



# Occupational Health Watch

**Tracking California Workplace Injuries & Illnesses**

## In this issue

This past year has been very busy for California's Occupational Health Branch (OHB). We are completing activities funded by a National Institute of Occupational Safety and Health (NIOSH) grant. The grant gave us additional resources to look at repetitive motion injuries, construction falls, silicosis, and to deliver safety training to construction contractors and supervisors.

In this issue we present our work in occupational health that we believe is having the greatest impact on the health and safety of workers. We profile 11 years of fatality data in Los Angeles County, report on how flight attendants can be at risk for pesticide poisoning, how asthma is a concern for those who use cleaning products, and how large a role falls play in construction injuries.

In the future, this publication will be disseminated electronically. **If you would like to receive future electronic issues, please send an email to [occhealth@dhs.ca.gov](mailto:occhealth@dhs.ca.gov) and give us your email address.**

### Contents

Needlesticks in California	1
Falls	2-3
Lead worker case study	3
Pesticide use on airliners	4
Chemical hazard tracking	5
Protecting auto repair workers	5
Working and dying in Los Angeles	6-7
Tracking environmental hazards	8
Silicosis	8
Tailgate training	9
Asthma from cleaning products	10
Hazards of janitors' work	11
Pesticide medical supervision	11
Getting more information	12



Safety needles are designed to protect workers from needlesticks.

## Keeping track of needlesticks

California has more than 700,000 health care workers, and they reported more than 12,000 needlesticks in 2001. Every needlestick carries with it a risk of infection with hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV). These injuries and diseases can be prevented through the use of safety engineered medical devices and comprehensive sharps injury prevention programs.

In 1996 California Senate Bill 2005 created the Sharps Injury Control Program (SHARPS) in OHB; SHARPS became a permanent program in 2001 with the later Midgen Bill. The purpose of the SHARPS program is to collect and provide information that helps health care workers and employers reduce the risk of sharps injuries. To accomplish the goals of the program, OHB:

- Maintains the California List of Needleless Systems and Needles with

Engineered Sharps Injury Protection (ESIP);

- Collects data on needlesticks to learn about the trends in sharps injuries among California acute care hospitals;
- Evaluates user satisfaction with selected safety enhanced needle devices through focus groups with clinicians;

lected safety enhanced needle devices through focus groups with clinicians;

- Consults with health care facilities, health care workers and employee representatives on the

Bloodborne Pathogen Standard, sharps exposure incident documentation, and interpretation of sharps exposure incident data; and

- Collaborates with Cal/OSHA by sharing injury data and jointly reviewing ESIP devices for the website device list.

Please visit our website at [www.sharpslist.org](http://www.sharpslist.org) or call (510) 622-4397 for more information.

**In 2001, California health care workers reported more than 12,000 needlesticks.**

# Ladder falls injure many in construction

Many hazards exist on construction worksites, though none is as common and deadly as falls from elevation. OHB is working to address the problem of falls through a statewide tracking project on nonfatal construction-related falls. Fall cases are identified and counted from Doctors' First Reports of Occupational Illness or Injury (DFRs), a mandatory reporting system for work-related medical care. Now, OHB has detailed information on all reported construction-related falls. Here is what we know:

OHB identified more than 4,300 falls from elevation in the construction sector from January 2001 through June 2003. The most common industries and occupations associated with these falls are shown in the table above.

## Ladders are risky

Ladder falls were more common than any other type of fall (37% of all falls), but other fall dangers included falls from, out of, or through buildings or structures (20%); falls from one level to another (15%); and falls on or from scaffolding (13%).

Ladder falls are currently a focus area for follow-up work since they are so common and often serious. OHB staff are contacting English- and Spanish-speaking construction workers who fell from ladders to collect detailed information on work task, equipment, use of fall protection systems, and ways to prevent falls. Project researchers are finding that ladders are often used in-

Industry	Percentage
General Contractors - nonresidential	17
General Contractors - single-family houses	14
Plastering, drywall, acoustical and insulation	13
Plumbing, heating and air conditioning	10
Roofing, siding and sheet metal work	9
Occupation	Percentage
Carpenters, except apprentices	18
Construction laborers	17
Construction (not specified)	16
Roofers	7
Painters, construction and maintenance	6

correctly or for unsuitable tasks.

OHB has conducted 165 interviews with workers who have fallen from ladders. The distribution of industries and occupations with ladder fall cases (see table below) was slightly different than the distribution for all falls from elevation.

Using the interview data, OHB took a closer look at the demographics of those construction workers who fell. All

Industry	Percentage
General Contractors - single-family houses	29
Plumbing, heating and air conditioning	17
Electrical	12
General Contractors - nonresidential	11
Painting and paper hanging	9
Occupation	Percentage
Carpenters, except apprentices	23
Construction laborers	13
Painters, construction and maintenance	12
Electricians, except apprentices	10
Plumbers, pipefitters, steamfitters, except apprentices	9

of the interviewed cases were men. Their ages ranged from 18 to 61, with an average age of 35. Eighty percent of the interviewed cases worked on non-union jobs.

## Recommendations

Based on the common risk factors found in the project, OHB recommends that:

- **Ladders should be used to gain access to work areas, not as work platforms.** Whenever possible, substitute other types of access equipment (scaffolds, mobile

lifts) if a work platform is needed.

- **Workers should check ladders for defects before using them,** and maintain three points of contact (hands or feet) while on the ladder.

- **Workers should never carry tools or materials in their hands while climbing.** Instead, workers should wear a tool belt.

- **Employers should provide regular training on ladder safety** for workers who use ladders.

- **Workers should place ladders on debris-free, hard, even surfaces.**

- **Workers should secure the top and bottom of extension ladders** to prevent common causes of ladder falls.

- When using extension ladders, **workers should pay careful attention to ladder placement,** making sure that the angle is 75 degrees.

## Falls case studies: Little difference between life and death

### Fatal stepladder fall

Fall hazards are present at most jobsites, and many workers are exposed to these hazards daily. Any walking or working surface is a potential fall hazard. OHB recently investigated the death of a worker who fell off an 8-foot stepladder.

The victim, a 46-year-old male sheet metal worker, was installing a fire damper in the end of a sheet metal duct when he fell. To reach the end of the duct, the victim used an 8-foot, Type I (250 pound maximum load) stepladder. A co-worker stated that, after about three tries to make the connection, the victim had his right foot on the fifth ladder step and his left foot on the step above. In the struggle to make the connection, it appeared to the co-worker that the victim may have extended himself out too far or lost his balance. The ladder spun, tangling the victim's feet in the steps. The victim fell head first to the concrete floor, striking his head on the edge of a metal floor plate.

#### What Was Learned?

Employers should:

- **Ensure employees use ladders in a safe manner.** Stepladder users should keep their body weight inside of the rails.
- **Ensure employees reposition lad-**

**ders or use alternative means to access work safely.** Ladders should be repositioned so the work is directly over the ladder, or alternative means of accessing overhead work should be provided.



This worker is using a stepladder incorrectly. It should be fully open with spreader arms locked.

### Nonfatal stepladder fall

OHB staff interviewed a 30-year-old carpenter who fell nine feet from a stepladder. He was standing on the top rung of the ladder while using both hands to cut a board that was sticking out from the roof. Although the ladder never moved, the worker lost his balance and fell to the ground. The injuries he sustained caused him to miss seven weeks of work. During the interview, the worker suggested that a mobile scaffold, which was available on his jobsite, should have been used.

This carpenter had several risk factors for a fall. Ladders are designed for access, not as work platforms. Ladder users should maintain three points of contact (two hands and one foot, or two feet and one hand) at all times. This worker, however, was using both hands to saw, causing him to lose his balance. It is also against Cal/OSHA regulations to stand on the topcap or the step below the topcap of a stepladder without having proper handholds or fall protection. Ladder users should never step beyond the second step from the top. Other risks included carrying more than five pounds (his saw was seven pounds), and not having ladder safety training in the preceding year.

## Case study: Contract workers at risk for lead poisoning

In 2002, a sheet metal worker in Los Angeles County discovered his blood lead level was a very high 61 ug/dl. His employer has a niche market maintaining duct work and cleaning out filters in lead battery manufacturing facilities. The worker had just spent six months in what he described as a "hot, dirty battery facility" in Arizona. He had received little lead safety training or protection.

When OHB received the results of his blood lead test, we talked with the employer who then agreed to test all 28 of his field maintenance workers for lead. The results showed that 20 workers had blood lead levels above 25 ug/dl, and five

were above 40 ug/dl. The five above 40 ug/dl received medical follow-up as required by Cal/OSHA.

OHB investigators encouraged the company to use Cal/OSHA Consultation Service to help them completely revamp their lead safety program. They also hired an onsite safety supervisor and contracted a trainer to provide a full day of safety training to their employees. The company now has a lead safety program they are proud of and all but one worker has a blood lead level below 25 ug/dl.

In this case, the challenge to bringing down blood lead levels was that the workers were contracted out to various

high lead hazard facilities where they had no supervision and no lead safety program. Since 1998, these contracting companies can be cited under the Cal/OSHA Multi-employer Regulation if a contract worker gets injured or poisoned. Companies need to make sure the contractor they hire has a lead safety program in place prior to beginning work.

#### What was learned?

- Contract workers are at risk for lead poisoning as they often work unsupervised in high lead hazard areas.
- Companies are liable for the safety of any contract employee under Cal/OSHA's Multi-employer Regulation.

## Pesticide use onboard airliners poses health risks

Flight attendants have suspected for years that pesticide exposure on aircraft may pose health risks to themselves and other people onboard. OHB's pesticide illness tracking project, conducted through the support of the National Institute for Occupational Safety and Health (NIOSH) and the U.S. Environmental Protection Agency (EPA), led researchers to document the first cases of flight attendants' illnesses due to exposure to pesticides routinely used onboard some commercial aircraft.

### **What was learned?**

For many years, permethrin, a pesticide that is toxic to the nervous system, has been used on some aircraft to kill insects that carry diseases that might pose a threat to people, plants, and animals. This process is called "disinsection." After receiving reports from physicians that some flight attendants were becoming sick after pesticide exposure, OHB began investigating and identified 12 flight attendants on three flights who developed work-related pesticide illnesses. All cases in-

involved exposure to a pesticide formulation that was applied to aircraft flying from Sydney, Australia to Los Angeles between August 2000 and March 2001. The flight attendants experienced a variety of symptoms—including skin, eye, and upper respiratory irritation and pain—that resulted from pesticide exposure.

Australia requires aircraft that arrive from other countries to be treated with a long-lasting pesticide formula-

tion every 56 days. Although the U.S. does not require airlines to use pesticides to kill harmful insects onboard aircraft, U.S.-based airlines are required to perform this procedure to comply with quarantine procedures of other countries, including Australia. As of 2003, 18 countries required aircraft disinsection on all or selected inbound flights; many require the use of an aerosolized spray while passengers are still onboard.

The aerosolized pesticide is typically sprayed into the cabin air and onto

to tell passengers of pesticide use. Alerting passengers beforehand would give them the choice to opt out of this pesticide exposure prior to ticket purchase. Compounding the issue is that the available data suggest that spraying pesticides in aircraft cabins may not be very effective in preventing insect-borne diseases.

As these cases demonstrate, disinsection can pose a health hazard for flight attendants. The findings could also have health implications for passengers in general, because passengers are often exposed to these pesticides

without their knowledge. Moreover, these documented illnesses likely understate the health risks of disinsection because few people know pesticides are used in aircraft cabins, recognize symptoms of pesticide poisoning, and know where to report the illness.

### **What should be done?**

National and international health officials need to take quick action to find sustainable, nontoxic alternatives to control insects in aircraft cabins. The U.S. Department of Transportation is currently testing the feasibility of

air curtains; these tests are promising and should continue to be pursued. Industries, workers, passengers, and others who are impacted by disinsection should vigorously support these measures. In the interim, airlines should undertake measures to reduce worker and passenger exposure.

For more information and our full report on aircraft disinsection, please visit [www.afanet.org/afa/aefiles/disinsection.pdf](http://www.afanet.org/afa/aefiles/disinsection.pdf).



**Currently, airlines do not notify passengers if planes have been sprayed with pesticides.**

cabin surfaces, including carpeting, seats, and bathrooms, where it can eventually come in contact with people, either through the skin, inhalation, or ingestion.

Pesticides in aircraft cabins could be especially dangerous for some people, like young children and people with chronic diseases and lowered immunity, who are more susceptible to the health impacts of pesticides than others. Airlines are not currently required

## Chemical tracking and hazard alerts keep workers healthy

Since 1979, OHB has served as California's "early warning system" for workplace chemical hazards. OHB tracks scientific information on toxic chemicals and issues hazard alerts when new information reveals that workers may be at risk for long-term health problems like cancer or asthma. For example, an OHB hazard alert on ethylene oxide, a gas used in hospital sterilizers, warned the health care industry of new risks of cancer and miscarriages. An alert on glycol ether solvents provided early warning to the semiconductor industry that workers were at risk for reproductive damage.

In response to OHB alerts, Cal/OSHA develops protective occupational health standards to reduce workers' risks of chronic disease. In some cases, use of chemicals in targeted in-

dustries declines dramatically.

While OHB continues to assess new workplace chemical hazards, it has become increasingly difficult to find out where specific chemicals are used in California. New industries bring with them new uses of existing chemicals and newly exposed workforces. Environmental regulations to control air pollution often result in developing new, unregulated chemicals. Some of these chemicals, such as 1-bromopropane, are later found to be toxic to workers.

To be effective, OHB hazard alerts have to be received in a timely manner. This requires knowing where specific hazardous chemicals are produced and distributed, and quickly identifying businesses that use the chemicals.

OHB tested and evaluated existing chemical hazard tracking systems to

determine whether statewide information on the purchase and use of hazardous chemicals is accessible. Results showed that none of the existing tracking systems are adequate for identifying workplaces where specific toxic chemicals are used.

Although businesses are required to submit hazardous materials inventories to local agencies, these data are not computerized, easily accessed, nor compiled on a statewide basis. Direct requests to manufacturers and importers to voluntarily submit their client lists for the test chemicals were unsuccessful. Requiring client lists of hazardous chemicals, or making inventory data available on a statewide basis, would help ensure that workers and employers receive OHB alerts in a manner timely enough to keep workers healthy.

## Protecting workers and preventing pollution in auto repair

There are more than 31,000 automotive repair shops in California. These shops routinely buy and use a variety of aerosol cleaning products, which contain toxic solvents that can pollute the environment and damage health. It is difficult for auto repair facilities to know which aerosol products are safe for workers and the environment due to the lack of health and safety information and changing product ingredients.

In 2001, OHB issued a health hazard advisory after learning that auto mechanics developed nerve damage from using aerosol brake cleaners containing the toxic solvent hexane. Ironically, hexane originally had been added to brake cleaners to replace chlorinated solvents that cause environmental pollution. After the alert, many manufacturers removed hexane from their products, but some replaced hexane with other toxic solvents. Despite OHB's efforts, aerosol cleaners with toxic solvents continue to be popular in auto repair shops because they help mechanics clean parts quickly. Some water-based aerosol cleaning products have

been developed as safe substitutes, but are not widely used.

To change this situation, OHB—

with funding from the U.S. EPA—is working on a project to identify safe and effective substitutes. With the Institute for Research and Technical Assistance (IRTA), OHB is testing non-toxic aerosol cleaners in 14 auto repair facilities to identify cost-effective cleaners that perform well, and to compare their cleaning abilities with those of solvent-based aerosol cleaners. OHB is also developing educational materials to help auto repair shops deal with key health and safety problems, and learn how non-toxic aerosol cleaners can help protect workers' health and prevent pollution.

Through interviews with employers, workers, and other industry stakeholders, and review of workers' compensation and Cal/OSHA compliance data, OHB is learning more about health and safety issues and effective ways to communicate health and safety information. OHB hopes that the lessons learned from this project will convince other industries that switching to non-toxic substitutes protects workers, prevents pollution, makes safety and environmental compliance easier, and is cost-effective.



**Mechanic cleans brake parts with an aerosol cleaner.**

# Working and dying in Los Angeles County:

On average, 16 workers die each day in the United States as a result of a traumatic injury on the job. OHB's Fatality Assessment and Control Evaluation (FACE) program works to understand the causes of work-related deaths in California and provides safety information that will save lives in the future. Specifically, FACE's goal is to prevent occupational fatalities across the nation by:

- Identifying workplace fatalities.
- Investigating specific types of events to identify injury risks.
- Making recommendations designed to control or eliminate identified risks.
- Providing injury prevention information to workers, employers, and safety and health professionals.

Of the 15 states with a FACE program, California is the only one that focuses its efforts on a single county – in our case, Los Angeles County, where 24% of California

## Case study: Falling vehicles kill!

OHB investigated two fatalities of auto repairmen who were crushed by the vehicles they were working under.

The first fatality involved a mechanic who died when a bus fell off jack stands and crushed him. He had jacked the bus up with lifts that cradle each rear tire. He then placed non-standard jack stands underneath the rear suspension. The bus slipped off the jack stands as he was fixing the brakes. The bus crushed the mechanic between the rear axle and the concrete floor. Because vehicles may move if the chocking is inadequate, at a minimum, chocks should be placed on both sides of the wheel diagonally opposite of where the jack is placed.

In another investigation, a mechanic died when a forklift slipped off a jack and hit him in the head. The mechanic jacked up the forklift using a hydraulic jack. He



occupational fatalities have occurred since 1992. If LA County were a state, it would rank 15th compared to other states in number of occupational fatalities. On average, approximately one worker dies every three

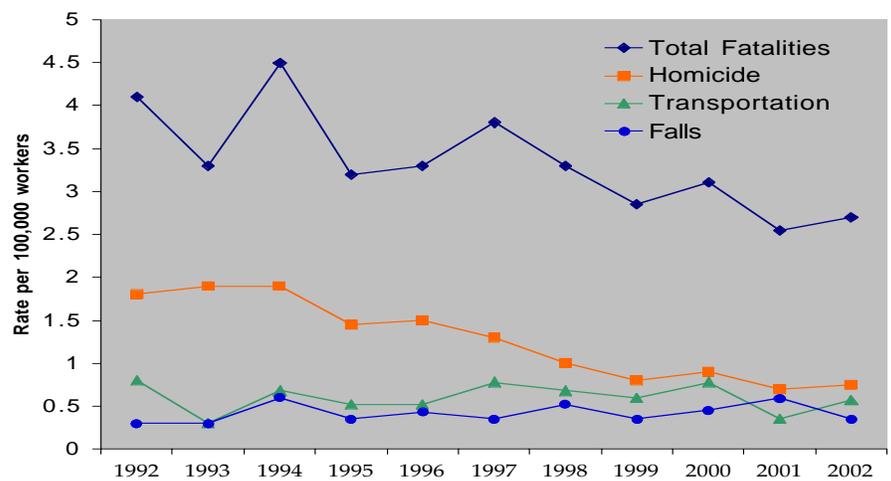
days in LA County. did not use jack stands or cribbing to support the forklift. The area under the forklift had a slight incline and the victim chocked only one wheel of the forklift with a wooden block. The forklift slipped while the victim was lying on a creeper underneath the forklift.

Some workers may assume they can safely work underneath vehicles that are only supported by a jack. Jacks should not be the only support of a vehicle when someone is underneath that vehicle. They should be used to lift the vehicle enough so that additional support can be positioned.

### What was learned?

- Support vehicles adequately. Use cribbing or jack stands that meet the American Society of Mechanical Engineers' standard.
- Prevent vehicle movement. Work on level surfaces and adequately chock the vehicle's wheels.

External Cause of Death Rates by Year, 1992-2002



days in LA County.

During the years 1992 through 2002, there was a significant downward trend in both fatality and homicide rates (see chart above). In fact, work-related homicides in LA County decreased 56%, and non-work-related homicides decreased 40% during 1992-2002. This is mirrored nationally, where work-related homicides decreased 43% during this time. While homicide rates went down, fatalities involving transportation or falls in LA County did not significantly change upward or downward in that same period.

The leading causes of death over the 11 years included homicide (37%), transportation (18%), falls (12%), machine accidents (6%), and suicide (6%). Homicide accounted for 87% of deaths for supervisors of sales occupations, 80% of security guard deaths, and 91% of cashier fatalities. Workers who are most likely to fall victim to robbery-associated homicides are those that handle cash. Also, working alone in high crime areas or selling or guarding valuable property are other factors that may lead to increased risk of homicide.

In LA County, the construction industry had the highest fatality rate of any industry division (18.1 per 100,000 workers), followed by agriculture, farm and fishing (15.1), and mining (9.9). Nation-

# Eleven years of FACE investigations

ally, the construction industry accounts for about 7% of all employment, but 20% of fatalities. Falls were the number one cause of death for construction workers in LA County.

Longshoremen had the highest fatality rate of all occupations (see chart below). They died mostly from accidents with cranes, backing vehicles, and falls. All airplane pilots' deaths involved small aircraft. They were working on oil line inspection, performing fire suppression drops, and piloting chartered helicopters and small airplanes. Roofers died mostly from falls. Taxicab drivers, police, sheriffs, and security guards died mostly from homicide. Taxi drivers are particularly vulnerable because they work alone, go to secluded areas at night, and have cash on-hand. Risks associated with being a police officer, such as pursuing speeding or fleeing motorists, apprehending criminals, and dealing with public disorder are notoriously dangerous.

The Latino population is almost 12% of the U.S. population, and accounted for 37% of the country's population growth between 1990 and 1999. Along with the phenomenal growth rate came unsettling news. The fatality rate for Latino workers during 1992-2002 in LA County was greater than it was for non-Latino workers (39.4 versus 26.4). Nationally, the fatality rate for Latino employees climbed by more than 11% in 2000, while death rates of all other groups declined.

Overall, fatalities in the construction industry dropped 3% for the first time since 1996, but deaths among Latino workers rose 22%. Because Latino workers are injured and killed in a higher proportion than other workers, OSHA has decided to address the issue. It has included \$5.2 million in its 2004 budget to be used to increase outreach to Latino workers. The FACE program, in step with OSHA, has also set Latino worker fatality investigations as a priority to identify risks and make recommendations to control or eliminate risks to Latino workers.

## Case study: Unique risks found in highway work

Highway and street construction work is dangerous since most highway work takes place near passing motorists, construction vehicles, and equipment. Highway workers, regardless of their task, work in conditions of low lighting, low visibility, and inclement weather, and may work in congested areas with exposure to high traffic volume and speed. Each year, more than 100 U.S. workers are killed and over 20,000 are injured in the highway and street construction industry. OHB investigated the following fatality.

A 27-year-old general laborer died when a speeding vehicle struck him as he picked up traffic cones at a construction site on an interstate highway. The victim was in a man-bucket attached to the rear of a flatbed truck. This truck was traveling in reverse as the victim was picking up the cones between the third and fourth lanes and placing them on the bed of the truck.

A speeding vehicle knocked down more than 300 feet of traffic cones before colliding with the rear of the truck, which was equipped with flashing lights and an arrow board. There was no traffic control truck between the speeding vehicle and the flatbed truck to prevent the collision. Visibility at the time of the incident was limited due to



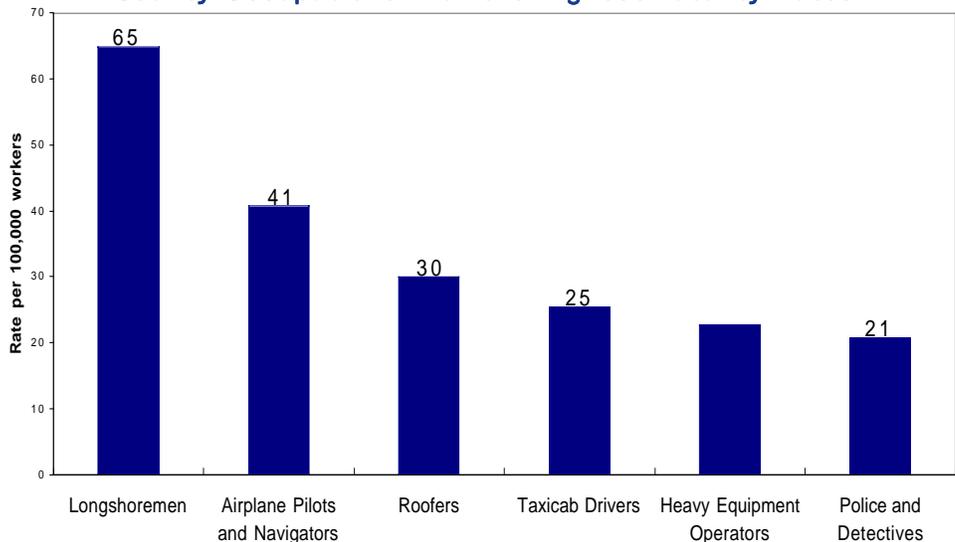
the time of night. There were no signs telling motorists to reduce their speed, and there were no law enforcement vehicles assigned to the construction site.

### What was learned?

For work zones on interstate highways:

- Reduce the speed limit.
- Require the availability of traffic control trucks with impact attenuators.
- Put Highway Patrol officers near work zones.
- Use artificial lighting to improve visibility during night construction.

LA County Occupations with the Highest Fatality Rates\*



\*Rates cover 1992-2002 and are not calculated for occupations with fewer than six fatalities

### Tracking environmental hazards and workplaces

The public is very concerned about chemicals in the environment and how they may impact their health. News stories highlight issues like mercury in tuna, chemicals in breast milk, and increases in asthma rates.

In October 2001, State Senator Martha Escutia and the California Legislature took action by passing Senate Bill 702 (SB 702). The bill called for the convening of a working group of technical experts to devise an “environmental health surveillance system” to monitor Californians’ health. Three state agencies directed the effort.

To start, the SB 702 Expert Working Group (EWG) defined environmental hazards as chemicals, physical agents, and biological toxins that may adversely impact health and are present at work, at home, outside, or at other places we spend time. In February 2004, the EWG released their report, which highlighted several areas related to workplace health and safety. It recognized that many chemical hazards that end up in the air, water, or consumer products originate in the workplace. Since workers are often exposed at higher levels than the general public, it is easier to link their health outcomes to specific chemicals.

The EWG also concluded that we have a limited ability to describe which hazardous chemicals are used in California. This type of information is urgently needed by OHB and others so that when new hazards are identified, we can better direct hazard alerts to the employers and workers who need to know in order to control exposure.

It will be an ambitious undertaking to implement an effective environmental health surveillance system to protect the health of California’s workers and the public. The Legislature has received this report and new legislation is expected. The complete report can be found at [www.catracking.com](http://www.catracking.com).



Several shops in Oakland, CA are demolished creating dust from brick, stucco, and plaster, all of which contain silica.

## Silicosis continues in California

Silicosis is a disabling, irreversible lung disease caused by breathing crystalline silica particles, which can trigger scar tissue to develop in the lungs. Silica is the second most common mineral in the earth’s crust, and can be found in sand, rocks, glass, and building materials, like cement and stucco. More than a million workers are exposed to crystalline silica in the U.S., and hundreds die each year. Silicosis, one of the oldest occupational diseases, continues to occur in California today. It cannot be cured, but it can be prevented. OHB counts work-related silicosis cases in California with funding from NIOSH.

By using reports from hospitals and lung specialists, OHB found 251 cases diagnosed with silicosis between January 2000 and June 2003. OHB has interviewed 73 of the 251 cases so far. Through the interviews, OHB found that the top six industries for silica exposures were stone, clay, glass, and concrete products manufacturing (18%); mining and quarrying of nonmetallic minerals, except fuels (14%); metal mining (14%); special trade contractors in construction (8%); contractors for heavy construction other than buildings (7%); and primary metal industries manufacturing (6%). Some of the most common occupations

were operating engineers (7%), mining machine operators (6%), welders and cutters (6%), explosives workers (4%), other mining occupations (4%), and non-construction laborers (4%).

One of the key industries still causing silicosis in California is sand and gravel mining. In a particular case, a 58-year-old man worked as an operating engineer in a rock quarry from 1985-1995 and was exposed to silica dust. He stated in the interview that the environmental cabs on the equipment he used were defective—the filtering systems never worked, and they had to open the doors and windows because the air conditioning did not work, causing the cabs to fill with rock dust. This man never smoked, but had the most severe form of silicosis called progressive massive fibrosis.

This example highlights the continuing silicosis danger found in various industries throughout California. Despite the known hazards of silica, frequent silica overexposures leading to silicosis still occur. Identification of the industries and occupations where workers are most often exposed to silica in California is helping OHB focus its efforts to provide information and recommendations where they are most needed to protect worker health.

## Effective tailgate trainings make a difference on the jobsite

People working in small construction companies wear many hats. One person may act as owner, project designer, bidder, safety manager, and foreman, all in the same day. Many times the person in charge of safety has to juggle safety training with getting contracts, ordering materials, supervising workers, and getting the work done. With so many responsibilities, it is difficult to conduct effective safety trainings. There are also issues of finding the time to train, selecting a topic, finding materials to use in the training, and training in the languages of the employees.

Although being the safety manager is a difficult job, it is vital in the construction industry, which typically has among the highest number of fatalities and nonfatal injuries and illnesses of all industries. In fact, safety training is so important that Cal/OSHA requires that employees in construction receive tailgate training at least once every ten working days.

In 2002, OHB began the BuildSafe California Project to help construction companies improve their safety programs in the area of tailgate trainings. We have conducted 21 half-day training programs throughout the state that help contractors and supervisors deliver more effective tailgate trainings.

As a resource for training participants, we produced a health and safety tailgate training kit in English and Spanish. The kit consists of Safety Break cards that cover 23 general safety topics relevant to most construction trades and are linked to information in the *Cal/OSHA Pocket Guide for the Construction Industry*. It also includes instructions on how to use the cards and how to design customized tailgate trainings to meet companies' needs. These cards are simple to use and field-tested to improve the quality of tailgates.

We conducted these trainings in collaboration with the State Compensation

Insurance Fund and Cal/OSHA Consultation Service. In addition to these partnerships, OHB had the endorsement and support of 15 contractor associations and the building trade union organization.

Those who attended our trainings also heard from Cal/OSHA on what they expect from employers to ensure worker safety. Fellow contractors described

**“You and your team did an excellent job at training, hitting on the important topics in a short period of time.”**

*-contractor who attended BuildSafe*

their approaches to tailgate trainings and creating a safety culture.

At each training we discussed solutions to issues such as the most effective way to do tailgates when employees are at multiple sites, when and where to conduct tailgate trainings, how to obtain management's commitment, and how to

motivate foremen and employees. We also covered increasing crew participation, overcoming language and cultural barriers, and finding good safety and health information.

More than 1,300 contractors, foremen, safety coordinators, and union representatives took advantage of these trainings and enhanced their abilities to be more effective tailgate trainers.

One contractor who recently attended wrote to us, *“You and your team did an excellent job at the training, hitting on the important topics in a short period of time. Following your program we will move from going through the motions at tailgate meetings to implementing meetings that coincide with the tasks being performed at the time. I am going to tailor a six-month tailgate program that follows the sequence of events in the building work we do. Thanks for your efforts.”*

There are no currently scheduled trainings, but you can obtain the Safety Break cards and other free health and safety resources at the OHB website, [www.dhs.ca.gov/ohb/Buildsafe](http://www.dhs.ca.gov/ohb/Buildsafe).



Contractor discusses with peers how to improve tailgate trainings.

## Cleaning products can trigger work-related asthma

John Jackson (not his real name) was 55 years old and had worked as a custodian for a large urban school district for 18 years when he was assigned to clean a high school building that had large amounts of graffiti. He used several different graffiti-removal products for up to four hours a day, five days a week. He had to frequently clean graffiti in tight, poorly ventilated spaces, such as bathroom stalls and stairwells. He never received any information about the cleaning chemicals he used or how to use them safely. He developed symptoms of wheezing, cough, and chest tightness. His symptoms were worse while he was using the chemicals. His doctor gave him a diagnosis of work-related asthma (WRA). Even after he quit his job on his doctor's advice, his symptoms continued.

Mr. Jackson is one of nearly 400,000 people in California who work with cleaning chemicals regularly and are at risk for developing asthma from their jobs. A study funded by the U.S. EPA found the average janitor uses 28 gallons (234 pounds) of chemicals each year; 58 of these pounds are considered hazardous.

Using our own data, OHB found that the rate of WRA among janitors and cleaners is nearly double the rate in the overall workforce. In addition to the workers using cleaning products, many more workers are at risk of asthma problems from "bystander" exposures, or being exposed to cleaning chemicals that were used by other workers in or near their work area.

The states of California, Massachusetts, Michigan, and New Jersey are currently supported by funds from NIOSH to collect data on WRA. The recent publication "Cleaning Products and Work-

related Asthma" examined reports of WRA from the years 1993-1997 that were associated with exposure to cleaning products in these four states. Results showed that 12% of all confirmed cases of WRA reported to these states were associated with cleaning products.

Eighty percent of workers in these cleaning product cases had not had asthma before, but developed asthma because of workplace exposures. Workers with WRA associated with cleaning products were likely to be women



This janitor uses cleaning products to clean a medical clinic.

(75%), working most commonly in medical settings (39%), schools (13%), or hotels (6%).

While it was common for workers like janitors or cleaners to be exposed while using the cleaning products (22% were janitors or cleaners), many workers who developed asthma did not use the products. Rather, they were exposed because others used cleaning agents in their work area (20% were nurses/nursing aides; 13% were clerical workers).

In most cases, the potential asthma-triggering agent was not a substance previously reported to cause occupational asthma. In 36% of the cases, specific cleaning products were unknown and described in general ways, such as

"cleaning chemicals" or "carpet cleaner." Over one-third of the cases could not identify what caused their asthma.

These findings show that work-related asthma associated with cleaning products is a significant problem. Currently, there is no routine testing of cleaning products or their ingredients for their ability to cause asthma. **However, there are effective ways to prevent asthma and other health effects caused by cleaning chemicals:**

- **Some workplaces may be able to prevent worker exposures by decreasing the need for frequent cleaning through changes in work practices.** For example, anti-graffiti coatings can be used on surfaces, which decrease the need for labor-intensive cleaning to remove graffiti.

- **Whenever possible, the safest cleaning products possible should be chosen for cleaning tasks.** Several organizations now offer information on safer substitutes for a variety of cleaning chemicals. The least toxic product should always be used. For example, disinfectants should not be used for jobs where simple soap and water are adequate.

- **Workers should be trained and provided with the Material Safety Data Sheets (MSDS) for products they use.** They should be provided with appropriate personal protective equipment such as gloves and eye protection.

- **To protect bystanders, advance notice should be given before cleaning work areas, and adequate ventilation should be used to remove residual cleaning chemicals before workers re-enter the area.**

Now that cleaning agents are known to be potential triggers for work-related asthma, these and other steps can be taken to protect workers from this important exposure in the workplace.

## Janitors face health and safety hazards

In California, more than five million people have jobs that pay less than \$10 an hour. These low-wage workers—garment workers, janitors, and restaurant and food service employees—are mostly immigrants, minorities, and non-union. Most lack basic knowledge of health and safety regulations. Though frequently at high risk of workplace injury and illness, low-wage workers often do not complain or seek medical treatment. They may fear retaliation by employers, deportation, or denial of citizenship.

The Commission on Health and Safety and Workers' Compensation funded the University of California San Francisco's Occupational and Environmental Health Nursing Program, in partnership with OHB, to identify worksite hazards and barriers that low-wage workers face in accessing the workers' compensation system and health care for occupational illnesses and injuries. Working with Bay Area janitorial companies, OHB's role in this project was to identify strategies for implementing effective health and safety programs. Some of the hazards that OHB identified through evaluating job tasks and conducting worker and employer interviews are described below.

**Chemical Hazards** – Many cleaning products can cause skin, eye, and lung irritation or more serious illnesses affecting the brain and other organ systems. Workers are often poorly trained on these chemical hazards and are not given the right protective equipment (e.g., gloves, goggles).

**Ergonomic Hazards** – Cleaning tasks, such as mopping, window cleaning, and emptying trash, are often repetitive, require force or heavy lifting, and involve awkward postures that can cause muscle and skeletal injuries.

**Bloodborne Hazards** – Janitors can be exposed to contaminated needles and body fluids while emptying trash and



cleaning patient areas in clinics.

**Safety Hazards** – Janitors often have fall injuries from working on wet and slippery surfaces.

**Security Hazards** – Janitors are at risk for robbery or being mistaken for burglars since they are often the only people in a building after working hours.

Most of the worksites OHB visited lacked effective health and safety programs. Employers cited lack of time and financial resources, and not knowing who to ask for help as barriers to implementing health and safety programs.

### **Recommendations:**

**Provide effective worker training.** Train workers on the hazards described above at time of initial hire and at least annually. Reinforce concepts during safety meetings. Since many janitors do not speak English, trainings should be conducted in the appropriate language.

**Use the right cleaning tool.** For example, use a mop with an adjustable handle to decrease awkward postures for workers of different heights, or a dust mop with a telescoping handle to decrease reach distances for dusting higher surfaces. Many ergonomic cleaning tools are now available.

**Use the right protective equipment** such as chemical resistant gloves for handling cleaning products and chemical goggles while spraying these chemicals.

## Monitoring pesticide exposure

California regulations state that agricultural workers who mix, load, or apply highly toxic cholinesterase-inhibiting pesticides for more than six days in any 30-day period must be in a program that monitors their exposure. Cholinesterase tests show if someone has been exposed to cholinesterase-inhibiting pesticides by measuring the blood levels of a substance that is needed for proper nerve function.

According to regulations, workers must have an initial test before applying these pesticides, and periodic testing thereafter. They also state how far a worker's cholinesterase level can drop before interventions, like temporary removal from work, are required.

OHB studied cholinesterase tests for 255 workers from 2000-2002. The tests were from workers in industries such as structural pest control, hazardous waste site inspection, and fire protection. However, most were agricultural workers in Medical Supervision Programs (MSP), which require agricultural employers to contract with a physician to test workers' cholinesterase levels.

We found that most workers were not seen by a physician. Physician evaluation was more likely if workers were non-agricultural, being tested voluntarily by their employers, or being evaluated for a suspected illness. Workers who were part of a MSP were less likely to be evaluated by a physician. More than half of interviewed workers and one-third of interviewed physicians said that when workers did meet with physicians, neither the reason for the test nor the results were discussed.

### **Recommendations:**

- Require training and certification for Medical Supervisors.
- Require Medical Supervisors to evaluate and counsel workers regarding the reasons for their tests, and notify them of their results.

# Occupational Health Watch - A publication on worker health and safety in California

Funding for this publication is provided under a cooperative agreement with the National Institute for Occupational Safety and Health

Arnold Schwarzenegger, Governor  
 State of California  
 Kimberly Beishé, Secretary  
 Health and Human Services Agency  
 Sandra Shewry  
 Director, Department of Health  
 Services



California Department of Health Services  
 Occupational Health Branch  
 1515 Clay Street, Suite 1901  
 Oakland, CA 94612  
 Tel. (510) 622-4300  
 Fax (510) 622-4310  
[www.dhs.ca.gov/ohb](http://www.dhs.ca.gov/ohb)

## Occupational Health Branch Mission Statement

To promote a safe and healthy work environment for all Californians through a comprehensive and effective program of prevention activities, public health leadership, scientific excellence, and collaboration with stakeholders.

## OHB Public Information Lines

### OHB Reception Desk (510) 622-4300

For general information, to add your name and email address to this publication's mailing list, or to order other OHB publications.

### Workplace Hazard Helpline (510) 622-4317

Provides information to assist in identifying, understanding, and preventing workplace health and safety hazards.

### Lead in the Workplace Information (510) 622-4332

Provides information in English and Spanish about work-related lead poisoning and how to prevent it.

*For more information and educational materials, visit the websites listed below.*

#### **SHARPS**

[www.sharpslist.org](http://www.sharpslist.org)

#### **Construction tailgate training**

[www.dhs.ca.gov/ohb/BuildSafe](http://www.dhs.ca.gov/ohb/BuildSafe)

#### **Chemicals in the workplace**

[www.dhs.ca.gov/ohb/HESIS/hesispub.htm](http://www.dhs.ca.gov/ohb/HESIS/hesispub.htm)

#### **Asthma**

#### **Graffiti removal**

[www.dhs.ca.gov/ohb/OHSEP/graffiti.pdf](http://www.dhs.ca.gov/ohb/OHSEP/graffiti.pdf)

#### **Pesticides**

[www.dhs.ca.gov/ohb/OHSEP/ohseppub.htm](http://www.dhs.ca.gov/ohb/OHSEP/ohseppub.htm)

To obtain a copy of this document in an alternate format, please contact:

OHB at (510) 622-4300  
 or CA Relay Service at (800) 735-2929

Please allow at least 10 working days to coordinate alternate format services.