



Occupational Health Watch

Tracking California Workplace Injuries & Illnesses

In this issue

The tragic events that began September 11, 2001, cast some light on the occupational hazards facing workers, ranging from firefighters to postal and construction workers.

Closer to home, we at the California Department of Health Services, Occupational Health Branch (OHB), focused on a variety of on-the-job hazards ranging from the risk of tuberculosis infection in prison personnel to the special hazards faced by pregnant workers in many industries.

In this edition of our annual newsletter, we decided to focus particularly on occupational carpal tunnel syndrome and other repetitive motion injuries because of the large number of such injuries reported annually. We hope this information will be helpful to the unions, employers, trade groups, employee organizations, health care providers, and others who share our interest in occupational health.

Contents

Focus on repetition injuries	1-3
Industries at risk for CTS	2
Garment workers get help	3
Prevention activities	4-10
Pregnant workers voice concern	4
Wood dust can cause asthma	5
Farm workers receive training	6
Repairing lead misconceptions	7
Buckling up heavy equipment	9
Preventing TB in prisons	10
OHB on track	8-9
OHB tracking activities	8
Health and safety web sites	9
New OHB projects	11
Getting more information	12



Garment workers can suffer injuries because the work requires pinching, squeezing, awkward positions, and repetitive tasks.

Solutions available for costly carpal tunnel syndrome

Occupational carpal tunnel syndrome (CTS) is among California's most common and costly occupational health problems, with over 15,000 cases identified in the three-year period from 1998 to 2000.

CTS and other repetitive motion injuries may result in serious disability. The average workers' compensation claim for CTS costs nearly \$33,000. CTS involves pain, numbness, and weakness in the hand, wrist, and fingers, from compression of the median nerve at the wrist.

The good news is that CTS is preventable. To educate employers,

workers, and others on prevention methods, the California Department of Health Services, Occupational Health Branch (OHB) analyzes statewide CTS data gathered from physician-filed reports, particularly focusing on high-risk tasks, jobs, or industries. OHB then initiates projects and produces publications that highlight prevention (see page 12 for OHB phone and website information to obtain publications).

Corrections may include worker training, tool or work station redesign, adjustable furniture, or making other changes such as rotating jobs, slowing the pace of the work, or adding work breaks.

CTS found in manufacturing, service, other industries

OHB data show that four of the top ten industries at highest risk for carpal tunnel syndrome (CTS) are in manufacturing and construction (see table below). These industries involve hard manual labor, repetitive movements or awkward postures, and use of vibrating tools and machinery.

Risk refers to the CTS rate per 100,000 workers. Industries that are high risk have high rates; that is, high numbers of CTS cases in proportion to the total number of workers in that industry.

The remaining six of the top ten industries are non-manufacturing industries. Many of these industries are not traditionally associated with CTS, including electric, gas and sanitary services, communications, social services, and local passenger transit.

The most commonly reported jobs in the highest-risk utility industry include customer service representatives and electrical power installers and

repairers. Workers in the two jobs report very different tasks as the cause of CTS. Electrical power installers and repairers most often report using hand and power tools, frequently holding them in awkward postures because of space constraints.

Customer service representatives type intermittently while talking on the phone because they must wait for customers to provide them with information. During the wait, they may hold their wrists in awkward postures. They also often work under stressful conditions, including electronic monitoring of their work, which can contribute to developing CTS.

It is important to note that in some industries and occupations CTS is likely to be underreported. Domestic, agricultural, garment, and other largely immigrant workforces are all at risk for CTS, yet these workers are less likely to seek or have access to medical attention and to file workers' compensation claims than workers in more stable or

unionized industries. As a result, their injuries often go unreported.

Computer use is the most commonly reported work activity associated with CTS. Other activities identified as risk factors include loading and lifting; packing and sorting; fine motor tasks like squeezing and pinching; using a bar code scanner; driving; and operating machinery. Use of hand or power tools contributes to CTS because it involves repetition, vibration, and force, such as gripping.

OHB has worked with customer service representatives, web designers, 911 dispatchers, and others to help prevent CTS injuries. OHB has also produced a series of publications on jobs as diverse as pavement breaking and lab pipetting. Each publication includes a recommendation for a new tool or procedure that can help prevent workers from getting repetitive motion injuries (see page 12 for OHB phone and website information to obtain publications).

Industries with highest rates of CTS in California, 1998 – 2000

Top 10 industries	Rate per 100,000 workers	# of cases	Most common occupations affected (# of cases)	Tools/tasks
Electric, gas, & sanitary service	206	165	Customer service/order clerks (31) Electric power installers & repairers (14)	Computer & telephone Hand & power tools
Communications	124	225	Customer service/order clerks (94) Telephone operators (27)	Computer & telephone Computer & telephone
Manufacture of lumber & wood products	121	73	Freight, stock, & material handlers (9) Timber cutting & logging machine operators (8)	Operating machinery Power tools
Local passenger transit	104	48	Bus drivers (39)	Driving, operating doors
Heavy construction	82	55	Construction laborers (14)	Power & hand tools
Food stores	80	256	Cashiers (80) Stock handlers & baggers (48)	Bar code scanner Scanner, packing, lifting
Insurance carriers	73	100	Insurance adjusters & investigators (39)	Computer
Manufacture of transportation equipment	69	111	Assemblers (20)	Power & hand tools
Social services	68	187	Social workers (37)	Computer
Manufacture of food products	66	120	Packaging & filing machine operators (23)	Sorting, packing

Source: OHB Data

Project staff evaluate a garment worker's posture while she sews



Garment workers seek pain-free sewing machine work stations

Neck, shoulder, and back sprains and strains are common among garment workers who operate sewing machines for long hours and little pay. Health education and low-cost modifications to sewing machine work stations, however, may help reduce work-related injuries in this group.

These were the preliminary findings of a project on preventing musculoskeletal disorders in garment workers. The project is a partnership between Asian Immigrant Women Advocates (AIWA), a community-based organization, OHB, and the University of California (Berkeley/San Francisco Ergonomics Program and UCSF School of Nursing).

Project staff have documented the working conditions and injury risk factors in the San Francisco Bay Area garment industry and have developed a low-cost set of strategies to decrease injuries.

The problem

Approximately 6,000 apparel firms operate in California. Nearly 50% of these companies employ less than five people. The Bay Area is the state's second largest apparel manufacturing center, with 500 businesses. Los

Angeles is the largest, with 5,500 companies.

Sewing machine operators in Oakland, San Francisco, and the surrounding communities are 90% Asian immigrants with limited English-speaking skills. They work at a fast pace, sometimes with no breaks, for over eight hours a day, six days a week. Employers typically pay minimum wage or piece rate, and provide few benefits and no overtime pay. Many shops are unlicensed, and workers fear reporting injuries.

Preliminary symptom data collected from six garment shops showed that 92% of the 68 workers interviewed in these shops experienced neck, shoulder, back, or other pain severe enough to interfere with daily activities.

One problem that may contribute to these injuries is that sewing machine tables are virtually nonadjustable. In addition, sewing machine operators sit on nonadjustable kitchen chairs, stools and wooden crates. Additional risk factors include sitting in one position for long periods of time, holding wrists, hands, arms, and trunks in awkward postures, and performing highly repetitive movements.

Finding low-cost solutions

AIWA recruited an ergonomics committee of 20 garment workers to provide feedback to the researchers on work station design changes. Because designing a new work station was considered cost prohibitive for small businesses, the project focused on redesigning existing sewing machine work stations.

One modification involved tilting the sewing machine table toward the worker by placing two pieces of wood under the sewing machine legs to decrease neck and torso bending. Another modification addressed the problem that sewing machine operators operate a foot pedal with one foot, leaving the other foot unsupported. A wooden footrest was installed to support the other foot. The research team also worked with a chair manufacturer to design a highly adjustable chair appropriate for sewing tasks.

All work station changes were designed so that they do not require a high level of skill to implement them. The parts are easily purchased through local hardware and sewing machine shops. The total cost for modifying one workstation is approximately \$300.

These and other work station redesigns are currently being tested at two Bay Area shops. A third shop has been recruited for productivity testing to ensure that the work station modifications do not slow down the work.

This summer, AIWA will launch an outreach campaign to employers and employees to promote widespread use of these work station modifications to prevent injuries.

Worker clinics

In a related 2000-2002 project, the University of California, San Francisco, Schools of Nursing and Medicine, OHB, and AIWA held free monthly worker clinics in Oakland's Chinatown. The sessions included clinical examinations and physical therapy as well as health education classes on workplace modifications, exercises, and ergonomics.

Pregnant workers voice unique workplace concerns

The following are three examples of the many calls OHB receives from pregnant workers and their health care providers every year.

Pregnancy-related calls

A pregnant dry-cleaning company employee calls OHB to ask if chemicals used on the job could be causing her headaches, nausea, and dizziness, and harming the fetus. Her employer has not responded to her concerns. She is told that overexposures to the organic solvent she uses could put the fetus at risk. Because her description of the work situation and symptoms indicate a likely heavy overexposure, OHB recommends, with her permission, that her physician grant disability leave.

A physician calls OHB on behalf of a pregnant patient working in the electronics industry. Her employer has required that she get a doctor to certify that her use of isopropyl alcohol (while wearing skin protection) to wipe off circuit boards would not pose a risk to the pregnancy. OHB confirms that the risk is minimal, but explains to the worker and her physician that sex discrimination laws prohibit employers from requiring this type of certification from health care providers since it is the employer's responsibility to provide a safe and healthy workplace for all its employees.

A newly hired lab chemist calls OHB to ask if the chemicals she uses in a research and development company could put her pregnancy at risk. Material Safety Data Sheets that accompany the chemicals seem to imply risk. However, OHB determines that based on a detailed description of how the chemicals are used, the steps the lab is taking to control exposures, and the chemist's use of personal protective equipment, she can work safely with the chemicals.

Pregnant workers' concerns

Of the hundreds of calls OHB receives annually, roughly 20%

concern pregnant women who want general pregnancy hazard information or who are experiencing symptoms that may be work-related.

Tens of thousands of industrial chemicals are used in the workplace and many more are added each year. Most of these chemicals, including those most widely used in California, have not been tested for reproductive toxicity. Even when this information is available, it is rarely presented in a clear and adequate way to workers.



Although employers are responsible for providing accurate information and safe workplaces, pregnant women often must take matters into their own hands and seek information from their doctors, OHB, and other sources.

Most pregnancy-related inquiries OHB receives regard employment in manufacturing and service industries. Jobs in the electronics industry pose concerns because of the widespread use of organic solvents such as glycol ethers – used in chip making and other processes – which can cause birth defects or fetal death. OHB generally recommends that pregnant women minimize exposure to organic solvents. Many other calls are about common acids and ammonia, which do not usually pose a pregnancy risk.

Unfortunately, only limited options are available to pregnant women who are worried that their jobs may harm their pregnancy. In order for a worker

to qualify for disability leave or for transfer to a less hazardous position, a physician must first make a disability determination that she cannot safely do the job during pregnancy. Pregnancy-related disability must be handled in accordance with the employer's general disability policy; these policies vary greatly among employers, and often do not allow for transfer or paid leave.

To supplement the technical assistance on workplace reproductive risks that we provide through our statewide telephone helpline, OHB has created educational publications for pregnant women, employers, and health care providers regarding chemical hazards to reproductive health, employer responsibilities, and employees' rights. In addition, all of OHB's fact sheets on specific chemicals address their reproductive effects (to order, visit www.dhs.ca.gov/ohb).

Addressing needs

In response to the calls OHB continues to receive, we are currently working to address the need for pregnancy hazard information using a programmatic approach instead of on a case-by-case basis. Our approach will address the following needs:

- Increased testing and identification of potential reproductive toxicants;
- Adjusted Cal/OSHA occupational exposure limits that protect against reproductive toxicity;
- Improved hazard communication regarding reproductive toxicants;
- Assisting employers with their responsibility to provide reproductive toxicity information and a safe work environment, removing the burden from pregnant workers; and
- Training of health care providers on workplace-related reproductive risks.

Case study: Wood dust in shops can cause asthma

It is well documented that wood dust can cause occupational asthma and other respiratory diseases. Methods of controlling wood dust levels are known, and personal protective equipment is readily available.

For these reasons, OHB decided to investigate why so many cases of wood dust-related occupational asthma were still being reported. OHB data show that the manufacturing of wood products has the second highest occupational asthma rate of all industries. OHB received reports of 43 cases between March 1993 and April 2001.

Wood dust exposure occurs in sawmills, furniture manufacturing, logging, construction, papermaking, and in plywood and other board manufacturing. Carpenters, machine operators, lumber handlers and graders, and other woodworkers can be exposed to wood dust while sawing, sanding, or grinding wood, during cleanup and maintenance, and while transporting wood chips.

Woods that can cause asthma include ash, California redwood, walnut, cedar, oak, and many more. Once workers become allergic to wood dust, they can suffer asthma symptoms after being exposed at very low levels. Symptoms include lung congestion, chest tightness, and shortness of breath.

Generally, ways to lower exposure to wood dust include installing dust collection systems, training workers on practices that minimize dust exposure, and wearing respirators. Workers should only wear respirators, however, after getting medical clearance and fit testing and receiving the proper training. Practices that reduce dust exposures include using tools attached to high efficiency (HEPA) vacuums and using wet clean-up methods.

During our investigation, OHB



Dust masks, or even respirators, may not protect wood workers from getting respiratory diseases. A full prevention program is needed.

visited a lumber mill, a furniture manufacturing plant, and a pencil manufacturing plant. An industrial hygienist interviewed employees and employers and collected air samples from areas where employees were handling wood.

The most important finding from these site visits was that having local dust recovery systems alone is not always adequate to prevent occupational asthma. Local exhaust systems attached to the saws can keep exposures below permissible limits. However, permissible limits do not protect highly sensitive workers, who can develop occupational asthma at far lower contaminant levels.

Even the good dust collection systems in the facilities visited could not capture every particle of wood dust, since such large quantities of wood were being cut. Wood dust that was not captured settled on machines, furniture, or the floor, where it was inadvertently stirred into the air from

human activity.

Cleanup of this dust buildup was at times not adequate or not frequent enough. In addition, smaller quick cutting jobs were usually done by hand or with a portable power tool and often without local dust collection systems.

What was learned?

In addition to having a good dust recovery system, the following are necessary elements to include in an effective program to prevent occupational asthma. These recommendations are especially important for California's many small wood working shops, where it may be cost prohibitive to install dust collection systems.

Employers should do the following:

- Provide respirators (along with appropriate medical clearance, fit testing, and training) to workers who are exposed to wood dust when dust collection systems are not possible or adequate. These workers might include clean-up and maintenance crews;
- Provide portable power tools that are attached to high efficiency (HEPA) vacuums;
- Train employees on work practices that can minimize dust exposure, such as wet clean-up methods;
- Ensure that workers follow good housekeeping procedures. For example, machine operators should wipe down their machines and nearby furniture with a damp rag whenever buildup occurs and should set a frequent clean-up schedule (e.g., twice per day);
- Train workers on the health hazards of wood dust, especially on early recognition of symptoms.
- Recommend that workers who experience asthma symptoms see a doctor as soon as possible.

OHB has written a fact sheet describing wood dust and occupational asthma (to order, see page 12).

San Luis Obispo farm workers receive safety training

Frequency, content, delivery of training could be improved

Agricultural workers in one California county are likely to have received pesticide safety training, but may not have learned or retained essential information, such as how to protect themselves from pesticide exposure and illness and what measures to take in the event of pesticide exposure.

These were the findings of a survey conducted by OHB in San Luis Obispo County in collaboration with advocacy groups, employers, and several government agencies.

The survey grew out of a local initiative in San Luis Obispo County that brought together diverse organizations and employers with interests in agriculture, farm worker health and safety, and environmental health. In May 2000, the group provided funding to OHB to assess the understanding and perspectives regarding pesticide safety regulations among farm workers in the county.

Pesticide illness is a top health and safety problem for farm workers, along with sprains, strains, and other workplace injuries. California, which used over 186 million pounds of pesticides for agriculture in 1999, employs one-third of the nation's farm workers.

Survey findings

In 2000 and 2001, community interviewers surveyed 138 farm workers who worked in crop agriculture in ten cities in San Luis Obispo County. Interviewers conducted 30-minute door-to-door interviews. A typical farm worker interviewed was young, married, male, and born in Mexico.

The survey found that 80% of surveyed field workers and employees who mix, load, or apply pesticides had received training in the county within the last five years, as required by state regulations. Most farm workers surveyed, however, had incomplete knowledge of pesticide exposure, first



Interviewers in San Luis Obispo County prepare to survey farm workers about pesticide use

aid measures, and routine decontamination procedures. Those who received training were likely to have watched a training video.

Seven in ten farm workers surveyed reported being exposed to pesticides while working. Seven percent of workers stated that they had felt ill due to job-related contact with pesticides.

Some farm workers who said they had become ill from pesticide exposure did not notify their supervisor or receive medical care at the time in spite of having symptoms. Those who did seek care most commonly sought medical attention in emergency rooms and hospitals, followed by medical clinics.

Training is not everything

As a final note, although the survey focused on training, the researchers recognized that training alone will not reduce pesticide illness. From a public health perspective, reducing or eliminating the use of toxic substances would be the most effective pesticide safety control. Other measures that would bolster worker protection include improving restricted entry to fields that have been treated with pesticides, improving worker notification measures, and encouraging growers to demonstrate a concern for workplace safety through their practices.

What was learned?

Providing training by itself does not necessarily improve farm worker knowledge of pesticide safety. Frequency of training, the content, methods and materials used, and the qualifications of trainers are all key factors affecting whether farm workers learn about pesticide safety. OHB's specific recommendations on these factors are as follows:

- Increase the frequency of training from every five years to every year;
- Minimize use of written materials;
- Use appropriate language, cultural references, and literacy level for farm workers; and
- Train farm workers as "peer educators" to deliver effective trainings that directly relate to workers' experiences.

In San Luis Obispo County, the Farm Safety Initiative Committee is an effective organization for working to improve worker and community health and safety. OHB recommends that the group take the following steps:

- Convene farm worker focus groups to address improvements to training and worker health and safety; and
- Convene an employer focus group to address barriers to implementation of state regulations and to discuss ways to demonstrate support for worker health and safety.

Lead STAR program repairs misconceptions about lead

Between 1995 and 1999, the radiator repair industry had the third highest number of workers in California with blood lead levels above 25 µg/dl.

During that time, this industry produced the largest number of serious lead cases investigated by OHB. It also produced the most “take home” cases (elevated lead levels in family members of lead-exposed workers) investigated by OHB.

There was an industry-wide perception that the trend of substituting new plastic-aluminum radiators for the old copper-brass radiators had eliminated the risk of lead exposure. Because many shops continued to repair the old radiators, however, lead exposure was still a problem.

In 2000, OHB began Lead Safety Training and Resources (Lead STAR), a program designed to provide lead safety education and technical assistance to an industry dominated by shops with one or two employees. Radiator repair shop owners consulted during its planning phase were clear that they would not be willing to leave their shops to attend trainings. OHB decided instead to bring the trainings to the shops.

OHB asked the 592 radiator repair shops in California to fill out a survey on their operations and safety programs. Seventy of the shops with employees at highest risk for lead exposure were selected for on-site visits. OHB staff provided training, educational materials, and the opportunity for free air monitoring to these shops. The rest of the shops received educational materials in the mail.

Shops that received on-site visits were asked to commit to taking specific steps to improve their lead safety

Case study: Repairing auto radiators can still cause lead poisoning

In 2000, shortly after a doctor’s visit for a knee injury, an employee of a radiator repair shop in Orange County discovered that his blood lead level was 68 µg/dl, far higher than the average U.S. adult level of less than two. The alert doctor had tested the 20-year veteran of the radiator repair industry knowing that repairing copper-brass radiators can cause dangerous lead exposure.

The doctor called the shop owner who employed the radiator benchman. He informed the owner that Cal/OSHA regulations required the worker to leave the lead job, with full pay, until

his blood lead level dropped to a safer level. Because labs are required to report elevated blood lead levels to OHB, we began to investigate and provide assistance to the worker and the employer.

OHB found that the bench where the employee worked needed local exhaust ventilation and that the shop’s owner needed to implement a hygiene program. A major change was to prohibit workers from eating, drinking, or using tobacco in the work area.

The owner also decided to provide workers with uniforms to

prevent them from bringing lead home on their work clothes and exposing their families.

After several months, the worker’s blood lead level dropped to a safer level and he returned to work.

What was learned?

- There is still a need for ongoing lead safety education in the radiator repair industry.
- Radiator repair benchmen should get blood lead levels tested twice a year.
- Having an effective lead safety program is not prohibitively expensive for small businesses.

Auto radiator benchmen working with copper brass radiators are at risk for lead poisoning



programs. By 2002, 80% of the shops had completed the steps they had chosen. Of the 41 shops that had agreed to send employees for blood tests, 32 (78%) did so. In addition, the mailed educational materials were well received by the remaining shops who were surveyed.

Lead STAR proved to be an effective program for reaching small business owners on the issue of employee health and safety. Having radiator repair shop owners participate in the design of the program was key to its success.

Tracking California's workplace injuries and illnesses

How and why OHB counts number and type of workers hurt

Knowing the size of a problem is the first step toward addressing it. For OHB, counting the number and type of workers who are injured, fall ill, or are exposed to harmful chemicals on the job is the starting point for many of our efforts to prevent work-related illness and injury.

OHB currently tracks a variety of occupational health problems, including identifiable cases of work-related asthma, carpal tunnel syndrome (CTS), lead and pesticide poisoning, silicosis, and selected falls and fatalities. Most importantly, OHB uses the information collected to plan prevention strategies designed to serve a greater number of workers.

Identifying risk factors

OHB uses collected information to learn more about risk factors related to a particular task, job, or industry. For example, OHB recently began to track falls among construction workers – a serious occupational risk that affects more than 3,000 workers per year in California. OHB counts falls statewide by gathering fall-related physician reports. These reports are required of any physician who treats a work-related injury or illness, and they are made available to OHB (for a copy of the form, visit www.dir.ca.gov/dlsr/dlsrform5021.pdf).

OHB interviews workers who have experienced a fall to learn more about how and why they fell – the occupational risk factors. In the process, OHB learns important information, including what the workers do on the job, what industry they work in, what they were doing when they fell, and possible ways similar falls could be prevented. OHB also helps workers obtain the right medical treatment or legal assistance, if needed.

The next step is to use data on risk factors to design fall prevention

activities in the areas where they are most needed. These prevention activities may be directed at the highest-risk construction task or job or may address a newly identified risk factor.

In another example, OHB has been tracking pesticide poisonings for some time. Investigations of some of these cases have shown that pesticide drift, insufficient field re-entry intervals, and improper labeling and use of pesticides

Prevention activities may be directed at the highest-risk task or job or may address a newly identified risk factor

are risk factors for pesticide poisonings.

Following up

OHB follows up with many workers who have experienced an injury, illness, or overexposure. For instance, OHB ensures that workers whose blood lead levels are above a certain amount receive appropriate medical care. When these cases occur, OHB ensures that the employer tests its other employees for high blood lead levels and changes its safety and work practices so that additional employees are not poisoned.

When followup reveals that a particular job, industry, or type of worker is at high risk for lead exposure, OHB designs activities to address that area. One example occurred when OHB learned that many industrial painters on bridge retrofit jobs were getting lead poisoned. As a result, OHB has begun reaching out to employers who are doing bridge retrofit work to inform them of the risks and responsibilities involved in the work.

Spreading the word

When OHB identifies significant occupational health problems and possible solutions, we provide the information to employees, worker organizations, unions, employers, trade associations, and medical providers. Other groups then use the information to advise employers and workers on industry-specific health and safety hazards and solutions.

For example, OHB highlighted ways to prevent repetitive strain injury among grocery checkers by creating and distributing thousands of fact sheets. Many employers have reproduced these materials to educate workers on risks and solutions.

Creating regulations

OHB provides accurate data that can be used by Cal/OSHA or the California legislature to create regulations or laws to prevent workplace injuries or illness.

Once regulations are in place, OHB uses tracking data to determine if regulations and prevention measures are working. For instance, after the California legislature passed new regulations designed to prevent needlestick injuries in 1999, OHB began evaluating how well health care employers are following the regulations.

Collecting data

OHB uses different data sources to identify and count cases of sick and injured workers. OHB receives physician reports, known as *Doctors First Reports of Injury or Illness*, which are used to identify cases of asthma, CTS, falls, and pesticide poisoning.

OHB also receives lab reports, hospital admission data, workers' compensation claim data, death records, and calls to our toxics helpline to find cases of occupational illness and injury.

Occupational health and safety sources available on web

Bureau of Labor Statistics

U.S. Department of Labor presents national worker injury and illness statistics by industry, based on employer survey: <http://www.bls.gov/iif/home.htm>

California Labor Statistics

California Department of Industrial Relations presents statewide worker injury and illness statistics by industry, based on employer survey: www.dir.ca.gov/dlsr/statistics_research.html#WII

Worker Health Chart Book

National Institute for Occupational Health and Safety (NIOSH) presents national and state occupational health data and statistics: www.cdc.gov/niosh/00-127pd.html

Construction Chart Book

Center to Protect Workers' Rights presents statistics on the national construction industry and safety and health: www.cpwr.com/Cover.html

Work-Related Lung Disease

NIOSH presents summary tables and figures of occupational respiratory disease surveillance data for the U.S.: www.cdc.gov/niosh/w99cont.html

Workers' Compensation Report

California Department of Industrial Relations report provides information on California's labor force, injuries and illness, and associated workers' compensation benefits: www.dir.ca.gov/dwc/98DWCAR.htm

Employment by Industry Data

The California Employment Development Department provides California employment data: www.calmis.ca.gov/htmlfile/subject/indtable.htm

Case study: Backhoes and other heavy equipment need seatbelts too

Buckling up for safety is important not only when driving in a car. Workers using vehicles such as a backhoe, electric cart, forklift, crane, loader, and pavement compactor have been killed on the job in California because they weren't wearing seatbelts properly. Their vehicles either lacked seatbelts, had broken seatbelts, or had seatbelts that were used in the wrong way.

OHB has been investigating workplace deaths in California since 1992. Two workplace fatality investigations involving heavy machinery focused on why seatbelts were not used correctly and highlighted what could be done to prevent future fatalities.

In one case, a 49-year-old welder died when a forklift struck his electric cart. The welder was riding in a cart driven by a co-worker. The cart did not have seatbelts or rollover protections.

The forklift was traveling down the same roadway as the cart, but in the opposite direction. The forklift driver's field of vision was partially blocked because of a large load.

The forklift driver made an abrupt left turn into the cart while trying to turn down a side road. The cart was spun around, and the welder was thrown out and run over by the forklift.

In another case, a 46-year-old backhoe operator died after being run over by his backhoe during a trench-digging operation. The backhoe had working seatbelts and a rollover protective structure (ROPS).

The operator was digging a trench above a 10-foot-high slope. He was moving the backhoe forward when a front wheel of the backhoe hit a rock, causing the backhoe to



bounce. When he put the backhoe in reverse by mistake, one of the rear wheels hit the previously dug trench and the backhoe bounced again.

The operator took off his seatbelt and jumped out in an attempt to get away from the backhoe before it went over the slope. He tried to jump toward the high side of the slope but slid down to the bottom. The backhoe, still traveling backwards, then came down the slope and ran over him.

What was learned?

- Many workplace vehicles are not required by law or regulation to have seatbelts or rollover protection. However, seatbelts (and ROPS) can prevent passenger ejections and injury in a traffic mishap if these vehicles roll over.
- Many workers believe they can safely jump from a vehicle if a mishap occurs. However, workers often are injured or killed if they try to jump. Workers are safer staying in ROPS-equipped machinery with their seatbelts fastened if the machinery seems in danger of rolling over.

OHB and partners seek improvement of TB and needlestick injury control measures in CA prisons

Historically, prisons have been high-risk sites for the transmission of tuberculosis (TB) due to crowded conditions, inadequate ventilation, and the poor health and high rates of TB infection among inmates.

Overall about 10% of California prison employees are infected with TB. This rate is even higher in physicians, nurses, certain correctional staff, and other employees who evaluate, treat, or are in close contact with inmates with TB.

In the first two years after becoming infected, there is usually a two to five percent chance of getting active pulmonary TB disease (the contagious form). This rate increases if the employee has a suppressed immune system.

TB is usually easily treatable unless a drug-resistant form is acquired. Those infected may choose to take drugs to reduce the risk of developing active TB in the future.

While the proportion of inmates with TB has been steadily dropping since 1992, the prison employee population is still three times more likely to be exposed to TB cases than members of the general population.

Recognizing this risk, in 1999 the California Department of Corrections (CDC) and the California Correctional Peace Officers Association (CCPOA) collaborated with OHB and the University of California, Berkeley on a joint research project designed to determine how exposure control measures were being implemented at four institutions, and how they may be improved.

TB control program elements were evaluated for adherence, including rapid TB disease and infection identification, protocols for screening for TB infection in employees and inmates, isolation of inmates with active TB

disease, the provision of a respiratory protection program, and other control measures used to reduce employee exposure to TB.

The researchers also used this opportunity to study compliance with the newly revised Cal/OSHA bloodborne pathogen regulation, as well as employee risk factors for needlestick injuries.

Researchers interviewed supervisors and managers about the implementation of both programs and interviewed employees about tasks performed, safety practices followed, and the personal protective equipment used. They visited dental clinics, all medical areas, and high-risk custody areas, and recorded observations concerning the availability of personal protective equipment, such as sharps safety devices and respirators.

Researchers also evaluated ventilation in isolation rooms and in high-risk areas and compared it to recommended performance standards. Based on findings, recommendations to improve both programs were made and disseminated to all parties involved.

What was learned?

Although adequate in many respects, OHB found that the TB and bloodborne pathogen control programs needed improvement in several major areas. One TB program improvement needed was the implementation and maintenance of a respiratory protection program.

For both TB and bloodborne pathogen control, there were some deficiencies in the written protocols, risk assessments, employee training, and program monitoring.

Bringing respiratory protection to correctional facilities

After completion of the study, OHB completed a project with CDC, CCPOA, and the University of California, Davis, to implement a TB respiratory protection program for CDC employees. The project goals were to medically evaluate, quantitatively fit test, and train employees statewide to use respirators to protect themselves from TB exposure.

By April 2003, health and safety professionals from UC Davis had medically evaluated, trained, and fit tested almost 10,000 employees at 13 correctional facilities.



A University of California, Davis, van transports trainers to correctional facilities where corrections officials learn to use respirators

New at OHB

BuildSafe California

Health and safety is a significant concern for the construction industry, which typically has among the highest number of fatalities and nonfatal injuries and illnesses of all industries. Many companies conduct tailgate trainings, which are an effective way to improve worker safety, reduce injuries and illnesses, and promote a workplace safety culture, while complying with Cal/OSHA's training regulations.

To help construction companies improve the quality of tailgate trainings, OHB has created BuildSafe California, a Training of Trainers (TOT) program. BuildSafe began conducting the series of 15 half-day seminars across the state in the fall of 2002. The TOTs build the capacity of contractors, supervisors, safety directors, and union representatives to be effective tailgate trainers. While the primary audience is small contractors, medium and large contractors and union representatives are also welcome. BuildSafe expects to train 450-1,500 people in the construction industry.

The BuildSafe program includes a health and safety tailgate training kit in English and Spanish. The kit consists of safety cards that cover 23 construction safety topics and are linked to reference information in the *Cal/OSHA Pocket Guide for the Construction Industry*. It includes instructions on how to use the cards and how to design a safety training that meets a specific work site's needs.

BuildSafe is co-sponsored by State Compensation Insurance Fund and Cal/OSHA Consultation Service. For a schedule of seminars and an application form, please visit www.dhs.ca.gov/ohb, or call 510-622-4272.

Chemical hazard tracking

One of OHB's legislative mandates is to reduce occupational illness and disease through the timely provision of information about new and unappreci-

ated chemical hazards. Of particular concern are chemicals that can cause long-term health effects, such as cancer and reproductive damage. Long-term health effects are not identified in our current occupational disease tracking systems because the link to workplace exposures is often difficult to establish. Therefore, providing "early warning" about chemical hazards to prevent illness and disease is especially important.

While OHB identifies many new chemical hazards each year, it does not have an effective system for determining which California workplaces are using those chemicals. Having such a system would help OHB provide affected workplaces and industries with hazard prevention information in a timely manner.

To address this problem, OHB has begun a project to review and evaluate existing systems for chemical hazard tracking in California to see if they could be adapted for use by OHB. If OHB determines that no existing tracking system is effective, it will make recommendations on creating a new system.

LA lead poisoning prevention

Los Angeles County accounts for 42% of the workers who are reported to OHB with blood lead levels above 25 µg/dl. The numbers reflect the concentration of lead-using industries in Los Angeles County. Yet, for several years, there have been no public health resources dedicated to occupational lead poisoning prevention at the county level.

To address this issue, OHB has provided a local grant to the Los Angeles County Health Department to provide lead safety services to small businesses and their employees in high-risk industries in the county. The locally based services are intended to assist employers in establishing

effective lead safety programs, preventing disease, and reducing costs associated with work-related lead poisoning.

This project is the fourth funded through OHB's lead poisoning prevention local grants program. The program is intended to strengthen OHB's relationships with local agencies.



Sand and gravel workers are at risk for respiratory illnesses

Falls and silicosis tracking

In 2000, OHB received federal funding to add two new occupational health injuries and illnesses to the ones that it already tracks. The two conditions are construction-related falls and silicosis, a chronic lung disease.

Falls in the construction industry were chosen because falls are the leading cause of worker death in construction and account for 40% of all injuries in that industry. Because of the large number of construction-related falls annually in California, the project has focused initially on falls from ladders and mobile access equipment, such as motorized lifts.

With the third largest number of recorded silicosis deaths in the nation, California has a large number of workers employed in industries likely to have silica exposure, such as construction and sand and gravel mining. Data is collected via hospital discharge records, direct hospital reporting, and death certificates.

OHB researchers will conduct interviews with workers affected by these two problems and will design prevention projects to address the hazards.

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



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Occupational Health Branch
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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 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 Line (510) 622-4332

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

A sample of OHB publications online

at www.dhs.ca.gov/ohb

*Each of the following fact sheets
addresses how to prevent a particu-
lar type of on-the-job fatality*

- ⌘ *Runaway Killer: Preventing Forklift Fatalities (English & Spanish)*
- ⌘ *Buckle Up for Safety: Seatbelt Usage*
- ⌘ *Backing Vehicles Can Be Deadly*
- ⌘ *Falling Vehicles Kill (for auto shops)*

*Fatality investigation reports are
available at [www.dhs.ca.gov/
ohb/FACE/faceindex.htm](http://www.dhs.ca.gov/ohb/FACE/faceindex.htm)*

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

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