Chairperson's Message
by Jeffrey C. Merrill, MS - Chair

Administration of a hearing protection program can be a real challenge for the OHC as employees frequently object to wearing anything in their ears. The common complaints are virtually the same and create situations that are preciptou to deal with as the complaints are either related to pain, discomfort or safety issues:

- "They Make My Ears Itch"
- "They Hurt My Ears"
- "They Give Me Ear Infections"
- "They Make My Ears Hurt"
- "They Keep Me From Hearing My Machines"
- "I Cannot Hear People When They Are Speaking to Me"

Solutions given to the employee are usually not acceptable. You Have to Wear Them Anyway.

How Tinnitus and Other Factors Contribute to Unreliable Noise-Induced Hearing Assessment
by Peter C. Weber, MD, Medical University of South Carolina

Performing a basic pure-tone hearing test appears, at first glance, to be a simple, straightforward procedure, and is, with many patients. However, there are several factors that may be encountered, which if not noticed, may invalidate the test results. The following discussion will identify some of the most common sources of test unreliability. Suggestions for the examiner are offered that can improve test reliability and validity, and when the patient should be referred for a follow-up evaluation to the appropriate professional with more expertise.

Temporary threshold shift (TTS). TTS is a temporary loss of some hearing caused by exposure to loud noise (in excess of 90 dB) for one or more hours. The threshold of hearing increases immediately and returns to normal in a few hours or days. Although temporary, and not permanent hearing loss, TTS may be confused with permanent hearing loss. It is important for the examiner to recognize and properly diagnose TTS to avoid misdiagnosing a patient with permanent hearing loss.

Conflict of interest. Hearing losses may be due to factors that are not related to noise exposure. Although a hearing loss may be caused by noise, it is often caused by other factors such as aging, otitis media, or other medical conditions. For these reasons, a history of noise exposure must be combined with all other factors to determine the cause of hearing loss.

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Tinnitus and Other Factors (continued from page 1)

amount of TTS and how long it takes for hearing to recover can depend on the level of the noise and the length of exposure. Along with hearing loss, a ringing type sound in the ear called "tinnitus." To assure that the hearing test is representative of the patient's true hearing and not inflated by TTS, the examiner should ascertain that the patient has not been exposed to loud noise for at least 16 hours before the hearing test.

Tinnitus, a symptom that could be due to a variety of causes such as stress or the ears, is the case of TTS from noise exposure, permanent hearing loss, ear infections, certain medications, hyperacussis, and brain lesions. The overwhelming most common reason for tinnitus is damage to the ear from noise exposure resulting in hearing loss.

The problem to present when performing a hearing test is that the patient may have trouble differentiating the test tones from their tinnitus when they are similar in pitch. Thus, some hearing thresholds may appear to be better or worse than they really are due to confuson between the tinnitus and test tone. If the patient reports that he is having difficulty with the test, because of tinnitus, first, make certain that the tinnitus is not caused by exposure to noise immediately before the test. If the patient was recently exposed to noise, the hearing test should be rescheduled. If the tinnitus is chronic, there is a simple way to minimize its effects on the hearing test. The patient should be instructed that the test will be presented in a certain pattern, such as in groups of three short bursts, and they should make sure that they hear the full pattern before responding. If the patient begins imagining that they are hearing the patient, indicated by an increase in the number of false responses, the pattern should be changed.

Malfunctioning, Occasionally, a patient will purposefully exaggerate their disability to hear for a variety of reasons. It is important to recognize when a hearing evaluation is invalid due to mal functioning. Some common indicators of malfunctioning are: a substantial change in hearing since the last test; inconsistent responses during the hearing evaluation; and ability to hear conversation much better than the audiologist would indicate. If the validity of the hearing test is suspect, the patient should be rescheduled a later date or referred to a facility with expertise in testing difficult patients.

Findings that warrant referral for further testing. The following conditions may indicate a serious problem and the patient should be referred for further medical evaluation:

1. Actively draining ear.
2. Sudden or rapid progress hearing loss in one or both ears.
3. Unilateral hearing loss of recent onset that has not been evaluated.
4. Conductive hearing loss greater than 15 dB.

CD Workshops Announced

The October, 1997 CACOH Director Workshop will be held Friday, October 10, 1997, in Denver, Colorado at the Embassy Suites - Denver International Airport. This workshop is for Course Directors who are planning to initially certify or use the workshop method to report. Applications must be received in the CACOH office no later than September 10, 1997 and can be obtained by phoning the CACOH office at 414/276-5338 (or e-mail ca coch-globalidg.com).

The Doublespace Guest Suites-Baltimore/Washington International Airport, Baltimore, Maryland will be the site for the CACOH Spring, 1998 Course Director Workshop. The date for the workshop is Friday, May 27, 1998.

The Fall, 1998 CD Workshop location will be Chicago, Illinois. No date or hotel location has been announced.

More information on these workshops will follow in future issues.
Double Hearing Protection (earmuffs over earplugs) may be used in very noisy areas for daily average exposures greater than about 105 dB(ISO). The rule of thumb is that properly fit double protection adds about 8 dB to the protection rating of the higher rated HPD. Using plugs with a nominal protection of 30 dB and muff s with a protection of 20 dB does not give 40 dB, but something closer to 25 dB.

Hearing aids are NOT hearing protections. Most hearing aids are vented, making them useless as hearing protectors unless they are turned on or off. Do not use hearing aids in high noise areas; they can significantly aggravate noise exposure conditions.

Electrostatic HFDs come in two basic varieties. The communication/intercom headset consists of earmuffs with electronics built in to take either outside sounds or radio communications and electronically limits the level on the inside of the muff cup to a safe value. This can be used for highly mobile people, like truck drivers, who frequently go in and out of noisy areas.

Active HPDs use sound sensors, amplifiers, and speakers to generate "anti noise" or cancellation wave patterns to reduce the noise inside the earcup. The active technology is available in either an open-backheadset (like a Walkman®, or regular closed-cup earmuffs, is primarily effective for low-frequency (below 100 Hz) noise and for specialized applications, such as when combined with electronic communication systems. The open-back version, which provides less than 10 dB of attenuation at and above 1000 Hz, is intended primarily for reducing noise rather than protecting from noise injury.

Hearing Protection Devices (HPDs) are one component of an effective hearing conservation programs. HPDs can protect the delicate hearing system from the effects of noise on the job and at home.

HPDs come in various shapes, sizes, and protection levels. While there is an HPD to suit nearly every person and situation, no single HPD is right for every job, every person, or every noise environment.

HPDs must be selected and properly fitted based on the noise environment. HPDs will be taken care of. Too little protection does no good too much can interfere with communication and result in employees feeling isolated from their surroundings.

This pamphlet is intended to show the various types of HPDs available and give some guidelines where each might be appropriate. NHCA endorses no specific manufacturer or distributor of HPDs.

National Hearing Conservation Association

Selecting Hearing Protection

A practical guide to:
As a consultant to industry, this is one of the first questions I ask when reviewing a company's occupational hearing conservation program (OHC). The answer receives is usually a good indicator of the quality and compliance of the program.

Frequently, I am told the Professional Supervisor is the occupational health nurse or the occupational hearing conservationist (OHC) because this is the person the company sent to be trained in hearing testing. Sometimes the human resource manager, industrial hygienist, or safety professional is identified. Occasionally, the company doesn't know who the professional supervisor is and, in fact, is not aware of the OSHA requirement for this individual.

Why is there confusion in this area? The term "Professional Supervisor" is never mentioned in 29 CFR 1910.95; however, the qualifications and particular duties of the supervising professional are well defined in the permissible and hearing conservation amendment (HCA) itself. Employers, and even the designated Professional Supervisor, ask what and where does it say what the supervising professional's responsibilities are.

The Role of the Professional Supervisor in the HCP

The preamble to the HCA discusses the obligations of the supervising professional.

Audiodiagnostic Testing

The standard envisions that persons administering audiometric tests will ensure the appropriateness of the test environment and functionally calibrate and maintain the audiometer; in addition, this person will screen audiograms to identify problem audiograms needing further evaluation by a professional audiologist with standard threshold shifts, the responsibility for the direction of the hearing conservation program should remain "in the hands of a professional audiologist, otologist, or physician".

4 Quiet Hours

Employees or professionals supervising audidiagnostic programs are, of course, free to prohibit the use of hearing protectors to provide quiet hours before the baseline audiogram if, in their judgment, the circumstances so warrant.

Grandfathering of Baseline Audiograms

After review of the evidence on this issue, OSHA is reaffirming its position of allowing the grandfathering of baseline audiograms. This policy is consistent with the exercise of professional judgment. It is the responsibility of the professional supervising the hearing conservation program to determine which pre-existing audiograms are acceptable and which to change as the baseline.

Evaluation of Audiograms

These professionals are responsible for supervising the employee's audiometric test program and ensuring that tests conducted by technicians are carried out properly, that the test equipment is calibrated, and the test room is sufficiently quiet. Professional supervisors also determine the need for employee referral for further testing when test results are questionable on which problems of a medical nature are suspected. Because these professionals have extensive education and training in audiology and the recognition of various types of hearing loss, they are considered to be the most qualified to oversee a testing program.

Revised Baseline

In light of the evidence to the record, OSHA has decided that an annual audiogram may be substituted for the baseline audiogram if the professional supervising the program determines that the employee has experienced a persistent SIN or has shown a significant improvement in hearing activity.

Performance Criteria

OSHA believes that it should be left to the judgment of the professional supervising the audiometric examinations and analyzing the results to advise the employer concerning the effectiveness of the employee's hearing conservation program.

PART 1910 (AMENDED)

The HCA itself further identifies the responsibilities of the professional supervisor:

(g) (3) Audiodiagnostic tests shall be performed by a licensed or certified audiologist, otologist, or physician, or by a technician who is certified by the Council for Accreditation in Occupational Hearing Conservation, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining audiograms, and performing maintenance and cleaning calibration and proper function of the audiometer being used. A technician who operates a microprocessor does not need to be certified. A technician who performs audiometric tests must be responsible to an audiologist, otologist, or physician.

(7) (iii) The audiologist, otologist, or physician shall review problem audiograms and shall
determine whether there is a need for further evaluation.

(8) (ii) Unless a physician determines that the standard threshold shift (STS) is caused or aggravated by occupational noise exposure, the employer shall ensure that the following steps are taken when a standard threshold shift (STS) occurs:

- Revised baseline. An annual audiogram may be substituted for the baseline audiogram when, in the judgment of the audiologist, otolaryngologist or physician who is evaluating the program...

Summary

A professional supervisor can only be an audiologist, otolaryngologist, or other physician. Audiometric technicians (whether they operate a manual or microprocessor audiometer) do not need to be certified but everyone must be able to show competence in the proper use, maintenance, calibration and functioning of the audiometer used and must be responsible to an audiologist or physician.

Today, 14 years after promulgation of the HCA, some employers still believe if they use a microprocessor audiometer they do not need a professional supervisor to oversee their HCP. Only a physician can determine the job-relatedness of a standard threshold shift (STS). This information will help to determine the listing of the STS on the OSHA 200 Log.

There are specific responsibilities designated to the Professional Supervisor. Those include:

- Supervising the employer’s audiometric program
- Assuring audiometric technician training and supervision of competence.
- Determination of the protocol to achieve the fourteen-hour quiet period for the baseline audiogram.
- Determination of the selection of baseline audiograms.

- Determination of the need for employee referral.
- Establishing criteria (written protocols) for the OHE to review routine audiograms and refer problem audiograms for professional review.
- Advising employers concerning the effectiveness of the HCP.
- Maintaining responsibility for program direction.

It is not unusual for a person to have the title of Professional Supervisor and not fully understand the accountability of the position. Every employer should review these responsibilities with their professional supervisor to help ensure compliance. I recommend that business and industry send their supervising professional to a CAOHC Occupational Hearing Conservationist Course. This will provide an opportunity to learn the OSHA requirements for occupational hearing conservation and better understand the duties of the OHC.

## TEN MOST ACTIVE COURSE DIRECTORS FOR 1996

Recalculation of additional OHC certifications has changed the top CAOHC Course Director list for 1996. Thank you and congratulations to these Course Directors for their ongoing efforts to improve and grow the number of occupational hearing conservationists dedicated to promoting health and work environments.

1. William Wolfe, MA #764
2. Timothy Swisher, MA CCC-A #888
3. Robert Connolly, MA #107
4. Melena Medlen, MS #858
5. Mary McDonnell, MS CCC-A #977
6. Jennifer Gordon, MS CCC-A #539
7. Andrew Stewart, MA CCC-A #834
8. Kathryn Deppen-Smith, MS CCC-A #853
9. Thomas Simpson, PhD CCC-A #919
10. John Kiernan, MA MBA #675

(These standings determined by number of courses held throughout 1996 with the most students certifying by recording)

## CAOHC Certification

CAOHC Certification is valid 5 years from the date of the original 20-hour course. Recertification at an 8-hour course must be made by the expiration date of your CAOHC bond certificate. Your application must be filed with the CAOHC office to be valid. Contact CAOHC staff for verification certification or to locate an approved CAOHC course by calling 414/276-5338 or locate course at CAOHC's website.

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**OHC Certification**

http://www.globekbld.com/cacohec

admin@acousticsat

cohee@wilddog.com

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*The listed dates indicate day one of the scheduled classical certification courses are 20 hours in length, recertification classes are 8 hours.*

Please contact the CAOHC office at 414-276-5338 for additional course availability. Publication dates may have preceded some course dates.
Chairperson's Message, continued

may not have the highest NRR, but it may be sufficient for the employee's noise exposure.

Finally, if the employer complaints that the HPDs causes "RINGING" (TINNITUS) in the employee's ears, you should suspect non-compliance in wearing HPD's. The protector does not cause tinnitus. The sensation of tinnitus is simply experienced when the employee inserts the HPDs as "SHUTS OUT" the outside noise and allows them to perceive the tinnitus that is present. As Dr. Weber's article in this issue explains, tinnitus is one of the clear symptoms of noise exposure. It may go away or diminish over time, with proper hearing protection. However, the complaint may be a clue that the employee is not getting proper protection.

My recommendation is to know the exposure level and noise dose for each employee, have a variety of "Off the Shell" and custom products that will match the amount of noise reduction needed, personally train the employee how to install to get the optimum NRR for the specific product, and train the supervisor how to inspect to see that the fit is correct on a day-to-day basis. The alternative will be continued complaints and a "Lot of Noise in Your Day!

CAOHC Council Members
and Their Represented Organizations

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Jeffrey C. Morell, MD
Kansas City, MO

Vice Chair
American Speech-Language-Hearing Association
Stuart Davis, MS, CCC-A
Kansas City, MO

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