Workplace Violence Once Again in the Spotlight

According to recent Bureau of Labor Statistics (BLS) data, 639 homicides occurred in the workplace in 2001 (excluding the 2,886 on 9/11/2001). The vast majority of workplace homicides occurred during the course of a robbery or another crime, but there were also incidents of clients, customers and patients becoming violent, co-workers assaulting co-workers, as well as domestic violence carried out in the workplace. Additionally, an estimated 1.7 million workers are injured every year in non-fatal workplace assaults. Preventing work-related traumatic injuries, including workplace homicides and assaults, is a priority research area for NIOSH and its partners under the National Occupational Research Agenda (NORA).

Following a Congressional mandate in 2002, NIOSH developed the Workplace Violence Research and Prevention Initiative. The new funding for the initiative has greatly enhanced the intramural and extramural research program, including a strong outreach component.

In 2002, NIOSH awarded five research grants to universities and organizations across the country for new research on workplace violence. Four studies focus on identifying risk factors for workplace violence in diverse occupational groups and the fifth focuses on research to increase the identification of domestic violence in the workplace. Intramurally, NIOSH is currently analyzing data from a special survey on workplace risks that was conducted in conjunction with the Bureau of Justice Statistics' National Crime Victimization Survey, conducting in-depth telephone interviews with workers treated in a sample of U.S. hospital emergency departments for a workplace assault injury, as well as evaluating state-based approaches to workplace violence prevention, and carrying out collaborative research with the Veterans Health Administration (VHA).

NIOSH has taken the lead in creating the Federal Interagency Task Force on Workplace Violence Research and Prevention with partners from the Departments of Labor and Justice and representatives from more than twenty federal agencies. The Task Force provides a forum for sharing information and identifying opportunities for collaborative efforts. The Task Force met for the first time in January of this year and the next meeting of the group is scheduled for September 9, 2003 in Washington, DC.

Another outreach effort is a series of stakeholder meetings. Representatives from federal agencies, industry, labor, professional organizations, advocacy groups, and academia have been assembled to participate in forums to share information and
NIOSH has recently updated the violence topic page. For more information on workplace violence, visit the website Violence web page http://www.cdc.gov/niosh/injury/traumaviolence.html.

Severe Acute Respiratory Syndrome (SARS)

NIOSH Director Testifies on SARS and Aircraft Indoor Air Quality

Recently, NIOSH Director Dr. John Howard, testified before the House Subcommittee on Aviation concerning aircraft cabin environments. The aircraft cabin represents a unique occupational setting given its high occupant density, low ventilation rates per occupant, reduced air pressure, and shift lengths for flight crews that may exceed fourteen hours.

Recognizing the need to study the potential health effects from exposures in such a setting, NIOSH has played a key role in working with other federal agencies and industry to identify areas of concern and make recommendations for their resolution. Currently, NIOSH is working on several studies related to cabin air quality and assisting CDC in the development of computer simulations to determine how diseases are transmitted in cabins, the creation of an informative video on SARS to be shown on flights from affected areas, and the effects of cosmic radiation exposure on flight crews.

Highlights of the NIOSH Response to SARS

NIOSH played a key role in the international response to SARS. NIOSH researchers were detailed to Taiwan and Toronto while others supported the CDC Emergency Response Center in Atlanta.

We asked NIOSH scientists to describe their experience and have captured a few of their stories…

Ken Wallingford, CIH, was deployed to Taiwan from April 29 to May 11, 2003. Working closely with environmental scientists from the Taiwan CDC, the Taiwan Institute of Occupational Safety and Health, and the Taiwan University School of Public Health, he assisted with the design of isolation rooms, hospital inspection, and infection control. His group was charged with increasing the isolation room capacity in Taiwan by approximately 1,500 beds as quickly as possible.

Max Kiefer, CIH, was deployed to Taiwan from May 29 to June 13, 2003. Max and his team were responsible for evaluating eleven “SARS hospitals” in Kaoshiung, Taipei, Hua Lien, Taidong and Taichung. The team assessed each hospital’s isolation room design and ventilation systems, personal protective equipment and infection control practices, health care worker training and patient/health care workers pathway isolation.

Eric Esswein, MSPH, CIH, CIAQP, was deployed to Southern Taiwan from May 16-June 2, 2003. Eric and his Taiwanese colleague Lukas Lee evaluated eleven
health care facilities in southern Taiwan (Kaohsiung, Tainan, Chai-Yi) evaluating negative pressure isolation control on SARS wards, use of personal protective equipment and infection control practices for health care staff. Eric's team was responsible for developing the design for converting an abandoned Taiwanese military barracks into a working SARS hospital. While under enormous time constraints, Eric was instrumental in developing the design plan for the hospital within 24 hours and the transformation was completed in less than 6 days.

Even though they had important tasks to accomplish, their own safety was constantly on their minds.

“While in Taiwan and touring hospital after hospital, I had a heightened level of anxiety because I knew this was a serious respiratory infectious disease that someone my age did not need to acquire.” Ken Wallingford

Their experiences can best be summarized by the following two quotes:

“I was extremely grateful for the opportunity to work with the SARS International Team; the dedication, caring, commitment, and work ethic of my CDC co-workers and Taiwanese counterparts was inspiring - a truly incredible once-in-a lifetime experience.” Max Kiefer

“Working with my extremely capable Taiwanese and US colleagues to put the brakes on SARS was a deeply rewarding opportunity and an experience that I will never forget, a highpoint of my career for certain.” Eric Esswein

NIOSH thanks Eric, Max and Ken and the other researchers for their extraordinary service during this challenging time.

**MMWR on SARS**

The May 16, 2003 Morbidity and Mortality Weekly Report (MMWR) reports on a cluster of SARS infections among protected health care workers in Toronto, Ontario, Canada. The report follows the transmission of SARS from three infected patients to their Canadian physician to health care workers treating the ill physician. This cycle resulted in nine suspected and two probable cases of SARS among the health care workers treating the physician. Possible causes of the transmission to the health care workers included the lack of formal respiratory protection training and individual workers not being properly fit tested. Additionally, Health Canada recommendations, although similar to those of CDC, differ from the CDC guidelines which specify the use of respirators approved by NIOSH rated at an N95 level of protection or greater. Health Canada recommends use of "N95 equivalent" respirators. The respirators used in this hospital, although compliant with Canadian public health recommendations, were not NIOSH-approved.
Global Positioning System Pinpoints Worksite Hazards

NIOSH researchers are adapting Global Positioning System (GPS) technology to pinpoint locations at outdoor worksites where employees may be exposed to hazardous levels of dusts, gases, fumes, noise and heat. This past year the prototype was successfully developed and pilot tested.

This technology creates a Local Positioning System (LPS) that links GPS with other instrumentation. The prototype system works this way:

- From orbiting GPS satellites, the unit receives signals that track the movements of the person wearing the unit.
- Measurement devices simultaneously provide data on position, exposures, time, In the NIOSH field tests, the unit was attached to a temperature sensor and a sound-level meter that measured heat and noise at a highway paving site. The ensemble was mounted on a belt for convenience.
- The data from the LPS are downloaded to a computer, which generates maps and graphs that show levels of exposure at specific work locations. The program also can filter the data specifically to show "hot spots."

NIOSH plans an additional study to test the operation of the system with a monitor designed to measure sulfur dioxide, hydrogen sulfide, carbon monoxide, carbon dioxide, and other gases that may pose an occupational hazard. To learn more about the GPS prototype, please contact Jennifer Hornsby-Myers at ezh7@cdc.gov.
ABLES Identifies Lead Poisoning Cases

Occupational tracking systems recently assisted in identifying persons with lead poisoning associated with taking Ayurvedic medications. The first case was identified to CDC by researchers at Dartmouth Hitchcock Medical Center in New Hampshire. Additional cases were found in Massachusetts, California and New York because of reports posted on the Adult Blood Lead Surveillance and Epidemiology Program (ABLES) listserv which were seen by all the states as well as CDC researchers. For more information on ABLES, visit the NIOSH website http://www.cdc.gov/niosh/ables.html. For more information on the NIOSH coordinated activities for this incident, contact Robert Roscoe at rjr1@cdc.gov

NIOSH Reports Findings on Glioma and Pesticide Exposure

Results of two analyses reported recently by NIOSH researchers as part of the larger NIOSH Upper Midwest Health Study found no positive association between pesticide exposure and the incidence of glioma, a brain cancer. The study was prompted by research in the U.S. and Europe that began to show an excess in brain cancers in farmers in the early 1990s. NIOSH scientists reported their findings at the conference of the American Association for Cancer Research and NORA Symposium 2003.

NIOSH is now exploring other possible causes of the increased incidence of brain cancer in farmers, including nitrogen fertilizers and infections from farm animals. Also, NIOSH is studying DNA from 350 cases and 600 controls to assess potential genetic factors in the glioma cases. The NIOSH study was reported in BioMedNet News, an online science journal and news service, on July 14, 2003.

For more information on this research, please contact Avima Ruder at aruder@cdc.gov
A NIOSH-led study reported in the July 11, 2003 Morbidity and Mortality Weekly Report (MMWR) focuses on the investigations of illnesses associated with exposures to insecticides between 1999 and 2002 used to control mosquito populations in nine states. During that time, 133 cases of acute insecticide-related illness associated with mosquito control were identified, with 36 of those cases work-related. Over 70% of the 133 cases were associated with organophosphates, primarily malathion. Malathion is classified by the U.S. Environmental Protection Agency (EPA) as an acute toxicity category III compound, with category IV being the least toxic. The majority of cases reported respiratory (66%) or neurologic dysfunction (61%) and were characterized as low (65%) or moderate (34%) in severity. Thirty-nine percent of the work-related cases occurred among insecticide applicators; the remaining cases occurred among workers whose jobs did not involve pesticide application.

Recommendations for reducing the risk of negative health effects from insecticide exposure include: 1) providing public notice of application times and locations, 2) ensuring that insecticide handlers and applicators meet state-mandated training and experience requirements to prevent insecticide exposure to themselves and the public and 3) implementing integrated pest management control strategies that emphasize mosquito larval control, reduction of mosquito breeding sites, and judicious use of insecticides to control adult mosquito populations.

To view the complete MMWR article, visit the CDC website http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5227a1.htm.

Image Analysis System Developed for Monitoring Mine Slopes

Gonzaga University’s Center for Engineering Design has completed work on an image analysis system for monitoring mine slopes. The NIOSH funded research focused on designing a method for automated collection and processing of digital images for change detection in surface mine settings. This method provides a tool for miners working near mine highwalls to identify more readily places on the slope where changes had occurred since the last inspection and to record changes over longer periods of time.

A 3.3-megapixel digital camera was selected because of its high resolution, low susceptibility to noise, and the availability of a software development kit compatible with Visual C++ programming language. The camera can be programmed to capture an image at intervals up to 12 hours over a period of a week or more. The images are stored in the camera until uploaded by the user onto a computer.
NIOSH Assisting National Academy of Sciences

Following the deaths of several animals at the National Zoo in Washington, DC, the National Academy of Sciences was asked by a congressional oversight committee to establish an expert panel to review the management practices of the National Zoo. Pesticide exposure was implicated in the death of one zoo animal and the sickness of several zoo workers. As a result of this incident, NAS requested a NIOSH industrial hygienist with animal facilities experience serve on the panel. Max Kiefer is representing NIOSH in this capacity.

For more information on the National Academy of Sciences, visit the website http://www4.nas.edu/nas/nashome.nsf

Public Comment Period Extended for MSHA Rule

The comment period has been extended until further notice for the proposed rule "Verification of Underground Coal Mine Operators' Dust Control Plans and Compliance Sampling for Respirable Dust (Plan Verification)." The Mine Safety and Health Administration (MSHA) has extended the comment period in order to obtain further information on Personal Dust Monitors (PDMs), a new technology currently being tested by NIOSH.

To view the proposed rule, go to http://www.access.gpo.gov/su_docs/fedreg/a030703c.html and scroll down to "Mine Safety and Health Administration."

If you would like to comment on the proposed rule, you can do so in one of three ways:

**Mail:** MSHA
Office of Standards, Regulations, and Variances
1100 Wilson Boulevard
Suite 2313
Arlington VA 22209-3939

**Fax:** (202) 693-9441

**Email:** comments@msha.gov
NIOSH Diversity Project
NIOSH and Johnson and Johnson Associates (JJA) Consultants co-sponsored the Greater Cincinnati Area Diversity Solutions Forum in May. Forum speakers included members of the private, public and non-profit sectors each contributing unique ideas and perspectives. Following an overview of diversity, topics included the need for diversity and how it increases productivity, how agencies can recruit and retain employees, and addressing the challenges surrounding diversity. Currently, NIOSH is planning to pilot test some of the ideas presented at the forum.

Division of Applied Research Technology (DART)
NIOSH has developed a new method to measure exposure to Bacillus anthracis (anthrax) using a fluorescence covalent microbead immunosorbent assay (FCMIA). This assay, which uses smaller samples and can measure more than one analyte simultaneously, was able to identify anti-PA antibody to *B. anthracis* in both pre-entry and follow-up sera of two workers who had received recent anthrax vaccine. The new method is useful in detecting exposure to multiple bioterrorism agents, but also has application as a tool to determine the effectiveness of personal protective equipment (PPE) and prophylactic antibiotics.

For more information on this new method, contact John Snawder at jsnawder@cdc.gov

Division of Respiratory Disease Studies (DRDS)
Captain Margaret Filios was awarded the Public Health Service (PHS) Commendation Medal for outstanding leadership, contributions, and commitment to the nationwide advancement of the ongoing "State-based Lung Disease Surveillance" project. The goal of the project is to foster and support state-based surveillance and intervention programs for silicosis and work-related asthma (WRA) by facilitating states' capacity to identify cases, take direct action to eliminate the cause, and prevent further disease. The program currently provides direct or indirect support to fourteen states to address work-related asthma.

Division of Surveillance, Hazard Evaluations and Field Studies (DSHEFS)
Congratulations to the following DSHEFS employees:

- Ronald Hall, Robert McCleery and Jane McCammon, along with G. Scott Earnest and Kevin Dunn from DART, were honored with the 2003 Public Health Service Engineering Professional Advisory Committee's Literacy Award for the publication "An Evaluation of an Engineering Control to Prevent Carbon Monoxide Poisonings of Individuals on and around Houseboats."

- Jane McCammon was nominated for the 2003 Charles C. Shepard Science Award Outstanding Scientific Contribution to Public Health for her work on carbon monoxide exposure and recreational boating.

- John Cardarelli was nominated for the 2003 Charles C. Shepard Science Award in the Assessment and Epidemiology category. He was the lead author for the scientific article "Significance of radiation exposure from work-related chest X-rays for epidemiological studies of radiation workers." To
Division of Safety Research (DSR)
DSR has entered into a "Letter of Agreement" with FEMCA, a Rollover Protective Structure (ROPS) manufacturer, to work together on the NIOSH AutoROPS. The AutoROPS, developed by NIOSH for tractors used in low clearance areas such as dairy barns and orchards, is a Rollover Protective Structure for tractors that automatically deploys when a sensor detects an imminent rollover. This technology transfer effort will focus on manufacturability of the AutoROPS and the associated costs, as well as improvements to the AutoROPS structure and sensor device. FEMCO has agreed to fabricate AutoROPS for testing and evaluation. DSR will perform static testing of these devices as well as field upset testing at the Pittsburgh Research Laboratory (PRL). The NIOSH/FEMCO partnership will assist transferring of NIOSH developed protective technology into the marketplace.

For more information, contact John Etherton at jre1@cdc.gov or John Powers at jop5@cdc.gov.

Education and Information Division (EID)
The NIOSH West Nile Virus (WNV) topic page has been updated for the 2003 season. The topic page will be updated periodically and can be accessed at http://www.cdc.gov/niosh/topics/westnile

New to the WNV topic page this season are fact sheets that provide recommendations for outdoor workers and laboratory and field workers. Recommendations in the outdoor worker fact sheet focus on eliminating mosquito development sites and ensuring that workers are provided with and trained in the effective use of personal protection against mosquitoes. To view the fact sheet, go to the NIOSH website http://www.cdc.gov/niosh/topics/westnile/wnvfacts_outdr.html.

The second fact sheet provides recommendations to laboratory and field workers who may be exposed to the WNV by means other than a mosquito bite. These workers may be exposed to WNV infected humans, animals, or their blood or other tissues. Workers have been infected with the WNV when their skin was cut while performing necropsies of infected birds. Recommendations to these workers include the provision of appropriate training, appropriate personal protective equipment that provides a barrier protection to the virus, the safe use of sharp instruments, the reporting of any incidents or accidents, and a medical surveillance system that monitors possible WNV exposures. The fact sheet can be viewed at http://www.cdc.gov/niosh/topics/westnile/wnvfacts_lab.html.
Health Effects Laboratory Division (HELD)
The Advanced Biomechanical and Cardiopulmonary Assessment Suit (ABACAS) project brings together new technologies from both the biomechanics and exercise physiology worlds to form a fully instrumented suit of clothing. The goal of the project is to create unobtrusive garments that can be worn discretely under clothing to assess the stresses that workers undergo during their daily routines and activities. By monitoring both spinal and limb locations and the associated ground reaction forces during the subject's movements, researchers hope to quantify the stresses experienced by the muscles and the spine during work activities that pose higher risks, such as lifting. By the integration of physiological measures into the suit, researchers will be able to examine the metabolic demands of the activities.

NIOSH will provide feedback to individuals and companies on ways work activities or work stations can be modified to reduce the risk of work-related injuries. The use of an instrumented suit in this fashion will enable objective, better integrated measures to be obtained more readily from workers performing their normal daily functions within real and familiar work settings.

For more information on this project, contact Ian Fairweather at ibf7@cdc.gov.

National Personal Protective Technology Laboratory (NPPTL)
NPPTL announces the following new employee promotions:

- Les Boord has been named Deputy Director for NPPTL. Les has nearly 30 years experience in the field of safety equipment, including respiratory protection, with extensive experience in the technical and administrative aspects of personal protective equipment.

- Roland BerryAnn has recently been selected as the Respirator Branch Chief for NPPTL. Roland has 10 years of experience with NIOSH, working primarily with respirator certification and the development of regulations and standards for respirators.

- Ron Shaffer has been selected as the Technology Branch Chief for NPPTL. Ron holds a Ph.D. in Analytical Chemistry and has extensive experience and knowledge in the area of sensor technology for chemical and biological detection.

Pittsburgh Research Laboratory (PRL)
The Handbook for Dust Control in Mining, covering 30 years of research findings and experience in dust control, is now available. The first chapter deals solely with dust control methods, irrespective of the application. It serves as a brief tutorial on mining dust control.

In the subsequent chapters, dust control methods are described for specific mines and mining equipment, dust sampling, practical engineering control, and respirators. The dust control methods described are both practical and cost-effective for the majority of mine operators. To access the online version, visit the NIOSH website http://www.cdc.gov/niosh/docs/2003-147/2003-147pd.html.
Spokane Research Laboratory (SRL)
Tom Brady was the only federal employee invited by the National Science Foundation (NSF) to serve on a panel of international rock mechanic experts. Tom served as the health and safety expert for the panel. The panel evaluated proposals based on their technical and economical feasibility for building the required large excavations needed for the physics experiments. The accepted proposal will be used for the planned National Underground Space and Science Laboratory to be funded by NSF. For more information on the National Science Foundation, visit the website http://www.nsf.gov.

Communication Products Highlight

WoRLD Surveillance Report 2002
The Work-Related Lung Disease (WoRLD) Surveillance Report 2002 is now available in print or online. The sixth in a series of documents on work-related respiratory diseases and associated exposures in the United States, WoRLD provides disease occurrence and frequency data from 1997 through 1999. The latest edition includes new sections on malignant mesothelioma, lung cancer, and “other” interstitial pulmonary disease, as well as smoking status by industry and occupation. To access the online version, visit the website http://www.cdc.gov/niosh/docs/2003-111/2003-111.html.

NPPTL Brochure
A new brochure highlighting the National Personal Protective Technology Laboratory (NPPTL) is now available. The mission of NPPTL is to prevent disease, injury and death for workers who rely on personal protective equipment. The brochure describes NPPTL’s surveillance, research, intervention and communication and training activities. To access and print the brochure, visit the NIOSH website http://www.cdc.gov/niosh/docs/2003-127/2003-127.html. For
additional information on NPPTL, visit the NIOSH website http://www.cdc.gov/niosh/npptl.

NORA Project Update
A comprehensive list and description of the 2002 National Occupational Research Agenda (NORA) research projects is now available online. The data from the print version of the NORA Research Projects has been extracted and incorporated into a user friendly website. Projects can be searched by project name or by NORA Priority Area. The website is http://www.cdc.gov/niosh/docs/2003-143/

Upcoming Events

NIOSH Announces September Workshop on Fire Detection Technology
NIOSH will hold a workshop on September 4, 2003, at the Pittsburgh Research Laboratory (PRL) in Bruceton, Pennsylvania, to discuss fire detection technology for underground coal mines that utilize mine-wide monitoring systems.

The workshop will focus on current research efforts in mine fire detection technology and identifying ways to increase collaborations between mine operators, sensor manufacturers, the United Mine Workers of America (UMWA), the Mine Safety and Health Administration (MSHA), state mine agencies, and NIOSH.

For more information on the workshop, contact Chuck Lazzara at (412) 386-6628 or email clazzara@cdc.gov. To register for the workshop or for directions to PRL, contact Rose Ann Crotsley at (412) 386-6609 or email rcrotsley@cdc.gov.

For more information on NIOSH fire detection technology research and other mining health and safety issues, visit the NIOSH website http://www.cdc.gov/niosh

Design for Safety and Health in Construction Conference

The “Designing for Safety and Health in Construction Conference” will be held in Portland, Oregon on September 15-16, 2003. NIOSH is co-sponsoring the conference along with the University of Oregon Labor Education and Research Center, the Center to Protect Workers' Rights, the Oregon State University Construction Engineering Management and Industrial Design and Construction. The conference brings together experts in design and construction, researchers and policy makers to assess current practices and identify future safety-in-design needs in the construction industry. For more information on the conference, go to http://darkwing.uoregon.edu/~lerc/.

International Fishing Industry Safety and Health Conference (IFISH II)

The second International Fishing Industry Safety and Health Conference (IFISH) will be held in Sitka, Alaska on September 22-24, 2003. IFISH is an opportunity to learn the latest developments in commercial fishing safety and injury prevention research, help build an international fishing safety coalition and promote action to prevent injury in the commercial fishing industry. A stimulating program will include keynote speakers, the presentation of scientific papers and posters, and
The Future of Rural Peoples: Rural Economy, Healthy People, Environment, Rural Communities

NIOSH, along with the University of Saskatchewan, is co-sponsoring the fifth international symposium on the future of rural peoples on October 19-23, 2003 in Saskatoon, Saskatchewan, Canada. The symposium will bring together researchers, policy makers, practitioners and rural people to look at current science and best practice approaches to achieving and maintaining healthy people, economies, environments, and communities in rural areas. To learn more, visit the conference website http://iareh.usask.ca/symposium2003/index.php.

NOIRS 2003

NIOSH, in association with its public and private sector partners, will host the third National Occupational Injury Research Symposium (NOIRS) on October 28-30, 2003 in Pittsburgh, Pennsylvania. This symposium is a means of implementing the National Occupational Research Agenda for traumatic occupational injuries. Additionally, NOIRS will be a great source for developing collaborations, identifying best practices, and sharing innovative technological approaches to injury research and prevention. The symposium will consist of contributed oral presentations in concurrent sessions, organized sessions around topics of special interest, and poster presentations. For more information on NOIRS 2003, visit the NIOSH website http://www.cdc.gov/niosh/noirs/noirsmain.html.

National Chronic Obstructive Pulmonary Disease (COPD) Conference

The first National Chronic Obstructive Pulmonary Disease (COPD) Conference will be held in November 13-15, 2003 in Arlington, Virginia. The goal of the conference is to provide scientific and societal background concerning COPD to further education, awareness, and improved care in the United States. The conference will provide an opportunity to meet and to actively participate in state-of-the-art workshops, lectures, and meetings. For more information, visit the conference website http://www.uscopd.com/index_confer.html.

Editor’s Note

In the July edition, the website listed for the story on the STARS Conference was incorrect. The correct web address is: http://osuergo.eng.ohio-state.edu/Institute/symposium.htm. We apologize for any confusion that this may have caused.
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