NEW JERSEY GRANT ANNUAL REPORT
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FUNDAMENTAL OCCUPATIONAL HEALTH SURVEILLANCE

The prevention of work-related illness and injury in the state is an important component of the overall public health strategy of the New Jersey Department of Health and Senior Services (NJDHSS). Prevention of occupational illness and injury, specifically, silicosis, work-related asthma, and fatal occupational injury, is accomplished through the early detection and reporting of disease, as well as through reduction or elimination of hazards. NJDHSS has been conducting surveillance of work-related injuries and illnesses in New Jersey since 1981. The overall goal of these surveillance activities is to decrease the magnitude of occupational diseases and injuries in the state of New Jersey. A variety of methods is being utilized to achieve this goal.

MAJOR ACCOMPLISHMENTS/OUTPUTS

Occupational Health Indicators

Occupational health indicators (OHIs) provide a snapshot of the health of workers in New Jersey. These indicators can be used by public health officials to track work-related adverse health effects and their causes. OHIs can help New Jersey and other states gain information about their population's health status with respect to workplace factors that can influence the health of an individual.

The Environmental and Occupational Health Surveillance Program (EOHSP) completed the 2008 OHIs for which data are available. Examples are provided in the table below. In addition, quality control activities were conducted for selected OHIs from 2006 and 2007. Starting with 2008, New Jersey will no longer generate two OHIs, namely, “Amputations Filed with State Workers' Compensation System” and “Annual Number of Carpal Tunnel Syndrome Cases Filed with State Workers' Compensation System” because of changes in the requirements for the transmission of claims information from insurers, self-insured employers, and third party administrators to the NJ Department of Labor and Workforce Development. These changes do not meet the data quality standards to accurately calculate these two OHIs.

Selected 2008 New Jersey Occupational Health Indicators	
Occupational Health Indicator	
Annual average # of adults (civilian non-institutionalized) working in New Jersey[1]	4,261,000
Percentage of employed persons in high mortality risk industries[1]	10.96
Estimated annual total number of work-related injuries and illnesses[2]	88,700
Estimated annual number of all musculoskeletal disorders[1]	8,760
Estimated annual number of amputations involving days away from work[1]	90
Total amount of workers' compensation benefits paid[3]	$1,916,466

Sources: [1]National Bureau of Labor Statistics, [2]NJ Department of Labor and Workforce Development, [3]National Academy of Social Insurance.

Outreach to Vulnerable Populations

EOHSP drafted two articles for publication in the Immigration and American Citizenship Organization's (IACO) magazine *La Guía del Inmigrante* (The Immigrant's Guide) which targets Spanish-speaking immigrants from Central and South America. The magazine has a readership of over 10,000 Hispanic households and is distributed to more than 100 community agencies. These short articles are designed to raise awareness about pertinent workplace health and safety issues in this hard-to-reach population. One article, published in the December 2010 issue, focused on safe use of ladders because of the disproportionate number of ladder fall injuries in New Jersey Spanish-speaking workers. The other article targets the hazards associated with restaurant work. Language barriers and lack of proper work authorization often limit Hispanic workers to jobs involving food preparation, cooking, and cleaning, particularly in fast-food establishments. These workers often do not receive proper job training. Publication is pending.

NJDHSS Collaborations

- *NJDHSS Environmental Public Health Tracking (EPHT)* -- EOHSP is collaborating with EPHT researchers to incorporate occupational health indicators (OHIs) into the NJDHSS online indicator-based information system. The system, NJ SHAD (State Health Assessment Data) System, is hosted by the NJDHSS Center for Health Statistics and features numerous leading New Jersey health indicators. Currently, there are two OHIs featured on NJ SHAD, namely, Fatal Occupational Injuries and Adult Lead Exposure. Six additional indicators have been selected for inclusion in NJ SHAD:
    - Non-fatal Work-related Injuries and Illnesses Reported by Employers
    - Work-related Hospitalizations
    - Hospitalizations for Work-related Burns
    - Hospitalizations from or with Pneumoconiosis
    - Mortality from or with Pneumoconiosis
    - Incidence of Malignant Mesothelioma

- *NJDHSS Office of Injury Surveillance and Prevention (OISP)* -- OISP, located in the NJDHSS Center for Health Statistics, is a central source for injury statistics and is working to integrate surveillance data with injury prevention and control efforts. Two EOHSP projects, namely, Fatality Assessment and Control Evaluation and Census of Fatal Occupational Injuries, were featured in NJDHSS 2011 National Public Health Week's "Safety is No Accident: Live Injury-Free" campaign. National Public Health Week is conducted annually by the American Public Health Association to educate the public, policy makers, and the public health community about the issues important to improving public health. Another collaboration involved developing an "Occupational Injury" chapter featured in the NJDHSS publication, "Preventing Injury in New Jersey: Priorities for Action."

EXPANDED SURVEILLANCE – WORK-RELATED ASTHMA

Work-related asthma (WRA) is asthma caused by workplace exposure to any of a large variety of stimuli. The number of agents that are recognized to cause WRA is constantly growing. Asthma, in the form of work-aggravated asthma and new-onset asthma due to conditions at the workplace, has become the most common occupational lung disease. The overall goal of the NJDHSS WRA surveillance project is to identify potential cases of WRA; classify cases in accordance with established case confirmation criteria; evaluate exposures associated with the cases; identify new industries, occupations, and causes associated with this condition; and implement interventions to prevent WRA in New Jersey.

MAJOR ACCOMPLISHMENTS/OUTPUTS

Sentinel Case Identification

A sentinel case was identified in New Jersey that could have national implications. An emergency medical technician (EMT) reported symptoms of wheezing, shortness of breath, and cough following exposure to pesticides used to disinfect an ambulance via a micro-mister system. This system converts the pesticides into microscopic particles. The micro-mister system applied quaternary ammonium (allergen) and phenol-based (irritant) disinfectants, both of which can trigger asthma symptoms. This technology is used by government organizations such as the U.S. Departments of Defense and Homeland Security, and in public and private sector applications worldwide, including schools, fire departments, hospitals, and ambulance companies.

The EMT employee's union stated that over 100 employees have reported adverse health effects. Sixteen of these employees have filed workers' compensation claims and were denied. Air and wipe sampling (OSHA-sanctioned) have shown that the levels of the active ingredients found inside the ambulances after fogging to be well below legally enforceable permissible exposure limits. The Environmental Protection Agency (EPA) has issued a "Stop Use, Safe, or Removal Order" for the pesticides, and NIOSH is considering conducting a Health Hazard Evaluation at this worksite. EOHSP has received four physician case reports of confirmed WRA to date.

Collaborations with Partners and Stakeholders

- *Local and Federal Asthma Partners*: EOHSP collaborated with the New Jersey American Lung Association's Pediatric/Adult Asthma Coalition (PACNJ) and EPA Region II to plan, pilot, revise, conduct, and evaluate a training program aimed at reducing asthma triggers in schools by fully complying with the New Jersey's Indoor Air Quality standard and utilizing key modules in the EPA Tools for Schools Program. This training program is a required step for schools to achieve the PACNJ "Asthma-Friendly School Award" whose intent is to promote healthy schools for children and staff with asthma. The Award recognizes schools that create and sustain healthy, supportive, and asthma-friendly environments. Five training sessions were conducted for school nurses and interested facilities staff. Nursing contact hours were awarded. A total of 257 persons were trained representing 54 different employers. Participants were expected to return to their schools and initiate/participate in an indoor air quality team, another requirement for the Award.

- *NIOSH and Other WRA Surveillance States*: EOHSP is collaborating with three WRA surveillance states and NIOSH on a peer-reviewed publication focusing on diisocyanate exposure. Diisocyanates are a group of chemicals with unique characteristics that cause them to be widely used in the manufacturing or application of products, including autobody paints and coatings, foams, adhesives, and sealants. Exposure to diisocyanates can cause work-related asthma, lung and eye irritation, allergic dermatitis, and death. In addition, workers can become highly sensitized to diisocyanates, which can induce symptoms at low levels of exposure.

  This article will examine and characterize surveillance data collected by New Jersey and three other states (CA, MA, and MI), regarding cases of work-related asthma as a result of exposure to diisocyanates. The article will also contain an analysis of OSHA's Integrated Management Information System (IMIS) data, which contains diisocyanate exposure sampling results from enforcement inspections and consultation visits.

EXPANDED SURVEILLANCE – SILICOSIS

Occupational exposure to respirable crystalline silica (RCS) is a serious but preventable health hazard. Exposure to RCS occurs in construction, mining, manufacturing, and other industries, and can result in silicosis and other lung diseases. The overall goal of the work conducted by the EOHSP is to identify potential cases of silicosis; classify cases in accordance with established case confirmation criteria; evaluate exposures associated with the cases; identify new industries, occupations, and causes associated with this condition; and implement interventions to prevent silicosis in New Jersey.

MAJOR ACCOMPLISHMENTS/OUTPUTS

Research to Practice -- Collaboration with Stakeholders and Partners to Evaluate Manufacturers' Control Measures for Dowel Drilling

The NJDHSS is a member of the NJ Silica Outreach and Research (SOAR) Alliance, a multi-partner team consisting of representatives from industry, labor, and state and federal agencies. The NJ SOAR Alliance has been successful in identifying practical control measures to reduce silica exposures during jackhammering, and is now undertaking the high exposure task of dowel drilling. Dowel drilling takes place during new highway construction or repair of concrete pavement. The primary exposure to crystalline silica dust occurs during the operation of the dowel drill (Figure 1).

In April, 2011, an observation and research activity took place at the Training Center for the New Jersey Laborers' Health and Safety Fund, a NJ SOAR Alliance partner. Manufacturers' representatives, NIOSH staff from the Division of Applied Research and Technology, and highway construction workers evaluated the usability of new dowel-drilling control measures through hands-on use of the equipment and a structured focus group activity. Reduction of dust levels was apparent (Figure 2). Among other feedback, workers provided suggestions for improving maneuverability of the equipment based on their knowledge of highway worksites. The Alliance is working to identify additional field testing sites in New Jersey for the on-going NIOSH study of dowel-drilling control methods to prevent silica exposure.

Figure 1: Dowel drilling without local exhaust ventilation

Figure 2: Dowel drilling with prototype local exhaust controls

Improving the Timeliness of Follow-Up of Workers Diagnosed With Silicosis

Hospital discharge data have consistently been the most productive source for identifying new cases of silicosis among workers in New Jersey. Of the six sources of data available to the EOHSP, hospital discharge data account for 39% of the confirmed silicosis cases. State health law, N.J.A.C. 8:58-1.4, requires that hospitals report individuals diagnosed with silicosis to the NJDHSS. Years of experience with outreach to persons discharged from a hospital with a silicosis diagnosis have shown that timely patient follow-up enables a more effective public health intervention. This is the opportunity needed to identify employer sites where exposures may still be active, perform on-site industrial hygiene

evaluations and make recommendations for control measures that can prevent future cases of silicosis from occurring.

EXPANDED SURVEILLANCE – WORKPLACE FATALITY

The overall goal of the NJ Fatality Assessment and Control Evaluation (NJ FACE) project is to maintain and expand a surveillance system for identifying work-related fatal injuries in New Jersey based on priorities defined by NIOSH. NJ FACE researchers seek to prevent occupational fatalities by identifying and investigating work situations at high risk for injury, and then formulating and disseminating prevention strategies to those who can intervene in the workplace.

MAJOR ACCOMPLISHMENTS/OUTPUTS

Hazard Alert Targets Marine and Rail Cargo Industry

Following two separate incidents of workers fatally injured while performing routine maintenance of cargo container lifting devices, NJ FACE initiated a hazard surveillance and educational outreach project targeting all workers who handle the loading and off-loading of cargo-container spreaders and lifting frames in New Jersey. NJ FACE finalized and disseminated a hazard alert, which includes the following: two case studies; recommendations on safe use of these types of equipment; a graphic depicting B30.24-2008 (standard hand signals for controlling container cranes) from the American Society of Mechanical Engineers (ASME); and a resources list. An evaluation survey was also developed. The alert and survey were mailed to all companies in New Jersey with primary NAICS codes 488320 (Marine Cargo Handling) and 488210 (Support Activities for Rail Transportation), identified from the *Dun & Bradstreet* business database. The alert can be accessed at: http://www.state.nj.us/health/surv/documents/cargoindustry_njalert.pdf.

Public and Private Employees at Risk of Injury While Working On or Near Sanitation Trucks

Fatal and nonfatal injuries that occur while working on or around sanitation trucks continue to be a serious issue in New Jersey. From 1993 to 2009, 36 New Jersey sanitation workers, eight of whom were municipal employees, have been killed while working on or near sanitation trucks. Many more were injured. NJ FACE updated the hazard alert, *Don't Get Hurt Working Around Sanitation Trucks,* to include additional safety recommendations, a new case study, and updated data. In addition, EOHSP pilot-tested the Spanish translation of this brochure. Several literacy issues were resolved, and both the Spanish and English versions were revised accordingly. These updated versions are now available at: http://www.state.nj.us/health/surv/face/njface_pubs.shtml#ha.

NJ FACE Stakeholder Collaborations

- The NJ FACE project was contacted by the Project Coordinator of Workers at Heights Safety & Health Initiative (a project at the Central New York Occupational Health Clinical Center) regarding NJ FACE report #08-NJ-52, entitled, *55-Year-Old*

Communications Tower Worker Killed After Falling 60 Feet. Staff discussed future collaborations in New Jersey for education and outreach. The number of telecommunications towers continues to rise to meet the escalating demand for wireless communication services. These towers hold transmitting devices for cellular phones, personal communication services, and television and radio broadcast antennas. Workers involved in construction and maintenance of telecommunications towers are at high risk for traumatic injuries, including fatal falls.

- The NJ FACE project received information from NIOSH that the National Solid Wastes Management Association (NSWMA) disseminated NJ FACE report #08-NJ-79, entitled, *69-Year-Old Sanitation Worker Run Over by Refuse Truck,* to their constituents nationwide. NJ FACE reached out to NSWMA Staff discussed future collaborations in New Jersey for education and outreach. Copies of the NJ FACE hazard alert, *Don't Get Hurt Working Around Sanitation Trucks*, (in English and Spanish) were also provided.

MAJOR IMPACTS/INTERMEDIATE OUTCOMES

Workplace Interventions Reports

The following fatality investigation reports containing findings and recommendations were released to employers in Federal Fiscal Year 2011:

NJ FACE ID #	Incident Category	Case Summary
08-NJ-79	Machine	A sanitation worker was run over by an unattended garbage truck that had moved forward unexpectedly.
08-NJ-52	Fall	A maintenance worker fell 60 ft. from a communications tower while changing diagonals during a structural upgrade.
08-NJ-12	Highway Work Zone/ Fall	A laborer working on a bridge deck repair job, fell 93 feet to the surface below. He was walking on the steel I-beams, and fell through the wooden 2"x10" planking designed to catch debris.
08-NJ-03	Explosion	A maintenance worker was killed when a large pressure vessel used at a foundry exploded during a leak testing procedure. Four other workers were injured.

NJ FACE Adult School Crossing Guard Project

- At NIOSH's request, EOHSP completed an "Impact Sheet" on NJ FACE outreach activities for adult school crossing guards. The purpose of the Impact Sheets which are posted on NIOSH Web site is to share occupational health and safety "success stories" with the public. The Impact Sheet will provide readers background information and how the outreach was successful in raising awareness and improving work practices.

- A new Web page devoted to school crossing guard safety was launched on the NJDHSS Web site. The Web page - http://www.state.nj.us/health/surv/crossing_guards.shtml - includes the following categories: New Jersey Statutes, NJDHSS Educational Outreach, Personal Protective Equipment, Training Resources, and Partners and Related Programs.

- An article "STOP for the Crossing Guards … and the Children" was published on the NJDHSS Commissioner's Blog, *NJ Health Beat*. The article, which was released specifically during back-to-school week in New Jersey, discussed the seriousness of job-related hazards associated with adult school crossing guards, referenced NJ FACE revised hazard alert - http://nj.gov/health/surv/documents/njcrossing_guards.pdf - and promoted the new NJDHSS Web page devoted to adult crossing guard safety.

Publications in the Scientific Literature

- *Commercial Fisheries Fatalities* -- EOHSP staff published a manuscript in the *Journal of Agromedicine*'s Special Issue on Occupational Safety and Health in Commercial Fishing and Aquaculture. The paper is entitled "Utilizing United States Coast Guard (USCG) Data to Calculate Incidence Rates and Identify Risk-Factors for Occupational Fishing Injuries in New Jersey." *Citation*: Day ER, Lefkowitz DK, Marshall EG, Hovinga M. Utilizing United States Coast Guard Data to Calculate Incidence Rates and Identify Risk Factors for Occupational Fishing Injuries in New Jersey. J Agromedicine, 2010 Oct; 15(4):357-62.

- *Injuries in Older Workers* -- NJ FACE, BLS staff, and other NIOSH occupational health surveillance grantees published an article in the Workers' Memorial Day edition of the Morbidity and Mortality Weekly Report (MMWR). The article details findings from occupational health surveillance data analysis regarding injuries and illnesses of workers 55 years and older. *Citation*: S. Wuellner, Walters, J.K., St. Louis, T. Leinenkugel, K. Rogers, P.F. Lefkowitz, D., Davis, T. K. Gelberg, K., Zak, M. J. and Castillo, D. N. Nonfatal Occupational Injuries and Illnesses Among Older Workers --- United States, 2009. Morbidity and Mortality Weekly Report. April 29, 2011 / 60(16);503-508.