

January 2004

Edition Report No. 15-10-2004

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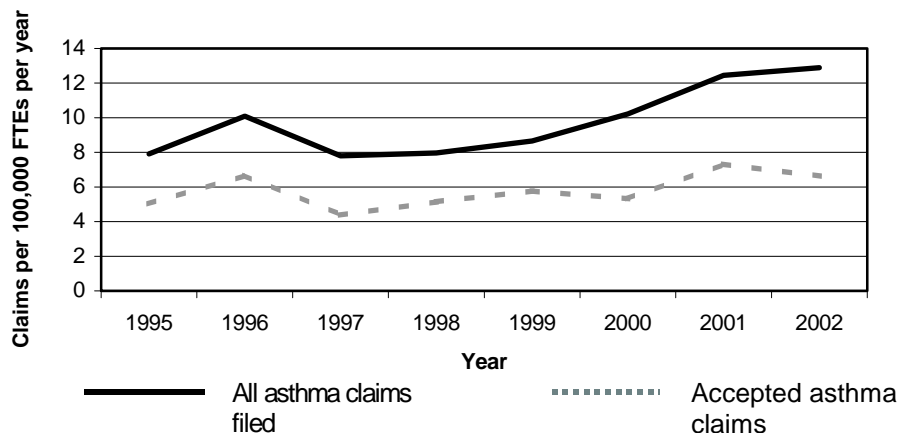
# Adults Get Asthma Too

With recent attention in the news media about the "asthma epidemic" in Washington, many are probably aware that the incidence of asthma in children has been increasing over recent years. But what many may not know, is that the incidence of asthma among workers due to chemicals and dusts in their workplaces is also on the rise.

Through SHARP's work-related asthma program, SHARP hopes to learn from workers with work-related asthma in various industries in order to prevent other workers from becoming sick.

The graph below shows that from 1995 through 2002, the rate of workers' compensation claims filed for asthma has increased significantly by about 7% per year. The rate of accepted claims has also increased over the 8-year period, though to a much lesser degree.

**Workers' Compensation Claim Rates for Asthma, 1995-2002**



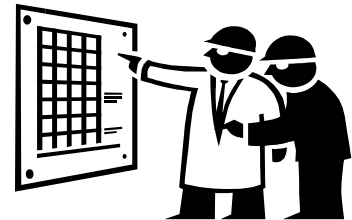
So why are workers getting asthma? For the hundreds of workers who develop asthma each year, no two experiences are exactly the same. These are just two examples:

**Worker 1:** A male worker in his early 20's became sick about a year after he started working for a sawmill that processed western red cedar. His symptoms started with sneezing and itchy eyes. Gradually over time he developed a cough and had a hard time breathing. His physician diagnosed him with allergies and asthma caused by exposure to cedar dust, and advised him that if he continued to work around cedar dust, he could develop permanent breathing problems. He took his doctor's advice and quit his job.

**Worker 2:** A male worker in his early 20's worked for a company that sprayed protective liners into the beds of pick-up trucks. In this process, he was exposed to chemicals called isocyanates. Over time, he developed coughing, chest tightness, and severe shortness of breath. His symptoms worsened over time, and after a couple of years, he sought treatment. His doctors diagnosed him with asthma and explained that it was due to his work with isocyanates. Knowing he could no longer work around isocyanates without becoming permanently disabled, he was forced to quit his job.

SHARP is currently working with sawmills in the state to educate employers about work-related asthma and look for ways to reduce workers' exposures to cedar dust. In addition, SHARP is conducting further research into the various uses of isocyanates with the goal of preventing future workers from getting sick. See the article, *Learning about Isocyanate Exposures in Washington State's Workplaces*, on page 3.

# SHARP Occupational Health Surveillance Library



State-based occupational health surveillance is essential to public health in identifying risk factors for occupational injuries and illness, clusters of occupational injuries, and establishing trends for evaluating the impact of initiatives to reduce injury and illness rates. Surprisingly a limited number of states have the capacity to track these important health-related events. As part of a grant from the National Institute for Occupational Safety and Health (NIOSH), SHARP created an occupational health surveillance library to provide information and resources to other states initiating or conducting occupational health surveillance. Shared resources may relieve the resource burden encountered by states developing or initiating occupational health surveillance programs.

The Occupational Health Surveillance Library contains descriptions of surveillance systems operated by the SHARP Program within L&I. Surveillance is currently conducted for the following conditions: asthma, hospitalized burns, dermatitis, adult blood lead levels, traumatic head and brain injuries, workplace violence, and work-related musculoskeletal disorders. The system descriptions are presented in a previously recommended format for surveillance systems.<sup>1</sup> The library also contains links to pages describing occupational health surveillance programs operated within state governments.

Please visit our website at the following address:  
<http://www.LNI.wa.gov/Safety/Research/OccHealth/>

<sup>1</sup>"Updated Guidelines for Evaluating Public Health Surveillance Systems," *Morbidity and Mortality Weekly Report* Vol. 50, No. RR-13, July 27, 2001.

*"Surveillance is Identifying and Tracking Cases  
of Injuries and Illnesses."*

# Learning About Isocyanate Exposures in Washington State's Workplaces

Isocyanates are used widely in Washington State in different industries. They form the basis of polyurethane-based materials, including rigid and flexible foams; thermoplastic urethanes; and polyurethane adhesives, coatings, sealants, and paints. These polyurethane polymers are generally created by mixing two liquids: an isocyanate and an alcohol-based compound. The isocyanate component of these two-part mixtures is very reactive; certain applications and work practices can expose workers to potentially harmful isocyanate levels. Workplace exposure to compounds like "MDI" and "TDI" has been linked to skin diseases (i.e., dermatitis) and respiratory problems, such as asthma, in a variety of industries.

L&I became concerned about isocyanate exposures in 2002, following the discovery of several cases of work-related asthma in Washington State's spray-on truck bed lining businesses. In order to gather information about the extent of isocyanate usage and the health and safety needs of isocyanate users, SHARP will be distributing a questionnaire to isocyanate-using businesses in 2003-2004. This outreach effort will be a collaborative undertaking, involving isocyanate-using workers, businesses, manufacturers and suppliers.



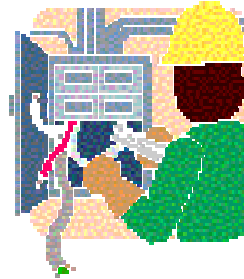
# Traumatic Brain Injury

Traumatic brain injuries (TBI) are severe, life threatening injuries. Work-related TBI have both short-term and long-term impact on workers, their families, and society. The financial costs are significant as are the changed lives resulting from TBI. Very little data is available on work-related TBI. SHARP has a grant from the National Institute for Occupational Safety and Health (NIOSH) to develop a state-based surveillance program and work-related TBIs are considered a priority condition.

Between January 1, 1994 and December 31, 2001, 928 individuals were admitted to a hospital for a work-related TBI. The Washington State workers' compensation claim rate for TBIs decreased from 10.6 per 100,000 Full Time Equivalent Employees in 1994 to 8.1 in 2001. Falls (41%), struck by (23%), and highway motor vehicle accidents (19%) were the major accident types for TBI. About 70% of the injuries were classified as fractures, concussions, or multiple injuries. For this time period (1994-2001) the top six insurance risk classes for prevention were logging, roofing, wholesale meat dealers, wood frame building construction, log hauling, and building construction sheet metal work. The total workers' compensation costs (medical and accident benefits) of these claims were \$160,000,000.

Prevention of TBI will require identification and reduction in risk factors associated with work-related falls, being struck by an object, and motor vehicle accidents. Concerted efforts to improve compliance with fall prevention standards and institution of programs to prevent motor vehicle accidents likely will have an impact on TBI rates.

# Innovations for Healthy Workplace



## **ELECTRICAL CONTRACTORS INDUSTRY**

*Focus groups were held to discuss safety and health*

This past year, the Healthy Workplace Initiative held focus groups with electrical contractors to learn about strategies used to address occupational safety and health issues.

A total of six focus groups were held with electrical contractors, journeymen and apprentices, and with representatives from the apprenticeship training centers. Each group identified and prioritized their top health and safety concerns and discussed potential solutions. The groups identified the following top hazards and injuries:

- Ladder hazards
- Lack of fall protection
- Back injury
- Work on energized lines
- Eye, ear, and face injuries
- Housekeeping hazards

SHARP plans to develop educational materials based on the information gathered in the focus group sessions. We will highlight some of the strategies that Washington companies are using to address the top hazards and injuries that were discussed. It is intended that through discussion and sharing of strategies the safety performance of this industry can be raised.

Contact SHARP at 1-800-667-4277 if you would like a free copy of *Electrical Contractors Industry Focus Group Report # 67-4-2003*

# Bridge Workers are being Poisoned by Lead in Washington

Although we've known about the perils of lead poisoning for centuries - and the controls necessary to reduce lead exposure in construction are very well known - workers who maintain and renovate steel bridges are still being exposed to very high levels of lead.

Although lead oxide-containing primers are no longer applied to bridges and other steel structures, many workers in Washington State are exposed to lead when they remove old lead-containing paint. Any time a painter working on a painted steel structure creates dust by abrasive blasting or chipping paint, they run the risk of lead poisoning. Whenever an ironworker uses a cutting or welding torch on a painted surface, they can expose themselves to very high levels of lead-containing fumes.

In recent years, more construction workers have had higher blood lead levels than any other group of workers in Washington State. Early in 2003, an Ironworker working on a bridge in Aberdeen, Washington had the highest work-related blood lead level ever seen in the ten years that SHARP has been running our Adult Blood Lead Registry! All of his coworkers had blood lead levels high enough to be tracked by our system!



In response to these recent lead poisoning episodes, SHARP is teaming with business, labor, and other agencies to develop an awareness program focused on lead exposures in construction. SHARP has delivered presentations to workers, safety managers, and labor-management organizations, and is working to develop effective training materials and programs to ensure that Washington State's construction workers are no longer lead-poisoned!

*The SHARP program administers Washington State's Adult Blood Lead Registry. SHARP receives blood lead test results from the State Department of Health and provides education materials and technical assistance to employers, employees and health care providers.*



# Upper Extremity Musculoskeletal Disorders Study — The beginning of data analysis

SHARP is in the third year of a NIOSH funded 5-year study of upper extremity musculoskeletal disorders. There are many factors, both inside and outside the workplace, that have been associated with the development or exacerbation of upper extremity musculoskeletal disorders (UEMSD). The SHARP study is attempting to understand how these factors work, or do not work, together to increase (or decrease) the risk of musculoskeletal disorders. Thirteen Washington worksites, in the manufacturing and health care sectors, are involved in this study. To date, approximately 800 Washington workers have participated in this study. Workers participate in worksite follow-up visits every four months.

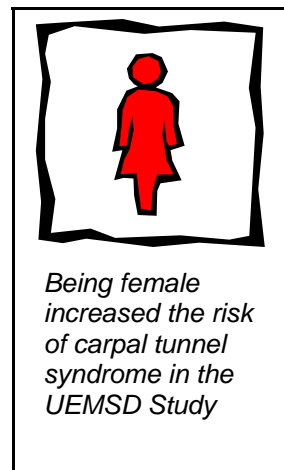
In addition to physical exams and nerve conduction velocity tests, numerous data have been collected. These include **individual factors**, such as age, gender, obesity, smoking, chronic arthritis, diabetes, low thyroid, and leisure activities (sports and hobbies). **Psychosocial factors**, such as perceived high demands, perceived job control, perceived mental health, perceived general physical health, and job dissatisfaction, have also been collected for each worker.

**Physical factors** of work being documented in this study include high hand force, high repetition, and awkward or constrained postures. **Work Organization** characteristics have not been well studied with respect to musculoskeletal disorders. For each department in which a study participant works, work organizational factors have been recorded. These include environmental factors (lighting, temperature, noise, housekeeping), work pacing, social content, flexibility in the work group, attention demands and job content constraints.



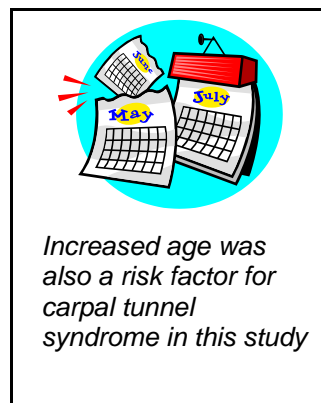
*In the UEMSD Study, high repetition increased the risk factor for rotator cuff syndrome and carpal tunnel syndrome*

By analyzing different factors from preliminary baseline data, the prevalence of a disorder in our study population was calculated. The prevalence of work-related right rotator cuff syndrome was 5%. The prevalence of work-related right carpal tunnel syndrome was about 5%, as well.



*Being female increased the risk of carpal tunnel syndrome in the UEMSD Study*

Additionally, the “risk” of having an UEMSD in the presence of a specific factor was calculated. If the risk is greater than 1, there is an increased risk. If the risk is less than 1, the factor lowers the risk or is considered protective. High repetition increased the risk of Rotator Cuff Syndrome in the right shoulder, determined by symptoms and positive physical exam (risk=2.3) while perceived high mental health lessened the risk (risk=0.7). For Carpal Tunnel Syndrome of the right wrist, determined by symptoms and positive nerve conduction test, age increased risk slightly with each year (risk=1.1), being female increased risk (risk = 2.6) while highly repetitive work increased risk by 3 times (risk=3.0).



*Increased age was also a risk factor for carpal tunnel syndrome in this study*

# FACE Program



## Fatality Assessment and Control Evaluation

The WA FACE Program works with the construction industry to prevent work-related fatalities.

The construction industry in Washington state employs approximately 6% of the workers in the state, but accounts for approximately 19% of work-related fatalities. Thirty-two percent of these deaths are due to falls from elevation, 25% are due to roadway motor vehicle collisions, and 13% are due to machinery.

To help prevent fatal construction injuries in the state, we initiated a program to disseminate critical information about these fatal incidents to the industry. We develop, in partnership with WISHA Services, a one-page narrative describing each recent construction fatality and include recommendations for prevention. These "Fatality Narratives" are then distributed via e-mail to approximately 700 parties interested in construction safety. The narratives are available on our web site at <http://www.LNI.gov/safety/research/face/ReptNarr/default.asp>. Training sessions are also being held using these materials. Requests to be added to the distribution list should be sent to [clav235@LNI.wa](mailto:clav235@LNI.wa).

### Example of FACE Narrative

Construction Supervisor Falls from Scaffold While Pouring Concrete into Form

<b>Industry:</b> Construction	<b>Release Date:</b> 11/14/2003
<b>Occupation:</b> Supervisor	<b>Case No.:</b> 03WA004
<b>Task:</b> Pouring concrete into form wall	<b>SHARP Report No.:</b> 71-15-2003
<b>Type of Incident:</b> Fall	

On February 10, 2003, a construction supervisor at a new single-family residential construction site was killed during a concrete pour when he fell 9'7" from a scaffold. The 64-year-old victim was standing on a 7-1/2 inch wide scaffold plank guiding a whip hose that was pouring concrete from a concrete pumper into plywood form walls. The worker fell backwards about 9'7" to the ground below where his head struck a rock. He died at the site.

#### Requirements/Recommendations

(! Indicates items required by law)

- ! Scaffolds must be designed by a qualified person and constructed and loaded in accordance with that design.
- Guardrails should be installed along all open sides and ends of the working and walking sections of the scaffold.
- ! A scaffold platform or walkway must be at least 18 inches wide.
- An employer should develop and implement a written fall protection plan where employees are exposed to fall hazards.
- An employer should ensure that fall restraint, fall arrest systems, or positioning devices are used when employees are exposed to fall hazards.
- The discharge end of the delivery hose (whip hose) needs to be well controlled during normal movement and restrained in the event of a line surge due to an air pocket, blockage or other flow disruption to prevent swinging of the end of the hose.

**Note:** Because the height of the fall was less than 10 ft., guard rails, a fall protection plan, and fall prevention equipment were not required, but would be highly recommended.

**State Wide Statistics:** This was the 3<sup>rd</sup> work-related fatality in Washington State during the year 2003 and was the 1<sup>st</sup> construction fatality of the year.

# Protection of Confidentiality



Protecting the identity of SHARP's research partners is extremely important. The validity of the research results may be threatened if the respondent, either the employer or worker, is concerned about the confidentiality of their responses. SHARP research staff are trained in two important areas for protection of our research partners: the **HIPAA Privacy Rule** and **Human Subjects Protections**. HIPAA stands for the Health Insurance Portability and Accountability Act of 1996. The Privacy Rule creates national standards to address the use and disclosure of individuals' health information as well as standards for an individual's rights to understand and control how their health information is used. All SHARP research staff are required to undergo a two hour training regarding HIPAA and its importance to SHARP's research.

Federal grants for SHARP's research projects often undergo review by the Washington State Institutional Review Board (WSIRB). The WSIRB's review of research determines that: 1. the rights and welfare of human subjects are adequately protected; 2. risks to individuals are minimized, are not unreasonable, and are outweighed by the potential benefits to them or by the knowledge to be gained; 3. the proposed study design and methods are adequate and appropriate in the light of stated study objectives. Research procedures must comply with federal regulations, state laws, the Washington Administrative Code as well as other regulations. Each SHARP research staff member receives a four hour web-based training in the Protection of Human Research Subjects. L&I as an agency and SHARP staff members participate in the functioning of the WSIRB.

### ***SHARP program information***

Created in 1990, the Safety & Health Assessment & Research for Prevention (SHARP) program is a multi-disciplinary research program within the Washington State Department of Labor and Industries.

SHARP's mission is to conduct research, monitoring, and demonstration projects that promote healthy work environments and prevent workplace injuries and illnesses.

Our research specialists offer expertise in computer systems, economics, epidemiology, ergonomics, industrial hygiene, occupational medicine, safety, and toxicology.

SHARP is available to help you address a wide range of occupational health concerns. Our staff assists workers and employers with complex health and safety issues, delivers seminars, presents research findings, provides independent scientific review of issues, and publishes information.

Since 1990, SHARP has addressed a diverse range of occupational health concerns in response to requests from employers, labor, health care professionals, and agency staff.

SHARP research priorities are based upon the ***MUSTCURE*** criteria:

**M**agnitude of the problem  
**U**rgency  
**S**eriousness of the hazard or injury  
**T**echnology transfer opportunities for prevention  
**C**ost  
**U**nder-reporting potential  
**R**esearch gaps to fill  
**E**merging hazard, disease, or injury

The collective knowledge and creativity of SHARP's research team focus on accomplishing the following goals:

- Collect and analyze data for injury and illness prevention.
- Test hypotheses and develop methods for evaluating workplace exposure and health.
- Provide information and promote technology transfer.
- Serve as a scientific resource.
- Evaluate the effectiveness of intervention strategies aimed at reducing workplace injuries and illnesses.

## **Want to Learn About the SHARP, *Safety & Health Assessment & Research for Prevention* Program ?**

**1-888-66-SHARP**

**[www.LNI.gov/safety/research](http://www.LNI.gov/safety/research)**

### **Contact SHARP**

To obtain additional information or to request SHARP's services:

E-mail: [SHARP@LNI.wa.gov](mailto:SHARP@LNI.wa.gov)

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