3:15 p.m.
“We Build Airplanes!...What Does Hearing Conservation Have to do with Me?” | St. Charles A
Presenter: Raoul Calimlim, C.I.H. - Gulfstream Aerospace Corporation | USA
Ricky Johnson - Gulfstream Aerospace Corporation | USA

Gulfstream is very proud of its culture of continuous improvement. The decade long journey of instituting Lean and Six Sigma principles throughout all Gulfstream’s business units has been a boon to the corporation. Currently, operational organizations are taking advantage of the momentum by infusing this continuous improvement culture into their Environmental Health and Safety programs. From securing operational leadership “buy-in” to “one-on-one” worker education, one will see how this aircraft manufacturing culture has accepted the vital technology made available by an earplug fit-test program. This presentation will illustrate how hearing conservation and ultimately the employees have benefited from the implementation of an earplug fit-test program.

3:15 p.m. - 3:45 p.m.
BREAK | Astor Foyer

3:45 p.m. - 4:10 p.m.
“Custom Designed and Manufactured Hearing Protection: History, Terminology and Benefits to Corporations and Hearing Conservation Professionals” | St. Charles A
Over the years there has been much confusion as to what constitutes ‘custom’ hearing protection on the market. In broad interpretation, this term has been applied to everything from cotton balls inserted into the ears to various types of user-formed products, to custom designed and manufactured durable use products. The purpose of this paper is to: Provide a short history of the development of custom hearing protection, introduce terminology and descriptions that delineate the various types of custom protectors on the market, and provide a guide for end users and hearing conservation professionals as to the selection and benefits of custom designed and manufactured hearing protection as compared to single-use and/or generic fit type hearing protectors. Details on noise environment, noise reduction performance characteristics, environmental impact and user acceptance will be described in the presentation.

4:10 p.m. - 4:35 p.m.
“Acoustical and Geometrical Properties of Custom Earplugs Obtained with an Automated Fitting System” | St. Charles A
Presenter: Jérémie Voix, P.Eng., Ph.D., Associate Professor - Université de Québec (ETS) | Canada
Aidin Delnavaz, Post-Doc - Université de Québec (ETS) | Canada
Cédrik Bacon, Master Student - Université de Québec (ETS) | Canada
This presentation will detail the results of some recent studies conducted on a new type of custom earplug instantly fitted to the user’s ear canal. This “Sonomax V4” earplug is made of a core body of generic shape, surrounded by a thin expandable silicone envelope. A headset-mounted pump injects a two part medical silicone compound within the core and the envelope of the earplug so that the earplug expands and fits properly the user’s ear canal. A precise regulation mechanism within the pump has been developed to ensure that the proper amount of silicone required for the specific user’s ear canal shape and dimension is injected each time. The acoustical properties of the obtained earplug will be presented together with the results of a geometrical analysis conducted to assess the consistency and adequacy of the obtained earplug shape.

4:35 p.m. - 5:00 p.m.
“Optimal Hearing Protection with State of the Art Custom HPD’s and State of the Art Fit Testing” | St. Charles A
Presenter: Mihaela Grigorie, Ph.D. - Phonak Communications AG | Switzerland
Michael Ermann - Phonak Communications | USA
Fit testing is more than a service to users of HPD’s or a must-have to ensure compliance with local regulations (like e.g. in Germany). Fit testing is an important element of a comprehensive process aiming to guarantee the highest quality to custom-molded protectors. In this presentation an explanation is given of the process from ear impression to custom hearing protection devices delivery. The sources of error are shown in the manufacturing of individual molds depending on how they are produced (not all custom HPD’s are the same) and the question is addressed what technologies and measures should be applied to increase significantly the accuracy of the final products. The monitoring and statistical analysis of fit-testing results is the key to preventing issues in the production chain and brings the final proof of the effectiveness of the hearing protection.

5:00 p.m. - GOOD BYE!
Closing Remarks | St. Charles A
Friday and Saturday Platform Presenter Bios

February 25-26, 2012
Platform Presenter Biographies

Elliott Berger, M.S., I.N.C.E. Board Certified - 3M | USA
Elliott H. Berger, M.S., is a Division Scientist for 3M’s Occupational Health and Environmental Safety Division. For 35 years he has studied noise and hearing protection. 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 a Past-President of the National Hearing Conservation Association (NHCA), a Fellow of the Acoustical Society of America, and a recipient of the NHCA’s Outstanding Hearing Conservationist Award. Among his favorite sounds is the slippery whoosh of rain sliding down a window pane.

Raoul Calimlim, C.I.H. - Gulfstream Aerospace Corporation | USA
Raoul is the Sr. Industrial Hygienist at Gulfstream Aerospace Corporation. Gulfstream develops, designs, manufactures, markets, services and supports the most technologically advanced business-jet aircraft in the world. Raoul’s responsibilities include designing, implementing and auditing hearing conservation, respiratory protection, chemical hygiene, ergonomic and hazard communication programs across all 11 sites in the corporation. He is integral in the company’s ISO 14001 and OHSAS 18001 compliance certifications as well as long-term goal development for the corporate Environmental, Health, and Safety Management System. Raoul began his environmental, occupational health, and safety career in the U.S. Air Force as a Bioenvironmental Engineer stationed at Mt. Home Air Force Base, Idaho and Ramstein Air Base, Germany. He is currently a Reservist with the 315th Aerospace Medicine Squadron at Joint Base Charleston, South Carolina. Raoul is CIH certified in comprehensive practice by the ABIH.

Elliott Berger, M.S., I.N.C.E. Board Certified - 3M | USA
Elliott H. Berger, M.S., is a Division Scientist for 3M’s Occupational Health and Environmental Safety Division. For 35 years he has studied noise and hearing protection. 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 a Past-President of the National Hearing Conservation Association (NHCA), a Fellow of the Acoustical Society of America, and a recipient of the NHCA’s Outstanding Hearing Conservationist Award. Among his favorite sounds is the slippery whoosh of rain sliding down a window pane.

John Casali, Ph.D., C.P.E., Grado Chaired Professor - Virginia Tech, Auditory Systems Laboratory | USA
Dr. Casali is the Grado Chaired Professor of Industrial and Systems Engineering at Virginia Tech, and a Board-Certified Professional Ergonomist (CPE). After receiving his Ph.D. in Human Factors Engineering, he developed the Auditory System Laboratory, a versatile acoustics research facility at Virginia Tech. He is a Fellow of the Human Factors and Ergonomics Society and the Institute of Industrial Engineers, and was the 2007 President of the National Hearing Conservation Association. He was the recipient of the NHCA’s Outstanding Hearing Conservationist Award in 2009, and has twice received NHCA’s Outstanding Lecture Award as well as the Media Award. His research at Virginia Tech has been sponsored by various government agencies and corporations to a total of over $7.5 million. Dr. Casali holds six patents and has authored over 170 publications. He is on several Scientific Advisory Boards and Editorial Boards. He enjoys working with companies and community groups on warning signal issues, hearing protection and earphone design, community noise, ergonomics, and patent/product liability litigation.

Kris Chesky, Ph.D. - University of Northern Texas | USA
Dr Kris Chesky is a musician, educator, and researcher. He is currently Associate Professor within the College of Music at the University of North Texas. As Director of the Texas Center of Music & Medicine, Dr. Chesky has received research grants from the National Endowment for the Arts, the Grammy Foundation, NAMM, IFMR, the Scott Foundation, and others to study health issues related to learning and performing music. He won the 2010 Safe-in-Sound Award for his efforts to prevent NIHL in musician populations.

Anthony Dietz, Ph.D. - Creare | USA
Dr. Dietz received his undergraduate degree in Aeronautical Engineering from the University of Sydney and his doctorate from Oxford University. His graduate studies focused on gas-turbine research. After graduating, Dr. Dietz served with the Royal Australian Air Force as a Flight Test Engineer. Dr. Dietz then worked in the Fluid Dynamics Laboratory at the NASA Ames Research Center, where he conducted basic fluid dynamics experiments on boundary-layer transition. Now at Creare, Dr. Dietz has led a number of research and development projects on hearing protection.
John Franks, Ph.D. - LytleSound | USA
Dr. John Franks, formerly with the National Institute for Occupational Safety and Health, has been involved in the development of standards and regulations related to occupational hearing loss prevention for more than 30 years. He has served on committees of the American Speech-Language Hearing Association, the American Society for Testing and Materials, the National Hearing Conservation Association, currently on working groups of the American National Standards Institute. He has published or presented more than 70 articles and presentations and holds two patents. He was an audiophile before his avocation became his vocation. The performance of earphones of all types has interested him since the early 1960s when his earphones sounded better than his speakers.

Susan Griest, M.P.H. - Oregon Health & Science University | USA
Susan Griest, M.P.H. is a Research Scientist for the Oregon Hearing Research Center at Oregon Health & Science University and for the Veterans Administration (VA), National Center for Rehabilitative Auditory Research in Portland, Oregon. She received her Masters in Public Health from the University of Washington in 1989. For the past 26 years, Ms. Griest has been a researcher and educator in the area of tinnitus and noise-induced hearing loss. For the past 10 years, she has been involved in the development and evaluation of the Dangerous Decibels program and the VA Hearing Loss Prevention Program (HLPP). Ms. Griest has been a member of the NHCA since 1996. During that time she has served on the executive council as an associate and member delegate, has been a member of the task force. Hearing Conservation Education for Children & Adolescents, and was Program Chair for the 33rd NHCA conference held in Portland, Oregon in 2008. She served as President of NHCA in 2010-2011.

Mihaela Grigorie, Ph.D. - Phonak Communications AG | Switzerland
Mihaela Grigorie is the Product Manager for hearing protection products at Phonak Communications in Switzerland. She holds a Ph.D. in microelectronics from the Swiss Institute of Technology (EPFL) and an MBA from the University of Lausanne (HEC). Her experience covers integrated circuit design, project leading, marketing and communication management, as well as quality systems implementation. Her current position within Phonak spans all tasks related to the management of the company’s Serenity hearing protection devices and the definition, development and launch of innovative products such as the SafetyMeter fit-testing system.

Megan Gilliver, Ph.D. - The HearingCRC and National Acoustic Laboratories | Australia
With a Ph.D. in Psychology, Megan has been working as a Researcher at the National Acoustic Laboratories (NAL) since 2007. Her role there has primarily focused on hearing loss prevention work, particularly related to adolescents and young adults. She is part of the IHear (investigation of hearing epidemiology, attitudes, and recreation) research team, and is also involved in the development of prevention programs for schools and workplaces. Megan has a particular interest in the application of health promotion models to the issue of hearing conservation, and the factors that may improve campaigns' likelihood of success.

John Hermanson, Regional Administrator - Occupational Safety and Health Administration (OSHA) | USA
John Hermanson is the Regional Administrator for the Dallas Region of the U. S. Department of Labor, Occupational Safety and Health Administration (OSHA). Mr. Hermanson began his career as an Industrial Hygienist with OSHA in 1976 in the Indianapolis Area Office. From 1987 to 1990 he served as the Area Director in three different offices in Illinois, California and Arizona. In 1990 he returned to Chicago. Mr. Hermanson served as the Assistant Regional Administrator for Enforcement Programs, overseeing all enforcement operations for the Chicago region, which encompasses the six Great Lakes states. In 2004, he was promoted to the position of Deputy Regional Administrator for the Denver region. He was promoted to the position of Regional Administrator in Philadelphia in 2008 and came to Dallas in 2011. Mr. Hermanson has a B.A. in Biology from Augustana College in Sioux Falls, South Dakota.
Keila Knobel, Ph.D. - State University of Campinas | Brazil
Audiologist, she has worked on the evaluation and treatment of patients with tinnitus, hyperacusis and (central) auditory processing disorders. She recently, decided to work on the prevention of auditory symptoms. Her post-doc research is dedicated to understanding the patterns of exposures to loud sounds among Brazilian children and teenagers and the culture that lies behind the behavior. She is also interested in classroom noise control and hearing screening for scholars.

Scott Lake, M.S.E., B.S.M.E. G.M.I. - Westone Laboratories, Inc. | USA
Scott Lake is the Engineering Projects Manager at Westone Laboratories, Inc. located in Colorado Springs, CO. He has spent most of his 20+ year professional career in the area of noise and vibration control in the automotive industry; with specialization in the study of Sound Quality where he was an regularly invited speaker to the biannual Noise & Vibration Conference of the Society of Automotive Engineers. He currently has responsibilities in product definition, design and development for Westone Laboratories’ Hearing Protection Device Products. Scott is an avid composer, multi-instrumental and home-recordist with high-hopes to preserve his hearing for his lifetime to continue pursuit of his hobby.

Kichol Lee, M.S. - Virginia Tech | USA
Kichol Lee earned a B.S. in Mechanical Engineering (1994) at the University of Texas at Austin, a M.S. in Computational Science (2003) at San Diego State University, and a Ph.D. in Industrial and Systems Engineering with concentration at Human Factors Engineering (2011) at Virginia Tech.

Lynne Marshall, Ph.D. - Naval Submarine Medical Research Laboratory | USA
Dr. Lynne Marshall is a Senior Research Audiologist at the Naval Submarine Medical Research Laboratory in Groton, Connecticut. She is also 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 and a faculty member at the University of Nebraska. She also held a postdoctoral position at Boys Town National Research Hospital. Her initial work at the Naval Submarine Medical Research Laboratory involved auditory-sonar research and now includes the potential role of otoacoustic emissions in hearing-conservation programs, educational tools using hearing-loss simulation for hearing-conservation applications, and a model to estimate the life-cycle costs of hearing loss for ship and weapons systems designers.
Deanna Meinke, Ph.D. - University of Northern Colorado | USA

Deanna Meinke is a board certified audiologist providing hearing loss prevention services. She is involved in hearing loss prevention efforts as a clinician, a consultant, educator and a researcher. Her primary responsibilities are academic teaching and research in undergraduate and graduate training programs for speech-language pathology and audiology at the University of Northern Colorado. She also provides hearing conservation program consultation and training services. Her expertise is utilized for hearing conservation program design, regulatory compliance audits, software development/implementation, workers’ compensation claims review and research. In terms of training, she teaches hearing conservation seminars to a variety of audiences including noise-exposed workers, employers and medical/safety professionals. Deanna is the 2010 recipient of the NHCA’s Threadgill Award.

Thais Morata, Ph.D. - National Institute for Occupational Safety and Health (NIOSH) | USA

Thais C. Morata has worked on hearing loss prevention since 1987, when she consulted for the Brazilian Union of Chemical Workers. She did post-doctoral work at the National Institute for Occupational Safety and Health, USA, where she now works as a research audiologist. She was a guest researcher at the National Institute for Working Life and the Karolinska Institute in Sweden. Dr. Morata taught graduate courses in Brazil, mentors and collaborates with researchers across the globe. She is a sought after speaker, having been invited to give Keynote addresses in several international and national conferences. She directs the Safe-in-Sound Excellence in Hearing Loss Prevention Awards™. Her pioneering work in noise interactions influenced national and international occupational health policies. In 2008 she received the National Hearing Conservation Association Outstanding Hearing Conservationist Award for her accomplishments.

William Hal Martin, Ph.D. - Oregon Health & Science University | USA

Billy Martin has a wide range of clinical and research interests spanning the fields of physics hearing, neuroscience and population health. His training in the University of California system included audiology, speech science, linguistics, electrical engineering, medicine, neuroscience, and computational physics. This was followed by a post-doctoral fellowship at the Technion-Technical Institute of Israel in auditory neurophysiology. He is currently professor of Otolaryngology/Head & Neck Surgery and professor of Public Health & Preventive Medicine at the Oregon Health & Science University where he directs the OHSU Tinnitus Clinic, tinnitus research, intraoperative neurophysiological monitoring and the Dangerous Decibels international noise induced hearing loss and tinnitus prevention program with materials now in 27 countries. He is working closely with the New Zealand government to establish their national hearing loss prevention program. Billy has authored or co-authored has over 500 scientific publications and/or presentations across his fields of interest. Presently, his research projects examine the neurobiology and treatment of tinnitus and community based hearing health promotion in Native American/Alaska Native children. In his free time he is an avid surfer and water polo player collecting gold medals in the U.S. Masters national water polo championships in 2010 and 2011.

Scott McFeeters - Naval Medical Center San Diego - Industrial Hygiene | USA

Scott McFeeters is an Industrial Hygienist with the Naval Medical Center San Diego at Marine Corps Air Station Miramar. He received his Bachelor’s degree in Biochemistry from California State University San Marcos. After working in the lab as a synthetic organic chemist and a high school chemistry teacher he found his true interest in safety and worker health. He worked as the Environmental Health and Safety officer and Materials Manager for a small biotech company before coming over to the Navy. Currently he is involved with a study of impulse noise measurement devices, specifically related to different military weapons used at firing ranges.

Michael McTague, M.P.H. - Yale University | USA

Michael McTague received his B.S. in Biology from Providence College and his M.P.H. from the University of Connecticut. He is currently a study coordinator at the Yale Occupational and Environmental Medicine Program for the Daily Exposure Monitoring of Noise study funded by NIOSH.

Megan Morris - Baptist Memorial Health Care Corporation | USA

As a system marketing specialist for Baptist Memorial Health Care, Megan Morris serves as an account manager and organizes and initiates campaigns, as well as plans, creates and implements communication tactics for several hospital clients and major service lines. She has received several marketing and public relations awards for her communication and marketing campaigns. Megan graduated from the University of Memphis in 2008 with a degree in communications and a concentration in advertising. She began her career in Memphis, TN with Baptist Memorial Health Care Corporation.
Per Muhr, Ph.D. - Karolinska Institutet | Sweden
Per Muhr is employed as an occupational hygienist in the Swedish Armed Forces as well as postdoc at the Karolinska Institutet. He finished his thesis in hearing in young men and the influence of military noise in 2010. Before that he has published several studies on noise exposure and performance in the Airforce.

Connie Muncy, C.I.H., M.S., E.H.S. Mgmt. - Montgomery County Environmental Services | USA
Connie Muncy serves as the Safety Officer for Montgomery County Environmental Services. Her degrees include a Bachelors of Science in Chemistry from Wright State University and a Masters of Science in Environmental, Safety, and Health Management from the University of Findlay. Among her many certifications, she is a Certified Industrial Hygienist and OSHA-authorized Outreach Trainer. She has received numerous safety awards including the Safe-in-Sound service sector award and the Ohio Water Environment Association’s Burke Award. Recent activities include serving as Board Chair for the Dayton/Miami Valley Safety Council and President of Kitty Hawk Chapter and Deputy Vice President for Region VII of the American Society of Safety Engineers. Memberships include the American Industrial Hygiene Association, Phi Kappa Phi Academic Honor Society, and American Mensa. Ms. Muncy was elected in 2011 as one of ASSE’s “100 Women in Safety Engineering Making a Difference” based on her passion for protecting workers in the Public Sector as demonstrated by her innumerable national and local level speaking engagements and publications.

CAPT William J. Murphy, Ph.D. - National Institute for Occupational Safety and Health / USPHS | USA
CAPT William Murphy is a co-leader of the Hearing Loss Prevention Team in the Engineering and Physical Hazards branch of the Division of Applied Research and Technology at the National Institute for Occupational Safety and Health. His research has specialized in measurement and rating of hearing protection devices, fit testing of hearing protection devices and in the assessment of impulse noise and its effects on hearing. He has served as an officer in the Commissioned Corps of the United States Public Health Service since 1993.

Rick Neitzel, Ph.D., C.I.H. - University of Michigan | USA
Rick is an Assistant Professor in the University of Michigan Risk Science Center within the Department of Environmental Health Sciences. He has been conducting research on noise and hearing since 1997. His research interests include assessment of the relationship between environmental exposures and sleep, development of quantitative and subjective exposure assessment techniques for application to occupational and community settings, and development and evaluation of effective occupational health interventions and controls.

Leif Olsen, M.P.H., C.I.H., C.H.M.M. - Naval Medical Center San Diego | USA
Leif Olsen began his career in manufacturing for National Steel and Shipbuilding located in San Diego, California. After seeing the hazards faced by workers, he changed his career path to work in environmental, health and safety and returned to school and completed his Master’s in industrial hygiene at San Diego State University in 1992. He has over 20 years of experience in environmental, health and safety working in private industry including aerospace, manufacturing and biotechnology. He is a Certified Industrial Hygienist and a Certified Hazardous Material Manager. He currently works as a Industrial Hygienist for Naval Medical Center, San Diego, Miramar Division.

Cory D.F. Portnuff, Au.D., Ph.D. - University of Colorado at Boulder | USA
Dr. Cory Portnuff is a clinical audiologist in Denver and a Ph.D. candidate in Hearing Sciences at the University of Colorado at Boulder. His research focuses on noise-induced hearing loss in children, with a particular emphasis in understanding music-induced hearing loss and MP3 players using health belief modeling. Dr. Portnuff is also the President of the H.E.A.R. Project, a Colorado non-profit organization that provides support for families of children with hearing loss. In his free time, he enjoys hiking, biking and long walks on Colorado beaches.
**Ruth Ruttenberg, Ph.D. - Ruth Ruttenberg & Associates | USA**
Dr. Ruth Ruttenberg is President of Ruth Ruttenberg & Associates, Inc. and Professor at the National Labor College. Her work in occupational safety and health began with administrative hearings at OSHA on noise, in the 1970’s. At the hearings, she testified, on behalf of the AFL-CIO, about the inflated estimates by industry and OSHA of the costs of regulating workplace noise. She later served as senior economist at OSHA, and has subsequently studied the economic impact, not only of noise and noise controls at work, but also a wide variety of chemicals and other hazards. A current focus of her work is the economic and social benefits of regulation.

**David Sarvadi, J.D., M.S.C. - Keller and Heckman LLC | USA**
David joined Keller and Heckman in 1990. Mr. Sarvadi practices in the areas of occupational health and safety, toxic substance management, pesticide regulation, employment law, and product safety. Mr. Sarvadi represents clients before a variety of federal and state enforcement agencies in legal proceedings involving OSHA citations, EPA Notice of Violations, TSCA consent orders, CPSC Notices, FIFRA Stop Sale Use and Removal Orders, and EEOC Charges of Discrimination. He has been counsel to the National Coalition on Ergonomics from its inception in 1994. He has a background in occupational safety and health, having worked as an industrial hygienist for more than 15 years and became a Certified Industrial Hygienist in 1978, a designation he held until he voluntarily relinquished it in 2010. Mr. Sarvadi was selected by the National Academy of Sciences to participate in a panel of the Institute of Medicine that was asked to review a study by the National Institute for Occupational Safety and Health on the use of respirators in the U.S. He was asked to participate because of his expertise in law and industrial hygiene.

**Jacob Songergaard, M.Sc., B.Eng. - G.R.A.S. Sound & Vibration | USA**
Jacob Sondergaard, M.Sc., B.Eng. Field Application Engineer at G.R.A.S. Sound & Vibration, brings experience from the factory in Denmark to the North American office in Cleveland, Ohio. He is the point of contact regarding all technical issues from North and South American customers and specializes in providing solutions specific to acoustic applications. His specific area of interest is in impulsive noise acoustic measurements and addresses transducer selection, sound transduction, recording and signal processing with specific application towards gunshots and explosives.

**Alice Suter, Ph.D. - Alice Suter & Associates | USA**
Alice Suter has worked in the area of noise effects and hearing conservation for 40 years. She has an M.S. in education of the deaf and a Ph.D. in audiology. She has been influential in noise criteria development, regulation, and public policy, first at the U.S. EPA’s Office of Noise Abatement and later at OSHA. As Senior Bioacoustical Scientist at the EPA she participated in the development of criteria for noise effects, including the psychological, extra-auditory physiological, performance, and communication effects, in addition to the effects of noise on hearing. As Senior Scientist and Manager of the Noise Standard at OSHA, she was principal author of the hearing conservation amendment to the noise standard. She has also held positions of Visiting Scientist and Research Audiologist at NIOSH. She holds fellowship in the Acoustical Society of America and the American-Speech-Language-Hearing Association, and has received several honors for her work, including the Alice Hamilton Award from the American Industrial Hygiene Association and the Lifetime Achievement Award from the National Hearing Conservation Association. She is now a consultant, living in Portland, Oregon.
Jody Urquhart - I Do Inspire | Canada
Jody has been presenting her keynote addresses around the world for over 10 years. She is passionate about spreading the message of fun, and meaningful work. Annually she is a guest lecture at over 40 organizations and associations, and is a top motivational speaker. Jody is author of the book All Work & No SAY and writes a syndicated column called the Joy of Work, which is published in over 40 magazines and trade journals. Her mission is to help motivate company employees to derive more meaning and satisfaction from their work. Jody is a feature guest speaker for the GE Healthcare Tip-TV program broadcast in over 2600 healthcare facilities. Jody is the 2008 Bronze Winner of the 29th Annual Telly Awards for excellence in programming this presentation. Jody has been a convention keynote speaker for clients that include health care associations, financial, corporations, parks and recreation bodies, government departments and many more groups. She was the keynote speaker at the ANA 2004 Convention. Jody was on the founding board of the Canadian Association of Professional Speakers Calgary chapter. Jody’s presentations are guaranteed to energize audiences and get them laughing. Jody enjoys doing stand up comedy and yoga (but not at the same time).

Jérémy Voix, P.Eng., Ph.D. - Université de Québec (ETS) | Canada
Professor Jérémy Voix is an acoustics specialist with nearly 15 years of experience in workplace noise control. Since 2000, he has worked concurrently in academic and industrial settings, publicized his fundamental and applied research results, and continued to register patents for an individual advanced hearing protection solution. Professor Voix has authored or co-authored around 50 scientific publications. As a hearing protection expert, he is regularly invited to participate as an organizer of international conferences and a reviewer of articles and theses.
Poster #1

“Chicago Healthy Aging Study (CHAS): Evaluation of Cardiovascular Disease Risk and Hearing in Older Adults”

Presenter:  Rachael Bairduc, B.S. - Northwestern University | USA
Gayla Poling, Ph.D., CCC-A - Northwestern University | USA
Martha Daviglius, M.D., Ph.D., M.P.H. - Northwestern University | USA
Sumirajit Dhar, Ph.D., CCC-A - Northwestern University | USA

The long-term relationship between cardiovascular disease (CVD) risk factors (e.g., high blood pressure) and hearing remains ambiguous. This longitudinal investigation examines hearing in an adult population (130 ears: 65-84 years) classified as low- or high-risk for CVD 40 years prior to evaluation. Behavioral thresholds (0.25-8kHz) and distortion product otoacoustic emission (DPOAE) characteristics were compared across groups to assess the impact of CVD risk and aging. Understanding this relationship may improve hearing conservation efforts.

Poster #2

“Measurements of Bone-Conducted Impulse Noise with a Head Simulator”

Presenter:  Odile Clavier, Ph.D. - Creare, Inc. | USA
CAPT William J. Murphy, Ph.D. - National Institute for Occupational Safety and Health / USPHS | USA
Anthony Dietz, Ph.D. - Creare, Inc. | USA
LCDR Edward L. Zechmann, M.S. - National Institute for Occupational Safety and Health / USPHS | USA

Bone-conducted sound is the limiting factor in current hearing protection for very high noise environments. An anatomically correct head simulator built specifically to measure bone-conducted sound was used to evaluate the effects of impulse noise generated by a semi-automatic rifle at three different peak sound pressure levels. Time histories were measured for the acceleration of the temporal bones and sound pressure transmitted into the gel-filled skull. Results with several hearing protection devices will be presented.

Poster #3

“Hearing Protector Attenuation Testing: Comparison of Methods and Instruments for Measuring Earplug Performance”

Presenter:  Claire Collord, B.S. - University of Northern Colorado | USA

A round-robin test of hearing protector attenuation to obtain comparative hearing protector performance data using four different hearing protector attenuation measurement methods, one of which involves a new software designed by NIOSH called “HPD WellFit”. The results of the study will be used to make recommendations on the feasibility and effectiveness of incorporating hearing protector fit-testing into hearing loss prevention programs.

Poster #4

“Standardized REAT Measurements of Children Fit with Slow-Recovery Foam Earplugs”

Presenter:  Jennifer Eggebrecht, B.S. - University of Northern Colorado | USA

Children, just like adults, have a need to utilize effective hearing protection when exposed to hazardous noise levels. This study reports standardized real-ear-attenuation-at-threshold (REAT) measurements with children 5-10 years of age using slow-recovery foam earplugs. Both children and parents served as untrained subjects and were tested according to ANSI S12.6 (2008). Experimenter-fit attenuation measurements were also taken. Attenuation metrics are reported in terms of the Noise Reduction Rating (NRR) and 1/3 octave-band attenuation values.

Poster #5

“Pop-rock Musicians: Effects of Amplified Music and Assessment of Satisfaction Provided by the Use of Hearing Protectors”

Presenter:  Ana Claudia Fiorini, Ph.D. - UNIFESP/PUCSP | Brazil
Cristiane Bolzachini Santoni - UNIFESP/PUCSP | Brazil

The aim of the present study was to evaluate hearing and assess the satisfaction provided by the use of hearing protector devices in pop-rock musicians. It was evaluated 24 male musicians, aged 25 to 45, with professional experience from 3 to 21 years. The prevalence of noise-induced hearing loss was 20.8%. TEOAEs were absent in 45.8% and DPOAEs in 58.4%. 75.0% of the musicians evaluated hearing protector above score 7.0.

Poster #6

“Data from a Computer-Based Hearing Loss Prevention Education Program for Veterans and Military Personnel”

Presenter:  Robert Folmer, Ph.D. - National Center for Rehabilitative Auditory Research, Portland VA Medical Center | USA
Susan Griest, M.P.H. - National Center for Rehabilitative Auditory Research, Portland VA Medical Center | USA
Gabrielle Saunders, Ph.D. - National Center for Rehabilitative Auditory Research, Portland VA Medical Center | USA
Serena Dann, Au.D. - National Center for Rehabilitative Auditory Research, Portland VA Medical Center | USA
Edward Porsov, M.S. - Department of Otolaryngology, Oregon Health & Science University | USA
Marjorie Leek, Ph.D. - National Center for Rehabilitative Auditory Research, Portland VA Medical Center | USA

Through the Joint Incentive Fund (JIF), the Department of Defense and the Department of Veterans Affairs developed a self-administered, computer-based, multimedia hearing loss prevention education program that can be delivered at military bases, primary care or other medical settings. Initial installations of this program are at the VA Medical Center in Portland, Oregon and Fort Lewis, Washington. This poster will provide summaries of data collected from program participants during the first year of operation.

Poster #7

“NIOSH Hearing Protector Device Compendium: What is it? Why use it? How can I my get in it?”

Presenter:  Pam Graydon, M.S., C.O.H.C. - National Institute for Occupational Health and Safety | USA

This NIOSH Hearing Protection Device Compendium will reflect the proposed changes in hearing protection ratings under the new EPA labeling regulations. The revised Compendium will be able to list the ratings from several countries so the user will be able to select their location and the ratings will be reported accordingly. Multiple avenues of inquiry will facilitate the selection of appropriate hearing protection devices (HPDs). Complimentary training information will be developed to inform the public on the effective use of HPDs. For instance, the Compendium will be hyperlinked to other NIOSH products and video...
impulses and adjusting for DC shift. Time-alignment significantly affected the accuracy of predicting individual calibration levels with HATF-FF. The prediction how the calibration transfer function is affected by several treatments of the impulses such as time-alignment of the field impulse peaks, time-windowing of the STF when hearing protection is being tested. This method allows a comparison between occluded and unoccluded waveforms. This paper evaluates function is computed for each of the ranges of impulse levels and is applied to the field microphone measurements to estimate the unoccluded fixture levels averaged acoustic transfer function between the ATF and the field microphone is calculated as follows: HATF-FF(f) = FFT(PATF, i(t)/FFT(PFF,i(t)). The transfer error variance was less at 170 dB than at 130 dB impulses. The time-window was varied from 2.5 to 100 msec preceding the peak of the field impulse. Portions effective at promoting sustained hearing health behaviors in the students. Dangerous Decibels classroom program, an evening educational event for all tribe members and interaction with the Virtual Exhibit online was found to be effective at promoting sustained hearing health behaviors in the students. Self reports from elementary students in a Northwest American Indian community indicate that they are at risk for noise induced hearing loss and tinnitus. A community based, four part intervention was implemented incorporating tribal media (newspaper, radio, website) to raise community awareness, the Dangerous Decibels classroom program, an educational event for all tribe members and interaction with the Virtual Exhibit online was found to be effective at promoting sustained hearing health behaviors in the students. The American National Standard ANSI S12.42-2010 specifies the measurement of hearing protector performance in the presence of impulse noise. A series of calibration impulses are recorded from an acoustic test fixture (ATF) and a field microphone for peak sound pressure levels of 130, 150 and 170 dB. The averaged acoustic transfer function between the ATF and the field microphone is calculated as follows: HATF-FF(f) = FFT(PATF, i(t)/FFT(PFF,i(t)). The transfer function is computed for each of the ranges of impulse labels and is applied to the field microphone measurements to estimate the unoccluded fixture levels of the STF when hearing protection is being tested. This method allows a comparison between occluded and unoccluded waveforms. This paper evaluates how the calibration transfer function is affected by several treatments of the impulses such as time-alignment of the field impulse peaks, time-windowing of impulses and adjusting for DC shift. Time-alignment significantly affected the accuracy of predicting individual calibration levels with HATF-FF. The prediction error variance was less at 170 dB than at 130 dB impulses. The time-window was varied from 2.5 to 100 msec preceding the peak of the field impulse. Portions of this work were supported by the U.S. EPA Interagency Agreement 75090527.]
**Poster #14**

“Skydiving Noise Levels”  
**Presenter:** Tina Penman, Au.D. - Northeastern University | USA  
Michael Epstein, Ph.D. - Northeastern University | USA

Noise levels have been researched across different areas, including construction, aircraft, and industry, but not in skydiving. This study is the first to investigate skydiving noise levels. Results for 78 skydives showed a mean noise dosage of 9.73% using a permissible exposure limit (PEL) of 90 dBA and 5 dB exchange rate. Of the 78 trials, 57 trials exceeded a noise level of 115dBA, ranging from 1-52 seconds in duration.

**Poster #15**

“Effect of Self-Reported Noise Exposure on Auditory Function in Clinically-Normal Hearing Individuals Between 10 and 65 Years Old”  
**Presenter:** Gayla Poling, Ph.D., CCC-A - Northwestern University | USA  
Jonathan Siegel, Ph.D. - Northwestern University | USA  
Jungmee Lee, Ph.D. - Northwestern University | USA  
Jungwha Lee, Ph.D. - Northwestern University | USA  
Sumitraitaj Dhar, Ph.D., CCC-A - Northwestern University | USA

This investigation examines the effects of noise exposure on various measures of auditory function in 84 individuals between ages 10-65 years with clinically normal hearing through 4 kHz. Hearing thresholds and detailed otoacoustic emission characteristics will be examined through 20 kHz. Noise exposure estimates will be based on self-report occupational and recreational exposure. These results will be compared against those obtained from an age-matched group of individuals reporting no history of noise exposure.

**Poster #16**

“The Genetic Contribution of Tinnitus in Male Twins”  
**Presenter:** Åsa Skjönsberg, Ph.D. - Karolinska Institutet | Sweden  
Satu Turunen-Taheri, M. Sci. - Karolinska Institutet | Sweden  
Renata Bogo, Ph.D. Student - Karolinska Institutet | Sweden  
Kjell Karlsson, M.D. - Karolinska Institutet | Sweden  
Ahemd Farah, M. Sci - Karolinska Institutet | Sweden  
Magnus Svertengren, Professor - Karolinska Institutet | Sweden

In this study we investigated the genetic contribution to tinnitus in a male twin cohort. Out of 1099 individuals (aged 34-78) 146 (~13, 5%) reported tinnitus symptoms of various degree. We found a strong correlation for the monozygotic twin pairs (tetrachoric correlation=0.57) but not for the dizygotic twin pairs (tetrachoric correlation=0.019). As expected, the risk for tinnitus was elevated by factors such as increasing age and noise exposure.

**Poster #17**

“Hearing Impairment Among Pilots in the Swedish National Defence - A Retrospective Study”  
**Presenter:** Eva B. Svensson, Research Engineer - Karolinska Institutet | Sweden  
Ann-Christin Johnson, Associate Professor - Karolinska Institutet | Sweden  
Per Muhr, Ph.D. - Karolinska Institutet | Sweden  
Ulf Rosenhall, Professor - Karolinska Institutet | Sweden

In a study among active pilots in the Swedish air-force the prevalence of slight hearing impairment was higher compared to ISO 1999 Database A already at 30-40 years of age. The mean yearly flying time at 30 years of age was about 900 hours. This is in contrast to the statistics that show that the incidence of reported hearing impairment among Swedish conscripts has fallen from 4.1% in 1998 to 1.5% in 2008.

**Poster #18**

“Measurements of Earplug Attenuation Under Supra-Aural and Circumaural Headphones”  
**Presenter:** Jennifer Tufts, Ph.D., CCC-A - University of Connecticut | USA  
Jillian Palmer, B.S. - University of Connecticut | USA

Supra-aural audiometric headphones are not recommended for measuring earplug attenuation, due to possible contact between the headphone and pinna and/or earplug. In this study, we compared measurements of earplug attenuation obtained under telephonics TDH-50P supra-aural headphones with measurements obtained under circumaural headphones designed expressly for such testing. We conclude that supra-aural headphones are suitable for measuring the attenuation of foam earplugs. However, caution should be exercised with flanged or custom-molded earplugs, due to the potential for substantial over-estimation of attenuation.

**Poster #19**

“Consistency of Attenuation Across Multiple Fittings of Custom and Non-Custom Earplugs”  
**Presenter:** Jennifer Tufts, Ph.D., CCC-A - University of Connecticut | USA  
Kelly Jahn - University of Connecticut | USA  
Kara Swan, B.S. - University of Connecticut | USA  
John Byram, B.S. - University of Connecticut | USA

The purpose of this study was to evaluate the claim that custom-molded earplugs provide consistent attenuation across repeated fittings, relative to a non-custom hearing protector. We collected attenuation data for multiple fittings of custom and flanged earplugs on untrained participants. Subsequently, we trained the participants in earplug fitting and collected additional attenuation data. We will discuss differences, if any, between the performance of the custom and non-custom earplugs in the untrained-user and trained-user conditions.
Odile Clavier, Ph.D. - Creare, Inc. | USA
Dr. Odile Clavier received her bachelor’s degree from the Florida Institute of Technology and her Master’s and Ph.D. from Stanford University in the department of Aeronautics and Astronautics. For her graduate research she developed a high precision superconducting sensor for the Satellite Test of the Equivalence Principle (STEP). After completing her Ph.D., Dr. Clavier worked as a Systems Engineer for Seagull Technology, Inc. on several general aviation research projects. Since joining Creare, Inc. in 2003, Dr. Clavier has led several R&D projects in acoustics, hearing assessment and hearing protection, space instrumentation and small satellite applications, navigation, precision manufacturing and the development of biomedical devices.

Jennifer Eggebrecht, B.S. - University of Northern Colorado | USA
Jennifer Eggebrecht is an Au.D. doctoral candidate at the University of Northern Colorado (UNC). She is currently completing her fourth year clinical externship experience at Saint Cloud Ear, Nose, and Throat in St. Cloud, MN and plans to complete her degree in May 2012. Her service and outreach interests consist of hearing loss prevention education and professional development in audiology. In her graduate studies Jennifer has researched hearing protector attenuation measurements in children.

Rachael Baiduc, B.S. - Northwestern University | USA
Rachael R. Baiduc is a Ph.D./M.P.H. student at Northwestern University. Her primary research interests are on hearing loss prevention, epidemiology, and specifically on the relation between cardiovascular health and hearing loss throughout the lifespan.

Claire Collord, B.S. - University of Cincinnati | USA
Claire Collord is a third year clinical doctorate of audiology student at the University of Cincinnati in Cincinnati, Ohio.

Ana Claudia Fiorini, Ph.D. - UNIFESP/PUCSP | Brazil
Ana Claudia Fiorini is an audiologist who has been working in the area of hearing loss prevention since 1988. A native of Brazil, she earned degrees in Speech Pathology and Audiology, and Communication Disorders from the Pontifical Catholic University of São Paulo (B.S.; M.S.) and the University of São Paulo (Ph.D.), professor of Audiology and Speech-Language Sciences at the Federal University of São Paulo and Catholic University of São Paulo (UNIFESP and PUCSP).

Robert Folmer, Ph.D. - National Center for Rehabilitative Auditory Research, Portland VA Medical Center | USA
Robert L. Folmer earned B.A. and M.A. degrees in biology from San Francisco State University. He received his Ph.D. in Speech and Hearing Science from the University of California, San Francisco. At U.C.S.F., he conducted numerous EEG and evoked potential studies and evaluations for the Departments of Psychiatry, Neurology, Otolaryngology, and Neurosurgery. He also provided neurophysiological monitoring services during brain and spinal surgeries. In 1997, he joined the Department of Otolaryngology at Oregon Health & Science University where he maintains an appointment as Associate Professor. At OHSU, Dr. Folmer was part of the team that developed the Dangerous Decibels hearing loss prevention education program. He joined the NCRAR in 2007 and serves as Program Manager for the joint VA/Department of Defense Hearing Loss Prevention Initiative. His research projects/interests include transcranial magnetic stimulation (TMS) for relief of tinnitus; electrophysiological assessment of auditoru processing; evaluation of auditory and cognitive functions in patients who have multiple sclerosis (MS), Parkinson Disease, or traumatic brain injury (TBI).
Pam Graydon, M.S., C.O.H.C. - National Institute for Occupational Safety and Health | USA
Pam Graydon is an Electronics Engineer who joined the Hearing Loss Prevention Team in 1999, although she has been working for NIOSH since 1990. She is a Council for Accreditation in Occupational Hearing Conservation certified hearing conservationist. She has been involved with training carpenter apprentices about the benefits of hearing loss prevention and explaining the consequences of not protecting their hearing. She has taught students and teachers about noisy occupations and recreational activities and allowed them, to find out how loud they play their i-Pods using a mannequinn named Nick.

Ryan Johnson, B.A. - University of Cincinnati | USA
University of Cincinnati. He received the NHCA Student Research Award in 2010.

William Hal Martin, Ph.D. - Oregon Health and Science University | USA
Dr. Martin takes “patient care” to heart. Dr. Martin's clinical interests include tinnitus, special hearing problems and interoperative neuropsychological monitoring. His clinical activities include tinnitus evaluation and management (including Tinnitus Retraining Therapy), electrodiagnostic services and he specializes in hearing evaluations of infants and children, and children with auditory neuropathies. He is married with two daughters, and enjoys coaching, surfing, waterpolo, volleyball, snowboarding and waterskiing.

CAPT William J. Murphy, Ph.D. - National Institute for Occupational Safety and Health / USPHS | USA
CAPT William Murphy is a co-leader of the Hearing Loss Prevention Team in the Engineering and Physical Hazards branch of the Division of Applied Research and Technology at the National Institute for Occupational Safety and Health. His research has specialized in measurement and rating of hearing protection devices, fit testing of hearing protection devices and in the assessment of impulse noise and its effects on hearing. He has served as an officer in the Commissioned Corps of the United States Public Health Service since 1993.

James Norris, Ph.D. - Creare, Inc. | USA
Dr. Norris received his doctorate in Biomedical Engineering at the School of Biomedical Engineering and Sciences as part of the Kevin P. Granata Musculoskeletal Dynamics Laboratory. His graduate research focused on adapting techniques from dynamic systems theory to quantify stability of the human neuromuscular control system. He joined Creare Inc. in 2007 where he is actively involved in R&D projects in hearing assessment and hearing protection.

Tina Penman, Au.D. - Northeastern University | USA
Tina Penman, AuD, graduated with her AuDin 2006 from Northeastern University. She currently works at the National Center for Rehabilitative Auditory Research (NCRAR) in Portland, Oregon.
Gayla Poling, Ph.D., CCC-A - Northeastern University | USA
Gayla L. Poling is a clinical audiologist and holds a Ph.D. in Hearing Science, specializing in psychoacoustics, from the Ohio State University. She is currently a postdoctoral fellow in the Auditory Research Laboratory at Northwestern University, where her research focuses on the science and clinical application of otoacoustic emissions.

Åsa Skjönsberg, Ph.D. - Karolinska Institutet | Sweden
Åsa Skjönsberg was born in Stockholm, Sweden in 1965. She is a Lic. Audiologist and has a Ph.D. in audiology. Positions: Senior lecturer at the audiology program at the Karolinska Institutet, Stockholm, Sweden. Lic. Audiologist at the audiology department, Karolinska University Hospital, Stockholm, Sweden. Research are: the influence of the genetic background regarding susceptibility to noise exposure and other environmental factors.

Eva B. Svensson, Research Engineer - Karolinska Institutet | Sweden
Eva B. Svensson, was born in 1951, in Sweden. She is currently a Research engineer in Technical Audiology at the Audiology program at the Karolinska Institutet in Stockholm, Sweden. Eva has 30 years experience in technical audiology (hearing protectors, advanced hearing measurements (human tests subjects) in laboratory and field studies and noise measurements. Eva is an Engineer (occupational safety, hearing & noise, chemistry).

Jennifer Tufts, Ph.D., CCC-A - University of Connecticut | USA
Jennifer Tufts is an associate professor in the Department of Communication Sciences at the University of Connecticut. Previously, she completed postdoctoral clinical and research training at Walter Reed Army Medical Center in Washington DC. Her current research areas include hearing loss prevention and auditory fitness for duty in diverse populations.

NHCA Membership Information:

2012 Membership Dues Renewals:

• Available at www.hearingconservation.org with a Visa/MC/AMEX
• To request an invoice please email nhcaoffice@hearingconservation.org

Not currently a member of NHCA?

• Join online at www.hearingconservation.org with a Visa/MC/AMEX
• Receive member benefits such as: reduced rates to the Annual Conference, access to member’s only section on the website which includes archived issues of the Spectrum Supplement, Conference Proceedings for past conferences, discussion boards, etc.
3M™ E-A-Rfit™ Validation System

E-A-Rfit Validation System

Fit Testing For Hearing Protectors

Test results in less than 10 seconds per ear, the 3M™ E-A-Rfit™ Validation System generates a personal attenuation rating (PAR) for each worker. This simple, in-the-field test system can enhance your hearing conservation program in a variety of ways:

- Assists selection of appropriate protectors for workers & environments
- Provides tool for training proper insertion techniques
- Helps identify workers receiving inadequate protection, leaving them at risk for standard threshold shifts (STS)
- Can document retraining of hearing protector fitting as required for workers with STS

Now easier than ever with the NEW E-A-Rfit User Support website and FREE online training.

To request a free product demonstration or for more information, visit E-A-Rfit.com

Leading the Advancement of Hearing Conservation®
NHCA 38th ANNUAL HEARING CONSERVATION CONFERENCE
February 21-23, 2013
St. Petersburg | FLORIDA
www.hearingconservation.org

CALL FOR PAPERS!
2013 Workshop Submissions -
Deadline to submit: July 1, 2012

2013 Panel/Poster Presentation Submissions -
Deadline to submit: July 31, 2012

2013 Call for Papers will be available beginning April 2012
Go to www.hearingconservation.org to submit.

HOTEL RESERVATIONS:
Hilton St. Petersburg Bayfront
Hotel Reservations: 800-944-5500
Reference the NHCA Code: NHCA 2013

$159.00 | Single & Double Occupancy
Deadline to Reserve: January 19, 2013