

Military Hearing Conservation Programs

Despite regulations to protect workers for almost three decades, Michigan's audiologists and otolaryngologists continue to see patients with hearing loss from exposure to work-related noise. Surveillance efforts by the Michigan Department of Consumer and Industry Services' federally funded grant, Project SENSOR, are designed to assist hearing health care providers to identify and report incidents of occupational noise exposure.

Military personnel are, however, exempted from the regulations put forth by OSHA's 29 CFR 1910.95 and Michigan's R325.60101-60128 Noise Standards. Axelsson and Clark have reported that military personnel are among one of the professional groups with the poorest hearing, with an estimated 11% displaying noiseinduced hearing loss¹.

Hearing conservation programs for military personnel use the Department of Defense Hearing Conservation Program Instructions as a guideline to preserve the hearing health of military personnel. The goal of the military hearing conservation program is "to prevent occupational hearing loss and ensure auditory fitness for duty in the military and civilian work force."² The instruction manual outlines techniques for evaluation, documentation, education and monitoring of noise exposures for military personnel. In addition to having a comprehensive hearing conservation program, the Navy has provided support for studies to predict hearing loss in military personnel exposed to noise. Naval researchers, under the direction of Dr. Lynne Marshall, senior research audiologist at the Naval Submarine Medical Research Laboratory, have been studying evoked otacoustic emissions³ (EOAEs) as they relate to noise-induced hearing loss (NIHL) and have put forth several compelling questions:

- 1. Could EOAEs be used as an alert to decreased hearing thresholds?
- 2. Would a degradation in an individual's EOAEs indicate a susceptibility to noise-induced hearing loss?
- 3. Should EOAEs become part of hearing conservation programs?
- 4. Could EOAEs assist in curtailing the spiraling costs associated with occupational and service related hearing loss?

continued on page 2...

Errata In the Fall 1998 issue of *Now Hear This (Volume 1, No. 3)*, we apologize for neglecting to credit Mark R. Stephenson, PhD, Research Audiologist in the Bioacoustics and Occular Vibration Section, Division of Biomedical and Behavioral Sciences at NIOSH, for using his data for Charts 2 and 4 of the Fall 1998 issue. Dr. Stephenson conducted the original research for the sound levels of the tools and second hand noise exposure measurements presented in those charts. We appreciate the opportunity to present his work.

...continued from page 1

Marshall's research warrants the attention of hearing health care providers who routinely provide care for individuals at risk for occupational NIHL. She found that typical audiometric tests are not as sensitive in the identification of noise-induced hearing loss because threshold shifts must occur before a hearing problem is identified. "By the time the shift is evident, much permanent and irreversible damage to the inner ear has occurred."⁴ In longitudinal studies, Marshall and her colleagues measured baseline EOAE amplitudes on personnel enrolled in the Navy's hearing conservation program and then followed any decrements from the baseline. Findings in the first phase of the project indicated that a significant correlation exists between changes in hearing threshold and changes in emission amplitudes.

Clinical trials to validate EOAEs as a tool in assessing hearing loss in hearing conservation programs are planned as a further extension of these findings. Marshall's research may help to reduce noise-induced hearing loss among current and future military personnel as well as other individuals exposed to noise at work.

Michigan National Guard Hearing Conservation Programs

Lansing audiologist Bill Johnson is a consultant for Safety and Health of the Michigan Army National Guard Monitoring Programs. He reports that the long term hearing conservation programs have had a very positive effect in reducing the incidence of occupational noise-induced hearing loss among National Guard members. Johnson indicated that individuals at risk for occupational NIHL uniformly comply with the use of ear protection in the work place and often carry over the use of ear protection in their sporting, recreational and home environments. "The continued screening, availability of ear protection and education on appropriate usage has been accepted because it works."

Michigan Veterans Eligible for Hearing Health Care Services

Noise-induced hearing loss among military veterans has been a long-standing health concern, especially with noise exposures from firearms and artillery that most if not all veterans were exposed to at some time in their military career. Recent reforms in the determination of eligibility have increased the opportunity for veterans to receive hearing health care services through Veterans' Administration Medical Centers. Colleen Snead, senior audiologist at the Ann Arbor Veterans' Hospital stated "Eligibility reform has made hearing aids available to many more veterans who were not eligible in the past."

In addition, state-of-the-art facilities to promote veteran health are being established in conjunction with VA Medical Centers. For example, the Detroit Veterans' Hospital Department of Audiology has a new facility that is able to provide comprehensive diagnostic audiology, electrophysiology, vestibular and hearing aid services to Michigan's veterans. Lisa Walter, audiologist at Detroit Veterans' Hospital relates: "we are fortunate to be able to offer veterans the same services that they would find in major medical centers. The Veterans' Administration supported our requests and designed a facility that meets all of the hearing health care needs of veterans."

Michigan has three Veterans' Hospitals and one outpatient clinic that provide audiology and otolaryngology services. Below is a listing of the Centers along with a telephone number to call for information on audiology and otolaryngology services available to veterans:

VA Medical Centers in Michigan:

Ann Arbor: 734-769-7100

Battle Creek: 616-966-5600

Detroit: 313-576-1000

Grand Rapids : 616-365-9575

References

- Axelsson, A and W Clark. Hearing Conservation Programs for Nonserved Occupations and Populations. Occupational Medicine: State of Art Reviews 1995; 10: 657-662.
- 2. Department of Defense: Hearing Conservation Program. Washington DC, US Department of Defense, 1987, instruction 6055.12.
- 3. Naval Submarine Medical Research Laboratory web site: http://www.nhrc.navy.mil/nsmrl/aud_lm01.htm.
- 4. Marshall, L and L Heller. Transient-Evoked Otacoustic Emissions as a Measure of Noise-Induced Threshold Shift. JSLHR 1998; 41: 1319-1334.

Patients with Occupational Noise-Induced Hearing Loss, Reported January-August, **1999 by Private Practice Audiologists** and ENT Specialists <u># rpts</u> <u># rpts</u> January 36 May 62 February 30 June 162 March 32 70 July April 197 August 13

Notable Information:

The **1998 Michigan Occupational NIHL Annual Report** is now available. Copies can be obtained by contacting the Project SENSOR Staff at 1-800-446-7805, or by viewing the report at our web site:

www.chm.msu.edu/oem/index.htm

Outreach efforts continue in 1999. If you would like some help in developing or modifying your system to report known or suspected cases of work-related hearing loss, please call Project SENSOR staff at 1-800-446-7805. We would be happy to assist your office develop a system that is the least disruptive to your current work load.



MARK YOUR CALENDAR!!

Best Practices in Hearing Loss Prevention, is a day-long symposium being held at Wayne State University on October 28, 1999. Experts from business, labor, academia and government "will provide practical insights into what makes effective hearing loss prevention programs work." For more information access the web site at: www.cdc.gov/niosh/noise.html, and click on the link to the "Best Practices" meeting. If you do not have internet access, we would be happy to mail or fax a copy of the program to you. Call the Project SENSOR staff at 1-800-446-7805.

Advisory Board

Alex Arts, MD Michigan Otolaryngology Society Richard Kowalski, RN Michigan Occupational Nurses' Association; Council for Accreditation in Occupational Hearing Conservation Thomas O'Connor, MA, CCC-A Michigan Academy of Audiology Jerry Punch, PhD Michigan State University Thomas Simpson, PhD Wayne State University Suzanne Sommerville, PhD Michigan Speech-Language-Hearing Association Constance Spak, MA, CCC-A University of Michigan Michael Stewart, PhD Better Hearing; Central Michigan University

Now Hear This is published quarterly by Michigan State University-College of Human Medicine with funding from the Michigan Department of Consumer and Industry Services and is available at no cost. Suggestions and comments are welcome.

> (517)353-1955 MSU-CHM 117 West Fee Hall East Lansing, MI 48824-1316

Project SENSOR Staff

At the Michigan Department of Consumer and Industry Services

Douglas J. Kalinowski, C.I.H., Deputy Director Bureau of Safety and Regulations Project SENSOR, Co-Director
Bill Deliefde, M.P.H. Regional Supervisor Project SENSOR-MDCIS Liaison
Debbie Wood Division Chief Secretary

At Michigan State University - College of Human Medicine

Kenneth D. Rosenman, M.D. Professor of Medicine Project SENSOR, Co-Director Mary Jo Reilly, M.S. Project SENSOR Coordinator Amy Sims, B.S. Project SENSOR NIHL Coordinator Constance Spak, M.A., CCC-A Occupational Noise Consultant Project SENSOR Office Staff: Ruth VanderWaals Tracy Murphy Patient Interviewers: Amy Krizek Larry Ansari

Michigan Law Requires the Reporting of Known or Suspected Occupational NIHL

Reporting can be done by:

FAX (517) 432-3606 Telephone 1-800-446-7805 E-Mail Rosenman@pilot.msu.edu Mail MDCIS Occ. Health Division PO Box 30649 Lansing, MI 48909-8149

Suggested Criteria for Reporting Occupational NIHL

- 1. A history of significant exposure to noise at work; AND
- 2. A STS of 10dB or more in either ear at an average of 2000, 3000 & 4000 Hz. OR
- 3. A fixed loss.*

*Suggested definitions: a 25dB or greater loss in either ear at an average of: 500, 1000 & 2000 Hz; or 1000, 2000 & 3000 Hz; or 3000, 4000 & 6000 Hz; or a 15dB or greater loss in either ear at an average of 3000 & 4000 Hz. Now Hear This...

Michigan State University College of Human Medicine 117 West Fee Hall East Lansing, MI 48824-1316 Phone (517) 353-1955

Address service requested.

Non Profit Org. U.S. Postage Paid E. Lansing, MI Permit No. 21

In this issue: Hearing Conservation Programs for the Military

Printed on recycled paper.