HHE
Health Hazard Evaluation Program

"To be persuasive we must be believable;
to be believable we must be credible;
to be credible we must be truthful."

— Edward R. Murrow

DEPARTMENT OF HEALTH AND HUMAN SERVICES · USA

CDC Workplace Safety and Health

NIOSH

2012 Annual Report

The mission of the NIOSH Health Hazard Evaluation Program is to respond to requests from employees, employers, and union representatives to evaluate potential health hazards in their workplace. These evaluations are done at no cost to the requestor. Once the evaluation is complete, recommendations are made on ways to reduce or eliminate any hazards identified. Health Hazard Evaluations can help reduce hazards and create more healthful workplaces.

What We Did In 2012

269 New Requests

Site Visits 53

1717 Employees surveyed

Employees evaluated medically 704

118 **Technical consultation letters**

Samples analyzed for chemicals **2096**

7 **Trainees Hosted**

Presentations & Publications **36**

4 Followback Site Visits

30 Field investigation reports

Noise Evaluation of Music Classes and Indoor Marching Band Rehearsals

We evaluated a high school band directors' exposure to noise. We measured noise levels at different frequencies during indoor marching band rehearsal in the band room and the cafeteria. To assess the acoustic properties of the rooms, we also calculated the reverberation time in each room. Reverberation time is the time it takes for a sound to go down 60 decibels from its original intensity.

We found that the director's full-shift noise exposure reached the OSHA action level and exceeded the NIOSH recommended exposure limit of 85 decibels, A weighted. The highest noise exposure was 110 decibels during rehearsal in the band room. Reverberation times were within recommended ranges in both rooms.

Based on our findings, we concluded that the band room was not large enough for the number of students in the band.

We recommended that the school hold marching band rehearsal outside or in a room appropriately sized for the number of students. We advised the director to stand away from highly sound reflective surfaces or to move students farther back to create more distance between himself and the students. We recommended the band director wear 'musicians' ear plugs until an acoustically appropriate space is available.

This report is available at
http://www.cdc.gov/niosh/hhe/reports/pdfs/2011-0129-3160.pdf.

Exposures to Pharmaceutical Dust at a Mail Order Pharmacy

We evaluated concerns about exposures to pharmaceutical dust and noise at a mail order pharmacy. Using real-time particle meters, we identified releases of dust during the cleaning, repairing, and refilling of cells and canisters. We sampled the air for different sizes of dust particles, and analyzed these samples for active pharmaceutical ingredients and lactose, a common inactive ingredient. We also measured noise levels and talked with employees about their symptoms and health concerns at work.

Dust was released into the air when cells were cleaned and canisters were filled with tablets. We found active pharmaceutical ingredients and lactose in the airborne dust, suggesting that some dust was from pharmaceuticals. The products dispensed at the pharmacy included drugs known or suspected to cause adverse health effects from exposures in the workplace.

A pharmacy technician had a noise exposure above the NIOSH and OSHA exposure limits of 85 decibles, A weighted. All other employees had exposures below these limits. Most of the noise was from the release of compressed air by pharmacy equipment.

To control dust exposures we recommended the following:

- installing tabletop ventilation booths for employees who fill hazardous drug prescriptions and for employees who clean, repair, and fill cells and canisters
- requiring NIOSH-approved half-mask N95 filtering facepiece respirators for employees who hand fill hazardous drug prescriptions
- requiring NIOSH-approved half-mask N95 filtering facepiece respirators for employees who change out particulate filters in the ventilation booths, hoods, and high-efficiency particulate air vacuums

We also recommended that mufflers be used on the exhaust ports of solenoid valves and actuators and that leaks in the compressed air line be fixed to reduce noise levels in the pharmacy.

This report is available at
http://www.cdc.gov/niosh/hhe/reports/pdfs/2010-0026-3150.pdf.

Ergonomic and Safety Climate Evaluation at a Brewery

We were asked to evaluate concerns about musculoskeletal disorders among employees at a brewery. Repetitive tasks on the can line and in the bottle depalletization areas were thought to be the cause of musculoskeletal disorders among employees.

We talked with employees about their work, medical history, and musculoskeletal disorders. We also reviewed occupational safety and health injury and illness logs. We observed and videotaped work tasks to document risk factors for musculoskeletal disorders. We also measured the heights of workstations and the reach distances for specific work tasks. In addition, we asked employees about their injury reporting behavior and their perceptions of safety at the plant.

We found that the rates of injuries and illnesses were similar to or below those of other plants in the brewery industry. Employees were at increased risk for upper extremity musculoskeletal disorders from awkward postures, forceful exertions, and repetitive motions. The most common musculoskeletal injuries involved the shoulder and wrist. Employees indicated that safety training, policies, and procedures need to be improved. Some employees said they did not report safety incidents or express safety concerns because they were uncomfortable doing so or feared it would have a negative effect on them.

We recommended designing work areas to have a working height between 27–62 inches and adding rotating platforms to the height-adjustable lifts. We also recommended that employees lift properly and use the adjustable features to allow them to be closer to the equipment controls and materials. To improve the safety climate, we recommended the employer encourage employees to report work-related musculoskeletal discomfort, log these complaints, and inform employees about what is being done in response to reported concerns.

This report is available at
http://www.cdc.gov/niosh/hhe/reports/pdfs/2010-0008-3148.pdf.

Legionnaires' Disease at an Automobile and Scrap Metal Shredding Facility

We responded to a request concerning four cases of Legionnaires' disease among employees at an automobile and scrap metal shredding facility. We visited the facility on two occasions and spoke with employees about Legionnaires' disease. We also collected air, water, and swab samples and tested them for Legionella bacteria and water samples were analyzed for free chlorine content and pH. We also distributed posters that showed how to put on and take off an N95 respirator and demonstrated the procedures to workers.

During the first visit to the facility, we found large quantities of standing water throughout the grounds; workers stood in or shoveled around the standing water and equipment drove through puddles of standing water. We also noted water dripping from the exterior of the metal shredder and conveyor while shredded material on the conveyor was dirty and wet. Employees were not wearing respirators. Legionella was identified in water dripping from the exterior of the shredder onto the conveyor belt, in multiple puddles of water, and from a swab sample taken from a conveyor belt inside the picking shed.

During the second visit to the facility there was less standing water on the ground and built up mud and dirt had been cleaned from the grounds resulting in improved draining. The picking shed had been cleaned and sanitized, and a new shredder that used less water had been installed. Employees who shoveled or worked in the picking shed were wearing N95 respirators, but had not been fit-tested.

We recommended that managers improve surface drainage to eliminate standing water and minimize shoveling in puddles of water. The shredder, conveyor systems, and mobile equipment should be cleaned and sanitized twice a year to help reduce contamination. We also recommended developing a respiratory protection program and requiring use of fit-tested N95 or higher protection respirators for employees who work in picking operations, shovel around standing water, dredge or empty the drainage pond and others who may be exposed to pools of water, dripping water, or wet materials. We recommended that employees report respiratory or flu-like symptoms to management and their healthcare provider and wear a fit-tested respirator when performing job duties that require respiratory protection.

This report is available at
http://www.cdc.gov/niosh/hhe/reports/pdfs/2011-0109-3162.pdf.

Five Practical Recommendations Made in 2012

1. **Do routine maintenance to ensure optimal operation of ventilation controls.**

Example: At an aluminum beverage can manufacturing plant we found no evidence of overexposures to metalworking fluids. Nonetheless, we recommended inspecting the exhaust ventilation systems regularly to identify and repair corrosion, holes, and other problems. Developing good maintenance habits can prevent costly problems.

2. **Provide adjustable work stations to accommodate employees of different sizes and minimize awkward postures.**

Example: We recommended adjustable chairs and adjustable height monitors for employees at a telecommunications facility. Technicians working 10-hour shifts were seated at work stations to continuously view multiple large screens. Properly adjusted work stations help enhance employee comfort and reduce postures that contribute to musculoskeletal problems.

3. **Look for safer chemicals.**

Example: At an aluminum beverage can manufacturing plant, we recommended replacing hydrofluoric acid, which was used to clean the cans. Hydrofluoric acid has a strong odor and can irritate the eyes, skin, nose, and throat. Breathing in hydrofluoric acid at high levels or in combination with skin contact can cause death from irregular heartbeat or from fluid buildup in the lungs.

4. **Prohibit eating and drinking in work areas.**

Example: In a university-based veterinary clinic, employees administered cancer chemotherapy drugs to small animals. We found surface contamination with the drugs in some areas of the clinic. Employees who eat or drink in the work areas were at risk of ingesting the drugs if the food contacted these surfaces or contaminated hands.

5. **Use administrative procedures to restrict access to persons suspected of airborne infectious diseases.**

Example: Following an increase in tuberculosis infections in hospital employees, we found that some employees were unaware that patients might be infectious. Caring for these patients outside airborne infection isolation rooms may have aided the spread of tuberculosis.

What People Are Saying

"Excellent! The HHE was very beneficial. The NIOSH recommendations were common sense/practical, and all implemented."

~Manager at a large ink ribbon manufacturer

"The visit encouraged us to examine and re-evaluate our current HS&S (health, safety, and security) as well as revisiting the problems of the past, which spurred many changes in how we conduct business as it relates to HS&S."

~Health and safety staff at a small ore processing facility

"Very impressed with thoroughness of inspection... I know other companies performing similar operations will find this report useful."

~Manager at a small semiconductor manufacturing facility

What We Are Looking At In 2013

Lung disease in a coffee processing plant

Hexavalent chromium and dust exposures during the stripping, sanding, and painting of airplanes

Exposures to mineral oil mist at an artificial joint manufacturer

Knowledge, attitudes, and practices about influenza vaccination in a school district

Musculoskeletal disorders in poultry processing workers

Styrene, fiberglass, and methyl methacrylate exposures at a wind turbine manufacturing facility

Lead exposures from the recycling of batteries and electronic waste

Heat and metabolic effects from outdoor work in extremely high temperatures

Lung disease and exposure to fumigants, flavorings, and dusts in pet food manufacturing

Visit our website at http://www.cdc.gov/niosh/hhe/resources.html
to download a PDF of the 2012 Annual Report.