



Occupational Health Watch

Tracking California Workplace Injuries & Illnesses

Our first issue

We at the California Department of Health Services, Occupational Health Branch (OHB) have created this annual newsletter to share our findings with unions, employers, trade groups, employee organizations, health care providers, and others who share our interest in occupational health.

Since so much of what we do is in collaboration with you, "our partners," we wanted to share the results of some recent collaborations, and our information on hazards and controls with you. We hope this information will prove useful for promoting health and safety in the workplaces in which you are involved. In turn, we hope to hear from you about the hazards affecting your industry, particularly if we can be of assistance.

This inaugural issue uses 1999 data, the most recent data available, to look at what OHB and our partners did to promote safer workplaces, and at what more could be done.

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Occupational Health Branch promotes healthy workplaces

The California Department of Health Services, Occupational Health Branch (OHB) recently received the results of a worker's blood test showing lead levels far higher than normal. The tested worker was a house painter who had been sanding lead-based paint.

Conversations with the worker and his employer revealed that many appropriate steps had been taken to control workers' exposure to lead. With OHB's help, the employer was able to identify how the worker was exposed.

The painter had been wearing the proper respirator for the job. However, he often removed it to translate to his Spanish-speaking crew. This left this painter exposed to lead, while the other workers were protected. OHB worked with the employer to set aside time for communication before the workers entered the contaminated area.

Investigating lead cases is just

one of the functions of OHB. OHB is a statewide public health program that identifies the causes of workplace injury and illness and works with partners to control or eliminate them.

OHB collects and analyzes information to understand where workers are most at risk. OHB does this by looking at patterns of injuries and illnesses; conducting in-depth health studies; investigating individual cases of injury, illness, or death; and reviewing and analyzing scientific literature.

OHB works with labor, industry, and public health agencies to develop and test safer working methods. New approaches to worker protection can involve specialized training, safer chemicals, and other different work practices.

Once effective approaches are found, OHB shares what is learned so that it can be used to benefit others.



OHB staff measures lead exposure to ironworker at SF Bay Bridge

Case Study: Workers ill after pesticide drift exposure

In July 1999, 25 farm workers in Kings County were exposed to pesticide drift when they worked next to fields that had been sprayed with pesticides. On the day of the incident, the workers experienced headaches, nausea, shortness of breath, and other symptoms. Most of the nine workers who subsequently sought medical care reported still having symptoms eight days after the incident.

The workers first became ill weeding cotton 15 feet away from a field that had been sprayed one hour earlier with a mixture of naled, chlorpyrifos, and mepiquat chloride. After 30 minutes, the workers were moved to a second field also adjacent to a field that had been sprayed one hour earlier, this time with chlorpyrifos and two adjuvants. Most of the

workers went home two hours after beginning work.

Foliage testing and pesticide application records indicated that the residues in the field where the workers first became ill resulted from pesticide drift from the adjacent field. Workers were likely exposed through skin contact with residues of pesticide that had drifted onto the cotton they were weeding. Some of the workers may have also been directly exposed through both skin contact and inhalation to pesticide drift still present in the air when they entered the field.

The failure of the labor contractor and the grower to ensure that all exposed workers received prompt medical care, including decontamination, is likely to have increased the workers' total pesticide exposure and the potential for secondary

contamination of their vehicles and homes.

What was learned?

- Growers should use non-chemical alternatives or less toxic means to control pests, when available;
- Existing regulations did not prohibit workers from entering the field adjacent to the sprayed field. Regulatory agencies should consider expanding the area of restricted entry to include a quarter-mile zone around a treated field for similar application scenarios; and
- When there are reasonable grounds to suspect pesticide illness or exposure, employers should ensure that workers receive prompt medical care to minimize exposure to the worker and his or her family.

Farm workers, others, poisoned by pesticides

Pesticide exposure can cause serious acute illness. In 1999, there were 248 reported cases for which OHB determined that symptoms were likely caused by exposure to one or more pesticide at the workplace.

Nearly half (48%) of these employees were farm workers, 6% worked in a nursery and 4% were truck drivers.

Other exposed workers included machine operators, non-construction laborers, biological and life scientists, pest control occupations, and textile sewing machine operators.

OHB found that bystanders and employees other than the workers who apply pesticides are also at risk for pesticide-related illness since pesticide

drift may expose others in neighboring fields, homes, schools, and workplaces. Teachers, construction workers, bus drivers, meter readers, laborers, janitors, and others were exposed to pesticide drift.

Signs and symptoms of



Pesticide applicators are at high risk for pesticide illness

pesticide illness in the reported cases included coughing, nausea, diarrhea, incontinence, headache, dizziness, and itching. Factors such as chemical type, dose, and exposure route affected the manifestation of health effects.

CA pesticide illnesses, 1999

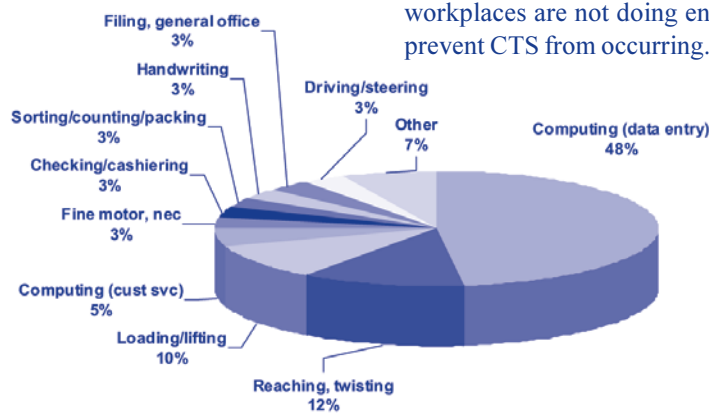
Chemical type	Reported Illnesses	%	Example of chemical
Organophosphate	94	28	Diazinon
Inorganics	72	22	Sulfur
Pyrethroid	16	5	Permethrin
Thio-carbamates	15	5	Metam-Sodium
Pyrethrin	7	2	Pyrethrins
Dipyridyl	7	2	Paraquat
N-methyl carbamate	6	2	Carbofuran
Organochlorine	3	1	Chlordane
Organo-Metallic	2	1	Copper-Chromated Arsenic
Other	109	33	Glyphosate (Roundup)
Total	331	100	

Source: OHB data

Computer suspected cause in 53% of carpal tunnel syndrome cases

Occupational carpal tunnel syndrome (CTS) is a seriously disabling workplace injury. In 1999, OHB received reports of 4,257 cases.

Computer use was the suspected cause of CTS in 53% of the cases for which the worker reported the activity believed to have caused it. The computer use category includes data entry (48%) and customer service (5%).

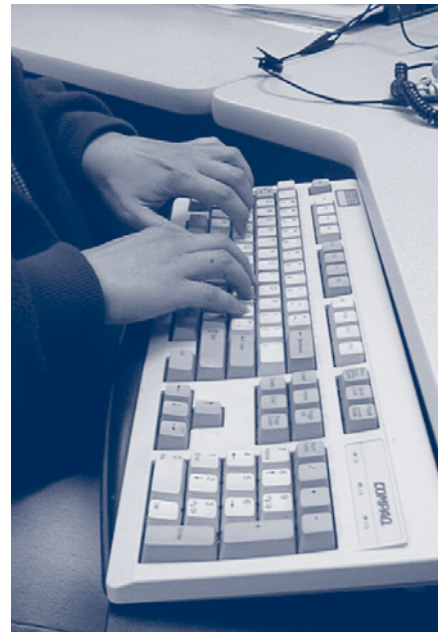


Occupational carpal tunnel syndrome by activity, 1999

Source: OHB data

Interviews with a random sample of workers found that the average person suffering from CTS had experienced symptoms for over three years. Among the workers who had to take time off because of CTS, the average length was three months.

For many occupations, the risk of CTS can be reduced with changes in the work environment. However, most workplaces are not doing enough to prevent CTS from occurring.



Computer users can minimize the risk of getting carpal tunnel syndrome by keeping wrists straight while typing and avoiding awkward hand postures

Case Study: Typing while talking puts reps at risk for CTS

While reviewing reports of work-related CTS cases, OHB staff noticed several customer service representatives from the same major airline's reservations system were seeking treatment for symptoms of CTS.

Through interviews with the airline management, the employees, and their union representatives, OHB learned that the employer was aware of the problems and had taken steps to correct them. In spite of good intentions, however, some of the measures taken were not effective.

For example, because sitting in an awkward posture can contribute to the development of CTS and other musculoskeletal disorders, the employer had purchased expensive, ergonomically advanced chairs, which

are available in three sizes. The chairs did not correct awkward sitting postures for everyone, however, because the employer only purchased one size chair for the entire department. OHB made recommendations on chairs, ergonomics training, and other changes to the work environment to better address the problems.

Customer service workers face ergonomic challenges because they simultaneously use the telephone and computer, type intermittently, and may "hover" their hands over the keyboard while waiting for customer information.

From 1998 - 2000, OHB identified approximately 1200 reports of work-related CTS cases involving customer service workers in the telecommunications, insurance, reservations, and sales

industries. This high risk group had not been extensively researched previously.

What was learned?

Employers should do the following:

- Allow workers to rotate job tasks to avoid sustained awkward postures;
- Provide ergonomics training and regular workstation evaluations;
- Improve workstation layout by providing adjustable furniture with substantial forearm support to avoid concentrations of pressure under the wrists or elbows;
- Improve environmental conditions such as lighting, ambient noise, and air quality; and
- Respond quickly to early signs of discomfort before injuries become severe.

Dangerous jobs and workers who have them

When high-risk industries, occupations, and groups of workers are identified, appropriate prevention activities can be designed to address their particular workplace hazards.

For example, because construction is a high-risk industry, OHB recently began planning a construction training program that will help construction foremen and others to conduct short on-the-job trainings (for more on construction, see pages 6 and 7).

The following four pages look at which workers were most at risk in 1999 for various types of workplace injuries and illnesses.

Dangerous jobs

- Since the leading cause of death in California was transportation incidents (44%), it is not surprising that truck driving was the occupation with the most workplace fatalities (72). The second most deadly occupation was farming (65).

- Construction was the industry with the most workplace deaths, followed by the service industry, and agriculture/forestry/fishing.

Gender differences

Most of the following gender differences are explained by underlying employment patterns.

- Employees killed on the job in California were predominantly male (93%), reflecting a higher percentage of men in high-risk jobs.

- Men also had more than twice as many nonfatal occupational injuries and illnesses involving days away from work as women.

- The majority of workers with reported high lead levels were male (93%), since more men perform the manufacturing and construction work that involves lead exposure.

- Two-thirds of the employees who



OHB has studied wildland firefighters' exposure to respiratory hazards

report pesticide-related illness are male (67%), partially because there are a higher percentage of male farm workers.

- Women composed 73% of the reported occupational carpal tunnel

syndrome cases. More CTS cases involving women may have been reported because more women work in the occupations that report most CTS cases. Women may also be more likely to perform activities at high risk for CTS than men in the same jobs.

- Women composed 64% of the reported occupational asthma cases.

Women are more likely to be in jobs for which asthma cases are reported and are more likely to have preexisting asthma.

California worker deaths by industry, 1999

Industry	Number in California	%	Examples of workplace deaths
Construction	94	16	Laborers die when trenches cave in on them
Services	93	15	Auto mechanics are crushed when cars on lifts fall off
Agriculture	93	15	Tree trimmers fall from trees
Transportation, Communication & Public Utilities	92	15	Truck or taxi drivers are involved in fatal car accidents; Utilities workers are electrocuted
Public Administration	79	13	Firefighters die from injuries sustained in fires
Manufacturing	62	10	Workers are killed in factory accidents involving machinery
Retail Trade	56	9	Clerks are killed in gas station hold ups
Wholesale Trade	18	3	Warehouse workers suffocate trapped in storage containers
Finance, Insurance & Real Estate	11	2	Owners of companies are shot by business associates
Unknown	4	1	
Total	602	100%	

Sources: 1999 Bureau of Labor Statistics, U.S. Dept. of Labor; OHB data

Latinos face higher risk of work injury, death

Latinos appear to be at higher risk for workplace injuries and illnesses than other ethnic groups. In 1999, Latinos made up 28% of the California workforce, but were 36% of the workplace fatalities.

Slightly over half (53%) of the employees killed on the job in Los Angeles were Latino. Statewide, Latinos were the group with the greatest number of workplace injuries and illnesses, of the workers whose race or ethnicity was reported.

71% of employees who were reported with pesticide-related

illness in 1999 were Latino (on the basis of surname). Similarly, of the workers whose reported blood tests revealed elevated lead levels, 54% had Latino

surnames.

Possible reasons for the greater risk include that many of California's Latino workers are immigrants who are concentrated in construction, agriculture, and other high-risk occupations, and in physically demanding service jobs such as room cleaning and janitorial work.

Language barriers make training more difficult and may contribute to poor communication on the job. Finally, immigrants are more vulnerable to exploitation and are less likely to know and exercise their legal rights.



Farm workers are at risk for pesticide illness, back injuries, amputations, and other injuries

Work injuries and illnesses undercounted Employees, doctors, insurers may not report

OHB collects statewide data on selected workplace hazards and on reported cases in a number of areas, including work-related asthma, carpal tunnel syndrome, needlestick injuries, pesticide-related illness, elevated blood lead levels, and selected fatalities.

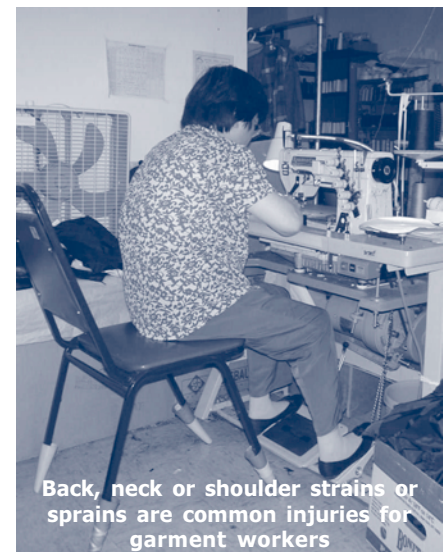
The number of work-related injuries or illnesses reported to OHB and other tracking agencies most likely represents a small fraction of the actual injuries and illnesses. There are two main reasons

for this. First, workers may not seek or have access to medical treatment. Second, doctors, insurers and other sources may not recognize occupational health factors or may not file required health reports.

To help address this problem, OHB added a new reporting source in 1998 that allowed it to capture up to 65% more reports of people diagnosed with work-related carpal tunnel syndrome and up to 73% more of the occupational asthma cases identified by doctors at one HMO.

OHB also tracks all reported cases of elevated blood lead levels, but since many employers required to have workers blood tested are not doing so, only a small percentage of lead poisoned workers are being reported.

The number of workers who experience needlestick



Back, neck or shoulder strains or sprains are common injuries for garment workers

injuries or pesticide-related illness is also likely to be much higher than reported.

Finally, there are many other occupational health problems that are not closely tracked by OHB or other agencies due to limited resources.



Production workers in the semiconductor industry may be exposed to solvents

Construction jobs take heavy toll on workers

The massive demolition job at the World Trade Center site in New York City has cast some attention on the visible and hidden hazards of construction work. From breathing dust and fumes to lifting heavy items to working in extremes of heat and cold, construction workers face a variety of challenges under constantly changing working conditions.

The following statistics from 1999 reflect the hazardous nature of construction work in California.

- 94 workers in the construction industry died on the job. 28 general laborers died a work-related death.
- Workers in the construction industry were 5% of the workforce, but 16% of workplace fatalities.
- One in 11 construction workers were injured or became sick on the job.
- The rate of nonfatal lost workday injury and illness for construction workers was 38% higher than average for all

nongovernment industries (an average of 5.0 per 100 for construction, compared to 3.0 per 100 for all nongovernment industries).

- The four leading causes of construction industry deaths in California were transportation incidents, falls, contact with objects or equipment, and exposure to harmful substances and environments (including electric currents).
- The three construction industries with the highest lost workday injury and illness rates per 100 workers were

1) roofing, siding, and sheet metal work (7.8); 2) masonry, stonework, and plastering (6.7); and 3) carpentry and floorwork (6.3).

- The three construction occupations with the highest number of occupational injuries and illnesses with lost workdays were 1) construction laborers (5,451); 2) carpenters (4,368); and 3) electricians (1,688).
- Heavy construction (bridge, highway, and utility construction work) had the second highest rate of work-related asthma (11.8 per 100,000 workers)

and the third highest rate of occupational carpal tunnel syndrome (81 per 100,000 workers) of all California industries.

- CTS was found in laborers and carpenters in heavy construction performing repetitive lifting and using hand and vibrating tools and in office workers and engineers on heavy construction projects using computers.



Falls are a leading cause of workplace death in construction

Case Study: Slowly backing vehicles can be deadly

Transportation incidents are consistently the leading cause of workplace death in California. Within a month, two construction workers died in and around Los Angeles County when slow-moving trucks backed over them in separate incidents. The similarities between these workplace fatalities prompted OHB to investigate them and make recommendations on avoiding similar deaths in the future.

The first fatality was a 26-year-old who was directing traffic at a highway construction site. He died when he was hit by a dump truck

backing into position to drop a load of dirt onto the median. The second was a 36-year-old who died when a dump truck backed over him as it was bringing hot asphalt to a new road.

OHB found in both cases that the workers had their backs to the trucks, which were traveling less than 10 miles per hour and had their back-up warning alarms on. In both cases, the truck drivers checked both side mirrors and did not see the workers before hitting them.

Being exposed on a daily basis to the noise and warning devices of backing equipment can desensitize workers on construction sites to the presence of heavy moving vehicles.

Dangerous situations arise when truck drivers backing up cannot see directly behind them while working in a congested area.

What was learned?

Employers should do the following:

- Require drivers to get out and check behind their trucks before backing;
- Use a second person as a spotter when backing heavy equipment; and
- Use safety devices to warn workers of a backing vehicle (e.g., strobe light) and to warn drivers when someone is in a blind spot (e.g., detection devices).

Construction workers need more lead protection

Between 1995 and 1999, construction workers composed a large number (33%) of reported serious lead poisoning cases.* The construction industry also accounted for 18% of the workers with elevated blood lead levels,** second only to manufacturing.

Painters accounted for 9 of the 14 cases of construction workers with serious lead poisoning.

Because few construction employers do routine blood testing, it is not possible to draw conclusions about the risk of lead poisoning in construction industries compared to other lead-using industries. The data show, however, that lead poisoning is widespread and persists in construction industries where lead hazards are widely known.

OHB efforts to increase testing include lead safety awareness seminars that have reached over 1300 residential painters and remodelers and 500 industrial/commercial construction contractors and union representatives.

Four trades with 75% of 429 construction lead cases, ** 1995-1999

Industry/Trade	Cases
Painting (primarily industrial and bridge painting)	164
Masonry (primarily on furnaces in lead smelters)	83
Wrecking and demolition	44
Special trade contractors, including lead abatement contractors	34

Source: OHB data

* 60 µg/dl and over.

** 25 µg/dl and over.



Industrial painters remove coatings with high levels of lead and chromium

Case Study: Blood lead levels can rise quickly in industrial painters

In October 1999, a painter was vacuum blasting old lead-based paint on a San Francisco Bay Area bridge as part of an earthquake retrofitting project. His blood lead level had been tested before he began the job. Within five months, his blood lead level reported to OHB had jumped 600%, from 9 to 63 µg/dl.

Another painter's blood lead level was 54 µg/dl. At this level, both workers risked damage to their brains, kidneys, and reproductive organs. Both received medical treatment and were removed from lead work while receiving full pay.

The employer had previously tested only a few air samples, and because the lead levels were low, some of the usual lead safety precautions were not implemented. No showers were provided, workers routinely ate and smoked without washing up, contaminated work clothes were often worn home, and blood testing was done only every three months. In all, 13 of the 19 bridge painters had blood lead levels higher than the reporting level of 25 µg/dl over the course of the job.

false sense of security about lead exposure, since exposures can vary widely. Also, air monitoring does not measure exposure from ingesting lead contamination.

- The project's industrial hygienist should have been informed of rising blood lead levels so that proper controls could be implemented.
- High exposure jobs such as abrasive blasting painted steel require frequent blood testing (e.g., monthly) to avoid poisoning.
- Convenient sinks and showers must be provided, and hygiene must be diligently enforced to prevent exposure by ingestion.



Industrial painter using a wet blasting removal method

What was learned?

- Limited air monitoring can give a

Sharps project promotes safety devices, other technology to avoid needlestick injuries

A nurse is pricked by a needle when she attempts to recap it after drawing blood from a patient. A physician suturing a patient in an operating room is pierced by the suturing needle when she is distracted by noise in the room. A hospital housekeeper is injured while emptying trash when she is grazed by a disposable syringe.

These are examples of the kinds of injuries reported to OHB during a statewide voluntary “sharps” injury tracking project that began in 1998. The project asked hospitals, skilled nursing facilities, and home health agencies to report needlestick and other sharps injuries.

Sharps injuries occur when health care workers are stuck by sharp objects, including needles, syringes, and scalpels. Sharps injuries are dangerous because they can expose health care workers to HIV and other bloodborne pathogens. The sharps tracking project allowed OHB to analyze sharps injuries in California and to make recommendations on how to prevent them.

During the two-year period ending in January 2000, 442 healthcare institutions reported 1,940 sharps injuries. Only 20% of those who reported whether or not they had used safety enhanced medical devices said that they had. Fewer than half of those who returned the survey answered that question, however, suggesting that whether or not safety devices were used was not always known.

The survey found that injuries occurred to a wide variety of health care workers but that nurses sustained about half of the injuries. Injuries occurred under varied and complicated circumstances, but 22% of the injuries were associated with injection while another 20% were associated with

drawing blood from veins.

OHB concluded from the survey results that there was no single solution for preventing needlestick injuries, but that innovative technology-based approaches to prevention were needed. In conjunction with the University of California, San Francisco School of Nursing, OHB began

promoting the use of safety needles and other safety devices by developing fact sheets and providing educational assistance to over a thousand healthcare institutions and providers.

The first-of-a-kind statewide sharps injury tracking system was created by legislation (SB 2005) in 1996.



Safety needles can prevent needlestick injuries

Case Study: School employees learn about mold in buildings

A speech therapist at a preschool called an OHB helpline reporting that she and 15 of her co-workers were experiencing headaches, gastrointestinal and sinus problems. Mold had been found near a ceiling leak, prompting concerns that it was harming staff and student health.

After the mold was cleaned, teachers were left with questions about their symptoms and the long-term health effects of mold. OHB staff explained that molds can cause allergic reactions in some people, while others have no reaction. Most of these health problems are temporary, however, and can be controlled by limiting exposure to molds.

A series of wet winters and widespread media coverage of several mold-infested buildings has led to greater public awareness about molds. In recent years, many school employees and other workers have contacted OHB with concerns about molds in the workplace.

In response, OHB has published a fact sheet that gives employees practical advice and a list of additional resources on what to do about molds in indoor workplaces.

Based on OHB’s recommendation, Cal/OSHA recently revised a regulation, which now requires employers to correct wet conditions that cause mold growth.

Case Study: Auto mechanics encouraged to drop hexane for water-based cleaners

In 1997, a 24-year-old male automotive mechanic who had worked in the automotive repair industry for close to two years had numbness and tingling in his hands and feet that spread to his forearms and waist. He reported using up to 10 cans of aerosol brake cleaner per day containing the solvent hexane.¹

Hexane is found in cleaners, degreasers, glues, and spray paints. Continued overexposure to hexane products can cause long-term damage to nerves in the arms and legs.

The mechanic was placed on temporary total disability, since eliminating exposure to hexane can allow full recovery, depending on the severity of the nerve damage (there is

no other treatment). When his condition improved after three years, he returned to work in the auto repair industry, where his job was modified to eliminate hexane exposure.

His case indicated a larger problem, however. The use of cleaners containing hexane was on the rise in the automotive repair industry in response to the increased regulation of polluting and possibly cancer-causing chlorinated solvents.

Fortunately, effective water-based brake and parts cleaning alternatives were available that presented less of a hazard to workers and did not pollute the air or the water. OHB issued a health hazard advisory on hexane to inform auto repair shops and other businesses that using water-based

alternatives could protect their employees' health and also better comply with environmental regulations. It was widely distributed.

Auto mechanics are not the only ones who may be exposed to hexane. Nerve damage from hexane exposure has been reported among workers making jet engine parts, furniture, shoes, and vegetable oil. Other workers who may be exposed to hexane include printers, laboratory workers, construction workers, and artists.

Switching to water-based products, maintaining good ventilation, and providing health and safety training are ways that employers and employees can prevent overexposure.

¹ n-hexane.

Working to get the lead out of California's workers

Laboratories are required to report elevated blood lead levels (25 µg/dl or greater) in California workers to OHB. An analysis of the 1999 data provided the following key findings:

Who is getting lead poisoned?

- OHB received reports for 860 workers with high lead levels (25 µg/dl or greater). For comparison, the average U.S. adult has a lead level less than 2 µg/dl. 110 workers had a blood lead level of 40 µg/dl or greater and may have suffered serious damage to their health.
- Over three-quarters of the workers with high lead levels worked in manufacturing (75%), including battery operations, followed by construction (12%), and service industries (7%).
- OHB investigated three cases of workers with serious lead poisoning (lead levels 60 µg/dl or greater). Two of these workers were removing paint on bridges undergoing an earthquake

retrofit, and the third was a house painter.

- OHB also investigated four cases where the child of a worker had a high lead level due to lead brought home

CA top 10 industries with most lead cases,* 1999

Manufacturing lead-acid batteries
 Recycling batteries & other lead products
 Painting/disturbing old lead paint
 Casting brass & bronze
 Repairing automotive radiators
 Manufacturing valves & pipe fittings
 Manufacturing non-tableware ceramics
 Making lead oxide (for use in batteries)
 Making products from lead sheet metal

* 25 µg/dl and over

from the workplace on the worker's clothes, shoes, or body. In three of the cases the lead was used in making

ceramics products. One case involved a home-based business where ceramic floor tiles were being painted with a leaded glaze.

If lead hazards are known, why are workers getting poisoned?

- Lead poisoning often results from a lack of awareness of lead hazards, even in industries known for exposing workers to lead.
- Small businesses in particular have difficulty setting up a lead safety program and need education and direct assistance.
- In many lead industries very few employers provide Cal/OSHA-required blood testing for their employees. As a result, OHB does not have accurate information about the true number of lead-poisoned workers. More complete data would allow OHB to better focus its assistance and prevention activities on the industries and workplaces at greatest risk.



Workers who remove graffiti may be exposed to toxic chemicals that can lead to asthma

Waiting to inhale: Asthma on the job

Occupational asthma is a significant problem in California, with 340 new onset or work-aggravated cases reported to OHB in 1999.

Some of the most common exposures identified by cases involved general chemicals, dust, smoke, cleaning chemicals, indoor air problems, and paint fumes.

Occupational asthma can cause significant disability. Workers reported they were either unable to perform their usual work or had to perform modified work in over half (56%) of the occupational asthma cases for which work status was reported.

Latex and glutaraldehyde (used to sterilize hospital equipment) were the most commonly reported chemicals known to sensitize workers and cause asthma.

Case Study: Writing's on the wall for graffiti removal and asthma

Between 1993 and 1999, OHB received nine reports of occupational asthma from workers who use graffiti removers in their work as custodians, laborers, painters, bus service attendants, phone booth cleaners, and teachers.

Hundreds of California workers perform daily graffiti removal in industries such as public transportation, city governments, and school districts. There have been few studies, however, on the hazards of graffiti removal.

Graffiti removers contain chemicals that have numerous health effects including irritation of the lungs, eyes, and skin. Some graffiti removers may contain asthma-causing substances (such as monoethanolamine).

Through worksite visits and interviewing workers and employers, OHB identified the risk factors for graffiti removers. OHB found that workers who performed graffiti removal often lacked hazard communication training and often were not provided with adequate personal protective equipment. Many workers used dust masks and gloves that do

not protect them from chemicals. Workers often performed graffiti removal in enclosed areas with little ventilation, such as in a subway system or inside bathroom stalls.

Finally, product safety sheets that accompany cleaners used to remove graffiti often do not contain adequate health and safety information. The sheets frequently classify ingredients as "trade secrets" and do not provide the chemical information needed for an employer to adequately train its employees on the hazards of the cleaner.

What was learned?

Employers should do the following:

- Provide chemical-specific hazard communication training;
- When selecting a product, evaluate the product's level of toxicity along with its effectiveness, odor, and cost;
- Provide employees with personal protective equipment that is appropriate and adequate for the level of toxicity of the product used; and
- Train workers to be aware of ventilation issues, including using a fan or other device inside buildings.



Sweeping wood dust can cause occupational asthma in clean-up workers at lumber mills

\$21 billion spent on workplace injuries, illnesses

The cost of occupational injuries and illnesses across all industries in California for 1992 was estimated at \$21 billion – similar to the yearly cost of all cancers combined.¹

An OHB-commissioned study found that California’s workforce suffered approximately 660 job-related deaths from injury, 1.6 million nonfatal injuries, 7,079 deaths from diseases, and 133,000 illnesses in 1992.

Injuries accounted for 86% of the cost (\$17.8 billion), and illnesses for 14% (\$2.9 billion).

Direct costs, including medical expenses and insurance administration costs, were 34% of the costs (\$7.4 billion). Indirect costs, when defined to include lost wages, benefits, and other costs, were 66% (\$13.6 billion).

In addition to the economic costs, the social costs of workplace injuries and illnesses are high, affecting the lives of individual workers as well as families, businesses, and communities.

¹ These costs are likely to be low because occupational injuries and illnesses are likely to be undercounted, they ignore family home care, and do not include pain and suffering costs.

Source: “Costs of Occupational Injuries and Illnesses in California,” J. Paul Leigh, Ph.D., James E. Cone, MD, MPH, and Robert Harrison, MD, MPH, Preventive Medicine, 32, 393-406, 2001.

Average cost per California claim by type of injury, 2000

Injury type	Average cost
Slip and fall	\$44,689
Back injury	\$40,311
Carpal tunnel syndrome & other repetitive motion injuries	\$32,817
Other cumulative injuries	\$38,543

Source: Workers’ Comp. Insurance Rating Bureau of California, as reported in CA Commission on Health & Safety and Workers’ Compensation 2000-2001 Annual Report.

OHB recommends changes for safer workplaces

1. Find solutions that “engineer out” health and safety hazards.

New approaches to worker protection can include redesigned equipment, safer chemicals, or different work practices. Researchers, industry, and labor should team up to identify the most effective “best practices” to adopt industry-wide. Existing local and state agencies should work with employers, labor and employee organizations, trade associations, and workers’ compensation carriers to disseminate these “best practices.”

2. Increase compliance with safety regulations in high-risk industries through targeted enforcement activity.

Unannounced inspections can motivate employers to take more responsibility for worker health and safety. California data on injuries and illnesses should be used to expand the number of unannounced inspections targeted to high-risk jobs and industries.

3. Provide workers with effective multilingual training.

Practical training in a language understood by workers makes for safer workplaces. It is difficult for employers, especially small businesses without safety specialists on staff, to conduct high-quality safety training. Local and state agencies should collaborate with employers, labor and employee organizations, trade associations, and workers’ compensation carriers to maximize available low-cost worker training services and materials.

4. Provide more assistance to employers to improve health and safety.

It is important for resources to be made available to help employers understand and fulfill their responsibility to provide a safe workplace. State agencies and workers’ compensation carriers currently provide some educational and support services, but need to develop more innovative ways of reaching employers and promoting available resources.

5. Focus special attention on low-wage and immigrant workers at high risk.

Data show that immigrant workers and other special populations are more at risk of injury and illness than other workers. Improving health and safety for these groups presents some unique challenges. Health and safety professionals should partner with community-based and labor organizations representing these groups to find effective ways to prevent injury and illness.

Gray Davis, Governor
 State of California
 Grantland Johnson, Secretary
 Health and Human Services Agency
 Diana M. Bonta, R.N., Dr.P.H.
 Director, Department of Health Services

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



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 www.dhs.ca.gov/ohb

**California Department of Health Services
 Occupational Health Branch
 1515 Clay Street, Suite 1901
 Oakland, CA 94612**

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 or to add your name to this publication's mailing list.

HESIS Telephone Response System (TRS) (510) 622-4317

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

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

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

Asthma/CTS Information Line* (800) 970-6680

Provides information to assist in identifying and preventing work-related asthma and carpal tunnel syndrome.

Pesticide Information Line* (800) 492-8402

Provides information in English and Spanish to assist in identifying and preventing work-related pesticide poisoning.

* Please note that these information lines are funded for specific time periods and may no longer be available when funding expires.

A sample of OHB workplace hazard publications

at www.dhs.ca.gov/ohb

- ⌘ **Reducing Injuries for...**
 - Sewing Machine Operators
 - 911 Dispatchers
 - Grocery Cashiers
 - Laboratory Pipetting
 - Pavement Breakers
 - Nursery Workers
 - Drywall Installers
- ⌘ **Workplace Exposure to...**
 - Hepatitis C
 - Tuberculosis
- ⌘ **Chemical Exposures in...**
 - Darkrooms
 - Nail Salons
 - Metalworking Shops
- ⌘ **Chemical Hazards to Reproductive Health**

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