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From the Director's Desk



NIOSH research yields effective ways to prevent hearing loss.

NIOSH/RAND Report Addresses Coordination, Planning for Emergency Responder Safety

Report proposes an emergency response procedure that makes responder safety a priority.

NIOSH Papers Highlighted for Exemplary Science for Prevention of Work Injury and Illness

Nine NIOSH researchers were nominated for the 2004 Charles C. Shepard Science Awards

Keeping Employees Safe While Keeping Food Safe

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Voluntary Guidance Issued for Workplace Use of Anthrax-Spore Detection Systems

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NIOSH Providing Assistance to Transportation Security Administration

Online resource is available to employees.

NIOSH Workshop Explores the Effectiveness of Electret Filters

NIOSH electret filters workshop reviewed a work plan for current research; manufacturers were present to offer their experience with the product.

Workplace Violence DVD

Violence on the Job, a NIOSH product, provides recommendations and resources for preventing work-related homicides and assaults.

NIOSH, OSHA, Pallet Association Sign Alliance

The alliance focuses on ergonomics and equipment hazards, which are often tied to wood packaging workers' injuries.

NIOSH Part of International Panel Charged with Evaluating Finnish Occupational Group

FIOH is deemed deserving of its fine reputation as an international leader in occupational health.

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From the Director's Desk

Although much has been accomplished in the past 30 years to control workplace noise and to establish effective workplace programs to protect employees' hearing, work-related hearing loss continues to be a persistent concern. Approximately 30 million workers are exposed to hazardous noise on the job and an additional nine million are exposed to solvents and other agents associated with the risk of hearing impairment. Further progress against this hazard hinges on finding ways to better identify worker populations at potential risk, and on designing more effective controls. NIOSH is joining with diverse partners to advance this critical research, while helping businesses and employees find practical solutions using the knowledge at hand. Some examples of this research and outreach follow.



Identifying the Scope of the Problem

NIOSH is participating in two efforts to collect new data that will help us better understand the prevalence of work-related hearing loss, and to identify worker groups at high risk:

- With support from the National Institute on Deafness and other Communicative Disorders, NIOSH is providing technical assistance to the National Center for Health Statistics' fourth National Hearing and Nutrition Examination Survey (NHANES IV). At the completion of the study, data will have been collected for 30,000 individuals, forming what is designed to be the first complete database of its type that is free of potential errors.
- To better understand the variability in noise measurements in the mining industry, NIOSH is conducting a cross-sectional field study of miners' noise exposure. Results of the study will help industry and labor put effective controls in place to reduce noise-induced hearing loss among this working population. For more information on this study, contact Eric Bauer, NIOSH Pittsburgh Research Laboratory, at EBauer@cdc.gov.

More information on current noise and hearing loss research data collection instruments and methods can be found at <http://www.cdc.gov/niosh/topics/noise/research/dataCollection.html>.

Engineering Controls and Personal Protective Equipment

Removing hazardous noise from the workplace through engineering controls is the most effective way to prevent noise-induced hearing loss. Personal protective devices – traditionally, earplugs and earmuffs – are essential for protecting employees' hearing while engineering controls are put in place or when engineering controls by themselves are not sufficient to reduce noise exposure to safe levels.

- NIOSH, in collaboration with a coal company and vibrating screen manufacturer, is developing engineering noise controls to address the predominant noise sources on a floor-mounted, vibrating screen used to drain and rinse a coal product. To learn more about this study, contact David Yantek, NIOSH Pittsburgh Research Laboratory, at DYantek@cdc.gov.
- NIOSH researchers compared three methods for measuring the performance of hearing protectors in field use with the accepted method for measuring performance in the laboratory. Although laboratory measures are valuable for quality control purposes, findings obtained under laboratory conditions may not reflect the performance of hearing protectors in actual working environments. Results from the study, which involved a commonly used earplug, were reported in "Alternative Field Methods for Measuring Hearing Protector Performance" in the *American Industrial Hygiene Association Journal* 64:501-509.

Resources

Supervisors, safety and health managers, and others directly involved in keeping workers safe on the job can benefit from two key resources available through the NIOSH Noise and Hearing Loss Prevention topic page, <http://www.cdc.gov/niosh/topics/noise/workplacesolutions/workplaceSolutions.html>.

- The Hearing Conservation Program Checklist is an evaluation tool organizations can use to assess their current engineering controls, organizational protocols, training and education.

- The Hearing Protector Device Compendium provides a comprehensive, interactive source of information designed to simplify and improve the selection of appropriate hearing protectors.

Partnerships

Collaborative efforts with industry, labor, and others are a cornerstone of NIOSH's hearing loss prevention research. Three examples follow:

- Construction workers, and carpenters in particular, are known to develop occupational hearing loss early in their careers, becoming substantially impaired by middle age. NIOSH hearing loss prevention education and training materials tailored through a multi-year research study to meet the specific needs of noise-exposed construction trades have been incorporated into the apprentice training programs of the United Brotherhood of Carpenters and Joiners (UBC). The UBC serves over 520,000 members in North America.
- NIOSH is working with the construction industry, labor-management organizations and the Department of Defense to test new hearing loss prevention program elements that combine task-based noise exposure assessment, new training materials and methods, surveillance, and a new information management system.
- NIOSH has been working under a Coal Noise Partnership with the United Mine Workers of America, Bituminous Coal Operators Association, National Mining Association and several mining equipment manufacturers and suppliers. Recently, the Mine Safety and Health Administration has joined the partnership. The partnership was developed as a collaborative effort to develop engineering noise controls for mining machinery, as part of the overall effort to reduce hearing loss among mineworkers.

More information on NIOSH research related to hearing loss prevention can be found at <http://www.cdc.gov/niosh/topics/noise>. More information about hearing loss prevention research in mining can be found at <http://www.cdc.gov/niosh/mining/topics/hearing>.

NIOSH/RAND Report Addresses Coordination, Planning for Emergency Responder Safety

Recommendations to further the safety of emergency responders at the scene of terrorist attacks and other disasters are described in a new report that was issued by NIOSH and the RAND Corporation on June 16, 2004. The report, funded by NIOSH, proposes a new approach that would make protecting the health and safety of emergency responders – including police, firefighters and ambulance crews – a key priority in coordinating the overall response to terrorist attacks and major disasters. More information on the report is available at <http://www.cdc.gov/niosh/updates/upd-06-16-04.html>.



NIOSH Papers Highlighted for Exemplary Science for Prevention of Work Injury and Illness

Nine scientifically exemplary studies by NIOSH researchers were nominated for the 2004 Charles C. Shepard Science Awards. The nine papers illustrate how NIOSH applies advanced laboratory techniques to identify potential health effects from workplace exposures; highlight NIOSH's innovative use of death certificates, illness surveillance systems, and rigorous statistical methods to identify workplace exposures that may cause disease and to identify worker populations that face serious risk of such illnesses; and display NIOSH's practical experience in devising and improving engineering controls and personal protective equipment. The *NIOSH Pocket Guide to Chemical Hazards* was nominated for outstanding contribution to public health and Marilyn Fingerhut, NIOSH International Coordinator, was nominated for the lifetime scientific achievement award. The Shepard Awards recognize excellence in science at CDC during 2003. The NIOSH nominations can be viewed at <http://www.cdc.gov/niosh/updates/upd-06-15-04.html>.

Keeping Employees Safe While Keeping Food Safe

A recent Health Hazard Evaluation (HHE) in a poultry-processing plant posed an interesting challenge for NIOSH researchers. Employees in one department of the plant were wheezing, coughing, and sneezing. The symptoms appeared to be linked with airborne mist from highly chlorinated water used to keep poultry carcasses free from bacterial contamination that could taint the meat. What recommendations could NIOSH make to help the company protect the employees' health without compromising food safety? Moreover, how could the researchers be sure they would identify the specific cause of the problem correctly, given that the cause might be a contaminant for which a specialized air monitoring technique did not exist? Finding the answers teamed a wide range of NIOSH medical officers, industrial hygienists, engineers, and other specialists. The team included Bradley King, Elena Page, Charles Mueller, Angela Warren, Erin Snyder, Julia Maldonado, Chad Dowell, Manny Rodriguez, and Walter Alarcon of the Division of Surveillance, Hazard Evaluations, and Field Studies; James Taylor, David Spainhour, Diana Freeland, and Susan Englehart of the Division of Respiratory Disease Studies; and Donald Dollberg, Katherine Gomez, Mark Millson, Larry Jaycox, Amir Khan, Robert D. Wilson, and G. Scott Earnest of the Division of Applied Research and Technology (DART). The results are described in the NIOSH HHE report, available at <http://www.cdc.gov/niosh/hhe/reports/pdfs/2002-0257-2916.pdf>.

HHE

Voluntary Guidance Issued for Workplace Use of Anthrax-Spore Detection Systems

The U.S. Centers for Disease Control and Prevention (CDC), including participation by NIOSH, issued voluntary guidelines on June 4, 2004 for employers using autonomous detection systems (ADS) to detect, in approximate real-time, the release of airborne *Bacillus anthracis* spores in their workplaces. The guidelines provide recommendations to help employers work with local public health and responder agencies in planning strategic response efforts for protecting employees if the anthrax-causing spores are detected in air samples during ADS monitoring. The guidance was published in "Responding to Detection of Aerosolized *Bacillus anthracis* by Autonomous Detection Systems in the Workplace" in CDC's *Morbidity and Mortality Weekly Report: Recommendations and Reports*, 53(RR07); 1-12. The report is available on line from <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5307a1.htm>. The voluntary guidance is part of CDC's ongoing effort to help strengthen emergency preparedness.



Study Addresses Reproductive Question Associated With Occupational Bicycle Riding

In a new study, NIOSH scientists found that riding a bicycle having a saddle without a protruding nose significantly reduced physical pressure to the groin that has been associated with a measure of erectile dysfunction. The study provides new information and recommendations to help researchers and others address the question of whether men face a risk of sexual dysfunction or impotence from occupational bicycle riding. The report, "Effects of Bicycle Saddle Designs on the Pressure to the Perineum of the Bicyclist," was published in the June 2004 issue of *Medicine & Science in Sports & Exercise* (Volume 36, Number 6, pp. 1055-1062). An abstract of the report and access to the full text are available through the journal's web page, <http://www.ms-se.com>. For further information on NIOSH research pertaining to the assessment of effects associated with occupational cycling, visit the NIOSH web page at <http://www.cdc.gov/niosh/topics/bikerepro/bikepagetop.html>.



NIOSH Providing Assistance to Transportation Security Administration

NIOSH continues to provide employees at the Transportation Security Administration (TSA) with updated study results through a topic page on the NIOSH web page, *X-Ray Exposures from Airport Screening Machines*. In 2003, TSA requested that NIOSH conduct an independent study to determine potential radiation exposure to TSA employees who operate baggage screening equipment at airports. The web page allows TSA employees who voluntarily participated in the NIOSH study secure access to their personal dosimetry results. General information about the study, links to information about radiation exposures to TSA employees and potential health effects, and recommendations to address exposure concerns are available at <http://www.cdc.gov/niosh/topics/airportscreener>.



NIOSH Workshop Explores the Effectiveness of Electret Filters

On June 10, the NIOSH National Personal Protective Technology Laboratory (NPPTL) held a workshop on issues pertaining to the effectiveness of electret filters, a type of filter used in respirators. Representatives from North Carolina State University (NCSU) and various filter and respirator manufacturers, including 3M, ADS Composites Group Inc., Aearo, Delstar Technologies Inc., Dräger Safety, Hollinex, Hollingsworth and Vose, MSA, Scott Health and Safety, and Texel Inc., participated. NIOSH convened the workshop to review a work plan for current research under a contract between NIOSH and NCSU and to solicit comments from manufacturers concerning their experience with electret filters. Electret filters have been important in the technological advance of particulate respirators because they offer increased particle capture with reduced breathing resistance. However, some research suggests that electret filter performance can degrade when exposed to certain agents. The research under the NIOSH/NCSU contract is aimed at understanding the mechanisms or processes that occur during filter performance degradation, and possibly developing new materials and methods to prevent or minimize filter degradation. For more information on the workshop, contact Ken Williams at KLWilliams@cdc.gov.



Workplace Violence DVD

A new NIOSH training and educational DVD, *Violence on the Job* DHHS (NIOSH) Publication No. 2004-100d, provides employers, employees, safety professionals, and others with recommendations and resources for preventing work-related homicides and assaults. The DVD discusses practical measures for identifying risk factors for violence at work, and taking strategic action to keep employees safe. *Violence on the Job* can be viewed on the NIOSH web page <http://www.cdc.gov/niosh/docs/video/violence.html> and copies can be ordered free of charge from the NIOSH information number, 1-800-35-NIOSH.

NIOSH, OSHA, Pallet Association Sign Alliance

The safety and health of workers in the solid wood packaging industry is the goal of a new Alliance signed June 7 between NIOSH, the Occupational Safety and Health Administration (OSHA), and the National Wooden Pallet and Container Association (NWPCA). The Alliance focuses on ergonomics and on reducing and preventing exposure to hazards associated with the use of powered industrial trucks, and pallet assembly and disassembly equipment in the workplace. NIOSH Director John Howard, M.D., said that NIOSH “looks forward to new successes in training, education, and outreach through this Alliance,” adding that the “agreement will offer many new opportunities to move the result of NIOSH research into safety and health practice. The results of those efforts will inform and enrich our future research.” More information on the Alliance can be found at <http://www.cdc.gov/niosh/updates/upd-06-08-04.html>.

NIOSH Part of International Panel Charged with Evaluating Finnish Occupational Group

NIOSH participated in an International Evaluation Group (IEG) to evaluate the Finnish Institute of Occupational Health (FIOH) for the period 1997-2003. The evaluation was part of a regular evaluation of institutions under the supervision of the Finnish Ministry of Social Affairs and Health. The IEG reviewed the FIOH unit’s self-evaluation reports and met with FIOH leadership and stakeholders. The IEG concluded that the FIOH was deserving of its fine reputation as an international leader in occupational health and is successful in implementing its mission to improve the quality of modern work life and ensuring the health and safety of Finnish workers. The IEG also made recommendations for FIOH to meet the challenges of the evolving workplace. The report can be accessed at <http://www.stm.fi/Resource.phx/publishing/documents/1944/index.htm>.

NORA

Exposure Assessment Methods Team

Protecting workers' safety and health often begins by identifying dangerous exposures in the workplace. "It's fundamental to any research study," states Gayle DeBord of the National Occupational Research Agenda (NORA) Exposure Assessment Methods Team. "You have to get good exposure data." Without effective ways to identify and measure toxic exposures, scientists could develop inaccurate research conclusions, such as attributing diseases to the wrong chemicals or overlooking important health effects.



The NORA Exposure Assessment Methods Team currently sponsors over 50 research projects to assure scientists and practitioners have the most accurate tools available to identify workplace hazards. Biomarker research is one example of the group's innovative approach. Biomarkers are a series of medical tests, often urine or blood tests, which measure changes in the human body from exposures to toxic substances. DeBord explains that biomarkers are extremely useful for identifying potential occupational health risks because they can detect exposures to chemicals that pass through the skin for which air levels would not provide a good assessment of exposure.

The group recently presented their research at the Applying Biomarker Research to Occupational Safety and Health Conference. The conference findings will join the group's long list of accomplishments, including two peer reviewed manuscripts, a feature article in *The Journal of Occupational and Environmental Hygiene*, and several national and international workshops and conferences. For more information about the team's work, please visit their web page at <http://www2a.cdc.gov/nora/noratopictemp.asp?rscharea=eam>.

News From Our Partners

Hispanic Summit

On July 22, 2004 the Occupational Safety and Health Administration (OSHA), along with the U.S. Hispanic Chamber of Commerce and the Hispanic Alliance for Progress, will sponsor the Hispanic Summit on Occupational Safety and Health. The one-day event will take place at the Marriott Orlando Airport in Orlando, FL. The Summit is designed to raise awareness about safety and health issues affecting Hispanic workers. NIOSH is a supporting organization for the conference. More information on the Summit can be found at <http://www.osha.gov/hispanicsummit/index.html>.



Communication Products

The Sky is Falling Video

NIOSH released *The Sky is Falling*, a new education and training video for surface miners or road construction workers exposed to the hazards of highwalls. In an engaging video format, mine experts suggest how to avoid the most common hazards. Among other topics, the video includes lessons on blasting safety, personal protective equipment, anatomy of highwall, common equipment on surface sites, and common signs of hazardous conditions. For more information, contact Elaine Cullen at ecullen@cdc.gov.

New NIOSH Topic Pages

Two new NIOSH topic pages are now available:

- *Occupational Respiratory Disease Surveillance Topic Page* serves as a reference for surveillance information, including links to the latest the Work-Related Lung Disease (WoRLD) Surveillance Report and the Coal Workers' Health Surveillance Program. The topic page is <http://www.cdc.gov/niosh/topics/ORDS>.



- *Hexavalent Chromium Topic Page*. NIOSH considers hexavalent chromium compounds to be potential occupational carcinogens. The topic page provides links to information on the potential effects from exposure, NIOSH and OSHA sampling and analysis methods, and health hazard evaluations concerning potential occupational exposure. The topic page is <http://www.cdc.gov/niosh/topics/hexchrom>.

Upcoming Events

Meeting Scheduled to Strategize on Research for Radiation, Leukemia

NIOSH will convene a public scientific forum on July 21, 2004 in Washington, D.C. to discuss possible research strategies for evaluating the question of whether exposure to ionizing radiation is linked with a risk for chronic lymphocytic leukemia, the most common adult leukemia in the Western world. Current scientific opinion, based largely on epidemiological data, holds that the incidence of the disease is not related to exposure to ionizing radiation, but uncertainties remain. Congress directed NIOSH to conduct epidemiological research and other activities to investigate the question. For further information on the public meeting, see <http://a257.g.akamaitech.net/7/257/2422/06jun20041800/edocket.access.gpo.gov/2004/04-13134.htm>.

3rd Conference on Metal Toxicity and Carcinogenesis

The *3rd Conference on Molecular Mechanisms of Metal Toxicity and Carcinogenesis* will be held on September 12-15, 2004 at the NIOSH Morgantown, W.Va. facility. The meeting is cosponsored by NIOSH and the Occupational Safety and Health Administration (OSHA). The conference will provide an opportunity to exchange most recent information on new and emerging advances concerning mechanisms of metal-induced toxicity and carcinogenesis; to formulate hypotheses regarding the ways in which certain metals may cause changes in the body at the molecular level that may predict or lead to cancer; and to propose novel therapeutic interventions, risk assessments and prevention strategies. Contact Xianglin Shi at xshi@cdc.gov for more information.

Alert on Reducing Occupational Exposure to Hazardous Drugs to Healthcare: Converting Theory to Practice

NIOSH will sponsor a workshop on October 3-5, 2004 in San Antonio, Texas to familiarize healthcare professionals with the recently published *NIOSH Alert on Preventing Occupational Exposures to Antineoplastic and Other Hazardous Drugs in Healthcare Settings* and to discuss implementation of the recommendations contained in the Alert. More information can be found at <http://www.cdc.gov/niosh/topics/hazdrug/conference.html>.

2nd International Symposium on Work Ability

The *2nd International Symposium on Work Ability* is scheduled for October 18-20, 2004 in Verona, Italy. The Symposium is being organized by the Universities of Milano and Verona, the International Commission on Occupational Health (ICOH) Scientific Committee "Ageing and Work" and the International Ergonomics Association (IEA) Technical Committee "Ageing." Topics include ways to assess and promote work ability and the factors affecting the work ability of older workers. NIOSH is an institutional member of ICOH. For more information on the symposium, go to <http://www.cdc.gov/niosh/pdfs/workability-a.pdf>.

Steps to a HealthierUS Workforce Symposium

NIOSH will sponsor the *Steps To A HealthierUS Workforce 2004 Symposium* on October 26-28, 2004 at the Morris & Gwendolyn Cafritz Foundation Conference Center on the campus of George Washington University in Washington, D.C. The symposium will bring together communities of occupational safety and health protection and health promotion to develop a coordinated system that addresses both workplace and worker health. More information on the symposium is available at <http://www.cdc.gov/niosh/steps>. More information on the Call for Abstracts is available at <http://www.cdc.gov/niosh/steps/2004/callabstract.html>.



Contact Dermatitis 2004-Blending Science with Best Practice

NIOSH, the National Occupational Research Agenda (NORA) Allergic and Irritant Dermatitis Team, and other organizations and agencies are sponsoring and hosting a conference, *Contact Dermatitis 2004-Blending Science with Best Practice*, on October 28-30, 2004 in Bethesda, Md. The conference is the latest in a series of scientific meetings and other collaborative activities by a diverse industry, government, and academic working group to advance new research to prevent work-related skin disorders. More information on the conference is available at <http://www.cdc.gov/niosh/topics/skin/CD2004/index.html>.

Word of the Month

Autonomous detection systems (ADS) are advanced systems currently under development to provide approximate real-time alerts when biologic or chemical agents are present; the system works by continuously sampling air that impinges in a buffer solution.

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