



# Occupational Health In Wisconsin: An Annual Report 2006



# Preface

## About this Report

This is the first public Annual Report for the Wisconsin Occupational Health Program. It is intended to provide historic data as well as establish a baseline from which to compare subsequent years. Data presented is obtained from many different sources and is subject to the limitations described in the general data limitations on page 6 and listed in each indicator.

## Our Core Belief

The Bureau of Environmental and Occupational Health at the Wisconsin Division of Public Health values a safe and healthy work environment for all people of Wisconsin.

## Our Strategic Plan

The Program plans to continuously improve the safety of workers and the work environment through surveillance, education and outreach. The Bureau of Environmental and Occupational Health, Environmental and Occupational Epidemiology Unit will track and evaluate work-related illness and injury in order to identify problem areas, inform Wisconsin residents about illness and injury in the workplace and develop and implement effective interventions to prevent such incidents.

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### Department of Health and Family Services

Increasingly, workers, employers and public health professionals have turned to State government for education, expertise and protection to ensure a safe and healthy workplace. During the past century major advances have been made in recognizing, evaluating, and preventing hazards that contribute to occupational injury, illness, and death. The Department of Health and Family Services is proud to continue in a leadership role promoting this advance.

The Division of Public Health's Bureau of Environmental and Occupational Health has taken the lead to move Wisconsin forward to meet Healthiest Wisconsin 2010, State Health Plan's vision of "healthy people in healthy communities" by:

- Tracking occupational injuries, illnesses and death;
- Investigating circumstances around workplace illness, injury and death in Wisconsin;
- Participating in national work groups and local coalitions;
- Linking environmental health, protection and preparedness, with occupational safety, community coalitions and governmental agencies;
- Developing and disseminating materials to educate workers and administrators about workplace hazards and how to prevent them;
- Evaluating the effectiveness of workplace interventions; and,
- Measuring improvement.

*An Annual Report: Occupational Health in Wisconsin*, produced by the Bureau's Occupational Health Program, serves as an added tool to move us toward this vision. It is the first surveillance report to use the Council of State and Territorial Epidemiologists (CSTE)/National Institute of Occupational Safety and Health (NIOSH) 19 indicators to inform the health and safety of Wisconsin's workers. These data are intended to empower both employers and workers to produce effective responses to illness, injury and death in the workplace.

With warm regards,

Kevin R. Hayden  
Secretary

## Executive Summary

The intent of *Occupational Health in Wisconsin: An annual report* is to:

- Serve as a description of the Wisconsin Occupational Health Program and its partners;
- Summarize data collected through indicators of occupational health and safety;
- Educate workers, employers and community members to promote safe and healthy work conditions.

### Introduction to the Wisconsin Occupational Health Program

The Wisconsin Occupational Health Program is part of the Bureau of Environmental and Occupational Health (BEOH) within the Division of Public Health at the Wisconsin Department of Health and Family Services (DHFS). (Appendix A.) In general, the Bureau strives to protect the public's health from adverse conditions in physical and natural environments. The Occupational Health Program specifically focuses on adverse conditions that affect worker health. The Program does this by identifying and assessing occupational risk through surveillance, and collaborating with others through a state-wide occupational health and safety network to develop interventions.

### Indicator Data Summary

The Program maintains a federally-funded occupational health surveillance system and bases its activities around collecting detailed information for 19 indicators identified by the Council for State and Territorial Epidemiologists (CSTE) and the National Institute for Occupational Safety and Health (NIOSH). In 2000, Wisconsin served as a pilot state to evaluate the feasibility of using these indicators. Data are available for the years 2000-2004 and are summarized for each indicator in this report. Listed below are some key findings for Wisconsin.

- Wisconsin's non-fatal injury and work-related hospitalization rate has declined since 2000;
  - The annual rate of work-related hospitalizations in Wisconsin is below the national average.
  - Most work-related hospitalizations are for musculoskeletal disorders and acute injury.
  - The incidence rate of musculoskeletal injury is above the national average.
- The rate of fatal injuries in Wisconsin remains steady despite prevention efforts;
  - The majority of work-related fatalities in Wisconsin occurred from motor vehicle operation, and in farming, labor and construction occupations.
- The death rate for respiratory diseases, asbestosis, and malignant mesothelioma in Wisconsin has increased since 2000;
- Since 2000 Wisconsin Workers' Compensation awards have increased;
  - Wisconsin pays over \$250 million in workers' compensation per year, but the true costs are over \$900 when physician visits, worker suffering and lost productivity are considered.
  - Wisconsin pays an average of \$7 million per year in workers' compensation for carpal tunnel syndrome alone.
- The number of Wisconsin's occupational health professionals has remained static during the past 5 years;
  - The American Medical Association (AMA) estimates that between 2,900-3,000 occupational health professionals are needed to protect the health of Wisconsin's workers

### Collaborate, Educate and Promote

Successful occupational health practice requires the collaboration and participation of multiple partners such as employers, workers, physicians, nurses, college and university professors, industrial hygienists, toxicologists, education specialists, engineers and safety professionals. This collaboration serves to inform the development of strategies that ensure a healthy and safe work environment. Occupational Health Program activities have led to:

- Outreach activities on burn reduction targeted toward young restaurant workers;
- Creation of public service announcements to inform medical facility workers about the use of lifts and other devices to assist in moving patients to reduce worker injury;
- Employer training on the prevention of repetitive motion injuries;
- Training of lead abatement workers;
- Interest in occupational health professions at both UW-Madison and UW-Milwaukee;
- Support for the modification of a DHFS administrative rule to require direct reporting of work related illness;
- Support for increasing the minimum age for operating farm equipment;
- Development of strategies to reduce the adult asthma triggers in the workplace;
- A preparedness plan for industry support during a major health event such as pandemic flu.

## Introduction

### Why did I receive this report?

It is the mission of the Bureau of Environmental and Occupational Health to promote the public's health through statewide programs that increase awareness of environmental and occupational health hazards and disease, and to reduce the morbidity and mortality of Wisconsin residents by preventing and controlling exposure to those hazards.

This annual report was developed to support our mission by:

- Informing the public about the Wisconsin Occupational Health Program activities
- Detailing Wisconsin's workplace health
- Encouraging readers to partner with us to help reduce workplace injury and death.

Characterizing the magnitude of a problem is an important step toward addressing it. Counting the number and characterizing the type of workers who are injured, fall ill, or are exposed to harmful chemicals on the job is the starting point for efforts to prevent work-related illness and injury.

### Why should it matter to me?

An injury or illness in the workplace affects us all - not just those that are injured. For the injured worker the effect may be pain and suffering, economic loss or stress on relationships. For the employer an incident means increased workers' compensation and insurance costs, or maybe an economic slow down due to broken machinery or repair. For others it may mean lost productivity or decreased morale. The negative impact of each of these has a reach that extends out into families, communities and the State as a whole.

### It's a matter of economics

In 2004, almost \$250 million in Workers' Compensation claims were paid out to workers injured in the workplace. This does not include any property damage costs, or incidents that did not result in lost time on the job.

### We are all part of the solution

The cost of injury prevention is far less than the cost of an injury. As you read through this report, celebrate the decline in workplace injury and illnesses, but keep in mind that Wisconsin can do better. It is critical that employers continue to build partnerships with risk managers, safety personnel, government agencies, professional organizations and the public to identify and implement strategies that help to prevent workplace injury, illness and death.

### A brief history

- |      |   |
|------|---|
| 1840 | President Van Buren shortens the workday for employees on federal projects to 10 hours.   |
| 1868 | The National Labor Union convention passed a resolution deploring the "neglect of employers' protection of human life".   |
| 1897 | Fourteen states have factory safety and health laws passed. Ten require guarding of machinery, eight ban cleaning moving machinery by women and children, ten require guarding of elevator openings, eight require regulation of ventilation and sanitary conditions, seven require exhaust fans for dust and fumes, eight required reporting of accidents.   |
| 1912 | The first national Cooperative Safety Congress was held in Milwaukee. This event provided a forum for the exchange of information, and formed a permanent body devoted to the promotion of safety among the nation's industries. The National Safety Council was created in the following year. More safety congresses followed, along with the publication and distribution of the National Safety News, safety pamphlets and films. |
| 1934 | Safety legislation continued with the creation of the Bureau of Labor Standards.  |
| 1994 | World Health Organization creates "Declaration on Occupational Health for All" strategy   |
| 1999 | Environmental and Occupational health hazards are listed as a priority issue in Healthiest Wisconsin 2010.  |

## Occupational Death Rate

**In 2004, Wisconsin's age adjusted death rate from occupational Injury was 1.7 deaths per 100,000 workers.  
In 2004, Wisconsin had 133,900 non-fatal injuries and 99 fatalities in the workplace.**

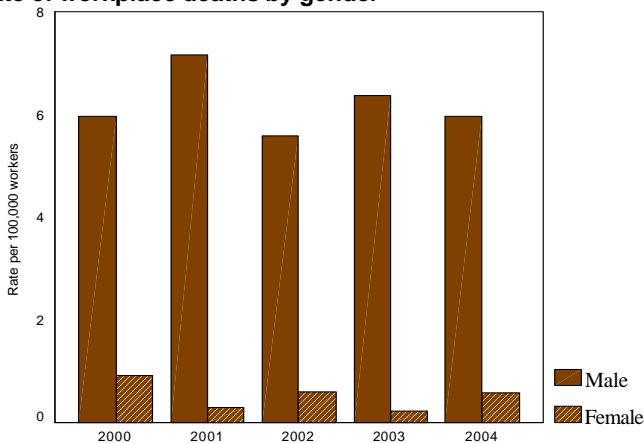
### Population Demographics

	2000 (%)	2001 (%)	2002 (%)	2003 (%)	2004 (%)
Gender					
Male	49	49	49	49	50
Female	51	51	51	51	50
Race					
White	92	92	92	92	92
Black	5	5	5	5	5
Hispanic	4	4	4	4	5
Other	3	3	3	3	3
Age					
16-17 years	3	3	3	3	3
18-64 years	62	62	62	63	63
65+ years	13	13	13	13	13

### Workforce Demographics

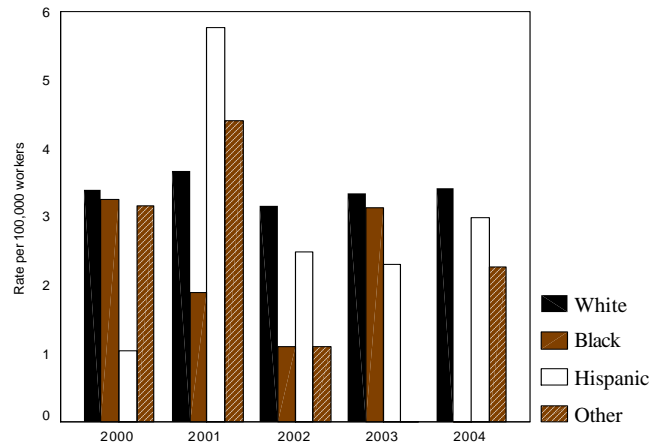
	2000 (%)	2001 (%)	2002 (%)	2003 (%)	2004 (%)
Gender					
Male	53	53	53	52	52
Female	47	47	47	48	48
Race					
White	93	94	94	94	93
Black	4	4	3	3	4
Hispanic	3	4	4	4	5
Other	2	2	3	3	3
Age					
16-17 years	3	3	2	3	3
18-64 years	94	94	95	94	94
65+ years	3	3	3	4	4

### Rate of workplace deaths by gender



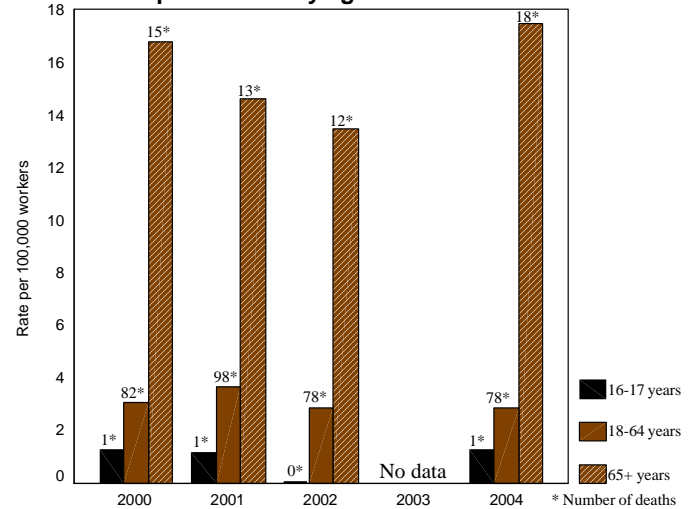
The occupational death rate was higher in males. Since the gender distribution in the workforce is almost equal, the difference is likely due to the types of jobs that are more likely filled by males rather than females. For instance, males are more likely to work as truck drivers or construction laborers, which have a high rate of workplace death.

### Rate of workplace death by race



Most work-related deaths occur in white males. While the death rate is higher among white workers it has remained the same from year to year. In contrast, the rate of work-related death among Hispanic workers appears to be increasing and may warrant further investigation to determine the reason for this.

### Rate of workplace death by age



This graph depicts both the numbers of work-related deaths (\*) and the rate (bar) in young, middle and older aged workers. The greatest number of work-related fatalities occurred in the age group spanning 18-64 years (age group with the most workers), however, the highest rate of work-related death occurred in those workers older than 65. This high rate is the result of the smaller number of workers in the 65+ age category.

## CSTE/NIOSH 19 Indicators

### What's an Indicator?

Occupational health indicators are summary measures that describe key aspects of adverse health outcomes associated with working in Wisconsin. More specifically, an occupational health indicator is a measure of a work related disease or injury, or a factor associated with occupational health such as workplace exposures. The Wisconsin occupational health indicators describe key trends in occupational fatalities, non-fatal injuries and health effects. These measures can be used as a foundation of developing appropriate intervention and prevention strategies and designing programs to address key occupational health concerns.

Beginning in 1999, a workgroup of Council of State and Territorial Epidemiologists (CSTE) representatives went through a multi-year process to define indicators that could be used to monitor and measure work-related illness and injury. The workgroup defined a total of 19 indicators or measures that could be used. Twelve are intended to measure health effects (indicators 1-12), 1 is intended to measure exposure to potentially harmful substances in the workplace (indicator 13), 3 are intended to measure workplace hazards (indicators 14-16), 2 measure interventions (indicators 17 & 18) and 1 is a socioeconomic indicator (indicator 19).

The following pages display Wisconsin's status for these measures over a five year period. For general comparison purposes data from other select states are provided.

### Indicator Data Methods

The CSTE indicators are a passive surveillance system that utilizes data from multiple sources and billing systems. Data sources are listed at the bottom of each indicator page as well as in the "Data Source" section of this document. Full documentation of all 19 indicators and data collection methods can be found on the CSTE website: <http://www.cste.org/pdffiles/howoguide8.3.06.pdf>.

### General Data Limitations

- Rates may not be indicative of current exposure since some conditions have a long latency period before the appearance of symptoms.
- Data used for indicators are a probability sample. They are not a complete census of all employers or employees.
- Some states do not participate in the surveys used to obtain indicator data.
- Definitions, methods of reporting, or diagnosis codes of work-related injury/illness may differ among states. Indicator comparison between states should be done with caution.
- Data recorded for a specific year may not be complete due to a lag in data reporting or incident investigation.
- Not all injured persons file a workers' compensation claim.
- Self-employed workers are not covered by workers' compensation.
- Not all injured workers seek medical treatment.

### Data Sources

Wisconsin Department of Workforce Development

Workers' Compensation data

Wisconsin Children's Hospital Poison Control Center

National Academy of Social Insurance

Annual Research Report

Occupational Safety and Health Professional Registries

American College of Occupational and Environmental Medicine (ACOEM)

American Association of Occupational Health Nurses (AAOHN)

American Industrial Hygiene Association (AIHA)

American Society of Safety Engineers (ASSE)

US Bureau of Labor Statistics

Current Population Survey

Survey of Occupational Injuries and Illnesses (SOII)

Census of Fatal Occupational Injuries (CFOI)

US Census Bureau

County business patterns

Census data

Wisconsin Department of Health and Family Services

Hospital Discharge database

Adult Blood Lead Evaluation System (ABLES)

Death certificate records

Cancer registry

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**Wisconsin is one of the original participants in occupational indicator pilot study**

*Putting Data to Work: Occupational Health Indicators  
from Thirteen Pilot States for 2000. CSTE, October 2005*

Wisconsin was instrumental in the development and validation of occupational health indicators through its participation in the pilot study.

# CSTE/NIOSH Indicators in Wisconsin

The following pages provide a comparative analysis of Wisconsin occupational health data collected over time. Our goal for this section of the report is to provide a general summary of the data in order to understand the occupational health status in Wisconsin.

The Wisconsin data presented in this report is a comparative analysis over time. No statistical test was used to determine the significance of trends. A small change over time in an indicator that measures severe health outcomes, for example the indicator that measures fatal occupational illness, may have a greater impact than indicators that measure minor health outcomes. Several other factors influence the current quantity and quality of data being collected as part of the Occupational Health Surveillance program. The passive data collection process creates a lag time of 2-3 years between the time events actually occur and when data are available to the Wisconsin Bureau of Environmental and Occupational Health for analyzing and reporting results.

The quality of results is also impacted by under-reporting, inadequate health care provider recognition of work relatedness, difficulties in attributing diseases with long latency from the time of exposure to disease manifestation (e.g. silicosis) and/or from multifactorial causes (e.g. lung cancer) to occupational causation. Other factors may be the exclusion of at-risk populations from surveillance such as self-employed or the military, ICD-9 coding discrepancies and the differences in administrative database structure used for surveillance.

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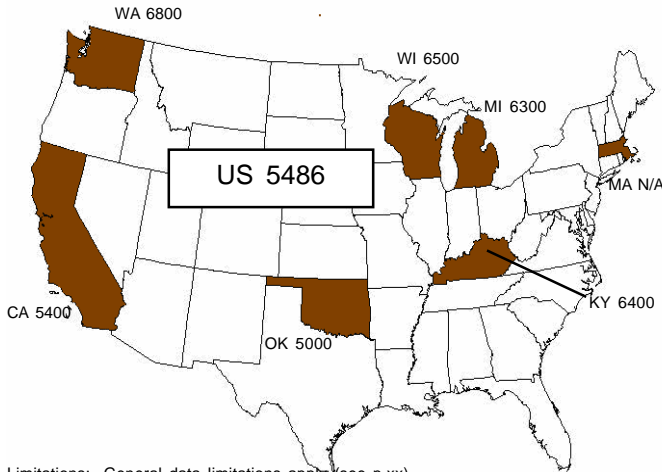


# Indicator 1: Non-fatal Injuries and Illnesses reported by WI Employers

## National

In 2005, the US Bureau of Labor Statistics (BLS) reported an estimated total of 1.2 million injury and illness cases that involved days away from work for the private sector workforce. Work-related injuries and illnesses are preventable, and control of occupational hazards is the most effective means of prevention. Information on reported cases can be used to identify contributory factors and to develop improved or new prevention strategies or regulations to protect workers.

Figure 1. Rate (per 100,000 workers) of ALL non-fatal work-related injury and illnesses reported by private sector employers, 2003



Limitations: General data limitations apply (see p.xx).

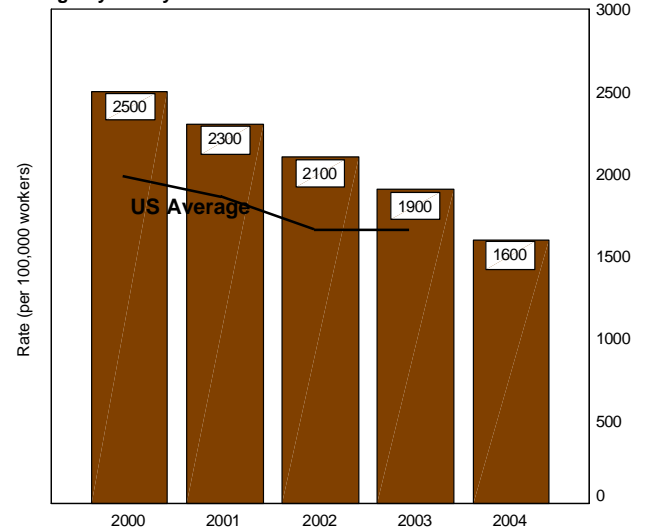
Data Source: Annual BLS Survey of Occupational Injuries and Illness

Putting Data to Work: Occupational Health Indicators from 13 Pilot States - 2000

## Wisconsin

The rate of new (incidence) non-fatal work related injuries in Wisconsin is above the national average. According to the BLS this rate has been declining since 2000 in both Wisconsin and the nation. These data are being used to track our success in meeting the Healthiest Wisconsin 2010 objectives of decreasing occupational injury and illness. The Wisconsin Occupational Safety and Health Administration currently use these data for its site-specific targeting program to inspect Wisconsin companies with the highest injury rate.

Table 1. Incidence Rate of Non-Fatal Work-Related Injuries and Illnesses Involving Days Away from Work



For more information or to obtain a copy of the brochure, contact Dona Haag at (608) 221-6289.

NATURE of injury or illness	2004 Cases (Number)	Percent of Total
Sprains, Strains & Tears	17,430	43.3%
Fractures	2,380	5.9%
Cuts, Lacerations & Punctures	2,830	7.0%
Bruises, contusions	3,070	7.7%
Heat Burns	270	0.7%
Chemical Burns	150	0.4%
Amputations	260	0.7%
Carpal Tunnel Syndrome	690	1.8%
Tendonitis	380	1.0%
Multi Injuries	1,460	3.6%
With fractures	420	29.4%
With sprains	440	30.8%
Soreness, Pain	4,090	10.2%
Back pain	1,570	38.4%
All Others	7,120	17.7%

NOTE: Percentages may not add due to rounding. Because of data exclusion of non-classifiable responses, data may not sum to the total.

Sprains, strains & tears of the trunk, mainly back, were the most common injuries, with soreness and pain added to it.

PART of Body Affected	2004 Cases (number)	Percent of Total
Head	2,020	5.0%
Eye	990	49.0%
Neck	690	1.7%
Trunk	16,020	39.8%
Back	9,670	60.4%
Shoulder	3,620	22.6%
Upper Extremities	8,990	22.4%
Finger	3,640	40.5%
Hand except finger	1,110	12.4%
Wrist	2,060	22.9%
Lower Extremities	8,030	20.0%
Knee	3,740	46.6%
Foot, toe	1,370	17.1%
Body System	420	1.1%
Multiple	3,820	9.5%
All Other	230	0.6%

NOTE: Percentages may not add due to rounding.

The Wisconsin State Laboratory of Hygiene is the State's public, environmental and occupational health laboratory. The data in this report was compiled by the WSLH's Division of Public Health Informatics and Surveillance, in cooperation with the U.S. Department of Labor, Bureau of Labor Statistics and the Wisconsin Department of Workforce Development.

SOURCE of injury or illness	2004 Cases (number)	Percent of Total
Chemicals, chemical products	630	1.6%
Containers	3,680	9.2%
Furniture, fixtures	1,470	3.7%
Machinery	2,350	5.9%
Parts and Materials	5,050	12.6%
Worker motion or position	7,570	18.8%
Floor, ground surfaces	6,290	15.6%
Handtools	1,950	4.8%
Vehicles	2,940	7.3%
Health care patients	2,090	5.2%
All Others	6,200	15.4%

NOTE: Percentages may not add due to rounding.

Overexertion followed by contact with object or equipment are the leading causes of injuries.

EVENT of injury or illness	2004 Cases (number)	Percent of Total
Contact with object, equipment	9,580	23.8%
Struck by object	4,470	46.7%
Struck against object	2,450	25.6%
Caught in object, equipment, material	2,170	22.7%
Fall to lower level	2,220	5.5%
Fall on same level	4,260	10.6%
Slips, trips	2,080	5.2%
Overexertion	11,710	29.1%
Overexertion in lifting	4,770	40.7%
Repetitive motion	1,860	4.6%
Exposed to harmful substance	1,310	3.3%
Transportation accidents	1,320	3.3%
Fires, explosions	20	0.1%
Assault, violent act	810	2.0%
by person	720	88.9%
by other	60	7.4%
All other	5,050	12.6%

NOTE: Percentages may not add due to rounding.

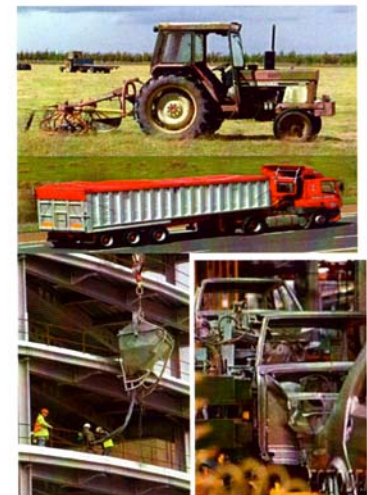
Production and service occupations are the most hazardous, followed closely by transportation.

Occupation of injured or ill Worker	2004 Cases (number)	Percent of Total
Management, business, financial	770	1.9%
Professional and related	2,530	6.3%
Service	8,180	20.3%
Sales and related	1,700	4.2%
Office and administrative support	2,230	5.5%
Farming, fishing and forestry	160	0.4%
Construction and extractive	5,730	14.2%
Installation, maintenance and repair	3,100	7.7%
Production	8,190	20.4%
Transportation and material moving	7,510	18.7%
All other	120	0.3%

NOTE: Percentages may not add due to rounding.



## Occupational Injuries, Illnesses & Fatalities for Calendar Year 2004



Contact: Dona Haag, WSLH, (608) 221-6289; haagd@mail.slh.wisc.edu

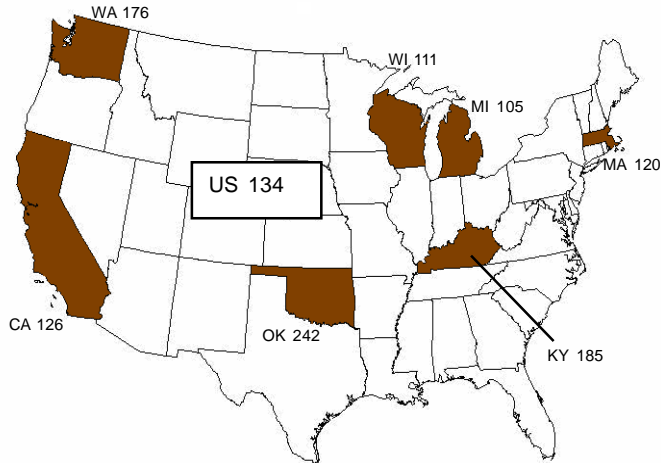
For more information, see [www.dwd.state.wi.us/wcz/](http://www.dwd.state.wi.us/wcz/)

## Indicator 2: Work-Related Hospitalizations

### National

Individuals hospitalized with work-related injuries and illness have some of the most serious and costly work-related adverse health outcomes. In 2005 there were over 5 million work related injuries and illnesses reported by private industry and over one million required a hospital visit. The total cost was more than \$100 billion dollars per year in Workers' Compensation awards.

**Figure 2. Rate (crude) of work-related hospitalizations, 2003**



**Limitations:** 1. Records are only available for non-federal, acute care hospitals. 2. Individuals hospitalized for work-related injuries and illnesses represent less than 10 percent of all workers who receive workers' compensation. 3. Residents of one state may be hospitalized in another and not be reflected in his/her state's hospitalization data. 4. May include multiple admissions for a single individual or incident.

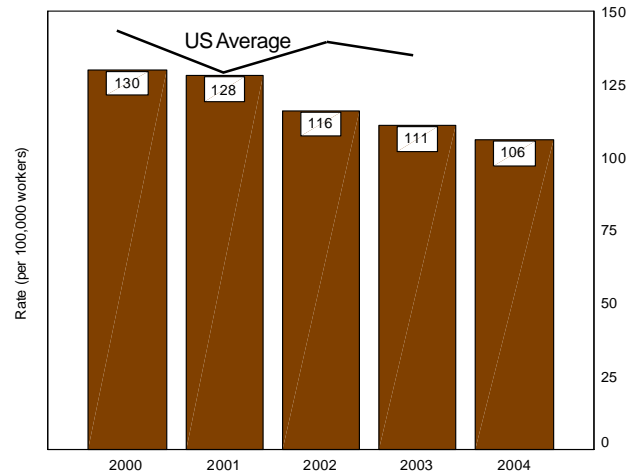
**Data Source:** Hospital discharge data; BLS Current Population Survey Data

### Wisconsin

The yearly rate of those hospitalized in Wisconsin with work-related injuries and illness has been declining since 2000 and is consistently below the national average. It has been estimated that nationwide approximately 3% of workplace injuries and illness result in hospitalization. The most frequently identified work-related hospitalizations are for treatment of musculoskeletal disorders and acute injuries.

Data collected here are also used by those studying workers' compensation to see overlaps and omissions between the workers' compensation database and the hospital discharge database. This helps to improve surveillance of hospitalizations due to occupational injury by identifying all cases.

**Table 2. Incidence Rate of Work-related Hospitalizations**



"Hospitalizations for job-related injuries and illnesses account for less than 1 percent of all hospital stays. Nevertheless, nationally, they represent over 200,000 hospitalizations per year, involve charges of about \$3 billion annually, and account for nearly 20 percent of all medical expenditures for worker's compensation (WC) claims in the United States."

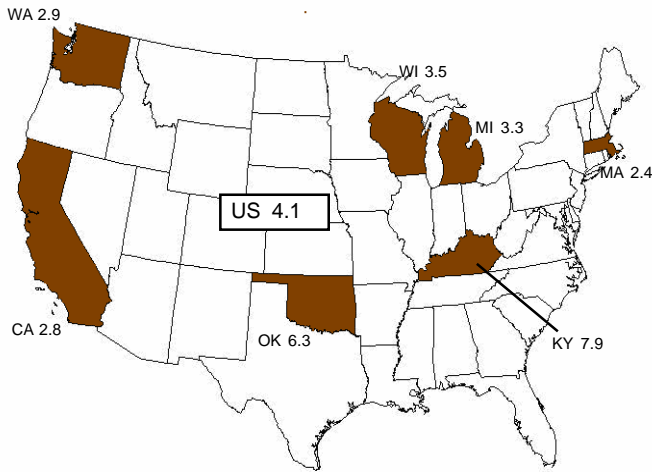
More details are in *Inpatient hospital care for work-related injuries and illnesses* by Dr. Dembe, Martha A. Mastroberti, MS., Sharon Fox, PhD and others in the *American Journal of Industrial Medicine* 44, pp331-342. 2003.

### Indicator 3: Fatal Work-Related Injuries

#### National

Nationally, over 5000 cases of work-related fatal injuries are reported annually to the Census of Fatal Occupational Injuries (CFOI) Program administered by the Bureau of Labor Statistics (BLS). On an average day, 16 workers die as a result of injuries sustained at work. Multiple factors and risks contribute to work-related fatalities, including workplace or procedure design, work organization, worker characteristics, economics and other social factors. According to BLS, the top 5 risky jobs in the US are fishers & related fishing workers, logging, aircraft pilots & flight engineers, structural iron & steel workers, and refuse & recyclable material collectors.

**Figure 3. Rate of Fatal Work-related injuries per 100,000 workers by State, 2003**



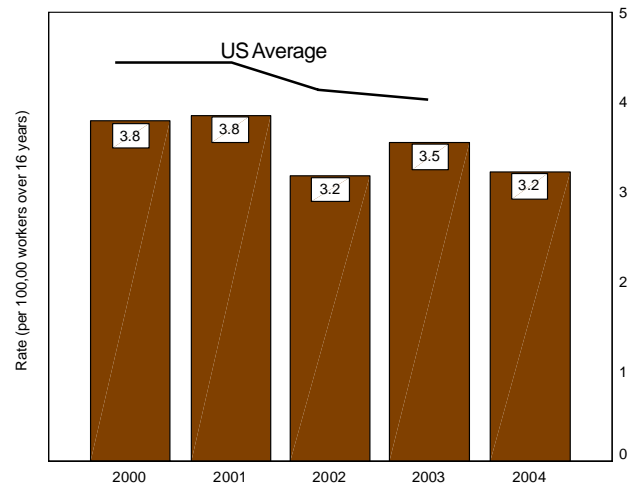
**Limitations:** 1. Where numbers are low, data are categorized under 'others'. 2. The CFOI program publishes findings according to the OIIC classification system rather than the ICD-9 system. 3. Data from CFOI may not be comparable to causes of death documented on death certificates.

**Data Source:** Census of Fatal Occupational Injuries; BLS Current Population Survey Data

#### Wisconsin

In Wisconsin, the fatal injury rate has declined from the years 2000 to 2004. During this period, the most fatalities occurred in motor vehicle or truck operators, farmers, laborers and construction workers. During this period, deaths were more frequent among white, non-Hispanic males, which is consistent with the demographics of the state's workforce population. The number of fatalities in males is disproportionately higher than females. This could be because more males are employed in 'high-risk' occupations. In 2004, motor vehicle operators, agricultural managers, sales workers killed while driving, and construction workers accounted for more than two-thirds of the work-related fatalities occurring in Wisconsin.

**Table 3. Incidence Rate of Fatal Work-Related Injuries in Wisconsin**



**In 2004, 25 farm-related fatalities occurred in Wisconsin. Of those fatalities, tractors were involved 28% of the time.**

#### A Wisconsin Story

An 11 year-old boy died when he was pinned under the tractor he was driving to move large hay bales in a field. He learned about the equipment and safety from his parents and older brothers, and was looking forward to taking the tractor safety training course as soon as he was eligible at age 12. His "sand box" play included dividing the box into plots and planting crops with toy equipment and watering them. He talked often about becoming a farmer. His father taught him how to drive the tractor, and by the age of 10 he was driving the tractor for small farm chores. He was 5'4" and 130 pounds.

On the day of the incident, he went out to the field around 11 AM to work by himself in a field about 5 miles from home. Later he called home and asked his mother for sandwiches. She sat with him while he ate lunch and told him he could quit working, but he wanted to work until dusk. At dusk the victim's brother went to get him and found him pinned underneath the tractor.

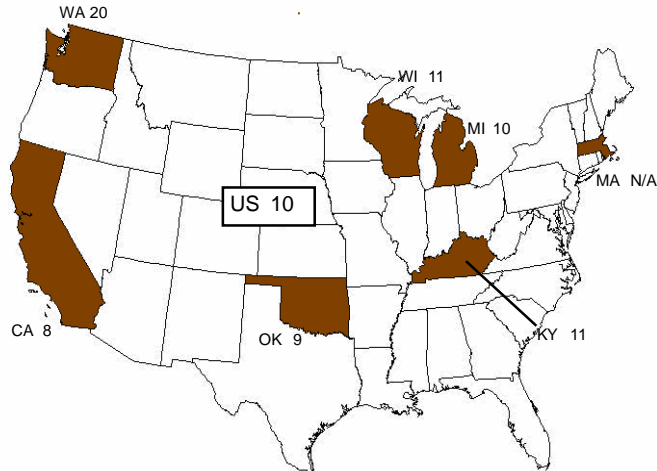
The Wisconsin FACE investigators visited the boy's mother and two brothers several months after the incident. They had cut back on the acreage they were farming, and were stopping the farm's dairy operation. The boy's father had died unexpectedly several weeks after the incident.

## Indicator 4: Amputations Reported by Employers

### National

Each year throughout the United States more than 16,000 workers will experience amputation at work. Of these approximately 90% are to the fingers. One study suggests that 22% of all employees who experienced finger amputations must give up their original employment (McCaffrey). These injuries may greatly affect a worker's job skills and reduce earnings.

**Figure 4. Rate of Work-related amputation involving days away from work, 2003**



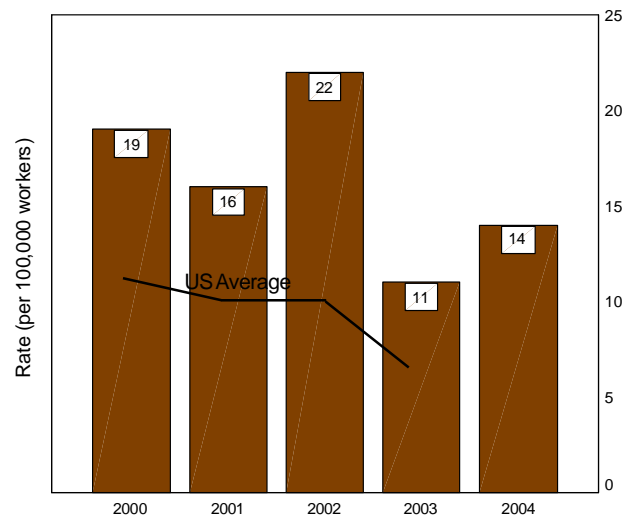
**Limitations:** 1. There is the potential for sampling error if an employer has more than 30 cases with days away from work as an employer is only required to report on 30 such cases. 2. Recommended measure of frequency is limited to private sector workforce. 3. In some participating states the sample sizes are insufficient to generate State-specific estimates. 6. The SOII only collects data for the incident year and does not capture lost work-time that may carry over to a new calendar year.

**Data Source:** Annual Bureau of Labor Statistics (BLS) Survey of Occupational Injuries and Illnesses (SOII)

### Wisconsin

In Wisconsin, the rate of amputations reported by employers varies by year. While the numbers have decreased since 2000, more data is needed to determine if this is a trend. The variation noted in Wisconsin is possibly due to the small numbers of amputations reported. Employers are only required to report the details of an injury when a worker misses more than one day of work. Workers may not be counted because they are placed on restrictive duty and do not miss work.

**Table 4. Incidence Rate of Work-related amputations involving days away from work**



OSHA FACT Sheet

Amputations

**What are the sources of amputations in the workplace?**  
Amputations are some of the most serious and debilitating workplace injuries. They are widespread and involve a variety of activities and equipment. Amputations occur most often when workers operate unguarded or inadequately safeguarded mechanical power presses, power press brakes, powered and non-powered conveyors, printing presses, roll-forming and roll-bending machines, food slicers, meat grinders, meat-cutting band saws, drill presses, and milling machines as well as shears, grinders, and slitters. These injuries also happen during materials handling activities and when using forklifts and doors as well as trash compactors and powered and non-powered hand tools.

**What types of machine components are hazardous?**

- Point of operations
- Power-transmission apparatuses
- Other moving parts

**What kinds of mechanical motion are hazardous?**

- Rotating
- Reciprocating
- Transversing
- Cutting
- Punching
- Shearing
- Bending

**Are there any OSHA standards that cover amputation hazards in the workplace?**

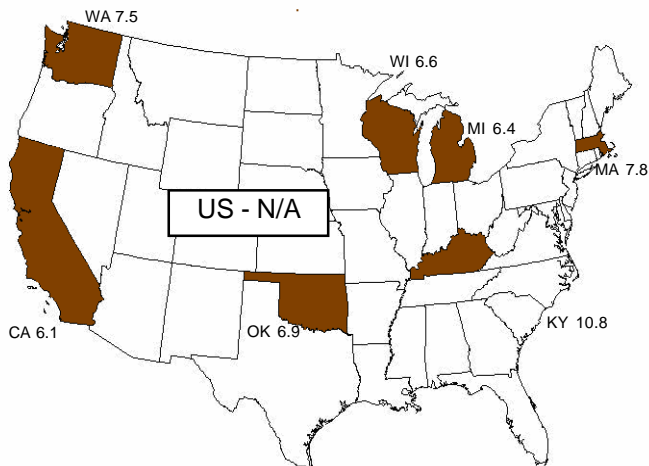
- 29 CFR Part 1910 Subparts O and P (machine guarding)
- 29 CFR 1926 Subpart I (hand and power tools)
- 29 CFR Part 1928 Subpart D (agricultural equipment)
- 29 CFR Part 1915 Subparts C, H, and J (maritime operations)
- 29 CFR Part 1917 Subparts B, C, and G (maritime operations)
- 29 CFR Part 1918 Subparts F, G, and H (maritime operations)

## Indicator 5: Amputations Identified in State Workers' Compensation Systems

### National

Workers' compensation claims give additional information about the factors contributing to work-place amputation. These factors can be used to improve or develop new prevention strategies.

**Figure 5. Incidence rate of amputations per 100,000 workers covered by workers' compensation system, 2003**



**Limitations:** 1. Availability of data and eligibility criteria may differ between states 2. The majority of individuals with work-related injuries do not file for workers' compensation which leads to under reporting. 3. Workers' compensation claims may be denied. 4. Self-employed individuals are not covered by state workers' compensation systems and are not counted.

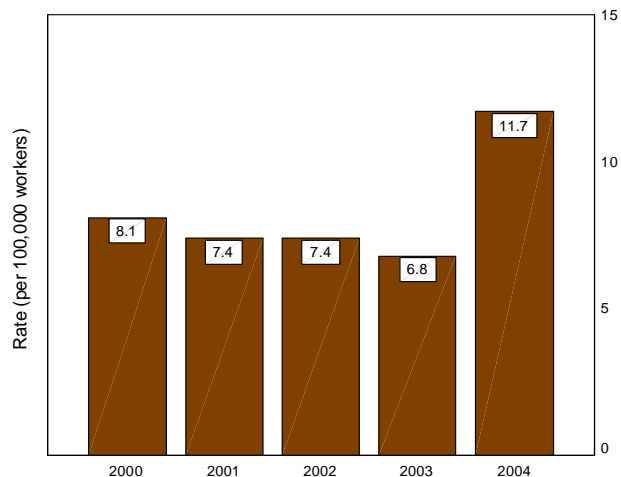
**Data Source:** Workers' compensation system; National Academy of Social Insurance (NASI) estimate of workers covered by workers' compensation.

### Wisconsin

Data collected between 2000 and 2004 show that Wisconsin's incidence rate of amputation declined and then increased in 2004. This increase reflects a change in the method that the Wisconsin Workers' Compensation Program collects the data used in this indicator. Prior to 2004 data were reported by the date the injury occurred; currently, data are reported by the date the case is closed - often a difference in years. The increase in 2004 may be due to duplication of cases that occurred in previous years being counted again in 2004 when the case was closed. However, all rates have been consistently below the national average.

Ninety-one percent of the amputations covered by the Wisconsin Workers' Compensation System involve amputation of one or more fingers.

**Table 5. Incidence Rate of amputations covered by workers' compensation system**



State of Wisconsin  
Department of Workforce Development

### Information for Employees on Wisconsin's Worker's Compensation

Worker's Compensation is a benefit program that pays for medical treatment and wages lost due to injuries or illnesses that happen at work.

#### What do you do if you are injured?

- Report any injury or illness to your employer as soon as possible.
- Get medical treatment as soon as possible.

#### What does worker's compensation pay for?

- Medical treatment resulting from your work-related injury or illness.
- Compensation for wages lost from the employer of injury.
- Compensation for permanent disabilities resulting from the injury/illness.
- Vocational rehabilitation assistance if you cannot return to work.

#### What will happen when you file a claim?

- Your claim will be promptly reviewed to determine eligibility.
- Your employer/insurance carrier will pay your lost wage compensation.
- You may contact an attorney if your claim is denied.

#### Questions and Contact Information

Workers Compensation Division  
P.O. Box 7901  
Madison, WI 53707-7901

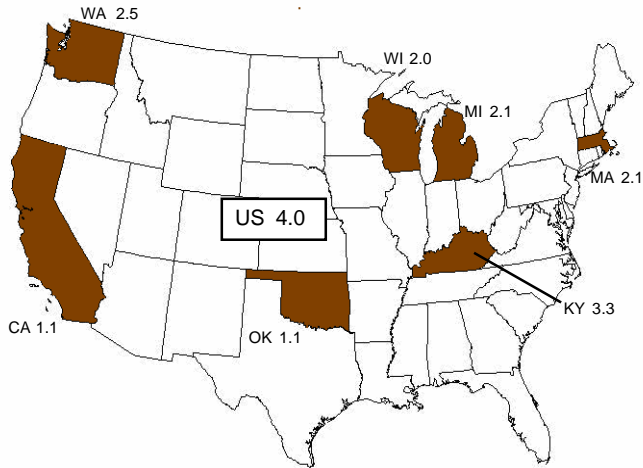
Telephone: 608-266-1340  
Website: <http://www.dwd.state.wi.us/wc/>  
E-mail: [dwdwc@dwd.state.wi.us](mailto:dwdwc@dwd.state.wi.us)

## Indicator 6: Hospitalizations for Work-Related Burns

### National

Although burns requiring hospitalization are unusual events, they are some of the most devastating injuries affecting workers. Over 150,000 burns are treated in US emergency rooms each year. It is estimated that 30-40% of these burns are from work-related injury (Smith).

Figure 6. Rate of hospitalizations for work-related burns, 2003



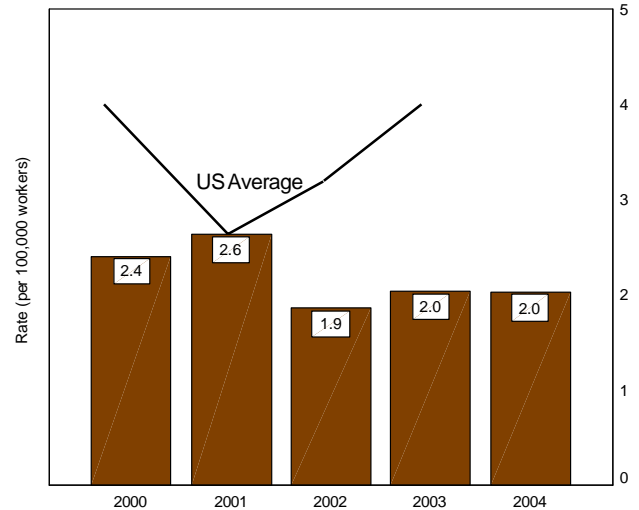
**Limitations:** 1. The numbers of burns reported are small and small changes may cause a large change in rate. 2. The payor listed in hospital discharge may reflect a private payor and not workers compensation. 3. Burns may be the result of another injury and not listed on the hospital discharge record..

**Data Source:** Hospital discharge data, BLS Current population survey

### Wisconsin

Wisconsin's rate of hospitalizations for work-related burns has remained almost static during the data collection period. While the number of work-related burns in Wisconsin is small, a closer look at these data reveals that young, male workers are affected the most. Although males and females had similar injury rates, risks for injury by task and location differed by gender. Adolescent male employees are more likely to suffer burns, lacerations, and other injuries while performing tasks associated with cooking, while adolescent female employees were more likely to suffer contusions, strains, sprains, and other injuries while completing tasks related to cashing and servicing tables.

Table 6. Incidence Rate of hospitalizations for work-related burns



**Work-related burns account for 20-25% of all serious burns in the US . . . A majority of these burns occur in restaurant workers. Teen workers are particularly vulnerable to burn injuries.**

CDC-MMWR Weekly 42(37); 713-716. 1993



### WORKPLACE SAFETY TEENS WORKING

#### 2002 FIVE WORST JOBS FOR TEENS

- Driving and delivery, including operating or repairing motorized equipment**

Motor vehicle crashes account for 20% of all fatal workplace injuries
- Working alone in cash based businesses and late-night work**

Job-related homicide is the second highest cause of occupational injury deaths for workers who are 16 and 17 years old
- Cooking with exposure to hot oil and grease, hotwater and steam and hot cooking surfaces**

A 1999 study found 44,800 occupational injuries to teen restaurant industry workers, and burns were a leading injury
- Construction and work at heights**

Under federal law, construction work is prohibited for anyone 16 years old or younger. Among occupations where youth under 18 are injured, construction ranks third in number of occupational fatalities - at 13.7% of all youth worker fatalities
- Traveling youth crews**

Job may require traveling in vans to unfamiliar cities or other states. Many vehicles are unsafe and van drivers aren't insured. Some young employees aren't adequately paid-or paid at all- for their work

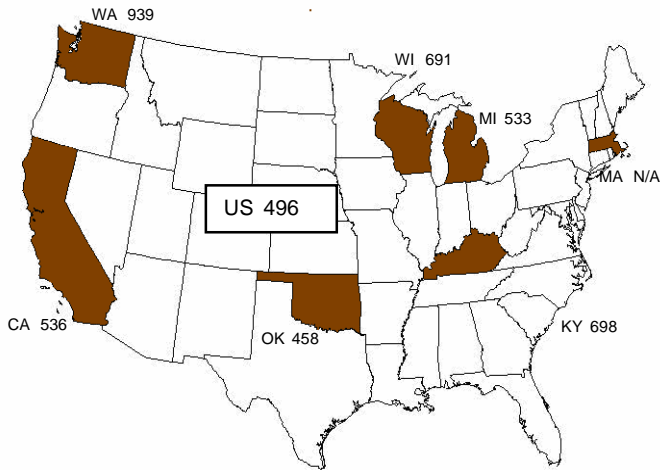
Milwaukee Journal Sentinel - Posted May 28, 2002  
Available at <http://www.jsonline.com/story/index.aspx?id=46703>

## Indicator 7: Musculoskeletal Disorders Reported by Employers

### National

The number of Americans missing work due to musculoskeletal disorders is continuing to decline. Yet, the U.S. Bureau of Labor Statistics (BLS) notes that in 2005 musculoskeletal disorders accounted for more than one out of three workplace injuries and illnesses involving recuperation away from work. Over half of these cases involved the back. Work-related musculoskeletal disorders are preventable through employee education and mechanically controlling hazards.

**Figure 7. Rate of all work-related musculoskeletal disorders involving days away from work reported by private sector employers by State, 2003**



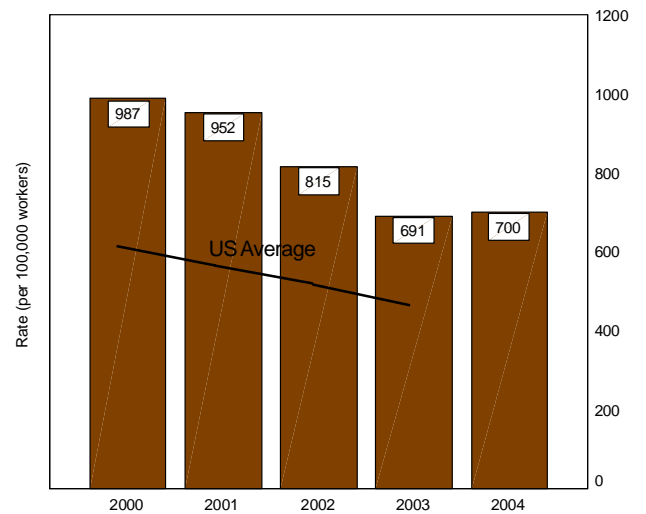
**Limitations:** 1. Employers are only required to report the detailed case characteristics that result in at least one day away from work. 2. Employers do not always record all relevant events. 3. Employers are often unaware of work-related conditions for which employees have obtained medical care from their personal health care providers. 4. Employers vary in their use of restricted work activity to reduce lost workdays among their employees with work-related conditions.

**Data Source:** Annual Bureau of Labor Statistics (BLS) Survey of Occupational Injuries and Illnesses (SOII)

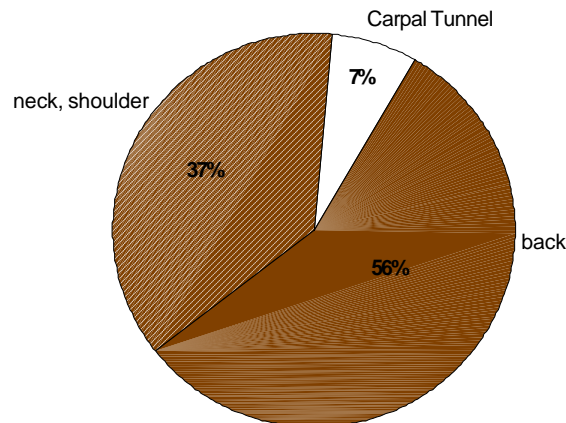
### Wisconsin

Wisconsin has seen a decline in musculoskeletal disorders along with the nation. Although the rate of work-related musculoskeletal disorders in Wisconsin has declined in the past 5 years, it continues to remain higher than the national average. Wisconsin workers' compensation insurance paid an average of \$7 million per year for carpal tunnel syndrome alone. Because of the extent of the problem, many agencies are working together to develop interventions to address all musculoskeletal disorders.

**Table 7. Incidence Rate of hospitalizations for work-related musculoskeletal disorders**



### Types of injuries requiring days off work in Wisconsin, 2003



## Preventing Musculoskeletal Disorders

- Prevention**
- Warm up and stretch before starting activities that are repetitive, static or prolonged.
  - Take frequent breaks from any sustained posture to stretch stiff muscles.
  - Respect pain - change position or stop the activity that causes pain.
  - Recognize the inflammatory process and treat early.
  - Only use splints and supports after instruction by a physician or therapist.

- Posture**
- Maintain erect position of back and neck with shoulders relaxed.
  - Use proper positioning during all activities.
  - Keep wrists as neutral as possible.
  - Avoid bending neck forward for prolonged periods of time.
  - Avoid static positions for prolonged periods.

- Task Modification**
- Whenever possible, alternate activities throughout the day.
  - If symptoms persist, reassess the task setup or look for alternative methods.
  - Avoid tugging, jerking, or pounding with the hand.

- Environment Modification**
- Avoid tools with finger grooves, hard handles, sharp edges or extreme diameter.
  - Use power devices when available.
  - Use grips/tape to build up small diameter writing utensils.
  - Use the longest tool available for best leverage.
  - Use vises, clamps or jigs to stabilize objects.
  - Use a ladder to reach objects overhead.
  - Use carts/dollies to carry heavy objects.
  - Use forearm troughs, armrests, or pillows under forearms if needed.
  - Use adjustable keyboard trays and adjust tilt.
  - Tilt objects to avoid vending the wrist.
  - Use the largest joints and muscles to do the job.
  - Use two hands to lift rather than one.
  - Slide, push or pull objects instead of lifting.
  - Keep reaching to a minimum.

UCLA Ergonomics  
<http://ergonomics.ucla.edu>.



Vesalius, Andreas (1514-1564)



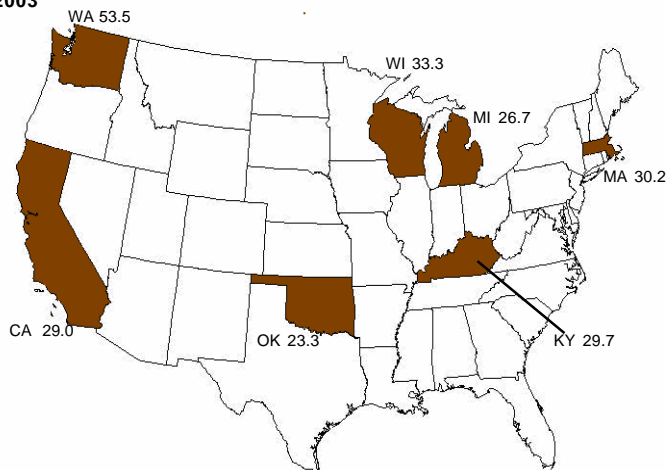
## Indicator 8: Carpal Tunnel Syndrome Cases Identified in State Workers' Compensation System

### National

The US Department of Labor defines Carpal Tunnel Syndrome (CTS) as a disorder associated with the peripheral nervous system, which includes nerves and ganglia located outside the spinal cord and brain. Symptoms include numbness, tingling, weakness or muscle atrophy in the hand and fingers when the median nerve at the wrist is compressed.

The *2004 Workers' Health Chartbook* (CDC) suggests that CTS is more severe than the average nonfatal workplace injury or illness since it resulted in a median of 25 days away from work compared with 6 days for all nonfatal injury and illness cases.

**Figure 8. Rate of lost work time claims for carpal tunnel syndrome identified through State Workers' Compensation, 2003**



**Limitations:** 1. Length of days away from work before a case can be recorded varies by state.  
**Data Source:** Workers compensation system data, National academy of social insurance (NASI) estimate of workers covered by workers compensation

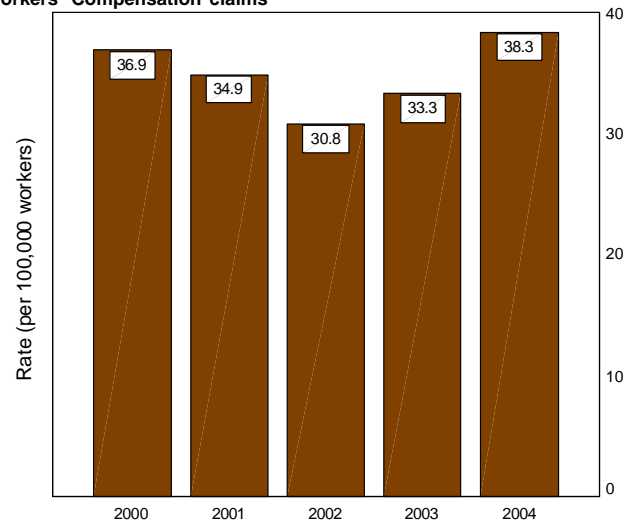
### Wisconsin

Wisconsin's incidence rate of carpal tunnel syndrome cases has remained constant during the first four years of reporting and then showed an increase in 2004. A change in Wisconsin Workers' Compensation data gathering methods in 2004 may account for this increase. In 2004, Workers Compensation began recording injury by the date the claim was settled not by the date the injury occurred. This may lead to duplication or recounting of claims that may have been recorded in earlier years when the accident happened and again in 2004 when the claim was settled.

During this 5-year time period, Wisconsin Workers' Compensation reports that the average claim for carpal tunnel syndrome (CTS) was more than \$5,000. CTS has the longest average disability duration among the top 10 workers' compensatable injuries.

In the past, because of the cost and disability caused by CTS, many intervention programs had been developed. However, more needs to be done to emphasize the work-relatedness of this disease and engineer solutions to it.

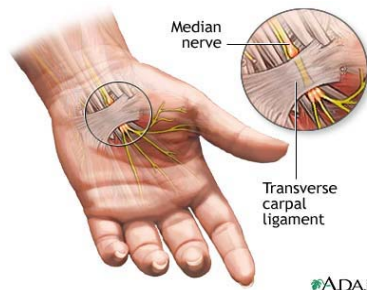
**Table 8. Incidence Rate of carpal tunnel syndrome identified through Workers' Compensation claims**



US data not calculated due to varying eligibility criteria among States

### Carpal Tunnel Syndrome (CTS)

Anything that increases the pressure within the carpal tunnel may bring on Carpal Tunnel Syndrome (CTS). The most commonly thought of factor is repetitive trauma to the contents of the tunnel, caused by repetitive movements at the wrist due to jobs or hobbies which involve these movements (keyboarding, playing a musical instrument, etc.). Such activities often reported as initiating the symptoms include: keyboarding, driving, talking on the phone, crocheting, and other activities which involve maintaining a certain wrist position for prolonged time periods. The hand will most often look normal; however, if the process is long-standing, there may be some atrophy (loss of mass) in the thenar muscles (group of muscles at the base of the thumb).



ADAM



## Occupationally Related Respiratory Illness

### Occupational Asthma

Occupational asthma is a lung disease in which the airways over-react to dusts, vapors, gases or fumes that exist in the workplace. With exposure permanent lung damage can occur and very low levels of exposure may provoke an episode. It has been estimated that 15% of adult asthma is work-related.

If you feel you might have work-related asthma, talk with your doctor about:

- When you began having symptoms
- How often you feel the symptoms
- Time of day symptoms are worse
- If you feel better on off-work days

Asthma can be controlled & managed with medications.

### Hospitality Workers

Food service workers have a 50% greater risk of dying from lung cancer than the general population, in part because of secondhand smoke exposure in the workplace.

Toxins in the workplace can cause respiratory problems, such as wheezing, asthma attacks, dyspnea (shortness of breath), and excessive coughing long after exposure.

### Blue-Collar Workers

There are over 4,000 hazardous chemicals that can be found in workplaces. The term chemical includes dusts, mixtures, and common materials such as paints, fuels, and solvents. OSHA currently regulates exposure to approximately 400 substances.

Synergistically, if a worker smokes, toxins in the workplace can multiply the risk of getting lung cancer as much as 53 times.

### Secondhand Smoke



Courtesy of SmokefreeAustin.org

Wisconsin cities that require smoke-free work places include:

- Appleton
- Menomonie
- Shorewood Hills and
- Stevens Point

### Flavorings



A lean and fit 35-year-old Milwaukee man had been working at a local flavoring plant for just six months when he collapsed while playing basketball with his buddies. He felt like he was hyperventilating. He couldn't figure it out. He always played basketball. Then he noticed his sweat: It was bright orange.

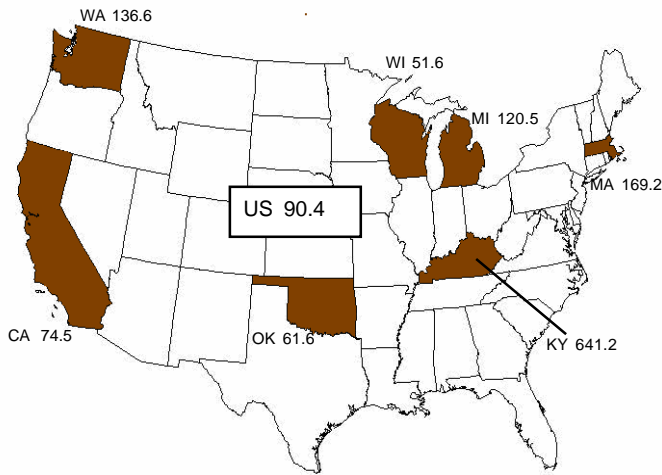
Doctors and scientists say the suspected culprit is a flavoring chemical called diacetyl, which is found naturally in low concentrations in many foods such as butter, but is artificially produced in plants across the country. Cheese factories, bakeries and candy and snack makers often use it, as well as many of the nation's food manufacturing giants. Inhalation of this chemical can cause bronchiolitis obliterans an irreversible blocking of the small airways (bronchioles) by granulation tissue and inflammation. Symptoms include cough, dyspnea, and fever.

## Indicator 9 Pneumoconiosis Hospitalizations

### National

Pneumoconiosis is a disease of the lungs caused by long-continued inhalation of mineral or metallic dust. Nearly all pneumoconioses are attributable to occupational exposures. The three most common types include asbestosis, coal workers' pneumoconiosis and silicosis. Tracking of pneumoconiosis is essential for measuring progress towards elimination of the disease, as well as for targeting prevention and disease management programs.

**Figure 9. Rate of hospitalizations for total pneumoconiosis, 2003**



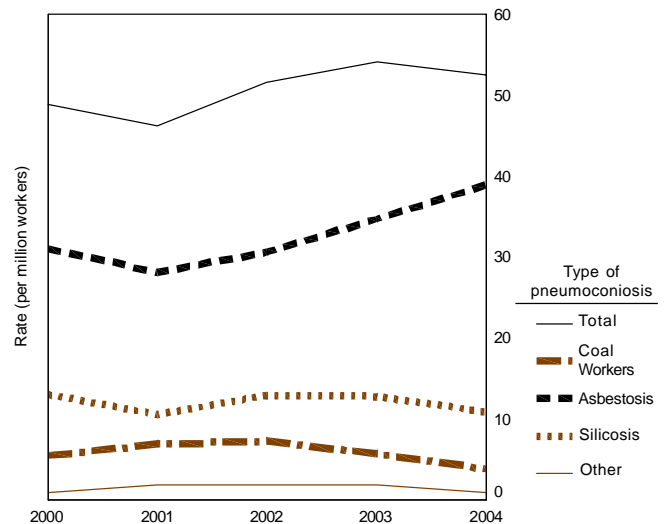
**Limitations:** 1. Residents of one state may be hospitalized in another state and not be reflected in his/her states' hospitalization data. 2. Hospital discharge data are not available in all states. 3. Duplication may occur if a person is hospitalized more than once.

**Data Source:** Hospital discharge data; state population estimates from the US Bureau of the census; Year 2000 US standard population (for age-standardization)

### Wisconsin

Wisconsin's hospitalization rate from pneumoconiosis and asbestosis increased during 2000-2004. At the same time, coal worker pneumoconiosis hospitalizations declined and hospitalizations from silicosis were unchanged. There are no coal mines in Wisconsin; thus, Wisconsin has lower rates of coal workers' pneumoconiosis than the nation. Wisconsin has a higher rate of silicosis than the nation (US rate: 2000-5.2; 2001-1.3; 2002-8.2; 2003-4.1). Wisconsin has many foundries and ceramics companies where silica exposures occurred in the past as well as current industrial processes using silica and sandblasting. This may explain the high rate of silicosis in Wisconsin. The pattern of increasing total pneumoconiosis may be due to increased recognition of the disease by physicians, increased awareness among general populations and better surveillance activities.

**Table 9. Age-standardized Rate of hospitalizations from or with pneumoconiosis**

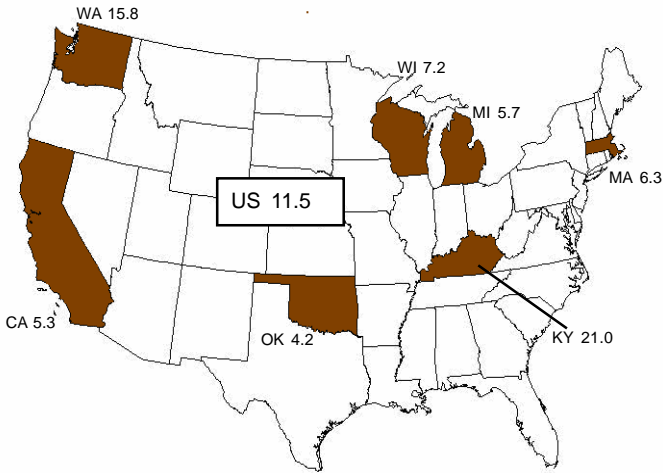


## Indicator 10. Pneumoconiosis Mortality

### National

Overall, the number of deaths from pneumoconiosis has been declining in the US. This is primarily due to the reduction in the number of coal workers and the Federal Coal Workers Act which reduces the amount of coal dust in the working environment. However, deaths from asbestosis have been increasing nationally.

Figure 10. Rate of Total pneumoconiosis by State, 2003



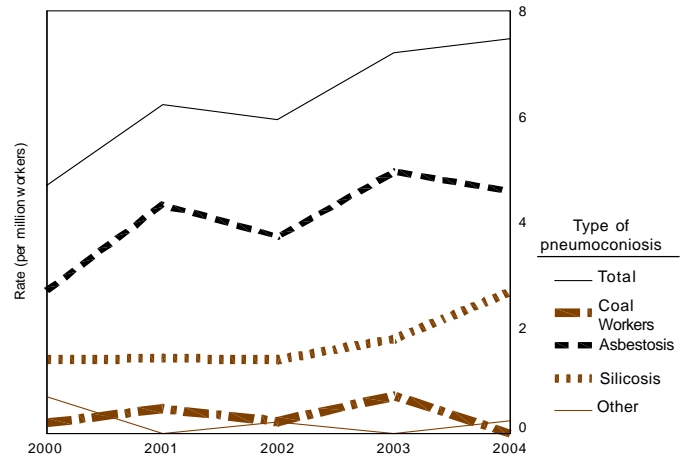
**Limitations:** 1. People may not die in the state in which they were exposed.  
2. Race/ethnicity definitions vary by state.

**Data Source:** Death certificate records from state vital statistics; State population estimates from the US Bureau of the Census; Year 2000 US Standard Population (for age-standardization)

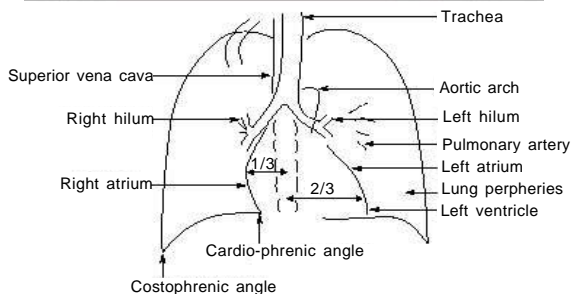
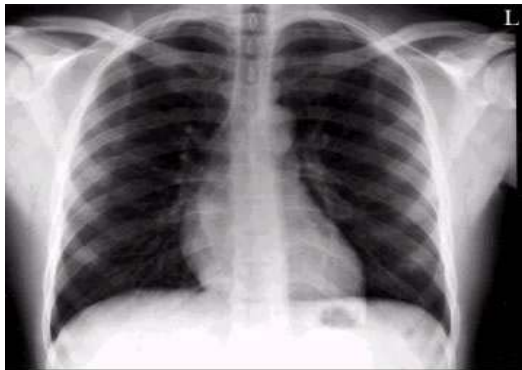
### Wisconsin

In Wisconsin, the death rate of total pneumoconiosis increased during the 2000-2004 surveillance period, while the death rate from asbestosis, silicosis and coal worker pneumoconiosis remained static during the last five years. Wisconsin is among the states that have the lowest age-adjusted mortality due to asbestosis in the nation and the Wisconsin's mortality rate from pneumoconiosis and asbestosis remains lower than the national average. Physicians may misdiagnose some of these conditions because they are seen infrequently, therefore, caution must be taken in interpreting these data.

Table 10. Age-standardized Rate of death from or with pneumoconiosis



### Normal chest x-ray



### Coal workers pneumoconiosis

This picture shows complicated coal workers pneumoconiosis. Other diseases which may have similar X-ray findings include, but are not limited to: silicosis, asbestosis and metastatic lung cancer.

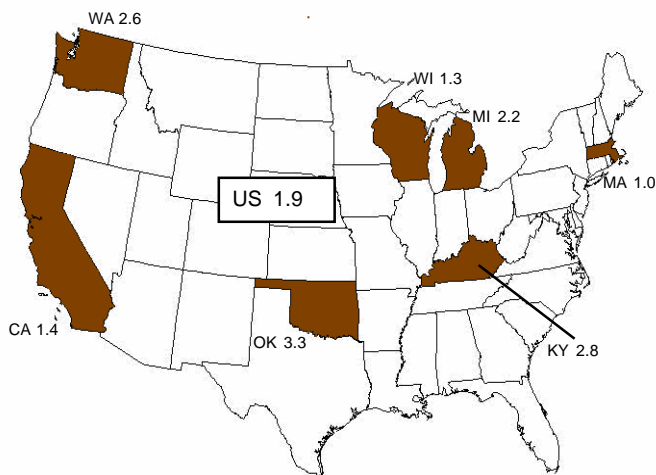


## Indicator 11. Acute Work-Related Pesticide Poisonings Reported to Poison Control Centers

### National

Pesticides are among the few chemicals produced that are specifically designed to kill and cause harm. In the US over 20,000 pesticide products are being marketed and the Environmental Protection Agency (EPA) estimates that between 2,000 and 4,000 workers become ill due to exposure to pesticide chemicals each year.

Figure 11. Rate of Work-Related Pesticide Poisonings, 2003



**Limitations:** 1. Poison Control Centers (PCC) capture only a small proportion of acute occupational pesticide-related illness cases 2. PCCs do not systematically collect information on industry and occupation. 3. Not all states have poison control centers.

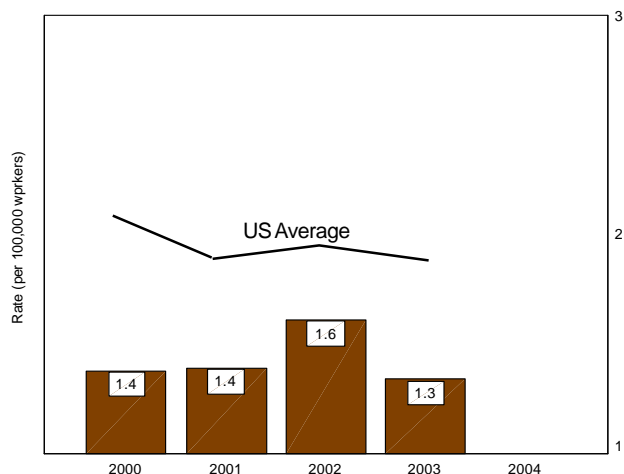
**Data Source:** Poison control center data; BLS Current Population Survey Data

### Wisconsin

In Wisconsin, the rate of acute work-related pesticide poisoning remained unchanged between 2000 and 2004. The rates in Wisconsin during this entire period were consistently below the national average of pesticide poisoning.

The Wisconsin Poison Control Center reports an average of 228 pesticide poisoning cases each year. Of these, 33 occurred in the workplace. These numbers may not reflect the true extent of the problem since workplace poisoning may go unreported or unrecognized. In Wisconsin for the years 2000-2004, the three most reported occupational exposures include insecticides, herbicides, and organophosphates.

Table 11. Rate of Work-related pesticide associated poisonings



### Phosphine Poisoning Case Studies (CDC/NIOSH 1982-1992)

#### Case Study 1

An unemployed man stowed away in a rice filled railcar that was being fumigated in transit. He was found dead several days later when the train arrived at its destination.

#### Case Study 2

A rodent control worker wearing protective clothing noticed an onion-garlic odor while applying aluminum phosphate tablets. He soon developed tightness in his chest. Though he was not hospitalized, he missed 11 days of work.



Call toll-free seven days a week.

For hearing impaired:  
**TTY (414) 266-2542**

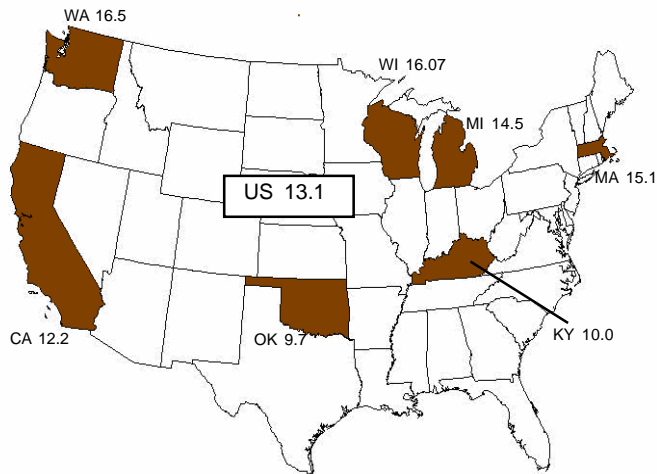
Interpreters are available to help  
all non-English speaking callers.

## Indicator 12. Incidence of Malignant Mesothelioma

### National

Malignant mesothelioma is a type of cancer in which malignant cells are found in the lining of the chest or abdomen. It has been estimated that up to 90 percent of cases are caused by exposure to asbestos. Approximately 25,000 deaths due to malignant mesothelioma occur each year in the United States.

Figure 12. Incidence Rate of Malignant Mesothelioma, 2003



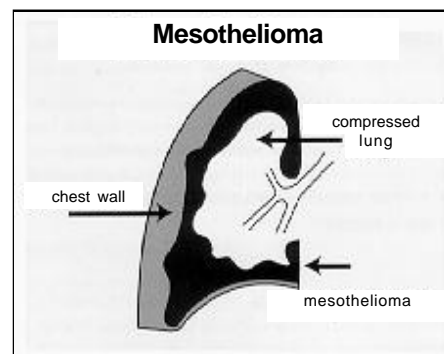
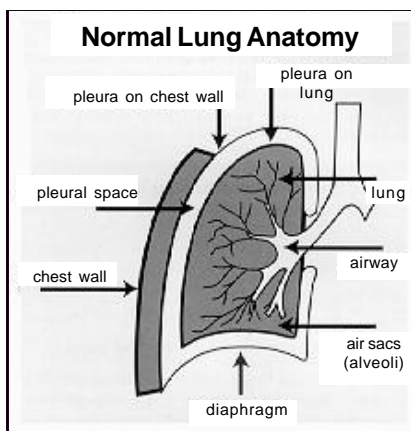
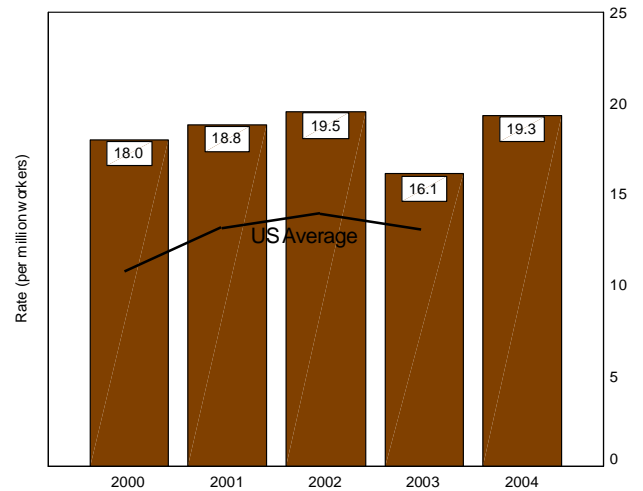
**Limitations:** 1. Not all cases of malignant mesothelioma are caused by occupational exposures. 2. Cancer is a disease of long latency, current incidence is not indicative of current exposures

**Data Source:** State-wide cancer registry data; State population estimates from the US Bureau of the Census; Year 2000 US standard population (for age-standardization)

### Wisconsin

Wisconsin has seen the age-adjusted rate of malignant mesothelioma cases remain static. The only well established risk factor for mesothelioma is exposure to asbestos fibers. Nationally, the annual number of mesothelioma cases, which increased steeply from the 1970's through the mid-1990's, has leveled off. This trend is due in part to reductions in raw asbestos use and a decline in workplace airborne asbestos levels. Wisconsin has not seen this rise and fall in malignant mesothelioma.

Table 12. Age-standardized Rate of Malignant Mesothelioma

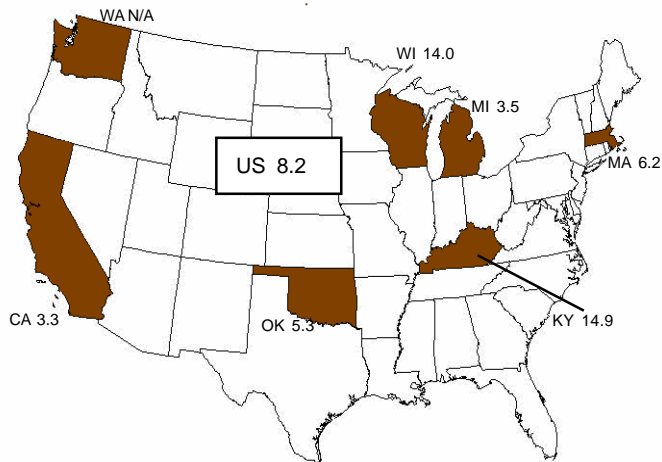


## Indicator 13. Elevated Blood Lead Levels among Adults

### National

Lead poisoning among adults is a persistent, mainly occupational, public health problem. In 2002, 10,658 adults were reported in 35 states to have blood lead levels greater than or equal to 25 micrograms/deciliter. Lead adversely affects multiple organ systems and can cause permanent damage. Children are more sensitive to the effects of lead than adults. It is estimated that about 24,000 US children with elevated blood lead levels are unintentionally exposed to lead brought home by a parent from the workplace. The US Department of Labor lists more than 900 occupations that are associated with lead use (Roscoe).

**Figure 13. Prevalence Rate of BLL's  $\geq$ 25 ug/dl among Adults, 2003**



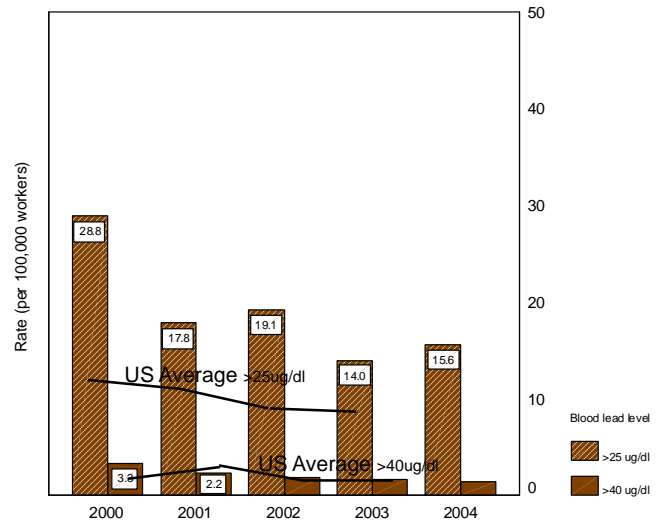
**Limitations:** 1. An elevated body burden of lead may not be detected in an individual if the lead test is done more than several weeks after the most recent lead exposure. 2. Some states do not require laboratories to report elevated BLLs. 3. Many workers with significant occupational lead exposure are not appropriately tested. 4. BLL tests methods may differ. 5. Tests may be done in a state different than the state exposed.

**Data Source:** Reports of elevated BLLs from laboratories; BLS Current population survey data

### Wisconsin

In Wisconsin, there has been a steady decline in the prevalence rate of adult blood lead levels (BLL's) above 25 mg/dl and above 40 mg/dl. Not only has the number of adults with high blood lead levels declined, but the overall mean lead value in adult blood has also declined during the years of 2000-2005. Interventions that reduce adult exposure to lead, such as the fact sheet on the next page, are also helping to reduce childhood lead levels.

**Table 13. Prevalence Rate of persons with elevated BLL**



### Percent of Adult Workers in Standard Industrial Code Classification (SIC) by Blood Lead Levels, 1988-2005

	0-24 $\mu$ g/dl Percent	25-39 $\mu$ g/dl Percent	40-49 $\mu$ g/dl Percent	50-59 $\mu$ g/dl Percent	$\geq$ 60 $\mu$ g/dl Percent
<b>Electronic &amp; Electrical Equip</b>	85.5	13.5	0.9	0.0	0.1
<b>Fabricated Metal Products</b>	77.7	18.6	2.3	0.7	0.7
<b>Primary Metal Industries</b>	65.2	26.1	4.9	1.7	2.1
<b>Construction Industries</b>	91.3	4.9	1.4	1.0	1.4
<b>Rubber &amp; Misc Plastic Products</b>	66.9	28.7	3.6	0.8	0.0
<b>Machinery &amp; Computer Equip</b>	96.0	2.8	0.6	0.3	0.3
<b>All Other Industries</b>	89.3	5.8	3.2	0.4	0.4

Anderson, H and KMM Islam; Presentation to CSTE;2006

## Lead Poisoning in Construction Workers

### Warning!

Workers are at risk of lead poisoning during the maintenance, repainting, or demolition of bridges or other steel structures coated with lead-containing paint.

Take the following steps to protect yourself and your family from lead exposure:

- Be aware of the health effects of lead exposure (see p.3 of the NIOSH Alert: Request for Assistance in Preventing Lead Poisoning in Construction Workers) and discuss with your doctor any symptoms or concerns that may be related to lead poisoning.
- Participate in any blood lead or air monitoring program offered by your employer.
- Use engineering controls such as source containment and local exhaust ventilation to minimize exposure to lead.
- Be aware that the highest lead concentrations may occur inside containment structures.
- Use respirators when blasting, sweeping, vacuuming, or performing other high-risk jobs (as determined by an industrial hygienist or other qualified professional).
- Change into disposable or washable coveralls at the worksite.
- Do not eat, drink, or use tobacco products in the work area.
- Wash your hands and face before eating, drinking, or smoking outside the work area.
- Shower and change into clean clothing before leaving the worksite to prevent contaminating homes and automobiles.



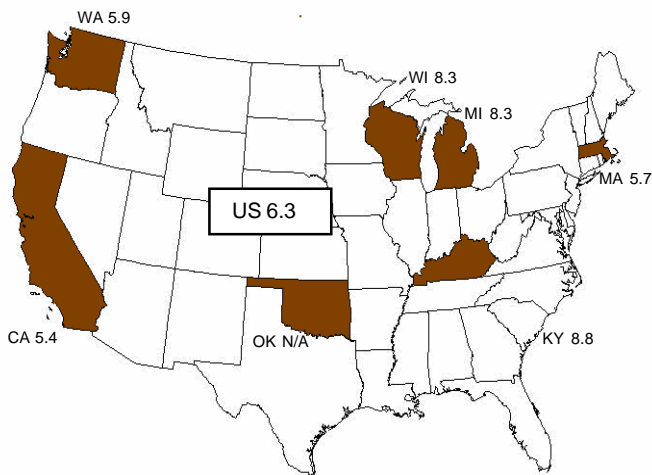


## Indicator 14. Workers Employed in Industries with High Risk for Occupational Morbidity

### National

There are several industries that have significantly higher injury and illness rates than the national average. Thirty-seven industries have been identified with rates higher than 10 cases per 100 FTE workers. These industries accounted for 7.6 million private-sector workers nationally and 17% of the OSHA reportable injuries and illnesses (1999). Work related injuries and illnesses are preventable and control of occupational hazards is the most effective means of prevention.

**Figure 14. Percent of Workers in Industries with High Risk for Occupational Morbidity, 2003**



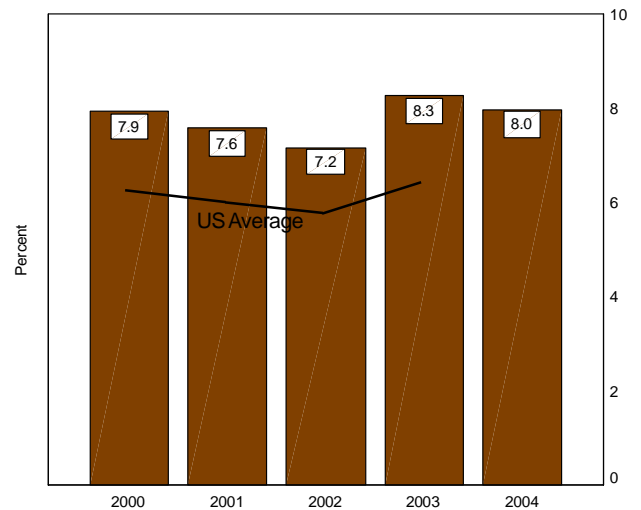
**Limitations:** 1. New employers may not be counted. 2. High-risk industries within a specific state may differ from those identified from national data. 3. Employers may not report lost workday cases. 4. The CBP is based on mid-March payrolls.

**Data Source:** Bureau of the Census County Business Patterns (CBP)

### Wisconsin

In Wisconsin, the percent of workers employed in industries with high risk of illness or injury has remained fairly static during this time period even though there was a change in the definition of high risk industries in 2003. In 2003, the Bureau of Labor Statistics (BLS) added 12 additional industries to the list of high-risk industries. Added industries include food manufacturing industries, shipbuilding, air transportation, motor vehicle transportation (including couriers/messengers), and amusement park industries. The increase in the number of high-risk industries did not seem to dramatically alter the percent of workers in those industries.

**Table 14. Percentage of workers in industries with high risk for occupational morbidity**



### The Five Most Injury-prone Industries in the US, 2005

Beet sugar manufacturing  
injuries per 100 workers: 16.6

Truck trailer manufacturing  
injuries per 100 workers: 15.7

Iron foundries  
injuries per 100 workers: 15.2

Prefabricated building manufacturing  
injuries per 100 workers: 13.9

Framing contractors  
injuries per 100 workers: 13.3

### The Five Most Illness-prone Industries in the US, 2005

Light truck/ vehicle manufacturing  
illnesses per 10,000 workers: 701.5

Animal slaughtering (except poultry)  
illnesses per 10,000 workers: 478.8

Automobile manufacturing  
illnesses per 10,000 workers: 320.6

Cut, resawing or planing lumber  
illnesses per 10,000 workers: 276.4

Vehicle air-conditioning manufacturing  
illnesses per 10,000 workers: 235.0

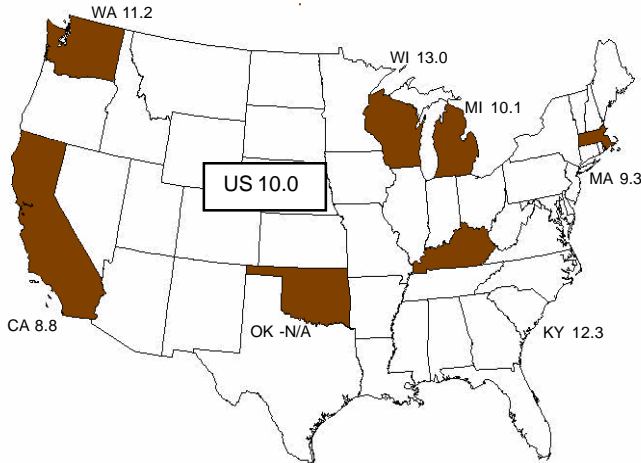
From CareerBuilder <http://www.careerbuilder.com/Custom/MSN/CareerAdvice/ViewArticle.aspx?articleid=604&pf=true>

## Indicator 15. Workers Employed in Occupations with High Risk for Occupational Morbidity

### National

Nationally, the Bureau of Labor Statistics (BLS) reported an estimated 1.3 million injuries and illnesses that resulted in 'days away from work', and a rate of 1.3 'days away from work' cases per 100 workers (2003). The risk of these injuries and illnesses were significantly higher in certain occupations. These occupations account for approximately 12.6 million workers in the US (12.2% of the private sector employment), but 41.3% of OSHA days away from work cases.

**Figure 15. Percentage of Workers in Occupations with High Risk for Occupational Morbidity, 2003**



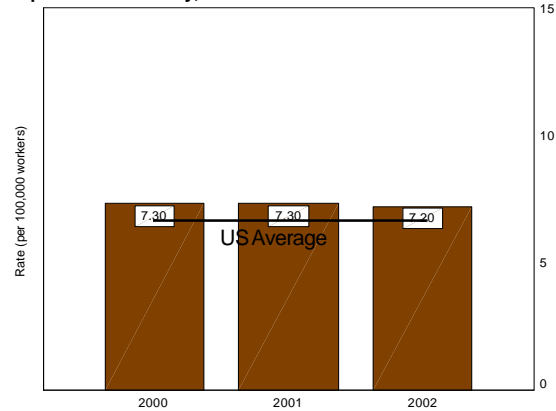
**Limitations:** 1. Regional industrial practices/occupations may differ. 2. The Census County Business Patterns data are gathered in mid-March and therefore do not accurately count injuries that may occur in the summer months when construction accidents are likely to occur.

**Data Source:** Bureau of the Census County Business Patterns (CBP)

### Wisconsin

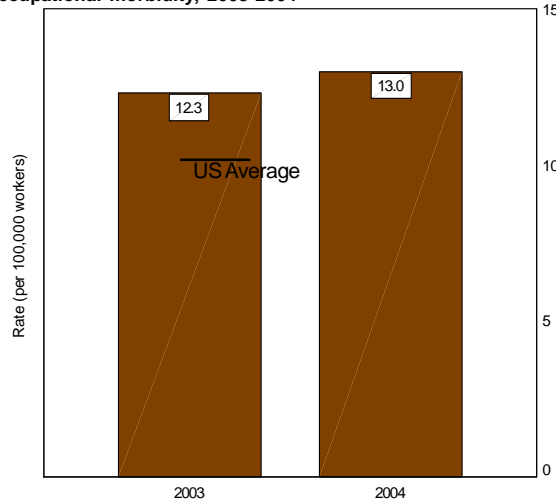
In Wisconsin, workers employed in occupations with high risk of work place death were unchanged between 2000-2002. In 2003 the percent increased sharply. This increase was due to the addition of occupations. As with the high-risk industry definitions, the BLS added 12 occupations to the list at high-risk for injury.

**Table 15a. Percentage of workers in occupations with high risk for occupational morbidity, 2000-2002**



Unlike the previous indicator (industries), there appears to be a significant change in the percentage of workers employed in occupations at high-risk for injury or illness on the job. One possible explanation is that many of the added industries do not exist in Wisconsin; however, Wisconsin has many workers in occupations considered at high risk for work place injury or illness such as a large number in occupations involving transportation. Because of this change the graphs representing these data have been separated to represent two time periods.

**Table 15b. Percentage of workers in occupations with high risk for occupational morbidity, 2003-2004**



### Occupations with High Risk for Occupational Morbidity Nationwide

Technicians,  
Misc. food prep,  
public transportation attendants  
Timber cutting and logging  
Telephone line installers/repairers  
Electrician apprentices  
Sheet metal duct installers  
Structural metal workers  
Punching and stamping press machine operators

Misc. material moving equipment operators  
Helpers, construction trades  
Construction laborers  
Production helpers  
Freight, stock and material handlers  
Laborers, except construction

Sawing machine operators  
Extruding and forming machine operators  
Grinding, abrading, buffing and polishing machine operators  
Sawing machine operators  
Extruding and forming machine operators  
Furnace, kiln, and oven operators  
Truck drivers  
Driver-sales workers  
Excavating and loading machine operators

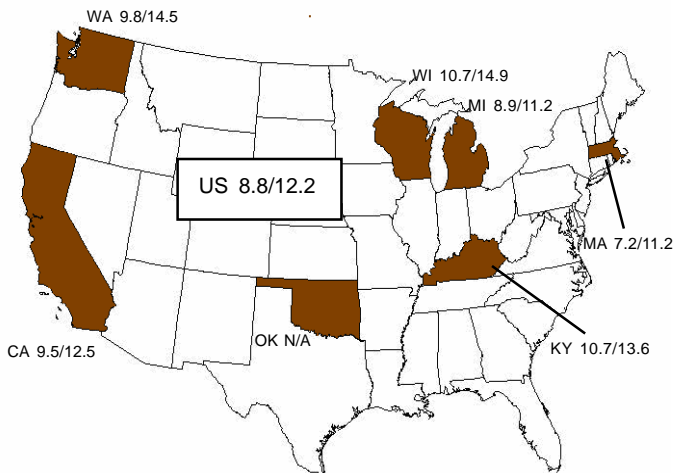
## Indicator 16. Workers Employed in Industries and Occupations with High Risk for Occupational Mortality

This indicator looks at the proportion of workers who work for companies engaged in a particular kind of commercial enterprise (industries) and the proportion of workers who perform an activity as their regular source of livelihood (occupation) that have previously had a high number of work-related deaths. While the number of these industries and occupations vary among states, these differences can help explain the differences in injury mortality rates among states.

### National

In the US over 6,000 work-related fatalities are reported to the Census of Fatal Occupational Injuries (CFOI) program each year. On an average day, 16 workers die as a result of injuries sustained at work. The risks for these occupational fatalities are significantly higher in certain industries and occupations.

**Figure 16. Percentage of Workers in Occupations/Industries with High Risk for Occupational Mortality, 2003**



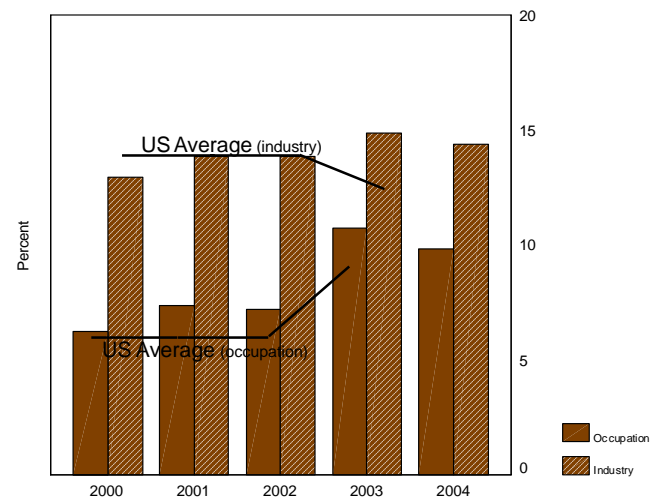
**Limitations:** 1. Industries and occupations in each state vary. 2. The CFOI program counts suicides at work as work-related fatalities, even when the cause of death may not be due to factors at work. 3. CFOI does not count military deaths.

**Data Source:** Bureau of Labor Statistics Current Population Survey (CPS)

### Wisconsin

Wisconsin's workers employed in occupations and industries with high risk of mortality were static, showing no trend from 2000-2002. An increase in the years 2003-2004 was noted. This increase was due to a change in the definition of "high-risk" occupations and industries and therefore the data should not be compared to previous years. Wisconsin's percentages are close to the national average for all years.

**Table 16. Percentage of workers employed in occupations with high risk for occupational mortality**



### Most life-threatening jobs in the US (BLS-2005)

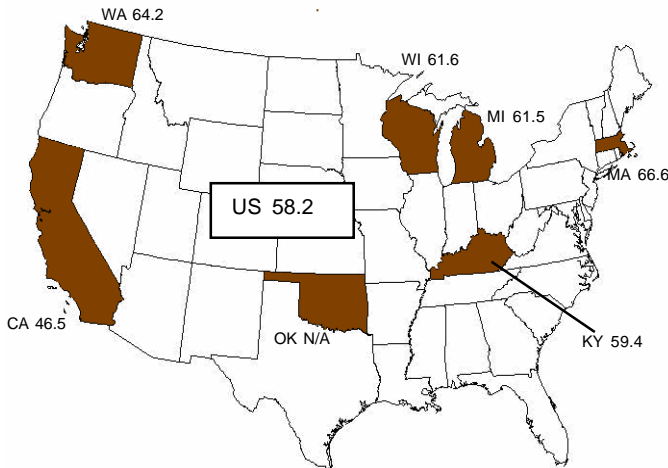
- |   |  |
|---|--|
| 1. Fishers and related workers<br>Deaths per 100,000 workers: 118.4<br>Average salary: \$29,000         | 7. Electrical powerline installers/repairers<br>Deaths per 100,000 workers: 32.7<br>Average salary: \$49,200 |
| 2. Logging workers<br>Deaths per 100,000 workers: 92.9<br>Average salary: \$31,290                      | 8. Truck drivers<br>Deaths per 100,000 workers: 29.1<br>Average salary: \$35,460                             |
| 3. Aircraft pilot and flight engineers<br>Deaths per 100,000 workers: 66.9<br>Average salary: \$135,040 | 9. Miscellaneous agricultural workers<br>Deaths per 100,000 workers: 23.2<br>Average salary: \$24,140        |
| 4. Structural iron & steel workers<br>Deaths per 100,000 workers: 55.6<br>Average salary: \$43,540      | 10. Construction laborers<br>Deaths per 100,000 workers: 22.7<br>Average salary: \$29,050                    |
| 5. Refuse and recyclable collectors<br>Deaths per 100,000 workers: 43.8<br>Average salary: \$30,160     |  |
| 6. Farmers and ranchers<br>Deaths per 100,000 workers: 41.1<br>Average salary: \$39,720                 |  |

## Indicator 17. Occupational Safety and Health Professionals

### National

In order to reach the goal of reducing workplace illness and injury, there must be sufficient personnel trained to recognize work-related illness, provide care when needed, evaluate workplace hazards, and to implement prevention strategies. A recommendation of the American Medical Association (AMA) is to have 100 professional certified in occupational health per 100,000 employees.

**Figure 17. Rates of Occupational Safety and Health Professionals (per 100,000 employees), 2003**



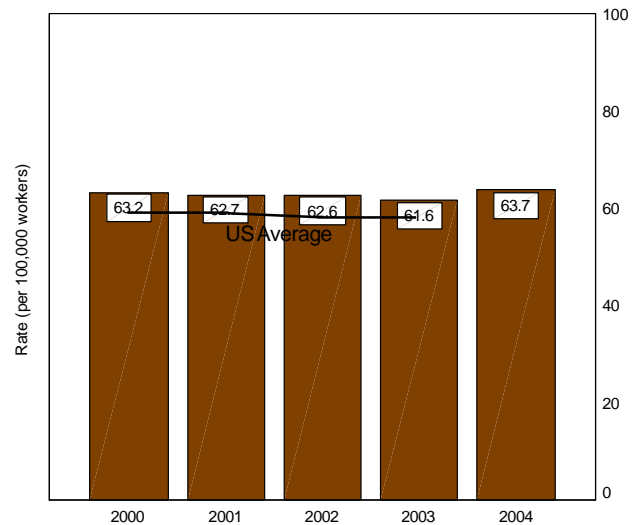
**Limitations:** 1. Other important occupational health specialties such as fire prevention, health physicists, ergonomists are not included. 2. The completeness of the data varies by each organization. 3. Out-of-state professionals are counted by the state where the main business is located.

**Data Source:** American Board of Preventive Medicine (ABPM) diplomates database; Annual roster of members of the ACOEM; American Board of Occupational Health Nurses directory; Annual roster of members of the AAOHN members directory; American Board of Industrial Hygiene, AIHA member directory; BCSP member directory; ASSE member directory; Bureau of Labor Statistics Current Population Survey data.

### Wisconsin

In general, the percent of occupational safety and health professionals, when compared to the workforce, has been steady in Wisconsin. In 2003, Wisconsin had an increase in safety engineers and industrial hygiene professionals but other occupational health professionals, especially in rural Wisconsin, have declined. Even with this decline in rural areas, Wisconsin is still above the national average. According to the American Medical Association (AMA) in 2004, Wisconsin needed 2,900-3,000 occupational health professionals to ensure a healthy work environment, but only had around 2,000.

**Table 17. Rate of Occupational Safety and Health Professionals in Wisconsin per 100,000 workers**



### Number of occupational health professionals in Wisconsin, 2002\*

Occupational medicine physicians	52
American College of Occupational & Environmental Medicine members	123
Occupational health nurses	202
American Association of Occupational Health Nurses members	311
Board-certified industrial hygienists	87
American Industrial Hygienists Association members	160
Board-certified safety professionals	200
American Society of Safety Engineers members	655

\*Numbers are derived from professional organization membership roles and may include duplication.

“The role of the occupational health professional is as an impartial advisor whose responsibility is concerned equally with employees and management.”

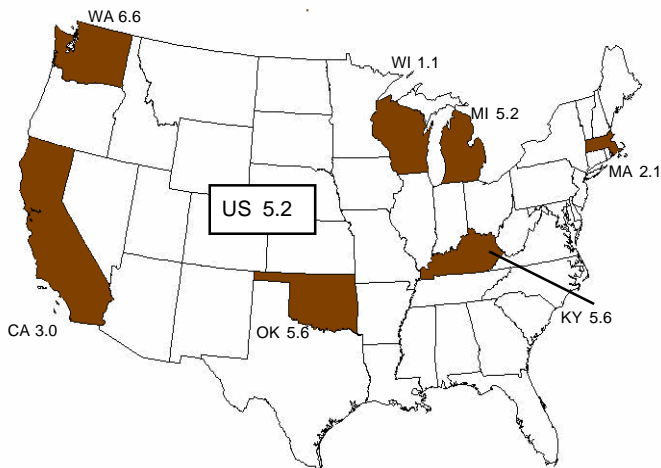
K. Rodham, Manager or medic: The role of the occupational health advisor; *Occup. Med.* Vol.48, 81-84, 1998

## Indicator 18. Occupational Safety and Health Administration (OSHA) Enforcement Activities

### National

The Occupational Safety and Health Administration (OSHA) mission is to "assure so far as possible every working man and woman in the nation safe and healthful working conditions." This involves tools such as standards, enforcement activities, and compliance assistance. Worksites to be inspected are selected both randomly and on the basis of injury incidence rates. Investigations are more detailed inspections and are triggered by three events: fatality, catastrophe or referral (including outside health/safety agency or media).

**Figure 18. Percentage of Workers in establishments inspected by OSHA, 2003**



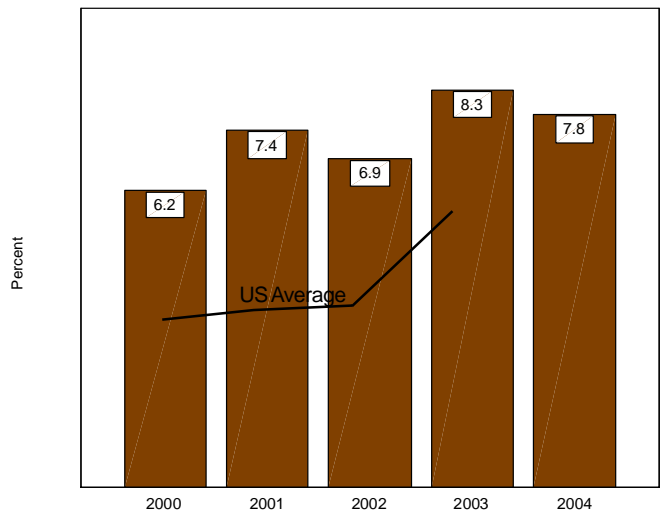
**Limitations:** 1. Includes only enforcement activity where penalties were imposed. 2. Data may include duplication by counting routine/regular inspections and inspections that were initiated by a worker complaint as two separate events. 3. Some states do not inspect smaller farms 3. Employer voluntary programs are exempted from routine inspections.

**Data Source:** OSHA annual reports: total inspections conducted, number of workers covered; Bureau of Labor Statistics on Covered Employers and Wages (ES-202/CEW)

### Wisconsin

Over 90% of Wisconsin's workplace establishments are under OSHA jurisdiction. Wisconsin's OSHA enforcement activities have increased from 2000 to 2004. On average, 7 percent of employees in Wisconsin establishments under OSHA jurisdiction have been inspected. Wisconsin's OSHA jurisdiction work areas inspection rate was almost double the national average.

**Table 18. Percentage of employees in establishments under OSHA jurisdiction whose work areas were inspected**

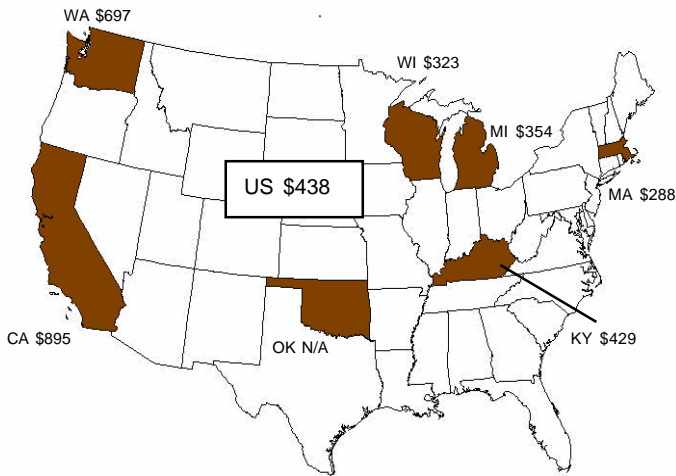


## Indicator 19. Workers' Compensation Awards

### National

Workers' compensation benefits were paid to workers with occupational injuries or illnesses and include payments for medical care and wage-replacement to workers or their surviving dependents. This indicator uses the total and average amounts of benefits paid to estimate the economic burden of these events.

**Figure 19. Average Workers' Compensation Benefit Paid per covered Worker by State, 2002**



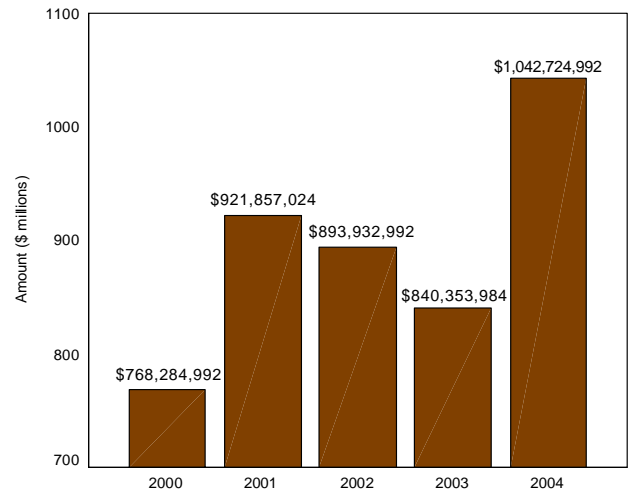
**Limitations:** 1. Noneconomic costs are not included. 2. Compensation determination varies by state.

**Data Source:** National Academy of Social Insurance (NASI) tables

### Wisconsin

In Wisconsin, the total amount of workers' compensation benefits paid during the period of 2000-2004 has increased. On average, Wisconsin workers' compensation benefits paid \$900 million per year. The majority of workers' compensation dollars are paid directly to doctors for medical expenses and often workers receive less than if they were on the job. The amount of benefits paid, however, is an indicator of the direct financial cost of work-related injuries and illnesses. The percentage of civilian employment covered by workers' compensation has been decreasing in recent years. Further study is being undertaken by the Wisconsin Department of Workforce Development (DWD) to determine if the increased workers' compensation benefits are a reflection of increased health care cost or insurance cost.

**Table 19. Total workers' compensation benefits paid**



## Program Activities

### Occupational Health Program

During 2006 the Occupational Health Program has continued surveillance of work-related injury, illness and death by monitoring the Council of State and Territorial Epidemiologist (CSTE) 19 indicators; expanding partnerships through inclusion in the national CSTE Consortium of Occupational State-based Surveillance (COSS) workgroup, and taking a leadership role in the WI Injury Prevention Center. It is also a member of many state and local coalitions; and the program has identified and participated in opportunities for prevention through education of workers, employers, public health practitioners and health providers. Future plans include continued participation in the pandemic influenza planning for workplaces and the modification of the Department of Health's administrative rules so that data can be collected directly from physicians and laboratories.

### Environmental and Public Health Tracking Program

Partners of the Environmental Public Health Tracking program have been collaborating to identify industry emissions in Wisconsin with the greatest potential for human health impacts. An initial project was completed and resulted in a change to production methods that will eliminate the hazardous emission, thus protecting employees and the surrounding community. As one of the partners, the Occupational Health Program works to identify hazards and other concerns within the workplace and contributes regularly to the *Wisconsin Bureau of Environmental and Occupational Health Indicators Report*

### Asthma Program

During 2006, the Asthma program expanded the surveillance program by including additional data from a BRFSS call-back module. They also tracked asthma education practices by including a patient asthma education question in the BRFSS and linked healthcare utilization data with environmental data. The Occupational Health program partners with the Asthma Program and the Wisconsin Asthma Coalition to develop a strategy to address adult and occupationally acquired asthma through research and education. This work was instrumental in leading workplaces in Appleton, Menomonie, Shorewood Hills and Stevens Point as well as restaurants and bars in Madison to go smoke-free.

### Hazardous Substances Emergency Events Surveillance (HSEES)

Currently 15 of 50 state health departments, including Wisconsin, actively collect information on acute hazardous substance releases. The long term systematic surveillance of hazardous substance release events as allowed the state health department to understand these toxic events so that intervention activities can be developed to prevent events and reduce the impact of events that may occur. Because many of these release events occur in the workplace, the Occupational Health program plans to work closely with HSEES to monitor events and develop interventions.

### Adult Blood Lead Epidemiology and Surveillance (ABLES)

The Wisconsin Adult Blood Lead Epidemiology and Surveillance program helps to reduce the burden of lead poisoning in adults in Wisconsin by functioning as a repository of adult laboratory lead test results, tracking those results over time and developing interventions for industries and workers in industries determined to be at-risk for causing elevated levels of lead in blood. One industry determined to be a source of lead poisoning is the primary metal industry. In 2002 the US Census Bureau counted over 605,000 Wisconsin primary metal industry workers. The Occupational Health program partners with the ABLES program to develop efficient methods of surveillance, and provide technical assistance and education to workers and employers. This partnership helped in the requirement that lead abatement workers be trained and certified.

### Occupational Safety and Health Administration (OSHA)

The Occupational Safety and Health Administration (OSHA) serves as the enforcement and inspection arm of Wisconsin workplaces. It routinely conducts inspections and injury investigations, issues fines and warnings as well as provides technical assistance. In Wisconsin the state OSHA enforcement activities remain vital to workplace safety and health, targeting the most hazardous workplaces and the employers that have the highest injury and illness rates. By working together with the Occupational Health program emerging concerns can be addressed in a timely manner. As a result, we add value to business, to the workplace, and to life. Interventions developed include public service announcements on the use of lifts to reduce injury in healthcare workers, and training on burn hazards facing restaurant workers.

### Wisconsin Occupational Health Laboratory (WOHL)

The Wisconsin Occupational Health Laboratory (WOHL) of the State Laboratory of Hygiene provides Industrial Hygiene chemistry, environmental lead, asbestos and bioaerosols analyses. Its' chemists, microbiologists, geologists and Certified Industrial Hygienists serve 43 States in the OSHA small business consultation program. In this effort it works closely with the Wisconsin OSHA Consultation program. WOHL also provides analytical services to Wisconsin homeowners, private businesses, insurance companies, other laboratories and State and National agencies. WOHL works with the Wisconsin Bureau of Environmental and Occupational Health in support of Indoor Air Quality investigations, a direct reading instrument loan program, chemical terrorism preparedness and other activities.

## Partnerships

### Academic

#### University of Wisconsin - Madison School for Workers

The School for Workers is the labor education department of the University of Wisconsin-Extension, Continuing Education, Outreach & E-Learning. Our mission is to educate workers and others about issues of concern in the workplace.

#### University of Wisconsin - Madison; School of Medicine and Public Health

UW School of Medicine and Public Health offers students, educators and researchers access to all of the benefits of a preeminent public research university.

#### University of Wisconsin - Madison; College of Engineering

Through research at the frontiers of technology and science, the college provides high quality professional instruction at both the undergraduate and graduate level. Its facilities, together with the unique expertise of its faculty, are resources which enhance the economy of the state.

#### University of Wisconsin - Madison; State Laboratory of Hygiene

As Wisconsin's public health and environmental laboratory since 1903, the SLH provides clinical, environmental, and industrial analytical services, specialized public health procedures, reference testing, training, technical assistance and consultation for private and public health agencies.

#### Medical College of Wisconsin

Founded in 1893, the Medical College is Wisconsin's only private medical school. It is the largest private research institution in Wisconsin, conducting \$123 million annually in funded research.

#### University of Wisconsin - Platteville; College of Engineering

The College's objective is to ensure that its students gain the knowledge and develop the mental skills, attitudes, and personal characteristics necessary to become successful citizens and professionals who can meet the present needs of business, industry, government, and society, and the more demanding requirements of the future.

### Federal

#### Occupational Safety and Health Administration (OSHA)

OSHA's mission is to send every worker home whole and healthy every day. Since the agency was established in 1971, workplace fatalities have been cut by 62 percent and occupational injury and illness rates have declined 40 percent. At the same time, U.S. employment has doubled from 56 million workers at 3.5 million worksites to 115 million workers at nearly 7 million sites.

#### Council of State and Territorial Epidemiologists (CSTE)

For more than five decades, the Council of State and Territorial Epidemiologists (CSTE) and the Centers for Disease Control and Prevention (CDC) have worked together in partnership to improve the public's health by supporting the efforts of epidemiologists working at the state and local level by promoting the effective use of epidemiologic data to guide public health practice and improve health. CSTE and its members represent two of the four basic components of public health - epidemiology and surveillance

#### National Institute of Occupational Safety and Health (NIOSH)

NIOSH conducts a range of efforts in the area of research, guidance, information, and service. To better coordinate these efforts, NIOSH is organizing its portfolio into various specific programmatic categories that can be readily communicated and strategically governed and evaluated.

### State

#### Wisconsin Department of Health and Family Services

The Department of Health and Family Services (DHFS) has many key responsibilities including child welfare, long term care, physical and developmental disability programs, sensory disability programs, substance abuse, mental health and public health programs, regulation and licensing of a variety of facilities, operation of care and treatment facilities, the food stamp program, medical assistance and health care for low income families, elderly and disabled persons.

#### Wisconsin Department of Workforce Development

The Wisconsin Department of Workforce Development (DWD) is the state agency charged with building and strengthening Wisconsin's workforce. DWD offers a wide variety of employment programs and services, accessible at the state's 78 Job's Centers including: securing jobs for the disabled and assisting former welfare recipients to transition to work, linking youth with jobs of tomorrow, protecting worker's rights, processing unemployment claims and ensuring workers' compensation claims are paid in accordance with the law.

#### National Farm Medicine Center - Marshfield

The National Farm Medicine Center (NFMC) celebrated its 25th anniversary in 2006. Established in 1981 in response to occupational health problems seen in farm patients coming to Marshfield Clinic, the NFMC has focused on evolving issues in agricultural health and safety through its first quarter-century. NFMC goals for the future include expansion of its competency in infectious disease research and rural and agricultural health and safety, as well as becoming an excellent resource for professional training in agromedicine and agriculture-related research

#### Wisconsin Poison Center

The Wisconsin Poison Center, located in Milwaukee, provides 24-hour, toll-free poison information for all individuals in Wisconsin. In addition to assisting with poison exposure treatment, the center strives to provide comprehensive education regarding the prevention of poison injury.

#### Wisconsin Public Health Association

The Wisconsin Public Health Association (WPHA) is an organization dedicated to promoting sound public health policy and providing public health education for its members and the people of Wisconsin. Its mission is to improve, promote and protect health in Wisconsin, by developing public health policy recommendations and best practices.

### Local

Madison Area Safety Council  
Public Health Agencies  
Occupationally-related consortiums/coalitions



## References and Acknowledgements

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Wisconsin Division of Public Health Healthiest People 2010  
<http://dhfs.wisconsin.gov/statehealthplan/>

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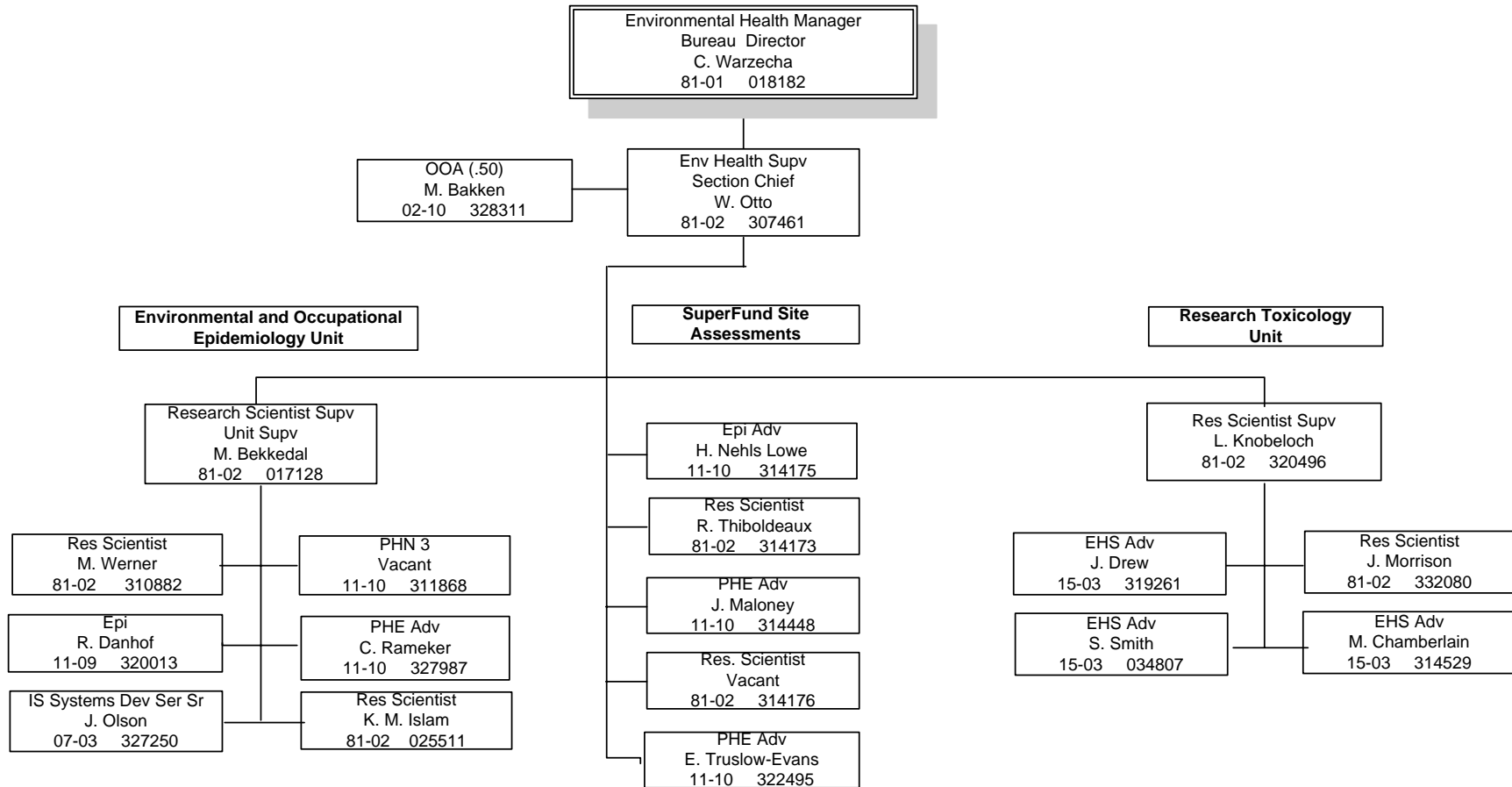
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APPENDIX A-1

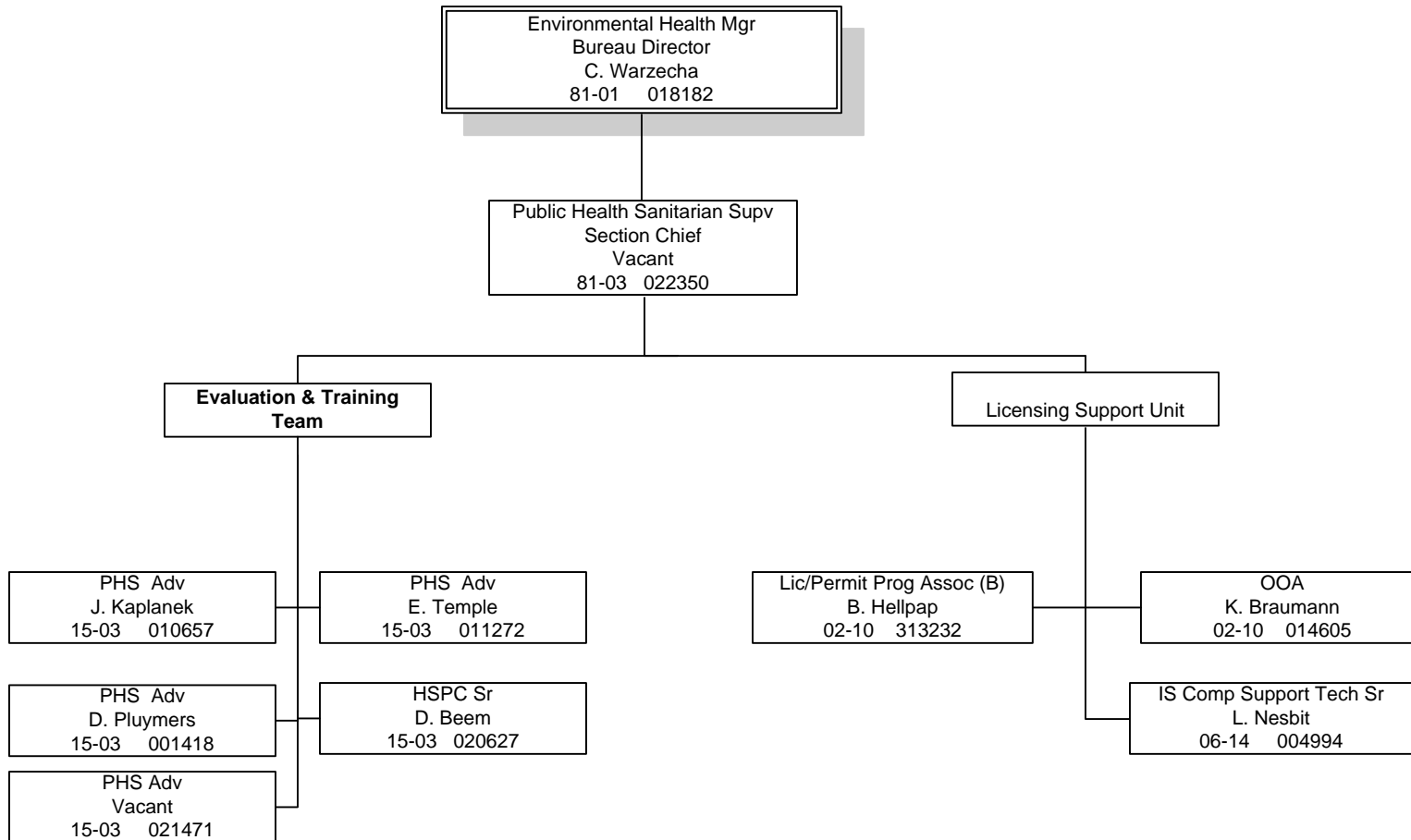
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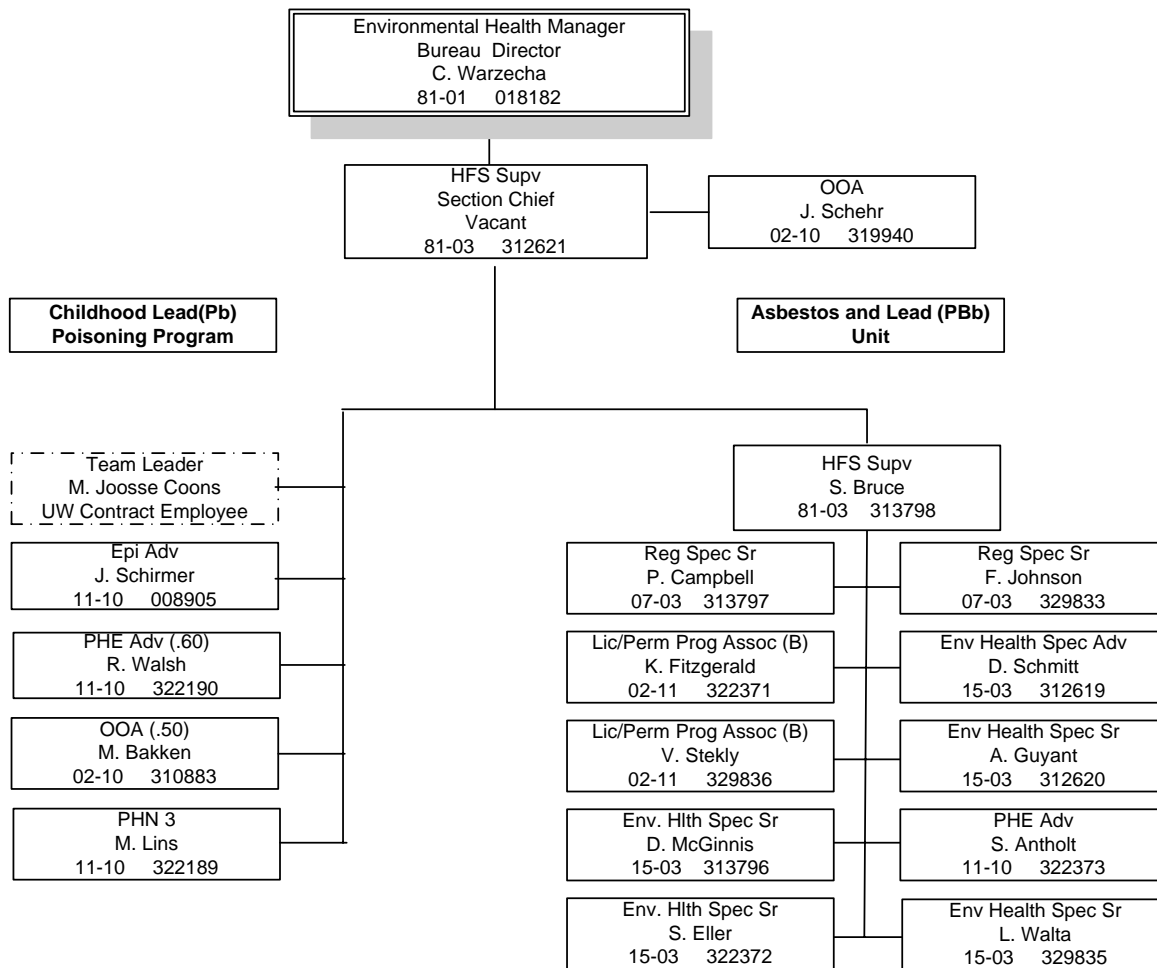
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