Minnesota Workplace Safety Report 2007

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Minnesota Workplace Safety Report 2007

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Executive summary

Minnesota's workplaces became safer for workers during 2007 than they had been for much of the preceding decade. The most recent occupational injury and illness figures show that during 2007, there were an estimated 94,200 recordable injury and illness cases; about 26,100 of these cases involved one or more days away from work. The comparable figures for 2006 were 107,100 total cases and 27,700 days-away-from-work cases. There were 72 work-related fatalities in 2007, a decrease from 78 fatalities in 2006 and 87 fatalities in 2005.

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 $1.61 billion in 2007, about the same as in 2006. In 2006, the average cost of an insured claim was approximately $7,600. 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(CFOI),* both conducted jointly by the Minnesota Department of Labor and Industry and U.S. Bureau of Labor Statistics. ***Because the Occupational Safety and Health Administration changed its injury and illness recordkeeping requirements in 2002 and the Bureau of Labor Statistics changed its industry and occupation classification systems for the 2003 survey, the results for 2002 and later years are not comparable with results for prior years.*** 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 4.6 cases per 100 full-time-equivalent (FTE) workers in 2007, dropping from a rate of 5.1 cases in 2006 and 2005. This represents a 23 percent decrease 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 2.2 cases per 100 FTE workers in 2007, a decrease from the rate of 2.4 cases per 100 FTE workers in 2006 and 2005.

- The rate of cases with days away from work was 1.3 per 100 FTE workers in 2007, unchanged from 2006 and 2005.

- Minnesota's private-sector total recordable case rate and lost-workday case rate have been above the U.S. rates since 1996. For 2007, the total case rate was 4.7 cases per 100 FTE workers for the state versus 4.2 for the nation.

- Minnesota's rate of cases with days away from work has been roughly equal to the national rate since 1996; in 2007, Minnesota's rate was 1.3 cases per 100 FTE workers, compared to the national rate of 1.2 cases.

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

  (1) construction (7.6);
  (2) agriculture, forestry, fishing and hunting (7.3); and
  (3) transportation and warehousing (6.6).

- 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 2007.

- Men accounted for 52 percent of all workers and 59 percent of the injured workers.
- The percentage of injured workers age 55 and older increased from 9 percent in 2000 to 16 percent in 2007.
- Sprains and strains accounted for 43 percent of the cases with days away from work. The second-highest category was soreness and pain, with 10 percent of the cases.
- The back and upper extremities were the most commonly injured body parts, accounting for nearly half the cases.
- The most common injury events were overexertion (often while lifting people or objects), falls and getting struck by objects.
- The injured worker's own motion or bodily position was the most frequent source of injury category, followed by floors and ground surfaces.
- The median number of days away from work remained at five days, with 30 percent of the cases involving only one or two days away from work and 24 percent of the cases involving more than 20 days away from work.

Fatal occupational injuries

The CFOI 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 2007, 72 Minnesotans were fatally injured on the job. For 2003 through 2007, Minnesota had an average of 78 fatal work injuries a year, consisting of approximately 59 wage-and-salary workers and 19 self-employed people.
- Among industry sectors, agriculture, forestry, fishing and hunting recorded the highest number of worker fatalities, with 17. Construction had the second-highest number of fatalities, with 16 cases.
- The most frequent causes of Minnesota's fatal work injuries for 2007 were highway transportation accidents (33 percent) and contact with objects and equipment (22 percent).

Minnesota OSHA activities

During federal-fiscal-year 2008 (October 2007 through September 2008), MNOSHA:

- conducted 2,483 compliance inspections affecting the workplaces of 131,700 workers;
- found violations resulting in the assessment of $3.2 million in penalties;
- conducted 1,135 worksite consultations, affecting the workplaces of 166,900 workers and helping employers avoid $3.3 million in penalties; and
- conducted 885 worksite consultation training visits, plus many other safety and health presentations and seminars.

Contents

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 workplaces became safer for workers during 2007 than they had been for much of the preceding decade. The most recent occupational injury and illness figures show that during 2007, there were an estimated 94,200 recordable injury and illness cases; about 26,100 of these cases involved one or more days away from work. The figures for 2006 were 107,100 total cases and 27,700 days-away-from-work cases. There were 72 work-related fatalities in 2007, a decrease from 78 fatalities in 2006 and 87 fatalities in 2005.

Approximately 260 Minnesota workers were hurt at work or became ill from job-related causes each day during 2007. These injuries, illnesses and deaths exact a toll on workers and employers. Workers' compensation in Minnesota cost an estimated $1.61 billion in 2007, or $1.50 per $100 of covered payroll.[1] This includes indemnity benefits (for lost wages, functional impairment or death), medical treatment, physical and vocational rehabilitation, litigation, claims administration and other system costs.

In 2006 (the most current data available), the average cost of an insured claim was $7,630 (in 2007 dollars) 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 — $33,200.

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 OSHA Integrated Management Information System (IMIS), which MNOSHA Compliance accesses through the Minnesota OSHA Operating System Exchange database (MOOSE). The BLS and CFOI statistics are available through 2007; IMIS statistics are available through 2008.

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. Approximately 5,100 Minnesota employers in the private sector and state and local government participated in the 2007 SOII.

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 employers, sole proprietors, federal government employees, volunteers or family farm workers.[2]

[1] The *Minnesota Workers' Compensation System Report 2007* (http://www.dli.mn.gov/RS/WcSystemReport.asp) provides statistics about workers' compensation benefit costs and is the source of the costs cited below.

[2] Owners and partners in sole proprietorships and partnerships are not considered employees, but corporate officers who receive payment for their services are considered employees.

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 transfer or restriction (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 current 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 assistant commissioner for Safety, Health and Working Conditions of the BLS, who also provides information about steps the BLS is taking to improve the SOII estimates.[6]

[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 2007 relative standard errors, see tables A1 to A4 at www.dli.mn.gov/RS/Excel/blssumtables07.xls.
[6] John W. Ruser, "Examining evidence on whether BLS undercounts workplace injuries and illnesses." *Monthly*

Fatal injuries

BLS, in cooperation with state and other federal agencies, conducts the nationwide CFOI. The CFOI program 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 and IMIS systems. MNOSHA inspectors and consultants enter information following worksite visits. Other data involves records of training presentations, voluntary program participation, and safety grant activity.

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 2007 are available on the DLI Web site 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 2007 are available on the DLI Web site at www.dli.mn.gov/RS/Excel/cfoitables07_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 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/08mnosha_annual report.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.

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

Chapter 6 provides information about MNOSHA 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

Number of injury and illness cases

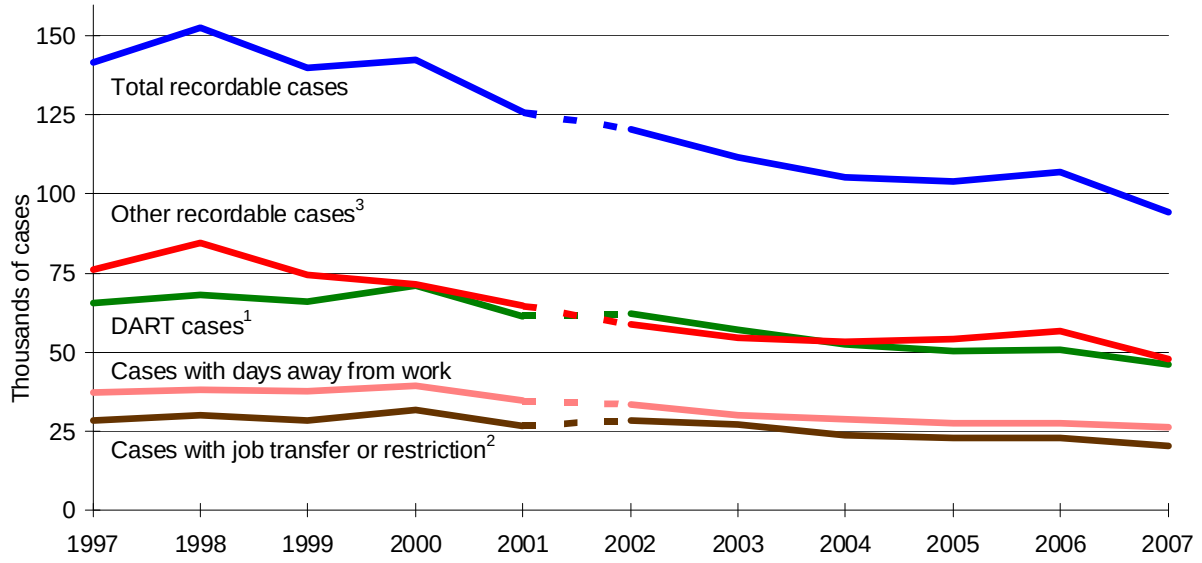
While incidence rates provide standardized measurements of injuries and illnesses, the number of cases shows the magnitude of the occupational injury and illness situation and is an appropriate point for beginning this report.

On the basis of employers' responses to the SOII, there were an estimated 94,200 OSHA-recordable injury and illness cases in Minnesota in 2007.

Figure 2.1 shows estimates of the number of nonfatal injuries and illnesses in Minnesota for 1997 through 2007 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 after 2001.

- From 2003 to 2007, while employment increased 4 percent, the estimated number of recordable cases decreased 16 percent.
- The distribution of cases among the various case types in 2007 was consistent with the distribution in recent years. The number of DART cases dropped below the number of other recordable cases in 2004.

Figure 2.1 Number of injury and illness cases, Minnesota, 1997-2007



Year of injury	Employ-ment (1,000s)	Total recordable cases (1,000s)	Cases with days away from work, job transfer, or restriction (DART)						Other recordable cases[3]	
			Total DART cases[1]		Cases with days away from work		Cases with job transfer or restriction[2]			
			Number (1,000s)	Pctg. of total	Number (1,000s)	Pctg. of total	Number (1,000s)	Pctg. of total	Number (1,000s)	Pctg. of total
1997	2,386	141.8	65.6	47%	37.3	27%	28.3	20%	76.2	53%
2001	2,576	125.8	61.3	49%	34.5	27%	26.8	21%	64.6	51%
2005	2,585	104.1	50.1	48%	27.4	26%	22.7	22%	54.0	52%
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%

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.

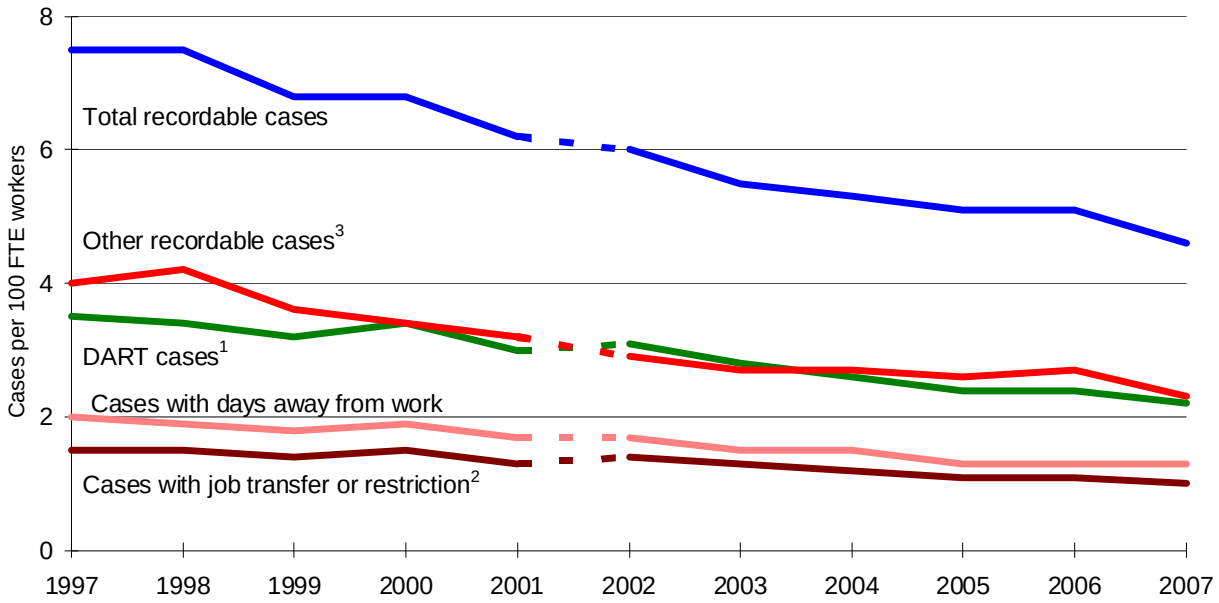
Incidence rate trends

The incidence rates are statewide estimates based on the number of recordable injury and illness cases and the 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 1997 through 2007, expressed as cases per 100 full-time-equivalent (FTE) workers. All sectors, private and public, are included.

Because of the OSHA recordkeeping changes, the 2002 and later estimates are not directly comparable with estimates from earlier years. As in Figure 2.1, there is a break in the data lines after 2001.

- The total case incidence rate started dropping in 1997. Minnesota's 2007 total case rate and DART case rate were the lowest in the history of the state survey.
- The DAFW case rate and the rate for restricted-work-activity-only cases declined after 2002. The DAFW case rate reached its lowest level in 2005 and has maintained this rate for the next two years.
- The most-significant rate decrease in 2007 occurred for other recordable cases, which dropped from 2.7 cases per 100 FTE workers in 2006 to 2.3 cases per 100 FTE workers in 2007. This drop accounted for the majority of the total case incidence rate change from 2006 to 2007.

Figure 2.2 Injury and illness cases per 100 FTE workers, Minnesota, 1997-2007



		Cases with days away from work, job transfer, or restriction (DART)			
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]
1997	7.5	3.5	2.0	1.5	4.0
2001	6.2	3.0	1.7	1.3	3.2
2005	5.1	2.4	1.3	1.1	2.6
2006	5.1	2.4	1.3	1.1	2.7
2007	4.6	2.2	1.3	1.0	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.

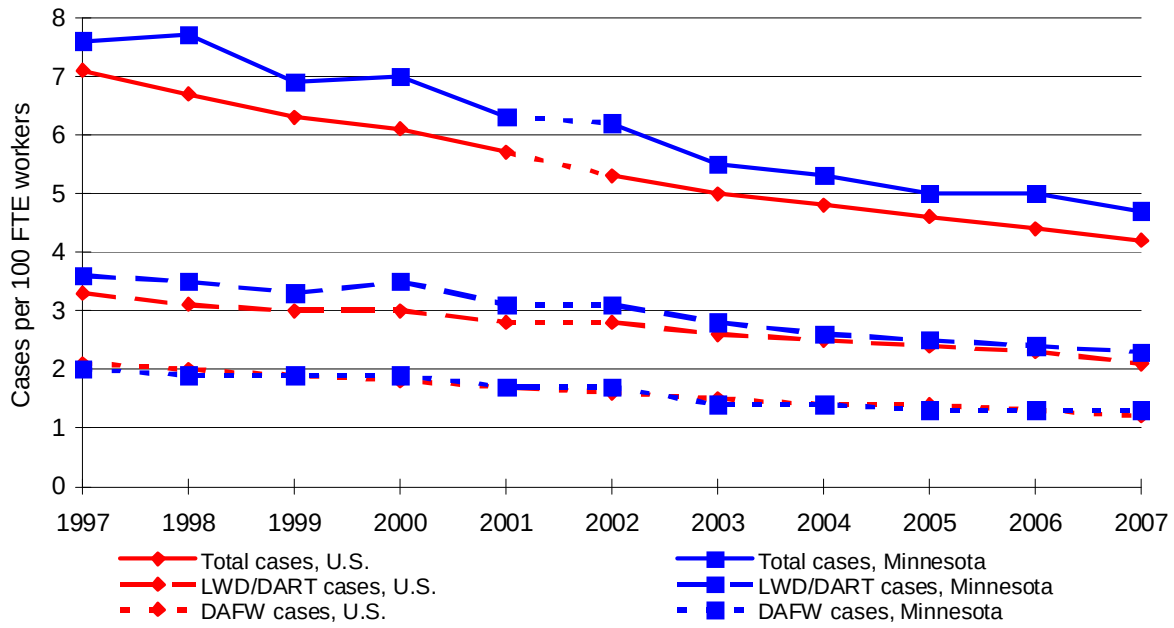
Comparing Minnesota with the nation

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 1997 through 2007.[7]

- Minnesota's 2007 private sector total case rate was 4.7 per 100 FTE workers, while the U.S. rate was 4.2 cases. Minnesota's total case rate has been above the U.S. rate since 1993.
- Minnesota's DART rate for 2007 was 2.3, compared to 2.1 for the United States. Relative to the U.S. rate, Minnesota's lost-workday 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 rates.

Figure 2.3 Injury and illness case incidence rates for Minnesota and the United States, private sector, 1997-2007



	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.
1997	7.6	7.1	3.6	3.3	2.0	2.1
2001	6.3	5.7	3.1	2.8	1.7	1.7
2005	5.0	4.6	2.5	2.4	1.3	1.4
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

1. LWD cases are lost-workday cases (2001 and earlier). DART cases include cases with days away from work, job transfer or restriction (2002-2007).

[7] Participating states have the option to include public-sector worksites in the SOII. Because not all states choose this option, public-sector statistics are not available at the national level.

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 2.4 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 41 states for 2000 and for 42 states in 2005, 2006 and 2007. Lower rates are ranked lower.

- Minnesota maintained a middle-range ranking on all measures.

- Minnesota's 2005 ranking improved noticeably from 2000 for four of the five incidence rates and has remained below the 2000 ranks since then. The ranking for other recordable cases increased in 2006 and dropped again in 2007.

- Total cases can be divided into two broad categories, DART cases and other recordable cases (see Appendix A for definitions of the case types). A low percentage of DART cases among all cases may indicate that employers are recording many low-severity cases on their OSHA logs or the state has a low overall severity level. DART cases comprised 49 percent of Minnesota's recordable cases in 2007, the 14th lowest percentage. This is a large change from 2000, when Minnesota ranked 28th lowest.

These relative rankings must be viewed cautiously because of recent research about the completeness of the case counts compiled through the SOII system (see footnote 6). State-to-state variations in employee injury reporting and employer recordkeeping might affect rates.

Figure 2.4 Ranking of Minnesota's private-sector injury and illness rates with other states (lower rates have lower rankings)

Incidence rate	2000 (41 states)	2005 (42 states)	2006 (42 states)	2007 (42 states)
Total cases	28	21	25	24
DART cases[1]	29	20	21	23
DAFW cases	25	14	17	23
Cases with job transfer or restriction[2]	34	26	26	27
Other recordable cases	25	24	30	26
DART rate as percentage of total case rate	28	15	9	14

[1] For 2000, lost-workday cases (LWD).

[2] For 2000, cases with days of restricted work activity only.

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 for DAFW cases. In 2007, 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 2.5.

An "all other illnesses" category is provided in OSHA log column M6. This is the most-commonly used illness type; in 2007, 58 percent of the illnesses were in this category. Some employers use "all other illnesses" for nontraumatic musculoskeletal disorders (instead of classifying them as injuries). In this section of the report, however, the focus is on the four specific illness categories.

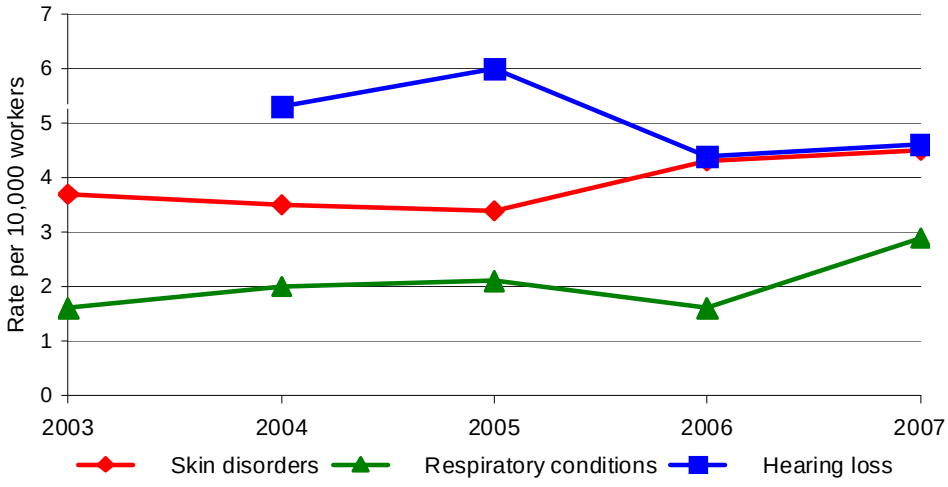
- Skin diseases or disorders are illnesses involving the worker's skin that are caused by work exposure to chemicals, plants, or other substances. Skin disorders are the second-most-common illness type and their rate increased during the past three years.

- 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.

- 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 a baseline audiogram. Hearing loss has the highest incidence rate of the illnesses. The rate for the past two years was lower than the rate for the previous years.

Figure 2.5 Incidence rates for specific illnesses, all recordable cases, Minnesota, 2003-2007



	Skin disorders	Respiratory conditions	Poisoning	Hearing loss
2003	3.7	1.6	1.0	[1]
2004	3.5	2.0	0.1	5.3
2005	3.4	2.1	0.1	6.0
2006	4.3	1.6	[1]	4.4
2007	4.5	2.9	0.1	4.6

1. 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 2007 injury and illness survey shows:

- construction had the highest total case rate, 7.6 cases per 100 FTE workers, followed by education and health services and manufacturing with rates of 5.8 cases. These were also the three highest rate industries in 2006.
- 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 division

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. There are 20 industry 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 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 sector and for all industries combined. Industries are ranked by their total case rate.

- Construction had the highest incidence rates for all cases, for DAFW cases and for other recordable cases.
- Manufacturing tied for the second-highest total case rate and the highest rate for cases with job transfer or restrictions.
- Manufacturing was the only sector with the job transfer or restriction rate higher than its DAFW rate.

Figure 3.2 compares the 2007 rates for each supersector with its respective 2006 rates. The 2007 total case rates were lower than the 2006 rates for 10 of the supersectors and higher in for only two supersectors, financial activities and state government.

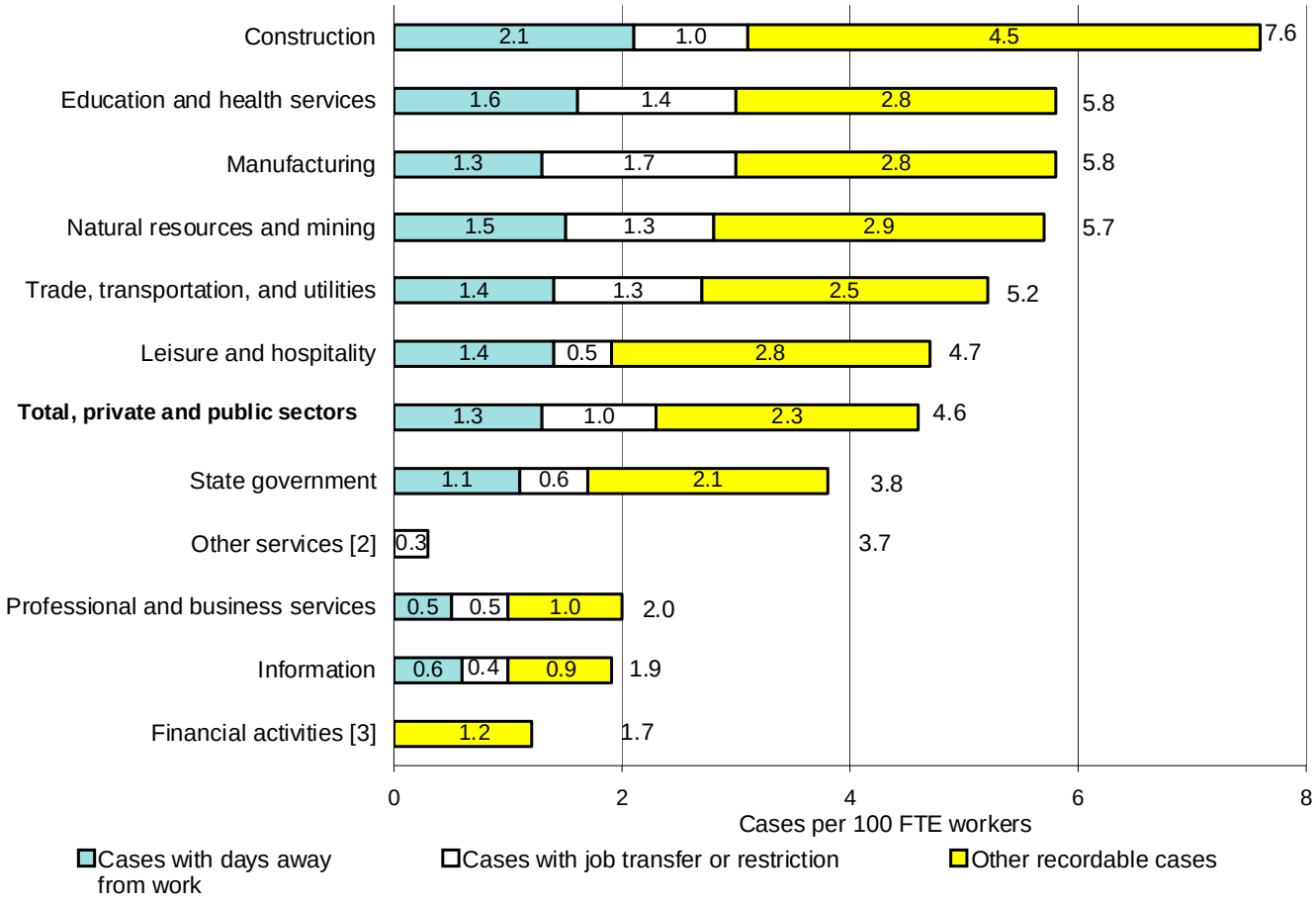
Figure 3.3 compares Minnesota's private-sector 2007 total case incidence rates with the U.S. rate for each supersector. With the exception of professional and business services and information, the Minnesota industry rates were higher than the corresponding U.S. rates. Some of these differences may result from different employment distributions among the constituent industries in each supersector. Only the rate differences for construction and education and health services supersectors in Minnesota were statistically significantly higher than the corresponding U.S. rates.

Figure 3.4 compares Minnesota's private-sector 2007 DAFW case incidence rate with the U.S. rate for each industry supersector. Minnesota had lower DAFW incidence rates than the corresponding U.S. rates for four sectors, had higher rates for four sectors, and had the same rate as the U.S. for manufacturing. The greatest difference between a Minnesota rate and the corresponding U.S. rate was 0.3 cases per 100 FTE workers.

Figure 3.5 compares the percentage of employment (number of workers) for each of the supersectors with the percentage of total cases reported. Cases and employment (measured by total hours worked) are the components for calculating the case rates. The ratio of cases to the number of workers produces different results than the published 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.

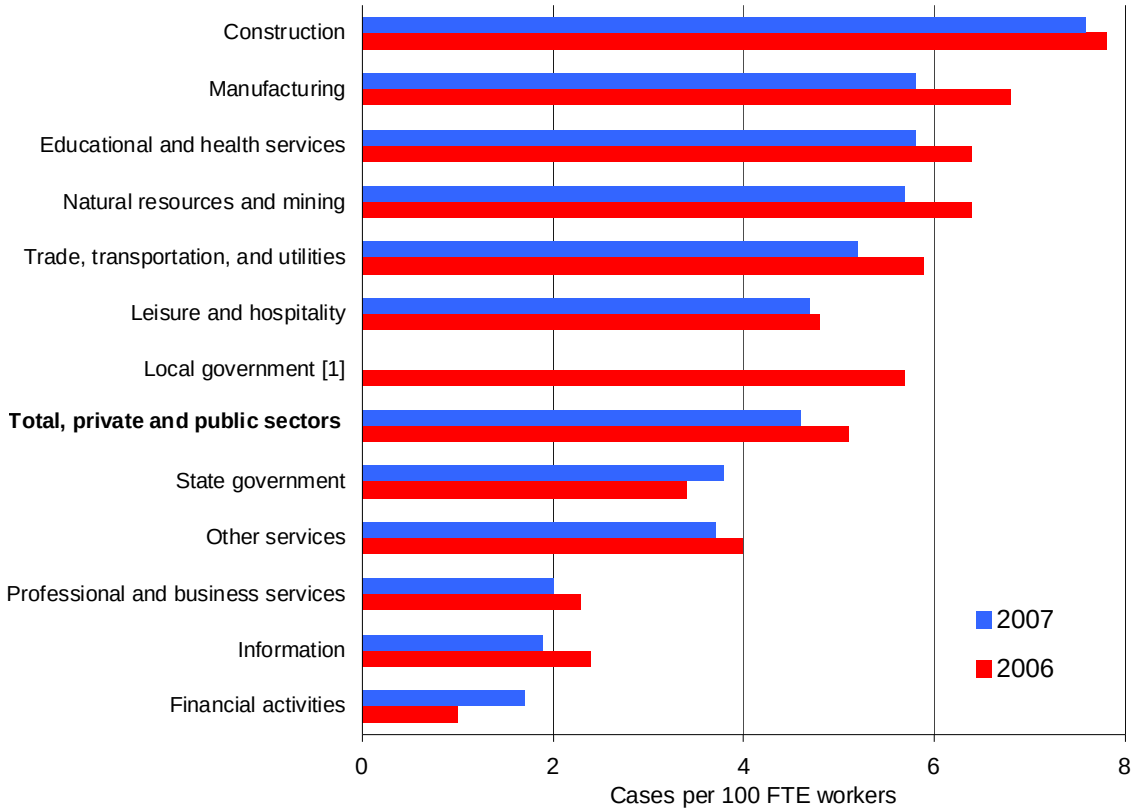
- The percentages of cases and employment changed very little from previous years' percentages.
- Trade, transportation and utilities, with 20 percent of Minnesota's employment, accounted for 23 percent of the cases, the same as in 2006.
- Manufacturing had 21 percent of the cases and was the third-largest employment supersector, with 13 percent of employment.
- Education and health services was the third-highest supersector for total cases (16 percent) and second-largest supersector for employment (15 percent).
- Construction had a noticeably higher percentage of total cases compared to its percentage of total employment, accounting for 8 percent of the cases and 5 percent of employment.

Figure 3.1 Incidence rates by industry supersector, Minnesota, 2007



1. The 2007 estimate for Local government was suppressed due to reporting errors.
2. The estimates for cases with days away from work and for other recordable cases did not meet publication guidelines.
3. The estimates for cases with days away from work and for cases with job transfer or restriction did not meet publication guidelines.

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



1. The 2007 estimate for Local government was suppressed due to reporting errors.

Figure 3.3 Rate of total nonfatal occupational injuries and illnesses per 100 FTE workers by industry supersector, private sector, Minnesota and United States, 2007

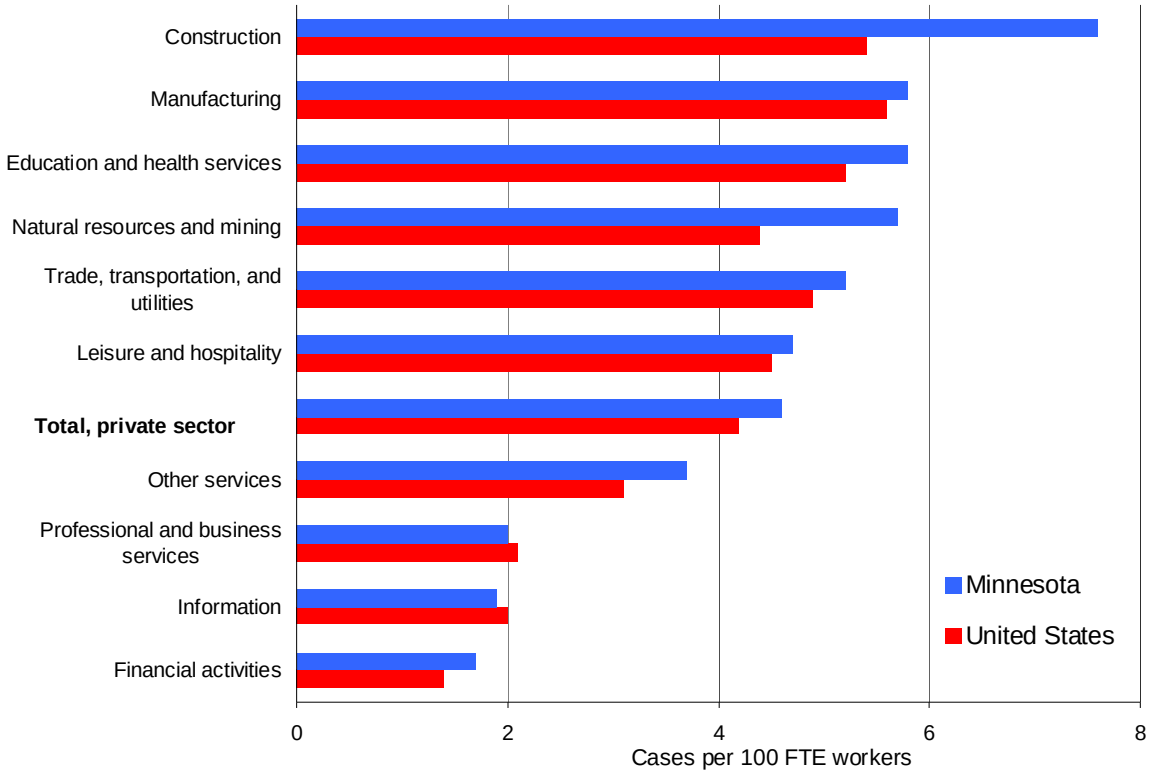
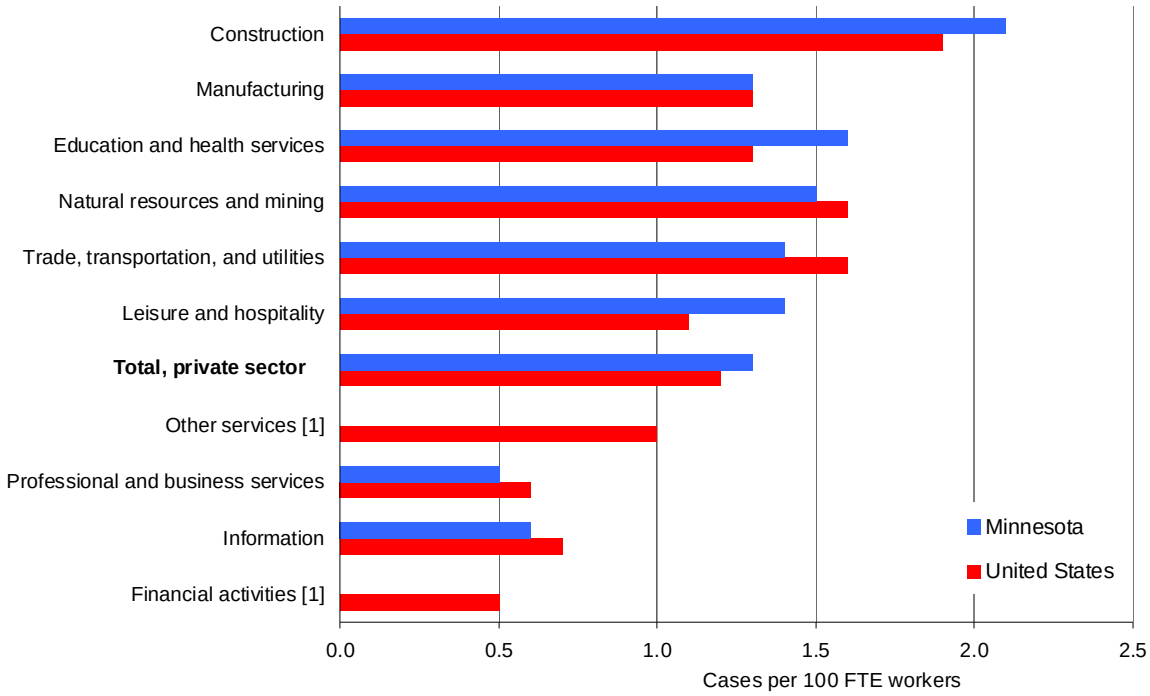
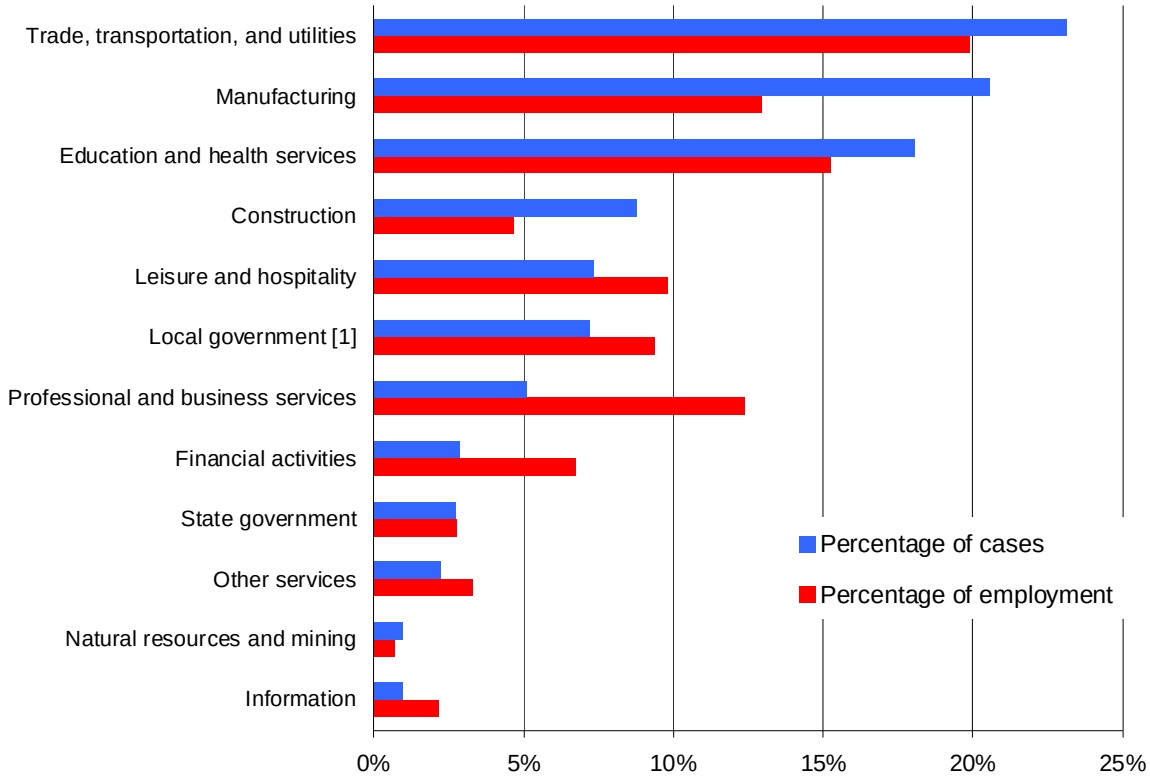


Figure 3.4 Rate of cases with days away from work per 100 FTE workers by industry supersector, private sector, Minnesota and United States, 2007



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

Figure 3.5 Percentage of total cases and employment by industry supersector, 2007



1. Values are estimates to bring the total percentages to 100%.

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, the SOII number of days does 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 the supersectors, this ranged from 21 percent in information to 37 percent in education and health services. The DAFW case rate in education and health services is three times higher than the DAFW rate in information.

- At the other extreme, only 9 percent of the DAFW cases in education and health services had more than 30 days away from work, compared to a high of 31 percent of the DAFW cases in leisure and hospitality.

Figure 3.7 shows the median number of days away from work for 2006 and 2007 by industry supersector. While the median is not as sensitive as the mean to outliers, 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 five days, unchanged since 2000. The median duration varied widely among the industries and by year within industry.

- The median number of days away from work depends on many factors, including the most common types of injuries occurring in the industry, the average age of the injured workers and the ability of employers to provide temporary work or restricted-duty work for injured workers.

- Construction and trade, transportation and utilities had the highest median duration, at seven days.

Figure 3.6 Distribution of days-away-from-work cases by the number of days away from work, Minnesota, 2007

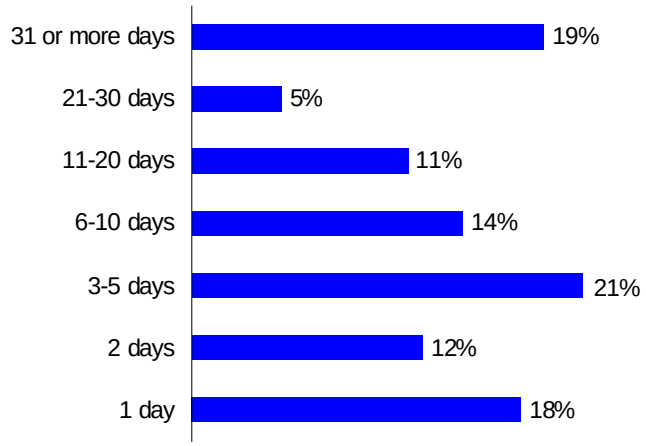


Figure 3.7 Median days away from work by industry supersector, Minnesota, 2006 and 2007

Industry supersector	2006	2007
Construction	7	7
Trade, transportation, and utilities	5	7
Leisure and hospitality	5	6
Manufacturing	5	6
Natural resources and mining	5	6
Information	8	5
Professional and business services	4	5
State government	5	5
Total, private and public	5	5
Education and health services	4	4
Financial activities	9	--
Local government	5	--
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 3.8 shows the industry subsectors (three-digit NAICS classes) with the highest total case incidence rates in Minnesota.

- Six of the 10 subsectors were among the top 10 last year, including the subsectors with the four highest rates.
- Four of the subsectors are in the manufacturing sector (and supersector).
- All three nursing and residential care subsectors are included in the top 10.

The industry subsectors with the highest DAFW *case incidence rates* in Minnesota are shown in Figure 3.9. Seven of the 11 subsectors were on this list last year.

- All three of the nursing and residential care subsectors are included; their rates are similar to last year's.
- Five of the subsectors are part of the transportation and warehousing sector.

Figure 3.10 shows the industry subsectors with the highest *number* of DAFW cases. Only two industries are listed in both figures 3.8 and 3.9.

- These 12 industries accounted for 11,770 DAFW cases, 45 percent of the state's total.
- The industries represent a wide variety of Minnesota workplaces. These 12 subsectors come from eight different industry sectors.

Figure 3.8 Industry subsectors with the highest total case rates, Minnesota, 2007

Industry subsector[1]	Cases per 100 FTE workers
Nursing and residential care (state gov.)	16.0
Nursing and residential care (local gov.)	13.4
Primary metal manufacturing	12.1
Transportation equipment mfg.	10.7
Couriers and messengers	10.6
Waste mgmt. and remediation services	10.6
Beverage and tobacco product mfg.	10.1
Nonmetallic mineral product mfg.	9.8
Warehousing and storage	9.4
Nursing and residential care	9.2

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

Figure 3.9 Industry subsectors with the highest rates of days-away-from-work cases, Minnesota, 2007

Industry subsector	DAFW cases per 100 FTE
Nursing and residential care (state gov.)	7.5
Nursing and residential care (local gov.)	5.9
Transit and ground passenger transp. (local government)	4.7
Waste mgmt. and remediation services	3.5
Couriers and messengers	3.2
Nursing and residential care	3.0
Beverage and tobacco product mfg.	2.8
Primary metal manufacturing	2.7
Warehousing and storage	2.7
Air transportation	2.5
Truck transportation	2.5

All industries are private-sector unless otherwise noted.

Figure 3.10 Industry subsectors with the highest number of days-away-from-work cases, Minnesota, 2007

Industry subsector	DAFW cases[1]
Nursing and residential care	1,820
Hospitals	1,530
Specialty trade contractors	1,480
Food services and drinking places	1,300
Educational services (local government)	1,000
Merchant wholesalers, nondurable goods	740
General merchandise stores	720
Fabricated metal product manufacturing	680
Ambulatory health care services	670
Construction of buildings	610
Truck transportation	610
Merchant wholesalers, durable goods	610

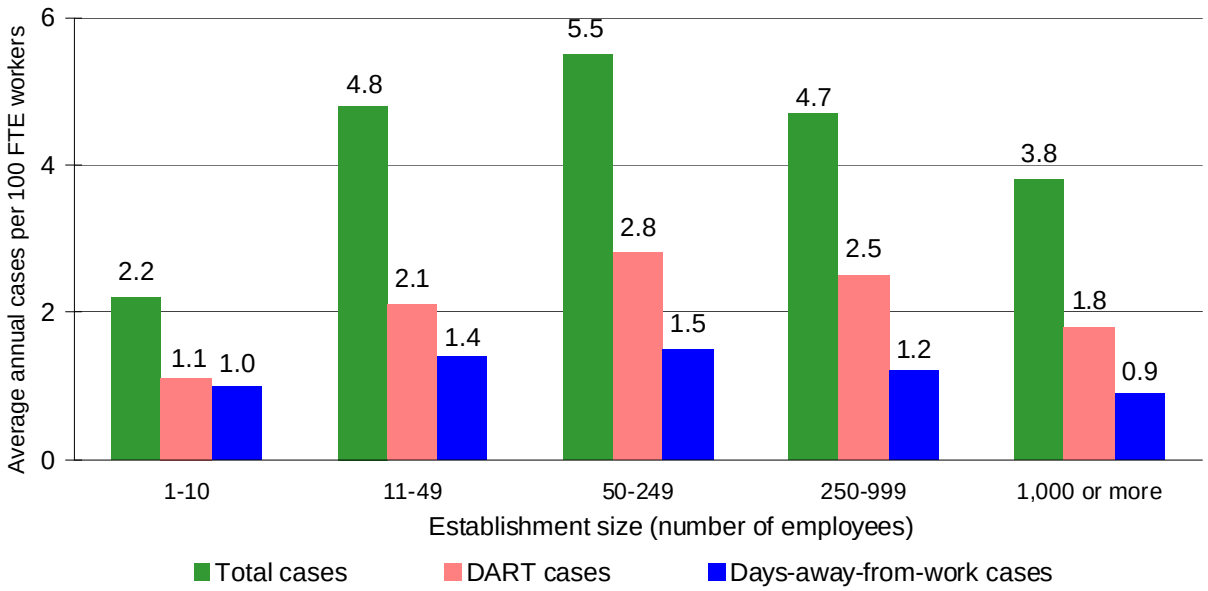
[1] Number of cases is rounded to nearest 10.
All industries are private-sector unless otherwise noted.

Incidence by size

The incidence of reported workplace injuries and illnesses varies by establishment size. Figure 3.11 shows case incidence by case type and establishment size, and presents the total case rates by establishment size and industry. The pattern has been very consistent for many years.

- Incidence rates are lowest for the smallest establishments (one to 10 employees).
- Mid-sized establishments (50 to 249 employees) have the highest rates for all three case types.
- The total case incidence rates decreased from 2006 to 2007 for all size groups. The DART and DAFW case rates decreased for the three groups with more than 50 employees, but the rates increased for establishments with one to 10 employees and were unchanged for establishments with 11 to 49 employees.
- The total case incidence rate for establishments with 1,000 or more workers has decreased steadily for the past few years, dropping from 5.3 cases per 100 FTE workers in 2004 to 3.8 cases in 2007, a 28-percent decrease.
- For nearly all industries, the smallest establishments have lower total case rates than do the midsize establishments.

Figure 3.11 Injury and illness case incidence rates by establishment size, private sector, Minnesota, 2007



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	--	6.3	7.0	4.1	--
Construction	7.6	5.1	9.2	9.5	3.1	--
Manufacturing	5.8	3.2	7.7	6.4	5.4	4.2
Trade, transportation, and utilities	5.2	1.3	4.8	6.9	5.9	6.4
Information	1.9	--	0.6	2.9	2.7	--
Financial activities	1.7	--	--	2.9	0.9	0.7
Professional and business services	2.0	--	3.2	2.6	2.2	1.2
Education and health services	5.8	--	4.5	6.4	7.0	6.5
Leisure and hospitality	4.7	--	--	5.9	7.0	4.5
Other services	3.7	--	--	2.1	--	--
State government	3.8	--	4.8	5.3	2.9	3.1
Local government[2]	5.7	--	8.7	4.5	6.6	5.9

1. Only cells with data meeting BLS publication standards are shown.
2. The 2007 local government totals do not meet publication guidelines; 2006 local government data is used in this table.

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.

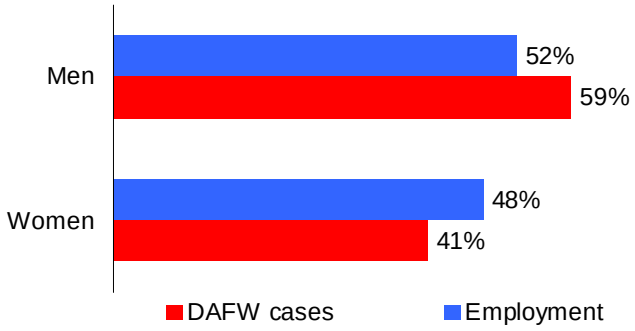
Employers participating in the survey provide descriptions for each DAFW case.[8] DLI Policy Development, Research and Statistics survey staff members code the descriptions into the appropriate categories for injury characteristics.

Worker demographic characteristics

Gender

- The percentage of women among DAFW cases increased from 37 percent in 2006 to 41 percent of the cases in 2007. This percentage is the highest in the history of Minnesota's SOII case and demographic statistics (which started in 1992). Women comprised 48 percent of Minnesota's 2007 employment, unchanged from the previous year.
- The percentage of women among DAFW cases varied greatly by industry. Women accounted for 88 percent of private-sector health care and social assistance cases, but only 3 percent of the construction cases.
- The private industry DAFW case incidence rate per 10,000 FTE workers[9] was 129.8 cases for men and 119.2 cases for women. The incidence rates are closer than the percentage of DAFW cases because women, on average, work fewer hours a week.

Figure 4.1 Gender of all workers and workers with days-away-from-work cases, Minnesota, 2007



[8] 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.

[9] 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.[10]
- 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.[11]
- The age distribution of workers with DAFW cases (Figure 4.2) is very similar to the age distribution of employed workers.[12]
- The percentage of workers with DAFW cases who were younger than age 35 decreased from 44 percent in 1997 to 32 percent in 2007, while the percentage of injured workers who were age 45 and older increased from 25 percent to 46 percent (Figure 4.3). The majority of workers with DAFW cases were younger than age 35 as recently as 1995.
- The incidence rate (per 10,000 FTE workers) for private industry DAFW cases was highest for workers 20 to 24 years old, at 147 cases (Figure 4.4). That group also had the highest rate in 2006, at 173 cases. The lowest DAFW rate was for workers 25 to 34 years old (96 cases). In 2006, the lowest rate was for workers 16 to 19 years old (78 cases), and 25 to 34 year old workers had the second-lowest rate.
- Median days away from work generally increased with age (Figure 4.5). Workers age 65 and older had an average DAFW case rate, but their median number of days away from work (20 days) was 400 percent higher than the overall median (five days).

Figure 4.2 Age of workers with days-away-from-work cases, Minnesota, 2007

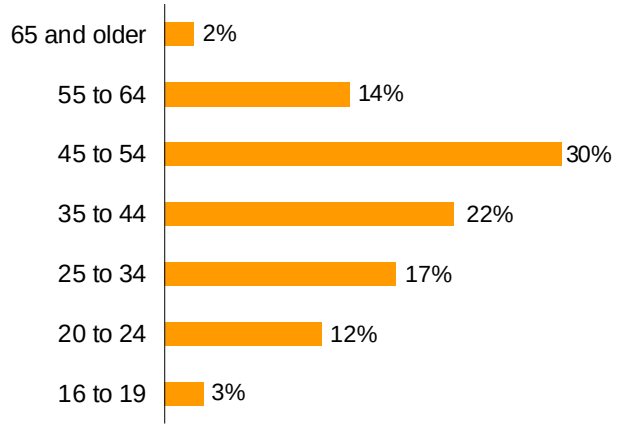


Figure 4.3 Distribution of age of workers with days-away-from-work cases, Minnesota, 1997-2007

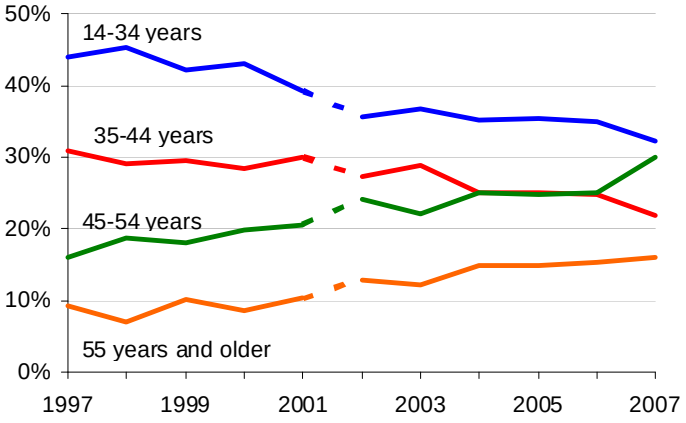
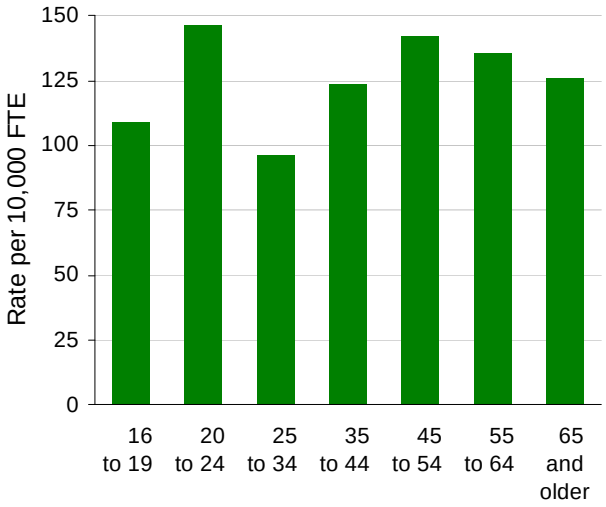


Figure 4.4 Incidence rate for cases with days away from work by age group, Minnesota, 2007



[10] M. Toossi, "A new look at long-term labor force projections to 2050," *Monthly Labor Review*, Nov. 2006, pp 19-39.
[11] This trend has been analyzed using Minnesota workers' compensation data in "Changing worker demographics lead to changing injury characteristics," COMPACT, February 2005.
[12] Current Population Statistics, *Geographic Profile of Employment and Unemployment*, 2007. Bureau of Labor Statistics. www.bls.gov/lau/ptable14full2007.pdf

Race or ethnic origin

Some caution is needed in the analysis of race or ethnic origin, because 28 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.

- Although there were 11,200 fewer DAFW cases in 2007 than in 1997, representing a 30 percent decrease, the number of DAFW cases identifying nonwhite or Hispanic injured workers remained nearly unchanged, with 2,840 cases reported in 1997 and 2,510 cases reported in 2007.

- Nonwhite and Hispanic workers accounted for 14 percent of the cases with a reported race or ethnicity in 2007, compared to 10 percent in 1997 (Figure 4.7). Minnesota's total minority population is estimated at 14 percent of the total population in 2007.[13]

- The reported number of Hispanic workers with DAFW cases in 2007 dropped to its lowest number since 1998. The estimate of 860 cases in 2007 was 23 percent below the estimate for 2006.

- The reported number of DAFW cases among black workers increased by 7 percent from the number for 2006.

Figure 4.5 Median days away from work by age group, Minnesota, 2007

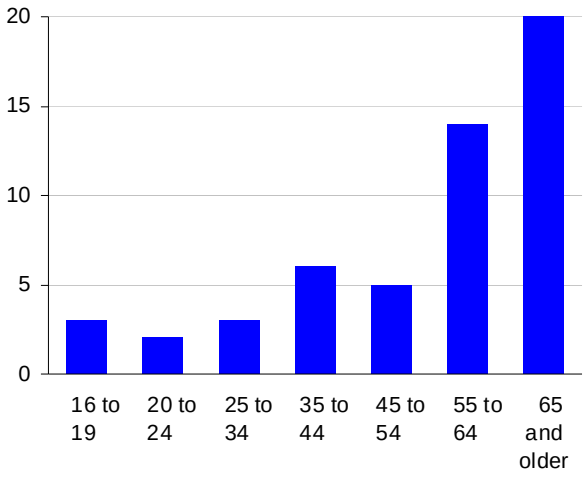


Figure 4.6 Race or ethnic origin of workers with days-away-from-work cases, Minnesota, 2007

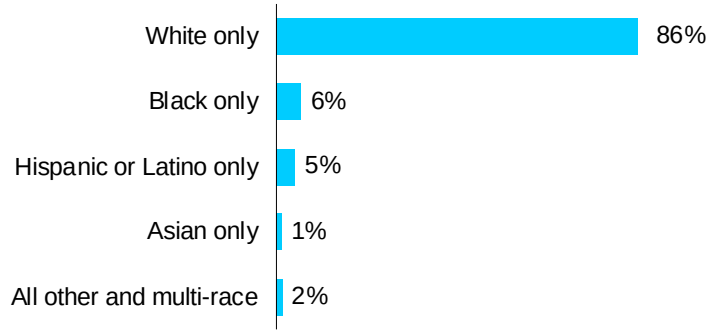
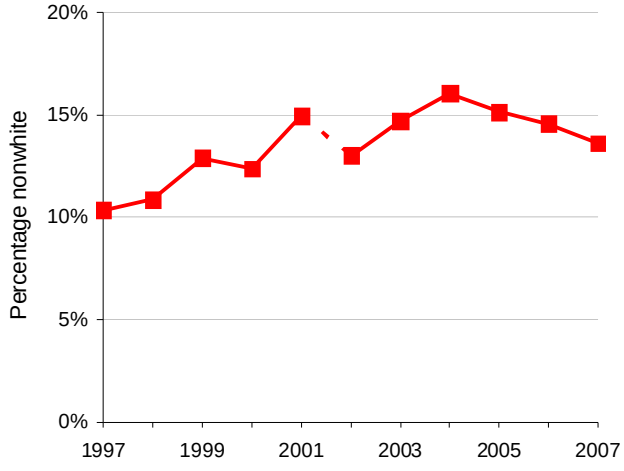


Figure 4.7 Percentage of nonwhite and Hispanic workers among days-away-from-work cases, Minnesota, 1997-2007



[13] *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.

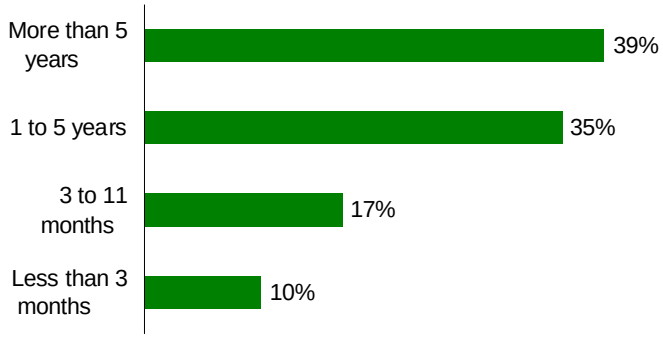
Young workers usually have shorter job tenure than older workers. The general increase in worker age will lead to an increase in the average job tenure of injured workers. Median years of tenure increased from 3.5 years in 2000 to 4.1 years in 2008.

- According to the *Current Population Survey* statistics for January 2008,[14] 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 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 46 percent of the cases in accommodation and food services and for 43 percent of the cases at general merchandise stores, but only 8 percent of the cases in state government.

Figure 4.8 Length of service of workers with days-away-from-work cases, Minnesota, 2007



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

Occupation

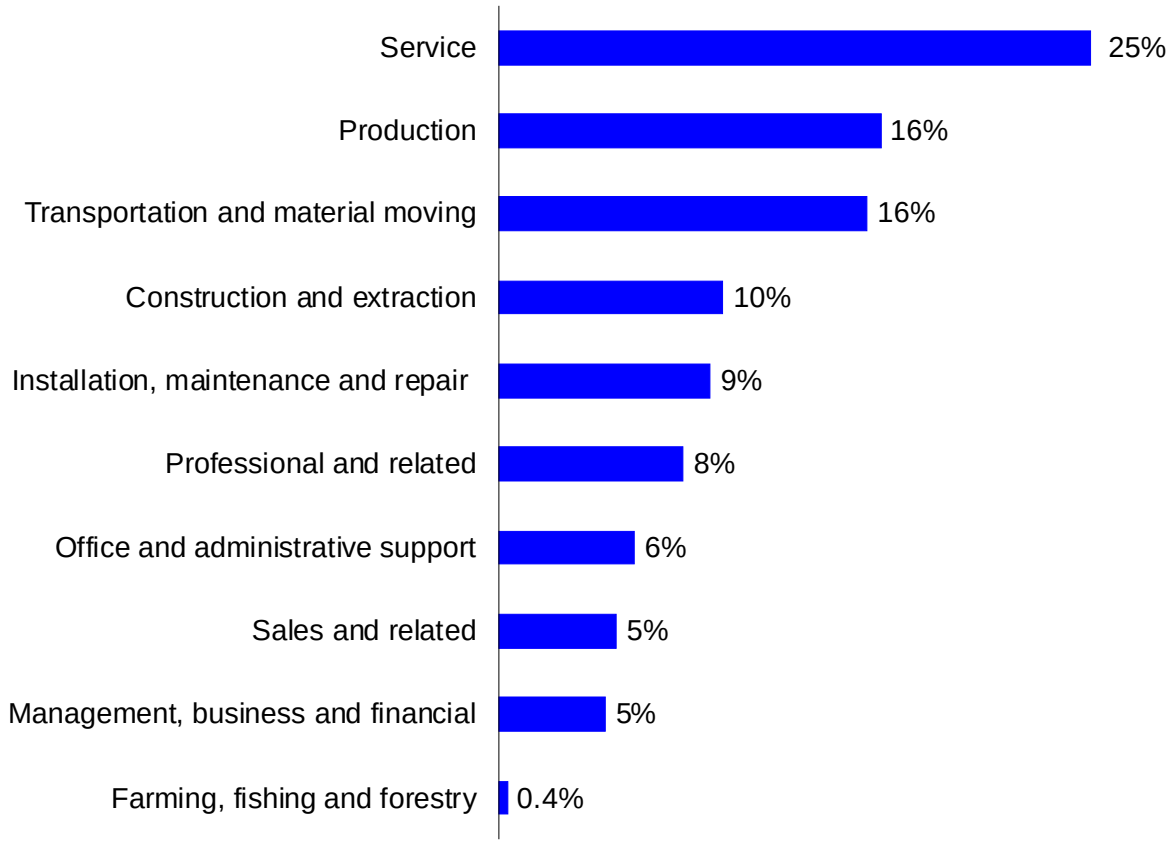
Occupations describe a set of characteristics based on the job duties, skills, education or experience needed to accomplish work tasks. Some occupations are concentrated in certain industries, such as nursing aides working in the hospital and nursing home industries. However, many other occupations, such as management, sales and office support, are found in a wide range of industries.[15] 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.

- Service occupations, such as nursing aides, law enforcement workers, cooks and building maintenance workers, has been the largest occupation category since 2003 (when the current occupation category system was first used).
- Production occupations, the second-largest occupation group among DAFW cases, includes assemblers, food processing workers and woodworkers.

Figure 4.9 Occupation of workers with days-away-from-work cases, private sector, Minnesota, 2007



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

- Transportation and material moving occupations, the third-largest occupation group among DAFW cases, includes truck drivers, airline workers and unskilled manual laborers (nonconstruction).

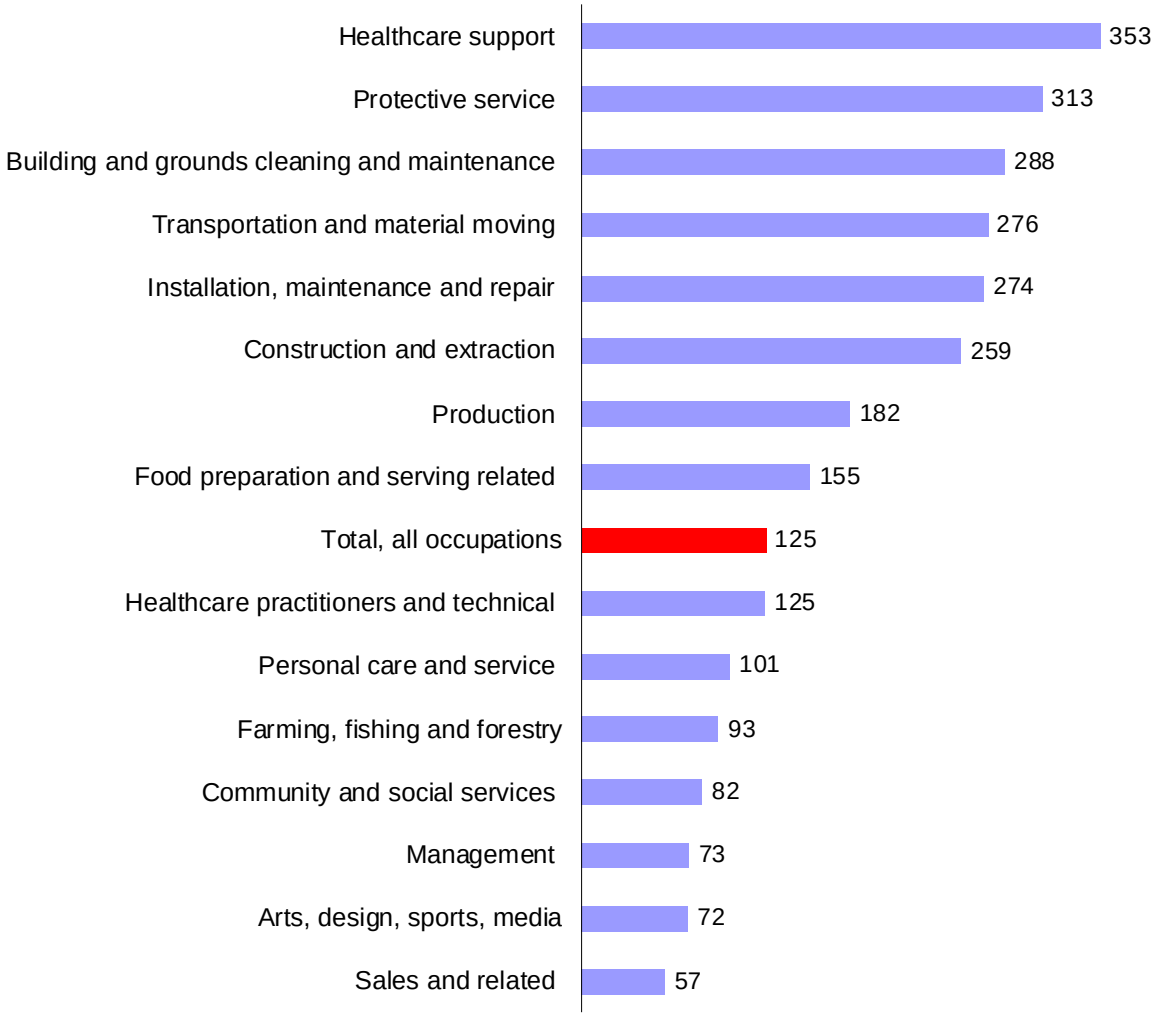
- The differences in occupations in private-sector industries are further revealed by the rate of DAFW cases per 10,000 workers, shown in Figure 4.10. There is a large difference between the six highest-rate occupations and the other occupations shown. This figure also shows the rate for healthcare support 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. Ninety-three percent of the injured workers in the healthcare support occupations are females. The DAFW rate increased 5 percent from the 2006 rate.

- The rate for protective services, the second-highest occupation in 2007, decreased by 22 percent from its 2006 rate.

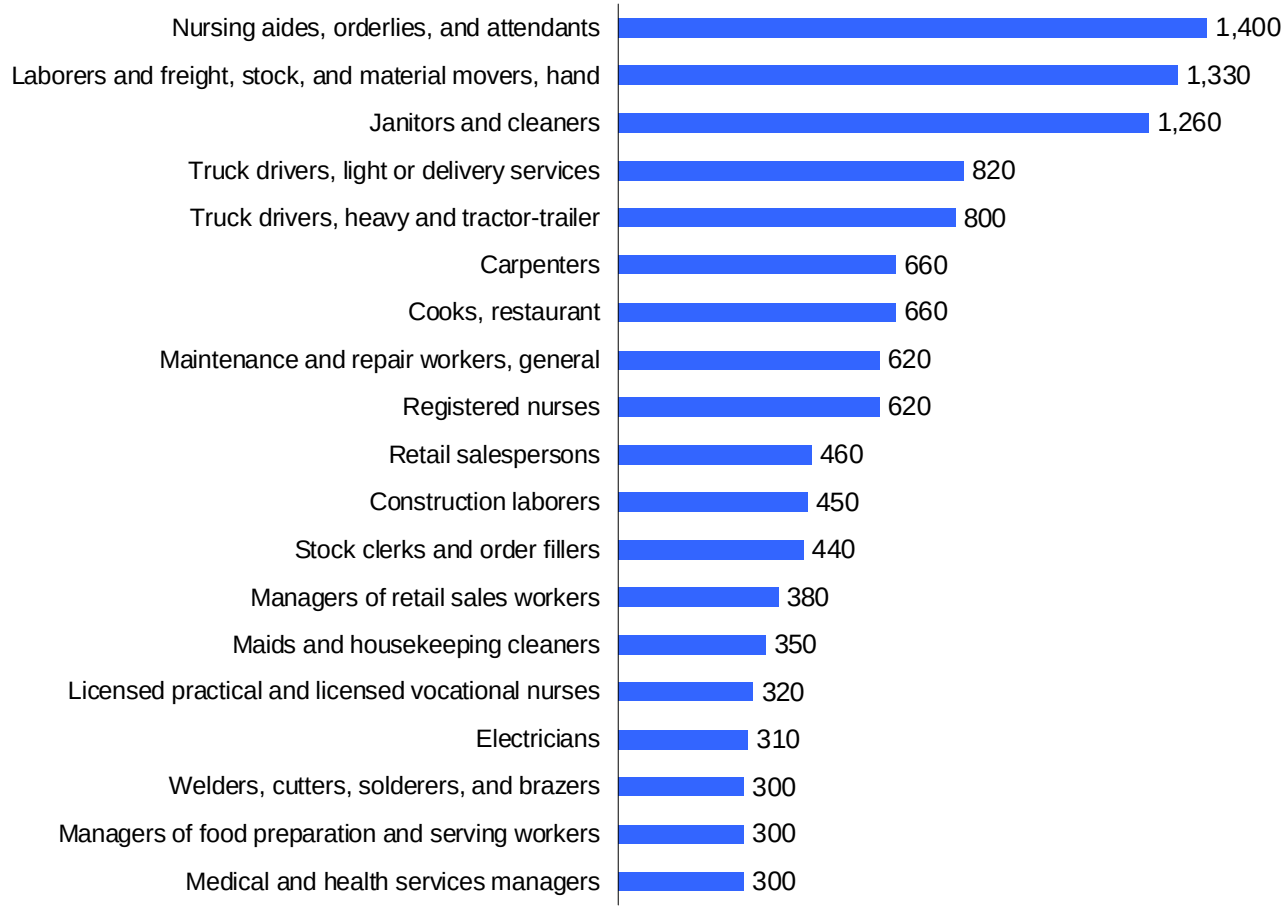
- The rate for building and grounds cleaning and maintenance, the third-highest occupation in 2007, decreased by 26 percent from its 2006 rate.

Figure 4.10 Incidence rates of days-away-from-work cases by occupation group, per 10,000 FTE workers, private sector, Minnesota, 2007



- The detailed occupations with 340 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 15 percent of all DAFW cases.

Figure 4.11 Specific occupations with the highest number of cases, Minnesota, 2007



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 his 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 his back; the event is overexertion while lifting; and the 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 43 percent of the DAFW cases, an increase from 39 percent in 2006, but still well-below the 48 percent average for the 1997 to 1999 period. The number of cases of sprains, strains and tears has dropped by 28 percent since 2001, from 15,500 cases to 11,150 cases in 2007.
- The percentage of cuts, lacerations and punctures decreased from 9 percent in 2006 to 5 percent in 2007.
- Figure 4.13 shows some of the characteristics of private-sector cases with each of the four most-frequent detailed nature of injury codes.
- Fractures stand out from the other three types of injury, because they are more common among workers age 55 and older and result in the longest durations away from work.
- Nearly half of the cuts and lacerations occur to workers younger than 35 years old; only 7 percent of the cases occurred to workers age 55 and older. Of the four most-reported injury types, this category has the highest percentage with less than one year of job tenure and the lowest percentage of women.

Figure 4.12 Nature of injury, Minnesota, 2007

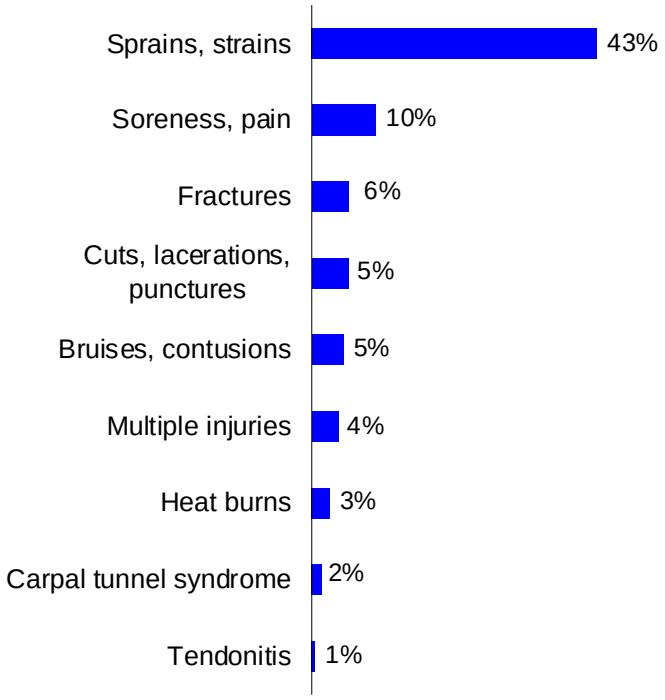


Figure 4.13 Characteristics profiles of cases with the four most-common types of nature of injury, private sector, Minnesota, 2007

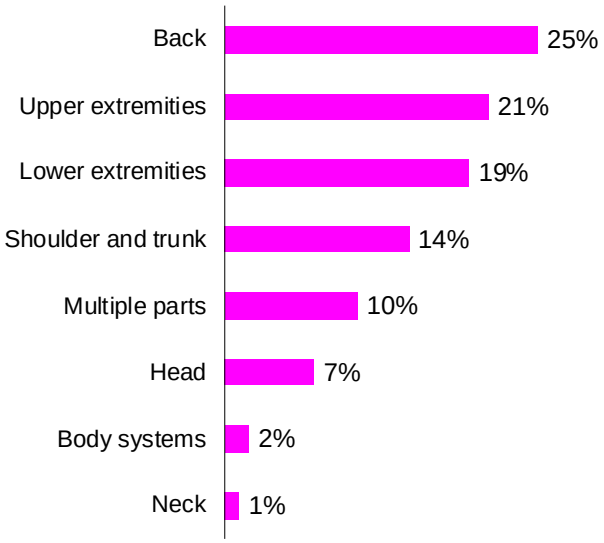
Characteristic	Sprains, strains, tears	Fractures	Cuts, lacerations	Nonback soreness, pain
Total cases	9,640	1,300	1,170	1,160
Women	47%	40%	21%	34%
Age				
34 years or younger	35%	23%	48%	20%
35-44 years	22%	16%	28%	33%
45-54 years	31%	30%	17%	30%
55 years or older	11%	30%	7%	17%
Job tenure				
Less than 1 year	30%	28%	35%	25%
1-5 years	42%	36%	34%	34%
More than 5 years	38%	46%	31%	41%
Median days away from work	5	17	3	13

Part of body

The part of body affected identifies the part of the body directly affected by the previously identified nature of 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.
- The number of cases with back injuries has decreased substantially in recent years, from 9,700 cases in 2002 to 6,400 cases in 2007, a 34 percent decline.
- Among the detailed body part categories, the lumbar (lower) back was the most frequently injured part of the body. Lumbar back injuries are almost entirely sprains or strains, or pain. Overexertion, whether in lifting or the worker's own bodily motion, was the primary cause of lumbar back injuries.

Figure 4.14 Part of body injured, Minnesota, 2007



- 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.
- Finger injuries resulting in days away from work were most often the result of cuts and lacerations, and often involved machinery, hand tools, and parts and materials. These injuries were most common among workers younger than 35 years and much less common among workers 55 years and older.

Figure 4.15 Characteristics profiles of cases with the four most-frequently injured body parts, private sector, Minnesota, 2007

Characteristic	Lumbar back	Multiple body parts	Finger(s)	Wrist(s)
Total cases	3,240	2,210	1,660	1,510
Percent women	48%	49%	43%	62%
Age				
34 years or younger	33%	36%	43%	33%
35-44 years	25%	16%	22%	33%
45-54 years	29%	18%	26%	19%
55 years or older	13%	29%	9%	15%
Job tenure				
Less than 1 year	30%	25%	46%	11%
1-5 years	38%	44%	25%	37%
More than 5 years	32%	31%	28%	52%
Median days away from work	4	5	6	5

Event or exposure

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

- Overexertion continued to account for the largest proportion of cases. The percentage of overexertion cases decreased from 35 percent in 2004 to 30 percent in 2006 and 2007. The number of overexertion cases also decreased, from 9,940 in 2004 to 8,250 in 2007, a 17 percent decrease.
- The total cases for the four most-commonly reported specific events in the private sector (Fig. 4.17) decreased by only 6 percent since 2003, while the total number of DAFW cases dropped by 11 percent.
- The most-common specific event, overexertion in lifting, was most-often cited for lifting containers, health care patients, and parts and materials. These events caused sprains and strains and soreness and pain, most commonly to the back.
- Falls to the floor, walkway or other surfaces commonly resulted in sprains and strains, fractures, and bruises and contusions. The majority of these injuries occurred to women.
- The demographics of workers injured by overexertion in pushing or pulling objects are very similar to the pattern for overexertion in lifting.

Figure 4.16 Event or exposure, Minnesota, 2007

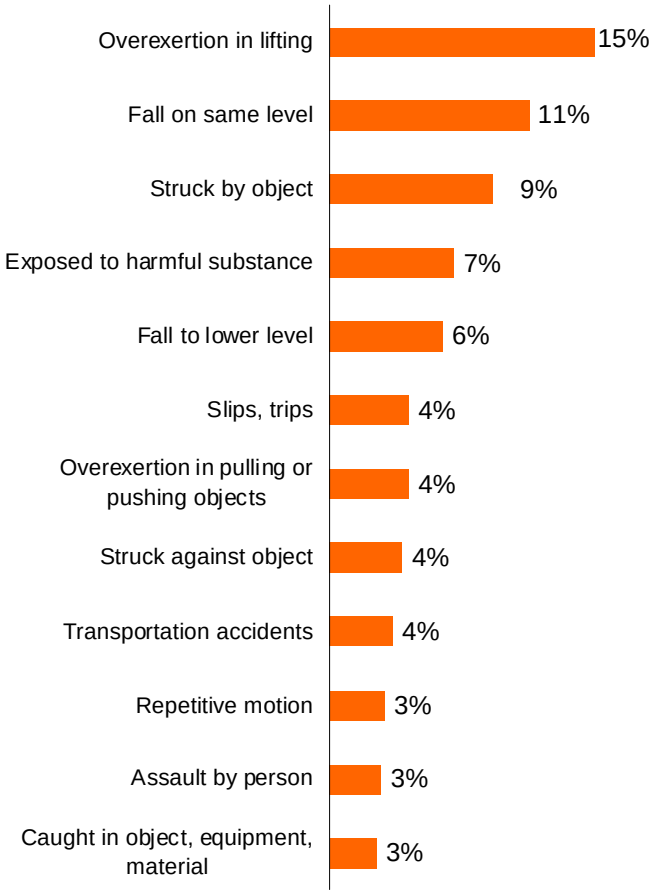


Figure 4.17 Characteristics profiles of cases with the four most-common types of event or exposure, private sector, Minnesota, 2007

Characteristic	Overexertion in lifting	Fall to floor, walkway	Overexertion in pulling or pushing	Slip, trip, loss of balance-- without fall
Total cases	3,480	1,930	1,100	990
Percent women	35%	62%	38%	57%
Age				
34 years or younger	26%	21%	25%	20%
35-44 years	30%	19%	22%	30%
45-54 years	35%	25%	42%	44%
55 years or older	10%	35%	11%	7%
Job tenure				
Less than 1 year	25%	24%	23%	23%
1-5 years	35%	33%	33%	51%
More than 5 years	40%	44%	44%	26%
Median days away	6	7	6	36

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 previously identified injury or illness.

- The worker's bodily motion or position refers to injuries caused by the free motion of the worker's body, which most often results in stress or strain to particular body parts. Injuries due to slips and trips are coded with the worker's bodily motion as the source.
- Floors, walkways and ground surfaces was the most-common source of injury category from 2004 to 2006. Floors, walkways and ground surfaces are often the source of injuries caused by falls.
- The number of DAFW cases caused by containers decreased by 31 percent from 2003 to 2007.
- Women accounted for the majority of the cases for three of the four most-commonly reported detailed source categories (Fig. 4.18). These four source categories accounted for 50 percent of the DAFW cases for women and for 23 percent of the men's cases.
- Among workers with injuries caused by bodily motion or position, half the cases resulted in more than eight days away from work.
- Workers 55 years and older accounted for the highest percentage of workers injured by floors.

- Women accounted for 90 percent of the injuries caused by health care patients. Injuries due to contact with health care patients often happened in the process of lifting or helping move a patient and sometimes were the result of an assault by a patient. Half of the injuries caused by health care patients occurred to workers younger than 35 years.
- Injuries involving boxes, crates and cartons were more likely to involve younger workers, although workers with longer job tenures also had a higher percentage of these cases.

Figure 4.18 Source of injury or illness, Minnesota, 2007

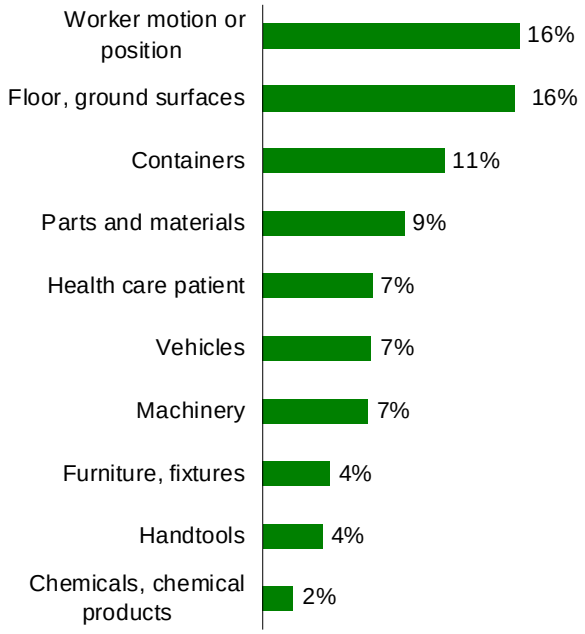


Figure 4.19 Characteristics profiles of cases with the four most-common source of injury or illness, private sector, Minnesota, 2007

Characteristic	Bodily motion or position of worker	Floor of building	Health care patient	Boxes, crates, cartons
Total cases	3,530	1,600	1,560	1,020
Percent women	52%	60%	90%	42%
Age				
34 years or younger	32%	26%	50%	31%
35-44 years	22%	15%	20%	32%
45-54 years	32%	23%	18%	23%
55 years or older	13%	36%	12%	14%
Job tenure				
Less than 1 year	26%	27%	35%	27%
1-5 years	38%	33%	35%	36%
More than 5 years	36%	40%	30%	38%
Median days away	8	6	4	5

Work-related musculoskeletal disorders

BLS uses the SOII results to produce an estimate of the number of cases with work-related musculoskeletal disorders (WMSDs) among the DAFW cases. Although employers do not directly identify WMSDs on the OSHA log, information about the injured body part and the event or exposure is combined to produce this estimate. BLS defines WMSDs 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 WMSD issues (see Appendix A), comparisons with 2001 and earlier years may be the result of a combination of changes in job safety and the effects of the recordkeeping changes.

- Figure 4.20 shows the number of WMSD and non-WMSD cases from 1998 to 2007. The number of DAFW cases with WMSDs in Minnesota has decreased 29 percent since 2002, reaching a low of 9,430 cases in 2007. During this period, non-WMSD cases decreased by 17 percent.

- WMSD cases accounted for 36 percent of the DAFW cases in both 2006 and 2007, below the 40 percent of cases reported in 2002.

- Three industries accounted for 56 percent of the WMSD cases in 2007: manufacturing, retail trade, and health care and social assistance.

- Health care had the highest proportion of DAFW cases with WMSD injuries, with 51 percent, followed by wholesale trade with 40 percent and manufacturing with 39 percent.

- In the private sector, the WMSD incidence rate decreased from 56 cases per 10,000 FTE workers in 2004 to 46 cases in 2007, a 17 percent drop.

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

- WMSD injuries were much less common among workers age 55 and older.

- WMSD injuries were more common among workers with more than five years of job tenure.

- Among the occupation categories, the WMSD rate per 10,000 FTE workers varied from 95 cases, in both installation, maintenance and repair and transportation and material moving, to a low of 21 cases, in both professional and related occupations and office and administrative support.

- WMSD injuries accounted for the largest percentage of DAFW cases among workers in office and administrative support occupations (44 percent), which includes secretaries, receptionists, data-entry keyers and clerks. WMSD injuries may be the primary job hazard for these occupations; they are relatively unlikely to have other types of injuries.

- WMSD cases accounted for only 28 percent of the DAFW cases among workers in construction and extraction occupations. This low percentage is caused by the myriad of other hazards faced by these workers. The incidence rate for this occupation is 72 cases per 10,000 FTE workers, 54 percent higher than the overall private sector WMSD incidence rate.

Figure 4.20 **Number of WMSD and non-WMSD DAFW cases, Minnesota, 1998-2007**

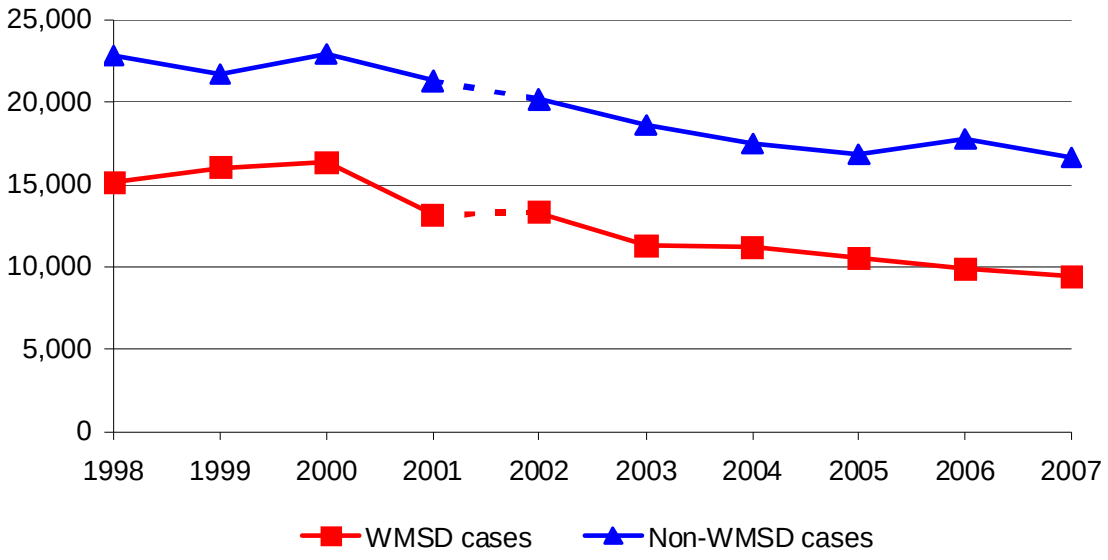


Figure 4.21 **Distribution and incidence of WMSD cases by worker characteristics, Minnesota, 2007**

Characteristic	Number of WMSD cases	Percentage of WMSD among cases in category	Private-sector incidence rate per 10,000 FTE workers
Total:	9,430	36%	46.5
Gender:			
Male	5,280	34%	45.0
Female	4,140	39%	48.8
Age:			
16 to 19	210	32%	32.7
20 to 24	1,020	38%	56.5
25 to 34	1,210	30%	30.9
35 to 44	2,060	42%	53.4
45 to 54	2,630	39%	55.2
55 to 64	830	26%	36.9
65 and older	90	18%	25.9
Length of service with employer:			
Less than 3 months	790	31%	
3 months to 11 months	1,490	34%	
1 year to 5 years	3,010	33%	
More than 5 years	4,120	41%	
Occupation:			
Management, business, financial	340	30%	14.0
Professional and related	790	29%	20.8
Service	2,840	40%	86.6
Sales and related	440	38%	22.0
Office and administrative support	660	44%	21.0
Construction and extraction	710	28%	71.5
Installation, maintenance, and repair	800	36%	94.8
Production	1,500	39%	71.3
Transportation and material moving	1,320	35%	94.6

5
Fatal occupational injuries

In 2007, 72 Minnesota workers were fatally injured on the job. This is a decrease from the78 fatalities in 2006. Nationwide, 5,488 workers were fatally injured during 2007, a 6 percent decrease from the 5,840 fatalities in 2006.

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 in the private and public sectors, 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, killed in an accident in Nebraska, would be counted as a Nebraska CFOI fatality.

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 2007, there were 43 workers' compensation fatality claims, down from 56 fatalities in 2006.

MNOSHA investigates all employee deaths that are under MNOSHA 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) and 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 23 fatality events in 2007, down from 25 cases investigated in 2006. Even though this report does not include analysis of the 2008 CFOI results, it is interesting to note that MNOSHA investigated only 12 fatalities in 2008, its lowest number ever. There were three construction fatality investigations in 2008, compared to nine in 2007.

Number and rate of fatal injuries

- Figure 5.1 shows Minnesota had from 68 to 88 fatal work injuries a year from 1997 through 2007.
- For wage-and-salary workers, the annual fatality toll ranged from 53 to 64.
- For self-employed workers, the annual fatality figure ranged between 15 and 24 fatalities.
- The fatality toll for 2003 through 2007 was 389, with a five-year average of 78 fatalities a year. This consisted of 59 wage-and-salary workers and 19 self-employed workers.
- Fatal injuries for the self-employed were 25 percent of the 2007 total, far higher than the estimated 7 percent self-employed share of total state employment.[16] Nationally, the fatality rate per 100,000 workers in 2007 was 3.3 for wage and salary workers and 9.5 for self-employed workers.
- Figure 5.2 shows the Minnesota fatality rate since 1997. The 2007 fatality rate was 2.6 deaths per 100,000 employed, below the rates for the previous three years. The number of fatalities has varied within a narrow range for the past decade.
- For the entire United States, the fatality rate for 2007 was 3.7 deaths per 100,000 workers, down from a rate of 4.0 in 2005 and 2006, and the lowest national fatality rate ever reported in the CFOI program.

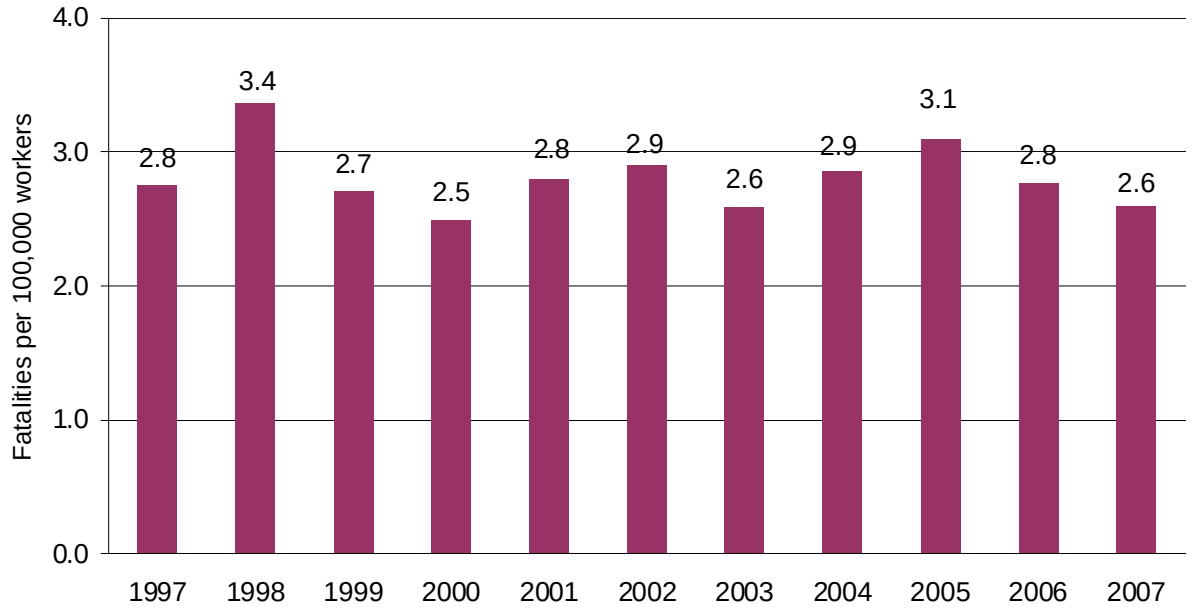
Figure 5.1 Fatal work injuries, Minnesota, 1997-2007[1]

[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
1997	54	18	72
2003	55	17	72
2004	63	17	80
2005	64	23	87
2006	57	21	78
2007	54	18	72
Avg. 2003-2007	58.6	19.2	77.8

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

Figure 5.2 **Fatal work injuries per 100,000 workers,[1] Minnesota, 1997-2007**



1. Rate calculations exclude workers younger than age 16 or in the military.

Fatalities by metropolitan area

The CFOI program also 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 Rochester, Minn., metropolitan area, with twice the population of the Grand Forks, N.D., metropolitan area, has only slightly more fatalities.

Because there are relatively low numbers of fatalities in some of the metropolitan areas, Figure 5.3 shows the combined fatalities for 2003 through 2007.

Figure 5.3 **Number of fatal work injuries for metropolitan areas, 2003 through 2007**

Metropolitan area	Counties	Fatalities
Duluth, MN-WI	MN — Carlton, St. Louis; WI — Douglas	28
Fargo, ND-MN	ND — Cass; MN — Clay	14
Grand Forks, ND-MN	ND — Grand Forks; MN — Polk	14
La Crosse, WI-MN	WI — La Crosse; MN — Houston	15
Minneapolis-St. Paul-Bloomington, MN-WI	MN — Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, Sherburne, Washington, Wright; WI — Pierce, St. Croix	150
Rochester, MN	MN — Dodge, Olmsted, Wabasha	19
St. Cloud, MN	MN — Benton, Stearns	17

Fatalities by industry sector

Figure 5.4 shows the number of Minnesota's fatal work injuries by industry sector for 2007. The five government worker fatalities are distributed among the various industry sectors.

- The highest number of fatal injuries was in agriculture, forestry, fishing and hunting, although its count was down from 23 fatalities in 2006. Agricultural crop production accounted for 13 of the 17 fatalities in this sector and animal production accounted for another three fatalities. Contact with objects and equipment and nonhighway transportation caused 12 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 2007, the number of fatalities was slightly below the average for the previous three years, 19 fatalities. The most common event causing these fatalities in 2007 was falls.
- Transportation and warehousing, the third-highest fatality industry sector, had 12 fatalities, up from eight in 2006. The most-common cause of these fatalities was highway transportation accidents.

Figure 5.4 Number of fatal work injuries by industry sector, Minnesota, 2007

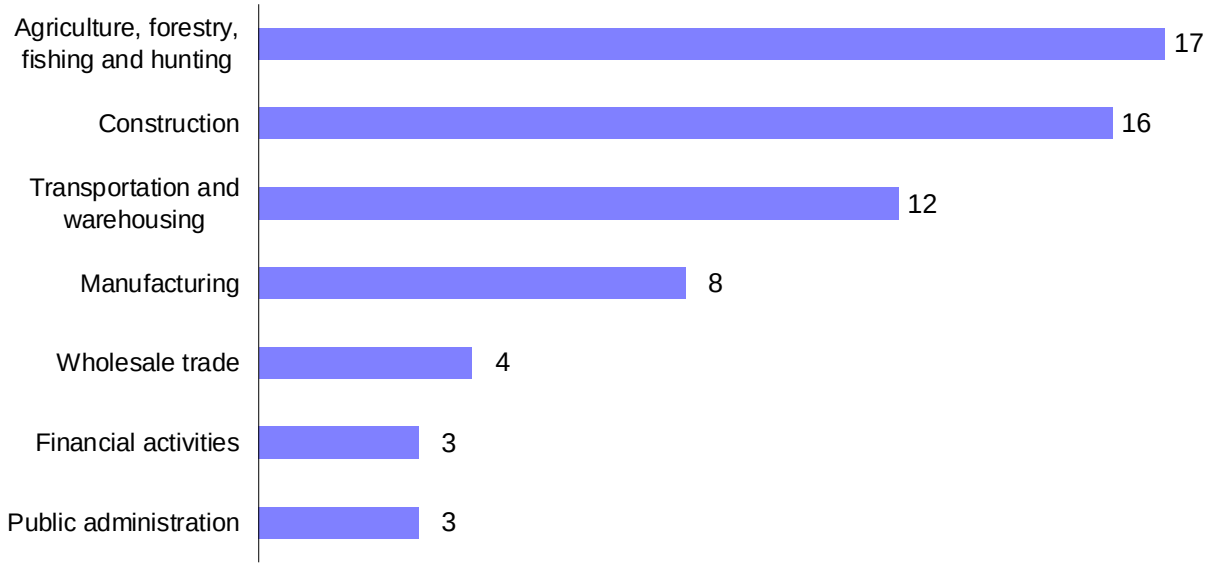


Figure 5.5 Event or exposure causing fatal work injury, Minnesota

Event or exposure	2007		2003-2007	
	Number of fatalities	Percentage of fatalities	Number of fatalities	Percentage of fatalities
Total	**72**	**100.0%**	**389**	**100.0%**
Transportation accidents	**24**	**33.3%**	**146**	**37.5%**
Highway accident	13	18.1%	78	20.1%
Collision between vehicles, mobile equipment	8	11.1%	40	10.3%
Noncollision accident	--		26	6.7%
Jack-knifed or overturned — no collision	--		23	5.9%
Nonhighway accident, except rail, air, water	7	9.7%	36	9.3%
Noncollision accident	5	6.9%	27	6.9%
Pedestrian, nonpassenger struck by vehicle, mobile equipment	--		20	5.1%
Contact with objects and equipment	**16**	**22.2%**	**105**	**27.0%**
Struck by object	6	8.3%	54	13.9%
Struck by falling object	5	6.9%	43	11.1%
Caught in or compressed by equipment or objects	5	6.9%	26	6.7%
Caught in running equipment or machinery	3	4.2%	17	4.4%
Caught in or crushed in collapsing materials	3	4.2%	25	6.4%
Falls	**11**	**15.3%**	**53**	**13.6%**
Fall to lower level	10	13.9%	46	11.8%
Assaults and violent acts	**9**	**12.5%**	**46**	**11.8%**
Assaults and violent acts by person(s)	--		27	6.9%
Exposure to harmful substances or environments	**7**	**9.7%**	**23**	**5.9%**
Contact with electric current	--		10	2.6%
Fires and explosions	**5**	**6.9%**	**15**	**3.9%**

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.

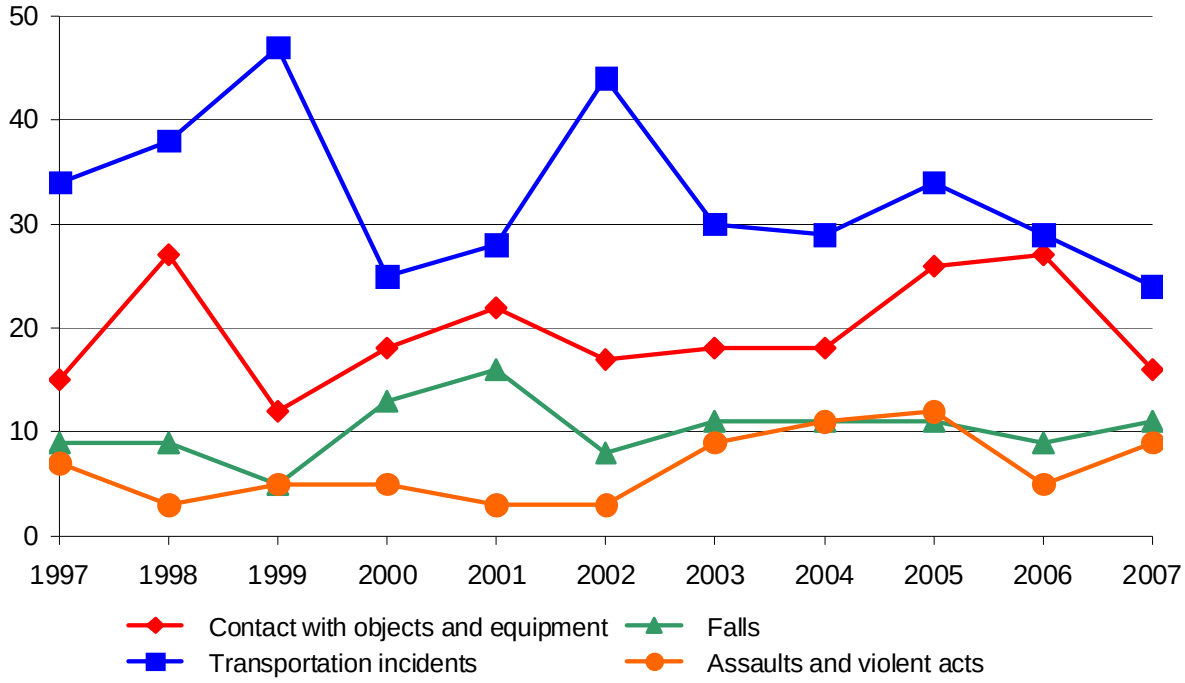
Characteristics of fatal injury events

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 2007 and for the entire 2003 through 2007 period. Overall, the distribution of events in 2007 was very similar to the distribution in the five-year period.

- The most-common event causing fatal injuries in 2007 and for the entire period was transportation incidents, accounting for 33 percent of all fatal work injuries in 2007. These consisted primarily of highway incidents (motor vehicles traveling on roads), but also included nonhighway incidents (motor vehicles on farm and industrial premises) and workers being struck by vehicles.
- The second most-frequent cause was contact with objects and equipment (22 percent in 2007). These cases included workers being struck by an object, caught in or compressed by equipment or objects, such as running machinery, and caught in or crushed by collapsing materials, as in trench cave-ins.
- There were nine fatalities due to assaults and violent acts in 2007, an increase from five fatalities in 2006, but equal to the five-year average.

- Figure 5.6 shows the trend in the numbers of fatalities among the major event categories. The relative order of the events has remained very consistent, with assaults occasionally matching the number of falls.
- The most-common sources of the fatalities were highway vehicles (25 percent), floors, walkways and ground surfaces (15 percent), and parts and materials (14 percent).

Figure 5.6 Number of fatal occupational injury events, Minnesota, 1997-2007



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 2007. Using this multi-year data provides a more stable indicator of the characteristics displayed. Because of the low annual number of fatalities, some characteristcs 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 2007 results do not show important differences from these multi-year results.

Gender

- Men accounted for 94 percent of fatally injured workers in 2007. The 6 percent of fatalities to women was the lowest percentage since 1998. From 1999 to 2006, women have accounted for at least 8 percent of the fatally injured workers.
- Four women were fatally injured in 2007, compared to nine in 2006.

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 53 percent during the 2003 to 2007 period.

Figure 5.7 Gender of fatally injured workers, Minnesota, 1997-2007

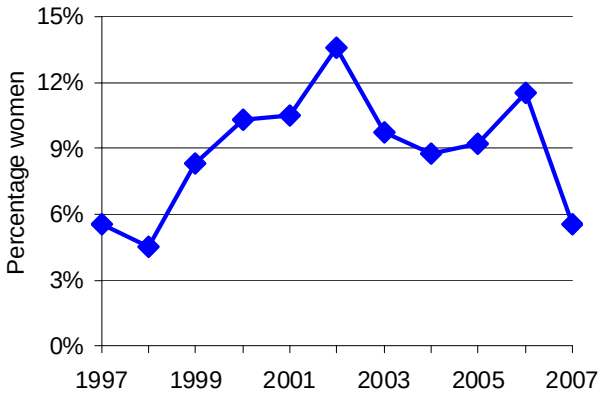
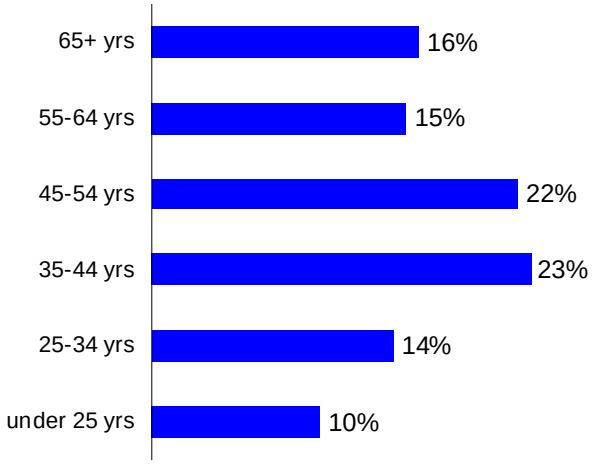


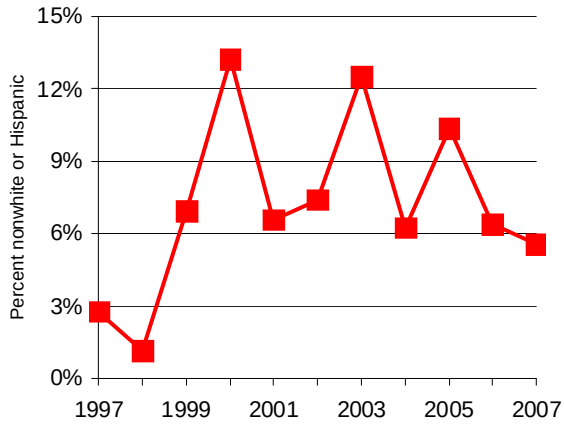
Figure 5.8 Age of fatally injured workers, Minnesota, 2003-2007



Race

- Non-Hispanic white workers accounted for 94 percent of the fatalities in 2007, and for 86 percent of the population (all age groups).[17]
- Since 1999, the percentage of fatalities to nonwhite and Hispanic workers has ranged from 6 percent to 13 percent, with considerable annual variation.

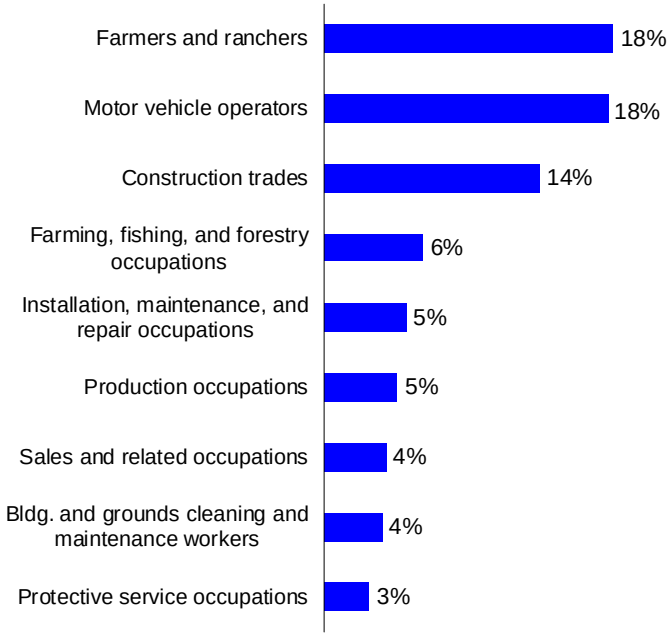
Figure 5.9 Race of fatally injured workers, Minnesota, 1997-2007



Occupation

- Fatally injured workers were concentrated in the occupation groups of farmers and ranchers and motor-vehicle operators.
- Farm and agricultural-related occupations together accounted for 24 percent of the fatalities from 2003 through 2007.
- The most-common occupation among the motor-vehicle operators was heavy and tractor-trailer truck drivers, with 52 fatalities.

Figure 5.10 Occupation of fatally injured workers, Minnesota, 2003-2007



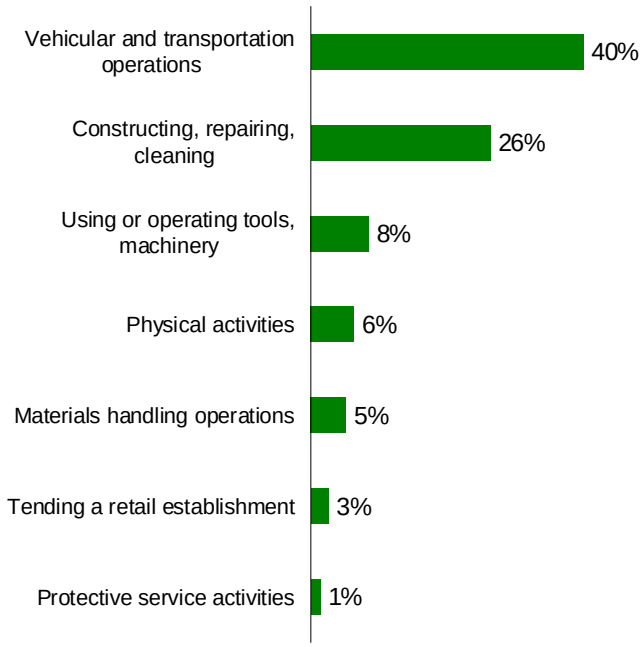
[17] *Minnesota's nonwhite and Latino populations, 2007*, Minnesota State Demography Center, 2008.

Worker activity

The worker activity results indicate the broad category of the fatally injured worker's activity at the time of the event.

- Forty percent of the fatalities from 2003 through 2007 occurred while the workers were operating vehicles.
- Vehicular and transportation operations accounted for 78 percent of the fatalities in transportation and warehousing.
- In agriculture, forestry, fishing and hunting, vehicular and transportation operations accounted for 36 percent of the fatalities, while constructing, repairing and cleaning accounted for 30 percent.
- Constructing, repairing and cleaning was the most-common worker activity among the fatalities in construction, with 53 percent of the fatalities, and the second-most common activity was vehicular and transportation operations with 30 percent of the fatalities.

Figure 5.11 Activity of fatally injured workers, Minnesota, 2003-2007

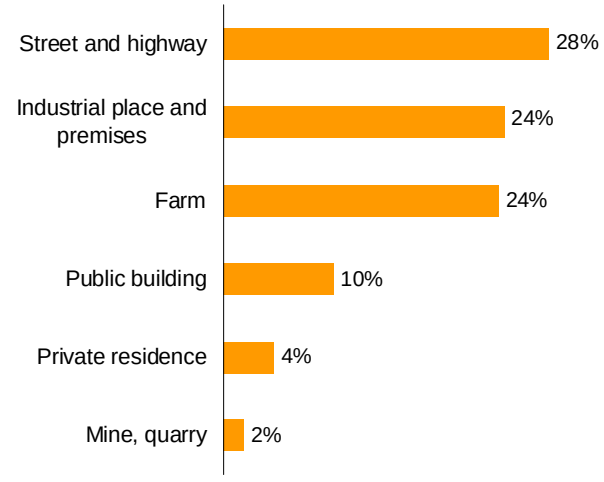


Location

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 third-most-common event location for fatalities.

Figure 5.12 Fatal incident location, Minnesota, 2003-2007



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 (which target 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) 1998 through 2008. More statistics describing MNOSHA activity are available from the MNOSHA annual report, on the Web at www.dli.mn.gov/OSHA/PDF/annualreport08.pdf.

- During the most recent five-year period, FFY 2004 through FFY 2008, an average of 2,600 inspections were conducted annually, covering an average of 118,500 workers (Figure 6.1). MNOSHA Compliance conducted 2,483 inspections in FFY 2008, resulting in the identification of 4,225 violations of OSHA standards.

- During FFY 2008, 67 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 78 percent of the safety violations and for 69 percent of the health violations cited in FFY 2008. The average penalty for these violations was $782.

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

- The construction industry accounted for 38 percent of the inspections and for 25 percent of the violations. Ninety-four percent of the construction compliance visits were for planned, programmed inspections.

- Manufacturing accounted for 33 percent of the inspections and for 46 percent of the violations. Of the manufacturing compliance visits, 99.8 percent were for planned, programmed inspections.

- MNOSHA Compliance initiated inspections for 12 fatalities during calendar-year 2008 and for 23 fatalities during 2007 (Figure 6.3).

- From 2004 through 2008, 38 percent of the fatality investigations were in the construction industry. Falls and crushing incidents accounted for 43 percent of the fatalities investigated.

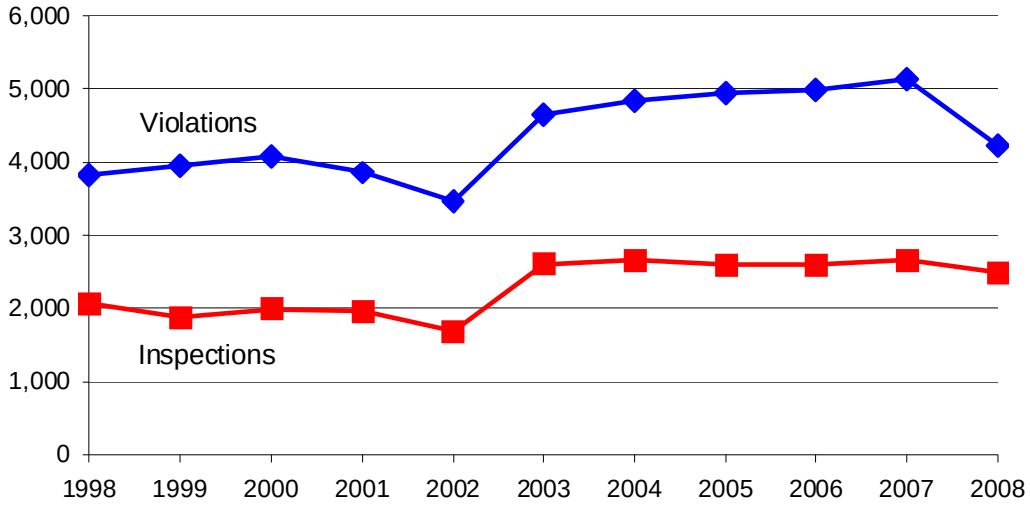
- Figure 6.4 shows that MNOSHA Compliance initiated inspections for 43 serious-injury incidents during 2008 and for 37 incidents during 2007. From 2004 through 2008, 55 percent of the serious injuries investigated involved workers injured by falls and crushing incidents and injuries resulting in amputation. Additional details about the fatality and serious injury incident investigations are available at www.dli.mn.gov/OSHA/Information.asp.

- MNOSHA Compliance also performs outreach activities, which are discussed later in this chapter.

- Construction safety is a major focus for both the inspections and outreach efforts. During FFY 2008, 40 percent of programmed inspections were conducted at construction worksites. Four construction-safety breakfasts were organized, with 283 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, 129 employers have entered the 75/25 program and 98 employers have completed the program by the end of FFY 2008. Of these, 52 employers successfully achieved the 25 percent claims reduction. Information is on the Web at www.dli.mn.gov/OSHA/75-25Program.asp.

Figure 6.1 MNOSHA Compliance inspections, federal fiscal years 1998-2008[1]

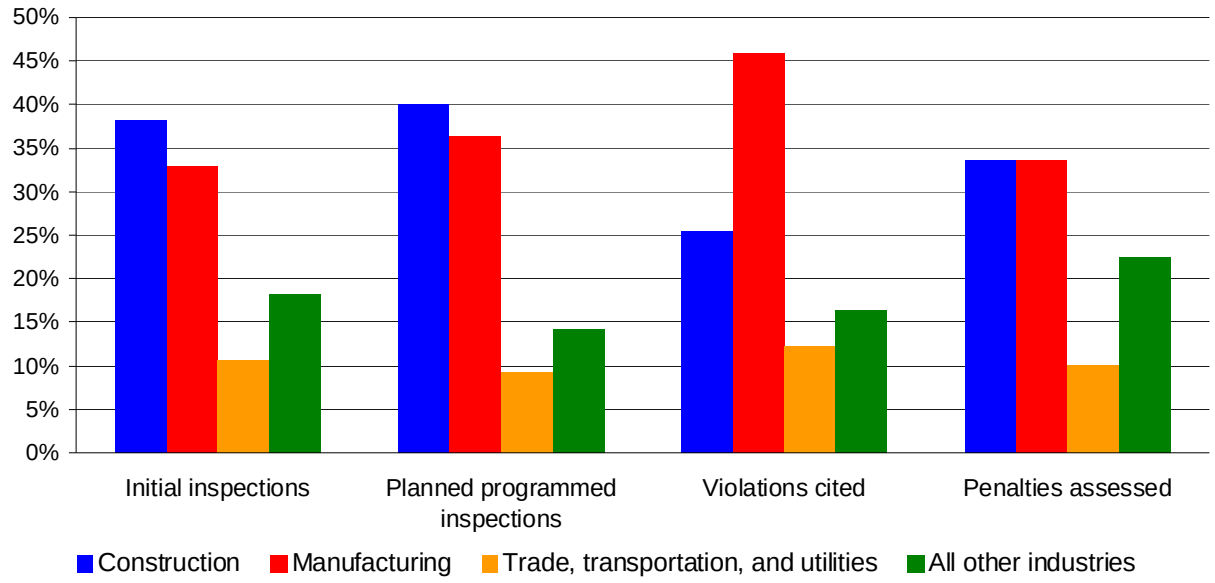


Federal fiscal-year [1]	Inspections conducted	Employees covered [2]	Inspections with violations	Violations	Penalties assessed ($ millions)[3]
1998	2,062	73,898	1,291	3,829	$2.76
1999	1,876	103,029	1,255	3,957	$3.15
2000	1,991	84,575	1,368	4,068	$3.28
2001	1,953	73,451	1,342	3,855	$3.29
2002	1,691	68,113	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

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 2008



Industry	NAICS code(s)	Initial inspections	Planned programmed inspections	Violations cited	Penalties assessed[1]
Natural resources and mining	11, 21	11	7	14	$ 30,875
Agriculture, forestry, fishing and hunting	11	10	6	14	$ 30,875
Construction	23	991	932	1,117	$ 1,154,225
Manufacturing	31-33	850	848	2,011	$ 1,153,675
Trade, transportation, and utilities	42-49,22	274	217	539	$ 348,225
Wholesale trade	42	162	148	406	$ 272,625
Retail trade	44-45	59	36	80	$ 40,600
Transportation and warehousing	48-49	43	24	33	$ 18,350
Utilities	22	10	9	20	$ 16,650
Information	51	15	12	15	$ 11,100
Financial activities	52-53	14	4	25	$ 66,575
Professional and business services	54-56	42	21	46	$ 50,100
Education and health services	61-62	116	88	179	$ 235,425
Health care and social assistance	62	50	34	90	$ 155,275
Leisure and hospitality	71-72	33	18	36	$ 27,875
Other services	81	33	7	72	$ 32,900
State government	all	15	8	14	$ 10,500
Local government	all	195	168	322	$ 310,525

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

Figure 6.3 MNOSHA Compliance-inspected fatalities, 2004-2008

Fatality type	2004	2005	2006	2007	2008	**Total 2004-2008**
Asphyxiation/chemical exposure	0	1	2	3	1	**7**
Burn	2	0	1	2	0	**5**
Crushed by	7	12	9	5	6	**39**
Drowning	2	0	0	1	0	**3**
Electrocution	2	2	2	1	2	**9**
Explosion	4	0	0	1	0	**5**
Fall	3	9	4	4	2	**22**
Heat exposure	0	0	0	1	0	**1**
Natural causes	0	1	1	0	0	**2**
Struck by	3	2	6	5	1	**17**
Total	**23**	**27**	**25**	**23**	**12**	**110**
Percent in construction	39%	48%	32%	39%	25%	38%

Figure 6.4 MNOSHA Compliance-inspected serious injuries, 2004-2008

Serious-injury type	2004	2005	2006	2007	2008	**Total 2004-2008**
Amputation	5	4	6	1	4	**20**
Asphyxiation/chemical exposure	2	1	0	1	6	**10**
Burn	4	1	3	1	1	**10**
Crushed by	6	10	2	6	8	**32**
Electrical shock	1	4	3	4	5	**17**
Environmental stress	0	1	0	0	0	**1**
Explosion	1	4	2	1	4	**12**
Fall	4	5	12	14	8	**43**
Struck by	3	3	7	9	7	**29**
Total	**26**	**33**	**35**	**37**	**43**	**174**
Percent in construction	23%	42%	37%	41%	33%	36%

Figure 6.5 shows the most-commonly cited OSHA standards violations in 2008 for general industry and for construction. These are very similar to the list of citations for previous years.

- Violations associated with the A Workplace Accident and Injury Reduction (AWAIR) Act have been at or near the top of the list 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 — also 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 — 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 2008

Standard[1]	Description	Times cited
General Industry		
MN Rules 5206.0700 subp.1(B)	Employee Right-To-Know written program deficiencies	184
MN Statutes 182.653 subd. 8	A Workplace Accident and Injury Reduction (AWAIR) program	166
MN Rules 5206.0700 subp.1	Overall Employee Right-To-Know training program	142
29 CFR 1910.147(c)(6)(i)	Periodic inspections of energy control procedures (lockout/tagout)	116
29 CFR 1910.151(c)	Emergency eyewash/shower facilities	113
29 CFR 1910.147(c)(4)(i)	Development and use of lockout/tagout procedures	107
29 CFR 1910.212(a)(1)	Machine guarding — general requirements	96
MN Rules 5206.0700 subp.1(G)	Employee Right-To-Know training frequency	89
29 CFR 1910.134(a)(2)	Respiratory protection program	88
MN Rules 5205.0116 subp. 1	Forklifts — monitoring for carbon monoxide	72
Construction		
1926.501(b)(13)	Fall protection — residential	109
29 CFR 1926.652(a)(1)	Use of sloping or protective systems to prevent excavation cave-ins	95
MN Statutes 182.653 subd. 8	A Workplace Accident and Injury Reduction (AWAIR) program	82
29 CFR 1926.501(b)(1)	Fall protection in construction — general requirements	71
29 CFR 1926.451(g)(1)	Fall protection on scaffolds above 10 feet	69
29 CFR 1926.501(b)(11)	Fall protection on steep roofs	67
MN Statutes 182.653 subd. 2	General Duty Clause — unsafe working condition	57
29 CFR 1926.501(b)(10)	Fall protection for roofing work on low-slope roofs	53
1926.651(k)(2)	Inspections of excavation operations by a competent person	45
1926.100(a)	Head protection	40

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 database.

Partnerships

MNOSHA Compliance continues to support and strengthen relationships with organizations that represent safety and health best practices. MNOSHA Compliance currently has four partnerships. The partnerships target high-hazard industries with a history of serious injuries and illnesses.

Construction Health and Safety Excellence (CHASE)-Minnesota – Associated General Contractors of Minnesota/Associated Building Contractors (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. Regular audits are conducted. There are three levels of participation in the CHASE/ABC partnerships.

Ford
MNOSHA, the UAW International Union, and the Ford Motor Company are committed to providing Ford employees a healthful and safe workplace and to demonstrate leadership, responsibility and accountability in furthering worker health and safety improvements. The goal is to reduce recordable injuries and illnesses at each Ford plant through the creation of a pro-active health and safety culture and a cooperative non-adversarial relationship that optimizes the resources of all parties. This partnership includes all states in federal Region V.

I-35W Bridge Construction
Safety on the I-35W bridge replacement project was managed through a partnership involving MNOSHA, the Minnesota Department of Transportation, Flatiron/Manson and other subcontractors. The partnership was dedicated to the safety and health of all employees throughout the project.

MNOSHA Compliance assigned at least two compliance assistance positions to work with the safety and health representatives of the safety partners. These compliance officers assisted with the identification of hazardous conditions and potential abatement solutions during this project. MNOSHA personnel conducted over 100 safety audits and identified more than 500 serious hazards between December 2007 and October 2008.

With zero injuries being the ultimate goal of the project, a strategy was developed that included conducting a daily job hazard analysis prior to any work being conducted, which was communicated to all employees involved. Additionally, daily safety inspections were conducted by on-site safety personnel and weekly safety inspections were conducted by the partners for all contractors and subcontractors.

More than 700,000 hours were logged by the construction workers between August 2007 and October 2008, with only one DART injury.

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. Training and assistance visits take place within one year of an initial or follow-up consultation visit, following a hazard assessment, while training interventions are not linked to a previous WSC consultation. During FFY 2008, WSC conducted 1,630 worksite safety and health visits, training and assistance visits and interventions.

WSC safety and health professionals conduct the 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. Employers are obligated to correct any serious safety and health hazards found. Consultants identify hazards in 99 percent of the visits. Information about an employer is not reported to the MNOSHA Compliance unit unless the employer fails to correct the detected safety and health hazards within a specified period. This has happened only once in the past nine years.

Figure 6.6 shows statistics for WSC visits to worksites for FFY 1998 through 2008.

- Since FFY 2002, the number of consultation visits has remained at nearly 1,000 visits annually.
- The number of employees covered by the consultations has remained relatively constant.
- WSC visits in FFY 2008 identified safety and health hazards that could have cost employers approximately $3.3 million in MNOSHA Compliance penalties.

Figure 6.7 shows statistics for WSC services to worksites for some industries during FFY 2008.

- Construction sites accounted for 52 percent of initial consultation visits, followed by manufacturing with 14 percent.
- Training assistance and interventions focused on construction and logging.

Further information about the WSC training activities is presented later in this chapter.

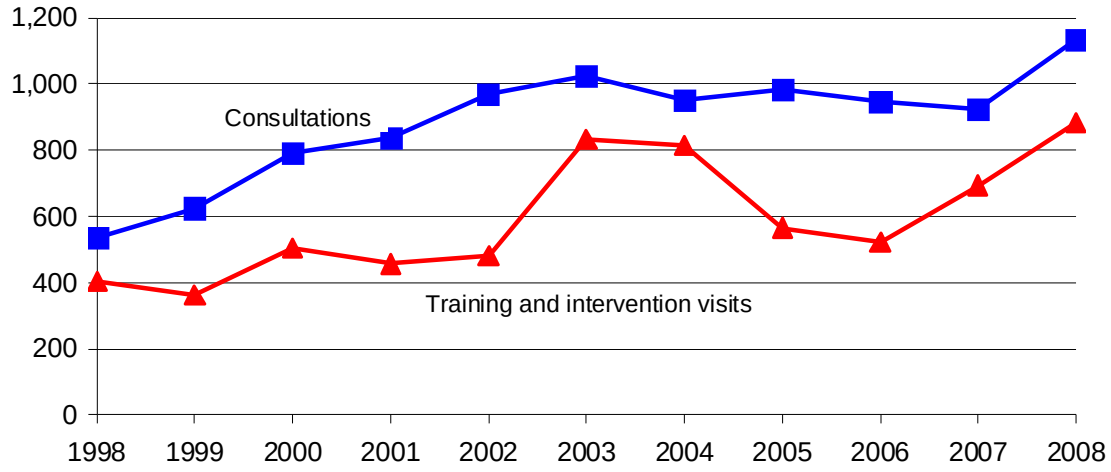
Loggers' Safety Education Program

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 2008, WSC conducted 48 logger safety seminars with 644 employees and 940 employers in attendance. There were 26 on-site logger training sessions, with 143 attendees, and 147 safety training interventions with 3,309 participants.

WSC also conducts training sessions for public-sector employers and employees who are involved in tree removal following storms or other circumstances. Sixty-six chain saw safety training sessions for public sector employers were conducted with 1,392 employees and 120 employers in attendance.

Figure 6.6 Workplace Safety Consultation visit activity, federal fiscal-years 1998-2008



Federal fiscal-year[1]	Consultations conducted	Employees covered[2]	Visits with identified hazards	Training and intervention visits	Potential penalties avoided ($ millions)
1998	535	63,579	413	404	$2.53
1999	625	62,816	554	364	$2.73
2000	790	88,016	736	505	$2.43
2001	835	61,191	715	456	$2.93
2002	971	77,988	882	482	$3.23
2003	1,026	64,985	877	832	$3.48
2004	953	66,377	761	816	$3.30
2005	983	72,704	973	567	$4.20
2006	946	46,983	913	522	$4.30
2007	924	68,730	890	693	$5.40
2008	1,135	76,158	929	885	$3.30

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 affected by the scope of the consultation visit.Counts prior to 2006 subject to revision.

Figure 6.7 Workplace Safety Consultation activity for selected industries, federal fiscal-year 2008

Industry	NAICS code	Initial visits	Employees covered	Training assistance and interventions	People trained
Logging	113310	2	106	190	2,999
Construction	23	594	8,052	205	10,757
Manufacturing	31-33	160	22,519	96	535
Trade, transportation and utilities	42-49, 22	42	3,888	21	628
Nursing and residential care	623	32	4,048	29	666
Leisure and hospitality	71-72	2	36	3	3
Other services	81	4	113	4	62
State and local government	all	19	415	95	2,220

Source: OSHA Integrated Management Information System.

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 2008, WSC awarded $1.2 million to 179 employers, who matched the grants with $2.2 million of their own funds.

Workplace Violence Prevention Program

The Workplace Violence Prevention Program, also state-funded, helps employers and employees reduce the incidence of workplace violence by providing on-site consultation, telephone assistance, education and training seminars, inspections and a resource center.

In FFY 2008, WSC presented five violence prevention outreach presentations, covering 375 employers and employees. WSC also made seven violence-related interventions where the employer was contacted by telephone or in writing, and approximately 22 referrals to police, OSHA enforcement, the state Attorney General's office or other governmental agencies.

Ergonomics assistance

The main responsibilities of the WSC ergonomics specialists are to educate Minnesota employers and employees about the recognition and control of risk factors associated with work-related musculoskeletal disorders (WMSDs). This is being accomplished through development of training and education presentations and materials, on-site ergonomics evaluations and posting resources on the Web.

During the past year, ergonomic-specific consultations were conducted at eight work-sites; four additional consultations included ergonomic risk-factor evaluations.

Twenty-one formal training presentations were provided on ergonomics, including 10 sessions about safe patient handling and three sessions for the logging industry.

In order to maximize the effect of the on-site ergonomics evaluations to help WSC learn how to improve ergonomics-related services, the initial efforts have focused on the nursing home industry. WSC enlisted 26 nursing homes in this effort. The participating homes have received ergonomics consultations to help manage ergonomic risk factors that contribute to worker injury. Final measurements are being taken to evaluate the changes at the nursing homes and a report will be produced in 2009.

Safe patient-handling

WSC administered Minnesota's safe patient handling grant program, which provided $500,000 for safe-patient-handling equipment. 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 the WSC unit 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.

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. The total case incidence rates of the MNSHARP employers during 2008 averaged 50 percent below the 2007 national rate for their industries, and their DART rates averaged 59 percent below their national industry rates. The reduced numbers of DART cases saved these employers an estimated $880,700 in workers' compensation benefit payments.

MNSHARP is limited to employers with fewer 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.

Four new participants were certified into MNSHARP during FFY 2008, bringing the total to 32 certified programs. The majority of the program participants are manufacturers. A list of MNSHARP sites is presented in the MNOSHA Annual Report, available at www.dli.mn.gov/OSHA/PDF/annualreport08.pdf.

Construction Safety Pilot Program

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. This includes on-site hazard identification, training, education and technical assistance.

The goal of the program is to reduce injury and illness rates below the national average for their particular industry. Participating employers with effective safety and health site-specific programs are exempt from MNOSHA Compliance programmed inspections for one year. The exemption is renewable on an annual basis until the project is complete.

The program was well-received in its first year. Fifteen major construction project employers signaled interest in the program. Of those, four contractors demonstrated the ability to reach agreed-upon milestones and timeframes and were granted pre-MNSHARP status. Those milestones and timeframes are based on a full-service safety and health consultation visit, a comprehensive assessment of the safety and health management system, and remediation of all hazards identified by the WSC Workplace Safety and Health Assessment Team. WSC is also working with the remaining 11 construction project employers.

From the four projects that achieved pre-MNSHARP status, two construction projects have completed the agreed-upon milestones and have been awarded MNSHARP Construction employer certification.

MNSTAR

The Minnesota Star (MNSTAR) program is a voluntary program patterned after the federal Voluntary Protection Program.[18] 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.

During 2008, the total case incidence rates of the general-industry MNSTAR employers averaged 57 percent below the 2007 national rates for their industries and their DART rates averaged 73 percent below the national rates. The reduced numbers of DART cases saved these employers an estimated $2.0 million in workers' compensation benefit payments.

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.

Five new MNSTAR sites were certified during FFY 2008, bringing the total to 27 worksites with MNSTAR certification. Eighteen of the worksites are manufacturers.

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

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.

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 of 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 2008, Compliance staff members conducted outreach presentations for 4,260 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 2008, WSC conducted 885 worksite training and intervention visits, reaching more than 23,000 participants.

During FFY 2008, 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;
- 12 10-hour OSHA construction certification courses for various organizations, and an additional five courses for minority, women's, and apprenticeship organizations, attended by a total of 501 individuals;
- three state-wide seminars about effective dust-explosion risk management to assist employers in complying with the requirements of the Combustible-Dust National Emphasis Program, CPL-03-00-008, with 167 participants, and information mailed to 1,100 potentially affected employers;
- three presentations for the roofing industry on the Employee Right to Know Act, attended by 100 employers and employees;
- a series of four construction safety breakfast seminars attended by 334 participants; and
- five half-day seminars about woodworking safety and health hazards in manufacturing facilities, lead in construction, and construction health hazards, attended by 257 employers and employees.

MNOSHA performance

Minnesota OSHA sets its strategic and performance goals in five-year strategic plans. Some of the performance goals for the 2004-to-2008 strategic plan use BLS survey results. The industries, listed in Figure 6.8, were identified through a combination of factors, including the number of workers in the industry and the industry's DART rate. Eleven of these industries are also included in the new strategic plan for FFY 2009 through FFY 2013. The new strategic plan is available at http://www.dli.mn.gov/OSHA/PDF/stratplan09-13.pdf. The Minnesota OSHA strategic plan for FFY 2009 through FFY 2013 has performance goals to reduce Minnesota's total recordable case incidence rate and the fatality rate for fatalities within MNOSHA's jurisdiction.

The 2003 and 2007 DAFW rates and case count estimates are shown in Figure 6.8. The value of targeting these emphasis 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 47 percent of the DAFW cases.

Establishments in the emphasis industries receive considerable attention from MNOSHA. During FFY 2008, 80 percent of programmed compliance inspections and 75 percent of the consultation initial visits were in the emphasis industries.

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

Industry name (NAICS)	NAICS code	Establish-ments 2007	Wage and salary employment 2007	DAFW rate 2003	DAFW cases 2003	DAFW rate 2007	DAFW cases 2007	Change in rates 2003-2007	Change in cases 2003-2007
Logging	1133	202	744	na	na	na	na	na	na
Construction	23	18,402	120,403	2.8	2,870	2.1	2,330	-25%	-19%
Food manufacturing	311	787	42,752	1.4	620	1.4	590	0%	- 5%
Animal slaughtering and processing[1]	3116	137	15,581	1.6	260	1.2	200	-25%	-23%
Wood product manufacturing	321	391	14,732	2.6	410	1.8	250	-31%	-39%
Paper manufacturing	322	146	11,735	1.6	210	1.0	130	-38%	-38%
Printing and related support activities	323	964	31,261	1.4	430	1.2	380	-14%	-12%
Plastics and rubber products mfg.	326	403	15,542	1.5	240	1.3	200	-13%	-17%
Foundries[2]	3315	52	4,725	2.4	120	2.7	130	13%	8%
Architectural and structural metals manufacturing	3323	298	8,268	2.9	240	2.0	160	-31%	-33%
Machinery manufacturing	333	866	33,904	1.2	420	1.5	510	25%	21%
Motor vehicle manufacturing	3361	13	1,843	3.5	100	2.0	40	-43%	-60%
Furniture and related product mfg.	337	684	12,343	2.4	300	2.2	270	- 8%	-10%
Lumber and other construction materials merchant wholesalers	4233	362	5,560	4.0	200	1.6	80	-60%	-60%
Motor vehicle and parts dealers	441	2,310	33,235	1.2	380	1.6	500	33%	32%
Gasoline stations	447	2,581	23,062	1.6	280	1.3	200	-19%	-29%
Couriers and messengers	492	339	10,451	5.3	440	3.2	250	-40%	-43%
Telecommunications	517	1,005	14,221	0.9	130	0.7	80	-22%	-38%
Nursing care facilities[2,3]	6231	410	44,484	3.1	1,350	3.0	1,820	- 3%	35%
Traveler accommodations[2]	7211	1,241	26,842	1.5	230	2.2	450	47%	96%
State and local government[4]	all	6,797	338,360	1.6	4,310	1.4	4,010	-13%	- 7%
Emphasis industry total		38,390	810,048		13,280		12,380		- 7%
State total (excludes federal gov.)		166,736	2,656,578	1.5	29,860	1.3	26,100	-13%	-13%
Percentage of state total		23%	30%		44%		47%		

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 for the three-digit NAICS industry is reported and the number of DAFW cases is estimated. This applies to to NAICS 7211 for 2007 only.

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

4. State and local government data for 2007 uses the 2006 value for DAFW rate and the 2006 value for local government DAFW cases.

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

MNOSHA activity has increased and OSHA case incidence rates have decreased at similar rates during the 1996 to 2008 period. As shown in Figure 6.9, increases in MNOSHA Compliance activity measures (see Fig. 6.1) and in WSC activity measures (see Fig. 6.6) have significant negative correlations with the injury and illness rates for the year prior to the activity, the year of the activity, and the year following the activity. Figure 6.10 illustrates these negative relationships for the amount of penalties assessed and penalties avoided with the total case rate and DART rate.

For MNOSHA Compliance, the highest negative correlations with the total case rate for four of the five activity measures are with the previous year's rate, while the highest negative correlations with the DART rate are all for the current year's rate. These high negative correlations are also present for inspections with violations, the number of violations, and the amount of penalties assessed with the current year's DART rate when the prior year's DART rate is used to account for some of the variation in the DART rate.

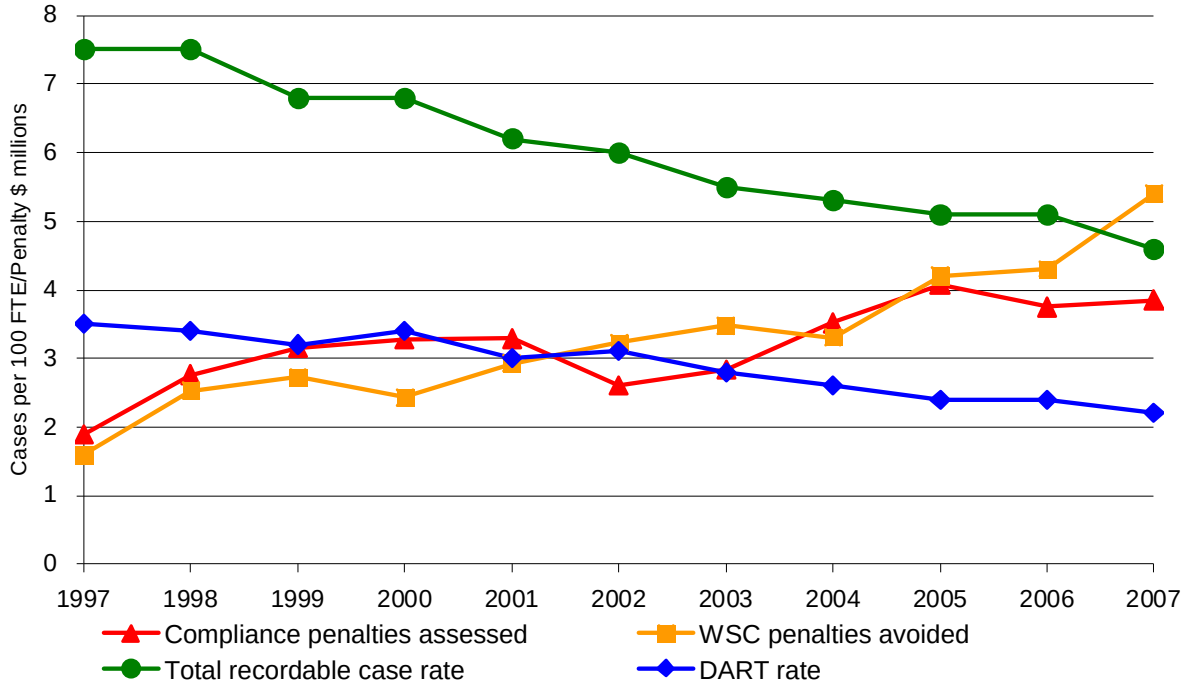
In contrast, three of the five highest negative correlations between the WSC activity measures and the total case rate are with the following year's rate, and the same holds for four of the five correlations with the DART rate. Only one of the highest negative correlations is with the previous year's rate. The amount of penalties avoided has significant negative correlations with the current year's total case rate and DART rate even after the previous year's values are used to account for the value of the current year's rates.

Figure 6.9 Relationship of Minnesota OSHA activities with injury and illness rates, 1996-2008 [1]

	Previous year		Current year		Following year	
Activity measure	Total case rate	DART rate	Total case rate	DART rate	Total case rate	DART rate
Compliance						
Employees covered	-0.759	-0.754	-0.731	-0.801	-0.582	-0.616
Inspections	-0.801	-0.746	-0.704	-0.821	-0.673	-0.710
Inspections with violations	-0.862	-0.773	-0.843	-0.898	-0.847	-0.843
Violations	-0.796	-0.705	-0.753	-0.853	-0.753	-0.725
Amount of penalties assessed	-0.719	-0.652	-0.772	-0.823	-0.743	-0.709
Consultation						
Employees covered	0.128	0.089	-0.309	0.060	-0.214	-0.178
Consultation visits	-0.917	-0.793	-0.921	-0.787	-0.951	-0.878
Visits with hazards	-0.910	-0.810	-0.922	-0.819	-0.944	-0.873
Training visits	-0.813	-0.684	-0.818	-0.723	-0.805	-0.785
Amount of penalties avoided	-0.809	-0.777	-0.918	-0.948	-0.941	-0.906

1. Relationships are measured by correlation coefficients, which vary between -1.00 and +1.00. Negative correlations indicate that increases in OSHA activities are associated with decreases in injury and illness rates. All the correlation coefficiants, except for WSC employees covered, are significant at the $p<.05$ level or lower.

Figure 6.10 Comparison of MNOSHA penalty identification and injury and illness rates, 1997-2007



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* to provide nationwide and state-level information about work-related injuries and illnesses, including their number and incidence.[19] The survey includes all nonfatal cases recorded by participating employers on their OSHA 300 logs. Injuries and illnesses logged by employers conform with definitions and recordkeeping guidelines set by the Occupational Safety and Health Administration.

The survey includes all cases recorded on the OSHA log, on which employers with 11 or more employees are required to record workplace injuries and illnesses.[20] Employers with 10 or fewer employees that participate in the survey also 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 events or exposures in the work environment that caused or contributed to the condition or significantly aggravated a pre-existing condition.

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);

or

- are diagnosed as significant work-related injuries or illnesses by a physician or other licensed health care professional. These include any work-related case involving cancer, chronic irreversible disease, a fracture 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.

[19] 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.
[20] This is a count of the total number of employees in the firm, across all establishments.

For injuries prior to 2002, the following definitions apply.

Days away from work 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 are cases that involve days away from work, days of restricted work activity or both.

1. *Lost-workday cases involving days away from work* (DAFW cases) are cases that result in days away from work or a combination of days away from work 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* (DAFW) are cases requiring 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 recordable cases that 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 the 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 are used to 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 varying lengths of absences from work 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).

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 the requirements set forth by OSHA.

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 Injury and Illness 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;
- 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 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 help with recordkeeping. Workplace Safety Consultation consultants also provide on-site log review and assistance during consultation 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, the Workplace Safety Consultation unit of MNOSHA 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 on the DLI Web site 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 calendar 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.**