

Minnesota
**Workplace Safety
Report**

Occupational Injuries and Illnesses, 1999



**Research and Statistics
Minnesota Department of Labor and Industry**

Minnesota Workplace Safety Report: Occupational Injuries and Illnesses, 1999

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Research & Statistics

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Executive Summary

About 166,000 Minnesotans per year are hurt at work or become ill from job-related causes, 34,000 of which involve more than three days of disability. An average of 82 Minnesotans per year were killed at work from 1995 through 1999.

These injuries, illnesses and deaths exact a toll on workers and their families; they also affect business costs and productivity. Workers' compensation in Minnesota cost an estimated \$1.0 billion in 1999. This does not count other costs, such as delayed production, hiring and training workers, pain and suffering, and those economic losses to workers and their families that are not covered by workers' compensation.

This report, part of an annual series, gives information on Minnesota's job-related injuries, illnesses and fatalities. Data sources are the U.S. Bureau of Labor Statistics (BLS) Survey of Occupational Injuries and Illnesses and the Census of Fatal Occupational Injuries.

Major findings include the following:

Non-Fatal Occupational Injuries and Illnesses

- Minnesota's total incidence rate of workplace injuries and illnesses dropped to 6.8 per 100 full-time-equivalent workers in 1999 from 7.5 in both 1997 and 1998. This was Minnesota's lowest rate in the history of the state survey.
- The rate of cases with days away from work and/or restricted work activity fell to 3.2 per 100 full-time-equivalent workers in 1999 from 3.4 to 3.5 for the 1996 to 1998 period.
- The rate of cases with days away from work fell steadily from 3.1 to 1.8 from 1985 to 1999, while the rate of cases with restricted work activity only rose from 0.2 to 1.4.
- Minnesota's case rates were below their U.S. counterparts until the early 1990s, but have been above the U.S. rates since that time.

For the private sector in 1999, the total case rate was 6.9 for the state versus 6.3 for the nation. The rate of cases with lost workdays or restricted work activity was 3.2 for the state versus 3.0 for the nation.

- Minnesota's rate for cases with days away from work was roughly equal to the national rate starting in 1996. In 1999, the private sector rate for cases with days away from work was 1.9 for both the state and the nation.

Data from 1997 to 1999 indicate that among industry divisions (the broadest industry grouping), Minnesota's highest total injury and illness rates per 100 full-time-equivalent workers were in:

- (1) construction (12.3),
- (2) agriculture, forestry, and fishing (10.4), and
- (3) manufacturing (10.1).

Data from 1997 to 1999 indicate that 7 of the 10 major industry groups (the next more detailed classification) with the highest total case incidence rates were in manufacturing. These 10 industries accounted for 23 percent of the annual average number of cases.

Highest Total Case Rate Industry Groups Minnesota 1997-1999

Industry	Total Cases [1]
Transportation equipment mfg.	25.3
Primary metal industries mfg.	16.4
Lumber & wood products mfg.	15.5
Furniture & fixtures mfg.	14.5
Food & kindred products mfg.	13.2
Fabricated metal products mfg.	12.9
Stone, clay, & glass products mfg.	12.8
General building contractors	12.8
Special trade contractors	12.5
Agricultural production	12.3

1. Total injury and illness cases per 100 FTE.

Source: BLS Survey of Occupational Injuries and Illnesses.

- Of the detailed industries with published survey results, the industries with the highest total case rates averaged for 1997-99 were:
 - (1) motor vehicle manufacturing (36.5 cases),
 - (2) poultry slaughtering and processing (23.8 cases), and
 - (3) nursing homes (20.3 cases).
- Traumatic injuries and disorders accounted for 89 percent of the cases with days away from work. Most common among these were:
 - (1) sprains, strains and tears of muscles, joints and tendons (48 percent),
 - (2) wounds and bruises (9 percent), and
 - (3) open wounds (8 percent).
- Nine percent of the cases with days away from work involved systemic diseases and disorders.
- The most common body parts affected in cases with days away from work were:
 - (1) the back (30 percent),
 - (2) upper extremities (21 percent), and
 - (3) lower extremities (19 percent).
- The most frequent event or exposure leading to the injury or illness for cases with days away from work was bodily reaction and exertion (53 percent of the total). This included:
 - (1) overexertion (37 percent),
 - (2) bodily reaction, such as bending, slips, and trips (11 percent), and
 - (3) repetitive motion (5 percent).
- People were identified as the most frequent source of injury or illness for Minnesota's cases with days away from work (26 percent). These were primarily the injured or ill worker in cases involving bodily motion or position (16 percent) and health care patients and facility residents (6 percent).

Fatal Occupational Injuries

The nationwide Census of Fatal Occupational Injuries (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 along with all others. However, fatal *illnesses* (such as asbestosis) are excluded.

- In 1999, 72 Minnesotans were fatally injured on the job. For 1995-99, Minnesota had an average of 82 fatal work injuries per year, consisting of 58 wage-and-salary workers and 24 self-employed.
- For 1995-99, 29 percent of fatal injuries were to self-employed workers, far higher than the 10 percent self-employed share of total employment.
- Minnesota had an annual average of 3.1 fatal workplace injuries per 100,000 workers from 1995 through 1999.
- Among industry divisions, the highest fatal injury rates (per 100,000 workers) were in:
 - (1) agriculture, forestry, and fishing (19.9),
 - (2) construction (13.1), and
 - (3) transportation, communication, and utilities (8.2).
- The highest *numbers* of fatal injuries per year for 1995-99 were in:
 - (1) agriculture, forestry, and fishing (23),
 - (2) construction (15),
 - (3) manufacturing (10), and
 - (4) transportation, communication, and utilities (10).
- The most frequent causes of Minnesota's fatal work injuries for 1995-99 were:
 - (1) transportation accidents (46 percent),
 - (2) contact with objects and equipment (24 percent), and
 - (3) falls (11 percent).

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1

Introduction

Workplace injuries and illnesses continue to be a major concern both in Minnesota and nationwide. The latest figures show that about 450 Minnesotans are hurt at work or become ill from job-related causes each day. This amounts to roughly 166,000 cases per year. About 34,000 of these involve more than three days of disability. An average of 82 Minnesotans per year were killed on the job from 1995 through 1999.

These injuries, illnesses, and deaths exact a toll on workers and their families; they also affect business costs and productivity. Workers' compensation in Minnesota cost an estimated \$1.0 billion in 1999, or \$1.33 per \$100 of covered payroll. This includes indemnity benefits (for lost wages, functional impairment, or death), medical treatment, rehabilitation, litigation, claims administration, and other system costs. In 1997 (the most current data available), the average cost of an insured claim was \$3,730 (in 1999 dollars) for medical treatment plus indemnity benefits (indemnity benefits are paid in about 20 percent of all cases). For those claims with indemnity benefits (i.e., eliminating medical-only claims), the average medical and indemnity cost was much higher — \$16,890. Other workplace injury and illness costs are more difficult to measure, such as delayed production, hiring and training of new workers, pain and suffering, and those economic losses to injured workers and their families that are not covered by workers' compensation.

This *Minnesota Workplace Safety Report* is part of an annual series. It gives information through 1999 on 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 the

safety and health of Minnesota's workplaces and thereby reducing the burden of occupational injuries and illnesses on workers, families, and employers.

Data Sources

This report presents data from three sources: (1) the U.S. Bureau of Labor Statistics (BLS) annual Survey of Occupational Injuries and Illnesses; (2) the BLS annual Census of Fatal Occupational Injuries (CFOI); and (3) the OSHA Integrated Management Information System (IMIS). The BLS and CFOI data are available through 1999, and the IMIS data is available through 2000. An introduction to the BLS survey follows.

BLS Survey Data

The BLS survey, conducted jointly by the BLS and state agencies, is the primary source of workplace injury and illness data nationwide. Approximately 4,900 Minnesota employers participated in 1999. The survey includes all cases on the Occupational Safety and Health Administration (OSHA) 200 log, which employers with 11 or more employees are required to record workplace injuries and illnesses.¹ Employers with 10 or fewer employees who participate in the survey record their cases on the OSHA 200 log for the survey year. Data come both from the log and from an additional set of questions regarding relatively serious cases—those with at least one day off the job. The survey provides a large volume of

¹OSHA-recordable cases include all nonfatal occupational illnesses and those nonfatal occupational injuries that result in loss of consciousness; medical treatment other than first aid; or any lost time from work, restricted work activity, or transfer to another job after the day of injury.

information for the U.S. and individual states.²

The survey defines different types of cases according to whether or not they have days off the job and/or work restrictions:

- “Lost-workday” (LWD) cases are those with days when the worker is off the job or working with restrictions. LWD cases consist of —
 - (1) “days-away-from-work” (DAFW) cases — those with any days off the job (with or without additional days of restricted work), and
 - (2) “restricted-work-activity-only” (RWAO) cases — those with restricted work but no days off.
- “Cases without lost workdays” are cases with no days off the job and no work restrictions.

These case types are more precisely defined in Appendix A.

An important issue with the BLS survey data is sampling error — the random error in survey statistics that occurs because they are estimated from a sample. This sampling error is greater for smaller categories, such as particular industries, because of smaller sample size. Because of sampling errors, most state-level survey statistics in this report are averaged over three years.

Report Organization

The next three chapters describe the incidence and characteristics of occupational injuries and illnesses. Chapter 2 presents data on the incidence of Minnesota’s workplace injuries and illnesses over time, focusing on the state as a whole. Chapter 3 gives injury and illness incidence rate statistics by industry and by establishment size. Chapter 4 describes the characteristics and causes of workplace injuries and illnesses.

Chapter 5 gives information on the state’s fatal workplace injuries, using data from the CFOI program. The number of fatalities, incidence by industry and the events causing the fatalities are analyzed.

Prevention issues are discussed in chapters 6 and 7. Chapter 6 describes DLI programs and services to help employers achieve safe and healthful workplaces. Chapter 7 describes safety and health incentives in the workers’ compensation system.

²This information includes the number and incidence of injuries and illnesses by industry and establishment size and, for cases resulting in time off the job, characteristics of injuries and illnesses, how they occur, severity (number of days away from work), length of time on the job when injured, occupation, and worker characteristics. The national data, because of larger sample sizes, include more detailed categories than the state data and contain smaller sampling errors.

Survey data for Minnesota and the U.S. are available from DLI’s Research and Statistics unit at 651-284-5025. National data and state-level incidence rates by industry are also available from the BLS Occupational Safety and Health Statistics at <http://stats.bls.gov/oshhome.htm>.

2

Incidence of Workplace Injuries and Illnesses Over Time

This chapter presents the BLS survey data on the incidence of Minnesota's workplace injuries and illnesses over time.

Minnesota

Figure 1 shows estimates of the incidence of nonfatal injuries and illnesses for Minnesota for 1985-1999, expressed as cases per 100 full-time-equivalent (FTE) workers. Both the private sector and state and local government are included, but not the federal government.

The figure shows that total case incidence rose mildly through the late 1980s and early 1990s, then started dropping sharply in 1997. Minnesota's 1999 total case incidence rate was the lowest rate in the history of the state survey. The rate of LWD cases started to decrease in 1995. LWD cases made up 42-47 percent of the total over the entire 1985-99 period. The DAFW case rate started to fall in 1991 and reached its lowest level in 1999. In contrast, the RWA case rate rose steadily throughout the period.

Within LWD cases, the relative numbers of cases with days away from work (DAFW cases) and cases with restricted work activity only (RWA cases) have changed substantially over time. As a proportion of total cases, DAFW cases fell from 41 to 26 percent over 1985-99, while RWA cases rose from 3 to 21 percent. As a share of LWD cases, DAFW cases fell from 93 to 55 percent over the entire period, with the remainder being RWA cases.

The explanation for these trends is not clear. It could involve (1) a decrease in the severity of LWD cases, (2) changes in what happens after an injury or illness occurs (e.g. promptness of medical treatment, prevalence of return-to-work

and light-duty programs, or availability of work with other employers), or (3) changes in reporting.

Minnesota and the United States Compared

How do Minnesota's occupational injury and illness rates compare with those of the nation? Figure 2 shows the rates of total cases, LWD cases, and DAFW cases in the private sector for Minnesota and the United States for 1985-99. The data, from the BLS survey, are limited to the private sector because the U.S. data are only available for the private sector.³ The total case, LWD and DAFW incidence rates for both the state and the nation began to decline in the early 1990s.

Minnesota's total case rate for the private sector stayed slightly below its national counterpart from 1985 to 1992, but has been above the U.S. rate since 1993. For 1999, Minnesota's total rate was 6.9 per 100 FTE workers, while the U.S. rate was 6.3.

Similarly, Minnesota's LWD case rate was lower than the U.S. rate in the late 1980s, about the same as the U.S. rate during the early 1990s, and higher than the national rate beginning in 1995. Minnesota's LWD case rate for 1999 was 3.2, as opposed to 3.0 for the nation.

With DAFW cases, Minnesota had a lower rate than the U.S. through 1995, with little difference thereafter.

³In the BLS survey, participating states have the option to include their public sectors. Because not all states choose this option, public-sector data are not available at the national level.

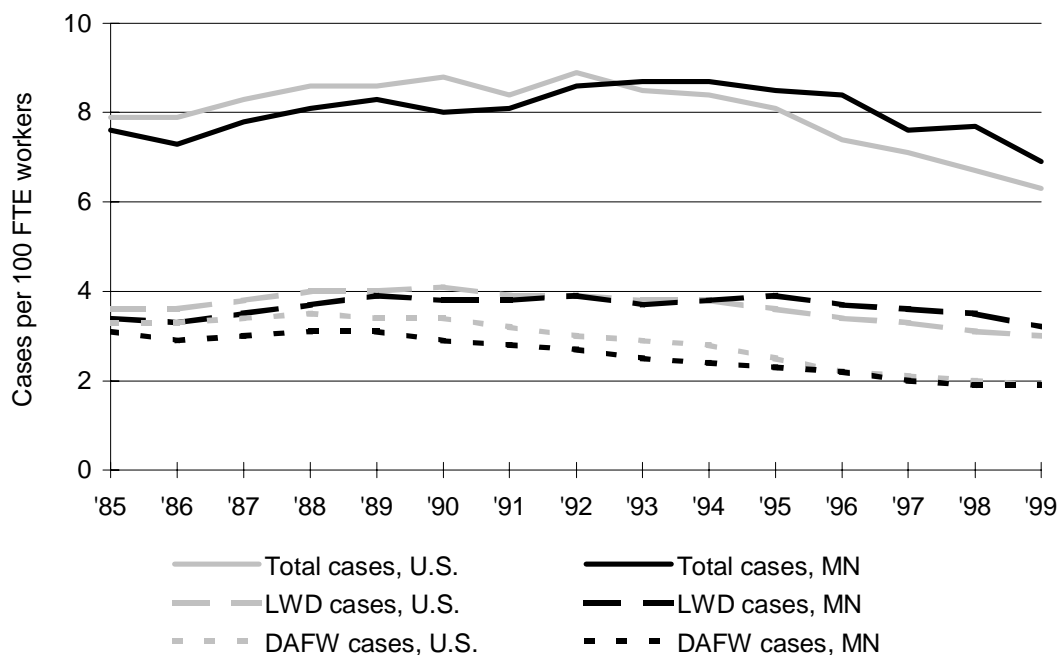
Figure 1
Injury and Illness Case Incidence Rates, Minnesota, 1985-99 [1]



	Total Cases per 100 FTE Workers	Lost-Workday Cases						Cases Without Lost Workdays	
		Total Lost-Workday Cases		Days-Away-From-Work Cases		Cases With Restricted Work Activity Only			
		Rate per 100 FTE Workers	% of Total	Rate per 100 FTE Workers	% of Total	Rate per 100 FTE Workers	% of Total	Rate per 100 FTE Workers	% of Total
1985	7.6	3.3	44%	3.1	41%	0.3	3%	4.2	56%
1986	7.3	3.2	44%	2.9	40%	0.3	4%	4.1	56%
1987	7.7	3.4	44%	3.0	39%	0.4	6%	4.3	56%
1988	8.0	3.6	45%	3.0	38%	0.6	7%	4.4	55%
1989	8.2	3.7	46%	3.0	37%	0.7	9%	4.4	54%
1990	7.9	3.7	46%	2.9	37%	0.8	10%	4.2	54%
1991	8.1	3.7	46%	2.7	34%	1.0	12%	4.4	54%
1992	8.5	3.7	44%	2.6	31%	1.1	13%	4.7	55%
1993	8.6	3.6	42%	2.5	29%	1.1	13%	5.0	58%
1994	8.6	3.7	43%	2.4	28%	1.3	15%	4.9	57%
1995	8.4	3.7	44%	2.3	27%	1.4	17%	4.7	56%
1996	8.3	3.5	42%	2.2	27%	1.3	16%	4.8	58%
1997	7.5	3.5	47%	2.0	27%	1.5	20%	4.0	53%
1998	7.5	3.4	45%	1.9	25%	1.5	20%	4.2	56%
1999	6.8	3.2	47%	1.8	26%	1.4	21%	3.6	53%

1. Includes injuries and illnesses in the private sector and state and local government.
 Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Figure 2
Injury and Illness Case Incidence Rates
for Minnesota and the United States, Private Sector, 1985-99



(Note: LWD cases = lost-workday cases; DAFW cases = days away-from-work cases.)

	Cases per 100 Full-Time-Equivalent Workers					
	Total Cases		Lost-Workday Cases		Days-Away-From-Work Cases	
	Minnesota	U.S.	Minnesota	U.S.	Minnesota	U.S.
1985	7.6	7.9	3.4	3.6	3.1	3.3
1986	7.3	7.9	3.3	3.6	2.9	3.3
1987	7.8	8.3	3.5	3.8	3.0	3.4
1988	8.1	8.6	3.7	4.0	3.1	3.5
1989	8.3	8.6	3.9	4.0	3.1	3.4
1990	8.0	8.8	3.8	4.1	2.9	3.4
1991	8.1	8.4	3.8	3.9	2.8	3.2
1992	8.6	8.9	3.9	3.9	2.7	3.0
1993	8.7	8.5	3.7	3.8	2.5	2.9
1994	8.7	8.4	3.8	3.8	2.4	2.8
1995	8.5	8.1	3.9	3.6	2.3	2.5
1996	8.4	7.4	3.7	3.4	2.2	2.2
1997	7.6	7.1	3.6	3.3	2.0	2.1
1998	7.7	6.7	3.5	3.1	1.9	2.0
1999	6.9	6.3	3.2	3.0	1.9	1.9

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

3

Incidence of Workplace Injuries and Illnesses by Industry and Establishment Size

Incidence by Industry Division

Figures 3, 4 and 5 show the average 1997-99 incidence rates of injury and illness total cases, LWD cases and DAFW cases per 100 FTE workers by industry division.⁴ Rates for all industries and the private sector total are also included. The three-year average is used to reduce the effects of year-to-year fluctuations attributable to sampling variation. Industries are ranked by their total case rate.

In general, those industries which people consider to be more dangerous, such as construction and manufacturing, have higher rates than the less dangerous industries, such as retail trade and finance. For each of the incidence measures, construction and agriculture, forestry, and fishing had the highest rates, while state government and finance, insurance, and real estate had the lowest rates. The most unusual total case incidence rate was for mining, which had the ninth-lowest industry rate. This industry has a low total case incidence rate because of the relatively long job tenure of the workers, who understand how to work safely around the machinery, and the large size of the employers, who have the resources to provide for the workers' safety.

The ranking of industries by LWD rate is very

similar to the ranking by total case rate. The largest change was for services, which moved up from eighth-highest to sixth-highest. For all industries, LWD cases comprised 46 percent of total cases. This ratio indicates the proportion of recordable cases that result in lost work time, either in one or more days away from work or restricted work activity. This ratio varies between industries as a result of several factors, including the relative severity of the reported cases and the ability of the workers to continue working following their injuries. The ratio varied from 56 percent in transportation, communication, and utilities to 36 percent in retail trade. The ratio for services was the second-highest, at 51 percent.

The industry rankings for the DAFW cases, in Figure 5, show some variation from the LWD rankings. This is due to the ratio of DAFW cases to LWD cases. For all industries, 56 percent of the LWD cases were DAFW cases. This varied from 80 percent in mining to 44 percent in manufacturing. This ratio varies between industries as a result of several factors, such as the relative severity of the reported cases and the employers' opportunities to provide alternative work for injured workers with restrictions due to their injuries.

With its high DAFW to LWD ratio, mining moved from eighth-highest among LWD cases to fifth-highest among DAFW cases. This indicates that injured mine workers are more likely to take days off work than to continue working after their injuries at restricted jobs, perhaps because of the severity of their injuries. This is supported by the duration away from work for the DAFW cases. Mining had a median duration of 30 days, while no other

⁴“Industry division” is the most aggregated industry grouping in the Standard Industrial Classification (SIC), which is established by the U.S. Government and used for industry-based economic statistics in the United States.

The SIC uses a 4-digit hierarchical code in which each successive digit indicates a finer level of detail. Hence, industry data may be analyzed at the industry division level or at the 2-, 3-, or 4-digit level. The 2- and 3-digit categories are referred to as “major industry groups” and “industry groups,” respectively.

industry division had a median above 5 days.⁵

Incidence by Establishment Size

The incidence of workplace injuries and illnesses also varies by establishment size. Figure 6 shows the incidence of total cases, LWD cases, and DAFW cases by establishment size for Minnesota private industry, averaged for 1997-99.

For the private sector overall, the rates of all three case types were lowest for the smallest establishments (1-10 employees), highest for midsize establishments (50-249 employees), and intermediate for the largest establishments (1,000 or more employees).

Figure 6 also shows the rates of lost workday cases by establishment size for industry divisions. Some cells are blank because the numbers do not meet BLS publication standards. In all industry divisions with data shown, the smallest establishments have lower incidence rates than do the midsize ones. In some industries—e.g., manufacturing and construction—the larger establishments also tend to have lower rates than the midsize ones, but in others—e.g., transportation, communication, and utilities and services—this

is not the case. In services, this is partly attributable to relatively high incidence rates in hospitals, where a majority of workers are employed at hospitals in the largest establishment size class.⁶

Incidence Trends Within Industry Division

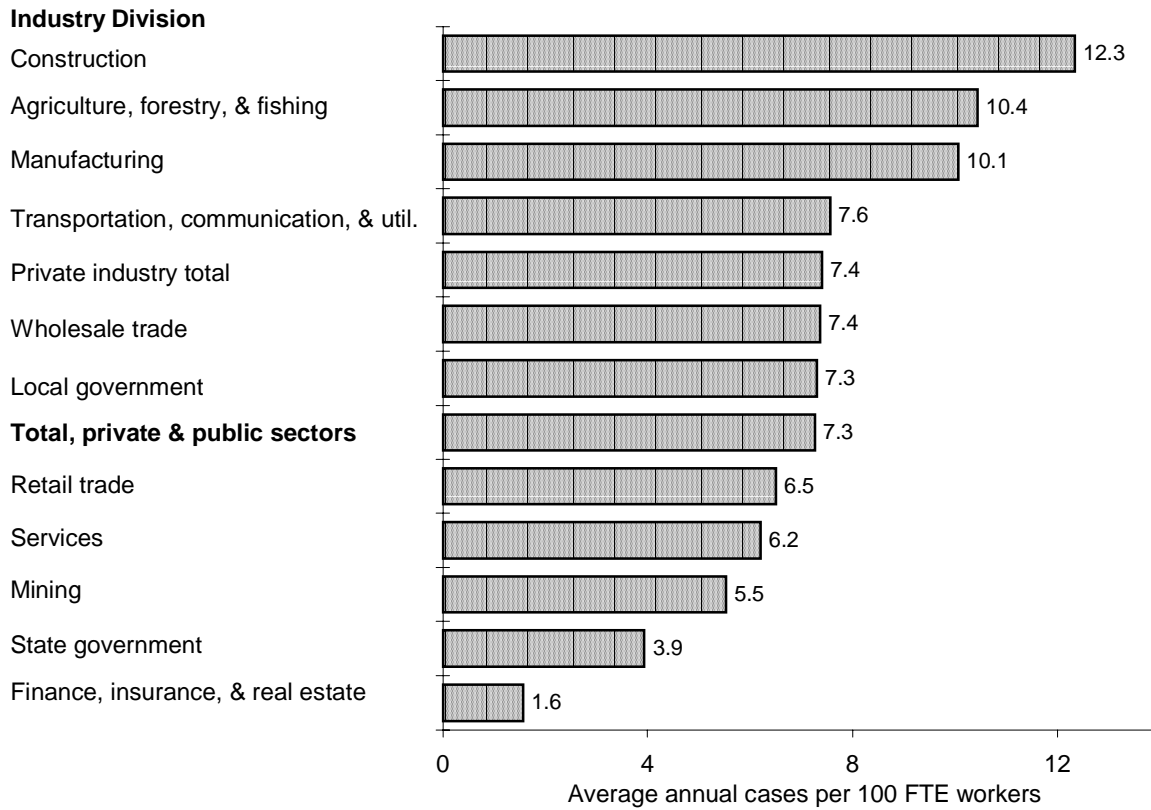
This section describes the incidence rate results from the BLS survey separately for the major industry groups, industry groups and detailed industries available within each industry division. Each industry division has a figure with a line graph of the three incidence rates for the division as a whole, from 1985 through 1999. The accompanying table lists the constituent industries with publishable data reported in the survey, showing the three-year averages from 1994 to 1996 and from 1997 to 1999, along with the average annual number of cases from 1997 to 1999. In the bullet points following each figure, the incidence rates for the 1997-99 period are compared to the results for the 1994-96 period.

The distribution of the number of days away from work for the DAFW cases, averaged over 1995-99, and the 1999 median days away from work for each industry with available data are shown in Appendix B.

⁵The median value and the frequency distribution of days away from work by industry are presented in Appendix B.

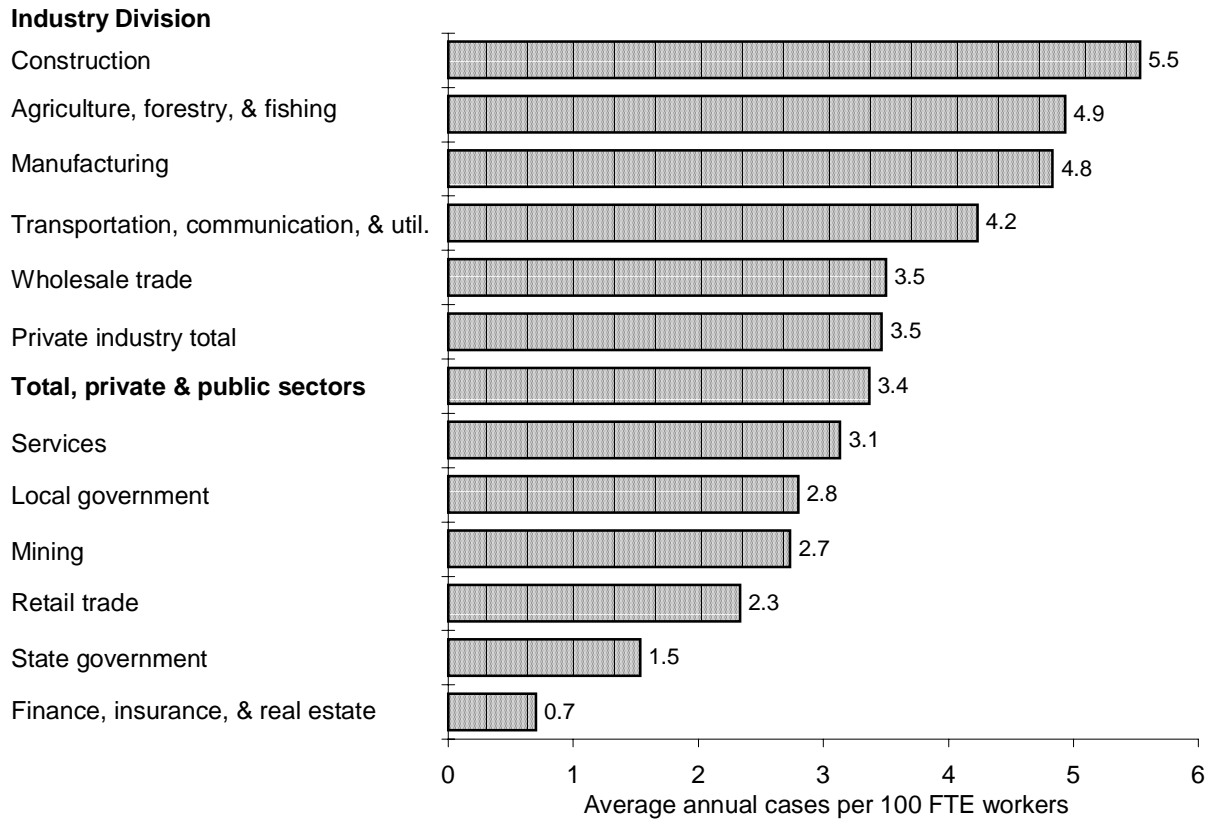
⁶Shown by unpublished data from the BLS survey.

Figure 3
Incidence of Total Cases by Industry Division
Minnesota, 1997-99 Average



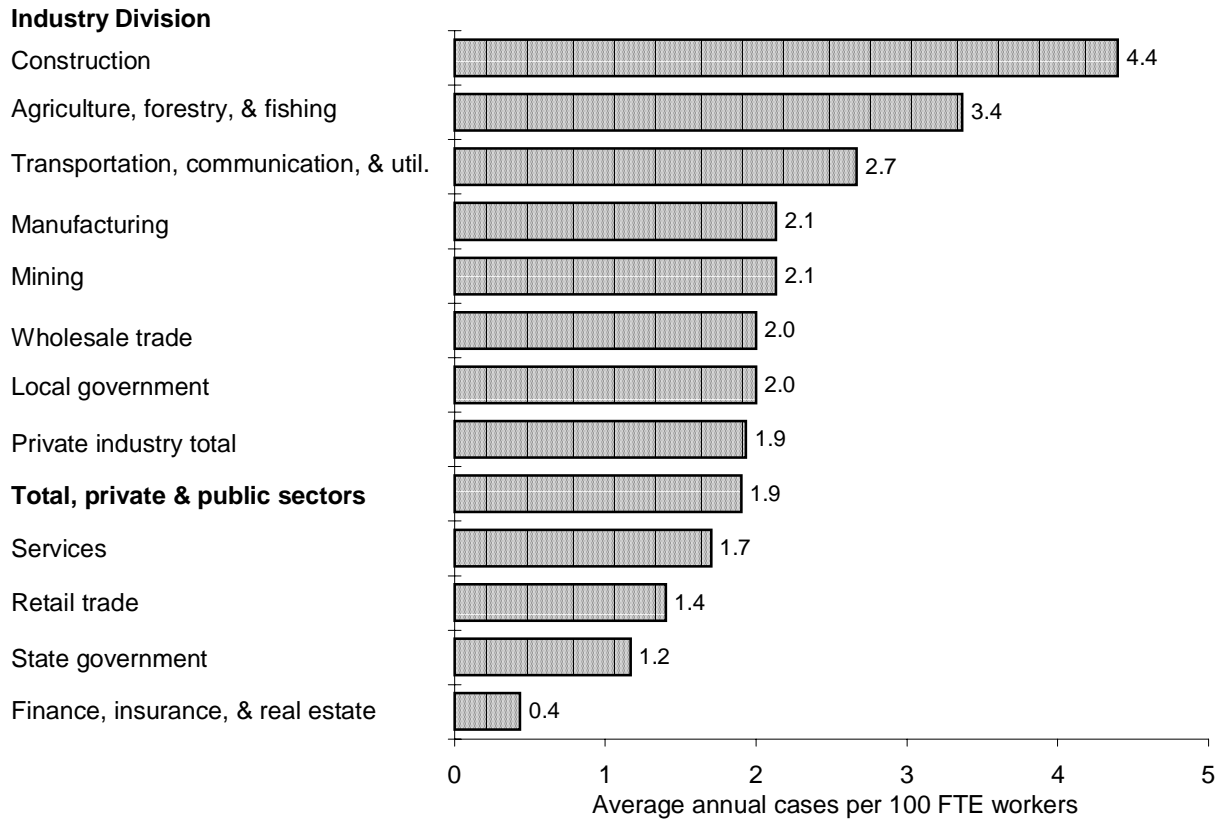
Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Figure 4
Incidence of Lost-Workday Cases by Industry Division
Minnesota, 1997-99 Average



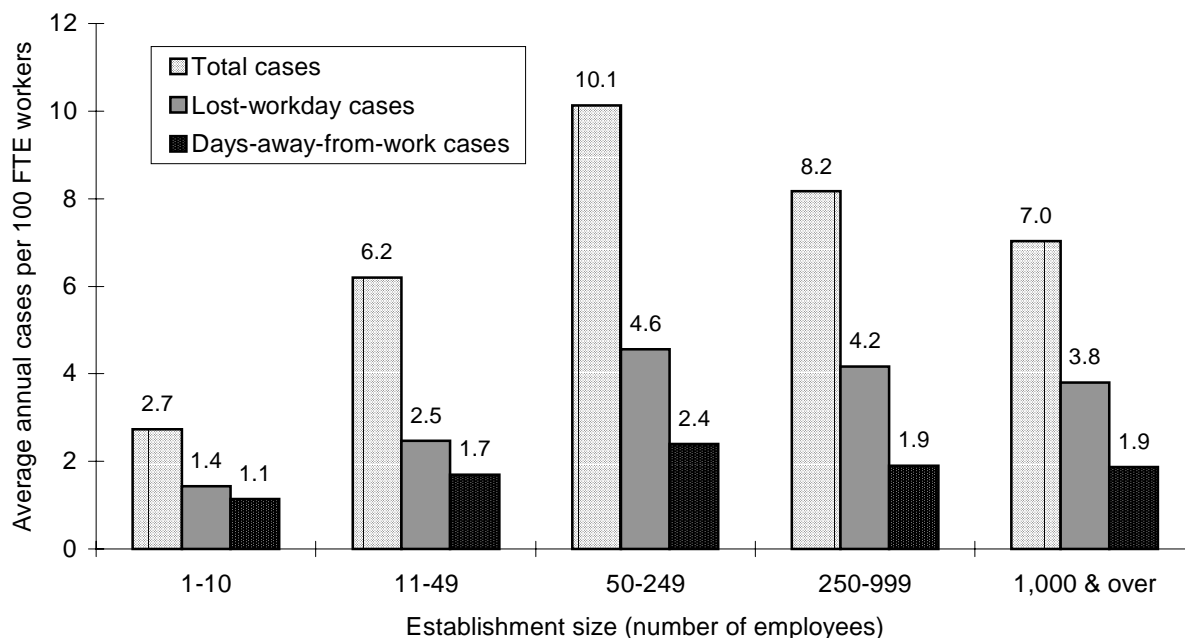
Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Figure 5
Incidence of Days-Away-From-Work Cases by Industry Division
Minnesota, 1997-99 Average



Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Figure 6
Injury and Illness Case Incidence Rates by Establishment Size
for Private Industry, Minnesota, 1997-99 Average

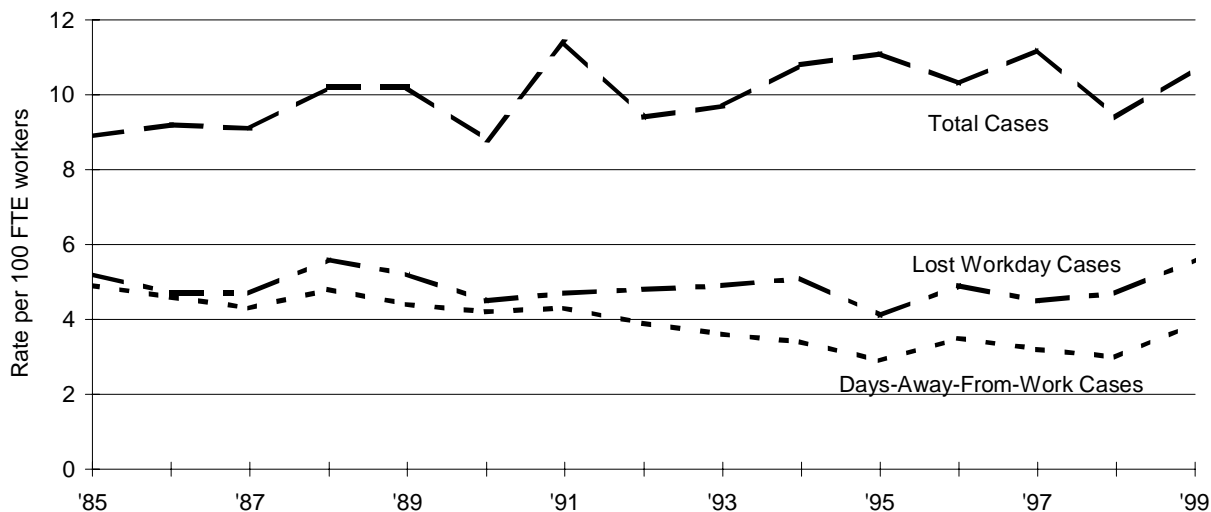


Case Type	Average Annual Cases per 100 Full-Time-Equivalent Workers by Establishment Size (Number of Employees) [1]					
	All Sizes	1-10	11-49	50-249	250-999	1,000+
Total cases	7.4	2.7	6.2	10.1	8.2	7.0
Lost-workday cases	3.5	1.4	2.5	4.6	4.2	3.8
Days-away-from-work cases	1.9	1.1	1.7	2.4	1.9	1.9
<i>Lost-workday cases by industry division:</i>						
Agriculture, forestry, & fishing	4.9	3.3	4.2	6.7	9.2	
Mining	2.7	1.4	2.8	4.2	2.9	2.2
Construction	5.5	4.1	5.9	6.7	4.1	
Manufacturing	4.8	1.9	4.8	5.8	4.7	4.0
Transportation, communication, & util.	4.2		3.4	4.5	3.8	6.5
Wholesale trade	3.5		3.1	5.1		
Retail trade	2.3	1.0	1.7	3.2		
Finance, insurance, & real estate	0.7		0.6	0.7	0.6	0.6
Services	3.1	1.0	1.3	4.3	4.4	4.3

1. Only data meeting BLS publication standards are used. Cells without at least two years of data are blank.

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Figure 7
Nonfatal Occupational Injuries and Illnesses
Incidence Rates per 100 FTE Workers,
Agriculture, Forestry, and Fishing



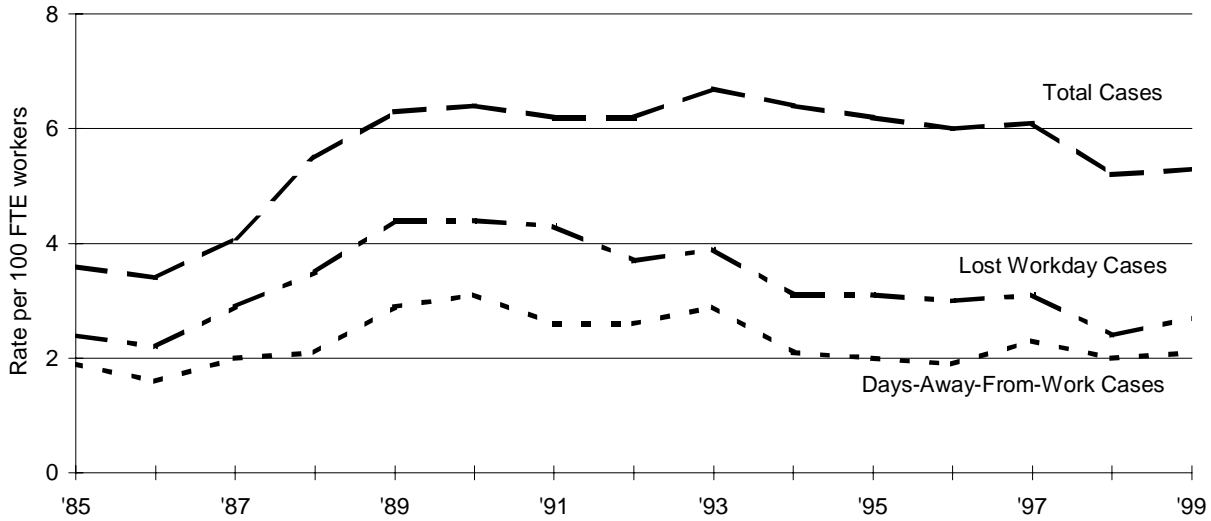
	SIC Code	1994-96 Average			1997-99 Average			Total Number of Cases (1,000s)
		Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	
Agriculture, forestry, & fishing		10.7	4.7	3.3	10.4	4.9	3.4	1.6
Agricultural production	01-02	14.6	6.5	3.8	12.3	6.2	3.5	0.8
Agricultural services	07	8.0	3.3	2.9	9.1	4.1	3.3	0.8

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Agriculture, Forestry, and Fishing

- There were no overall changes in the incidence rates between the two time periods.
- This division is composed of two major industry groups, agricultural production and agricultural services, each with half the cases. All three incidence rates were higher for agricultural production than for agricultural services.
- Incident rates dropped over time for agricultural production, while they increased for agricultural services.

Figure 8
Nonfatal Occupational Injuries and Illnesses
Incidence Rates per 100 FTE Workers,
Mining



	SIC Code	1994-96 Average			1997-99 Average			Total Number of Cases (1,000s)
		Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	
Mining		6.2	3.1	2.0	5.5	2.7	2.1	0.4
Metal mining	10	6.5	3.1	2.0	5.9	2.9	2.3	0.4
Iron ores	101				5.9	2.9	2.3	0.4

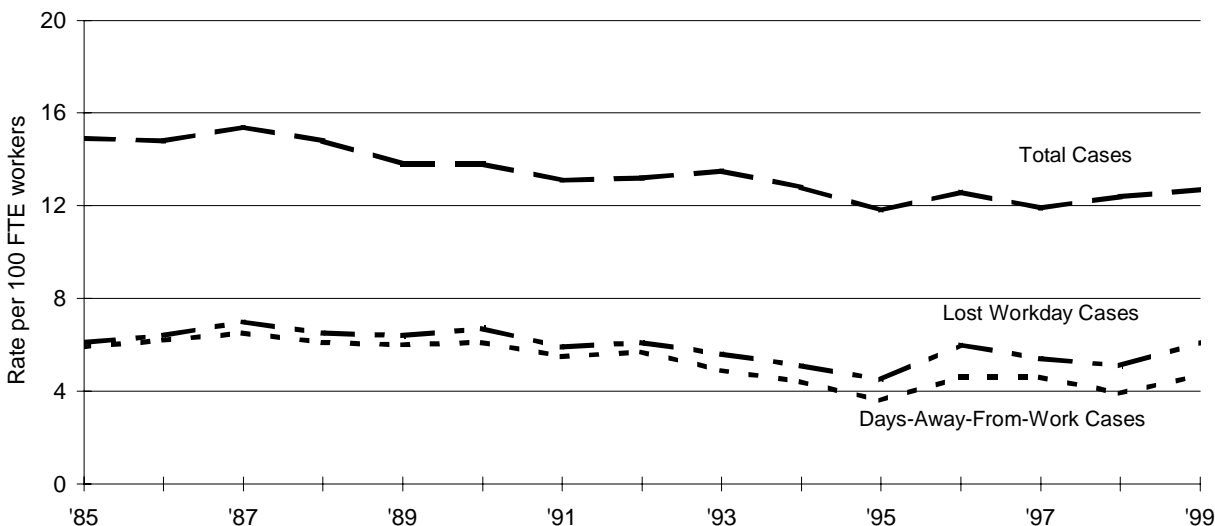
Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Mining

- Mining rates for total cases and LWD cases decreased, and the DAFW rate increased.

Three-fourths of mining employment is in the iron ore industry (SIC 101) and it accounted for all DAFW cases.

Figure 9
Nonfatal Occupational Injuries and Illnesses
Incidence Rates per 100 FTE Workers,
Construction



	SIC Code	1994-96 Average			1997-99 Average			Total Number of Cases (1,000s)
		Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	
Construction		12.4	5.2	4.2	12.3	5.5	4.4	10.9
General building contractors	15	11.5	4.6	3.8	12.8	5.6	4.5	2.7
Residential building construction	152	9.2	4.4	3.9	9.1	5.2	4.5	0.9
Nonresidential building construction	154	13.7	4.8	3.8	16.0	5.8	4.2	1.7
Heavy construction, ex. building	16	10.9	3.8	3.4	10.9	4.2	3.5	1.3
Highway & street construction	161	11.2	3.5	3.1	13.8	4.5	3.6	0.7
Heavy construction, ex. highway	162	10.6	4.0	3.6	8.7	4.0	3.3	0.6
Special trade contractors	17	13.1	5.7	4.5	12.5	5.8	4.6	7.0
Plumbing, heating, air-conditioning	171	13.5	5.1	3.9	13.7	4.8	3.5	1.9
Electrical work	173	12.4	4.0	3.3	10.2	3.7	2.7	1.1
Masonry, stonework, & plastering	174	11.3	6.0	5.7	13.0	7.4	6.5	0.9

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Construction

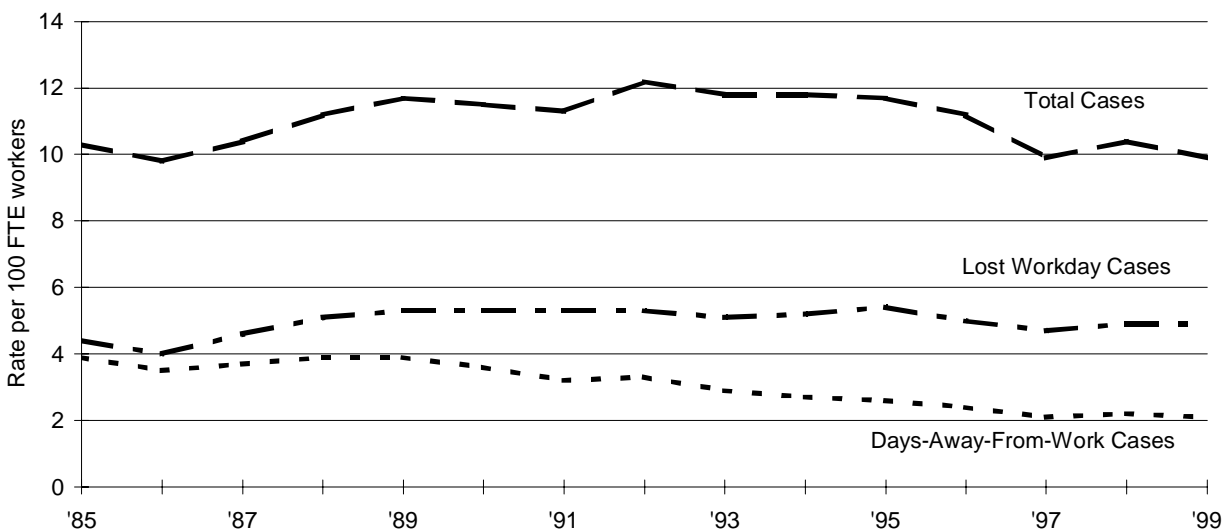
- The incidence rates remained relatively stable at the industry division level over the two three-year periods.
- General building contractors is composed of two industry groups, with very different

incidence rates. Residential building construction had a much lower rate than nonresidential building construction. The LWD and DAFW rates increased for residential building construction and all three rates increased for nonresidential building construction.

- Although the incidence rates changed little for the heavy construction major industry group, the rates increased for highway and street construction and decreased for heavy construction excluding highways.
- Total case rates decreased among special trade contractors, while the LWD and

DAFW rates remained stable. Among the three contracting types with data published, masonry, stonework, and plastering (SIC 174) increased in all three rates, while electrical work (SIC 173) decreased in all rates.

Figure 10
Nonfatal Occupational Injuries and Illnesses
Incidence Rates per 100 FTE Workers,
Manufacturing



	SIC Code	1994-96 Average			1997-99 Average			Total Number of Cases (1,000s)
		Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	
Manufacturing		11.6	5.2	2.6	10.1	4.8	2.1	43.6
Food & kindred products	20	17.7	8.5	3.2	13.2	7.5	2.5	7.1
Meat products	201	37.5	17.0	3.6	21.5	11.7	2.1	3.6
Poultry slaughtering & processing	2015	33.9	15.0	2.3	23.8	13.8	1.4	1.7
Dairy products	202	8.1	3.7	2.4	8.7	4.8	2.8	0.7
Preserved fruits & vegetables	203	10.8	5.3	2.3	9.1	4.7	2.1	0.6
Grain mill products	204	6.5	3.3	1.9	4.4	2.4	1.2	2.1
Lumber & wood products	24	18.6	9.4	4.5	15.5	8.0	3.9	3.1
Millwork, plywood, structural memb.	243	20.9	10.8	4.5	17.2	9.0	3.7	2.2
Millwork	2431	18.1	9.4	4.1	16.9	8.4	3.1	1.3
Furniture & fixtures	25	17.1	6.8	4.1	14.5	6.4	3.2	1.0
Paper & allied products	26	6.4	2.8	1.2	5.7	2.4	1.0	1.7
Paper mills	262	8.1	2.7	1.2	6.0	1.8	1.0	0.3
Printing & publishing	27	7.6	3.9	2.2	6.1	3.0	1.4	3.1
Newspapers	271	10.9	4.9	3.3	6.3	2.7	1.7	0.4
Commercial printing	275	7.9	4.3	2.4	7.7	3.9	1.7	1.8

Figure 10
(continued)

	SIC Code	1994-96 Average			1997-99 Average			Total Number of Cases (1,000s)
		Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	
Chemicals & allied products	28	7.3	3.8	1.5	6.0	3.0	1.1	0.4
Rubber & misc. plastics products	30	15.5	7.6	3.7	12.1	5.6	2.2	2.4
Misc. plastics products, n.e.c.	308	15.7	7.6	3.8	11.9	5.5	2.1	2.1
Stone, clay, & glass products	32	10.4	4.8	2.9	12.8	6.5	3.1	1.3
Primary metal industries	33	24.5	11.8	5.7	16.4	9.4	4.0	1.3
Fabricated metal products	34	14.9	6.4	3.6	12.9	5.8	3.0	4.7
Fabricated structural metal products	344	18.0	6.9	4.1	14.6	5.8	3.2	1.7
Metal forgings & stampings	346	17.0	7.2	4.3	17.5	7.2	4.3	0.9
Industrial machinery & equipment	35	9.3	3.6	2.3	9.4	3.9	2.0	7.4
Farm & garden machinery	352	14.5	5.8	3.9	12.0	5.3	2.7	0.7
Metalworking machinery	354	10.8	4.0	2.6	11.3	4.5	2.9	0.8
General industrial machinery	356	13.7	6.3	2.8	13.0	6.0	2.6	1.3
Computer & office equipment	357	2.4	1.0	0.6	3.0	1.3	0.6	0.7
Refrigeration & service machinery	358	11.5	5.2	2.9	10.8	4.0	2.0	0.8
Industrial machinery, n.e.c.	359	12.8	4.3	2.9	12.3	4.4	2.3	1.7
Industrial machinery, n.e.c.	3599	13.2	4.9	3.2	13.0	4.6	2.5	1.5
Electronic & other electric equip.	36	7.5	3.1	1.6	7.7	3.0	1.5	2.6
Electrical industrial apparatus	362	7.2	3.5	1.7	3.9	1.7	1.1	0.2
Electronic components & acc.	367	7.5	3.4	1.5	9.4	3.6	1.6	1.5
Transportation equipment	37	24.7	9.8	5.6	25.3	12.3	5.2	3.5
Motor vehicles & equipment	371	34.2	12.1	7.6	36.5	16.6	7.0	2.5
Instruments & related products	38	6.1	2.5	1.0	4.9	2.5	1.0	2.0
Measuring & controlling devices	382	6.7	3.2	1.3	5.6	2.8	1.2	0.8
Medical instruments & supplies	384	5.5	2.1	0.9	5.0	2.6	0.9	0.9
Misc. manufacturing industries	39	12.3	5.3	2.4	10.2	4.9	2.1	0.7

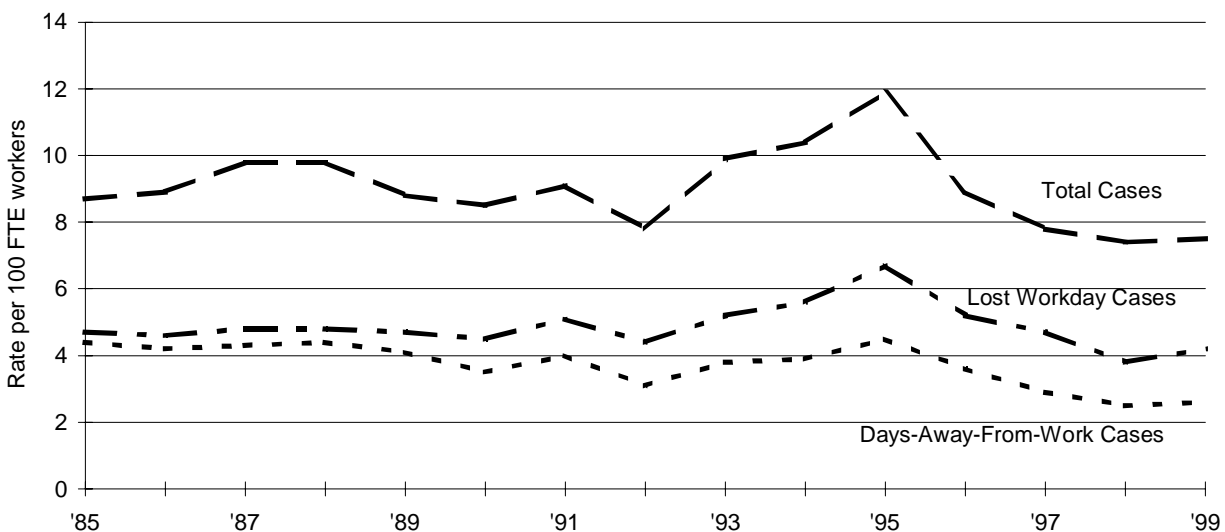
Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Manufacturing

- All three rates dropped in this industry division as a whole. Total case rates in the major industry groups with the highest rates (15 cases or more) during the 1994-1996 period all dropped in the following period, with the exception of transportation equipment manufacturing (SIC 37).
- Meat products manufacturing (SIC 201) showed a significant drop in its injury rate,⁷ and the DAFW rate is only slightly higher than the rate for all industries (2.1 and 1.9 cases, respectively).
- Many of the manufacturing industries had decreases in all three incidence rates, while rate increases were seen in stone, clay and glass products manufacturing (SIC 32) and in dairy products manufacturing (SIC 202).

⁷ "Injuries to workers in meat-products manufacturing," Department of Labor and Industry, CompAct, February 2001.

Figure 11
Nonfatal Occupational Injuries and Illnesses
Incidence Rates per 100 FTE Workers,
Transportation, Communication & Utilities



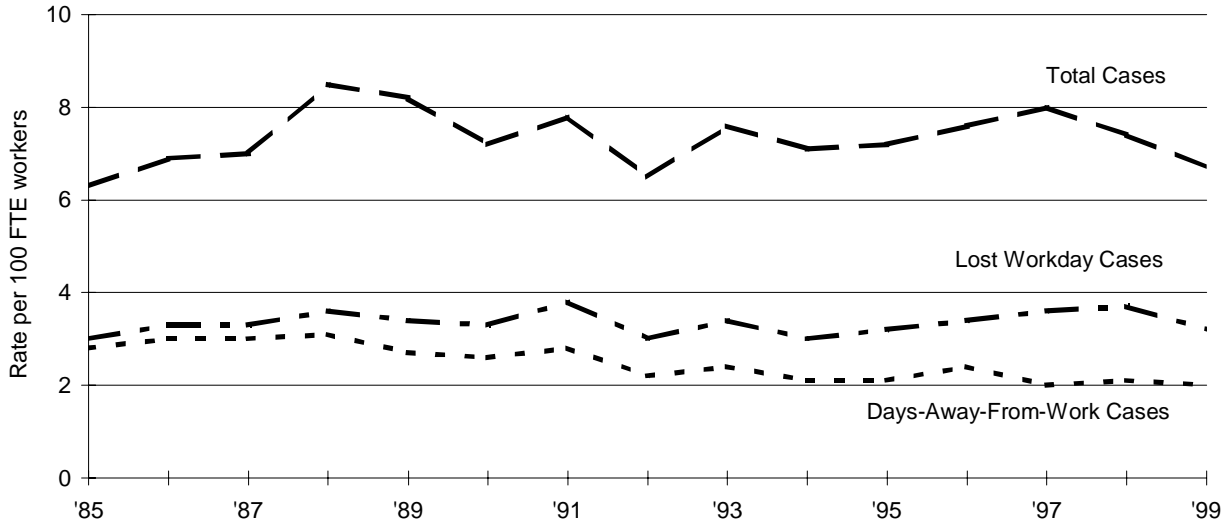
	SIC Code	1994-96 Average			1997-99 Average			Total Number of Cases (1,000s)
		Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	
Transportation & public utilities		10.4	5.8	4.0	7.6	4.2	2.7	8.7
Railroad transportation	40	5.4	4.1	3.0	4.2	2.8	2.0	0.2
Local & interurban passenger transit	41	8.9	3.7	3.0	8.1	3.6	2.7	0.6
Trucking & warehousing	42	18.7	11.3	8.1	10.0	5.4	3.6	3.1
Trucking & courier services, ex. air	421	23.1	13.3	8.9	10.0	5.4	3.7	3.0
Transportation by air	45	10.2	6.5	4.0	10.5	7.5	4.4	2.7
Transportation services	47	2.8	1.4	1.0	2.2	1.1	0.9	0.2
Communication	48	3.9	1.4	1.0	3.7	1.4	1.0	0.7
Telephone communication	481				3.6	1.4	1.0	0.5
Electric, gas, & sanitary services	49	8.2	2.8	1.7	7.2	2.6	1.5	1.0
Electric services	491	8.2	2.7	1.6	7.8	2.5	1.4	0.6

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Transportation, Communication and Utilities

- There were large rate decreases among all industry groups except air transportation, which had increases in all three rates.
- The highest incidence rates were in air transportation (SIC 45) and trucking and warehousing (SIC 42).
- The lowest incidence rates were in transportation services (SIC 47) and telephone communication (SIC 481). Transportation services includes travel agencies, tour operators, freight and cargo agents, and businesses that pack goods for shipping.

Figure 12
Nonfatal Occupational Injuries and Illnesses
Incidence Rates per 100 FTE Workers,
Wholesale Trade



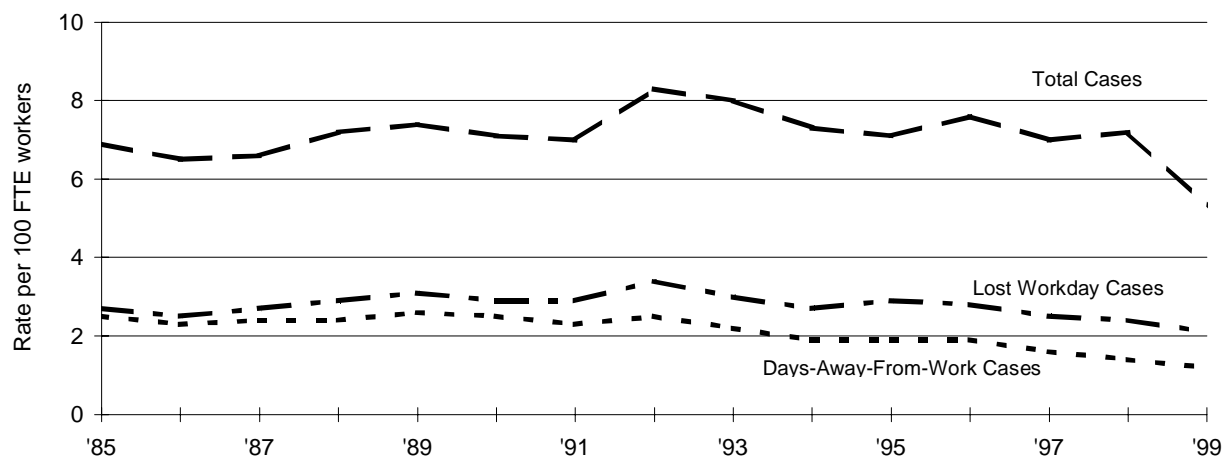
	SIC Code	1994-96 Average			1997-99 Average			Total Number of Cases (1,000s)
		Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	
Wholesale trade		7.3	3.2	2.2	7.4	3.5	2.0	10.7
Wholesale trade -- durable	50	6.4	2.8	2.0	6.6	2.9	1.7	5.6
Motor vehicles, parts, & supplies	501				9.0	3.8	2.4	0.9
Lumber & construction materials	503				10.2	4.9	3.0	0.6
Professional & commercial equip.	504	4.2	1.5	1.0	3.8	1.5	0.9	0.9
Machinery, equipment, & supplies	508	8.2	2.8	2.0	8.7	3.1	1.7	1.7
Wholesale trade -- nondurable	51	8.5	3.8	2.6	8.4	4.4	2.6	5.0
Groceries & related products	514				11.0	6.3	2.8	2.3

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Wholesale Trade

- For the division, the total case and LWD incidence rates increased, while the DAFW rate decreased.
- Total case and LWD rates were highest for grocery wholesalers (SIC 514), with the highest DAFW rate among lumber and construction material wholesalers (SIC 503).

Figure 13
Nonfatal Occupational Injuries and Illnesses
Incidence Rates per 100 FTE Workers,
Retail Trade



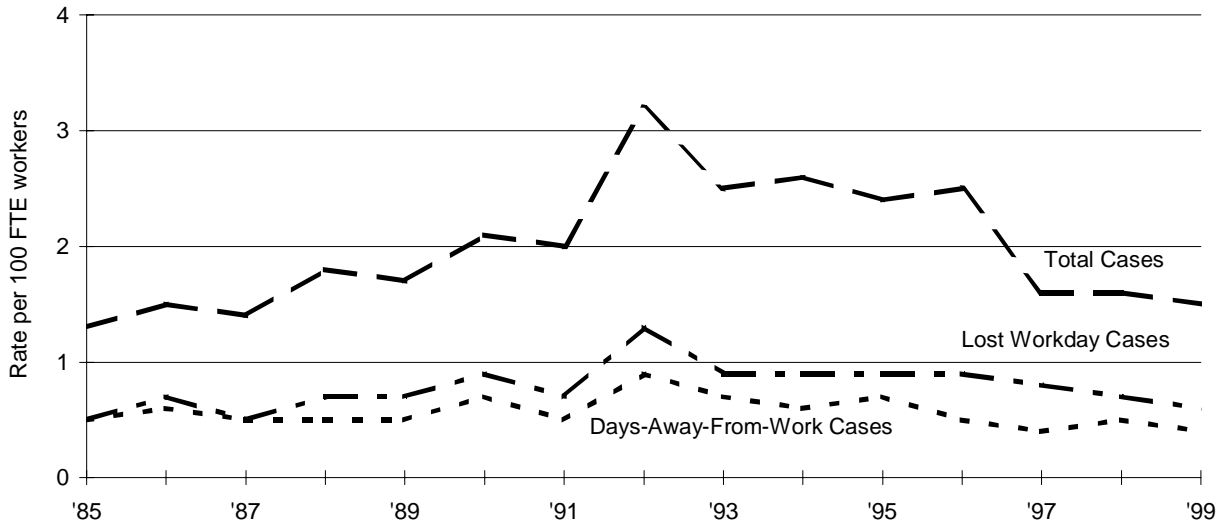
	SIC Code	1994-96 Average			1997-99 Average			Total Number of Cases (1,000s)
		Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	
Retail trade		7.3	2.8	1.9	6.5	2.3	1.4	19.1
Building materials & garden supplies	52	8.7	4.5	3.3	8.2	4.1	2.6	1.4
Lumber & other building materials	521				9.7	4.7	3.0	1.0
General merchandise stores	53	7.2	3.8	2.0	6.9	3.3	1.8	2.7
Department stores	531	7.3	3.9	2.1	7.2	3.4	1.7	2.6
Food stores	54	10.3	4.1	2.3	9.8	3.4	1.6	3.9
Grocery stores	541	10.9	4.3	2.4	10.6	3.6	1.6	3.6
Auto dealers & service stations	55	8.4	2.9	1.9	8.5	3.0	2.2	3.7
New & used care dealers	551				11.1	3.1	2.3	2.1
Apparel & accessory stores	56	3.2	1.3	0.8	3.1	1.0	0.7	0.3
Furniture & home furnishings stores	57	6.6	3.6	2.5	5.8	3.1	1.2	1.0
Eating & drinking places	58	7.2	2.0	1.7	5.1	1.1	0.8	4.1
Misc. retail	59	4.8	1.8	1.2	4.4	1.6	1.0	1.9

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Retail Trade

- The division's three rates decreased in the most recent period. All published industry groups within retail also showed decreases, except auto dealers and service stations (SIC 55).
- The highest total case incidence rates among retail industries were for new and used car dealers (SIC 551) and grocery stores (SIC 541), with rates over 10 cases per 100 FTE. The highest DAFW rate among retail industries was for lumber and other building material retailers (SIC 521), at 3.0 cases.

Figure 14
Nonfatal Occupational Injuries and Illnesses
Incidence Rates per 100 FTE Workers,
Finance, Insurance and Real Estate



SIC Code	1994-96 Average			1997-99 Average			Total Number of Cases (1,000s)
	Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	
Finance, insurance, & real estate	2.5	0.9	0.6	1.6	0.7	0.4	2.1
Real estate	6.1	2.3	1.8	3.3	1.8	1.3	0.6

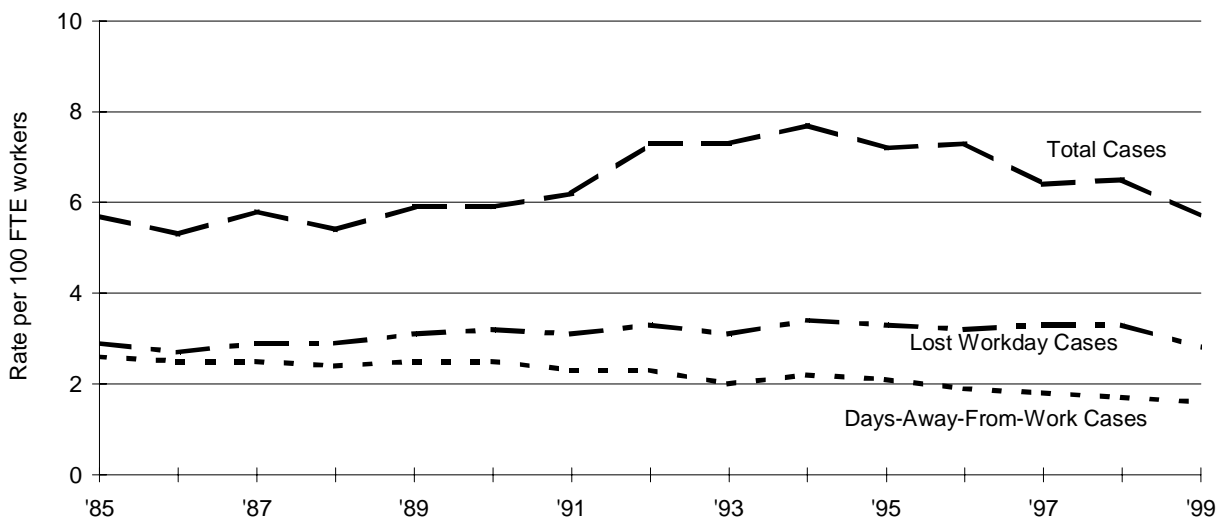
Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Finance, Insurance and Real Estate

- This industry division has low rates, that decreased in the most recent period.
- Real estate (SIC 65) includes many commercial and residential building supervisors and building maintenance workers. The total incidence rate dropped from 6.1 to 3.3 cases, with smaller

proportional decreases in the other two rates. The ratio of LWD to total cases increased from 38 percent for the 1994-96 period to 55 percent for the 1997-99 period. This may be the result of changes in the reporting of minor injuries or safety efforts that decreased the incidence of minor injuries that do not require lost work time.

Figure 15
Nonfatal Occupational Injuries and Illnesses
Incidence Rates per 100 FTE Workers,
Services



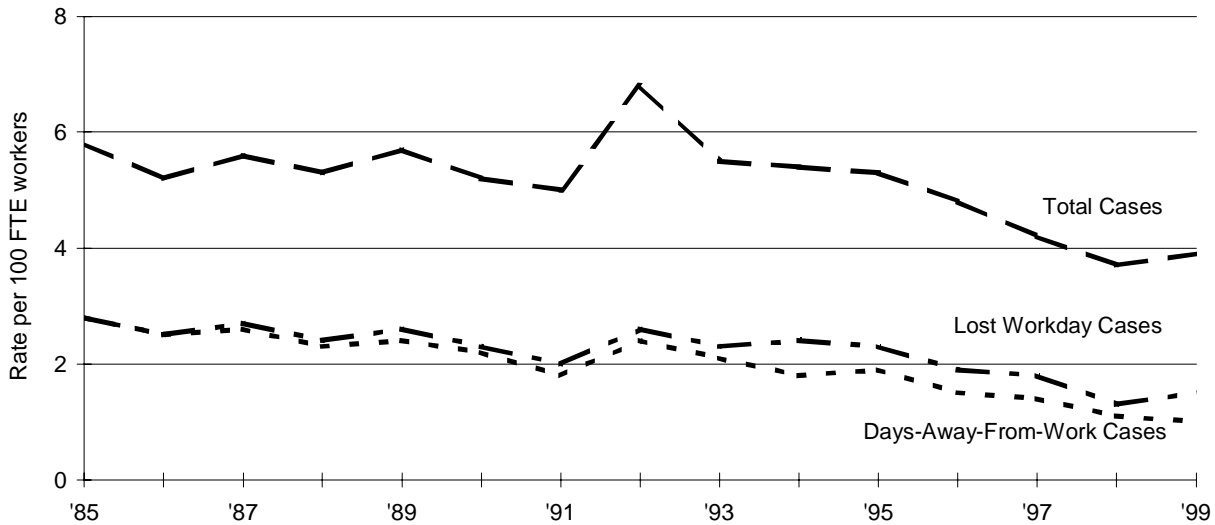
	SIC Code	1994-96 Average			1997-99 Average			Total Number of Cases (1,000s)
		Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	
Services		7.4	3.3	2.1	6.2	3.1	1.7	31.6
Hotels & other lodging places	70	11.8	5.3	3.0	8.4	3.5	2.0	1.6
Hotels & motels	701				8.5	3.7	2.1	1.6
Personal services	72	5.1	3.1	1.8	4.3	2.4	1.5	0.8
Business services	73	3.8	1.7	1.2	3.3	1.7	0.8	3.8
Auto repair, services, & parking	75	9.0	3.4	2.9	6.6	2.5	1.9	1.2
Misc. repair services	76	9.7	4.3	3.5	8.1	3.3	2.5	0.4
Motion pictures	78	1.7	0.7	0.6	1.6	0.4	0.3	0.1
Amusement & recreation services	79	8.5	3.2	2.1	8.2	4.1	2.2	2.2
Misc. amusement, recreation servs.	799	8.9	3.1	1.9	7.8	4.0	2.2	1.8
Health services	80	11.6	5.4	3.1	9.7	5.4	2.9	15.2
Nursing & personal care facilities	805	18.9	10.8	5.8	20.3	12.7	5.4	6.7
Hospitals	806	16.4	7.6	4.5	10.8	6.4	4.3	5.6
Home health care services	808				9.9	5.6	3.3	0.5
Education services	82	4.4	1.4	0.9	2.6	1.1	0.8	0.5
Social services	83	8.9	4.1	3.0	8.3	3.9	2.1	4.0
Residential care	836	12.6	5.1	3.5	11.4	5.6	3.0	1.9

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Services

- The services industry division decreased in all three rates. Most industry groups in services also showed declines in all three rates. All but one group, nursing and personal care facilities (SIC 805) showed a decrease in the total case rate.
- There were differences in the incidence rate trends for two health care industry groups. Nursing and personal care services (SIC 805) had increases in the total case and LWD rates, but a decrease in the DAFW rate, from 5.8 to 5.4 cases. Hospitals (SIC 806) had decreases in all three rates, including a 34 percent decrease in the total case rate, from 16.4 to 10.8 cases per 100 FTE.

Figure 16
Nonfatal Occupational Injuries and Illnesses
Incidence Rates per 100 FTE Workers,
State Government



	SIC Code	1994-96 Average			1997-99 Average			Total Number of Cases (1,000s)
		Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	
State government		5.2	2.2	1.7	3.9	1.5	1.2	2.8
Construction					13.6	5.7	3.1	0.5
Services		4.7	2.0	1.6	3.1	1.3	1.0	1.4
Health services	80	12.5	6.9	5.6	11.6	6.6	5.2	0.4
Education services	82	2.9	0.8	0.7	2.4	0.7	0.5	1.0
Public administration		4.6	2.0	1.6	3.8	1.5	1.0	0.8

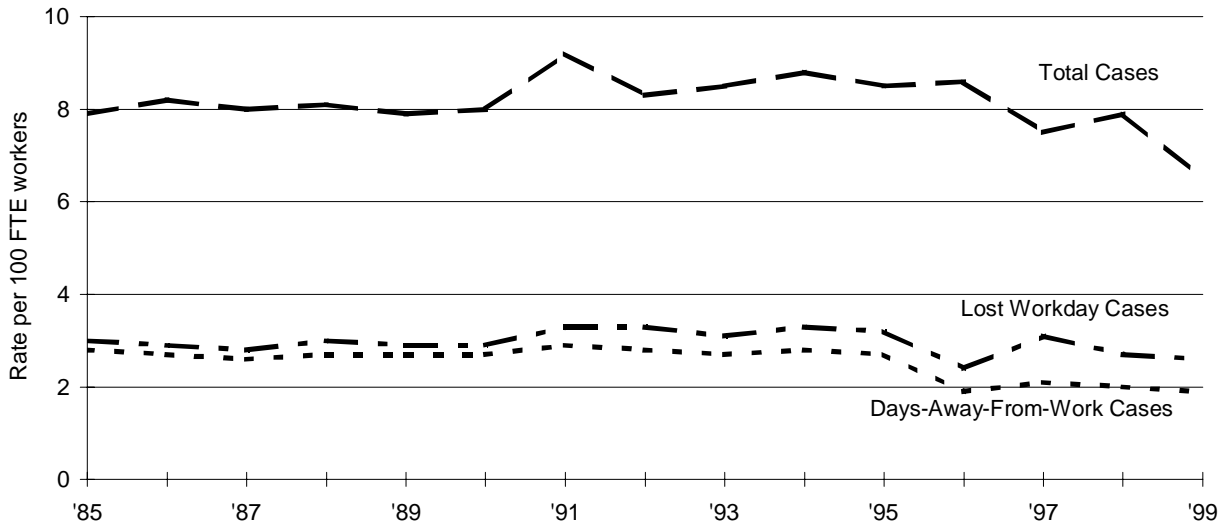
Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

State Government

- Case rates dropped for state government as a whole and for its industry divisions and groups.
- State government construction had the highest total case rate and health services

had the highest LWD and DAFW rates. State government construction consists of Minnesota Department of Transportation offices engaged in road maintenance and repair. State government health services consists of state hospitals, nursing homes and other personal care facilities.

Figure 17
Nonfatal Occupational Injuries and Illnesses
Incidence Rates per 100 FTE Workers,
Local Government



	SIC Code	1994-96 Average			1997-99 Average			Total Number of Cases (1,000s)
		Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	Total Cases	Lost-Workday Cases	Days-Away-From-Work Cases	
Local government		8.6	3.0	2.5	7.3	2.8	2.0	13.3
Services		7.9	2.1	1.8	7.5	2.5	1.8	8.5
Hospitals	806	10.8	4.7	3.5	14.1	5.5	3.5	1.6
Education services	82	7.2	1.4	1.3	6.3	1.8	1.4	5.9
Public administration		9.1	3.7	3.0	6.0	2.7	2.0	3.6

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).

Local Government

- While rates for local government decreased as a whole, some constituent industry rates increased.
- Local government hospitals (e.g., county hospitals) had increased total case and LWD rates, with no change in their DAFW rates.
- The total case rate decreased for education services (public schools), while the LWD and DAFW rates increased. Education services account for 54 percent of local government employment.

4

Characteristics and Causes of Injuries and Illnesses

This chapter presents information from the BLS survey on the characteristics and causes of Minnesota's workplace injuries and illnesses. Characteristics include the nature of injury or illness and the part of body affected; causes consist of the event or exposure leading to the injury or illness and the source of injury or illness — the object, substance, person, or environmental condition that directly produced or inflicted it.

Characteristics

Nature of Injury or Illness

Figure 18 shows the nature of injury or illness for Minnesota's DAFW cases, averaged for 1997-99. Traumatic injuries and disorders accounted for 89 percent of all DAFW cases. Half of these (48 percent of the total) were sprains, strains, and tears of muscles, tendons, and joints. The next most common types of traumatic injuries and disorders were surface wounds and bruises (8 percent) and open wounds (8 percent). Also significant was back and other pain, combining two categories under "other traumatic injuries and disorders" (7 percent).

Most of the remaining cases (10 percent of the total) were systemic diseases and disorders. These included musculoskeletal system diseases and disorders (3 percent), nervous system and sense organs diseases (3 percent), and digestive system diseases and disorders (2 percent).

The musculoskeletal system diseases and disorders category is not the same as musculoskeletal disorders (MSDs), which were the focus of the recently repealed OSHA standard. The U.S. Department of Labor defines an MSD as an injury or disorder of the muscles, nerves, tendons, joints, cartilage, and

spinal discs. MSDs do not include disorders caused by slips, trips, falls, motor vehicle accidents, or similar accidents. National data collected by the BLS with the annual Survey of Occupational Injuries and Illnesses show that there were more than 582,000 MSDs reported among private industry employers in the U.S. in 1999 which resulted in one or more days away from work. Nationally, MSDs accounted for 34 percent of the DAFW cases in 1999. This percentage has remained constant since 1992, the first year such data were collected. For Minnesota, there were slightly more than 14,500 MSDs estimated for 1999, accounting for 38 percent of DAFW cases.

Part of Body

As shown in Figure 19, the most common body part affected in DAFW cases for 1997-99 was the trunk (42 percent of the total). A majority of these cases (30 percent of the total) involved the back. One-third of the back cases (11 percent of the total) did not specify the region of the back affected. Most of the remaining back cases (17 percent of the total) indicated the lumbar (lower back) region. Second most common among trunk areas were the shoulders (5 percent).

Upper extremities were involved in 21 percent of DAFW cases, most commonly the fingers (8 percent of total) and wrists (5 percent). Lower extremities accounted for 19 percent of DAFW cases, most often the knees (7 percent), ankles (5 percent), and feet (except toes) (3 percent). Multiple body parts were injured in 9 percent of the cases.

Causes

Event or Exposure

Figure 20 shows the types of events and exposures leading to DAFW cases for 1997-99. Slightly more than half of DAFW cases (53 percent) were caused by bodily reaction and exertion. This took the form of overexertion (37 percent of total), most frequently in lifting (17 percent) and bodily reaction (e.g. slips, trips, bending, reaching) (11 percent). The next most frequent cause was contact with objects and equipment (24 percent); this included being struck by an object (13 percent of total), struck against an object (5 percent), and caught in or compressed by equipment or objects (4 percent).

Fourteen percent of DAFW cases resulted from falls. Four percent of DAFW cases were caused by exposure to harmful substances or

environments, primarily exposure to caustic or allergenic substances and contact with temperature extremes. Transportation incidents were responsible for 4 percent of DAFW cases, and assaults and violent acts, 1.4 percent.

Source of Injury or Illness

As shown in Figure 21, the most frequent source for Minnesota's 1997-99 DAFW cases was persons, plants, animals, and minerals (26 percent), most commonly the injured or ill worker in cases involving bodily motion or position (16 percent of total) or a health care patient or facility resident (6 percent).

Other common injury sources were structures and surfaces (usually floors, walkways, and ground surfaces) (17 percent); containers (15 percent); and parts and materials (13 percent).

Figure 18
Nature of Injury or Illness
for Days-Away-From-Work Cases, Minnesota, 1997-99 Average

Nature of Injury or Illness	Percent- age of Cases [1]	Nature of Injury or Illness	Percent- age of Cases [1]
Traumatic injuries & disorders	89.3%	Other traumatic injuries & disorders	10.4%
Traumatic injuries to muscles, tendons, joints, etc.	47.7	Nonspecified injuries & disorders	10.1
Strains, sprains, & tears	47.6	Back pain, hurt back	3.3
Open wounds	8.2	Soreness, pain, hurt, except back	3.7
Cuts & lacerations	5.7	Crushing injuries	0.9
Punctures, except bites	1.6	Multiple nonspec. injuries & disorders	0.3
Amputations	0.6	Nonspec. injuries & disorders, n.e.c.	2.0
Amputations, fingertip	0.3	Electrocutions, electric shocks	0.1
Surface wounds & bruises	8.5	Other poisonings & toxic effects	0.1
Bruises & contusions	6.5	Systemic diseases & disorders	9.6
Foreign bodies (superf. splinters, chips)	1.2	Musculoskeletal system diseases & disorders	3.1
Abrasions & scratches	0.8	Rheumatism, except the back	2.0
Traumatic injuries to bones, nerves, & spinal cord	6.4	Tendinitis	1.1
Fractures	5.6	Dorsopathies	1.1
Dislocations	0.7	Nervous system & sense organs diseases	3.2
Burns	1.8	Disorders of peripheral nervous system	2.8
Heat burns, scalds	1.2	Carpal tunnel syndrome	2.2
Chemical burns	0.6	Disorders of the eye, adnexa, vision	0.3
Intracranial injuries	0.4	Digestive system diseases & disorders	2.2
Concussions	0.4	Hernia	2.2
Multiple traumatic injuries & disorders	4.1	Disorders of skin & subcutaneous tissue	0.5
Sprains & bruises	1.2	Respiratory system diseases	0.4
Fractures & other injuries	1.2	Symptoms, signs, & ill-defined conditions	0.8
Cuts, abrasions, & bruises	1.0	Infectious & parasitic diseases	0.0

1. Percentages are relative to the number of classifiable cases. Nonclassifiable cases were 4.8 percent of the total.

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics). Figures computed from published data by DLI Research and Statistics.

Figure 19
Part of Body Affected by Injury or Illness
for Days-Away-From-Work Cases, Minnesota, 1997-99 Average

Part of Body	Percent- age of Cases [1]	Part of Body	Percent- age of Cases [1]
Trunk	41.7%	Lower extremities	19.2%
Back, including spine, spinal cord	29.8	Leg(s)	9.6
Lumbar region	16.6	Knee(s)	7.0
Thoracic region	1.7	Lower leg(s)	0.8
Coccygeal region	0.1	Thigh(s)	0.3
Multiple back regions	0.7	Leg(s), unspecified	1.3
Back, unspecified	10.6	Ankle(s)	4.5
Shoulder	5.0	Foot(feet), except toe(s)	3.2
Abdomen	2.5	Toe(s), toenail(s)	1.2
Internal location of diseases & disorders	1.9	Multiple lower extremities locations	0.7
Abdomen, except internal location of diseases & disorders	0.4	Head	5.3
Chest	1.6	Face	3.6
Pelvic region	1.6	Eye(s)	2.7
Hip(s)	0.7	Nose, nasal cavity	0.3
Groin	0.7	Mouth	0.1
Multiple trunk locations	0.9	Tooth (teeth)	0.0
Upper extremities	20.5	Forehead	0.1
Finger(s), fingernail(s)	7.2	Multiple face locations	0.2
Wrist(s)	4.9	Cranial region	0.4
Arm(s)	4.0	Brain	0.4
Elbow(s)	1.4	Ear(s)	0.1
Forearm(s)	0.8	Head, unspecified	1.0
Upper arm(s)	0.3	Neck, including throat	2.2
Arm(s), unspecified	1.1	Multiple body parts [2]	8.5
Hand(s), except finger(s)	3.4	Body systems [3]	1.2
Multiple upper extremities locations	0.9		

1. Percentages are relative to the number of classifiable cases. Nonclassifiable cases were 2.6 percent of the total.
2. Injuries and illnesses involving multiple body parts are counted in this category only.
3. This category applies when the functioning of an entire body system (e.g. circulatory system) is affected without injury to a particular body part.

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics). Figures computed from published data by DLI Research and Statistics.

Figure 20
Event or Exposure Leading to Injury or Illness
for Days-Away-From-Work Cases, Minnesota, 1997-99 Average

Event or Exposure	Percent- age of Cases [1]	Event or Exposure	Percent- age of Cases [1]
Bodily reaction & exertion	53.1%	Fall to lower level	4.8%
Overexertion	37.3	Fall down stairs or steps	1.1
Overexertion in lifting	16.5	Fall from nonmoving vehicle	0.6
Overexertion in pulling or pushing objects	4.5	Fall from ladder	1.0
Overexertion in holding, carrying, turning or welding objects	1.4	Fall from floor, dock, or ground level	0.3
Bodily reaction	10.6	Fall from roof	0.2
Slip, trip, loss of balance--without fall	3.0	Fall from scaffold, staging	0.1
Bending, climbing, reaching, & twisting	2.5	Jump to lower level	0.5
Walking--without other incident	0.5	Exposure to harmful substances or environments	4.1
Standing	0.1	Exposure to caustic or allergenic subst.	2.4
Sitting	0.0	Contact with skin or other exposed tissue	0.9
Repetitive motion	5.0	Inhalation of substance	0.5
Repetitive use of tools	1.0	Contact with temperature extremes	1.3
Typing or keyentry	1.0	Contact with hot objects or substances	1.2
Repetitive placing, grasping, or moving of objects, ex. tools	0.7	Contact with electric current	0.1
Contact with objects & equipment	23.7	Exposure to radiation	0.2
Struck by object	12.5	Exposure to welding light	0.2
Struck by falling object	5.0	Transportation incidents	3.5
Struck by swinging or slipping object	1.5	Highway incident	2.5
Struck by flying object	0.8	Collision between vehicles, mobile equip.	1.7
Struck against object	5.3	Pedestrian, nonpassenger struck by vehicle	0.4
Caught in or compressed by equipment or objects	3.7	Pedestrian struck by vehicle or mobile equipment in non-roadway area	0.3
Caught in running equip. or machinery	1.4	Nonhighway incident except rail, air, water	0.4
Compressed by rolling or sliding objects	0.7	Noncollision incident	0.3
Rubbed or abraded by friction or pressure	1.4	Assaults & violent acts	1.4
Rubbed, abraded by foreign matter in eye	1.2	Assaults and violent acts by person(s)	1.2
Rubbed, abraded, or jarred by vibration	0.3	Assaults by animals	0.1
-- by vibration of vehicle or motor equip.	0.3	Fires & explosions	0.1
Falls	14.1		
Fall on same level	8.6		
Fall to floor, walkway, or other surface	7.2		
Fall onto or against objects	1.1		

1. Percentages are relative to the number of classifiable cases. Nonclassifiable cases were 6.1 percent of the total.

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics). Figures computed from published data by DLI Research and Statistics.

Figure 21
Source of Injury or Illness
for Days-Away-From-Work Cases, Minnesota, 1997-99 Average

Source	Percent- age of Cases [1]	Source	Percent- age of Cases [1]
Persons, plants, animals & minerals	26.4%	Vehicles	7.4%
Person--injured or ill worker	15.7	Highway vehicle, motorized	4.4
Bodily motion or position of injured or ill worker	15.5	Truck	1.6
Person, other than injured or ill worker	9.2	Automobile	1.2
Health care patient or facility resident	5.6	Bus	0.5
Animals & animal products	0.5	Van--passenger or light delivery	0.2
Mammals, except humans	0.3	Plant & industrial vehicle--nonpowered	1.7
Plants, trees, & vegetation--not processed	0.3	Cart, dolly, handtruck	1.6
Food products--fresh or processed	0.3	Plant & industrial powered vehicles, tractors	1.0
Nonmetallic minerals, except fuel	0.3	Forklift	0.8
Structures & surfaces	17.0	Machinery	6.9
Floors, walkways, & ground surfaces	13.6	Metal, woodworking, & special material machinery	1.4
Floors	6.0	Material handling machinery	1.3
Ground	3.3	Special process machinery	1.2
Stairs, steps	1.2	Heating, cooling, & cleaning machinery	0.8
Parking lots	0.8	Constr., logging, & mining machinery	0.4
Other structural elements	2.5	Office & business machinery	0.3
Structures (incl. scaffolds, towers, poles)	0.7	Tools, instruments, & equipment	6.4
Containers	14.5	Handtools--nonpowered	3.3
Containers--nonpressurized	10.5	Cutting handtools--nonpowered	1.3
Boxes, crates, cartons	4.8	Handtools--powered	1.1
Bags, sacks, totes	1.3	Ladders	0.3
Containers--variable restraint	1.8	Handtools--power not determined	0.2
Skids & pallets	1.0	Furniture & fixtures	3.4
Containers--pressurized	0.5	Furniture	2.0
Luggage & handbags	0.3	Cases, cabinets, racks, & shelves	0.9
Parts & materials	12.5	Chemicals & chemical products	1.7
Building materials--solid elements	4.9	Other sources	3.9
Structural metal materials	1.4	Scrap, waste, & debris	1.8
Wood & lumber	1.3	Chips, particles & splinters	1.6
Vehicle & mobile equipment parts	1.4	Steam, vapors, & liquids n.e.c.	0.4
Machine, tool, & electric parts	1.9	Atmospheric & environmental conditions	0.3
Fasteners, connectors, ropes, & ties	1.6		
Metal materials, nonstructural	0.7		

1. Percentages are relative to the number of classifiable cases. Nonclassifiable cases were 7.3 percent of the total.

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics). Figures computed from published data by DLI Research and Statistics.

5

Fatal Occupational Injuries

In 1999, 72 Minnesota workers were fatally injured on the job. This is down from the 1998 total of 88 fatalities, and less than the 1994-98 annual average of 84 fatalities. The decrease from 1998 included both wage-and-salary and self-employed workers. Nationwide, 6,023 workers were fatally injured during 1999. This is nearly the same as the 1998 total of 6,055 and 4 percent lower than the 1994-98 average of 6,280. These and other findings are from the nationwide Census of Fatal Occupational Injuries (CFOI), conducted by BLS with state and other federal agencies.

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, other federal or state laws, or are outside the scope of regulatory coverage. For example, the CFOI includes federal employees and resident armed forces, even though they have different legal and regulatory coverage than other workers. 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. Information is obtained from several sources, including death certificates, coroners' reports, workers' compensation reports, news media, and others. Because of larger numbers, the national data have greater detail and greater statistical reliability than state data.⁹

⁹Available national-level tables present such data as nature of the fatal injury, how it occurred, industry, occupation, and worker characteristics. Other

This chapter presents CFOI data for Minnesota showing trends for 1991-99, incidence by industry division, and event or exposure causing the fatal injury.

Number of Fatal Injuries Over Time

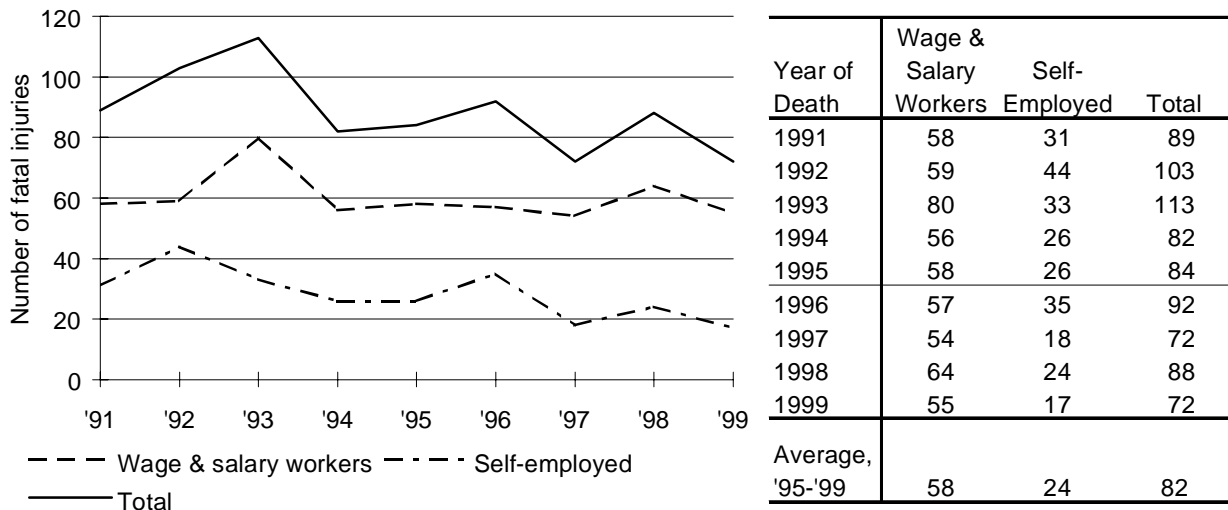
As shown in Figure 22, Minnesota had between 72 and 113 fatal work injuries per year from 1991 to 1999. For wage-and-salary workers, the annual fatality toll was between 54 and 64 except for 1993, when it reached 80. For self-employed workers, the annual fatality figure ranged from 17 to 44.

For 1995-99, the fatality toll averaged 82 per year, consisting of 58 per year for wage-and-salary workers and 24 for self-employed workers. Fatal injuries for the self-employed were 29 percent of the total, far higher than the 10 percent self-employed share of total state employment for the period.¹⁰

nationwide tabulations focus on special topics such as fatalities involving cranes, falls, electrocutions, and excavation and trenching cave-ins. For national data, call the BLS at 202-606-6175 or visit <http://stats.bls.gov/oshhome.htm>. For Minnesota or national data, call DLI Research and Statistics at 651-284-5025.

¹⁰Unpublished Current Population Survey data from BLS.

Figure 22
Fatal Work Injuries in Minnesota, 1991-99 [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.

Source: Census of Fatal Occupational Injuries (U.S. Bureau of Labor Statistics in cooperation with state and other federal agencies).

Incidence by Industry Division

Figure 23 shows the incidence of Minnesota’s fatal work injuries by industry division, averaged for 1995-99. Overall, Minnesota had an average of 3.1 fatal workplace injuries per year per 100,000 workers. The highest fatality rates were in agriculture, forestry, and fishing (19.9), construction (13.1), and transportation, communication, and utilities (8.2). The highest annual *numbers* of fatal injuries were in agriculture, forestry, and fishing (23 per year) and construction (15).

Cause of Fatal Injuries

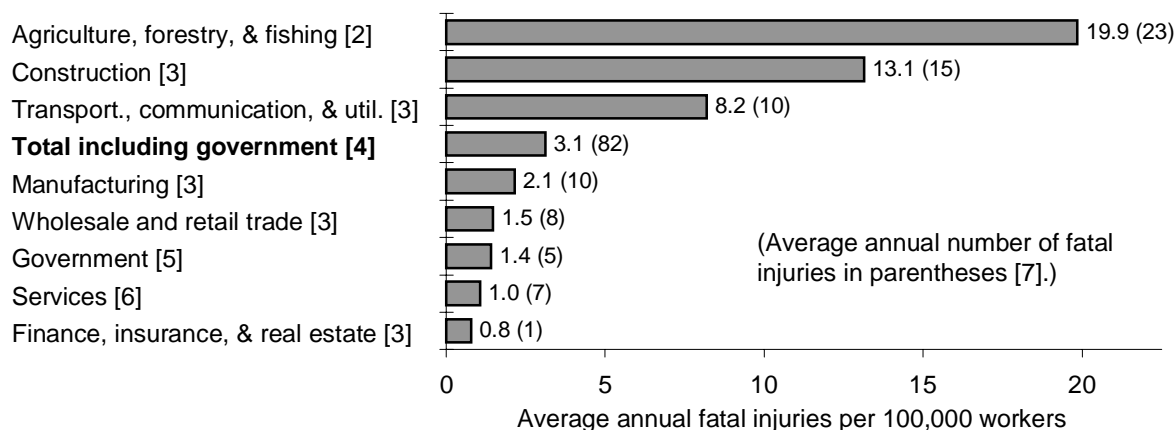
Figure 24 shows the event or exposure causing fatal work injuries in Minnesota during 1995-99. The most common cause of fatal injuries was transportation accidents, accounting for 46 percent of the total. These consisted primarily

of highway accidents, but also included nonhighway accidents and workers being struck by vehicles.

The second most common cause was contact with objects and equipment (24 percent). These cases included workers being struck by an object, caught in or compressed by equipment or objects, and caught in or crushed by collapsing materials.

Assaults and violent acts accounted for 9 percent of the workplace fatalities. Primary among assaults and violent acts was homicide, accounting for 7 percent of the total and the fifth leading cause of fatal workplace injuries for the state. By contrast, homicide was responsible for 14 percent of the national total for 1995-99. Homicides are currently the third leading cause of fatal workplace injuries nationwide.

Figure 23
Incidence of Fatal Work Injuries by Industry Division,
Minnesota, 1995-99 Average [1]



1. Includes private sector plus federal, state, and local government. Excludes fatal illnesses. Mining is not shown separately because of statistical issues concerning the employment estimates for that industry.
2. Incidence rate includes self-employed and family workers, and excludes forestry and fishing. Average annual number of cases includes forestry and fishing.
3. Incidence rate excludes self-employed and family workers.
4. Includes private sector plus all levels of government. Incidence rate includes the self-employed, family workers, and private household workers, and excludes military personnel. Average annual number of cases includes resident military personnel.
5. Includes all public-sector employees regardless of industry. Incidence rate excludes military personnel. Average annual number of cases includes resident military personnel.
6. Incidence rate excludes the self-employed, family workers, and private household workers, and includes forestry and fishing. Average annual number of cases excludes forestry and fishing.
7. The average annual number of cases includes the self-employed, family workers, private household workers, and resident military personnel.

Source: Computed by DLI Research and Statistics with data from the Census of Fatal Occupational Injuries (U.S. Bureau of Labor Statistics).

Figure 24
Event or Exposure Causing Fatal Work Injury,
Minnesota, 1995-99 Average [1]

Event or Exposure	Average Annual Number of Fatalities	Percentage of Total
Total	72	100%
Transportation accidents	38	46
Highway accident	22	27
Nonhighway accident, except air, rail, water [2]	7	9
Worker struck by vehicle	3	4
Contact with objects & equipment	20	24
Struck by object	10	12
Struck by falling object	6	7
Caught in or compressed by equipment or objects	6	7
Caught in running equipment or machinery	2	3
Caught in or crushed by collapsing materials	4	5
Falls	9	11
Assaults and violent acts	7	9
Homicide	5	7
Exposure to harmful substances or environments	6	8
Contact with electric current	4	5
Fires and explosions	2	2

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.

2. Includes accidents on farms, industrial premises, and construction sites.

Source: Census of Fatal Occupational Injuries (U.S. Bureau of Labor Statistics in cooperation with state and other federal agencies).

6

Programs and Services of the Department of Labor and Industry

The Department of Labor and Industry has a variety of programs and services to help employers maintain a safe and healthful workplace and thereby contain workers' compensation costs. Most of these programs are based on the Minnesota Occupational Safety and Health Act (MNOSHA). The MNOSHA Compliance and Workplace Safety Consultation (WSC) units administer these programs. MNOSHA Compliance is responsible for conducting enforcement inspections, adopting safety and health standards, and operating other related MNOSHA activities. The WSC provides free consultation services to help employers prevent workplace injuries and diseases by identifying and correcting safety and health hazards.

Occupational Safety and Health Laws

The Occupational Safety and Health Act

The U.S. Congress passed the Occupational Safety and Health Act in 1970 “...to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources.” Minnesota has an approved state plan under the federal Act, and operates under the Minnesota Occupational Safety and Health Act of 1973 and its related standards. DLI administers the state Act through the MNOSHA Compliance unit.

Under the “general duty” clause of the state Act, employers must provide a workplace and working conditions free from recognized hazards that cause, or are likely to cause, death, serious injury, or harm to their employees. In addition, employers are required to comply with

safety and health standards issued by the department; to evaluate their workplaces to identify safety and health hazards; to establish methods to control or eliminate identified hazards and promote safe work practices; and to provide necessary protective equipment at no cost to employees.

Employers with 11 or more employees must also keep injury and illness records for each establishment and must post summary injury and illness information for each calendar year during the month of February of the following year. The required form for this record-keeping, the OSHA 200 log, is the basis for the annual survey of occupational injuries and illnesses for sampled employers.

Employees are required to comply with those safety and health standards that apply to their own jobs. Employees may refuse to perform assigned tasks they reasonably believe to pose an imminent danger of death or serious injury. Employees may also file a complaint with the department requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. Employers may not discharge or otherwise take retaliatory actions against employees for exercising these or other rights under the Act.

Employee Right-to-Know

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 on 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.

AWAIR Act

Under “A Workplace Accident and Injury Reduction” Act (AWAIR) — 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.

Labor-Management Safety Committees

The state Act also requires all public and private employers with more than 25 employees, and smaller employers in high-hazard industries, to establish and use a joint labor-management safety committee. Employee representatives on the committee must be chosen by employees, and the committee must meet regularly.

Occupational Safety and Health Compliance

Workplace Inspections

The state Act authorizes the department to conduct workplace inspections to determine whether employers are complying with safety and health standards. The department’s inspectors are trained in OSHA standards and in recognition of safety and health hazards. With certain exceptions, the state Act requires inspections 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.

Employers found to have violated OSHA standards receive citations for the violations and are assessed penalties based on the seriousness of the violations. These employers are also required to correct the violations. Citations, penalties, and time periods allowed for

correcting violations may be appealed by employers or employees. Figure 25 shows the most commonly cited standard violations for 2000. Violations associated with compliance with the Employee Right-to-Know Act and the AWAIR Act were the most commonly-cited standards.

MNOSHA Compliance has a system of inspection priorities. The priorities, highest to lowest, are imminent danger (established from reports by employees or the public or from observation by a MNOSHA investigator), fatal accidents and catastrophes (accidents causing hospitalization of three or more employees), employee complaints (not concerning imminent danger), programmed inspections (which target employers in high-hazard industries), and follow-up inspections (for determining whether previously cited violations have been corrected).

During 2000, MNOSHA Compliance initiated inspections for 19 fatalities, 8 of which were in the construction industry. Also in 2000, MNOSHA Compliance investigated 53 serious injury incidents. Serious injuries involve amputations, loss of sight, electrocutions or electrical burns, falls from elevations, crushed-by injuries, workplace violence, and struck-by injuries resulting in head or spine injuries, broken bones or multiple trauma.

Figure 26 shows statistics for MNOSHA Compliance inspections from federal fiscal years 1995 through 2000. The table shows that approximately 2,000 inspections were conducted annually, covering between 70,000 and 100,000 workers. Since 1998, approximately two-thirds of inspections resulted in at least one violation, with total penalty assessments of \$2 to \$3 million.

Minnesota First

Minnesota First is an enforcement-based inspection program for employers with 75 or more workers in manufacturing industries who have injury and illness rates above the current average for all Minnesota employers. MNOSHA Compliance staff target these employers for unannounced comprehensive

Figure 25
Minnesota OSHA's Most Frequently Cited Standards--2000

Standard [1]	Description	Frequency
MN Rules Chapter 5206	Employee Right-To-Know	313
	No program	182
	Written program deficiencies	49
	Multiemployer worksites	2
	Records	4
	Frequency of training	55
	Training deficiencies	4
	Lack of Material Safety Data Sheets (MSDSs)	8
	Labeling	9
MN Statutes 182.653 subd. 8	A Workplace Accident and Injury Reduction (AWAIR) Program	223
MN Statutes 182.653 subd. 2	General Duty Clause - unsafe working condition	102
MN Rules 5205.0116 subp. 1 & 2	Forklifts - monitoring for carbon monoxide	89
29 CFR 1910.151(c)	Emergency eyewash/shower facilities	88
29 CFR 1910.212(a)(1)	Machine guarding - general requirements	73
29 CFR 1910.134(a)(2)	Respiratory protection program	71
29 CFR 1926.652(a)(1)	Use of sloping or protective systems to prevent excavation cave-ins	66
29 CFR 1910.178(l)	Forklifts - operator training	64
29 CFR 1910.305(g)(1)(iii)	Improper use of flexible electrical cords & cables	60
29 CFR 1910.212(a)(3)(ii)	Point of operation guarding of machines	58
29 CFR 1910.219(d)(1) and (e)(2)	Machine guarding - belts and pulleys	56
29 CFR 1910.305(d)	Electrical hazards involving switchboards and panelboards	53
29 CFR 1926.501(b)(1)	Fall protection in construction - general requirements	52
29 CFR 1926.100(a)	Hard hats in construction	51
29 CFR 1926.451(g)(1)	Fall protection on scaffolds above 10 feet	50
29 CFR 1910.242(b)	Compressed air used for cleaning	48
MN Rules 5205.1200 subp. 2-5	Initial, frequent and periodic inspections of cranes and hoists	42
MN Rules 5205.0890	Barrier guard on hydraulic presses to prevent ejection of material	41
29 CFR 1910.304(f)(5)(v)	Grounding of cord & plug connected equipment	40
29 CFR 1926.21(b)(2)	unsafe conditions and applicable regulations for construction activity	40
MN Rules 5205.0675 subp. 2	Protection of overhead doors to prevent crushing	40
29 CFR 1926.651(k)(1)	Inspections of excavation operations by a competent person	38

1. 29 CFR refers to the U.S. Code of Federal Regulations Title 29, which covers the U.S. Department of Labor.

Source: OSHA Integrated Management Information System.

inspections. Employers choosing to participate in the program then work with MNOSHA staff to develop a two-year action plan. The plan specifies measures to decrease workplace hazards and addresses safety and health program development, and employee involvement. Employers submitting an acceptable plan may receive up to a 70 percent reduction in assessed penalties and a two-year exemption from programmed compliance inspections. (However, MNOSHA Compliance will continue to conduct inspections in the event of fatalities, serious injuries, complaints, or referrals.)

Figure 27 shows data for the Minnesota First program. The number of employers in the program has varied widely, with the 2000 number being the lowest to date. However, the number of employees covered by the program inspections has remained near 7,000. An average of seven violations were cited per inspection, compared to an average of two violations for other Compliance inspections.

Further Information

For further information on OSHA requirements, standards, and procedures, or on Minnesota

Figure 26
Minnesota OSHA Compliance Inspections

Federal Fiscal Year [1]	Inspections Conducted	Employees Covered [2]	Inspections with Violations	Violations	Penalties Assessed (\$millions)
1995	2,303	110,749	1,421	4,991	\$1.97
1996	2,126	76,884	1,243	4,025	\$2.46
1997	1,770	64,516	950	2,637	\$1.38
1998	2,060	73,964	1,296	3,751	\$2.12
1999	1,877	102,958	1,312	3,951	\$3.13
2000	1,992	84,593	1,369	4,071	\$2.46

1. Federal fiscal years are from October 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 and not always all employees at a facility.

Source: OSHA Integrated Management Information System.

First, contact the department's MNOSHA Compliance unit at 1-877-470-6742 or 651-284-5050, by FAX at 651-297-2527; e-mail OSHA.Compliance@state.mn.us; or visit the department's website at www.doli.state.mn.us/mnosha.html.

Workplace Safety Consultation

Where possible, DLI prefers a cooperative approach, to achieve a safe and healthful workplace. Minnesota Workplace Safety Consultation (WSC) is a means to that end.

Workplace Consultations

WSC offers a free consultation service on

request 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 but is also available to public-sector employers. It is voluntary, confidential, and separate from the MNOSHA Compliance unit.

On-site consultations are conducted by safety and health professionals. During consultations, businesses are assisted in determining how to improve workplace conditions and practices in order to comply with regulations and to reduce accidents and illnesses and their associated costs. The consultant makes recommendations dealing with all aspects of an effective safety

Figure 27
Minnesota FIRST Inspections

Inspection Year [1]	Employers in Program [2]	Inspections Conducted	Employees Covered [3]	Avg. No. of Violations per Inspection	Penalties Assessed	Action Plans Accepted
1997	128	40	7,739	6.8	\$259,400	15
1998	95	40	7,580	6.6	\$390,750	21
1999	114	28	6,245	7.9	\$377,060	17
2000	53	28	6,478	7.1	\$280,550	10

1. Inspection years are from August 1 of the prior year to July 31 of the indicated year.
2. Total employers in the program refers to the number of employers who have a total case incidence rate higher than the state average and have at least 75 employees.
3. Employees covered refers to the number of employees who were affected by the scope of the inspection and not always all employees at a facility.

Source: OSHA Integrated Management Information System.

and health program. A written report with recommendations is sent to the employer after the consultation.

No citations are issued or penalties proposed as a result of the consultation. The employer is only obligated to correct in a timely manner any serious safety and health hazards found. No information about the employer is reported to MNOSHA Compliance unless the employer fails to correct the detected safety and health hazards within a specified period of time. This has happened only once in the past six years.

Figure 28 shows statistics for worksite visits from 1995 through 2000. The number of

Figure 28
Workplace Safety Consultation
Worksite Visits

Calendar Year	Consultation Visits	Employees at Worksites
1995	276	31,876
1996	401	63,930
1997	523	130,974
1998	515	114,034
1999	677	88,936
2000	826	141,690

Source: OSHA Integrated Management Information System.

worksite visits has tripled and the number of employees at the visited worksites has increased four-fold from 1995 to 2000. This is a result of a national policy decision to shift more OSHA resources to consultation services.

During the past five years, consultation visits have resulted in the identification and correction of safety and health hazards that have saved employers an average of \$1.7 million annually in MNOSHA penalties.

Training Seminars

WSC provides seminars 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 the labor-management safety committees. The

seminars provide information that safety directors, supervisors, safety committee members and employees can use to help train their coworkers. Many of the WSC seminars are coordinated and conducted with 13 training organizations throughout the state, including community and technical colleges, labor-management associations, and government training centers.

Figure 29 shows that the number of seminars and seminar attendees increased more than three-fold from 1995 to 2000.

Figure 29
Workplace Safety Consultation Safety
Seminars

Calendar Year	Seminars	Attendees
1995	158	4,050
1996	208	6,271
1997	255	8,801
1998	411	11,676
1999	391	10,006
2000	453	12,305

Source: OSHA Integrated Management Information System.

The Labor-Management Safety Committee Program

This program was developed jointly by the department and the State Bureau of Mediation Services to provide expert assistance in developing and administering labor-management safety committees. Services are available if requested by either management or labor representatives. Services include interpretation of OSHA standards, training in self-inspection techniques, and help in preparing and implementing education and training programs. The safety committee seminars mentioned in the Training Seminars section, above, are part of this program.

The Loggers' Safety Education Program

This WSC program provides full-day logging safety training (Logsafe) seminars throughout the state. In order to receive workers' compensation premium rebates from the

Targeted Industry Fund, logger employers must maintain current workers' compensation insurance and they or their employees must have attended during the previous year a Logsafe seminar or a seminar approved by the department. During the 2000 federal fiscal year (October 1, 1999 to September 30, 2000), WSC conducted 21 Logsafe seminars, attended by 1,075 loggers.

Additionally, WSC conducts training sessions for public-sector employers and employees who are involved in tree removal. Their logging work usually relates to cleanup following storms or other circumstances. In many cases, the trees are damaged and hazardous to work on by workers for which logging is not a daily activity. During the 2000 federal fiscal year, WSC conducted 60 public-sector logging training sessions for 1,434 attendees.

The Workplace Violence Prevention Program

This WSC program helps employers and employees reduce the incidence of violence in their workplaces. The program provides on-site consultation, telephone assistance, education and training seminars, a resource center, and administers an informal process for handling complaints about working conditions presenting risks of violence. This program is targeted toward workplaces at high risk of violence, such as convenience stores, service stations, taxi and transit operations, restaurants and bars, motels, guard services, patient and residential care facilities, schools, social services, and correctional institutions. During the past year, WSC has participated in a number of training events and distributed materials in cooperation with partner organizations.

MNSHARP

MNSHARP (Minnesota Safety and Health Achievement Recognition Program), under WSC, is a voluntary program that assists small high-hazard employers in achieving safety and health improvements and recognizes them for doing so. Eligibility is limited to employers with up to 500 workers at the worksite; priority

is given to employers with fewer than 100 workers. For program purposes, high-hazard employers are those in high-hazard or special-emphasis industries and those with higher-than-average lost-workday injury and illness rates for their industry.

MNSHARP participants receive a free and comprehensive safety and health consultation survey from WSC, which results in a one-year action plan. Within a year, in consultation with WSC, participants must correct hazards identified in the initial survey and develop and implement an effective safety and health program with full employee involvement. The goal is to reduce the employer's total injury and illness rate and lost-workday case rate to a point below the national industry average for at least one year. Participants must also consult in advance with WSC on changes in work processes or conditions that might introduce new hazards.

After a year, a second on-site visit occurs to determine whether the employer has met these requirements and the injury and illness reduction goal. If so, the employer receives a MNSHARP Certificate of Recognition, and is exempted from MNOSHA Compliance programmed inspections for one year. (Inspections will occur, however, in the event of imminent danger, fatalities or other catastrophes, formal complaints, or referrals, or as follow-ups on previously cited violations.)

Certified MNSHARP employers may apply annually for certification renewal. If an on-site survey by WSC determines that the employer continues to meet program requirements, the employer's certification is renewed and it continues to be exempt from programmed MNOSHA Compliance inspections.

There are currently 13 certified MNSHARP employers; 12 are manufacturers and one is a nursing home. Eleven of the employers have been re-certified and two are in their first year of certification. The 11 re-certified employers reduced their overall lost-workday case incidence rate by 29 percent over the previous year.

Figure 30
Safety Grants Awarded 1995-2000

Organization Receiving Grant	No. of Grants Awarded	Total Project Costs (\$millions)	Employer Match (\$millions)	State Grants Awarded (\$millions)
Total	734	\$13.6	\$ 9.2	\$ 4.5
Private Sector Employer	519	\$11.0	\$ 7.6	\$ 3.4
Public Sector Employer	215	\$ 2.6	\$ 1.5	\$ 1.1
Schools	42	\$ 0.6	\$ 0.3	\$ 0.3
Cities	131	\$ 1.3	\$ 0.8	\$ 0.6
Counties	33	\$ 0.4	\$ 0.2	\$ 0.2
State Agencies	9	\$ 0.3	\$ 0.2	\$ 0.1

Source: Workplace Safety Consultation Unit.

MNSTAR

MNSTAR is a voluntary program patterned after the federal Voluntary Protection Program.¹¹ It is available to Minnesota employers of all sizes. In comparison with MNSHARP, MNSTAR has more rigorous requirements and confers a higher level of recognition on certified employers. MNSTAR relies mainly on employer self-assessment and requires an extensive application, including submission of written safety and health policies and procedures. After one or more on-site safety and health surveys, the employer will qualify for MNSTAR status if all eligibility requirements have been met, including an injury and illness rate below the state and national averages for the industry. MNSTAR recognition exempts the employer from programmed MNOSHA compliance inspections for three years. There are currently five MNSTAR employers.

Safety Grant Programs

The Safety Grants Program, awards funds up to \$10,000 to qualifying employers for projects designed to reduce the risk of injury and illness to their employees. To qualify, an employer must meet the following conditions:

- The employer must come under the jurisdiction of Minnesota OSHA.
- A qualified safety and health professional

must have conducted an on-site safety inspection and produced a written report with recommendations based on the inspection.

- The project must be consistent with the recommendations of the safety and health inspection. The employer must have the knowledge and experience to complete the project, and must be committed to its implementation.
- The employer must be able to match the grant money awarded, and all estimated project costs must be covered by available funds (safety grant, employer match, and any other funds).
- The project must be supported by all public entities involved, and must comply with federal state, and local regulations.

During the July 1999 to June 2000 period, the Safety Grants Program awarded 231 grants for \$1.3 million. Figure 30 shows the cumulative statistics for the Safety Grants Program. The figure shows that, among both private and public-sector employers, the safety grant amounts were combined with more than twice the amount in employers matches and other funds to complete the safety projects.

Further Information

For further information on WSC services and programs, including the Consultation Annual Project Report, contact WSC at 1-800-657-3776

¹¹See <http://www.osha.gov/oshprogs/vpp/>.

or 651-284-5060, by FAX at 651-297-1953;
e-mail OSHA.Consultation@state.mn.us; or
visit the department's website at

www.doli.state.mn.us/wsc.html.

7

Workers' Compensation Safety and Health Incentives

The workers' compensation system provides employers with strong financial incentives for minimizing workplace injuries and illnesses. This is true not only for self-insured employers, who bear the cost of workers' compensation claims directly, but also for insured employers.

Experience rating. One of the strongest safety and health incentives for insured employers is experience rating. All insurers and the Assigned Risk Plan (ARP) are required to use experience rating, following a standard formula, for those employers with at least \$3,000 of premium annually.

Under experience rating, premium is adjusted by means of an experience modification factor to reflect the employer's recent claims costs. This factor is calculated annually by the Minnesota Workers' Compensation Insurers Association (MWCIA) for every insured employer. It is based on claims costs, which reflect both the incidence of claims and the average cost per claim. The "mod factor" reflects the employer's claims costs for the most recent three years relative to the average for all employers in the same insurance class. It is greater than, equal to, or less than 1.0, depending on whether the employer's claims costs per \$100 of payroll are, respectively, greater than, equal to, or less than the average for the employer's insurance class. Actual claims costs are a better indicator of underlying injury and illness tendencies for larger employers than for smaller ones; therefore, the modification factor is more sensitive to actual claims costs for larger employers than for smaller ones.

The modification factor enters multiplicatively into the formula the insurance carrier uses to calculate the employer's premium. Thus,

experience rating increases premiums for employers with higher-than-average claims costs, and reduces premiums for those with lower-than-average costs. Insured employers can greatly diminish their workers' compensation costs by reducing the frequency and severity of their workplace injuries and illnesses and thereby reducing their experience modification factor.

Other devices, or plans, that voluntary-market insurers may use to adjust premiums for individual employers are optional for the insurer and subject to approval by the Minnesota Department of Commerce. These include schedule rating, retrospective rating, dividend plans, and deductible plans.

Schedule rating. Under schedule rating, the insurer adapts the premium to characteristics of the individual employer that affect the potential for loss. Characteristics that would reduce the loss potential include safety standards and training, safety equipment, proper maintenance of equipment and premises, and access to emergency medical treatment. Insurers approved for schedule rating may grant lower rates to employers who have a lower potential for losses.

Retrospective rating and dividend plans. Under retrospective rating, the insurer adjusts the premium after the policy period to reflect the employer's losses for claims during the period. Under dividend plans, the insurer pays dividends to the employer when losses are lower than a target.

Deductible plans. Under deductible plans, the employer accepts responsibility for losses up to a specified limit, or "deductible," for each

claim, and the initial premium is reduced accordingly. When claims occur, the insurer pays all costs, including those below the deductible, and the employer reimburses the insurer for costs below the deductible. Thus, with a deductible provision, the employer is effectively self-insured for losses below the deductible amount.

Schedule rating, retrospective rating, and dividend plans are not available in the ARP; the ARP does, however, offer several deductible plans.

Merit rating is a further safety and health incentive available in the ARP. For non-experience-rated employers who have been insured with the ARP for the most recent three years, merit rating provides a 33 percent credit if the employer has had no indemnity claims during the rating period (last three years for which data are available), no adjustment if there has been one indemnity claim, and a 10 percent debit if there have been two or more indemnity

claims. For non-experience-rated employers who have *not* been with the ARP for the most recent three years, the credit for not having any indemnity claims during the rating period is 10 percent rather than 33 percent, and the remainder of the formula is the same.

Employers can obtain their current experience modification factor, or their merit rating credit or debit if they are in the ARP and not experience-rated, by contacting the MWCIA at 952-897-1737 or by FAX at 952-897-6495. For information about schedule rating, retrospective rating, dividend plans, or deductible plans in the voluntary market, employers should contact individual insurance carriers or agents.

Employers will benefit from contacting several carriers to find the rating plans that suit their needs. For information about deductible plans in the ARP, employers should contact the Park Glen National Insurance Company (the ARP administrator) at 952-924-6972 or by FAX at 952-922-5423.

Appendix A

Definitions of BLS Survey Case Types

The U.S. Bureau of Labor Statistics (BLS) conducts the annual Survey of Occupational Injuries and Illnesses to provide nationwide and state-level information on workplace injuries and illnesses, including their number and incidence.¹²

The survey includes all cases recorded by employers on their OSHA 200 logs. These “OSHA-recordable” cases include all nonfatal occupational illnesses and those nonfatal occupational injuries that result in loss of consciousness; medical treatment other than first aid; or any lost time from work, restricted work activity, or transfer to another job after the day of injury.

The survey defines types of injury and illness cases according to whether or not they have “days away from work” and/or “days of restricted work activity”:

- “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-away-from-work” (DAFW) cases are cases with any days away from work. These cases may have days of restricted work activity in addition to days away from work.

- “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. “Restricted-work-activity-only” (RWAO) cases have days of restricted work activity but no days away from work.
- “Lost workdays,” a combined category, includes days away from work *and* days of restricted work activity.
- “Cases without lost workdays” are recordable cases with medical treatment but no days away from work or days with restricted work activity.

¹²See pp. 1-2 for more background on the survey.

Appendix B

Average Annual Rates of DAFW Cases by Number of Days Away From Work

Appendix B shows the average annual rates of DAFW cases of different severity levels, measured by the number of days away from work, by industry for 1997-99. The incidence rate for each severity level by industry was computed as the product of two factors from published BLS survey data. One factor was the average annual incidence of DAFW cases by industry for 1997-99. Industries without at least two years of data were excluded. The second factor was the percentage of DAFW cases by

industry that were at or above the given severity level, i.e., that had at least the number of days away from work corresponding to that level. This factor was averaged over 1995-99 (five years) in order to reduce sampling variation in the presence of small cell sizes in the distribution of DAFW cases by severity level. Because of sample-size concerns, incidence rates by severity level were only computed if at least three years of severity data were available for 1995-99.

**Distribution of Days-Away-From-Work Cases by Number of Days Away,
1995-99 Average Percentage**

Industry	SIC Code	1995-99 Average Percentage of DAFW Cases by Number of Days Away							1999 Median Days Away
		1	2	3-5	6-10	11-20	21-30	31+	
Total including state & local gov.		21.6	15.5	23.5	13.4	10.0	5.1	11.0	
Private industry		20.9	15.5	23.8	13.4	9.9	5.2	11.3	4
Agriculture, forestry, & fishing		21.3	12.3	23.4	13.6	9.4	8.1	12.0	5
Agricultural production	01-02	21.7	13.3	22.4	12.9	12.5	3.5	13.7	5
Agricultural services	07	22.1	11.3	22.4	13.7	6.6	13.7	10.2	4
Mining		7.5	7.2	11.8	9.5	8.0	5.3	50.7	30
Metal mining	10	6.7	6.7	10.7	9.1	8.8	5.9	52.1	31
Iron ores	101	6.7	6.3	9.8	9.9	8.9	6.7	51.7	31
Construction		16.9	12.7	23.1	13.7	10.3	7.3	15.9	4
General building contractors	15	13.6	12.6	24.4	12.5	14.1	6.8	15.9	4
Residential building construction	152	11.7	17.9	23.2	10.0	16.6	7.1	13.6	4
Nonresidential building construction	154	15.7	7.6	23.6	15.8	11.8	6.6	18.9	4
Heavy construction, ex. building	16	18.0	13.6	25.7	12.0	9.6	5.4	15.8	5
Highway & street construction	161	13.9	10.8	28.6	12.5	10.4	6.2	17.7	5
Heavy construction, ex. highway	162	22.3	16.2	21.6	12.0	8.8	5.2	14.0	7
Special trade contractors	17	17.8	12.6	22.0	14.5	9.2	7.9	16.0	4
Plumbing, heating, air-conditioning	171	20.7	14.1	14.5	16.7	9.1	10.8	14.2	8
Electrical work	173	22.6	9.4	20.2	10.6	14.5	5.5	17.3	4
Masonry, stonework, & plastering	174	19.0	10.9	20.6	13.4	7.8	7.1	21.1	5
Manufacturing		23.9	14.5	22.3	13.2	10.4	5.4	10.3	4
Food & kindred products	20	17.9	13.8	22.4	14.9	13.4	5.5	12.1	5
Meat products	201	17.8	15.3	22.4	15.0	12.5	4.9	12.1	5
Poultry slaughtering & processing	2015	21.0	13.5	24.2	11.1	10.0	5.8	14.4	3
Dairy products	202	22.7	13.0	18.3	12.5	12.2	4.5	16.8	5
Preserved fruits & vegetables	203	12.1	11.1	34.2	13.9	14.7	3.9	10.1	3
Grain mill products	204	21.7	13.8	21.4	8.5	17.0	5.0	12.6	5
Lumber & wood products	24	21.6	13.7	26.5	13.7	9.3	6.4	8.9	4
Millwork, plywood, structural memb.	243	21.1	14.3	30.2	15.0	8.5	4.3	6.5	3
Millwork	2431	19.6	14.4	33.9	15.4	8.7	4.9	3.2	3
Furniture & fixtures	25	17.4	18.5	21.4	16.9	11.1	3.8	11.0	9
Paper & allied products	26	23.1	12.0	17.9	14.2	9.2	6.7	17.0	4
Paperboard containers & boxes	265	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
Printing & publishing	27	22.8	13.6	19.8	17.3	11.9	5.3	9.3	4
Newspapers	271	24.6	9.9	30.9	12.9	4.6	3.5	13.6	4
Commercial printing	275	23.7	15.0	18.9	17.3	11.6	6.4	7.1	3
Chemicals & allied products	28	20.2	17.1	21.7	16.5	9.4	2.6	12.5	9
Rubber & misc. plastics products	30	23.7	16.4	26.1	11.6	7.6	5.1	9.5	4
Misc. plastics products, n.e.c.	308	25.9	14.0	27.5	10.1	7.5	5.7	9.3	
Stone, clay, & glass products	32	26.1	9.4	21.7	11.2	12.6	6.3	12.8	5
Primary metal industries	33	26.3	15.2	23.2	11.1	12.5	5.2	6.5	4
Fabricated metal products	34	26.1	18.1	20.5	12.3	9.5	4.5	9.0	4

Industry	SIC Code	1995-99 Average Percentage of DAFW Cases by Number of Days Away							1999 Median Days Away
		1	2	3-5	6-10	11-20	21-30	31+	
Fabricated structural metal products	344	28.0	17.9	18.6	12.1	9.5	4.9	9.0	2
Metal forgings & stampings	346	27.7	15.1	23.6	11.4	8.3	5.1	8.8	4
Ordnance & accessories, n.e.c.	348	20.8	17.2	18.8	13.5	12.7	6.5	10.7	
Industrial machinery & equipment	35	27.4	13.7	23.7	10.8	9.2	5.6	9.6	4
Farm & garden machinery	352	24.2	10.2	26.6	11.9	11.2	1.8	14.1	4
Metalworking machinery	354	37.4	9.6	19.3	12.0	8.4	3.4	10.0	3
General industrial machinery	356	24.0	9.4	23.4	16.9	7.9	8.3	10.1	4
Computer & office equipment	357	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
Refrigeration & service machinery	358	17.6	11.9	25.0	14.0	14.9	4.1	12.4	6
Industrial machinery, n.e.c.	359	23.7	14.1	25.1	8.4	9.3	8.8	10.6	3
Industrial machinery, n.e.c.	3599	24.4	13.4	25.2	7.7	9.1	10.0	10.2	3
Electronic & other electric equip.	36	25.2	13.8	25.6	12.9	8.4	4.9	9.1	3
Electrical industrial apparatus	362	27.0	14.5	21.9	15.9	9.9	5.3	5.5	2
Electronic components & acc.	367	26.3	14.0	30.6	11.9	6.5	4.1	6.6	4
Transportation equipment	37	25.2	15.1	18.7	13.2	9.5	6.5	11.7	5
Motor vehicles & equipment	371	23.2	12.6	19.0	12.5	10.7	8.4	13.6	6
Instruments & related products	38	25.5	12.0	18.0	16.3	11.9	4.6	11.6	6
Measuring & controlling devices	382	22.5	9.6	16.5	20.8	15.0	3.8	11.9	9
Medical instruments & supplies	384	28.3	13.6	21.1	13.2	9.1	5.3	9.3	8
Misc. manufacturing industries	39	18.3	15.9	28.9	10.5	13.9	2.7	9.8	3
Transportation & public utilities		13.6	12.7	23.6	15.9	10.9	6.9	16.4	5
Railroad transportation	40	8.7	12.0	15.0	12.5	11.5	7.4	32.9	14
Local & interurban passenger transit	41	17.6	14.2	25.9	12.6	10.4	4.7	14.7	4
Trucking & warehousing	42	12.3	9.3	23.5	18.3	10.4	7.5	18.7	7
Trucking & courier services, ex. air	421	12.4	11.0	20.4	20.6	9.5	4.6	21.4	7
Transportation by air	45	13.1	17.8	20.1	15.2	12.4	5.8	15.6	5
Transportation services	47	15.9	10.0	31.5	11.3	3.6	4.0	23.7	3
Communication	48	18.2	15.6	30.5	15.2	6.9	3.3	10.5	4
Electric, gas, & sanitary services	49	20.5	16.9	18.9	15.6	9.8	9.4	8.9	4
Electric services	491	12.8	20.6	19.1	11.8	12.4	10.7	12.4	3
Wholesale trade		19.2	18.9	23.6	11.5	10.7	5.0	11.0	4
Wholesale trade -- durable	50	19.7	22.0	21.7	9.5	10.3	5.2	11.6	5
Motor vehicles, parts, & supplies	501	20.8	10.7	28.5	8.8	10.4	11.9	8.9	5
Lumber & construction materials	503	14.2	12.1	26.1	8.7	17.2	1.8	19.9	10
Professional & commercial equip.	504	20.1	17.7	23.0	16.6	9.1	5.3	8.3	6
Machinery, equipment, & supplies	508	25.9	15.4	22.5	10.4	9.6	6.4	9.7	4
Wholesale trade -- nondurable	51	19.6	16.6	23.5	13.0	11.6	4.0	11.7	4
Groceries & related products	514	22.6	15.2	24.4	14.2	10.7	4.2	8.7	4
Retail trade		19.7	15.6	24.2	14.3	10.2	5.1	10.8	4
Building materials & garden supplies	52	19.6	12.1	31.6	13.3	9.1	4.9	9.4	9
Lumber & other building materials	521	13.9	15.3	25.1	18.3	10.4	5.3	11.7	9
General merchandise stores	53	18.9	15.6	25.1	12.4	14.4	4.5	9.1	2
Department stores	531	18.4	16.2	26.4	12.9	14.2	4.0	7.8	2
Food stores	54	21.6	15.1	22.5	15.9	8.6	5.6	10.6	6
Grocery stores	541	22.7	16.2	22.4	15.8	8.3	5.0	9.5	4

Industry	SIC Code	1995-99 Average Percentage of DAFW Cases by Number of Days Away							1999 Median Days Away
		1	2	3-5	6-10	11-20	21-30	31+	
Auto dealers & service stations	55	18.6	18.0	22.0	13.2	15.7	2.8	9.8	4
New & used car dealers	551	15.8	21.1	21.7	15.1	10.6	4.4	11.4	5
Apparel & accessory stores	56	17.0	16.8	32.7	16.1	11.9	1.2	4.4	5
Furniture & home furnishings stores	57	17.5	16.2	30.0	12.8	11.1	2.7	9.6	4
Eating & drinking places	58	18.8	17.0	20.9	17.5	4.7	9.1	12.0	5
Misc. retail	59	20.7	18.2	21.3	12.6	7.5	3.3	16.4	5
Finance, insurance, & real estate		25.2	12.5	22.2	14.5	10.1	5.2	10.3	4
Real estate	65	23.7	15.7	22.7	14.5	9.9	4.6	9.1	4
Services		24.0	18.2	25.7	11.8	8.4	3.3	8.5	3
Hotels & other lodging places	70	17.4	16.5	20.9	15.7	6.3	5.8	17.4	6
Hotels & motels	701	22.4	15.3	20.7	15.2	8.4	5.8	12.2	5
Personal services	72	13.9	11.7	24.1	20.2	6.7	7.2	16.4	6
Business services	73	20.1	16.9	26.9	15.6	10.5	1.6	8.2	
Auto repair, services, & parking	75	13.6	8.8	24.5	10.2	14.9	4.2	23.8	15
Misc. repair services	76	11.8	18.5	25.2	13.6	14.4	4.8	11.7	7
Amusement & recreation services	79	18.6	22.9	25.6	10.9	9.3	4.7	8.0	2
Misc. amusement, recreation servs.	799	19.3	16.6	30.2	11.0	9.6	5.3	8.1	
Health services	80	29.6	19.3	24.2	10.7	7.2	2.9	6.1	3
Nursing & personal care facilities	805	29.2	22.6	22.7	11.6	5.8	1.5	6.6	3
Hospitals	806	31.5	17.8	24.9	10.0	6.9	3.5	5.3	3
Home health care services	808	15.5	16.3	23.6	17.7	17.3	5.3	4.2	8
Education services	82	26.4	18.9	21.2	9.0	7.5	7.0	10.0	7
Social services	83	21.0	21.2	31.6	10.1	7.0	4.1	5.0	4
Residential care	836	16.9	19.4	38.9	8.4	6.0	5.4	5.0	3
State government		26.6	16.6	22.7	13.5	10.2	3.2	7.2	3
Construction		21.0	21.7	21.9	14.0	11.4	2.5	7.3	4
Services		26.0	13.2	24.8	15.0	11.5	2.6	6.9	3
Health services (state gov.)	80	26.0	15.5	25.9	14.6	9.1	3.4	5.5	2
Education services (state gov.)	82	17.0	16.1	25.8	16.5	13.0	2.2	9.5	4
Public administration		30.4	20.6	17.0	10.6	8.1	5.2	8.0	2
Local government		26.6	14.5	20.5	14.0	10.6	4.6	9.2	3
Services		28.5	14.7	22.7	11.4	10.2	4.9	7.6	2
Health services (local gov.)	80	26.9	13.5	25.9	14.7	9.3	3.4	6.2	3
Hospitals (local gov.)	806	27.5	19.1	22.7	11.6	9.1	3.5	6.5	3
Education services (local gov.)	82	29.4	14.1	22.6	10.2	10.4	5.6	7.8	2
Elem. & sec. schools (local gov.)	821	28.4	12.9	25.4	10.0	10.5	5.2	7.8	
Public administration		25.6	13.1	15.7	19.7	10.8	3.6	11.5	7

Source: Survey of Occupational Injuries and Illnesses (U.S. Bureau of Labor Statistics).