# Minnesota Workplace Safety Report 2008

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# Executive summary

Minnesota's workplaces became safer for workers during 2008, continuing a trend since 1995. The most recent occupational injury and illness figures show that during 2008, there were an estimated 87,900 recordable injury and illness cases; about 22,600 of these cases involved one or more days away from work. The comparable figures for 2007 were 94,200 total cases and 26,100 days-away-from-work cases. There were 65 work-related fatalities in 2008, a decrease from 72 fatalities in 2007 and 78 fatalities in 2006.

While the number of cases has decreased substantially during the past decade, these injuries, illnesses and deaths exact a toll on workers and their families and affect business costs and productivity. Workers' compensation costs in Minnesota approached $1.48 billion in 2008. In 2006, the average cost of an insured claim was approximately $7,800. There are other costs of workplace injuries and illnesses that are more difficult to measure, such as delayed production, hiring and training replacement workers, and those economic and non-economic losses to injured workers and their families that are not covered by workers' compensation.

This report, part of an annual series, gives information about Minnesota's job-related injuries, illnesses and fatalities. Data sources for the injuries, illnesses and fatalities are the Survey of Occupational Injuries and Illnesses and the Census of Fatal Occupational Injuries, both conducted jointly by the Minnesota Department of Labor and Industry and the U.S. Bureau of Labor Statistics. Information about Minnesota OSHA activities and programs is also presented, based on administrative statistics collected by the agency.

## Nonfatal occupational injuries and illnesses

### Incidence rates

- Minnesota's total rate of workplace injuries and illnesses was 4.2 cases per 100 full-time-equivalent (FTE) workers in 2008, a drop from the 2007 rate of 4.6 cases. The rate has decreased 30 percent from the 2002 rate of 6.0 cases per 100 FTE workers.

- The rate of cases with days away from work, job transfer or restriction was 1.9 cases per 100 FTE workers in 2008, a decrease from the 2007 rate of 2.2 cases per 100 FTE workers.

- The rate of cases with days away from work was 1.1 per 100 FTE workers in 2008, a drop from 1.3 cases per 100 FTE workers for the previous three years.

- Minnesota's private-sector total recordable case rate and lost-workday case rate have been above the U.S. rates since 1996. For 2008, the total case rate was 4.2 cases per 100 FTE workers for the state versus 3.9 for the nation.

- Minnesota's rate of cases with days away from work has been roughly equal to the national rate since 1996; in 2008, Minnesota's rate, 1.1 cases per 100 FTE workers, was slightly below the national rate of 1.2 cases per 100 FTE workers.

- Minnesota's industry sectors with the highest total injury and illness rates per 100 FTE workers were:

  (1) privately owned education and health services(5.7);
  (2) natural resources and mining (5.7); and
  (3) construction (5.6).

- Three of the 10 industry subsectors with the highest total case rates were nursing and residential care facilities with private, state government, and local government ownership.

### Worker and injury characteristics

For cases with days away from work, the survey provides information about characteristics of the injured workers and their injuries. The following results refer to injuries and illnesses occurring in 2008.

- Men accounted for 52 percent of all workers and 64 percent of the injured workers.
- The percentage of injured workers age 55 and older increased from 9 percent in 2000 to 19 percent in 2008.
- Sprains and strains accounted for 40 percent of the cases with days away from work. The second-highest category was soreness and pain, with 13 percent of the cases.
- The back was the most commonly injured body part, accounting for one quarter of the cases, followed by multiple-part injuries, with 14 percent.
- The most common injury events were falling on the same level and overexertion in lifting.
- Floors and ground surfaces was the most frequent source of injury, followed by containers and the injured worker's own motion or bodily position.
- Musculoskeletal disorders accounted for 38 percent of the cases with days away from work in 2008.
- The median number of days away from work increased to six days. The median had been five days since 2000. Thirty percent of the cases had only one or two days away from work and 26 percent of the cases had more than 20 days away from work.

## Fatal occupational injuries

The Census of Fatal Occupational Injuries covers all fatal work injuries in the private and public sectors, regardless of program coverage; thus, it includes federal workers and self-employed workers. However, fatal *illnesses* (such as asbestosis) are excluded.

- In 2008, 65 Minnesotans were fatally injured on the job. For 2004 through 2008, Minnesota had an average of 76 fatal work injuries a year, consisting of approximately 55 wage-and-salary workers and 21 self-employed people.
- Among industry sectors, agriculture, forestry, fishing and hunting recorded the highest number of worker fatalities, with 25. Construction had the second-highest number of fatalities, with 13 cases.
- The most frequent causes of Minnesota's fatal work injuries for 2008 were being struck by an object (23 percent) and highway transportation accidents (22 percent).

## Minnesota OSHA activities

During federal-fiscal-year 2009 (October 2008 through September 2009), MNOSHA:

- conducted 2,717 compliance inspections affecting the workplaces of 139,400 workers;
- found violations resulting in the assessment of $3.4 million in penalties;
- conducted 966 worksite consultations that identified safety and health hazards, potentially costing employers $3.7 million in MNOSHA penalties; and
- conducted 544 worksite consultation training and intervention visits, plus many other safety and health presentations and seminars.

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# 1
# Introduction

This report, part of an annual series, provides information about Minnesota's job-related injuries, illnesses and fatalities: their incidence, nature and causes; the industries in which they occur; and changes in their incidence over time. This information is important for improving workplace safety and health and, thereby, reducing the burden of occupational injuries and illnesses on workers, families and employers.

This report also provides a summary of Minnesota Occupational Safety and Health Administration (MNOSHA) compliance and safety consultation program activities, showing how these state programs are supporting employers' efforts to improve workplace safety.

Minnesota's employers reported fewer worker injuries and illnesses than had previously been recorded. The most recent occupational injury and illness figures show that during 2008, there were an estimated 87,900 recordable injury and illness cases; about 22,600 of these cases involved one or more days away from work. The figures for 2007 were 94,200 total cases and 26,100 cases with days away from work. There were 65 work-related fatalities in 2008, a decrease from 72 fatalities in 2007 and 78 fatalities in 2006.

Approximately 240 Minnesota workers were hurt at work or became ill from job-related causes each day during 2008. These injuries, illnesses and deaths exact a toll on workers and employers. Workers' compensation in Minnesota cost an estimated $1.48 billion in 2008, or $1.35 per $100 of covered payroll.[1] This includes indemnity benefits (for lost wages, functional impairment or death), medical treatment, physical and vocational rehabilitation, dispute resolution, claims administration and other system costs.

For workers' compensation policies written in 2006 (the most current data available), the average cost of a workers' compensation claim was $7,800 for medical treatment plus indemnity benefits (wage loss, disability and vocational rehabilitation). For claims with indemnity benefits, 21 percent of all cases, the combined average medical and indemnity cost was much higher — $34,000.

## Data sources

This report presents statistics from three sources: the U.S. Bureau of Labor Statistics (BLS) annual Survey of Occupational Injuries and Illnesses (SOII); the BLS Census of Fatal Occupational Injuries (CFOI); and the Minnesota OSHA Operating System Exchange database (MOOSE). The BLS and CFOI statistics are available through 2008; MNOSHA statistics are available through 2009.

### Occupational injury and illness survey

The annual SOII, conducted jointly by BLS and state agencies, is the primary source of workplace injury and illness data nationwide. Work establishments are randomly selected within industry and establishment size categories. Approximately 5,100 Minnesota work establishments in the private sector and state and local government participated in the 2008 SOII. Data were collected from 99.9 percent of the usable establishments in the survey sample.

While the SOII provides the most complete, standardized set of data regarding workplace injuries and illnesses, the number of recordable cases from the survey is not an estimate of all workplace injuries and illnesses. The SOII does not include injuries to business owners, sole proprietors, federal government employees, volunteers or family farm workers.[2]

[1] *Minnesota Workers' Compensation System Report 2008* (www.dli.mn.gov/RS/WcSystemReport.asp). This report provides statistics about workers' compensation benefit costs and is the source of the costs cited.

[2] Owners and partners in sole proprietorships and partnerships are not considered employees, but corporate

OSHA-recordable cases include: all work-related fatalities; nonfatal occupational injuries and illnesses; nonfatal occupational injuries that result in loss of consciousness; injuries and illnesses requiring medical treatment other than first aid; and any injury or illness resulting in lost time from work, restricted work activity or transfer to another job after the day of injury. An injury or illness is considered work-related if an event or exposure in the work environment caused or contributed to the condition or significantly aggravated a pre-existing condition.

The SOII defines different types of cases according to whether they have days off the job, job transfer or work restrictions:

- Cases with days away from work, job restriction or transfer (DART), as a combined group, are those cases with days when the injured worker is off the job *or* working with restrictions. Prior to 2002, cases with days away from work or job restrictions were called lost-workday cases. DART cases consist of:
  (1) days-away-from-work (DAFW) cases — those with any days off the job other than the day of injury or illness (with or without additional days of restricted work or job transfer); and
  (2) cases with job transfer or restriction — those with job transfer or restricted work but no days off work beyond the initial day of the injury or illness.

- Other recordable cases are cases that have no days away from work, no job transfer and no work restrictions beyond the initial day of the injury or illness, but meet the guidelines for recording the case.

These case types and other terms used in the SOII and the case types for previous years are more precisely defined in Appendix A. Employers are expected to understand the OSHA recordkeeping requirements enough to properly identify and classify their cases and to count the days away from work and days of work restriction or job transfer. Appendix B presents the information expected from employers and discusses the common errors made on the OSHA log and the subsequent report of the log results for the SOII. Because of changes in the OSHA recordkeeping requirements, ***the survey results for 2002 and later years are not comparable with the results for prior years.*** The recordkeeping changes affected what injuries and illnesses are recordable, how injuries and illnesses are categorized and how days away from work are counted. These changes make direct comparisons between the pre-2002 SOII and the 2002 and later SOII results unreliable. Appendix C presents the recordkeeping changes that took effect in 2002 and how they might affect injury and illness statistics.

Further changes in the categorization of industries and occupations took place in 2003. The industry coding changed from the 1997 Standard Industrial Classification (SIC) system to the 2002 North American Industry Classification System (NAICS).[3] Occupational coding changed from the 1990 Bureau of Census codes to the 2000 Standard Occupational Classification (SOC) system.[4] Exact comparisons of industry-specific and occupation-specific rates and numbers with results for earlier years are not possible.

An important issue with the injury and illness survey data is sampling error, the random error in survey statistics that occurs because the statistics are estimated from a sample. This sampling error is greater for smaller categories, such as particular industries, because of smaller sample size. Sampling errors are regularly reported as part of the SOII survey statistics.[5]

While the SOII offers the most complete national estimate of occupational injuries and illnesses, there is a debate about whether the SOII significantly undercounts these cases. This debate, and the research examining the extent of the SOII undercount, is summarized by John Ruser, the BLs assistant commissioner for Safety, Health and Working Conditions, who also provides information about steps the BLS is taking to improve the SOII estimates.[6] To the

officers who receive payment for their services are considered employees.

[3] Information about NAICS is available at www.census.gov/epcd/www/naics.html.
[4] Information about the SOC system is available at www.bls.gov/soc/home.htm.
[5] For the 2008 relative standard errors, see tables A1 to A4 at www.dli.mn.gov/RS/Excel/blssumtables08.xls.
[6] John W. Ruser, "Examining evidence on whether BLS undercounts workplace injuries and illnesses." *Monthly*

extent that any possible undercount varies between states, this would affect states' rates differently. As part of the national effort to improve OSHA recordkeeping, the federal and state OSHA enforcement agencies are undertaking a national emphasis program about recordkeeping.[7]

### Fatal injuries

BLS, in cooperation with state and other federal agencies, conducts the nationwide CFOI. The CFOI was developed to produce accurate, comprehensive, descriptive, timely and accessible counts of fatal workplace injuries that occur during a given year. Fatalities caused by illnesses are excluded.

The CFOI provides a complete count of fatal work injuries by using multiple sources to identify, verify and profile these incidents. Source documents such as death certificates, workers' compensation reports, and federal and state agency administrative records are cross-referenced to gather key information about each workplace fatality. Two or more independent source documents are used to verify the work relationship of each fatal work injury.

The CFOI results were categorized by NAICS industry codes and SOC occupation codes for the first time in 2003. Trends and direct comparisons with data from earlier years are not possible for industries and occupations.

### MNOSHA activity measures

The MNOSHA program includes the Compliance unit, which is responsible for occupational safety and health compliance program administration, and the Workplace Safety Consultation unit, which provides free consultation services. Source statistics used in this report come from the MOOSE system. MNOSHA inspectors and consultants enter information following worksite visits. Data for training presentations, voluntary program participation, and safety grant activity are maintained in separate file systems.

*Labor Review*, August 2008, pp. 20-32.

[7] The national emphasis program is explained in OSHA Directive 10-02 (CPL 02) at www.osha.gov/OshDoc/Directive_pdf/CPL_02_10-02.pdf

## Other available data

The SOII provides a large volume of information about occupational injuries and illnesses for the United States and most individual states. This information includes the number and incidence of injuries and illnesses by industry and establishment size. For DAFW cases, the survey provides data about the characteristics of injuries and illnesses, including cause, severity (number of days away from work), employee's length of time on the job when injured, occupation and other employee characteristics.

The Minnesota case counts and incidence rates for all detailed industries for survey years 2003 through 2008 are available at www.dli.mn.gov/RS/StatWSH.asp. Many other SOII data tables and charts for are available on the DLI web site at www.dli.mn.gov/RS/BlsStats.asp.

The Minnesota CFOI tables for 2008 are available on the DLI Web site at www.dli.mn.gov/RS/Excel/cfoitables08_1.xls. The national SOII and CFOI statistics are available at www.bls.gov/iif. The national data, because of larger sample sizes, includes more detailed categories than the state data and has smaller sampling errors. The BLS Web site also provides data for other states.

Some national and state OSHA Compliance inspection data, accident investigation summaries and lists of frequently cited standards by industry are available at www.osha.gov/oshstats.

The MNOSHA annual report provides statistics about MNOSHA activities and is available at www.dli.mn.gov/OSHA/PDF/09mnosha_annualreport.pdf.

## Report organization

The next three chapters in this report describe the incidence and characteristics of occupational injuries and illnesses in Minnesota. Chapter 2 presents data about the number and incidence of Minnesota's workplace injuries and illnesses over time, focusing on the state as a whole. Chapter 3 provides statewide injury and illness

statistics by industry and establishment size. Chapter 4 describes the characteristics of workers and their injuries for DAFW cases.

Chapter 5 gives information about the state's fatal workplace injuries, using data from the CFOI program. Figures show the number of fatalities, the events causing the fatalities and characteristics of the fatally injured workers.

Chapter 6 provides information about MNOSHA compliance and consultation activities and programs to help employers achieve safe and healthful workplaces.

Appendix A provides a glossary of concepts and terms for understanding and using the SOII data. Appendix B provides some of the major OSHA log requirements and recordkeeping principles that form the basis of the SOII statistics. Appendix C shows the major changes to OSHA's recordkeeping rule that became effective in 2002.

# 2

# Number and incidence of workplace injuries and illnesses

## Numbers of injury and illness cases

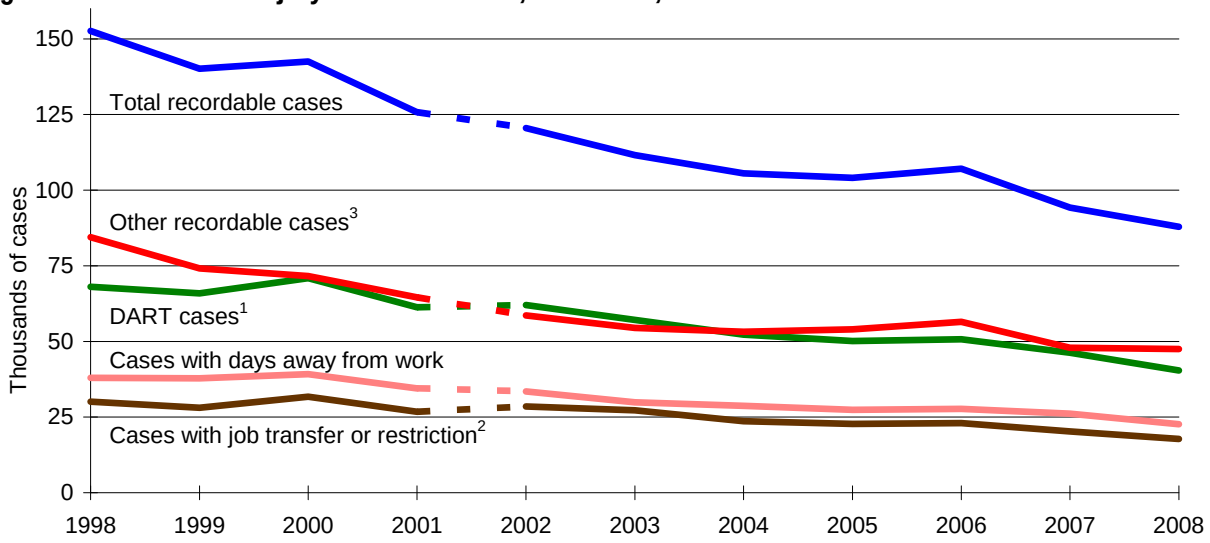
While incidence rates provide standardized measurements of injuries and illnesses, the number of cases shows the magnitude of the occupational injury and illness situation and is an appropriate point for beginning this report.

On the basis of employers' responses to the SOII, there were an estimated 87,900 OSHA-recordable injury and illness cases in Minnesota in 2008.

Figure 2.1 shows estimates of the number of nonfatal injuries and illnesses in Minnesota for 1998 through 2008 for the various case types. Because of the OSHA recordkeeping changes, the 2002 and later estimates are not directly comparable with estimates from earlier years. To highlight this caveat, there is a break in the data lines between 2001 and 2002.

- From 2003 to 2008, while employment increased 4 percent, the estimated number of recordable cases decreased 21 percent.
- The distribution of cases among the various case types in 2008 was consistent with the distribution in recent years. The number of DART cases dropped below the number of other recordable cases in 2004. The difference between the numbers of DART and other recordable cases increased in 2008.

**Figure 2.1 Number of injury and illness cases, Minnesota, 1998-2008**




| Year of injury | Employ-ment (1,000s ) | Total recordable cases (1,000s ) | Total DART cases[1] | | Cases with days away from work | | Cases with job transfer or restriction[2] | | Other recordable cases[3] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Number (1,000s) | Pctg. of total | Number (1,000s) | Pctg. of total | Number (1,000s) | Pctg. of total | Number (1,000s) | Pctg. of total |
| 1998 | 2,457 | 152.6 | 68.1 | 45% | 38.0 | 25% | 30.1 | 20% | 84.5 | 55% |
| 2002 | 2,551 | 120.5 | 62.0 | 51% | 33.5 | 28% | 28.5 | 24% | 58.6 | 49% |
| 2006 | 2,629 | 107.1 | 50.7 | 47% | 27.7 | 26% | 23.0 | 21% | 56.5 | 53% |
| 2007 | 2,642 | 94.2 | 46.3 | 49% | 26.1 | 28% | 20.2 | 21% | 47.9 | 51% |
| 2008 | 2,654 | 87.9 | 40.4 | 46% | 22.6 | 26% | 17.8 | 20% | 47.5 | 54% |

1. For 2001 and earlier, lost-workday cases.
2. For 2001 and earlier, cases with restricted work activity only.
3. For 2001 and earlier, cases without lost workdays.

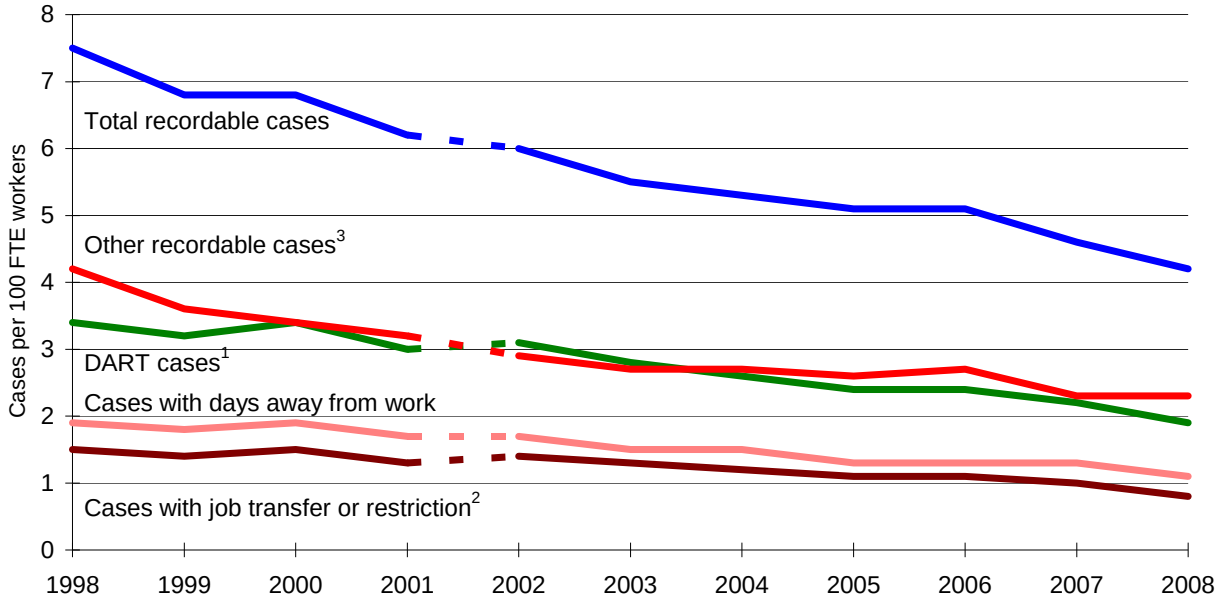
## Incidence rates

Incidence rates relate the estimated number of recordable injury and illness cases to total hours of work reported by the employers participating in the survey. Figure 2.2 shows estimates of the incidence of nonfatal injuries and illnesses for Minnesota for 1998 through 2008, expressed as cases per 100 full-time-equivalent (FTE) workers.

Because of the OSHA recordkeeping changes, the 2002 and later estimates are not directly comparable with estimates from earlier years. To highlight this change, there is a break in the data lines between 2001 and 2002.

- After peaking at a rate of 8.6 total recordable cases in 1993 and 1994, the total case rate has steadily decreased. Minnesota's 2008 total case rate of 4.2 cases per 100 FTE workers and DART case rate of 1.9 cases per 100 FTE workers were the lowest in the history of the state survey.
- The DAFW case rate has been declining for 20 years, reaching its lowest level in 2008.
- The most-significant rate decrease in 2008 occurred for cases with restricted work activity only, which dropped from 1.0 cases per 100 FTE workers in 2007 to 0.8 in 2008.

**Figure 2.2 Injury and illness cases per 100 FTE workers, Minnesota, 1998-2008**




| Year of injury | Total recordable cases | Total DART cases[1] | Cases with days away from work | Cases with job transfer or restriction[2] | Other recordable cases[3] |
|---|---|---|---|---|---|
| 1998 | 7.5 | 3.4 | 1.9 | 1.5 | 4.2 |
| 2002 | 6.0 | 3.1 | 1.7 | 1.4 | 2.9 |
| 2006 | 5.1 | 2.4 | 1.3 | 1.1 | 2.7 |
| 2007 | 4.6 | 2.2 | 1.3 | 1.0 | 2.3 |
| 2008 | 4.2 | 1.9 | 1.1 | 0.8 | 2.3 |

1. For 2001 and earlier, lost-workday cases.
2. For 2001 and earlier, cases with restricted work activity only.
3. For 2001 and earlier, cases without lost workdays.

## Comparing Minnesota with the nation

Figure 2.3 compares the rates of total cases, DART cases and DAFW cases in the **private sector** for Minnesota and the United States for 1998 through 2008.[3]

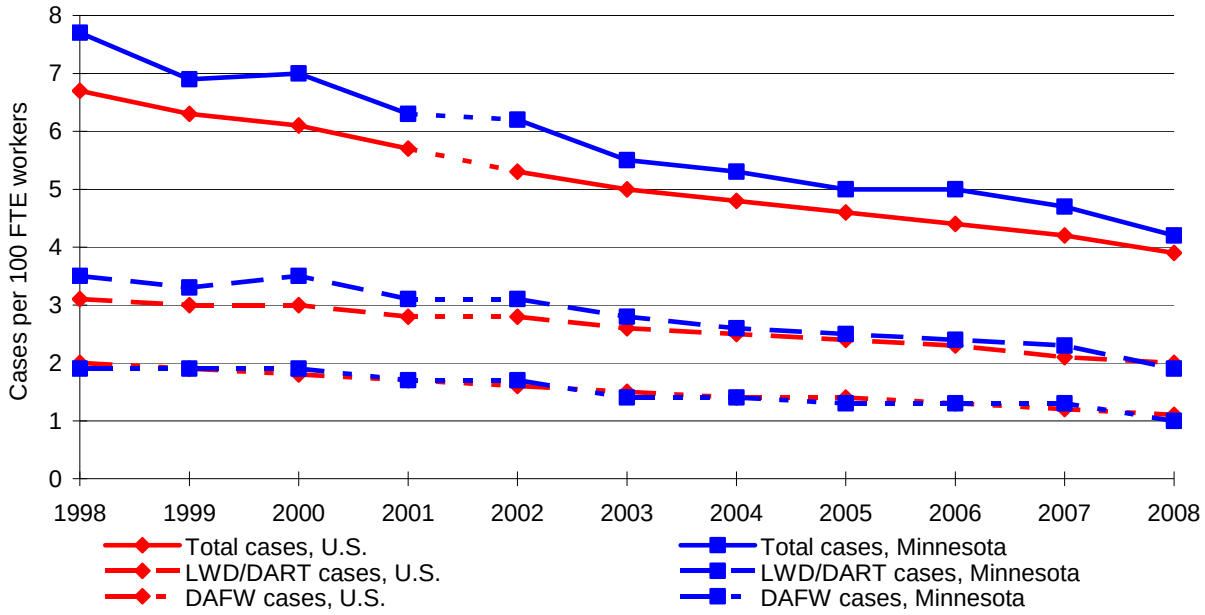
- Minnesota's 2008 private-sector total case rate was 4.2 cases per 100 FTE workers, while the U.S. rate was 3.9 cases. Minnesota's total case rate has been above the U.S. rate since 1993.

- Minnesota's DART rate for 2008 was 1.9 cases per 100 FTE workers, compared to 2.0 for the nation. Relative to the U.S. rate, Minnesota's lost-workday/DART case rate was lower in the late 1980s, close during the early 1990s, higher from 1996 to 2000, and has been very close to the U.S. rate since 2001.

- Since 1986, Minnesota's DAFW case rate has been almost identical to the U.S. DAFW rate.

Industry mix variations between Minnesota and other states may lead to some differences in the overall rates. For example, Minnesota has a higher proportion of total employment in health services than do many other states. There may also be variations in reporting between Minnesota and other states, which may affect the estimated rates.

**Figure 2.3 Injury and illness case incidence rates for Minnesota and the United States, private sector, 1998-2008**




| | Cases per 100 full-time-equivalent workers | | | | | |
|---|---|---|---|---|---|---|
| | Total cases | | LWD/DART cases[1] | | Days-away-from-work cases | |
| | Minnesota | U.S. | Minnesota | U.S. | Minnesota | U.S. |
| 1998 | 7.7 | 6.7 | 3.5 | 3.1 | 1.9 | 2.0 |
| 2002 | 6.2 | 5.3 | 3.1 | 2.8 | 1.7 | 1.6 |
| 2006 | 5.0 | 4.4 | 2.4 | 2.3 | 1.3 | 1.3 |
| 2007 | 4.7 | 4.2 | 2.3 | 2.1 | 1.3 | 1.2 |
| 2008 | 4.2 | 3.9 | 1.9 | 2.0 | 1.0 | 1.1 |

1. LWD cases are lost-workday cases (2001 and earlier). DART cases include cases with days away from work, job transfer or restriction (2002-2008).

[3] Prior to 2008, participating states had the option to include public-sector worksites in the SOII. Because not all states chose this option, public-sector statistics are not available at the national level prior to 2008.

For 2008, the combined incidence rates for the public and private sectors can be compared. Figure 2.4 shows that Minnesota's total case rate was the same as the national rate, while the DART and DAFW rates were lower than the corresponding national rates. Only Minnesota's rate for other recordable cases was higher than the national rate. This might be caused by a tendency among some Minnesota employers to record injuries that do not meet the standard for inclusion in the OSHA log as recordable cases.

**Figure 2.4 Injury and illness case incidence rates for Minnesota and the United States, public and private sectors, 2008**

| Case type | Minnesota rate | U.S. rate |
|---|---|---|
| Total cases | 4.2 | 4.2 |
| DART cases | 1.9 | 2.1 |
| DAFW cases | 1.1 | 1.2 |
| Cases with job transfer or restriction only | 0.8 | 0.8 |
| Other recordable cases | 2.3 | 2.1 |

## Minnesota relative to other states

The ranking of Minnesota's incidence rates with those from other states provides a context for the current level and recent trend in Minnesota's injuries and illnesses. The results reinforce the comparison of Minnesota and the national rates.

Figure 2.5 shows Minnesota's ranking for injury and illness rates and for the ratio of DART cases to the total case rate. Comparable private-sector data is available for 42 states in 2005, 2006 and 2007 and for 41 states in 2008. Lower rates are ranked lower.

- Minnesota maintained a middle-range ranking on all measures from 2005 through 2007, but decreased significantly in five of the six categories in 2008.

- The total case rate can be divided into two broad categories; the DART case rate and the other recordable case rate (see Appendix A for definitions of the case types). A low percentage of the DART rate compared to the total case rate may indicate employers are recording many low-severity cases on their OSHA logs or the state has a low overall severity level. The DART case rate was 45 percent of Minnesota's total case rate in 2008, the third lowest percentage. In 2007, the DART rate was 49 percent of the total case rate.

**Figure 2.5 Ranking of Minnesota's private-sector injury and illness rates with other states (lower rates have lower rankings)**

| Incidence rate | 2005 (42 states) | 2006 (42 states) | 2007 (42 states) | 2008 (41 states) |
|---|---|---|---|---|
| Total cases | 21 | 25 | 24 | 19 |
| DART cases | 20 | 21 | 21 | 15 |
| DAFW cases | 14 | 17 | 19 | 8 |
| Cases with job transfer or restriction | 26 | 26 | 24 | 19 |
| Other recordable cases | 24 | 30 | 26 | 27 |
| DART rate as percentage of total case rate | 15 | 9 | 14 | 3 |

## Incidence of illnesses

The SOII statistics include estimates of the number and rate of claims of specific illnesses for all case types. These illnesses are skin disorders, respiratory conditions, poisoning and hearing loss. These illnesses are counted for all case types, unlike the more-detailed data available only for DAFW cases. In 2008, there were an estimated 2,200 cases with one of these illnesses. The rates per 10,000 FTE workers for these conditions are shown in Figure 2.6.

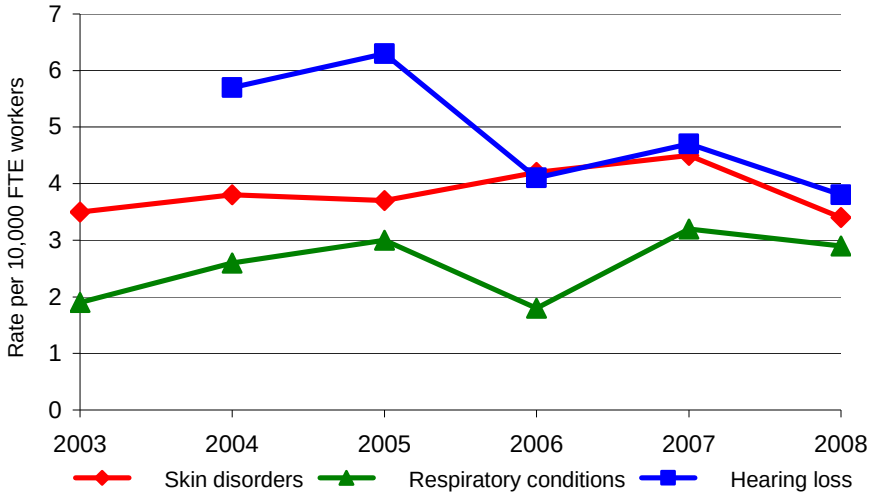
- Skin diseases or disorders are illnesses involving the worker's skin that are caused by work exposure to chemicals, plants, or other substances. Skin disorders are the second-most-common illness type and their rate has been near four cases per 10,000 FTE workers since 2004.

- Respiratory conditions are illnesses associated with breathing hazardous biological agents, chemicals, dust, gases, vapors, or fumes at work. The rate for these conditions increased by 81 percent from 2006 to 2007, and dropped slightly in 2008.

- Poisoning includes disorders evidenced by abnormal concentrations of toxic substances in blood, other bodily fluids, tissues or the breath that are caused by the ingestion or absorption of toxic substances into the body. The changes in the estimated rates for poisoning may be due to sampling errors, where the few cases that are reported have a large effect on the estimates.

- Noise-induced hearing loss is defined as a change in hearing threshold relative to a baseline audiogram. Hearing loss has the highest incidence rate of the illnesses. The rate for the past three years was lower than the rate for the previous years.

**Figure 2.6 Incidence rates for specific illnesses, all recordable cases, Minnesota, 2003-2008**




| | Skin disorders | Respiratory conditions | Poisoning | Hearing loss |
|---|---|---|---|---|
| 2003 | 3.5 | 1.9 | 1.0 | [1] |
| 2006 | 4.2 | 1.8 | [2] | 4.1 |
| 2007 | 4.5 | 3.2 | 0.1 | 4.7 |
| 2008 | 3.4 | 2.9 | 0.1 | 3.8 |

1. Hearing loss not reported as separate category until 2004.
2. Data do not meet SOII publishability guidelines.

# 3

# An overview of nonfatal workplace injuries and illnesses in Minnesota

This chapter compares injury and illness rates by industry and presents information about incidence rates by establishment size. There is considerable variation in the injury and illness rates by industry and establishment size.

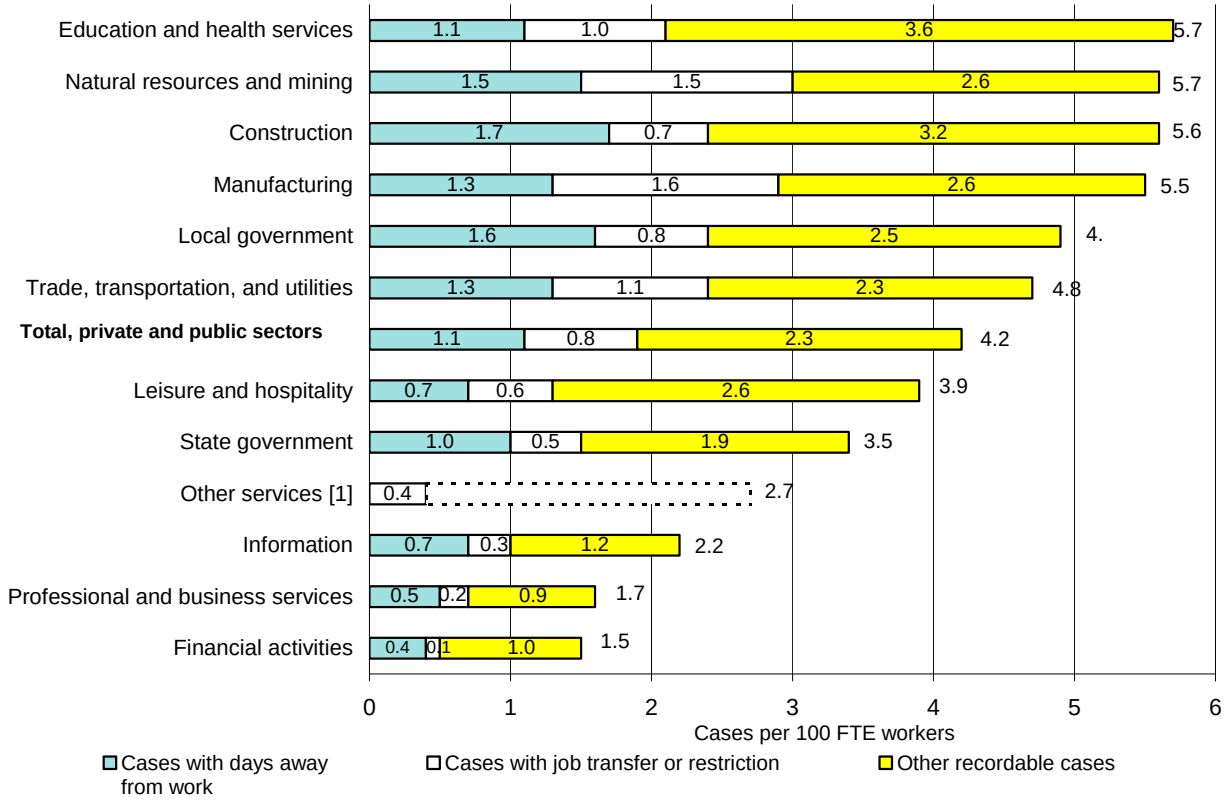
The 2008 injury and illness survey shows:

- Education and health services (privately owned) and natural resources and mining had the highest total case rates, 5.7 cases per 100 FTE workers, followed by construction, with 5.6 rate and manufacturing, with a 5.5 rate. These were also the four highest-rate industries in 2007.
- Establishments with 50 to 249 employees had the highest incidence rates, while establishments with 10 or fewer employees had the lowest rates.

## Incidence by industry supersector

Industries can be analyzed at different levels of detail. NAICS uses a six-digit hierarchical code in which each successive digit after the second digit indicates a finer level of detail. Industry sectors use the first two NAICS digits. For each type of ownership – private, state government and local government – there are 20 industry

**Figure 3.1 Incidence rates by industry supersector, Minnesota, 2008**




1. The estimates for cases with days away from work and for other recordable cases did not meet publication guidelines.

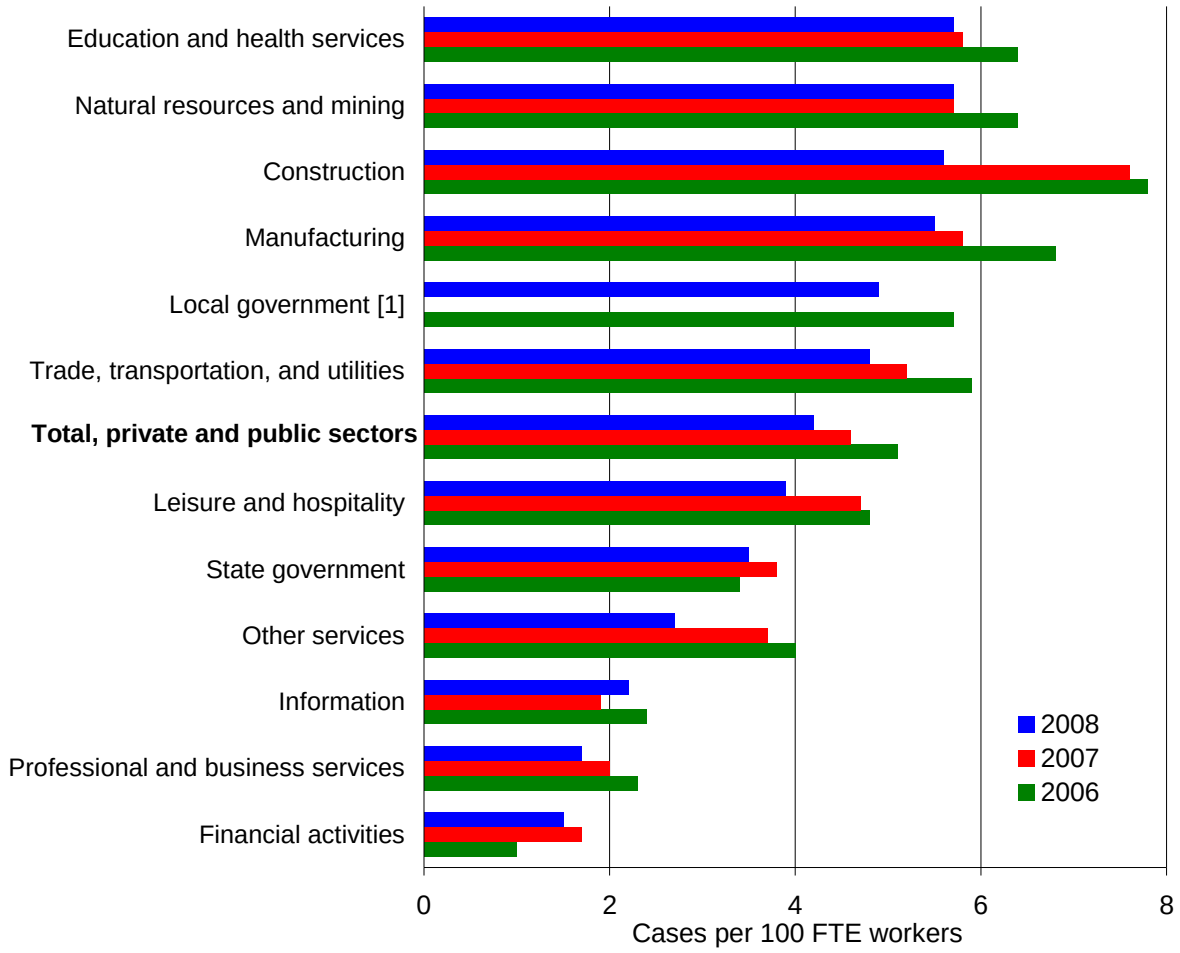
sectors in NAICS. For brevity of presentation, the SOII results are often presented in supersectors. The 11 supersectors include from one to four industry sectors. Because the state and local government sector-level results are concentrated in a few services (e.g., education and health care) and public administration, these statistics are reported as totals for state and local government, respectively.

Figure 3.1 shows Minnesota's injury and illness rates for the case types by industry supersector and for all industries combined. The supersectors are ranked by their total case rate.

- Education and health services (privately owned) and natural resources and mining had the highest total case rates.
- Construction had the highest rate for DAFW cases.
- Manufacturing, with the fourth-highest total case rate, had the highest rate for cases with job transfer or restrictions.
- Manufacturing was the only supersector with the job transfer or restriction case rate higher than its DAFW case rate.

Figure 3.2 compares the 2008 rates for each supersector with its respective 2007 and 2006 rates. The 2008 total case rates were lower than the 2007 rates for nine of the supersectors and higher in 2008 for only one supersector, information.

**Figure 3.2 Rate of total nonfatal occupational injuries and illnesses per 100 FTE workers by industry supersector, Minnesota, 2006, 2007 and 2008**




1. The 2007 estimate for local government was suppressed because of reporting errors.

Figure 3.3 compares Minnesota's 2008 total case incidence rates with the U.S. rate for each supersector. Compared to the U.S. rates, five Minnesota supersectors were lower, one supersector had the same rate and six supersectors had higher rates. Each of the Minnesota supersectors with the four highest total case rates had rates higher than their national supersector rate.

**Figure 3.3 Rate of total nonfatal occupational injuries and illnesses per 100 FTE workers by industry supersector, Minnesota and United States, 2008**

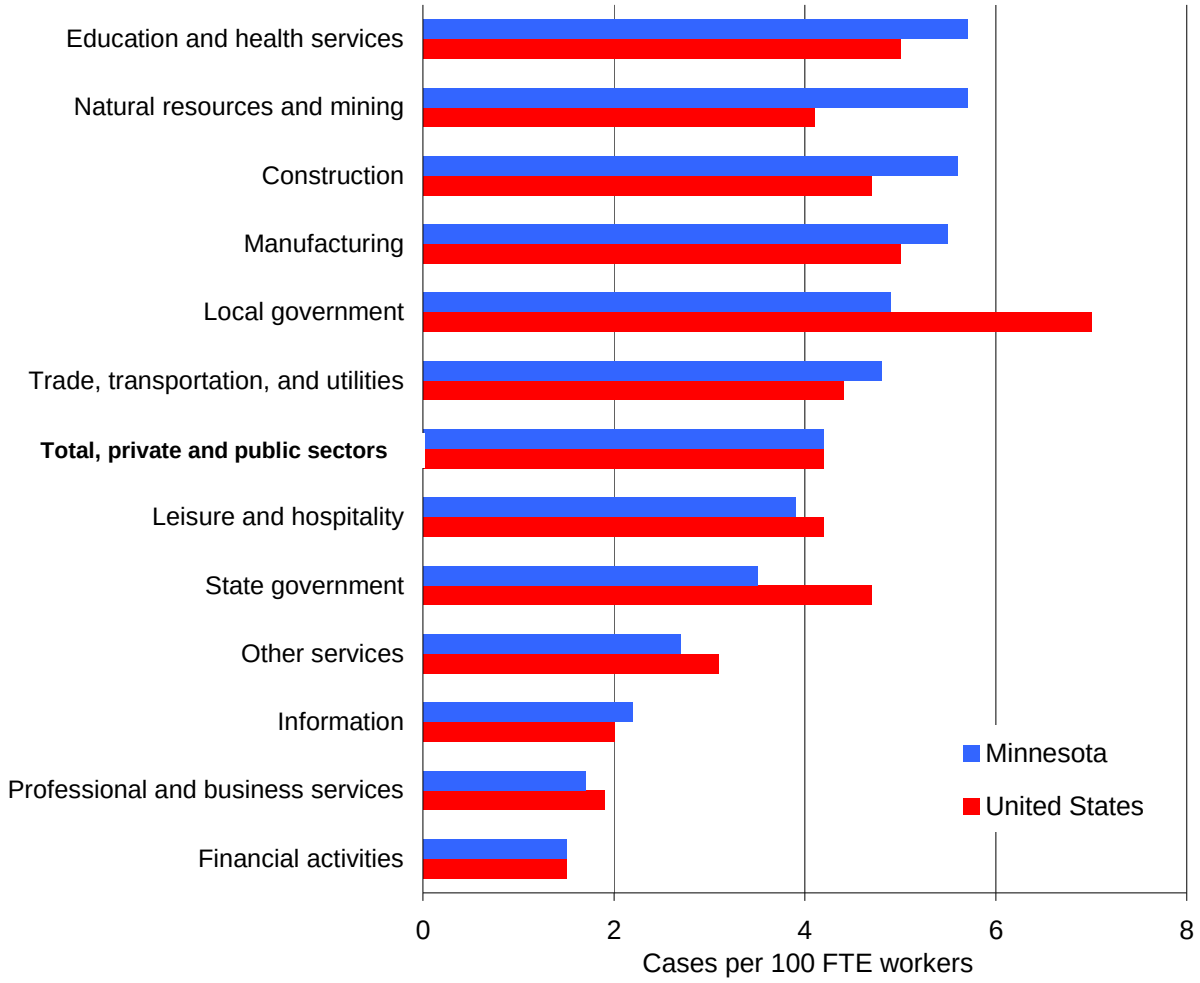
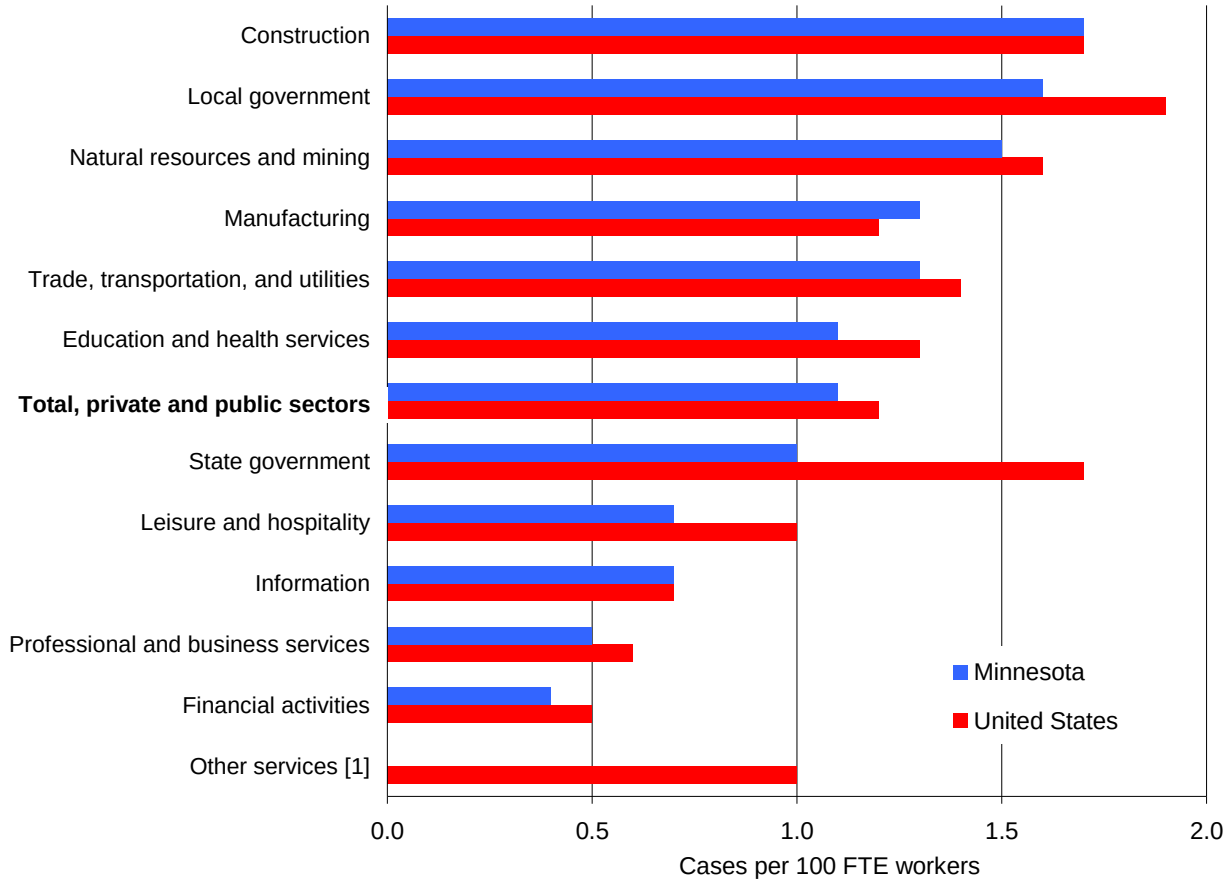


Figure 3.4 compares Minnesota's 2008 DAFW case incidence rates with the U.S. rate for each industry supersector. Minnesota had lower DAFW incidence rates than the corresponding U.S. rates for eight supersectors, had the same rate as the United States for two supersectors and had higher rates for only one supersector, manufacturing. The greatest difference between a Minnesota rate and the corresponding U.S. rate was 0.7 cases per 100 FTE workers, in state government, where Minnesota had the lower rate.

**Figure 3.4 Rate of cases with days away from work per 100 FTE workers by industry supersector, Minnesota and United States, 2008**

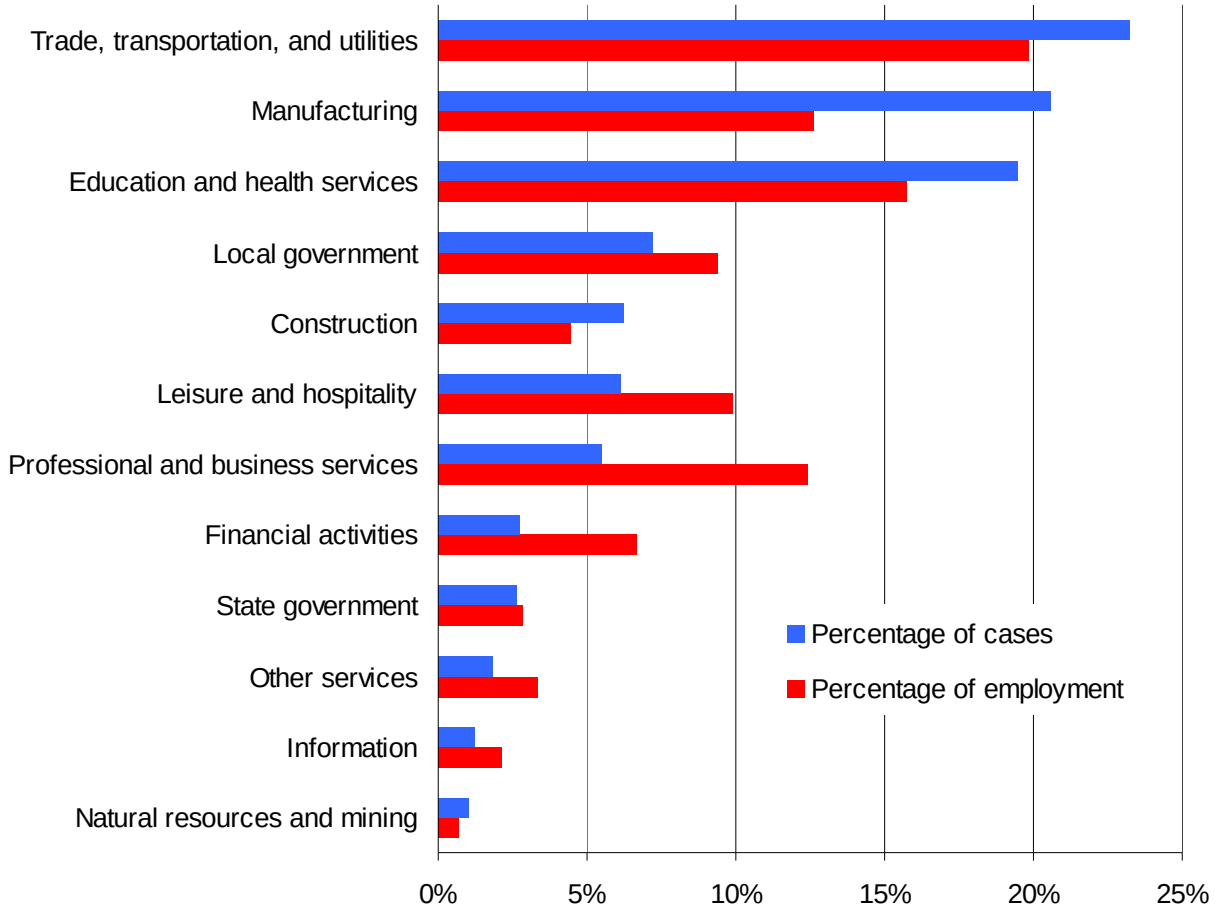



1. The estimates for Minnesota did not meet publication guidelines.

Figure 3.5 compares the percentage of workers employed in each supersector with its percentage of total cases reported. The ratio of cases to the number of workers produces different results than the published incidence rates because the number of employees counts part-time employees the same as full-time employees, while the published case rates are based on the total hours worked.

- The percentages of cases and employment changed very little from previous years' percentages.
- The three industry supersectors with the largest percentages of cases accounted for 63 percent of the injury and illness cases.
- Trade, transportation and utilities, with 20 percent of Minnesota's employment, accounted for 23 percent of the cases, the same as in 2006 and 2007.
- Manufacturing had 21 percent of the cases and was the third-largest employment supersector, with 13 percent of employment.
- Education and health services (privately owned) was the third-largest supersector for total cases (20 percent) and second-largest supersector for employment (16 percent).

**Figure 3.5 Percentage of total cases and employment by industry supersector, 2008**



## Days away from work

As part of the OSHA recordkeeping changes for 2002, days away from work are counted by calendar days, not scheduled work days. This change makes the SOII count more compatible with the method used in Minnesota's workers' compensation system to measure days away from work. Unlike workers' compensation, however, the days away in the SOII do not include the day of the event causing the injury or the onset of illness.

Figure 3.6 shows the distribution of DAFW cases by the number of days away from work.

- Thirty percent of the DAFW cases had only one or two days away from work. Among supersectors, this ranged from 12 percent in natural resources and mining to 40 percent in information.

- At the other extreme, 13 percent of the DAFW cases in financial activities had more than 30 days away from work, compared to a high of 30 percent of the DAFW cases in state government.

As shown in Figure 3.7, the percentage of DAFW cases with one or two days away from work has decreased since 2006, while the percentage of cases with more than 30 days away from work has increased.

Figure 3.8 shows the median number of days away from work for cases with days away by industry supersector. It should be borne in mind that the weighting system used by BLS to compute the SOII estimates sometimes results in large year-to-year variations for supersectors with relatively few DAFW cases.

- The median for all industries was six days, an increase from the five-day median reported since 2000. The median varied widely among the industries and by year within industry.

- Leisure and hospitality and construction had the highest median days away in 2008, at 12 and 11 days, respectively.

**Figure 3.6 Distribution of days-away-from-work cases by number of days away from work, Minnesota, 2008**

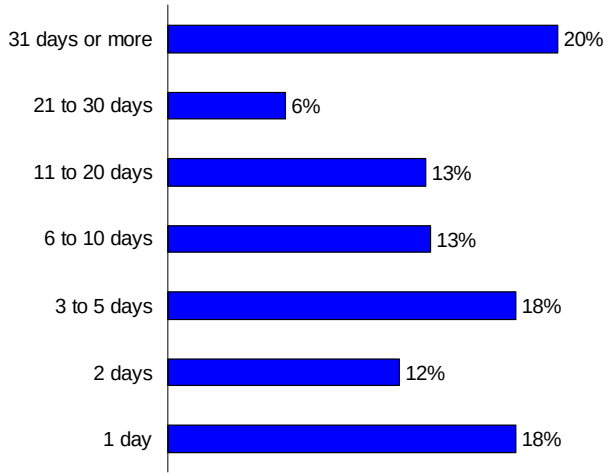



**Figure 3.7 Percentage of DAFW cases with most and fewest days away, Minnesota, 2003 to 2008**

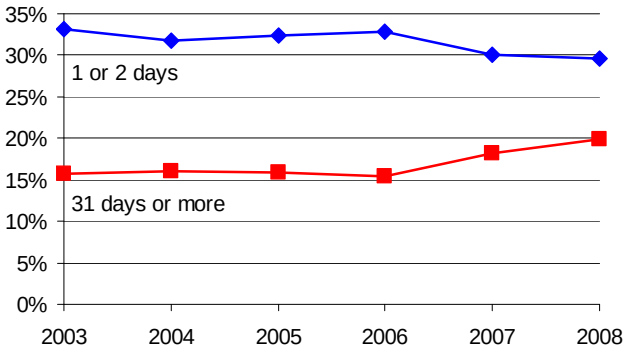



**Figure 3.8 Median days away from work by industry supersector, DAFW cases, Minnesota, 2006, 2007 and 2008**

| Industry supersector | 2006 | 2007 | 2008 |
|---|---|---|---|
| Leisure and hospitality | 5 | 6 | 12 |
| Construction | 7 | 7 | 11 |
| Natural resources and mining | 5 | 6 | 9 |
| State government | 5 | 5 | 8 |
| Trade, transportation, and utilities | 5 | 7 | 7 |
| Information | 8 | 5 | 7 |
| Manufacturing | 5 | 6 | 6 |
| **Total, private and public** | 5 | 5 | 6 |
| Education and health services | 4 | 4 | 5 |
| Professional and business services | 4 | 5 | 4 |
| Local government | 5 | -- | 4 |
| Financial activities | 9 | -- | 3 |
| Other services | 5 | -- | -- |

'--' indicates the value did not meet BLS publication requirements.

## Results by industry subsector

Some safety and health resources, such as Minnesota OSHA compliance inspections, need to be prioritized to those industries with the highest injury and illness rates and the highest numbers of cases. Figure 3.9 shows the industry subsectors (three-digit NAICS classes) with the highest total case incidence rates in Minnesota.

- Seven of the 10 subsectors were among the top 10 last year, including the subsectors with the five highest rates.
- Four of the subsectors are in the health care sector, including all three nursing and residential care subsectors.

The industry subsectors with the highest DAFW *case incidence rates* in Minnesota are shown in Figure 3.10. Seven of the 10 subsectors were on this list in 2007.

- State government and local government nursing and residential care subsectors also had the highest DAFW rates in 2007, although their 2008 rates were below their 2007 values.
- Four of the subsectors are in the transportation and warehousing sector.

Figure 3.11 shows the industry subsectors with the highest *number* of DAFW cases. Only one industry was listed in both figures 3.10 and 3.11, showing that the industries with the highest DAFW rates are different from the industries with the highest number of cases.

- These 10 industries accounted for 8,640 DAFW cases, 38 percent of the state's total.
- The industries represent a wide variety of Minnesota workplaces. These 10 subsectors come from seven different industry sectors.

**Figure 3.9 Industry subsectors with the highest total case rates, Minnesota, 2008**

| Industry subsector[1] | Cases per 100 FTE workers |
|---|---|
| Nursing and residential care (state gov.) | 14.8 |
| Primary metal manufacturing | 11.9 |
| Nursing and residential care (local gov.) | 10.3 |
| Justice, public order, and safety activities (local gov.) | 10.3 |
| Heavy and civil engineering construction (local gov.) | 10.3 |
| Warehousing and storage | 10.2 |
| Nursing and residential care | 9.9 |
| Couriers and messengers | 9.4 |
| Hospitals | 8.9 |
| Transportation equipment mfg. | 8.3 |

[1] Industry subsectors use the first three NAICS digits.
All industries are private-sector unless otherwise noted.

**Figure 3.10 Industry subsectors with the highest rates of days-away-from-work cases, Minnesota, 2008**

| Industry subsector | DAFW cases per 100 FTE |
|---|---|
| Nursing and residential care (state gov.) | 6.6 |
| Nursing and residential care (local gov.) | 4.2 |
| Transit and ground passenger transp. (local government) | 3.8 |
| Warehousing and storage | 3.6 |
| Hospitals (local gov.) | 3.0 |
| Couriers and messengers | 2.8 |
| Justice, public order, and safety activities (local gov.) | 2.8 |
| Primary metal manufacturing | 2.8 |
| Motor vehicle and parts dealers | 2.5 |
| Truck transportation | 2.5 |

All industries are private-sector unless otherwise noted.

**Figure 3.11 Industry subsectors with the highest number of days-away-from-work cases, Minnesota, 2008**

| Industry subsector | DAFW cases[1] |
|---|---|
| Hospitals | 1,580 |
| Educational services (local government) | 1,030 |
| Specialty trade contractors | 1,000 |
| Administrative and support services | 860 |
| Fabricated metal product manufacturing | 780 |
| Nursing and residential care | 740 |
| Motor vehicle and parts dealers | 700 |
| General merchandise stores | 680 |
| Food manufacturing | 640 |
| Merchant wholesalers, durable goods | 630 |

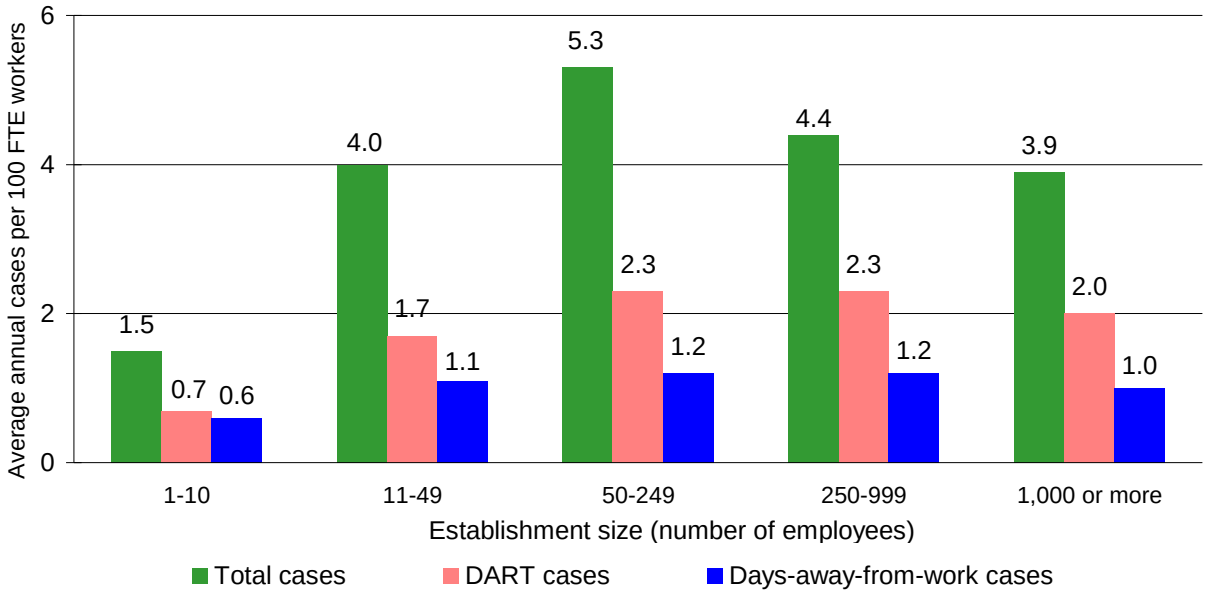
[1] Number of cases is rounded to nearest 10.
All industries are private-sector unless otherwise noted.

## Incidence by size

The incidence of reported workplace injuries and illnesses varies by establishment size. Figure 3.12 shows case incidence by case type and establishment size, and presents the total case rates by establishment size and industry. This pattern has been consistent for many years.

- Incidence rates were lowest for the smallest establishments (one to 10 employees).
- Mid-sized establishments (50 to 249 employees) had the highest rates for all three case types.
- The total case incidence rates and DART rates decreased from 2007 to 2008 for all size groups except the largest size group. The DAFW case rates decreased for the three smallest employer size groups.

**Figure 3.12 Injury and illness case incidence rates by establishment size, private sector, Minnesota, 2008**




| Industry supersector | Total recordable cases per 100 FTE workers by establishment size (number of employees)[1] | | | | | |
|---|---|---|---|---|---|---|
| | All Sizes | 1-10 | 11-49 | 50-249 | 250-999 | 1,000+ |
| Natural resources and mining | 5.7 | 1.2 | 6.5 | 8.7 | 4.0 | -- |
| Construction | 5.6 | 2.9 | 7.5 | 6.9 | 2.9 | -- |
| Manufacturing | 5.5 | 3.3 | 6.1 | 6.5 | 5.4 | 3.6 |
| Trade, transportation, and utilities | 4.8 | 2.0 | 4.3 | 5.9 | 6.0 | 5.6 |
| Information | 2.2 | -- | 1.1 | -- | 2.4 | -- |
| Financial activities | 1.5 | -- | 2.6 | 2.0 | 1.4 | 0.6 |
| Professional and business services | 1.7 | -- | 2.7 | 2.2 | 1.1 | 1.2 |
| Education and health services | 5.7 | -- | -- | 7.8 | 5.2 | 6.9 |
| Leisure and hospitality | 3.9 | -- | 3.0 | 5.0 | 8.5 | 4.1 |
| Other services | 2.7 | -- | 1.8 | -- | 4.1 | -- |
| State government | 3.5 | -- | -- | 4.8 | 2.9 | 3.7 |
| Local government | 4.9 | -- | 6.0 | 4.5 | 5.6 | 4.2 |

1. Only cells with data meeting BLS publication standards are shown.

# 4

# Characteristics of cases with days away from work

This chapter presents, for cases resulting in one or more days away from work, statistics about the demographic characteristics of the workers, their job characteristics, and the characteristics and causes of their injuries and illnesses.

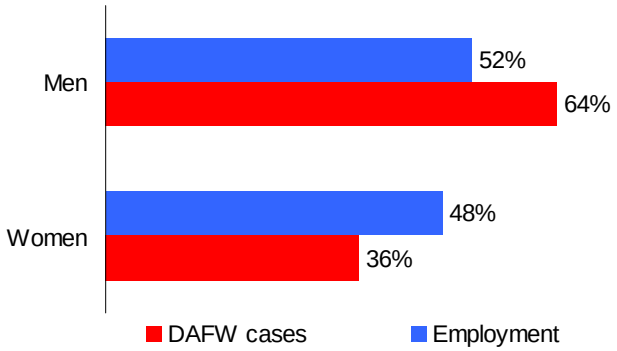
Employers participating in the survey provide descriptions for each DAFW case.[9] DLI Policy Development, Research and Statistics survey staff members code the descriptions into the appropriate categories.

## Worker demographic characteristics

### Gender

- The percentage of women among DAFW cases decreased from 41 percent in 2007 to 36 percent of the cases in 2008. Women accounted for 36 percent of the cases in 2006. Women comprised 48 percent of Minnesota's 2008 employment, unchanged from the previous year.
- The percentage of women among DAFW cases varied greatly by industry. Women accounted for 76 percent of private ownership health care and social assistance cases, but only 4 percent of the construction cases.
- The private ownership DAFW case incidence rate per 10,000 FTE workers[10] was 118 cases for men and 83 cases for women.

**Figure 4.1 Gender of all workers and workers with days-away-from-work cases, Minnesota, 2008**




[9] For employers with a significant number of DAFW cases (more than 15), a sampling scheme is used to select a reduced number of cases. See Appendix B for a list of the data provided.

[10] Rates for DAFW cases are expressed as cases per 10,000 FTE in order to differentiate between values that would be very similar when expressed as cases per 100 FTE.

## Age

- The age distribution of DAFW cases has changed significantly during the past decade, reflecting the increasing average age of the workforce. BLS reported the median age of the U.S. labor force has increased from 36.4 years in 1990 to 40.8 years in 2005, and is projected to reach 41.5 years in 2010.[11]
- With the declining DAFW case rate, this means there are fewer seriously injured workers, but injured workers now tend to be older than those a decade ago.[12]
- The age distribution of workers with DAFW cases (Figure 4.2) is very similar to the age distribution of employed workers.[13]
- The percentage of workers with DAFW cases who were younger than age 35 decreased from 42 percent in 1998 to 30 percent in 2008, while the percentage of injured workers who were age 45 and older increased from 30 percent to 45 percent (Figure 4.3). The majority of workers with DAFW cases were younger than age 35 as recently as 1993.
- The incidence rate (per 10,000 FTE workers) of private-industry DAFW cases was highest for workers 55 to 64 years old, at 124 cases (Figure 4.4). The lowest DAFW rate was for workers 20 to 24 years old (85 cases). The incidence rate generally increased with age, with the exception of the youngest and oldest age groups. In 2007, workers 20 to 24 years old had the highest rate, 147 cases per 10,000 FTE.
- Median days away from work was highest for the youngest and oldest age groups (Figure 4.5). Workers age 65 and older had an average DAFW case rate, but their median number of days away from work (11 days) was nearly double the overall median (six days).

**Figure 4.2** Age of workers with days-away-from-work cases, Minnesota, 2008

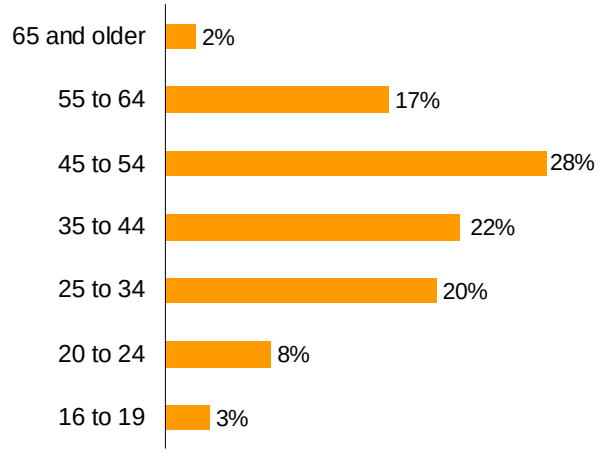



**Figure 4.3** Distribution of age of workers with days-away-from-work cases, Minnesota, 1998-2008

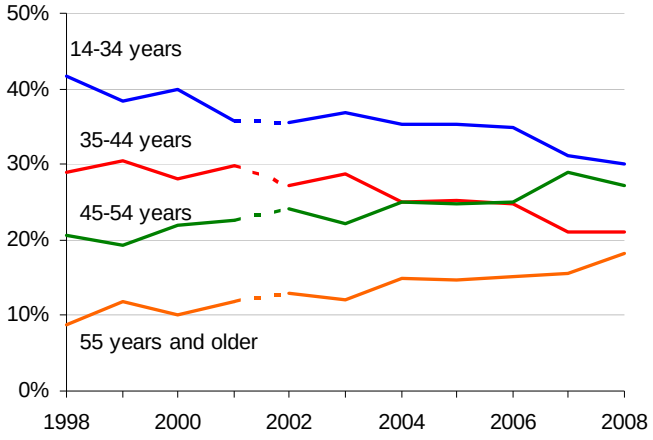
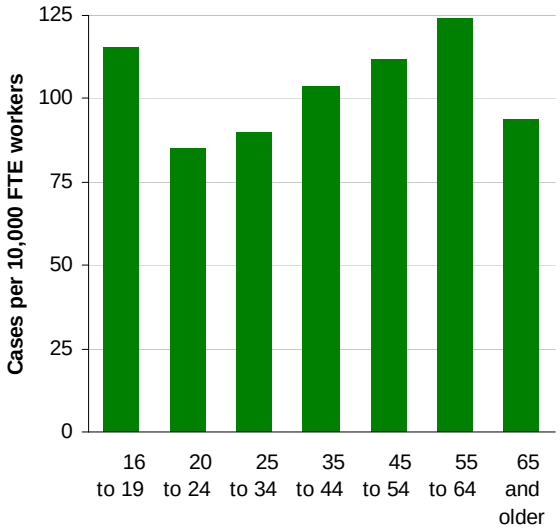



**Figure 4.4** Incidence of cases with days away from work by age group, Minnesota, 2008




[11] M. Toossi, "A new look at long-term labor force projections to 2050," *Monthly Labor Review*, Nov. 2006, pp 19-39.
[12] This trend has been analyzed using Minnesota workers' compensation data in "Changing worker demographics lead to changing injury characteristics," *COMPACT*, February 2005.
[13] Current Population Statistics, *Geographic Profile of Employment and Unemployment*, 2008. Bureau of Labor Statistics. www.bls.gov/gps/home.htm

## Race or ethnic origin

Some caution is needed in the analysis of race or ethnic origin, because 43 percent of the survey responses did not include the injured worker's race or ethnic origin. The survey results reflect the increasing diversity of Minnesota's workforce. Hispanic persons are identified separately because Hispanic persons can be of any race.

- Although there were 15,400 fewer DAFW cases in 2008 than in 1998, representing a 41 percent decrease, the number of DAFW cases identifying nonwhite and Hispanic injured workers slightly increased, with 2,330 cases reported in 1998 and 2,550 cases reported in 2008.
- Nonwhite and Hispanic workers accounted for 17 percent of the cases with a reported race or ethnicity in 2008, compared to 11 percent in 1998 (Figure 4.7). Minnesota's total minority population was estimated at 14 percent of the total population in 2007.[14]
- The reported number of Hispanic workers with DAFW cases increased slightly, from an estimated 860 cases in 2007 to 910 cases in 2008. However, this estimate was 19 percent below the estimate for 2006.
- The reported number of DAFW cases among black workers represented a slight increase in 2008 (1,250 cases) from the number for 2007 (1,150 cases).

**Figure 4.5 Median days away from work by age group, Minnesota, 2008**

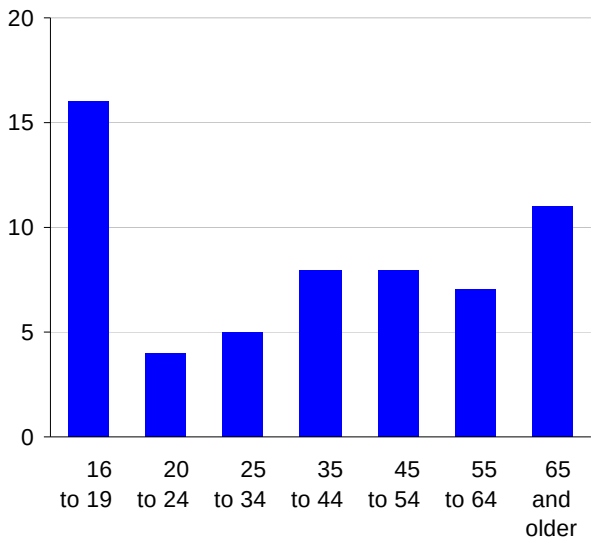



**Figure 4.6 Race or ethnic origin of workers with days-away-from-work cases, Minnesota, 2008**

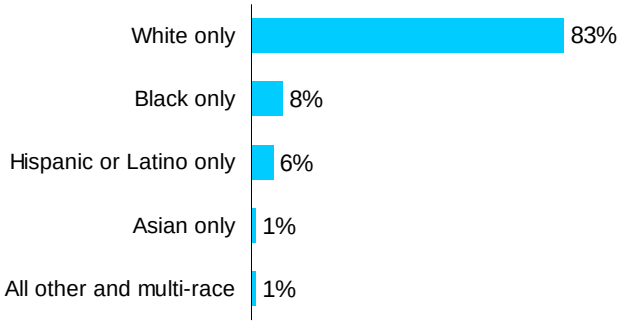
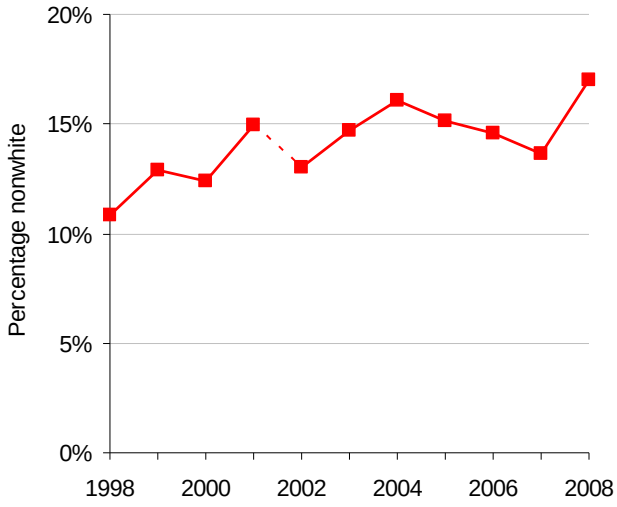



**Figure 4.7 Percentage of nonwhite and Hispanic workers among days-away-from-work cases, Minnesota, 1998-2008**




[14] *Minnesota's nonwhite and Latino populations, 2007*, Minnesota State Demography Center, 2008.

## Job characteristics

### Job tenure

A worker's length of service with an employer is a general measure of the worker's attainment of job skills. Workers with short job tenures include new entrants and re-entrants to the workforce, those who lost jobs but found new jobs during the previous year and workers who had voluntarily changed employers during the previous year.

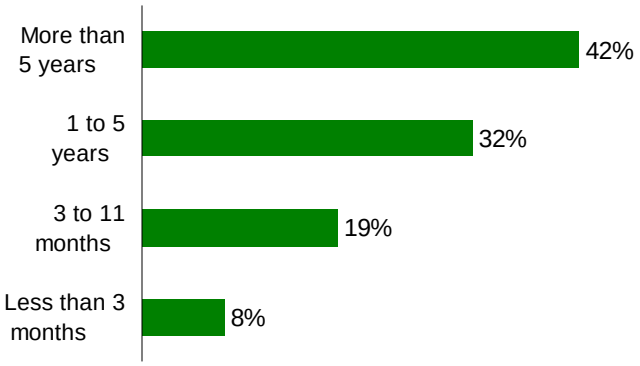
Young workers usually have shorter job tenure than older workers. The general increase in worker age during the past decade has led to an increase in average job tenure of injured workers. Median years of job tenure increased from 3.5 years in 2000 to 4.1 years in 2008. Compared to the distribution of injured workers, the shorter-tenured workers had a higher-than-expected percentage of cases and the longest-tenured workers had a lower-than-expected percentage.

- According to the *Current Population Survey* statistics for January 2008[15], the national proportion of wage-and-salary workers with a year or less of tenure with their current employer was 23 percent, while 30 percent had from one to five years of job tenure and 47 percent had more than five years.

- Employees with less than one year of service with their employer accounted for 27 percent of the DAFW cases, the same as in 2006 and 2007 and within the range reported during the past decade.

- The distribution of job tenure among workers with DAFW cases varied greatly by industry, reflecting the relative amounts of labor turnover and risk of injury. Workers with less than one year of job tenure accounted for 55 percent of the cases in accommodation and food services and for 42 percent of the cases at general merchandise stores, but only 10 percent of the cases in state and local government.

**Figure 4.8 Length of service of workers with days-away-from-work cases, Minnesota, 2008**




[15] News release, Bureau of Labor Statistics, *Employee tenure in 2008*, Sept. 26, 2008. State-level job tenure statistics are not published.

## Occupation

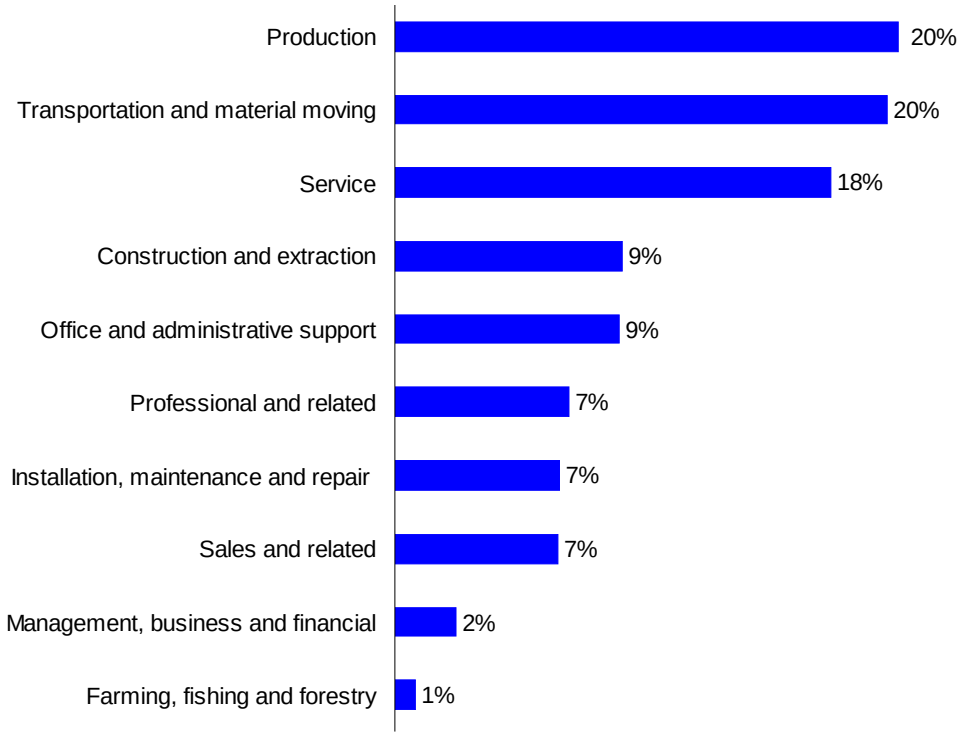
Occupation describes a set of characteristics based on the job duties, skills, education or experience needed to accomplish work tasks. Some occupations are concentrated in certain industries, such as nursing aides working in the hospital and nursing home industries. However, many other occupations, such as management, sales and office support, are found in a wide range of industries.[16] Workers in the same or similar occupations often encounter similar work conditions, which affect their safety and health.

Occupation is presented by broad category in Figure 4.9, by major groups in Figure 4.10 and by detailed occupation in Figure 4.11. A few broad categories are the same as major groups (e.g., production and sales).

Figure 4.9 shows the percent distribution of DAFW cases by broad occupation category for private-sector establishments. These results generally reinforce the broad industry category results, shown in Figure 3.1. The three highest-percentage occupation groups accounted for 58 percent of the DAFW cases and for 34 percent of workers.

- Transportation and material moving occupations, the largest occupation group among DAFW cases, includes truck drivers, airline workers and unskilled manual laborers (nonconstruction).
- Service occupations, such as nursing aides, law enforcement workers, cooks and building maintenance workers, had been the largest occupation category among DAFW cases since 2003 (when the current occupation category system was first used). In 2007, service occupations accounted for 25 percent of the DAFW cases.
- Production occupations, the third-largest occupation group among DAFW cases, includes assemblers, food processing workers and woodworkers. In 2007, production occupations accounted for 16 percent of the DAFW cases.

**Figure 4.9 Occupation of workers with days-away-from-work cases, private sector, Minnesota, 2008**




[16] The 2007 Minnesota occupational staffing matrix, showing occupations by industry, is available at www.deed.state.mn.us/lmi/tools/oes/staffing_patterns.htm.

- The differences in occupations in private-sector industries are further revealed by the rate of DAFW cases per 10,000 workers, shown in Figure 4.10. There is a large difference between the six highest-rate occupations and the other occupations shown.

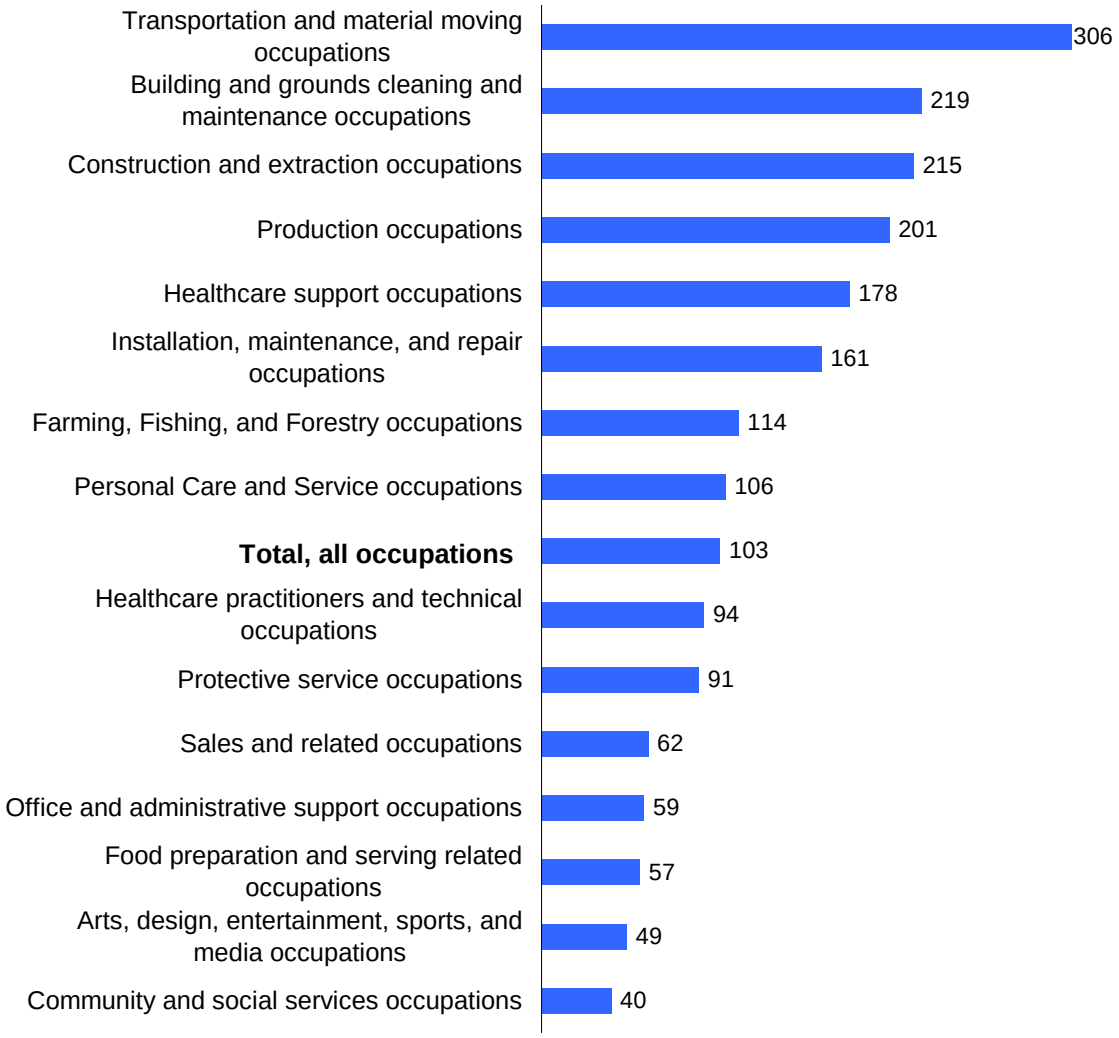
- Five of the six highes-rate occupations were among the six highest-rate occupations in 2007. Even so, the DAFW rates for some occupations showed substantial changes. As the DAFW rate dropped from 125 cases per 10,000 workers in 2007 to 103 cases in 2008, the rates for the occupations with the highest rates also dropped. The highest rate in 2008, 306 cases for transportation and material moving occupations, would have been only the third-highest rate in 2007. The second-highest rate in 2008 would only have been the seventh-highest rate in 2007.

- The rate for transportation and material handling is nearly three times the statewide average rate.

- Nursing aides, orderlies and attendants, serving in all types of facilities, are included in the healthcare support occupation group. In 2007, healthcare support had the highest DAFW rate, with 353 injuries and illnesses per 10,000 workers. The DAFW rate decreased by 50 percent from the 2007 rate.

- The rate for protective services, which had the second-highest rate in 2007, decreased by 221 percent from its 2006 rate.

**Figure 4.10 Highest 15 incidence rates of days-away-from-work cases by occupation group, per 10,000 FTE workers, private sector, Minnesota, 2008**

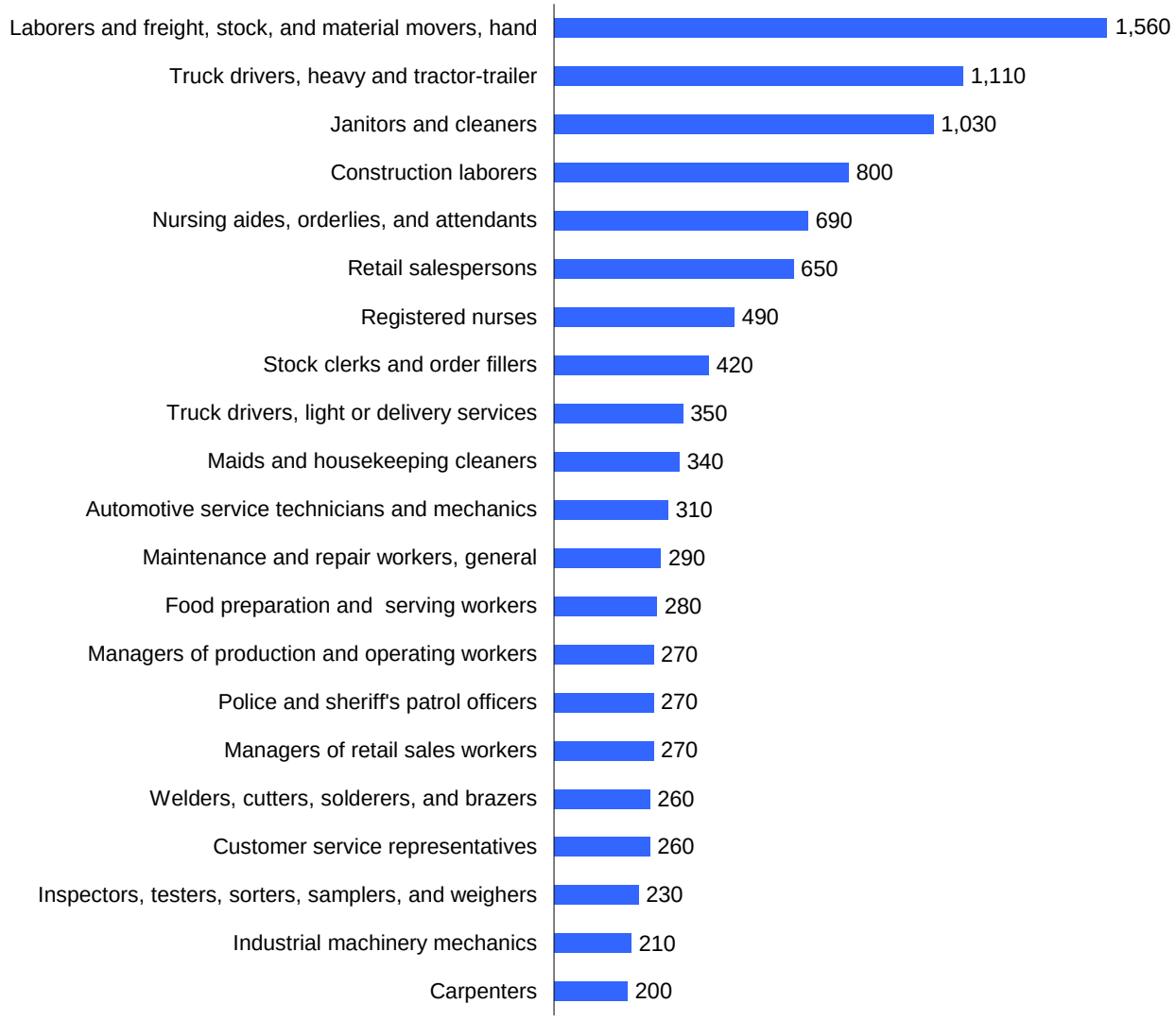


- The rate for building and grounds cleaning and maintenance occupations, the second-highest occupation group rate in 2008, decreased by 24 percent from its 2007 rate, after a 26 point decrease the previous year.

- The detailed occupations with 200 or more DAFW cases across all sectors are shown in Figure 4.11. The three specific occupations with at least 1,000 DAFW cases accounted for 16 percent of all DAFW cases.

- The number of cases for nursing aides, orderlies and attendants dropped significantly, from an estimated 1,400 cases in 2007 (the highest of any specific occupation) to 690 cases in 2008, a 51 percent decrease.

**Figure 4.11 Specific occupations with the highest number of cases, Minnesota, 2008**



## Injury and illness characteristics

Each DAFW case is characterized by the nature of the injury or illness, the part of the body affected, the event or exposure leading to the injury or illness and the source of the injury or illness. Additional measures of injury and illness events are the time of day, time on the job and day of the week the injury occurred or illness began.

As an example of how these characteristics combine to describe injuries and illnesses, consider a health care worker who sprains her back while helping a patient get out of bed. The nature of the injury is a sprain or strain; the part of body affected is her back; the event is overexertion while lifting; and the injury source is the health care patient.

### Nature of injury or illness

The nature of injury or illness identifies the principal physical characteristic(s) of the injury or illness.

- Sprains, strains and tears of muscles, tendons and joints accounted for 40 percent of the DAFW cases, a decrease from 43 percent in 2007. The number of cases of sprains, strains and tears has dropped by 32 percent since 2003, from an estimated 13,370 cases to 9,090 cases in 2008.

Figure 4.13 shows some of the characteristics of private-ownership cases with each of the five most frequent detailed natures of injury.

- The estimated number of sprains, strains and tear cases decreased by 1,900 cases (20 percent) from 2007 to 2008. The median number of days away from work for these cases increased from five days in 2007 to seven days in 2008.

- The estimated number of cases for the other four categories either increased or stayed level compared to 2007.

**Figure 4.12 Nature of injury, Minnesota, 2008**

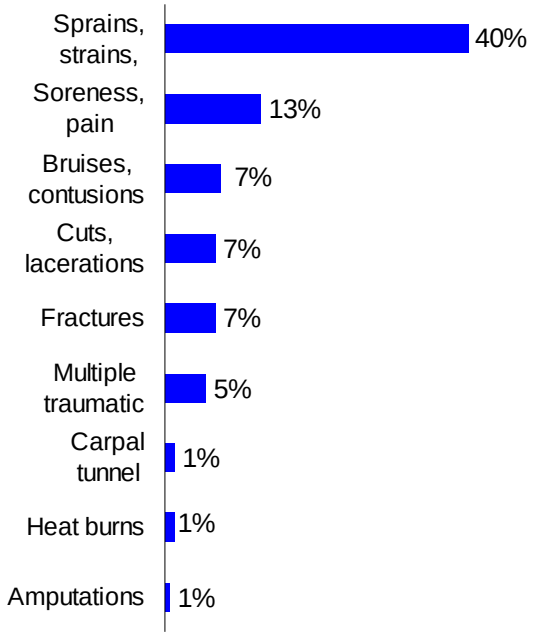


**Figure 4.13 Characteristics profiles of cases with the five most common types of nature of injury, private ownership, Minnesota, 2008**

| Characteristic | Sprains, strains, tears | Bruises, contusions | Cuts, lacerations | Back pain, hurt back | Fractures |
|---|---|---|---|---|---|
| Total cases | 7,740 | 1,470 | 1,430 | 1,280 | 1,270 |
| Women | 39% | 37% | 23% | 22% | 25% |
| Age | | | | | |
| 34 years or younger | 34% | 48% | 36% | 44% | 29% |
| 35-44 years | 22% | 19% | 16% | 20% | 21% |
| 45-54 years | 27% | 21% | 20% | 27% | 31% |
| 55 years or older | 18% | 12% | 28% | 9% | 19% |
| Job tenure | | | | | |
| Less than 1 year | 28% | 38% | 27% | 43% | 24% |
| 1-5 years | 31% | 36% | 31% | 26% | 29% |
| More than 5 years | 41% | 25% | 42% | 31% | 48% |
| Occupation | | | | | |
| Management and | 13% | 5% | 8% | 11% | 9% |
| Service | 22% | 18% | 12% | 11% | 7% |
| Sales | 6% | 12% | 11% | 2% | 4% |
| Office and administrative | 6% | 12% | 15% | 4% | 9% |
| Construction and extraction | 9% | 3% | 12% | 7% | 15% |
| Installation, maintenance, repair | 6% | 4% | 6% | 8% | 6% |
| Production | 15% | 28% | 27% | 16% | 26% |
| Transportation and material handling | 22% | 13% | 8% | 41% | 23% |
| Median days away from work | 7 | 2 | 2 | 8 | 30 |

## Part of body

The part of body affected identifies the part of the body directly affected by injury or illness.

- Although the back is injured more often than other body parts among cases with days away from work, the percentage has decreased from about 30 percent of the cases during most of the 1990s to 25 percent in 2008.
- The estimated number of cases with back injuries has decreased substantially in recent years, from 7,750 cases in 2003 to 5,570 cases in 2008, a 284 percent decline.
- The incidence of private-ownership back injuries has decreased steadily from 38.3 cases per 10,000 workers in 2003 to 26.1 cases in 2008.
- Multiple-body-part injuries increased from 10 percent of the DAFW cases in 2007 to 14 percent in 2008.

Figure 4.15 shows characteristics of the workers with the five most frequently reported part of body injuries.

- The most common injuries to multiple body parts were sprains and strains and multiple traumatic injuries. Multiple-body-part injuries occurred most often as a result of falls and overexertion. Multiple-part injuries were most common among workers in the youngest and oldest age categories, and included the highest percentage of women workers among the five most frequent part categories.
- The percentage of cases with multiple body part, knee and shoulder injuries increased with worker job tenure.
- Knee and shoulder injuries had the highest median days away from work.
- Finger injuries resulting in days away from work were most common among workers younger than 35 years. Finger injuries were most common in production occupations.

**Figure 4.14 Part of body injured, Minnesota, 2008**

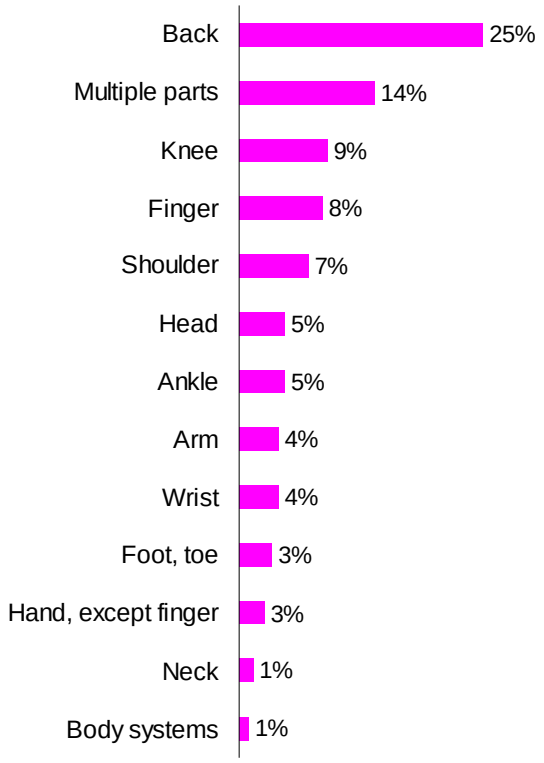


**Figure 4.15 Characteristics profiles of cases with the five most frequently injured body parts, private ownership, Minnesota, 2008**

| Characteristic | Back and spine | Multiple body parts | Knee(s) | Finger(s) | Shoulder |
|---|---|---|---|---|---|
| Total cases | 4,860 | 2,440 | 1,640 | 1,730 | 1,380 |
| Women | 37% | 44% | 26% | 17% | 34% |
| Age | | | | | |
| 34 years or younger | 42% | 25% | 26% | 40% | 16% |
| 35-44 years | 23% | 17% | 26% | 20% | 27% |
| 45-54 years | 21% | 35% | 29% | 19% | 38% |
| 55 years or older | 13% | 23% | 19% | 21% | 19% |
| Job tenure | | | | | |
| Less than 1 year | 32% | 28% | 25% | 33% | 27% |
| 1-5 years | 35% | 35% | 31% | 30% | 33% |
| More than 5 years | 33% | 37% | 44% | 37% | 41% |
| Occupation | | | | | |
| Management and | 12% | 13% | 6% | 6% | 10% |
| Service | 20% | 24% | 19% | 12% | 12% |
| Sales | 5% | 9% | 16% | 1% | 6% |
| Office and administrative | 7% | 15% | 4% | 12% | 4% |
| Construction and extraction | 6% | 10% | 13% | 17% | 15% |
| Installation, maintenance, repair | 6% | 2% | 6% | 11% | 5% |
| Production | 15% | 17% | 13% | 27% | 21% |
| Transportation and material handling | 28% | 11% | 20% | 12% | 25% |
| Median days away from work | 6 | 7 | 15 | 4 | 14 |

## Event or exposure

The event or exposure describes the manner in which the injury or illness was produced or inflicted by the source.

- The three most common events were also the top three event types in 2007. These three event types accounted for 39 percent of all the DAFW cases in 2008, an increase from 35 percent in 2007.

Characteristics for the five most-commonly-reported events among workers injured in privately owned businesses are shown in Figure 4.17.

- The estimated number of DAFW cases with injuries due to overexertion in lifting decreased by 640 cases, a 17 percent drop from the previous year.
- Injuries due to overexertion in lifting occurred disproportionately to workers age 34 and younger.
- The majority of injuries due to falls on the same level occurred to women. A very low percentage of women suffered injuries due to falls to a lower level.
- Injuries due to being struck against an object or equipment were concentrated among young workers and workers with brief job tenures.

**Figure 4.16** Event or exposure, Minnesota, 2008

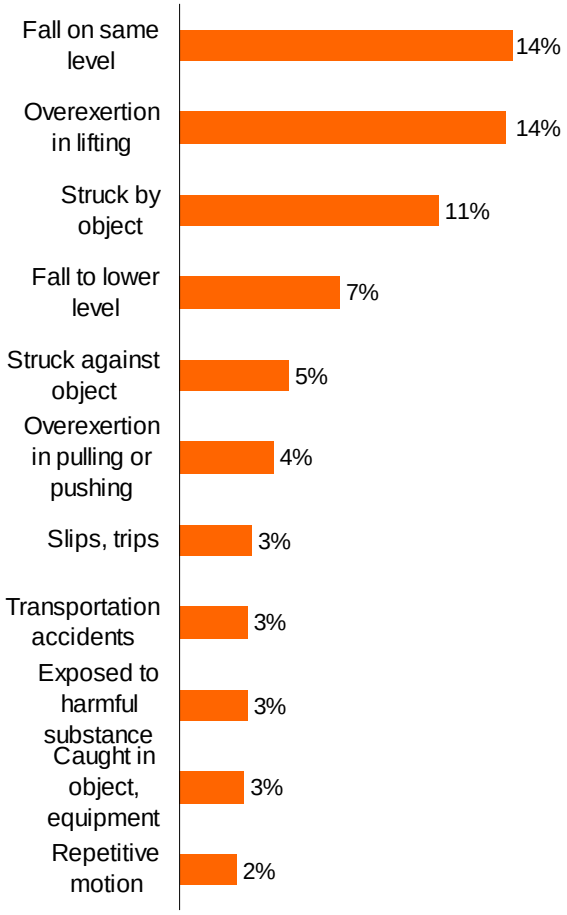


**Figure 4.17 Characteristics profiles of cases with the five most common types of event or exposure, private ownership, Minnesota, 2008**

| Characteristic | Overexertion in lifting | Fall on same level | Struck by object or equipment | Fall to lower level | Struck against object or equipment |
|---|---|---|---|---|---|
| Total cases | 2,810 | 2,580 | 2,290 | 1,380 | 920 |
| Women | 40% | 51% | 22% | 13% | 27% |
| Age | | | | | |
| 34 years or younger | 46% | 23% | 38% | 19% | 46% |
| 35-44 years | 22% | 21% | 19% | 24% | 16% |
| 45-54 years | 21% | 30% | 20% | 45% | 28% |
| 55 years or older | 11% | 26% | 23% | 12% | 10% |
| Job tenure | | | | | |
| Less than 1 year | 35% | 28% | 30% | 22% | 47% |
| 1-5 years | 30% | 36% | 32% | 39% | 25% |
| More than 5 years | 36% | 36% | 38% | 39% | 27% |
| Occupation | | | | | |
| Management and | 10% | 13% | 3% | 3% | 5% |
| Service | 22% | 19% | 9% | 25% | 13% |
| Sales | 6% | 14% | 8% | 2% | 8% |
| Office and administrative | 6% | 17% | 13% | 6% | 3% |
| Construction and extraction | 6% | 9% | 14% | 16% | 5% |
| Installation, maintenance, repair | 4% | 2% | 12% | 8% | 7% |
| Production | 15% | 9% | 24% | 21% | 37% |
| Transportation and material handling | 31% | 15% | 14% | 18% | 20% |
| Median days away from work | 7 | 7 | 4 | 19 | 3 |

## Source of injury or illness

The source of injury or illness identifies the object, substance, bodily motion or exposure that directly produced or inflicted the injury or illness.

- While the four most common injury sources remained unchanged from 2007, worker motion or position moved from the most common category in 2007 to the third place in 2008. The estimated number of cases decreased by more than 1,000, from 4,190 in 2007 to 3,100 in 2008.
- Floors, walkways and ground surfaces was the most common source-of-injury category for the past five years, except for 2007.
- The five most common sources of injury (Figure 4.19) accounted for two-thirds of all private ownership DAFW cases.
- For each of the most common sources of injury, the higher percentage of cases was among workers with more than five years of job tenure.

**Figure 4.18 Source of injury or illness, Minnesota, 2008**

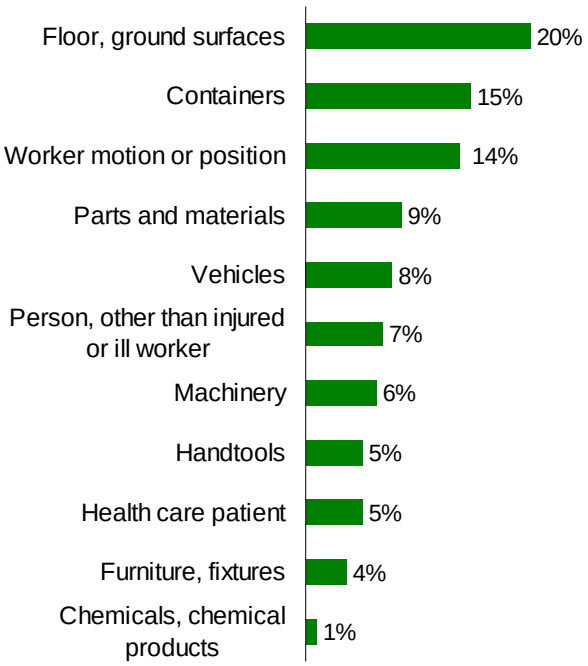


**Figure 4.19 Characteristics profiles of cases with the five most common source of injury or illness, private ownership, Minnesota, 2008**

| Characteristic | Floor, ground surfaces | Containers | Bodily motion or position of worker | Parts and materials | Vehicles |
|---|---|---|---|---|---|
| Total cases | 3,760 | 3,100 | 2,630 | 1,810 | 1,480 |
| Women | 38% | 33% | 38% | 14% | 34% |
| Age | | | | | |
| 34 years or younger | 21% | 44% | 27% | 34% | 28% |
| 35-44 years | 20% | 17% | 24% | 27% | 22% |
| 45-54 years | 36% | 24% | 28% | 25% | 27% |
| 55 years or older | 22% | 15% | 21% | 14% | 24% |
| Job tenure | | | | | |
| Less than 1 year | 27% | 35% | 25% | 27% | 28% |
| 1-5 years | 35% | 29% | 32% | 30% | 27% |
| More than 5 years | 38% | 36% | 43% | 43% | 45% |
| Occupation | | | | | |
| Management and | 10% | 3% | 8% | 4% | 13% |
| Service | 21% | 16% | 21% | 2% | 9% |
| Sales | 7% | 13% | 5% | 0% | 13% |
| Office and administrative | 13% | 10% | 11% | 6% | 9% |
| Construction and extraction | 11% | 4% | 7% | 15% | 3% |
| Installation, maintenance, repair | 5% | 4% | 6% | 14% | 5% |
| Production | 14% | 15% | 20% | 36% | 9% |
| Transportation and material handling | 17% | 35% | 20% | 23% | 39% |
| Median days away from work | 10 | 9 | 7 | 6 | 5 |

## Musculoskeletal disorders

BLS uses the reported injury characteristics to produce an estimate of the number of cases with musculoskeletal disorders (MSDs) among the DAFW cases. Although employers do not directly identify MSDs on the OSHA log, information about the injured body part and the event or exposure is combined to produce this estimate. BLS defines MSDs as disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal discs that **are not caused** by slips, trips, falls, motor-vehicle accidents or other similar accidents. Because of the recordkeeping changes in 2002 that directly addressed MSD issues (see Appendix A), differences between pre- and post-2002 statistics may be the result of a combination of changes in job safety and the effects of the recordkeeping changes.

- Figure 4.20 shows the estimated number of MSD and non-MSD cases from 1998 to 2008. The number of DAFW cases with MSDs in Minnesota has decreased 36 percent since 2002, reaching a low of 8,550 cases in 2008. During this period, non-MSD cases decreased by 30 percent.

- MSD cases accounted for 38 percent of the DAFW cases in 2008, an increase from 36 percent in both 2006 and 2007. The number of MSD cases decreased by 10 percent from 2007 to 2008, but the number of non-MSD cases decreased by 16 percent.

- The three industries with the highest percentages of MSD cases among the DAFW cases were information (60 percent), accommodations and food services (52 percent) and private-ownership health care and social assistance (48 percent).

- Among privately owned establishments, the MSD incidence rate decreased from 56 cases per 10,000 FTE workers in 2004 to 40 cases in 2008, a 29 percent drop.

Figure 4.21 shows some demographic characteristics of workers with MSD injuries.

- MSD injuries were least common among workers with less than three months of job tenure.

- Among occupations, the MSD rate per 10,000 FTE workers varied from 135 cases in transportation and material moving to a low rate of seven cases in management, business and financial occupations.

- MSD cases accounted for 28 percent of the DAFW cases among workers in construction and extraction occupations. The DAFW incidence rate for this occupation was 215 cases per 10,000 FTE workers, and its MSD rate was 60, the third-highest of the occupation groups.

**Figure 4.20 Number of MSD and non-MSD DAFW cases, Minnesota, 1998-2008**

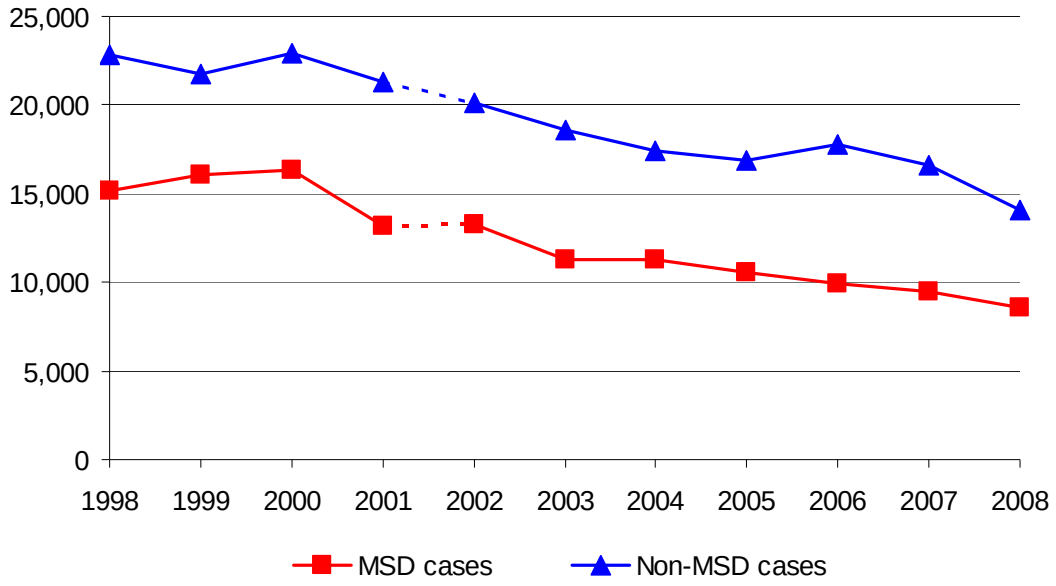



**Figure 4.21 Distribution and incidence of MSD cases by worker characteristics, Minnesota, 2008**

| Characteristic | Number of WMSD cases | Percentage of WMSD among cases in category | Private-sector incidence rate per 10,000 FTE workers |
|---|---|---|---|
| Total | 8,550 | 38% | 40 |
| Gender | | | |
| Male | 5,030 | 35% | 42 |
| Female | 3,510 | 43% | 38 |
| Age | | | |
| 16 to 19 years | 330 | 45% | 53 |
| 20 to 24 years | 610 | 34% | 31 |
| 25 to 34 years | 1,840 | 41% | 38 |
| 35 to 44 years | 1,940 | 40% | 41 |
| 45 to 54 years | 2,280 | 36% | 41 |
| 55 to 64 years | 1,370 | 37% | 45 |
| 65 years and older | 170 | 34% | 35 |
| Length of service with employer | | | |
| Less than 3 months | 410 | 23% | |
| 3 months to 11 months | 1,680 | 40% | |
| 1 year to 5 years | 2,670 | 38% | |
| More than 5 years | 3,780 | 40% | |
| Occupation | | | |
| Management, business, financial | 160 | 29% | 7 |
| Professional and related | 830 | 39% | 18 |
| Service | 2,090 | 41% | 51 |
| Sales and related | 420 | 32% | 20 |
| Office and administrative support | 630 | 34% | 20 |
| Construction and extraction | 620 | 30% | 60 |
| Installation, maintenance, repair | 500 | 36% | 60 |
| Production | 1,510 | 38% | 76 |
| Transportation and material moving | 1,740 | 44% | 135 |

# 5
# Fatal occupational injuries

In 2008, 65 Minnesota workers were fatally injured on the job. This is a decrease from the 72 fatalities in 2007. Nationwide, 5,214 workers were fatally injured during 2008, an 8 percent decrease from the 5,657 fatalities in 2007.

These and other findings are from the nationwide Census of Fatal Occupational Injuries (CFOI), conducted by the BLS with state and other federal agencies. The Department of Labor and Industry collects CFOI data for the state of Minnesota.

The CFOI covers all fatal work injuries, whether the workplaces concerned are covered by the Occupational Safety and Health Act or other federal or state laws, or are outside the scope of regulatory coverage. It also includes self-employed and unpaid family workers, including family farm workers. Work-related fatal illnesses (e.g., asbestosis, silicosis and lead poisoning) are excluded from the CFOI because many occupational illnesses have long latency periods and are difficult to link to work.

The CFOI provides a complete count of fatal work injuries by using multiple sources to identify, verify and profile these incidents. The sources include death certificates, coroners' reports, workers' compensation reports and news media reports.

## Counting fatalities

The CFOI count of work-related fatalities differs in important ways from other workplace fatality statistics. The CFOI is a count of all work-related deaths caused by injuries and excludes deaths caused by illnesses. Fatalities to all workers, including self-employed workers, are tabulated in the state where they occurred. Thus, a truck driver from Minnesota, who works for a Minnesota trucking company, but is killed in an accident in Nebraska would be counted as a Nebraska CFOI fatality.

By contrast, the workers' compensation count of fatality claims includes only workers covered by a Minnesota workers' compensation insurance policy. Self-employed workers are not included. Fatalities caused by illnesses are included. A Minnesota truck driver killed in another state would be included in the Minnesota workers' compensation fatality count if Minnesota workers' compensation benefits were paid. In 2008, there were 42 workers' compensation fatality claims, down from 50 fatalities in 2007.[17]

MNOSHA investigates all employee deaths that are under its jurisdiction and result from an accident or illness caused by or related to a workplace hazard. Not included are fatalities caused by traffic accidents (investigated by the Minnesota Department of Public Safety), airplane crashes (National Transportation Safety Board), mining accidents (Mine Safety and Health Administration), federal workers (federal OSHA), railroad workers (Federal Railroad Administration), farm accidents and accidents to the self-employed (investigation agency depends on type of accident).

MNOSHA investigates fatalities to determine cause, whether any MNOSHA standards were violated and whether additional standards might help prevent similar incidents.

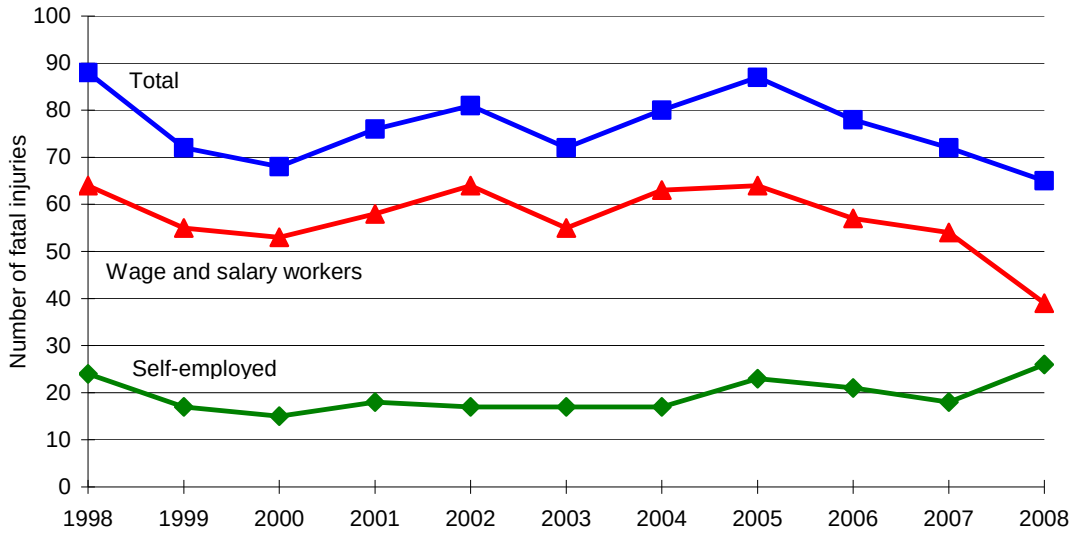
MNOSHA investigated 12 fatality events in 2008, down from 23 events investigated in 2007. In 2009, MNOSHA investigated 18 fatalities. The five-year average, from 2005 to 2009, was 21 fatality event investigations a year. There were three construction fatality investigations in 2008, compared to nine in 2007.

[17] The number of fatality claims receiving workers' compensation benefits will change as claims are resolved.

## Number and rate of fatal injuries

- Figure 5.1 shows Minnesota had from 65 to 88 fatal work injuries a year from 1998 through 2008, with the lowest number in 2008.
- For wage-and-salary workers, the annual fatality toll ranged from 39 to 64, with the lowest number in 2008.
- For self-employed workers, the annual fatality figure ranged between 15 and 26 fatalities, with the highest number in 2008.
- The fatality toll for 2004 through 2008 was 382, with a five-year average of 76 fatalities a year. This consisted of 55 wage-and-salary workers and 21 self-employed workers.
- Fatal injuries for the self-employed were 40 percent of the 2008 total, far higher than the estimated 7 percent self-employed share of total state employment.[18]

**Figure 5.1 Fatal work injuries, Minnesota, 1998-2008[1]**



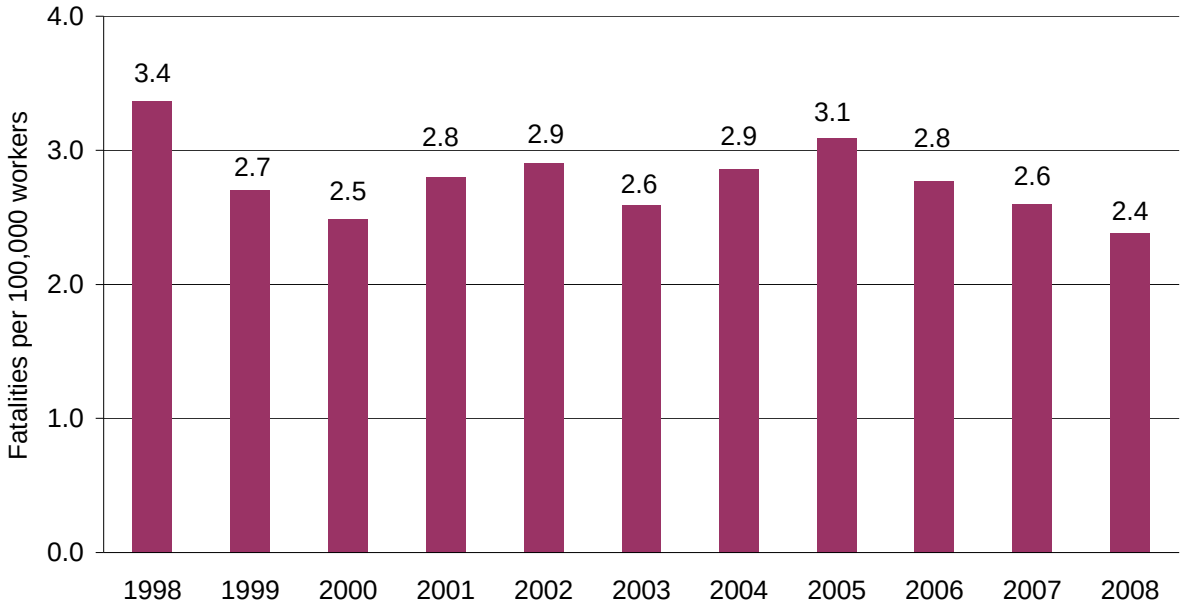

[1] Includes private sector plus local, state and federal government (including resident armed forces). Includes self-employed and unpaid family workers, including family farm workers. Excludes fatal illnesses.

| Year of death | Wage & salary workers | Self-employed | Total |
|---|---|---|---|
| 1998 | 64 | 24 | 88 |
| 2004 | 63 | 17 | 80 |
| 2005 | 64 | 23 | 87 |
| 2006 | 57 | 21 | 78 |
| 2007 | 54 | 18 | 72 |
| 2008 | 39 | 26 | 65 |
| Avg. 2004-2008 | 55.4 | 21.0 | 76.4 |

[18] Based on the American Community Survey, 2007, and Local Area Unemployment Statistics, 2007.

- Figure 5.2 shows the Minnesota fatality rate since 1998. The 2008 fatality rate was 2.4 deaths per 100,000 employed, the lowest rate ever for Minnesota's CFOI results.
- For the entire United States, the fatality rate for 2008 was 3.7 deaths per 100,000 workers, the same as in 2007, and the lowest national fatality rate ever reported in the CFOI program. The fatality rate per 100,000 workers in 2008 was 3.2 for wage and salary workers and 11.6 for self-employed workers.
- Fatality rates based on hours worked are now available for 2007 and 2008. These fatality rates are based on the hours of exposure to work-related hazards and are considered more accurate than employment-based rates. For 2007, Minnesota had 2.8 fatalities per 100,000 FTE workers, compared to a national rate of 4.0. For 2008, Minnesota's rate decreased to 2.5 fatalities, and the national rate decreased to 3.7.

**Figure 5.2 Fatal work injuries per 100,000 workers,[1] Minnesota, 1998-2008**




1. Excludes workers younger than age 16 or in the military.

## Fatalities by metropolitan area

The CFOI program produces fatality counts for metropolitan areas, including those that cross state boundaries. The number of fatalities within metropolitan areas is strongly influenced by the types of industries and occupations in each area. This is one reason why the Duluth metropolitan area, with 41 percent higher population than the St. Cloud metropolitan area, had 62 percent more fatalities.

Because there are relatively low numbers of fatalities in some of the metropolitan areas, Figure 5.3 shows the combined fatalities by metropolitan area for 2003 through 2008.

**Figure 5.3 Number of fatal work injuries for metropolitan areas, 2003-2008**

| Metropolitan area | Counties | Fatalities |
|---|---|---|
| Duluth, MN-WI | MN — Carlton, St. Louis; WI — Douglas | 34 |
| Fargo, ND-MN | ND — Cass; MN — Clay | 19 |
| Grand Forks, ND-MN | ND — Grand Forks; MN — Polk | 17 |
| La Crosse, WI-MN | WI — La Crosse; MN — Houston | 23 |
| Minneapolis-St. Paul-Bloomington, MN-WI | MN — Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, Sherburne, Washington, Wright; WI — Pierce, St. Croix | 162 |
| Rochester, MN | MN — Dodge, Olmsted, Wabasha | 27 |
| St. Cloud, MN | MN — Benton, Stearns | 21 |

## Fatalities by industry sector

Figure 5.4 shows the number of Minnesota's fatal work injuries by industry sector for 2008.

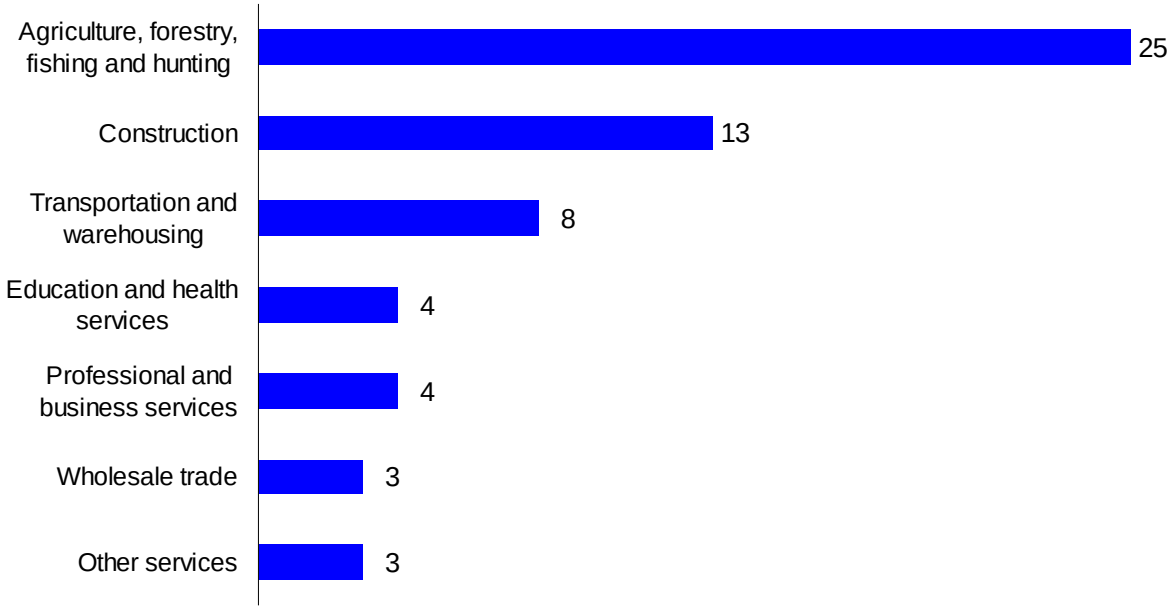
- The highest number of fatal injuries was in agriculture, forestry, fishing and hunting, with 25 fatalities in 2008, up from 17 fatalities in 2007 and higher than the 23 fatalities in 2006. Agricultural crop production accounted for 14 of the fatalities in this sector, animal production accounted for seven fatalities and forestry and logging had four fatalities. Contact with objects and equipment caused nine of these fatalities.

- The number of fatalities in construction has varied from a high of 23 fatalities in 1998, to a low of 10 fatalities in 1997 and 2003. For 2008, the number of fatalities was well below the average for the previous three years, 19 fatalities. The most common event causing these fatalities in 2008 was transportation incidents.

- Transportation and warehousing, the third-highest fatality industry sector, had eight fatalities, compared with 12 fatalities in 2007. The most-common cause of these fatalities was highway transportation accidents.

- Manufacturing had an average of six fatalities a year from 2003 through 2008, but did not have enough cases to publish in 2008.

**Figure 5.4 Number of fatal work injuries by industry sector, Minnesota, 2008**



## Characteristics of fatal injury events

Fatal occupational injuries are described by the type of event causing the fatality, the source of the fatal injury, and the worker's location and activity. Figure 5.5 shows the event or exposure causing fatal work injuries in Minnesota during 2008 and for the entire 2003 through 2008 period.

- The distribution of events in 2008 was different from the distribution in the six-year period. The percentage of fatalities caused by contact with objects and equipment was 40 percent in 2008, compared with 29 percent during the six-year period.
- The most-common event causing fatal injuries in 2008 and for the entire period was transportation accidents, accounting for 43 percent of all fatal work injuries in 2008. These consisted primarily of highway accidents (motor vehicles traveling on roads), but also included nonhighway accidents (motor vehicles on farm and industrial premises) and workers being struck by vehicles (generally, but not in 2008).
- The second- most-frequent cause was contact with objects and equipment (40 percent in 2008). These cases included workers being struck by an object and caught in or compressed by equipment or objects, such as running machinery.

**Figure 5.5 Event or exposure causing fatal work injury, Minnesota, 2008**

| Event or exposure | 2008 | | 2003-2008 | |
|---|---|---|---|---|
| | Number of fatalities | Percentage of fatalities | Number of fatalities | Percentage of fatalities |
| **Total** | **65** | **100.0%** | **454** | **100.0%** |
| **Transportation accidents** | **28** | **43.1%** | **174** | **38.3%** |
| Highway accident | 14 | 21.5% | 92 | 20.3% |
| Collision between vehicles, mobile equipment | 7 | 10.8% | 47 | 10.4% |
| Noncollision accident | 7 | 10.8% | 33 | 7.3% |
| Nonhighway accident, except rail, air, water | 4 | 6.2% | 40 | 8.8% |
| Noncollision accident | -- | -- | 27 | 5.9% |
| Pedestrian, nonpassenger struck by vehicle, mobile equipment | -- | -- | 21 | 4.6% |
| **Contact with objects and equipment** | **26** | **40.0%** | **131** | **28.9%** |
| Struck by object | 15 | 23.1% | 69 | 15.2% |
| Struck by falling object | 12 | 18.5% | 55 | 12.1% |
| Caught in or compressed by equipment or objects | 9 | 13.8% | 35 | 7.7% |
| Caught in running equipment or machinery | 3 | 4.6% | 20 | 4.4% |
| Caught in or crushed in collapsing materials | -- | -- | 27 | 5.9% |
| **Falls** | **3** | **4.6%** | **56** | **12.3%** |
| Fall to lower level | -- | -- | 48 | 10.6% |
| **Assaults and violent acts** | **3** | **4.6%** | **49** | **10.8%** |
| Assaults and violent acts by person(s) | -- | -- | 28 | 6.2% |
| **Exposure to harmful substances or environments** | **4** | **6.2%** | **27** | **5.9%** |
| Contact with electric current | -- | -- | 12 | 2.6% |
| **Fires and explosions** | -- | -- | **16** | **3.5%** |

1. Includes private sector plus local, state and federal government (including resident armed forces), self-employed and unpaid family workers, including family farm workers. Excludes fatal illnesses.

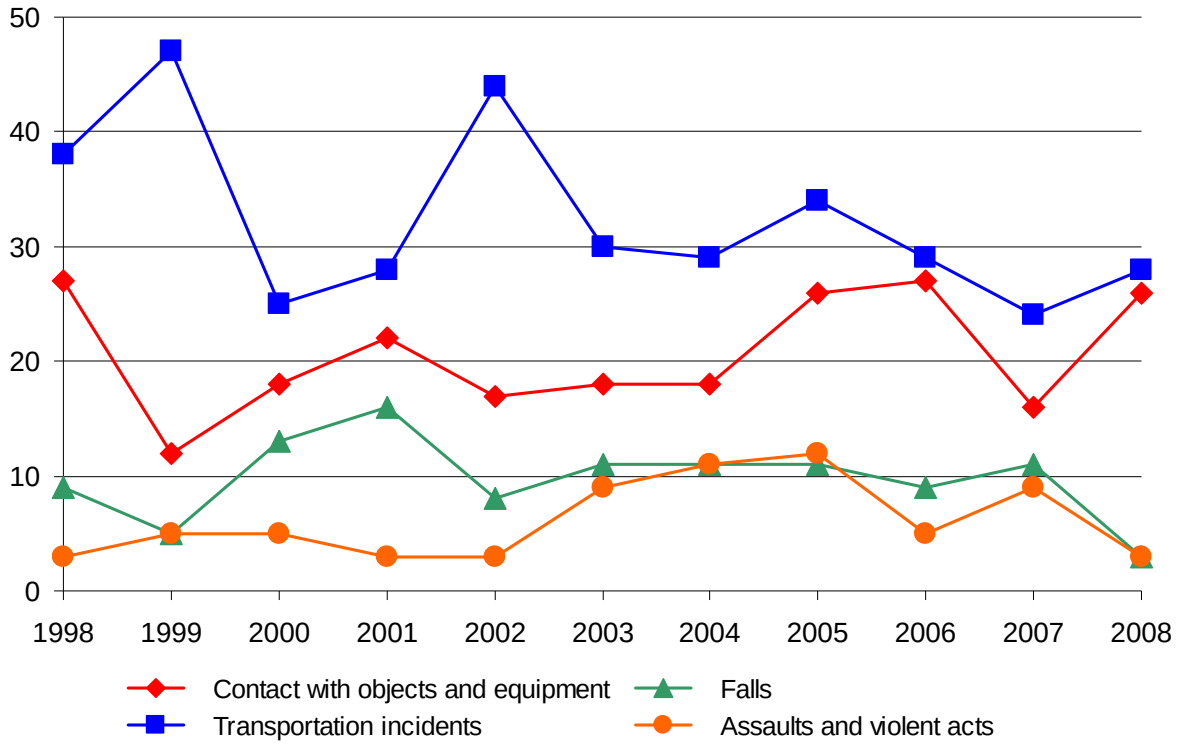
"--" means the number of fatalities did not meet CFOI publication thresholds.

- The percentage of fatalities caused by fall in 2008 was well below its percentage in previous years. This was mainly because of the decrease in construction activity — 38 percent of the fall fatalities from 2003 through 2008 were in this industry.

- There were three fatalities due to assaults and violent acts in 2008, a decrease from nine fatalities in 2007 and well below the 2003 to 2007 average of nine assault fatalities.

- Figure 5.6 shows the trend in the numbers of fatalities among the major event categories. The relative order of the events has remained consistent, with assaults occasionally matching the number of falls.

**Figure 5.6 Number of fatal occupational injury events, Minnesota, 1998-2008**



## Characteristics of fatally injured workers

Figures 5.7 through 5.10 show the distributions of demographic characteristics and occupations of fatally injured workers.

The characteristics with distributions displayed in bar charts are based on fatality cases from 2003 through 2008. Using this multi-year data provides a more stable indicator of the characteristics displayed. Because of the low annual number of fatalities, some characteristics with few cases may show large year-to-year changes that are not indicative of long-term trends. For categories with larger numbers of cases, the percentages have remained fairly stable during this time period. The 2008 results do not show important differences from these multi-year results.

### Gender

- Men accounted for 97 percent of fatally injured workers in 2008. This was the highest percentage of fatalities to men since the CFOI program began in 1992.

### Age

- Fatally injured workers had a wide age distribution, with the greatest numbers among workers 35 to 54 years of age.
- The age of fatally injured workers has been gradually increasing, matching the aging of the entire workforce. The percentage of fatalities to workers 45 years and older increased from 47 percent during the 1992 to 1996 period, to 51 percent during the 1998 to 2002 period, and to 54 percent during the 2003 to 2008 period.

**Figure 5.7 Gender of fatally injured workers, Minnesota, 1998-2008**

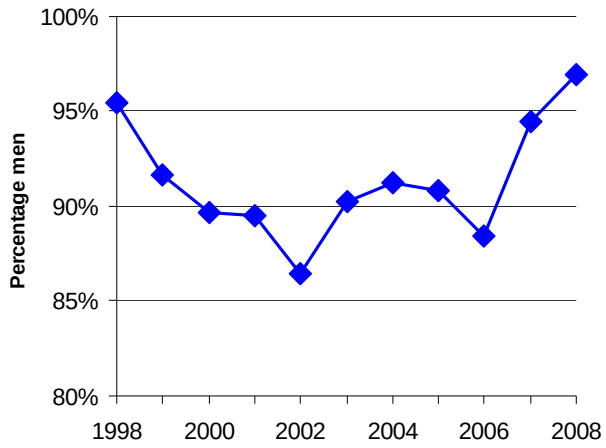
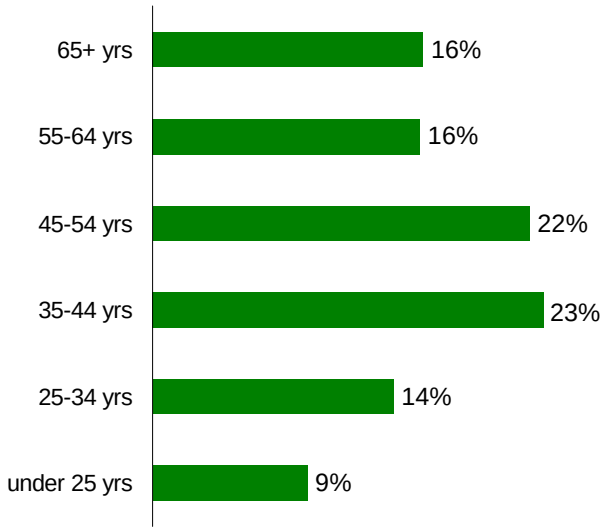


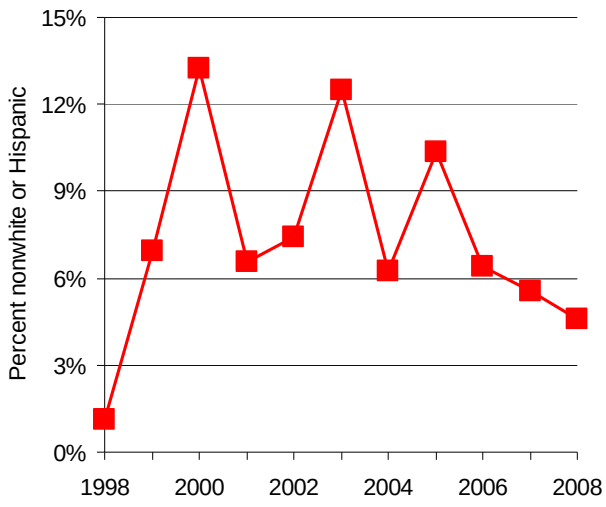

**Figure 5.8 Age of fatally injured workers, Minnesota, 2003-2008**



## Race

- Non-Hispanic white workers accounted for 95 percent of the fatalities in 2008 and for approximately 86 percent of the population (all age groups).[19]
- Since 1999, the percentage of fatalities to nonwhite and Hispanic workers has ranged from 5 percent to 13 percent, with considerable annual variation.

**Figure 5.9 Race of fatally injured workers, Minnesota, 1998-2008**




## Occupation

- Fatally injured workers were concentrated in the occupation groups of farmers and ranchers and motor-vehicle operators.
- Farm and agriculture-related occupations together accounted for 25 percent of the fatalities from 2003 through 2008.
- The most common occupation among the motor-vehicle operators was heavy and tractor-trailer truck drivers, with 59 fatalities from 2003 through 2008.

**Figure 5.10 Occupation of fatally injured workers, Minnesota, 2003-2008**

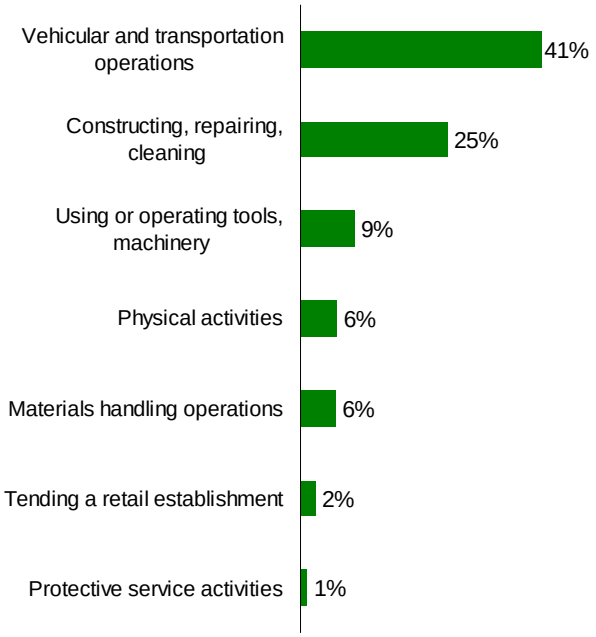
[19] *Minnesota's nonwhite and Latino populations, 2007*, Minnesota State Demography Center, 2008.

## Worker activity

Worker activity categories indicate each fatally injured worker's activity at the time of the event.

- Forty-one percent of the fatalities from 2003 through 2008 occurred while the workers were operating vehicles.
- Vehicular and transportation operations accounted for 77 percent of the fatalities in transportation and warehousing.
- In agriculture, forestry, fishing and hunting, vehicular and transportation operations accounted for 35 percent of the fatalities, while constructing, repairing and cleaning accounted for 28 percent.
- Constructing, repairing and cleaning was the most-common worker activity among the fatalities in construction, with 49 percent of the fatalities.

**Figure 5.11 Activity of fatally injured workers, Minnesota, 2003-2008**

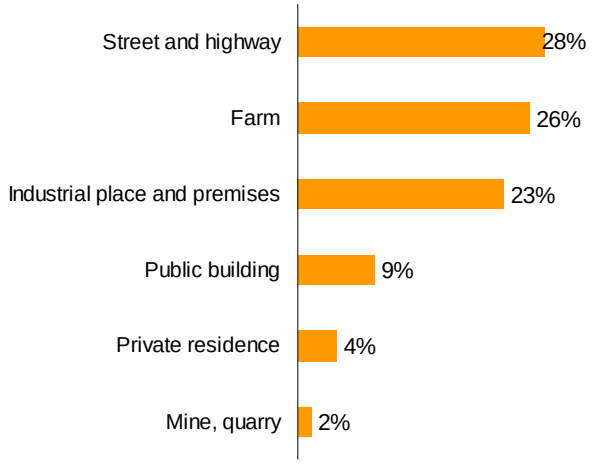



## Location

The location of the fatality indicates, in broad terms, the type of place where the fatal event occurred.

- Streets and highways were the most-common fatality location, consistent with the high percentage of transportation-related fatalities.
- Consistent with the high proportion of fatalities in agriculture, farms were the second-most-common event location for fatalities.

**Figure 5.12 Fatal incident location, Minnesota, 2003-2008**



# 6

# Workplace safety programs and services of the Department of Labor and Industry

The Department of Labor and Industry (DLI) provides a variety of programs and services to help employers maintain safe and healthful workplaces. Minnesota has an approved state occupational safety and health plan under the federal Occupational Safety and Health Act (OSHA). Minnesota operates its plan under the Minnesota Occupational Safety and Health Act of 1973 (MNOSHA) and its related standards.

DLI administers MNOSHA through two work-units, each with a different focus. The Compliance unit is responsible for compliance program administration, which includes conducting enforcement inspections, adoption of standards and operation of other related MNOSHA activities. The Workplace Safety Consultation (WSC) unit provides consultation services, on request, to help employers prevent workplace injuries and illnesses by identifying and correcting safety and health hazards. Both units provide information about workplace safety and health standards.

### Further information

For further information about MNOSHA requirements, standards and procedures, contact the Compliance unit by phone at (651) 284-5050 or 1-877-470-6742, by e-mail at OSHA.Compliance@state.mn.us and on the Web at www.dli.mn.gov/MnOsha.asp.

For further information about WSC services and programs, contact WSC by phone at (651) 284-5060 or 1-800-657-3776, by e-mail at OSHA.Consultation@state.mn.us or on the Web at www.dli.mn.gov/Wsc.asp.

## Occupational safety and health compliance

### Workplace inspections

MNOSHA Compliance conducts workplace inspections to determine whether employers are complying with safety and health standards. With few exceptions, inspections are required to be without advance notice. Employers are required to allow the inspector to enter work areas without delay and must otherwise cooperate with the inspection.

The MNOSHA Compliance program is based on a system of inspection priorities. The priorities, from highest to lowest, are

- imminent danger — any condition or practice which presents a substantial probability that death or serious physical harm could occur immediately or before the danger can be eliminated through normal enforcement procedures;
- fatal accidents and catastrophes — accidents causing hospitalization of three or more employees;
- employee complaints —not concerning imminent danger;
- referrals — from safety, health and government professionals;
- programmed inspections —targetting high-hazard employers and industries; and
- follow-up inspections — for determining whether previously cited violations have been corrected.

Employers found to have violated MNOSHA standards receive citations for the violations and are assessed penalties on the basis of the seriousness of the violations. These employers are also required to correct the violations. Employers and employees may appeal citations, penalties and the time periods allowed for correcting violations.

Figure 6.1 shows statistics for compliance inspections from federal-fiscal-years (FFY, years begin Oct. 1 of the preceding year) 1999 through 2009. More statistics describing MNOSHA activity are available from the MNOSHA annual report, at www.dli.mn.gov/OSHA/PDF/annualreport09.pdf.

- During the most recent five-year period, FFY 2005 through FFY 2009, an average of 2,600 inspections were conducted annually, covering an average of 123,800 workers (Figure 6.1). MNOSHA Compliance conducted 2,717 inspections in FFY 2009, resulting in the identification of 4,962 violations of OSHA standards.

- During FFY 2009, 72 percent of inspections resulted in at least one violation cited. Among inspections with violations, an average of 2.5 violations was cited.

- Among private-sector employers, serious, willful and repeat violations accounted for 80 percent of the safety violations and for 63 percent of the health violations cited in FFY 2008. The average penalty for these violations was $731.

- As shown in Figure 6.2, the majority of inspections in almost every industry were planned, programmed inspections.

- The construction industry accounted for 39 percent of the inspections and for 30 percent of the violations. Ninety-six percent of the construction compliance visits were for planned, programmed inspections.

- Manufacturing accounted for 34 percent of the inspections and for 44 percent of the violations. Of the manufacturing compliance visits, 90 percent were for planned, programmed inspections.

- MNOSHA Compliance initiated inspections for 18 fatalities during calendar-year 2009 and for 12 fatalities during 2008 (Figure 6.3).

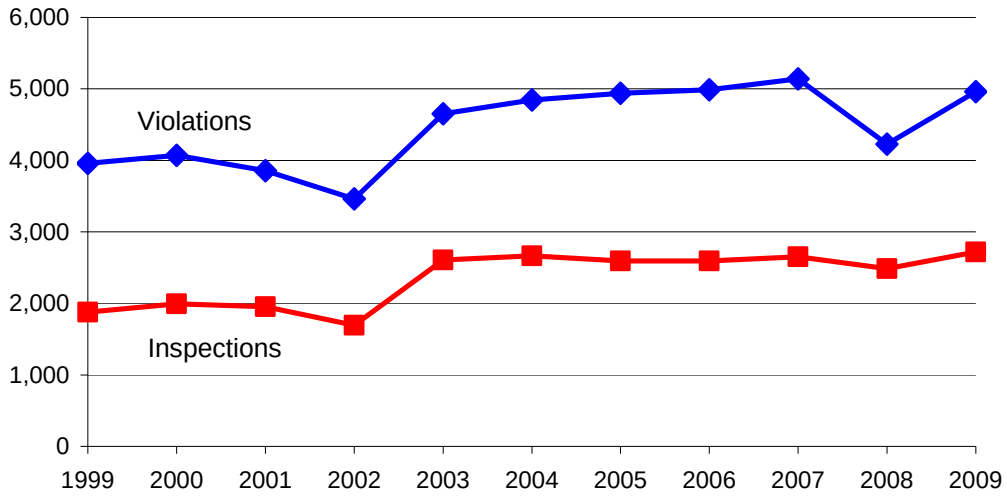
- From 2005 through 2009, 34 percent of the fatality investigations were in the construction industry. Falls and crushing incidents accounted for 59 percent of the fatalities investigated.

- Figure 6.4 shows MNOSHA Compliance initiated inspections for 29 serious-injury incidents during 2009 and for 43 incidents during 2008. During 2009, amputation injuries led to 31 percent of the serious-incident inspections. From 2005 through 2009, 42 percent of the serious injuries investigated involved workers injured by falls and crushing injuries. Additional details about the fatality and serious injury incident investigations are available at www.dli.mn.gov/OSHA/Information.asp.

- Construction safety is a major focus for both compliance inspections and outreach efforts. During FFY 2009, 42 percent of programmed inspections were conducted at construction worksites. MNOSHA held five construction-safety breakfasts, with 317 construction managers and supervisors in attendance.

- MNOSHA established the 75/25 program in FFY 2004. This is a penalty-reduction incentive program available to qualified employers that links workers' compensation claims and MNOSHA Compliance penalties. This program allows an employer to obtain a 75 percent reduction in penalties if that employer reduces the number of workers' compensation claims submitted by 25 percent within the following one-year period. Participants are encouraged to use WSC services to achieve this goal. Since its inception, 157 employers have entered the 75/25 program and 130 employers have completed the program by the end of FFY 2009. Of these, 76 employers successfully achieved the 25 percent claims reduction. Information is available at www.dli.mn.gov/OSHA/75-25Program.asp.

**Figure 6.1 MNOSHA Compliance inspections, federal-fiscal-years 1999-2009[1]**

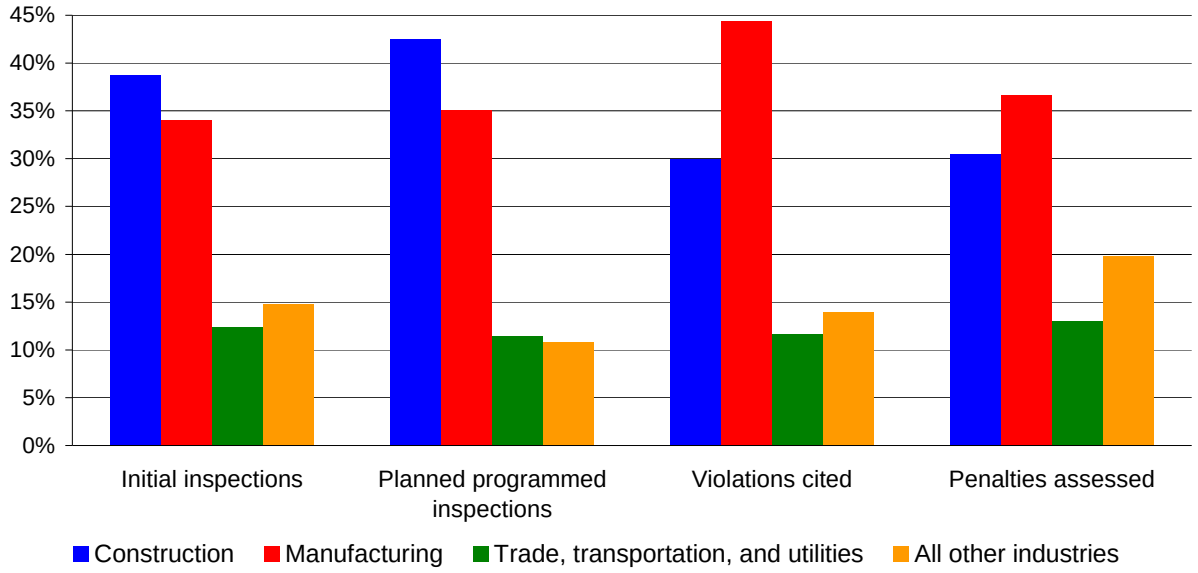



| Federal fiscal-year [1] | Inspections conducted | Employees covered [2] | Inspections with violations | Violations | Penalties assessed ($ millions)[3] |
|---|---|---|---|---|---|
| 1999 | 1,876 | 103,029 | 1,255 | 3,957 | $3.15 |
| 2000 | 1,991 | 84,575 | 1,368 | 4,068 | $3.28 |
| 2001 | 1,953 | 73,451 | 1,342 | 3,855 | $3.29 |
| 2002 | 1,691 | 68,113 | 1,165 | 3,462 | $2.61 |
| 2003 | 2,604 | 107,314 | 1,797 | 4,653 | $2.83 |
| 2004 | 2,663 | 112,648 | 1,872 | 4,846 | $3.52 |
| 2005 | 2,591 | 128,491 | 1,821 | 4,938 | $4.07 |
| 2006 | 2,593 | 93,244 | 1,876 | 4,986 | $3.75 |
| 2007 | 2,651 | 126,260 | 1,836 | 5,140 | $3.85 |
| 2008 | 2,483 | 131,748 | 1,674 | 4,225 | $3.20 |
| 2009 | 2,717 | 139,429 | 1,959 | 4,962 | $3.37 |

1. Federal fiscal-years are from Oct. 1 of the preceding year to Sept. 30 of the indicated year.
2. "Employees covered" refers to the number of employees who were affected by the scope of the inspection, which is not always all employees at a facility.
3. These are the originally assessed amounts of penalties.

Source: Minnesota OSHA Operations System Exchange database.

**Figure 6.2 MNOSHA Compliance inspections by industry, federal-fiscal-year 2009**




| Industry | NAICS code(s) | Initial inspections | Planned programmed inspections | Violations cited | Penalties assessed[1] |
|---|---|---|---|---|---|
| Natural resources and mining | 11, 21 | 9 | 7 | 16 | $ 33,800 |
| Agriculture, forestry, fishing and hunting | 11 | 9 | 7 | 16 | $ 33,800 |
| Construction | 23 | 1,072 | 1,027 | 1,521 | $ 1,057,035 |
| Manufacturing | 31-33 | 941 | 849 | 2,252 | $ 1,270,975 |
| Trade, transportation, and utilities | 42-49,22 | 341 | 278 | 592 | $ 453,700 |
| Wholesale trade | 42 | 132 | 109 | 268 | $ 193,975 |
| Retail trade | 44-45 | 142 | 116 | 202 | $ 170,750 |
| Transportation and warehousing | 48-49 | 58 | 48 | 91 | $ 59,725 |
| Utilities | 22 | 9 | 5 | 31 | $ 29,250 |
| Information | 51 | 19 | 15 | 30 | $ 17,900 |
| Financial activities | 52-53 | 16 | 1 | 25 | $ 122,950 |
| Professional and business services | 54-56 | 130 | 99 | 178 | $ 166,150 |
| Education and health services | 61-62 | 86 | 54 | 160 | $ 106,875 |
| Health care and social assistance | 62 | 59 | 37 | 120 | $ 89,075 |
| Leisure and hospitality | 71-72 | 24 | 4 | 29 | $ 70,100 |
| Other services | 81 | 32 | 12 | 75 | $ 21,125 |
| State government | all | 10 | 1 | 18 | $ 24,350 |
| Local government | all | 84 | 70 | 176 | $ 123,950 |

1. These are the originally assessed amounts of penalties.
Source: Minnesota OSHA Operations System Exchange database.

**Figure 6.3 Fatalities investigated by MNOSHA Compliance, 2005-2009**

| Fatality type | 2005 | 2006 | 2007 | 2008 | 2009 | Total 2005-2009 |
|---|---|---|---|---|---|---|
| Asphyxiation/chemical exposure | 1 | 2 | 3 | 1 | 3 | **10** |
| Burn | 0 | 1 | 2 | 0 | 0 | **3** |
| Crushed by | 12 | 9 | 5 | 6 | 5 | **37** |
| Drowning | 0 | 0 | 1 | 0 | 1 | **2** |
| Electrocution | 2 | 2 | 1 | 2 | 0 | **7** |
| Explosion | 0 | 0 | 1 | 0 | 1 | **2** |
| Fall | 9 | 4 | 4 | 2 | 6 | **25** |
| Heat exposure | 0 | 0 | 1 | 0 | 0 | **1** |
| Natural causes | 1 | 1 | 0 | 0 | 0 | **2** |
| Struck by | 2 | 6 | 5 | 1 | 2 | **16** |
| **Total** | **27** | **25** | **23** | **12** | **18** | **105** |
| Percent in construction | 48% | 32% | 39% | 25% | 17% | 34% |

**Figure 6.4 Serious injuries investigated by MNOSHA Compliance, 2005-2009**

| Serious-injury type | 2005 | 2006 | 2007 | 2008 | 2009 | Total 2005-2009 |
|---|---|---|---|---|---|---|
| Amputation | 4 | 6 | 1 | 4 | 9 | **24** |
| Asphyxiation/chemical exposure | 1 | 0 | 1 | 6 | 1 | **9** |
| Burn | 1 | 3 | 1 | 1 | 3 | **9** |
| Crushed by | 10 | 2 | 6 | 8 | 3 | **29** |
| Electrical shock | 4 | 3 | 4 | 5 | 2 | **18** |
| Environmental stress | 1 | 0 | 0 | 0 | 0 | **1** |
| Explosion | 4 | 2 | 1 | 4 | 1 | **12** |
| Fall | 5 | 12 | 14 | 8 | 6 | **45** |
| Struck by | 3 | 7 | 9 | 7 | 4 | **30** |
| **Total** | **33** | **35** | **37** | **43** | **29** | **177** |
| Percent in construction | 42% | 37% | 41% | 33% | 17% | 34% |

Figure 6.5 shows the most-commonly-cited OSHA standards violations in 2009 for general industry and for construction.

- Violations associated with the A Workplace Accident and Injury Reduction (AWAIR) Act have been at or near the top of the lists for both general industry and construction for many years.

- Other commonly cited violations are associated with the Employee Right-To-Know Act, lockout/tagout procedures and construction fall protection.

Under the AWAIR Act — part of the state's Occupational Safety and Health Act — employers in high-hazard industries must develop and implement a written safety and health plan to reduce workplace injuries and illnesses.

Under the Employee Right-To-Know Act and its standards — also part of the state's Occupational Safety and Health Act — employers must evaluate their workplaces for the presence of hazardous substances, harmful physical agents and infectious agents, and determine which employees are routinely exposed to these substances and agents. Identified employees must be provided with appropriate training and readily accessible written information about identified hazardous substances and agents in their work areas. Containers, work areas and equipment must be labeled to warn employees of associated hazardous substances or agents.

**Figure 6.5 Minnesota OSHA's most-frequently cited standards, calendar-year 2009**

| Standard[1] | Description | Times cited |
|---|---|---|
| **General Industry** | | |
| MN Rules 5206.0700 | Employee Right-To-Know training | 416 |
| 29 CFR 1910.147 | Control of hazardous energy (lockout/tagout procedures) | 253 |
| MN Statutes 182.653 subd. 8 | A Workplace Accident and Injury Reduction (AWAIR) program | 235 |
| 29 CFR 1910.305 | Electrical wiring methods, components and equipment for general use | 235 |
| 29 CFR 1910.212 | Machine guarding — general requirements | 230 |
| 29 CFR 1910.134 | Respiratory protection | 154 |
| 29 CFR 1910.178 | Powered industrial trucks (forklifts) | 128 |
| 29 CFR 1910.213 | Woodworking machine guarding requirements | 124 |
| 29 CFR 1910.23 | Guarding of floor and wall openings and holes | 119 |
| 29 CFR 1910.303 | Electrical — general requirements | 107 |
| **Construction** | | |
| 29 CFR 1926.501 | Fall protection | 355 |
| MN Statutes 182.653 subd. 8 | A Workplace Accident and Injury Reduction (AWAIR) program | 248 |
| 29 CFR 1926.405 | Electrical wiring methods, components and equipment for general use | 163 |
| 29 CFR 1926.651 | Specific excavation requirements | 146 |
| 29 CFR 1926.451 | Scaffolds — general requirements | 143 |
| 29 CFR 1926.652 | Excavations — protective system requirements | 119 |
| 29 CFR 1926.1053 | Ladders | 66 |
| 29 CFR 1926.1101 | Asbestos | 66 |
| MN Rules 5207.1100 | Elevating work platform equipment | 45 |
| 29 CFR 1926.403 | Electrical — general requirements | 43 |

1. 29 CFR refers to the U.S. Code of Federal Regulations Title 29, which covers the U.S. Department of Labor.
Source: Minnesota OSHA Operations System Exchange.

### Partnerships

MNOSHA Compliance continues to support and strengthen relationships with organizations that represent safety and health best practices. It currently has two partnerships in the construction industry — Construction Health and Safety Excellence (CHASE) Minnesota and Minnesota Chapter of Associated Builders and Contractors (MN ABC).

The goal of these partnerships is to reduce the number of injuries, illnesses and fatalities affecting participants by 3 percent annually. To achieve these results, these programs focus on the four leading causes of construction deaths — falls, struck-by, caught in/between and electrocutions — and the development of comprehensive written safety and heath programs. There are three levels of participation in the partnerships.

## Workplace Safety Consultation

WSC offers a variety of workplace safety services. These services are voluntary, confidential and separate from the MNOSHA Compliance unit.

### Workplace consultations

WSC offers free consultation services to help employers prevent workplace accidents and diseases by recognizing and correcting safety and health hazards. This service is targeted primarily toward smaller businesses in high-hazard industries, and is available to public-sector employers. During FFY 2009, WSC conducted 1,732 worksite safety and health visits, training and assistance visits and interventions.

WSC safety and health professionals conduct on-site consultations. During the consultation visits, the safety and health consultants help employers determine how to improve workplace safety practices and working conditions to comply with, and exceed, MNOSHA regulations and to reduce accidents and illnesses and their associated costs.

No citations are issued or penalties proposed as a result of WSC consultations. However, employers are obligated to correct any serious safety and health hazards found. Consultants identify hazards in about 95 percent of the visits. Information about an employer is not reported to MNOSHA Compliance unless the employer fails to correct the detected safety and health hazards within a specified period. This has happened only once in the past decade.

Figure 6.6 shows statistics for WSC visits to worksites for FFY 1999 through 2009.

- Since FFY 2005, the number of consultation visits has remained at or above 900 visits annually.
- During the past three years, an average of 20,500 employers and employees received training from WSC consultants.
- WSC visits in FFY 2009 identified safety and health hazards that could have cost employers approximately $3.7 million in MNOSHA Compliance penalties.

Figure 6.7 shows statistics for WSC services to worksites for some industries during FFY 2009.

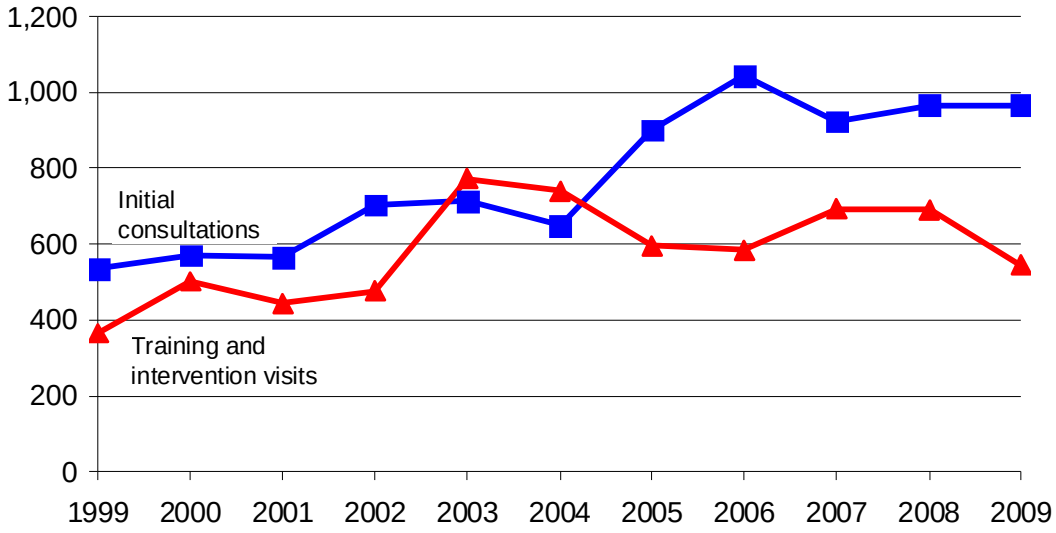
- Construction sites accounted for 65 percent of initial consultation visits, followed by manufacturing with 16 percent.
- Training assistance and interventions were distributed among a wide range of industries.

### Loggers' Safety Education Program

The Loggers' Safety Education Program (LogSafe) provides logging industry safety training through eight-hour seminars throughout the state. The goal of the program is to help reduce injuries and illnesses in the logging industry through on-site consultation services, outreach and training seminars.

During FFY 2009, WSC conducted 162 logger safety seminars with 3,692 attendees. These training sessions and interventions included public-sector employers and employees who are involved in tree removal following storms or other circumstances.

**Figure 6.6 Workplace Safety Consultation visit activity, federal-fiscal-years 1999-2009**




| Federal fiscal-year[1] | Initial consultation visits | Visits with identified hazards | Potential penalties avoided ($ millions)[2] | Training and intervention visits | Persons receiving training and interventions |
|---|---|---|---|---|---|
| 1999 | 535 | 496 | $1.98 | 365 | 9,650 |
| 2000 | 570 | 553 | $1.96 | 502 | 13,420 |
| 2001 | 565 | 521 | $2.37 | 445 | 13,284 |
| 2002 | 703 | 672 | $2.73 | 476 | 19,285 |
| 2003 | 713 | 695 | $3.09 | 772 | 19,281 |
| 2004 | 649 | 628 | $2.66 | 741 | 20,427 |
| 2005 | 900 | 889 | $3.83 | 597 | 18,421 |
| 2006 | 1,043 | 1,010 | $4.37 | 584 | 15,180 |
| 2007 | 923 | 890 | $3.49 | 693 | 20,506 |
| 2008 | 965 | 918 | $3.33 | 691 | 23,394 |
| 2009 | 966 | 925 | $3.72 | 544 | 17,670 |

1. Federal fiscal years are from Oct. 1 of the preceding year to Sept. 30 of the indicated year.
2. Potential penalty amounts expressed using average penalty values for 2009.

Source: Minnesota OSHA Operations System Exchange.

**Figure 6.7 Workplace Safety Consultation activity for selected industries, federal-fiscal-year 2009**

| Industry | NAICS code | Initial visits | Training assistance and interventions | Persons trained |
|---|---|---|---|---|
| Logging | 113310 | 5 | 31 | 983 |
| Construction | 23 | 624 | 187 | 9,023 |
| Manufacturing | 31-33 | 157 | 92 | 1,438 |
| Trade, transportation and utilities | 42-49, 22 | 42 | 17 | 647 |
| Nursing and residential care | 623 | 37 | 16 | 290 |
| Other services | 81 | 8 | 20 | 842 |
| State and local government | all | 18 | 33 | 1,146 |

Source: Minnesota OSHA Operations System Exchange.

### Safety Grants Program

The Safety Grants Program is a state-funded program that awards funds up to $10,000 to qualifying employers for projects designed to reduce the risk of injury and illness to their employees. Projects must be consistent with the recommendations of a safety and health inspection. Qualified applicants must match the grant money awarded.

During state fiscal-year 2009, WSC awarded $1.7 million to 244 employers, who matched the grants with $5.3 million of their own funds.

### Ergonomics assistance and safe-patient-handling

The main responsibilities of the WSC ergonomics program coordinator are to educate Minnesota employers and employees about the recognition and control of risk factors associated with MSDs. With safe-patient-handling legislation enacted in Minnesota requiring all licensed health care facilities in Minnesota to implement a safe-patient-handling program, a big focus of the ergonomics program is safe patient handling. The legislation requires a written safe-patient-handling policy and the establishment of a plan to minimize manual lifting of patients by Jan. 1, 2011.

WSC is providing assistance to health care facilities through development of training and education presentations and materials, on-site ergonomics evaluations and posting resources online. Twenty facilities have received visits with an ergonomics focus, 14 of which were for safe patient handling. There were 10 safe-patient-handling training seminars and nine general ergonomics training sessions in FFY 2010.

In 2008, 69 health care facilities statewide (44 nursing homes, 18 hospitals, and seven combined hospitals and nursing homes) were each awarded $7,246 matching grants by WSC under this program. The state funds were matched with $644,360 in employer funds. The funds were used to purchase mobile patient-lifts, ceiling lift-systems, repositioning sheets, harnesses and transfer lifts. After these grant funds were distributed, WSC continued to provide financial support for the purchase of patient-lifting equipment through the Safety Grants Program. During state-fiscal-year 2009, 48 safety grants, totaling $420,000, were provided to health care facilities.

All of the safe-patient-handling grant recipients have received a letter from WSC and are in the process of receiving visits from the WSC ergonomics program coordinator to determine their compliance with the statute. Requests for safe-patient-handling consultative visits are also being received from non-grant health care facilities and they are being scheduled for visits.

Through an alliance with the Care Providers of Minnesota, WSC is providing training and education about safe-patient-handling, in addition to workplace safety and health. Care Providers of Minnesota is a statewide, nonprofit trade association representing more than 500 proprietary, nonprofit and government-owned providers of long-term-care services, including nursing facilities, senior housing, assisted living, and home- and community-based services.

In 2004, WSC enlisted 26 nursing homes to receive ergonomics consultations to help manage ergonomic risk factors that contribute to worker injury. DLI issued a report in May 2010 evaluating WSC's ergonomics services to the nursing home industry.[20] The injury and illness outcomes of the nursing homes receiving ergonomics services were compared with data from 50 comparable nursing homes. The evaluation showed the nursing homes receiving WSC services had significantly better improvements in their injury and illness rates.

### MNSHARP

The Minnesota Safety and Health Achievement Recognition Program (MNSHARP) is a voluntary program that assists small high-hazard employers in achieving safety and health improvements and recognizes them for doing so. The success of these employers in improving the safety climate in their workplaces is apparent in both their OSHA recordable cases and their workers' compensation costs.

MNSHARP is limited to employers with fewer

[20] *Evaluation of the Workplace Safety Consultation Nursing Homes Ergonomics Services Program*, Minnesota Department of Labor and Industry, May 2010. www.dli.mn.gov/RS.PDF/nursinghome_ergo.pdf

than 500 workers at the worksite. Participants receive a comprehensive safety and health consultation survey from WSC, which results in a one-year action plan and a deferral from MNOSHA scheduled compliance inspections. After a year, a second on-site visit occurs to determine whether the participant has completed their action plan and the injury and illness reduction goal. If these requirements are met, the worksite receives a MNSHARP certificate of recognition and is exempted from programmed MNOSHA Compliance inspections for one year. Certified MNSHARP participants may apply annually for certification renewal.

In FFY 2008, WSC launched one of the nation's first safety and health achievement recognition programs for the construction industry. Prior to this program, five major construction project employers achieved MNSHARP recognition through the general MNSHARP program. MNSHARP Construction provides incentives and on-site support for large, long-term (18 months or longer) construction worksites and works with the general contractors to develop, implement and continually improve the effectiveness of their workplace safety and health programs. Five construction projects are currently MNSHARP-certified and another site is in pre-MNSHARP status.

Eleven new participants were certified into MNSHARP during FFY 2009, bringing the total to 41 certified programs. The majority of the program participants are manufacturers.

The total case incidence rates of the general-industry MNSHARP employers during 2009 averaged 50 percent below the 2008 national rate for their industries; their DART rates averaged 57 percent below their national industry rates. For construction projects, the total case rates averaged 28 percent below the national rate and the DART rates averaged 48 percent lower. The reduced numbers of cases saved MNSHARP employers an estimated $1.2 million in workers' compensation benefit payments.

For more information about MNSHARP, visit www.dli.mn.gov/WSC/MNSHARP.asp.

### MNSTAR

The Minnesota Star (MNSTAR) program is a voluntary program patterned after the federal Voluntary Protection Program.[21] It is available to Minnesota employers of all sizes. Compared to MNSHARP, MNSTAR has more rigorous requirements and confers a higher level of recognition on certified employers.

MNSTAR relies mainly on employer self-assessment and requires an extensive application, including submission of written safety and health policies and procedures. After one or more on-site safety and health surveys, employers qualify for MNSTAR status if all eligibility requirements have been met, including an injury and illness rate below the state and national averages for their industry. MNSTAR recognition exempts employers from programmed MNOSHA Compliance inspections for three years.

During 2009, the total case incidence rates of the general-industry MNSTAR employers averaged 57 percent below the 2008 national rates for their industries; their DART rates averaged 73 percent below the national rates. The reduced numbers of cases saved these employers an estimated $1.9 million in workers' compensation benefit payments.

During FFY 2009, there were 37 employers in the MNSTAR program. Six companies were re-certified for MNSTAR status and five companies achieved MNSTAR status. Six companies became Merit employers, which are working with WSC to achieve MNSTAR status.

For more information about MNSHARP, visit www.dli.mn.gov/WSC/MnStar.asp.

## Workplace safety and health seminars and outreach activities

Both the MNOSHA Compliance and WSC units provide training and outreach activities to help employers and employees improve the safety and health conditions at their worksites. Some of the training is directed to company safety directors to provide information for their own safety training programs.

[21] See www.osha.gov/dcsp/vpp.

Compliance staff members present information about MNOSHA standards and other workplace safety topics to employer organizations, safety professionals, unions and labor-management organizations. Many MNOSHA Compliance outreach services are presented at meetings, conferences and employer groups organized by the Midwest Center for Occupational Health and Safety, Minnesota Health and Housing Alliance, Associated General Contractors of Minnesota, American Society of Safety Engineers and the Minnesota Safety Council. During FFY 2009, Compliance staff members conducted 93 outreach presentations for 3,900 people.

WSC provides seminars and training opportunities to help employers and employees understand and comply with safety and health regulations, and to develop and implement mandatory programs, including Employee Right-To-Know, AWAIR and labor-management safety committees. During FFY 2009, WSC conducted 542 worksite training, intervention and technical assistance visits, reaching more than 17,500 participants.

During FFY 2009, MNOSHA Compliance and WSC training activities included these events:

- six half-day educational sessions about construction safety and health through an alliance with the Builders Association of Minnesota, attended by 511 employers;
- presentations about construction safety and OSHA inspection procedures to nine contractor re-licensing classes at technical colleges, with 485 employers participating;
- four presentations about electrical hazards in construction for 80 employers;
- 17 10-hour OSHA construction certification courses for various organizations, including courses for minority, women's and apprenticeship organizations;
- four presentation to 205 safety and health professionals;
- a series of five construction safety breakfast seminars attended by 317 participants; and
- six presentations about work safety for youths.

## MNOSHA performance

In its five-year strategic plans, MNOSHA sets strategic and performance goals to reduce injury and illness and fatality rates for the industries within its jurisdiction. The strategic plan includes a set of emphasis industries that are identified through a combination of factors, including the number of workers in the industry and the industry's DART rate.

Establishments in the emphasis industries receive considerable attention from MNOSHA. During FFY 2009, 75 percent of programmed compliance inspections and 99 percent of the consultation initial visits were in these emphasis industries.

The DAFW rates and case count estimates for the emphasis industries in the FFY 2004 through 2008 strategic plan are shown in Figure 6.8. The value of targeting these industries is shown at the bottom of Figure 6.8; these industries, which accounted for 23 percent of the work establishments and 30 percent of employment, accounted for 44 percent of the DAFW cases.

Eleven of these industries are also included in the new strategic plan for FFY 2009 through 2013. Figure 6.9 shows the DAFW rates for the two most recent years for these emphasis industries. Half of emphasis industries are in the manufacturing sector. The current strategic plan is available at www.dli.mn.gov/OSHA/PDF/stratplan09-13.pdf.

## Figure 6.8 Minnesota OSHA emphasis industries for the 2004-2008 strategic plan

| | | | | DAFW Cases | | | DAFW Rate | | |
|---|---|---|---|---|---|---|---|---|---|
| Industry | NAICS code | Establishments 2008 | Wage and salary employment 2008 | 2003 | 2008 | Pct. Change | 2003 | 2008 | Pct. Change |
| Logging | 1133 | 185 | 738 | na | na | na | na | na | na |
| Construction | 23 | 17,935 | 110,415 | 2,870 | 1,700 | - 41% | 2.8 | 1.7 | - 39% |
| Food manufacturing | 311 | 795 | 42,820 | 620 | 640 | 3% | 1.4 | 1.5 | 7% |
| Animal slaughtering and processing[1] | 3116 | 134 | 15,769 | 260 | 170 | - 35% | 1.6 | 1.1 | - 31% |
| Wood product manufacturing | 321 | 388 | 13,010 | 410 | 290 | - 29% | 2.6 | 2.2 | - 15% |
| Paper manufacturing | 322 | 150 | 11,580 | 210 | 110 | - 48% | 1.6 | 1.0 | - 38% |
| Printing and related support activities | 323 | 958 | 30,152 | 430 | 420 | - 2% | 1.4 | 1.4 | 0% |
| Plastics and rubber products mfg. | 326 | 426 | 15,211 | 240 | 200 | - 17% | 1.5 | 1.3 | - 13% |
| Foundries[2] | 3315 | 53 | 4,706 | 150 | 190 | 27% | 2.4 | 2.8 | 17% |
| Architectural and structural metals manufacturing | 3323 | 298 | 8,447 | 240 | 170 | - 29% | 2.9 | 2.0 | - 31% |
| Machinery manufacturing | 333 | 879 | 33,904 | 420 | 440 | 5% | 1.2 | 1.3 | 8% |
| Motor vehicle manufacturing | 3361 | 12 | 1,699 | 100 | na | na | 3.5 | na | na |
| Furniture and related product mfg. | 337 | 663 | 11,224 | 300 | 160 | - 47% | 2.4 | 1.5 | - 38% |
| Lumber and other construction materials merchant wholesalers | 4233 | 368 | 5,608 | 200 | 50 | - 75% | 4.0 | 0.9 | - 78% |
| Motor vehicle and parts dealers | 441 | 2,300 | 32,189 | 380 | 700 | 84% | 1.2 | 2.5 | 108% |
| Gasoline stations | 447 | 2,535 | 23,234 | 280 | 70 | - 75% | 1.6 | 0.4 | - 75% |
| Couriers and messengers | 492 | 357 | 10,669 | 440 | 210 | - 52% | 5.3 | 2.8 | - 47% |
| Telecommunications | 517 | 989 | 14,791 | 130 | 100 | - 23% | 0.9 | 0.8 | - 11% |
| Nursing care facilities[3,4] | 6231 | 425 | 45,393 | 1,350 | 740 | - 45% | 3.1 | 1.2 | - 61% |
| Traveler accommodations[5] | 7211 | 1,250 | 27,274 | 230 | 420 | 83% | 1.5 | 2.0 | 33% |
| State and local government | all | 6,863 | 341,461 | 4,310 | 3,410 | - 21% | 1.6 | 1.4 | - 13% |
| Emphasis industry total | | 37,829 | 784,525 | 13,310 | 10,020 | - 25% | | | |
| State total (excludes federal gov.) | | 166,554 | 2,646,752 | 29,860 | 22,590 | - 24% | 1.5 | 1.1 | - 27% |
| Percentage of state total | | 23% | 30% | 45% | 44% | | | | |

1. Animal slaughtering and processing is an industry group in the food processing subsector.

2. DAFW numbers and rates are not available for this industry; the rate and case counts for the NAICS industry 331, primary metal manufacturing, are reported. Establishments in NAICS 3315 account for approximately 70 percent of the employment in NAICS 331.

3. Data shown for private-sector only. Public-sector facilites included in state and local government.

4. DAFW numbers and rates are not available for this industry; the rates and case counts for NAICS industry 623, nursing care facilities, are reported. Establishments in NAICS 6231 account for approximately 48 percent of the employment in NAICS 623.

5. DAFW numbers and rates are not available for this industry for 2008; the rates and case counts for NAICS industry 721, accommodation, are reported. Establishments in NAICS 7221 account for approximately 95 percent of the employment in NAICS 721.

Sources: BLS *Quarterly Census of Employment and Wages* and *Annual Survey of Occupational Injuries and Illnesses* .

## Figure 6.9 Minnesota OSHA emphasis industries for the 2009-2013 strategic plan

| | | | | DAFW Cases | | | DAFW Rate | | |
|---|---|---|---|---|---|---|---|---|---|
| Industry | NAICS code | Establish-ments 2009 | Wage-and-salary employment 2009 | 2007 | 2008 | Pct. Change | 2007 | 2008 | Pct. Change |
| Logging | 1133 | 183 | 745 | na | na | na | na | na | na |
| Utilities, except nuclear[1] | 221 | 406 | 12,724 | 130 | 96 | - 26% | 1.2 | 0.8 | - 33% |
| Construction | 23 | 17,372 | 93,448 | 2,330 | 1,700 | - 27% | 2.1 | 1.7 | - 19% |
| Food manufacturing[2] | 311 | 779 | 43,058 | 590 | 640 | 8% | 1.4 | 1.5 | 7% |
| Grain facilities[2,3] | (31111, 31121, 42451) | 524 | 8,227 | na | na | na | na | na | na |
| Animal slaughtering and processing[2] | 3116 | 135 | 15,605 | 200 | 170 | - 15% | 1.2 | 1.1 | - 8% |
| Beverage and tobacco product mfg. | 312 | 57 | 2,179 | 60 | na | na | 2.8 | na | na |
| Wood product manufacturing | 321 | 376 | 11,236 | 250 | 290 | 16% | 1.8 | 2.2 | 22% |
| Petroleum refineries | 32411 | 4 | 1,406 | na | na | na | na | na | na |
| Nonmetallic mineral product mfg | 327 | 376 | 8,262 | 200 | 170 | - 15% | 1.9 | 1.9 | 0% |
| Primary metal mfg.[4] | 331 | 92 | 5,046 | 180 | 190 | 6% | 2.7 | 2.8 | 4% |
| Foundries[4] | 3315 | 55 | 3,369 | na | na | na | na | na | na |
| Transportation equipment mfg. | 336 | 239 | 9,872 | 270 | 230 | - 15% | 2.0 | 1.8 | - 10% |
| Furniture and related product mfg. | 337 | 630 | 8,724 | 270 | 160 | - 41% | 2.2 | 1.5 | - 32% |
| Building material and garden equipment and supplies dealers | 444 | 1,665 | 23,952 | 230 | 220 | - 4% | 1.0 | 1.0 | 0% |
| Warehousing and storage | 493 | 215 | 5,793 | 190 | 210 | 11% | 2.7 | 3.6 | 33% |
| Hospitals[5] | 622 | 193 | 96,026 | 1,530 | 1,580 | 3% | 2.3 | 2.3 | 0% |
| Nursing care facilities[6] | 6231 | 427 | 46,910 | 1,820 | 740 | - 59% | 3.0 | 1.2 | - 60% |
| State and local government | all | 6,895 | 339,825 | 3,370 | 3,410 | 1% | 1.4 | 1.4 | 0% |
| Emphasis industry total | | 30,319 | 715,516 | 11,420 | 9,636 | - 16% | | | |
| State total (excludes federal gov.) | | 164,394 | 2,534,919 | 26,100 | 22,590 | - 13% | 1.3 | 1.1 | - 15% |
| Percentage of state total | | 18% | 28% | 44% | 43% | - 3% | | | |

1. Statistics include nuclear energy establishments.

2. The food processing subsector includes some establishments in the grain facilities emphasis industry group and all establishments in the animal slaughtering and processing industry. Statistics displayed for food manufacturing include all industries within the subsector.

3. Grain facilities includes animal food manufacturing (NAICS 31111), flour milling and malt manufacturing (NAICS 31121), and grain and field bean merchant wholesalers (NAICS 42451).

4. Foundries is an industry group in the primary metal manufacturing subsector. Statistics displayed for primary metal manufacturing include foundries.

5. Data shown for private-sector only; public-sector facilites are included in state and local government.

6. Data shown for private-sector only; public-sector facilites are included in state and local government. DAFW statistics are for NAICS code 623, nursing and residential care facilities. DAFW case statistics for NAICS 6231 are available for 2008 and later.

Sources: *BLS Quarterly Census of Employment and Wages* and *Annual Survey of Occupational Injuries and Illnesses*.

# Appendix A

## Definitions of key concepts in the Survey of Occupational Injuries and Illnesses

The U.S. Bureau of Labor Statistics conducts the annual Survey of Occupational Injuries and Illnesses (SOII) to provide nationwide and state-level information about work-related injuries and illnesses, including their number and incidence.[22] The survey includes all cases recorded by employers on their OSHA log. Employers with 11 or more employees are required to use the log to record workplace injuries and illnesses, conforming with definitions and recordkeeping guidelines set by the Occupational Safety and Health Administration.[23] Employers with 10 or fewer employees participating in the survey record their cases on the OSHA log for the survey year. The SOII data is collected from the OSHA log and from an additional set of questions regarding cases with at least one day off the job.

**Work-related** injuries and illnesses are new conditions that are caused by, or pre-existing conditions significantly aggravated by, events or exposures in the work environment.

**Recordable cases,** for 2002 and later years, include work-related injuries and illnesses that result in death, loss of consciousness, days away from work, restricted work activity or job transfer, or medical treatment (beyond first aid). It also includes significant work-related injuries or illnesses diagnosed by a physician or other licensed health care professional. These include any work-related case involving cancer, chronic irreversible disease, a fractured or cracked bone, or a punctured eardrum.

Additional criteria that can result in a recordable case include:

- any needlestick injury or cut from a sharp object that is contaminated with another person's blood or other potentially infectious material;
- any case requiring an employee to be medically removed under the requirements of an OSHA health standard; or
- tuberculosis infection as evidenced by a positive skin test or diagnosis by a physician or other licensed health care professional after exposure to a known case of active tuberculosis.

Some of the differences between recordable cases before and after 2002 are discussed in Appendix C. Information about the recordkeeping guidelines is available at www.dli.mn.gov/OSHA/Recordkeeping.asp.

**Occupational injury** is any wound or damage to the body resulting from an event in the work environment.

**Occupational illness** is any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to factors associated with employment. It includes acute and chronic illnesses or diseases that may be caused by inhalation, absorption, ingestion or direct contact.

*For injuries prior to 2002, the following definitions apply.*

**Days away from work** (DAFW) are days after the injury or onset of illness when the employee would have worked but does not because of the injury or illness.

**Days of restricted work activity** are days after the injury or onset of illness when the employee works reduced hours, has restricted duties or is temporarily assigned to another job because of the injury or illness.

**Lost-workday (LWD) cases** involve days away from work, days of restricted work activity or both.

[22] The survey and other BLS occupational safety and health statistics are described in greater detail in Chapter 9 of the *BLS Handbook of Methods*, at www.bls.gov/opub/hom/homtoc.htm.
[23] This is a count of the total number of employees in the firm, across all establishments.

1. *Lost-workday cases involving days away from work* are cases that result in DAFW or a combination of DAFW and days of restricted work activity.

2. *Lost-workday cases involving restricted work activity* are cases that result in restricted work activity only.

**Cases without lost workdays** are recordable cases with no days away from work or days with restricted work activity.

*For injuries in 2002 and later, the following definitions apply.*

**Days away from work, days of restricted work activity or job transfer (DART)** are cases that involve days away from work, days of restricted work activity or job transfer, or both.

1. *Cases involving days away from work* require at least one day away from work with or without days of job restriction.

2. *Job transfer or restriction cases* occur when, as a result of a work-related injury or illness, an employer or health care professional keeps or recommends keeping an employee from doing the routine functions of his or her job or from working the full workday the employee would have been scheduled to work before the injury or illness occurred.

**Other recordable cases** are cases that meet the recordability thresholds but do not involve death, days away from work, or days of restricted work activity or job transfer.

*For all survey years, the following definitions apply.*

**Publishable industry data** is summary data about an industry selected for publication in the survey that meets BLS reliability and confidentiality criteria. As part of the survey sample selection process, states decide which industries will include enough surveyed companies to provide potentially publishable data. The remaining industries are grouped into residual industries that provide data for the next-higher level of categorization.

The reliability criteria consider changes in an industry's employment during the survey period, the relative standard error for the number of lost-workday cases and whether there is a minimum level of employment in that industry. The confidentiality criteria ensure that the identity of data providers and the nature of their data cannot be determined.

**Median days away from work** is the measure used to summarize the length of work absences among the cases with days away from work. The median is the halfway point in the distribution — half the cases involved more days and half involved fewer days.

**Incidence rates** represent the number of injuries and illnesses per 100 full-time-equivalent workers. They are calculated as: (N/EH) x 200,000 where:

N = number of injuries and illnesses;
EH = total hours worked by all employees during the calendar year;
200,000 = base for 100 full-time-equivalent workers (working 40 hours a week, 50 weeks a year).

Incidence rates for characteristics of DAFW cases are based on 10,000 full-time equivalent workers.

**Nature of injury or illness** names the principal physical characteristic of a disabling condition, such as sprain/strain, cut/laceration or carpal tunnel syndrome.

**Part of body affected** is directly linked to the nature of the injury or illness cited, for example, back sprain, finger cut, or wrist and carpal tunnel syndrome.

**Event or exposure** signifies the manner in which the injury or illness was produced or inflicted, for example, overexertion while lifting or fall from ladder.

**Source of injury or illness** is the object, substance, exposure or bodily motion that directly produced or inflicted the disabling condition cited. Examples are a heavy box, a toxic substance, fire/flame and bodily motion of the injured worker.

# Appendix B

## Key concepts in OSHA recordkeeping

The data recorded by employers on the OSHA 300 Log of Work-Related Injuries and Illnesses (OSHA log) and the Form 301: Injury and Illness Incident Report (incident report) are the foundation for the data used in the Survey of Occupational Injuries and Illnesses (SOII). The survey includes all nonfatal cases recorded by participating employers on their OSHA 300 logs. Injuries and illnesses logged by employers conform to definitions and recordkeeping guidelines set by OSHA.

It is critical for the validity of the SOII that employers provide complete and accurate information, conforming to OSHA's recordkeeping requirements.

For each recordable case (see the definitions of recordable cases and work-related injuries and illnesses in Appendix A), employers enter the following information on the OSHA log:

- employee's name (unless the injury or illness qualifies as a "privacy case");
- employee's job title;
- the date of injury or onset of illness;
- the location where the event occurred;
- a description of the injury or illness and the object or substances that directly injured or made the person ill;
- classification of the seriousness of the case by its most-serious outcome (most-serious to least-serious are: fatality, days-away-from-work, job transfer or work restriction, and other recordable (see definitions in Appendix A));
- the number of days the injured or ill worker was away from work;
- the number of days the injured or ill worker was on job transfer or restriction; and
- classification of the case as an injury or an illness and, if it is an illness, indicating an illness category (skin diseases or disorders, respiratory conditions, poisoning, hearing loss or all other illnesses).

In addition to making a log entry, the employer must also complete an incident report or a Minnesota workers' compensation First Report of Injury form for each recordable case. The SOII uses these reports for the cases with days away from work to generate statistics about injured workers and the characteristics of their injuries and illnesses.

Information on the incident report (or a comparable form) includes:

- employee's name;
- employee's date of birth;
- employee's date hired;
- employee's gender;
- time employee began work;
- time of event;
- text description of the employee's activity just before the incident occurred;
- text description of how the injury occurred;
- text description of the injury or illness, including the part of the body affected and how it was affected; and,
- text description of the object or substance that directly harmed the employee.

The information used by the survey is copied by employers from the OSHA log and the incident report and transferred to the SOII reporting forms between January and July of the following year, with the majority of reports coming before April. For employers reporting early in the period, information about durations away from work or job restrictions for cases that occurred during the final months of the year may be less accurate. The recordkeeping requirements instruct employers to update the OSHA log information as more information becomes available.

Accurate OSHA recordkeeping is an employer responsibility that requires training and the availability of technical advice. Given the infrequency of workplace injuries and illnesses and the complexity of the forms, recordkeeping

errors are common. Many errors are uncovered and corrected during the editing process of the SOII data collection.

Employers also confuse the OSHA recordkeeping requirements and the Minnesota workers' compensation reporting requirements, and apply workers' compensation rules for determining work-relatedness and coverage to the OSHA log. For example, mental stress claims are not covered by the Minnesota workers' compensation system, but are recordable on the OSHA log.

Among the common OSHA log errors are:

- counting cases where only first aid (or no aid at all) was provided;
- classifying a case into more than one case type when both days away from work and job restriction occurred;
- classifying a case into the wrong case type when both days away from work and job restriction occurred;
- counting a case in more than one year when days away from work or job restriction occur in multiple years;
- counting only scheduled work days instead of calendar days; and
- including the day of the injury in the count of days away from work.

The Minnesota Department of Labor and Industry provides OSHA recordkeeping advice for employers through multiple channels. The Web page at www.dli.mn.gov/OSHA/Recordkeeping.asp includes:

- links to the OSHA log forms;
- text of the OSHA recordkeeping requirement;
- a series of Recordkeeping 101 and Recordkeeping 201 features from the quarterly MNOSHA newsletter, *Safety Lines*; and
- *Ten Tips for Improving your OSHA Log.*

Employers may contact MNOSHA Compliance or Workplace Safety Consultation or the SOII staff in the Policy Development, Research and Statistics unit for recordkeeping assistance. MNOSHA compliance inspectors and WSC consultants also provide on-site log review and assistance during worksite visits.

The federal OSHA recordkeeping site also provides many resources for employers (www.osha.gov/recordkeeping). This includes the *OSHA Recordkeeping Handbook* and training presentation slides and scripts.

# Appendix C

## Major changes to OSHA's recordkeeping rule in 2002

To remove some of the subjectivity involved in making decisions about what injuries and illnesses employers need to record on the OSHA Log of Work-Related Injuries and Illnesses, OSHA instituted changes in its recordkeeping requirements, that became effective Jan. 1, 2002. By improving the consistency in recordkeeping by employers, these changes should improve the quality of the estimates produced by the BLS Survey of Occupational Injuries and Illnesses (SOII), which relies on the OSHA log records.

To disseminate information about the new recordkeeping requirements, all employers participating in the 2002 SOII were sent new OSHA log packets with introductory material. During 2002, Workplace Safety Consultation consultants traveled throughout the state, conducting 53 training sessions about the new recordkeeping requirements.

Additional information about the recordkeeping requirements and the changes to the OSHA log for 2004 and later is available at www.dli.mn.gov/OSHA/Recordkeeping.asp.

The following are some of the major changes and how they might affect the SOII estimates.

- Where a pre-existing (non-work-related) condition is present, a case is recordable only if a significant aggravation by a workplace event or exposure occurs. A significant aggravation is any of the following, if caused by the occupational event or exposure:
    1. death;
    2. loss of consciousness;
    3. one or more days away from work;
    4. one or more days of restricted work or job transfer; or
    5. medical treatment.

  Under the old requirements, any aggravation of a pre-existing condition by a workplace event or exposure makes a case recordable. This change clarifies when to record cases involving pre-existing conditions. **This change tends to reduce the number of cases.**

- An aggravation of a case where signs or symptoms have not been resolved is not a new case, even if the aggravation was caused by a new event or exposure. Previously, each new event or exposure was treated as a new case. **This change tends to reduce the number of cases.**

- Under the previous requirements, a cumulative trauma disorder was considered a new case if no care was received for the previous 30 days. The new requirements have no such criteria. In the absence of a new work-related event or exposure, the reappearance of signs or symptoms may be treated as part of the previous case. **This change tends to reduce the number of cases.**

- Under the previous requirements, all work-related illnesses were recordable. Under the new requirement, work-related illnesses are recordable only if they meet the general recording criteria applicable to all injuries and illnesses. **This change tends to reduce the number of cases.**

- Restricted work activity occurs when an employee cannot perform all of his or her routine job functions, which are defined as any duty regularly performed at least once a week. The previous requirements defined normal job duties as any duty the worker would be expected to do throughout the year. **This change tends to reduce the number of cases of restricted work activity.**

- Restricted work activity limited to the day of injury does not make a case recordable. Under the previous requirements, restricted work limited to the day of injury was a recordable case. **This change tends to reduce the number of cases of restricted**

**work activity and may also reduce the total number of cases.**

- The counting of days away from work and days of restricted work activity changed from workdays to calendar days. To the extent that employers previously only counted workdays, **this tends to increase the number of cases of days away from work and days of restricted work activity. This will also increase the number of *days* for both categories.**

- The new criteria allow employers to cap the number of days at 180. Previously, there was no cap on the count of days. This change will not affect the calculation of the median number of days away from work or the distribution of cases by days away from work.

- Changes and clarifications to what is considered first aid (not recordable) and what is considered medical treatment (recordable) may result in slight changes in the number of recordable cases. The new criteria include a comprehensive list of first aid, so that less discretion is needed to know when a case should or should not be recorded. To the extent that different employers may have interpreted treatments and first aid differently, **it is unclear how the total number of recordable cases will be affected**.

- A significant injury or illness diagnosed by a licensed health care provider is recordable, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid or loss of consciousness. This list includes cancer, chronic irreversible diseases, a fractured or cracked bone, or a punctured eardrum. The previous criteria only included fractures and second- and third-degree burns. **This may increase the total number of cases.**

- All work-related needlestick injuries and cuts from sharp objects that are contaminated with another person's blood or other potentially infectious material are recordable as injuries. Previously, these cases were recordable only if they met the criteria for all injuries or if sero-conversion was present. **This will increase the number of reported needlestick cases.**

- Work-related musculoskeletal disorders (WMSDs) are recordable when general recording criteria are met. Previously, WMSDs were recordable under the general criteria or when identified through a clinical diagnosis or diagnostic test. **This tends to reduce the number of WMSD cases.**