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Council of State and Territorial Epidemiologists

Putting Data to Work for
Worker Safety and Health:

SUCCESSSES IN THE STATES



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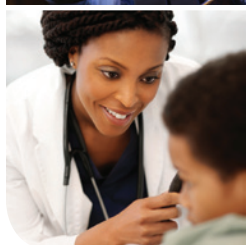
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INTRODUCTION

Working people drive our economy, from the cutting edge sectors of biotechnology and green energy to traditional jobs in construction, healthcare and manufacturing. While work is fundamental to well-being, working conditions can also adversely affect health. Each year in the United States (U.S.), millions of people become ill or injured due to workplace health and safety hazards. Work-related health problems have substantial human and economic costs paid by workers, employers and society at large.^{1,2} However, occupational injuries and illnesses are preventable; we should never accept them as “just part of the job.”

The Occupational Safety and Health Administration (OSHA) and state labor departments, which enforce workplace standards, provide basic protections for workers’ health. State public health agencies play a critical, complementary role in preventing workplace injuries and illnesses. The eleven success stories presented here highlight achievements of state occupational public health programs that receive funding from the National Institute for Occupational Safety and Health (NIOSH). They show how:

- Public health investigations of work-related injuries and diseases drive changes in safety and health policies and workplace practices.
- Epidemiologic analyses of health-related data sets (e.g., hospital discharge data) highlight specific needs for worker protections that may otherwise not be detected.
- Public health agencies mobilize community partnerships for action to protect workers.
- Public health agencies play an important role in serving workers and employers with the greatest unmet occupational safety and health needs, such as immigrants, teens and small businesses.
- State occupational health programs integrate their activities with those of other public health prevention programs to have broader impact.

State public health agencies and their partners make distinctive contributions to occupational safety and health in part because of their unique access to health data and their broad mission to protect the most vulnerable. They can characterize the size, scope and characteristics of work-related diseases and injuries through access to specialized data sources. They identify and investigate emerging concerns that are often first reported to state health authorities. The health communication and cultural competency skills of occupational public health professionals help translate lessons learned from surveillance and epidemiology to education and training materials for diverse audiences. Partnerships with universities or product designers promote the application of surveillance findings to primary prevention activities like engineering safety solutions. State-level public health policies, laws and regulations are unique tools public health departments use to protect both workers and the public. The eleven stories that follow are just some examples of the ways that state public health programs, uniquely and in partnership, contribute towards improving the safety and health of workers across the U.S.

¹ Leigh J. [2011] Economic Burden of Occupational Injury and Illness in the United States. *Millbank Quarterly* 89 (4): 728-772.

² Boden L, Biddle E, Spieler EA. [2001] Social and economic impacts of workplace illness and injury: Current and future directions for research. *Am J Ind Med* 40:398-402.

INVESTIGATIONS DRIVE CHANGES IN POLICY AND PRACTICE

New health standard developed after reports of illness
among flavoring plant workers

California



Two cases of bronchiolitis obliterans among workers who made food flavorings were reported to the California Department of Public Health (CDPH) in 2004 and 2006, respectively. These cases linked this very serious lung disease to exposure to diacetyl, a chemical used in butter flavoring, corroborating results found by NIOSH in the microwave popcorn industry. An industry-wide public health investigation performed by CDPH, Cal/OSHA and NIOSH initially found an additional five workers with severe, fixed obstructive lung disease. CDPH outreach to the industry on the diacetyl hazard and site visits from the Division of Occupational Safety and Health of the California Department of Industrial Relations (better known as Cal/OSHA) prompted quick implementation of exposure controls and medical surveillance programs involving over 700 workers. A cross-sectional analysis of medical surveillance data from 16

companies confirmed a higher risk of lung disease among workers at companies using greater amounts of diacetyl. Data from CDPH and the industry-wide investigation contributed to the passage in California of the first occupational standard for diacetyl, in 2010.

CDC (Centers for Disease Control and Prevention) [2007]. Fixed obstructive lung disease among workers in the flavor manufacturing industry – California, 2004—2007. *MMWR* 56(16):389-393.

Kim TJ, Materna BL, Prudhomme JC, Fedan KB, Enright PL, Sahakian NM, Windham GC, Kreiss K [2010]. Industry-wide medical surveillance of California flavor manufacturing workers: cross-sectional results. *Am J Ind Med* 53:857-865.

California Code of Regulations [2010] Title 8, California Code of Regulations, Section 5197 -- Occupational Exposure to Food Flavorings Containing Diacetyl. Oakland, CA: California Department of Industrial Relations. <http://www.dir.ca.gov/title8/5197.html>

State fire safety policies changed to protect wood floor finishers

Massachusetts



Between September 2004 and July 2005, three Vietnamese floor finishers in Massachusetts were fatally injured in two separate incidents when a highly flammable floor sealer they were using caught fire. The Massachusetts Department of Public Health's Fatality Assessment and Control Evaluation (FACE) program investigated these incidents and joined with the

state Fire Marshal to issue a Fire Safety Alert in English and Vietnamese. The Alert was disseminated to floor finishers, fire departments, insurers and product distributors throughout the state. The Department also provided technical assistance to a community-initiated Floor Finishing Task Force that worked to reduce the use of highly flammable floor finishing products in Massachusetts. As of June 2010, state Board of Fire Prevention regulations require fire department-issued permits to use flammable liquids for floor finishing. Legislation banning sale and use of lacquer sealers for floor finishing was passed in the summer of 2010.

Massachusetts Department of Public Health and Office of the State Fire Marshal [2006]. Fire Safety Alert Wood floor sanders killed when floor finishing product catches fire – Massachusetts <http://www.mass.gov/eohhs/docs/dph/occupational-health/wood-floor-sanders.pdf>

Pesticide-related death prompts safety training of first responders

In 2005, a commercial pesticide applicator treated a home in Oregon with a pyrethrin and pyrethroid, two commonly used insecticides. Upon re-entry into the home, one of the occupants died, the other occupant was hospitalized overnight and five emergency responders experienced pesticide poisoning symptoms related to their entry into the home. In response, the Oregon Occupational Public Health Program (OPHP) created an educational narrative that was distributed to over 7,000 police and firefighters and that is now used in all first responder safety trainings in the state. OPHP also disseminated information about hazards associated with responding to chemical pesticide events in an OPHP newsletter, an EMS trade journal and in *Public Health Reports*.

Oregon



Walters JK, Boswell LE, Green MK, Heumann MA, Karam LE, Morrissey BF, Waltz JE [2009] Pyrethrin and pyrethroid illnesses in the Pacific Northwest: a five year review. *Public Health Reports* 124(1):149-159.

Oregon Department of Human Services [2004]. Pesticide Poisoning from Acute Pyrethroids. CDSummary 53(6). <http://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/CDSummaryNewsletter/Documents/2004/ohd5306.pdf>

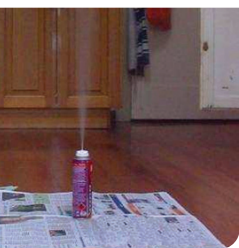
Oregon Department of Human Services [2009]. Acute Pesticide Poisoning in Oregon: an incomplete view? CDSummary 58(25). <http://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/CDSummaryNewsletter/Documents/2009/ohd5825.pdf>

<http://public.health.oregon.gov/HealthyEnvironments/WorkplaceHealth/Documents/Edition4Pesticides.pdf>

DATA ANALYSIS HIGHLIGHTS SPECIFIC WORKER PROTECTION NEEDS

State pesticide data trigger changes in national labeling requirements

California, Florida, Louisiana, Michigan, New York, Oregon, Texas, Washington



Eight states with pesticide surveillance programs and the New York City Department of Health identified illness associated with the use of pesticide-releasing foggers for several years, and summary data for 466 reported cases was published in the Morbidity and Mortality Weekly Report (MMWR) in 2008. The article's recommendations included a call for labeling improvements. Following review of the findings in this article, a petition from the New York City Health

Department and some written recommendations from Washington State, the U.S. Environmental Protection Agency (EPA) determined that labels on these products needed to be changed to improve user understanding of their risks and safe use. EPA is requiring the labeling changes by September 30, 2012. Manufacturers were notified of these changes on March 23, 2010.

CDC (Centers for Disease Control and Prevention) [2008]. Illnesses and injuries associated with total release foggers – Eight states. MMWR 7(41):1125-1129.

U.S. Environmental Protection Agency [2010]. Pesticide news story: EPA takes action to establish new bug bomb labeling requirements to improve safety and reduce risk http://www.epa.gov/oppfead1/cb/csb_page/updates/2010/new-foggers.html

For more information on labeling changes:

U.S.EPA [2010]. Total release foggers. In: Pyrethroids and pyrethrins, Related issues/topics <http://www.epa.gov/oppsrrd1/reevaluation/pyrethroids-pyrethrins.html#related>

Work-related asthma data influence green cleaning standards

California, Massachusetts, Michigan, New Jersey



Data on work-related asthma from these four states showed that 12% of reported cases of work-related asthma between 1993 and 1997 were related to cleaning products. Most of these workers developed asthma after starting their jobs, with about 20% of them working in jobs where cleaning is the primary task. The other 80% worked in non-cleaning jobs near areas being cleaned. In response to these findings, the states came together to recommend that known asthma-causing agents be prohibited from products certified by third-party

environmental certification standards. They successfully worked with Green Seal™, an environment-focused non-profit, and TerraChoice, which manages the EcoLogo® Program, to include this prohibition in the revision of two major environmental standards for institutional, industrial, and household cleaning products: GS-37 and CCD-146. In addition, the states are collaborating with schools and hospitals to adopt safer cleaning practices and products.

Rosenman KD, Reilly MJ, Schill DP, Valiante D, Flattery J, Harrison R, Reinisch F, Pechter E, Davis L, Tumpowsky CM, Filios M [2003]. Cleaning products and work-related asthma. *J Occup Environ Med* 45(5):556-563.

Green Seal, Inc. [2009]. GS-37 Green Seal™ Standard for Cleaning Products for Industrial and Institutional Use. Fifth Edition. Washington, DC: Green Seal, Inc. http://www.greenseal.org/Portals/0/Documents/Standards/GS-37/GS-37_Cleaning_Products_for_Industrial_and_Institutional_Use_Standard.pdf

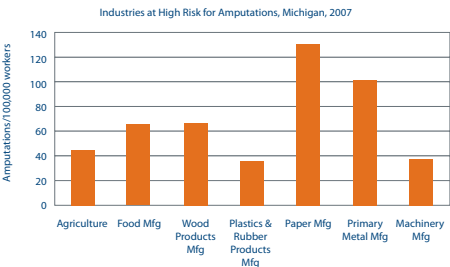
For more information on Green Seal™ GS-37:
<http://www.greenseal.org/GreenBusiness/Standards.aspx?vid=ViewStandardDetail&cid=0&sid=23>

TerraChoice, Inc. [2011]. EcoLogo® Standard CCD-146: Hard Surface Cleaners. Ottawa, Ontario, Canada. <http://www.ecologo.org/common/assets/criterias/ccd-146hardsurfacecleanersnov2010.pdf>

OSHA uses public health data to target enforcement

In a collaborative effort, Michigan State University, Michigan Department of Community Health and Michigan Department of Energy, Labor and Economic Growth reviewed hospital and emergency department medical records to identify and characterize work-related amputations in the state. This review revealed 708 work-related amputations in 2007, whereas official statistics based on employer reports identified only 160 amputations in that same year – a difference of 77 percent. The data from medical records were used to identify

Michigan



the workplaces where these amputations occurred. Michigan OSHA used this information to target its enforcement investigations at 68 companies, and violations were cited at 61 (90%) of the companies. Educational activities were also initiated to prevent future amputations.

Largo T, Rosenman K. [2009]. Work-related amputations in Michigan, 2007. Joint report from Michigan State University and the Michigan Department of Community Health. December 2009. <http://www.oem.msu.edu/userfiles/file/Annual%20Reports/Amputations/2007%20MI%20WR%20amputations.pdf>

COMMUNITY PARTNERSHIPS PROMOTE ACTION TO PROTECT WORKERS

Partners collaborate to improve trucker safety and health

Washington



A review of surveillance data by the Washington State Safety and Health Assessment and Research for Prevention program established that trucking is second only to construction in the burden and risk for lost-time workers' compensation claims. To help reduce the risks workers face in the trucking industry, the state of Washington developed the Trucking Injury Reduction Emphasis through Surveillance (TIRES) program. The TIRES program brings together multiple partners to collaborate on identifying hazards, promoting prevention and improving occupational safety and health across the trucking industry. The partnership's website

provides access to educational posters, tip sheets, true story narratives, simulation training tools and reports. The website is a popular resource, logging an average of 6,500 downloads per month. Additionally, the program has distributed materials to 750 trucking companies and stakeholders by mail, with another 290 receiving materials via the TIRES electronic newsletter. In a recent survey of trucking employers, 83% reported that they intended to make at least one change as a result of the TIRES publications.

For more information about Trucking Injury Reduction Emphasis through Surveillance (TIRES):
<http://www.KeepTruckingSafe.org>

Semi trucks redesigned for fire safety after investigation of trucker death

Kentucky



Between 2005 and 2009, 24 truck drivers died when their semi trucks crashed and caught on fire. One case investigation revealed that these fires began when diesel fuel leaked onto the exhaust pipe of the refrigerated section of the tractor. The Kentucky Fatality Assessment and Control Evaluation (FACE) program released a report on this incident, and students at the University of Kentucky College of Engineering responded by designing a fuel supply shut-

off system to prevent these deadly fires. The system alerts the driver when the fuel flow has been stopped and includes an override switch. A successful prototype has been developed and manufacturers have expressed interest in further testing of the prototype.

Kentucky FACE Program [2008]. Report #07KY070, Semi-Tractor Trailer Driver Hauling Chicken Dies After Striking A Rock Wall. <http://www.kiprc.uky.edu/projects/KOSHS/face/data/Reports/07KY070.pdf>

For more information about the Kentucky FACE Program:
<http://www.kiprc.uky.edu/projects/KOSHS/fatal.html>

PUBLIC HEALTH PROGRAMS WORK TOGETHER FOR BROADER IMPACT

Statewide public health plans expand to include occupational health and safety

Following recommendations of a community occupational health advisory group, the Connecticut Department of Public Health's Occupational Health Program met in 2008 and 2009 with different programs within the Department that were in the process of developing statewide prevention plans to determine their needs for occupational safety and health data. As a result, occupational health and safety components have been included in several statewide plans and department-wide reports, including the Connecticut Statewide Asthma Plan, the Connecticut Comprehensive Cancer Control Plan, the Connecticut Injury Prevention and Control Plan, the statewide Pandemic Influenza response plan and the 2009 Connecticut Health Disparities Report. In addition, the Occupational Health Program has partnered with the Department's Heart Disease and Stroke Prevention Program to develop the HEARTSafe Workplace certification program. The HEARTSafe Workplace program is aimed at improving the cardiovascular health of the Connecticut workforce through workplace hazard and other risk factor reduction and training in cardiac event response.

For more information on HEARTSafe, including the application to become a HEARTSafe workplace:
<http://www.ct.gov/dph/heartsafe>

Connecticut



HEARTSafe Workplace

PUBLIC HEALTH AGENCIES SERVE HIGH-RISK WORKERS

Partnership reaches out to Asian workers at nail salons

Connecticut



In 2006, the Connecticut Department of Public Health partnered with Asian Family Services, Inc., an organization that provides social and other services to the Asian community in the greater Hartford area, to address workplace hazards in nail salons and their effects on the health of Asian nail salon workers. The project involved quantifying the size of the Asian nail salon workforce in the area, determining what, if any, adverse health conditions were over-represented in this worker population and providing

educational materials and resources to assist salon owners and workers with hazard control. Twenty-eight of 35 (80%) Asian-owned and operated nail salons in the Hartford area participated in the interviews and hazard assessments. The project was successful in identifying widespread problems with ventilation in salon settings, along with problems associated with very long work hours and ergonomic issues affecting workers. The Department provided participating nail salons with information and educational materials in their language of preference (including Vietnamese, Korean and Khmer/Cambodian) about hazards present in the salon as well as how to control exposures and protect worker health.

<http://www.ct.gov/dph/occupationalhealth>

Public health coordinates multiagency effort to protect young workers

Massachusetts



When a Massachusetts Department of Public Health (MDPH) study of pediatric injuries identified a high number of work-related injuries among teens, MDPH passed regulations requiring hospitals to report work-related injuries to teens under age 18. Since 1993, MDPH has used this hospital data and workers' compensation claims to track young worker injuries. Findings have informed changes in state child labor laws, prompted changes in design of coffee making equipment and influenced changes to health and safety regulations in vocational education. MDPH also organized the Massachusetts Youth and Employment Safety (YES) Team that brings together federal and state agencies to coordinate efforts to protect working youth. The YES Team

has redesigned work permits and coordinated a public information campaign about child labor laws. Massachusetts' Department of Education, a YES Team member, has identified health and safety as a core employability skill in work-based learning programs throughout the state. The state's workforce development agency is requiring organizations that receive funds for youth job programs to provide health and safety training using the NIOSH Talking Safety or similar curriculum. MDPH has also worked with vocational educators to develop Safe Jobs for Youth, a resource to help job placement coordinators assess health and safety risks at potential worksites for student job placements.



NIOSH [2007]. Youth @ Work: Talking Safety. Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2007-136. <http://www.cdc.gov/niosh/talkingsafety/>

MDPH Occupational Health Surveillance Program, Teens at Work: Injury Surveillance and Prevention Project [2011]. Safe Jobs for Youth: Safety and Health Resources for Massachusetts Cooperative Education Placement Coordinator. Boston, MA: Executive Office of Health and Human Services, Massachusetts Department of Public Health (MDPH). <http://www.mass.gov/dph/teensatwork>

ABOUT CSTE:

CSTE works to improve the public's health by supporting epidemiologists at the state, local, tribal or territorial level. The CSTE national office and members promote effective use of public health surveillance and good epidemiologic practice through training, consultation, and capacity and standards development.

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