Spring Course Director Workshop to be Held in Conjunction with the NHCA

Based on the results of a recent Course Director survey, CAOHC’s Council approved piggybacking spring workshops through 1993 with the annual National Hearing Conservation Association (NHCA) conferences.

The 1994 CAOHC and NHCA meetings will be held in Atlanta, Georgia. CAOHC’s Course Director Workshop will be held directly after the NHCA meetings on Sunday, February 20, 1994 at the Sheraton Colony Square.

CAOHC’s Council has made the content of this workshop a major point in its agenda over the past several years. The program has been repeatedly updated, and continues to change to keep pace with the hearing conservation field.

Course Directors who have attended recent workshops have found it to be both successful and challenging; they have recommended it in the following ways:

- "I had not looked forward to attending this workshop, but was pleasantly surprised. I now look forward to my next one—in five years."
- "The CAOHC workshop does a good job with a hard subject to cover."
- "The Course provided a nice outline that will be helpful for later review."
- "The program was excellent, lively, and very useful. It was effective in getting issues identified and discussed."
- "The CAOHC Workshop offers one of the most significant presentations in light of federal documentation of criteria and limitations. The presentation breathed life into what is usually stultifyingly boring material."
- "CAOHC provided an excellent organization base. A lot of information (Continued on page 2, see Workshop)"

Council Approves Adverse Action Policy for Course Directors

On October 11th, CAOHC’s Council finalized the Adverse Action Policy for Course Directors. The policy will help to ensure that OHCs are trained by professionals who meet CAOHC standards and are following CAOHC guidelines. The policy was amended and restated effective November 1, 1993. The Policy reads as follows:

Background

1. The Council for Accreditation in Occupational Hearing Conservation (CAOHC) does not pass judgment on Course Directors (CDs) on moral and ethical issues because:
   a. CAOHC is not a membership organization: disciplinary action from CAOHC is non-representative.
   b. CAOHC has limited resources.

(Continued on page 6, see Adverse)
As I write my last message as Chair of the CAOHC Council, I have been reviewing some of the highlights of my tenure. Two major events stand out in the last two-year period.

In April 1992, CAOHC changed association management firms. As you know, we are now managed by Executive Director, Inc. Milwaukee. They have brought a new perspective to the Council, and have made all of the Council’s jobs—especially mine—much easier. I want to thank Sandy Kochler, Maria Connor, and the entire E.D.I. staff for their support, innovation, cooperation, and friendship.

The second major highlight of the last two years for me was the publication of the totally revised Hearing Conservation Manual, 3rd Edition. Dr. Alice Suter did a superlative job of authoring this new manual. If you haven’t ordered your copy yet, you should do so in the near future as this is an outstanding reference for the Occupational Hearing Conservationist (OHC) and Course Director (CD) alike. Other activities of note include:

- Holding the spring 1992 CD workshop in conjunction with HCC92. As a result of this successful venture, the Council will be holding its 1994 and 1995 spring workshops in conjunction with the annual NHCA Conference. In view of the restrictive travel budgets found in today’s economy, this should be an advantage to CDs who might normally attend the NHCA Conference.
- Ongoing review and updating of materials presented at the CD workshops to meet the needs of those professionals who will be training the OHCs in industry and the military. A committee will be meeting shortly to consider major changes to the future syllabus.
- Finalization of an Adverse Action Policy for Course Directors (see page 1). This will help to ensure that OHCs are trained by professionals who meet CAOHC standards and are following CAOHC guidelines.
- Improved look and format, and more frequent publication of the CAOHC Update. Now published three times a year, the Update provides useful information to both OHCs and CDs.

The Council is comprised of a very dynamic group of professionals. Each of these hardworking, dedicated individuals has added a unique perspective to the workings of the group in the past two years. I have thoroughly enjoyed working with them and want to thank each one of them for their support during the last two years.

Spring CD Workshop to be Held in February

(Continued from page 1) was exchanged. It was helpful to see hearing conservation training from "someone else’s program."

Registration for the workshop is $225 and includes a CAOHC manual. Recertification is an additional $25. You should attend this workshop if you are planning to recertify by the workshop method and are a CD who certified/recertified in 1989 or later.

A brochure on the workshop will be available in January. This is an ASHA-approved program offered for 8 CEUs of continuing education credit.

If you plan to attend the workshop for initial certification, you must complete an application, pay a $100 non-refundable certification fee, and be approved by CAOHC’s Screening Committee prior to the Workshop.

If you need an application, please call or write Maria Connor at 611 E. Wells, Milwaukee, WI 53202; 414/276-5338.

Suggested Reading


The book addresses the needs of safety professionals, insurance companies, lawyers, and occupational physicians in preventing compensable hearing loss and in defending cases.

Dr. Dobie proposes a system for allocating multiple causes (age, lifestyle, or occupational) of hearing loss that will be new to most professionals.

The book demonstrates in actual medical and legal practices and explains an approach to medical-legal assessment that is scientifically grounded, rational, quantitative, and practical.

For more information or to place an order, contact Van Nostrand Reinhold: Mail Order Dept., PO Box 6904, Florence, KY 41022-9949; or call 1-800-544-0550.
What you Really Need to Know About NRRs* (Part I)

By E.H. Berger, M.S., Cubot Safety Corporation, Indianapolis, IN.

The principal value, perhaps the only value in the NRR (Noise Reduction Rating) as it exists today, is that it indicates that the product with which it is associated has been designed for, and tested for, noise reduction. Beyond that, the NRR generally provides little additional information to the typical user, and firm reliance upon its value can be very misleading. Let me tell you why...

What is the NRR?

The NRR is a single-number measure of a hearing protection device’s (HPD) noise reduction, averaged across all test frequencies, statistically adjusted to reflect the protection achieved by nearly all of the people of ten well-trained and motivated subjects on whom the product was tested.

Moreover, the NRR is one step removed from the actual data. It is the result of a computation involving the HPD’s measured real-ear noise reduction (also called attenuation), and the variability of that noise reduction (also called standard deviation) across the panel of test subjects.

In theory, the NRR can be subtracted from a sound level measurement to estimate the effective dBA levels to which the wearer is being exposed.1

Since the NRR is the result of a computation, it follows that the values utilized in the computational procedure, i.e. the real-ear attenuation data at the various test frequencies, are the key to an accurate rating. As the age of computerization continually reminds us “garbage in, garbage out (GIGO).” If the real-ear attenuation values are a poor estimator of actual performance, or real-world values as they are often called, then the NRR will also be of limited value.

How representative are typical lab data?

Today, manufacturers report laboratory attenuation values based upon the requirements of the Environmental Protection Agency’s (EPA) hearing protector labeling regulation (EPA, 1979). This in turn calls for testing to be conducted in conformance with a standard developed by the American National Standards Institute (ANSI, 1974). The procedure involves determining optimum experimental-fit values, numbers which are widely recognized as not usually, perhaps rarely ever, obtained under field conditions.

Optimum performance values, as opposed to estimated real-world values, have historically been specified for laboratory testing because U.S. standards groups have felt that those values could be more consistently repeated, and were useful for rank-ordering HPDs. However, recent thinking suggests otherwise (Berger, 1992). Nevertheless, ANSI S3.19-type data are the only standardized values that regulators and manufacturers currently have available for labeling and informational purposes.

Figure 1 provides a global comparison of manufacturers’ labeled (optimum-fit) attenuation values and typical real-world performance data, presented in terms of the NRR. The most obvious feature of the chart is the very poor correspondence between the magnitude of lab and field NRRs. Measured as a percentage of the laboratory-rated attenuation, the field NRRs obtained by 84% of the employees who were tested, averaged only about 25% of the labeled values for earplugs and about 60% for earmuffs.

Furthermore, not only do the absolute values disagree, but too do the relative rankings. Although the labeled values are arranged in ascending order from left to right within each category, note that the same does not hold true for the field data.

Casual observers of Fig. 1 may find single-digit field NRRs, with values dropping even below 5 dB, to be

(Continued on page 4)
What you Really Need to Know...

(Continued from page 3) unbelievable. However, the magnitude of the real-world results is qualitatively supported by analyses of audiometric data from existing health conservation programs, and by other related studies.

Why is there such a large lab/real world discrepancy?

Optimal performance tests are simply not a realistic indicator of how hearing protectors can be worn in practice. In optimum laboratory testing, well-trained and motivated subjects are paid to wear HPDs for short periods of time in a benign environment under closely supervised conditions during which they are seated motionless in an air-conditioned test space, wearing the devices for maximum protection with virtually no regard for comfort. As interpreted by the EPA, the devices are not even fitted by the subjects, but are put on by the experimenter. Even under ideal conditions, real-world situations are clearly quite different. And who on earth accounts for inadequate training, motivation, and HPD dispensing procedures, lack of enforcement, hot or humid or otherwise difficult environmental factors, potential problems of compatibility with other personal protective equipment, and the fact that users are prone to fit more for comfort than protection, it is all too apparent that lab and real-world data will show a poor correspondence.

To the extent that hearing conservation programs can be improved, real-world data will tend to approach, but in my experience never equal, optimum lab results.

Part 2 of this article further explores the problems of hearing protector’s ratings and provides practical recommendations for the OHC to deal with the situation.


1 For an expanded discussion of many of the technical aspects discussed herein, see EARLog #20, available from Cabot Safety Corp., the monograph from which much of this article was excerpted.

2 The NRR is intended to be subtracted from a sound level measured in dBC to estimate the effective dBA exposure of the employee. Although it leads to reduced accuracy, in practice the NRR is normally subtracted from a dBA sound level. In such cases a 7-dB correction to the NRR is required. See EARLogs #12 and #20 (Berger, 1979-1993) for additional information.

References


Employment Opportunities

Over the last several months, the CAOH office has received numerous phone inquiries regarding employment opportunities in the field of hearing conservation. To accommodate those inquiries, beginning with the February 1994 edition of the Update, this newsletter will begin publishing job opportunities from both employers and employees. If you are an OHC looking for employment, please send a cover letter and your most recent resume. There is no charge to OHCs for this service. If you are an employer and would like to advertise an available position, please send your classified order in writing, with a $15 payment (check or money order), to CAOH at 611 E. Wells Street, Milwaukee, WI 53202.

CAOH will not investigate the offers made and assumes no liability concerning them. Classifieds are limited to employment opportunities. CAOH reserves the right to decline or modify the advertisements at discretion.

Successful OHC Programs

If you are a Course Director who has recently completed a particularly successful OHC Workshop, or if you have had positive results through the years with your OHC program, please let the CAOH office know the results. The Update and the CAOH office are interested in hearing about successful programs and would like to share some of your ideas, techniques, and award-winning strategies with other readers. Send your program ideas to CAOH, Attn: Update, 611 E. Wells Street, Milwaukee, WI 53202; or fax to 414/276-3349.

CAOH Directory Available This Year

Thank you to every Course Director who completed and returned the Directory Questionnaire. The 1994 Edition of the Directory is being revised and will be available by year’s end.
Otosterygaard and Hatfield Complete Terms on CAOHC Council

CAOHC would like to thank retiring Council Member Paul B. Ostergaard, PE for his dedicated service to the Council. Since 1982, Mr. Ostergaard has represented the American Industrial Hygiene Association on the Council and served as Council Chair from 1989 to 1991. In 1992, he was instrumental in making the transition of CAOHC headquarters from New Jersey to Wisconsin a smooth one.

Mr. Ostergaard also recently retired as President of Ostergaard Associates where he consulted and was responsible for staff management and technical coordination. Prior to the formation of Ostergaard Associates in 1971, he was Vice President of Goodfellow-Ostergaard Associates, an affiliate of Zam Industries in Cedar Knolls, New Jersey.

In addition to being a Fellow of the Acoustical Society of America, Mr. Ostergaard is a former Diplomate of the American Academy of Environmental Engineers and a member of the Audio Engineering Society, American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

For the Acoustical Society of America, he served as Chairman of the Membership Committee and was Chairman for the 87th National Meeting. Mr. Ostergaard has chaired the ASHRAE Sound and Vibration Committee and served on ASHRAE and ASME Standards Committees. He is also a former member of Committee E33, Environmental Noise, of ASTM and is serving on the National Panel of Arbitrators of the American Arbitration Association.

Mr. Ostergaard is the recipient of the Boner Medal of the National Council of Acoustical Consultants.

CAOHC would also like to thank Sherman E. Hatfield, M.D. who has represented the American Academy of Otolaryngology-Head & Neck Surgery on the Council since 1990.

Dr. Hatfield is a past Chief of Staff at the Charleston General Hospital and at Charleston Area Medical Center (CAMC). He was the Chairman of the Department of Otolaryngology at CAMC from 1981 to 1983 and from 1985 to 1987. He is a Fellow of the American Academy of Otolaryngology-Head & Neck Surgery and has been a member of its Credentials Committee.

Dr. Hatfield was part of CAOHC's Screening Committee and played a key role in updating its current procedures.

Otosterygaard into Hearing Conservation Programs

By Robert A. Dobie, MD

Although it is not required by the 1983 OSHA Hearing Conservation Amendment, most occupational hearing conservationists (OHCs) perform an otoscopic examination prior to pure-tone audiometric testing. Should otoscopy be part of the audiometric program? What is a reasonable goal for otoscopy by the OHC? What equipment and procedures are appropriate? Each of these questions merits a brief discussion.

The advantages of otoscopy would seem obvious. The OHC will usually be able to see the tympanic membrane, confirming that the ear canal is not obstructed by cerumen. Cerumen impactions and other abnormalities can be detected, providing potentially useful information for the supervising audiologist or physician who will review the audiometric data. In addition, cerumen impactions can interfere with proper use of insert hearing protectors.

There are several disadvantages, however. Accurate otoscopy is not easy and OHCs are unlikely to correctly identify conditions such as tympanic membrane perforation and otitis media. Some abnormalities, such as blood or pus in the ear canal, are obvious; in fact, the worker will usually be aware of these. Others, such as redness and swelling, can be subtle. OHCs will often misread these two kinds of errors occur and each has consequences for the worker. First, if the OHC fails to detect or identify a significant abnormality, the worker may go away with a false sense of security, and may fail to seek medical attention promptly when serious symptoms arise. Second, if the OHC thinks there is an abnormality when the ear is really normal, the worker will suffer needless anxiety until a subsequent medical examination provides reassurance.

Goal of Otoscopy

The OHC should try to answer one simple question: Is the tympanic membrane (Continued on page 7, See Goal)
Adverse Action Policy for Course Directors Now in Effect

(Continued from page 1)

1. Policy:
CDs must continuously possess one of the following qualifications:

a. current licensure by a state or territory of the United States for the practice of medicine or nursing, or
b. current licensure or registration by a state or territory of the United States for the practice of audiology, or
c. current certificate of clinical competence in audiology by the American Speech, Language, Hearing Association, or
d. current board certification by the American Board of Industrial Hygiene or Board of Certified Safety Professionals, or
e. current membership in the American Industrial Hygiene Association or the American Society of Safety Engineers.

Applications from outside the U.S. who do not meet one of the above criteria must meet the requirements of their local jurisdictions for professional practice.

These qualifications are effective November 1, 1993 for new CD applications; November 1, 1994 for current CDs applying for recertification; November 1, 1999 for all CDs.

2. Policy:
CAOHC certification of a CD may be suspended for failure to comply with CAOHC requirements described in the Course Director Information packet.

3. Appeals Procedure:
An appeals procedure exists. Each proposed admonition, warning, or suspension will be in writing, and will state the grounds for the action and the effective date of the action which will be no earlier than fourteen (14) days after mailing. The notice of proposed adverse action, with copy of the Adverse Action Policy, will be mailed to the last known address of the CD against whom the action is proposed. If the CD responds, and in writing objects no later than one week before the effective date of the action, the matter will be considered by the Executive Committee at its next regular meeting therefor, and the aggrieved CD will be given an opportunity to be heard at that time.

4. Application Procedure:
Applicants for CD certification or recertification must sign a waiver granting CAOHC the right to verify any information provided in the application process and to contact former OHC students of the CD for the purpose of evaluating the CD's educational performance and compliance with CAOHC requirements.

5. Policy:
CD certification shall be automatically terminated upon expiration of a CD's five-year term unless the CD has applied for recertification or a one-year extension, approved by the Council or the Executive Committee.

6. Policy:
Temporary or permanent loss of qualifying licensure, registration, certification, or membership shall automatically cause the CD's CAOHC certification to be suspended for one year or until qualifying licensure, registration, membership, or certification is reinstated, whichever is longer.
### Upcoming OHC Refresher Courses

#### November 1993

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### The Goal of Otoscopy in Hearing Protection Programs

**Continued from page 5**

Visible? Even if only part of the eardrum can be seen, sound can reach the middle ear, and audiometry can proceed. If the drum cannot be seen, the program supervisor's policy may call for the OHC to proceed with audiometry (after aging the otoscopic finding) or may require referral for cemen removal or other medical treatment prior to audiometry. In my opinion, this is the only appropriate goal for otoscopy by the OHC.

**Equipment**

A conventional battery-powered or rechargeable otoscope will suffice. Specula of various sizes should be available. If disposable specula are not used, specula will need to be washed, soaked in disinfectant, rinsed, and air-dried between examinations.

Video otoscopes have recently become available, with a tiny built-in video camera that projects to a TV monitor screen, permitting others to see the same image as the examiner.

The video otoscope is a marvelous, but expensive, teaching tool, allowing doctors to demonstrate abnormalities to patients, families, and students. It would be useful for teaching otoscopy in an OHC certification course. The video otoscope, however, does not help the examiner see (or understand) things he or she cannot see with an ordinary otoscope. It's hard to imagine how the video otoscope could be appropriate for use by an OCH in the conduct of the audiometric program. Indeed, it could do more harm than good by making a simple screening procedure seem more sophisticated and accurate than it is.

**Procedures**

Select the largest speculum that will fit in the ear canal, to permit maximum illumination. The pinna should be grasped with the free hand and pulled up and back to straighten the ear canal. If this or any other part of the examination causes pain, stop. The otoscope is inserted and the eardrum visualized. If the drum can't be seen, the OHC should follow a predetermined protocol, either referring the worker or proceeding with audiometry.

**Conclusions**

1) Otoscopy by the OHC has one main goal: to determine whether the tympanic membrane can be seen.
2) Otoscopy by the OHC is not a clinical diagnostic test; the OHC should not attempt to identify abnormalities. If something doesn’t look right, report it to the physician or audiologist supervisor.
3) A simple otoscope is the appropriate tool for OHC otoscopy; the video or otoscope has no place in the OHC's hands, outside of the training course.

**Congratulations to Newly Certified and Recertified CDs**

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|                      | West Caldwell, NJ 07006-8004  
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|                        | University of Texas Health Science Center  

| Department of Otolaryngology - Head & Neck Surgery | 7703 Floyd Curl Drive  
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|                                                   | Office: (210) 367-5655  
| American Academy of Otolaryngology Head & Neck Surgery | Sherman E. Hatfield, MD (1995)  
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|                                                   | #2 Monongahela, Suite 200  
|                                                   | Charleston, WV 25302  
|                                                   | Office: (304) 342-6806  
|                                                   | 3112 New Bridge Road  
|                                                   | Virginia Beach, VA 23456  
|                                                   | (804) 444-7575  
|                                                    | Weyerhaeuser Corp.  
|                                                    | Corporate Headquarters CH2135  
|                                                    | Tacoma, WA 98477  
|                                                    | (206) 924-2666  
| American Industrial Hygiene Association | Jeffrey C. Morrill, MS (1993)  
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|                                                 | 920 Main Street, Suite 700  
|                                                 | Kansas City, MO 64105-2008  
|                                                 | Office: (816) 471-3900  
| American Industrial Hygiene Association | Dennis Drescol, MS, PE (1998)  
|                                                 | Associates in Acoustics, Inc.  

| 4560 Belt Line Road, Suite 426  
| Dallas, TX 75244  
| Office: (214) 991-8899  
| American Speech-Language-Hearing Association  
| Susan Cooper Megerson, MA, CCC-A (1996)  
| IMPACT Hearing Conservation, Inc.  
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| Kansas City, MO 64105-2008  
| Office: (816) 471-3900  
| Military Audiology Association  
| Col. Rodney M. Atack, PhD, CCC-A (1994)  
| Walter Reed Army Medical Center  
| Washington, DC 20307-5001  
| (202) 576-2413  
| Military Audiology Association  
| Bio-Acoustics Division JSHB-MO-F  
| AFHMS Management Office  
| Aberdeen Proving Ground, MD 21010  
| Office: (410) 671-3797  
| National Safety Council  
| Eva Barnard, RN, BA, COHN (1996)  
| Morovic & Associates  
| 1401 W. 7th Street, Suite 400  
| Richfield, MN 55423  
| Office: (612) 861-3608  
| National Safety Council  
| Ed Niland, CIB, CSP (1995)  
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