OSHA Alliance Update

Deborah Gabry, OSHA Department of Labor, Chevy Chase, Maryland

Deborah will be speaking on the OSHA alliance program in general and specifically on the NHCA/OSHA alliance. She will present a brief history of the Alliance, its purpose, program milestones, benefits of participating, goals and requirements, its intended impact and examples of products produced and activities undertaken by the NHCA/OSHA alliance. She will also discuss potential future activities and how to navigate OSHA's website.

Noise Exposure of Musicians Playing in Orchestra Pit

Alberto Behar, Eng. CIH, INCE, Bd. Cert., Noise Control, Scarborough, Ontario, Canada

Sound exposures of Canadian Opera Company orchestra players were measured during 18 sessions that included rehearsals, dress rehearsals and actual performances of two operas. Testing was done in the orchestra pit normally used for the performances. Eighty musicians' exposures were measured using five noise dosimeters in each session for the entire duration (three hours) of each event. The measured estimate was L_{eq}, from which the $L_{ex,\ year}$ was calculated using the number of hours per year played for the Canadian Opera Company. Following the ISO 1999 Standard, results indicate that, playing for the Company, there is no risk of hearing loss for the players.

Hearing Examination of Adults (20 to 69 years old) in the National Health and Nutrition Examination Survey (NHANES), 1999–2004

Howard J. Hoffman, Epidemiology and Biostatistics, National Institute on Deafness and Other Communication Disorders (NIDCD), NIH, Bethesda, Maryland, and Christa L. Themann, MA, CCC-A, NIOSH, Cincinnati, Ohio

Hearing loss severe enough to interfere with the understanding of normal speech is experienced by several million people in the U.S. Previous estimates, derived mainly from health interview surveys, suggest that at least 10 percent (20 million) of adults have sufficient trouble hearing to impact their quality of life. Hearing loss may be caused by several environmental factors (principally noise exposure) and, as well, many genetic factors may cause or contribute to hearing loss in combination with environmental factors. The NCHS has conducted a unique series of health and nutrition examination surveys since the early 1960s. The health exams are conducted in mobile centers (four trailers linked together) that are transported to randomly selected communities to ensure a standardized environment for obtaining high-quality data. From 1999 to 2004, NHANES included pure-tone, air-conduction hearing threshold measurements in each ear at .5, 1, 2, 3, 4, 6, and 8 kHz from a nationally representative sample of civilian, non-institutionalized adults, 20 to 69 years old. These data provide the first national estimates of adult hearing loss based on thresholds in nearly 30 years. The methodology for the NHANES hearing examination will be explained and preliminary findings presented. The importance of these data for tracking Healthy People 2010 objectives will be discussed. Implications for directing efforts in hearing loss prevention and monitoring progress in prevention will also be addressed.

Early Indicators of Noise-Induced Hearing Loss: Issues for Consideration

William J. Murphy, Mark R. Stephenson and John R. Franks, National Institute for Occupational Safety and Health, Hearing Loss Prevention Team, Cincinnati, Ohio

The precursor of noise-induced hearing loss (NIHL) often is manifested by a marked shift in the hearing at audiometric frequencies 2 to 6 kHz with a recovery at frequencies above the shift. The noise-induced notch index has been proposed as the difference between the pure-tone averages of 2, 3 and 4 kHz and the pure tone average at 1 and 8 kHz [Rabinowitz and Dobie, *Spectrum*, 20:8-11, 2003]. The notch index and two variants of the calculation were tested against a set of 3320 audiograms collected from subjects that participated in the National Health and Nutrition Examination Survey (NHANES IV) during the years 1999 and 2000. A strict notch definition yielded 397 audiograms that contained a notch. Three variations of the notch index were tested using the subset of audiograms. The average difference in pure-tone averages using 2, 3 and 4 kHz had a mean notch index of 0.5 + 6.1 dB. The average difference in pure-tone averages using 2, 3, 4 and 6 kHz had a mean notch index of 4.1 + 2.9 dB. The average area difference using 2, 3, 4 and 6 kHz had a mean notch index of 7.4 + 6.3 dB. The results of the analysis demonstrate that the notch index is more effective when 6 kHz is included in determining whether a subject has a noise-induced notch.

OSHA Should Not Change Its STS Definition (yet)

Robert A. Dobie, M.D., UCDMC, Sacramento, California

NIOSH has recommended that the current OSHA definition of a standard threshold shift (STS) be changed. Among the advantages claimed for the new definition was that it "gives a high percentage of true positive tags" compared to the OSHA definition. This assertion was based on the "confirmation" method of validation, which has been shown in simulation experiments to have two systematic biases which could have accounted for the apparently superior performance of NIOSH's STS definition. STS validation research published to date does not establish the superiority of either "any-frequency" definitions (such as NIOSH's) or "pure tone average" definitions (such as OSHA's). Future validation research should compare STS rates in noise-exposed workers to STS rates in non-exposed workers, or should consider and control the biases of validation methods (such as the one NIOSH relied on) which do not require a control group.

30th Annual NHCA Hearing Conservation Conference

Decibels in the Desert

February 24 – 26, 2005
Doubletree Hotel at Reid Park
Tucson, Arizona

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