

AGRICULTURE, FORESTRY, AND FISHING: agricultural production—crops agricultural production—livestock and animal specialities agricultural services forestry fishing, hunting, and trapping MINING: metal mining coal mining oil and gas extraction mining and quarrying of nonmetallic minerals, except fuels CONSTRUCTION: building construction—general contractors and operative builders heavy construction other than building construction—contractors construction—special trade contractors MANUFACTURING: food and kindred products tobacco products textile mill products apparel and other finished products made from fabrics and similar materials lumber and wood products, except furniture furniture and fixtures paper and allied products printing, publishing, and allied industries chemicals and allied products petroleum refining and related industries rubber and miscellaneous plastics products leather and leather products stone, clay, glass, and concrete products primary metal industries fabricated metal products, except machinery and transportation equipment industrial and commercial machinery and computer equipment electronic and other electrical equipment and components except computer equipment transportation equipment measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks miscellaneous manufacturing industries TRANSPORTATION, COMMUNICATIONS, ELECTRIC, GAS, AND SANITARY SERVICES: railroad transportation local and suburban transit and interurban highway passenger transportation motor freight transportation and warehousing United States Postal Service water transportation transportation by air pipelines, except natural gas transportation services communications electric, gas, and sanitary services WHOLESALE TRADE: wholesale trade—durable goods wholesale trade—nondurable goods RETAIL TRADE: building materials hardware, garden supply, and mobile home dealers general merchandise stores food stores automotive dealers and gas and service stations apparel and accessory stores home furniture, furnishings, and equipment stores eating and drinking places miscellaneous retail FINANCE, INSURANCE, AND REAL ESTATE: depository institutions nondepository credit institutions security and commodity brokers, dealers, exchanges, and services insurance carriers insurance agents, brokers, and services real estate holding and other investment offices SERVICES: hotels, rooming houses, camps, and other lodging places personal services business services automotive repair, services, and parking miscellaneous repair services motion pictures amusement and recreation services health services legal services education services social services museums, art galleries, and botanical and zoological gardens membership organizations engineering, accounting, research, management, and related services private households miscellaneous services PUBLIC ADMINISTRATION: executive, legislative, and general government, except finance justice, 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Minnesota Workplace Safety Report 2011



**MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY**
RESEARCH AND STATISTICS

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Minnesota Workplace Safety Report, 2011

September 2013

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This report is available at www.dli.mn.gov/RS/WorkplaceSafety.asp. Information in this report can be obtained in alternative formats by calling the Department of Labor and Industry at 1-800-342-5354 or TTY at (651) 297-4198.

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Other Department of Labor and Industry staff members who contributed to this report were Ryan Leege and Breca Tschida, Minnesota OSHA Workplace Safety Consultation; Amy Weisser, Minnesota OSHA Compliance. David Berry and William Boyer, Research and Statistics, provided comprehensive editing and recommendations for the presentation of the statistics. Jenny O'Brien of the Communications unit provided final editing.

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Brian Zaidman

Executive summary

The most recent estimates show Minnesota's workers experienced similar estimated rates of injuries and illnesses in 2011, 2010 and 2009, continuing the downward trend since 1994. During 2011, there were an estimated 3.8 OSHA recordable injury and illness cases per 100 full-time-equivalent (FTE) workers. About 47 percent of these cases involved one or more days away from work, an estimated rate of 1.8 cases per 100 FTE workers. The 2011 survey results show there were an estimated 75,400 recordable injury and illness cases, of which about 21,400 involved one or more days away from work.

There were 60 work-related fatalities in 2011, a decrease from 70 fatalities in 2010 and similar to the 61 fatalities in 2009.

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

Nonfatal occupational injuries and illnesses

Incidence rates

- The rate of cases with days away from work was 1.1 per 100 FTE workers in 2011, a 35 percent decrease from the 2002 rate of 1.7 cases per 100 FTE workers.
- Minnesota's private-sector total recordable case rate has been slightly above the U.S. rate since 1996. For 2011, the total case rate was 3.7 cases per 100 FTE workers for the state versus 3.5 for the nation.
- National rates for public-sector establishments have only been available

since 2008. In 2011, Minnesota's state and local government total recordable case rates were 4.2 cases and 4.7 cases per 100 FTE workers, respectively. The corresponding U.S. rates were 4.6 cases and 6.1 cases per 100 FTE workers.

- Minnesota's industry sectors with the highest total injury and illness rates per 100 FTE workers were:
 - construction (6.5);
 - natural resources and mining (6.2); and
 - manufacturing (4.8).
- The industry subsectors with the highest total case rates per 100 FTE workers were:
 - state government nursing home and residential care establishments (14.2);
 - local government nursing home and residential care establishments (13.7); and
 - local government utilities (10.4).
- Among cases with any days away from work (DAFW), the median number of DAFW was six days. Thirty percent of the cases had only one or two days away from work and 24 percent of the cases had more than 20 DAFW.

Worker and injury characteristics

For cases with one or more days away from work, the SOII provides information about characteristics of the injured workers, their jobs and their injuries.

- Men accounted for 52 percent of all workers and for 57 percent of the injured workers, averaged from 2009 through 2011.
- The estimated percentage of injured workers who were age 55 and older was 18 percent during 2011, increasing from 13 percent during 2002.
- Building and grounds cleaning and maintenance occupations had the highest

rate of days-away-from-work cases of all the occupation groups during the 2009 through 2011 period (358 cases per 10,000 FTE workers), followed by transportation and material moving occupations (241 cases) and healthcare support occupations (227 cases).

- Sprains, strains and tears accounted for 38 percent of the 2011 cases with days away from work. The second-highest category was soreness and pain, with 13 percent of the cases.
- Workers injured their backs more than any other body part; back injuries accounted for 24 percent of the cases, followed by multiple-part injuries, with 12 percent.
- The most common injury events were falling on the same level and being struck by an object or equipment (15 percent and 12 percent of the DAFW cases, respectively).
- The injured worker's own motion or bodily position and floors and ground surfaces were the most frequent sources of injury, with each accounting for 16 percent of the DAFW cases.
- Sixty workers were fatally injured while working in Minnesota in 2011. For 2007 through 2011, Minnesota had an annual average of 66 fatally injured workers, consisting of 43 wage-and-salary workers and 23 self-employed people.
- Among industry sectors in 2011, agriculture, forestry, fishing and hunting recorded the highest number of worker fatalities, with 19. Construction had the second-highest number of fatalities, with 17 cases.
- The most frequent causes of Minnesota's fatal work injuries for 2011 were contact with objects and equipment (32 percent) and transportation accidents (27 percent).

Fatal occupational injuries

The Census of Fatal Occupational Injuries covers all fatal work injuries in the private and public sectors, regardless of coverage by the Occupational Safety and Health Act; thus, it includes federal workers and self-employed workers. While workplace violence is included, fatal *illnesses* (such as asbestosis) are excluded.

Minnesota OSHA activities

During federal-fiscal-year 2012 (October 2011 through September 2012), Minnesota OSHA:

- conducted 2,667 compliance inspections affecting the workplaces of 91,800 workers;
- identified 4,505 violations of OSHA standards, resulting in the assessment of \$4.4 million in penalties;
- conducted 790 worksite consultations that identified safety and health hazards saving employers \$4.3 million in potential penalties; and
- conducted 538 worksite consultation training and intervention visits, plus many other safety and health presentations and seminars.

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1

Introduction

Each day during 2011, approximately 210 Minnesota workers suffered an OSHA-recordable injury or illness. In addition to the physical and economic effects of injuries and illnesses on workers,¹ employers pay the direct economic costs. Minnesota's workers' compensation cost employers an estimated \$1.45 billion in 2011, or \$1.28 per \$100 of covered payroll.² This includes indemnity benefits (for lost wages, functional impairment or death), medical treatment, physical and vocational rehabilitation, dispute resolution, claims administration and other system costs.

For workers' compensation policies written in 2009 (the most current data available), the average amount of benefits paid for a workers' compensation claim is estimated at \$9,300 (adjusted to 2011 wage levels). For claims with cash benefits, 23 percent of all cases, the combined average medical and cash benefit cost estimate is much higher — \$37,700 (adjusted to 2011 wage levels).

This report, part of an annual series, provides information about Minnesota's job-related injuries, illnesses and fatalities: their incidence, nature and causes; the industries in which they occur; and changes in their incidence over time. The report also provides a summary of Minnesota Occupational Safety and Health Administration (MNOSHA) compliance and safety consultation program activities. This information is important for improving workplace safety and health and reducing the burden of occupational injuries and illnesses on workers, families and employers. The most recent estimates show Minnesota's workers experienced similar estimated rates of injuries and illnesses in 2011, 2010 and 2009, continuing the downward trend since 1994. During 2011, there were an estimated 3.8

recordable injury and illness cases per 100 full-time-equivalent (FTE) workers. About 47 percent of these cases involved one or more days away from work, an estimated rate of 1.8 cases per 100 FTE workers. The estimates for 2010 were very similar, with 3.9 total cases per 100 FTE workers and 1.9 cases with days away from work per 100 FTE workers. The 2011 rates are about 40 percent lower than the estimates for 2002, when there were 6.0 total cases per 100 FTE workers and 3.1 cases with days away from work per 100 FTE workers.

There were 60 work-related fatal injuries in 2011, a decrease from the 70 fatalities in 2010 and similar to the toll of 61 fatalities in 2009. The number of workplace fatalities in 2011 was lower than the annual average of 69 fatalities for the 2006 through 2010 period.

Data sources

This report presents statistics from four sources: the U.S. Bureau of Labor Statistics (BLS) annual Survey of Occupational Injuries and Illnesses (SOII); the BLS Census of Fatal Occupational Injuries (CFOI); MNOSHA statistics available from the Minnesota OSHA Operating System Exchange (MOOSE) database for the compliance program and the IMIS Redesigned Information System (IRIS) for the consultation program. The BLS and CFOI statistics are available through 2011; most MNOSHA statistics are available through federal fiscal year 2012 (October 2011 through September 2012).

Occupational injury and illness survey

The annual SOII, conducted jointly by BLS and state agencies, is the primary nationwide source of workplace injury and illness data. Work establishments, randomly selected within industry and establishment size categories, provide data from their OSHA recordkeeping log summaries (OSHA 300A forms) and detailed data about cases with one or more days away from work

¹ An example of an economic effect on workers is the three-day disability waiting period before workers become eligible for workers' compensation indemnity benefits.

² *Minnesota Workers' Compensation System Report 2011* (www.dli.mn.gov/RS/WcSystemReport.asp). This report provides statistics about workers' compensation benefit costs and is the source of the costs cited.

(from OSHA 301 forms or their equivalent). The SOII is a mandatory survey; businesses selected to participate in the survey are required to provide their data.³ Approximately 4,640 Minnesota work establishments provided data for the 2011 SOII. Injury and illness reports were collected from 99.9 percent of the usable establishments in the survey sample.

While the SOII provides the most complete standardized set of data regarding workplace injuries and illnesses, the number of recordable cases from the survey is not an estimate of all workplace injuries and illnesses. The SOII does not include injuries to business owners, sole proprietors, federal government employees, volunteers or family farm workers.⁴

Because of the time needed to produce the survey sample, the SOII does not include most establishments that begin operation within one year of the start of the survey year or any new establishments that begin operation during the survey year, and it is often impossible to collect data from establishments that closed during or immediately after the survey year. Statistical weighting is used to make the collected responses numerically representative of their industry's employment, although the actual injury and illness records for new and closing establishments may differ from establishments under continuous operation.

Employers record work-related injury and illness cases on their OSHA log that:

- result in fatalities;
- result in loss of consciousness;
- require medical treatment other than first aid;
- result in days away from work;
- result in restricted work activity or transfer to another job;
- are significant injuries or illnesses, such as cancer, diagnosed by a health care professional;
- or
- are specific other instances, such as contaminated needlesticks, tuberculosis infection, hearing loss and medical removal required under an OSHA standard.

³ A more complete description of the SOII is available from the BLS website at www.bls.gov/iif/oshsum1.htm.

⁴ Owners and partners in sole proprietorships and partnerships are not considered employees, but corporate officers who receive payment for their services are considered employees.

The legal basis of work-relatedness for including injuries and illnesses on the OSHA log is different from the criteria used to determine whether an injury or illness is work-related for purposes of liability for the payment of workers' compensation benefits.⁵ The OSHA recordkeeping requirements consider an injury or illness work-related if an event or exposure in the work environment caused or contributed to the injury or illness or significantly aggravated a pre-existing condition. Employers are not to include cases that do not meet the recording and work-relatedness criteria on their SOII submissions. It is possible for an injury to be recorded on the OSHA log even though the injured worker was denied workers' compensation benefits.

The OSHA log categorizes recordable cases according to whether they have days off the job, or job transfer or work restrictions.

- Cases with days away from work, job restriction or transfer (DART), as a combined group, are those cases with days when the injured worker is off the job *or* working with restrictions. DART cases consist of:
 - (1) days-away-from-work (DAFW) cases — those with any days off the job other than the day of injury or illness (with or without additional days of restricted work or job transfer); and
 - (2) cases with job transfer or restriction — those with job transfer or restricted work, but no days off work, beyond the day of the injury or illness.
- Other recordable cases are cases that have no days away from work, no job transfer and no work restrictions beyond the initial day of the injury or illness, but meet the guidelines for recording the case.

These case types and other terms used in the SOII are more precisely defined in Appendix A. Employers are expected to understand the OSHA recordkeeping requirements well enough to properly identify and classify their cases and to count the days away from work and days of work restriction or job transfer.

DLI survey staff members monitor survey responses and work with employers to correct their case classifications and day counts as necessary. Appendix B presents the information

⁵ See Minnesota Statutes §176.021, subd. 1.

expected from employers and discusses the common errors made on the OSHA log and the subsequent report of the OSHA log results for the SOII.

For DAFW cases, employers report case and demographic characteristics, type and cause of injury or illness, and the injured worker's gender, age, length of job tenure, occupation and length of time away from work. This information is coded by DLI survey staff members.

Because of changes in the BLS Occupational Injury and Illness Classification System (OIICS),⁶ *the case characteristics for 2011 and later years are not comparable with the results for prior years.* The case coding changes affect how injuries and illnesses are categorized, involving the nature of injury, part of body injured, source of injury and event or exposure.

An important issue with the injury and illness survey data is sampling error, the random error in survey statistics that occurs because the statistics are estimated from a sample. This sampling error is greater for smaller categories, such as particular industries, because of smaller sample size. Sampling errors are regularly reported as part of the SOII survey statistics.⁷

While the SOII offers the most complete nationally standardized estimate of occupational injuries and illnesses, there is concern about the extent that the SOII undercounts these cases.⁸ DLI is currently partnering with the BLS (along with three other states) to survey employers about their processes for recording injuries and illnesses and preparing their SOII responses. Information is being gathered through telephone interviews with the persons responsible for preparing the SOII data at a random sample of worksites that participated in the 2010 and 2011 SOII. Included in the interview are questions about the respondents' familiarity with OSHA recordkeeping guidelines and how they determine which injuries and illnesses are included on OSHA logs and the SOII.

Fatal injuries

BLS, in cooperation with state and other federal agencies, conducts the nationwide Census of Fatal Occupational Injuries (CFOI), which was created to produce accurate and comprehensive counts of fatal workplace injuries. Fatalities caused by illnesses are excluded.

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

The CFOI uses OIICS, and due to changes in the OIICS, comparisons and multi-year totals involving case characteristics for 2011 and earlier years are not available.

MNOSHA activity measures

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

⁶ Documentation of the OIICS is available at www.bls.gov/iif/oshoiics.htm.

⁷ For the 2011 relative standard errors, see tables A1 to A4 at www.dli.mn.gov/RS/Excel/blssumtables11.xls.

⁸ Appendix D of the 2010 Workplace Safety Report summarized the research about the extent of the undercount and provided tables comparing workers' compensation and SOII distributions of characteristics.

Report organization

The next three chapters in this report describe the incidence and characteristics of occupational injuries and illnesses in Minnesota. Chapter 2 presents data about the number and incidence of Minnesota's workplace injuries and illnesses over time, focusing on the state as a whole. Chapter 3 provides statewide injury and illness statistics by industry and establishment size. Chapter 4 describes the characteristics of workers for DAFW cases.

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

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

Appendix A provides a glossary of concepts and terms for understanding and using the SOII data. Appendix B provides some of the major OSHA log requirements and recordkeeping principles that form the basis of the SOII statistics.

Other available statistics

The SOII provides a large volume of information about occupational injuries and illnesses for the United States and most individual states. This information includes the number and incidence of injuries and illnesses by industry and

establishment size. For DAFW cases, the survey provides data about the characteristics of injuries and illnesses, including cause, severity (number of days away from work), employee's length of time on the job at the time of the injury, occupation and other employee characteristics.

The Minnesota case counts and incidence rates for all detailed industries for survey years 2003 through 2011 are available at www.dli.mn.gov/RS/StatWSH.asp. The injury and illness incidence rates for Minnesota and the U.S., rates for Minnesota's industry sectors from 1988 through 2011, and the case and demographic characteristics tables and charts for private ownership workplaces are also available through this Web page. The Minnesota CFOI tables for 2011 are available at www.dli.mn.gov/RS/Excel/StatFatal.asp.

The national SOII and CFOI statistics are available at www.bls.gov/iif. The national data, because of larger sample sizes, includes more detailed categories than the state data and has smaller sampling errors. The BLS website also provides data for other states.

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

The MNOSHA annual report, which provides statistics about MNOSHA activities during federal-fiscal-year 2012, is available at www.dli.mn.gov/OSHA/PDF/annualreport12.pdf.

2

An overview of nonfatal workplace injuries and illnesses in Minnesota

Incidence rates

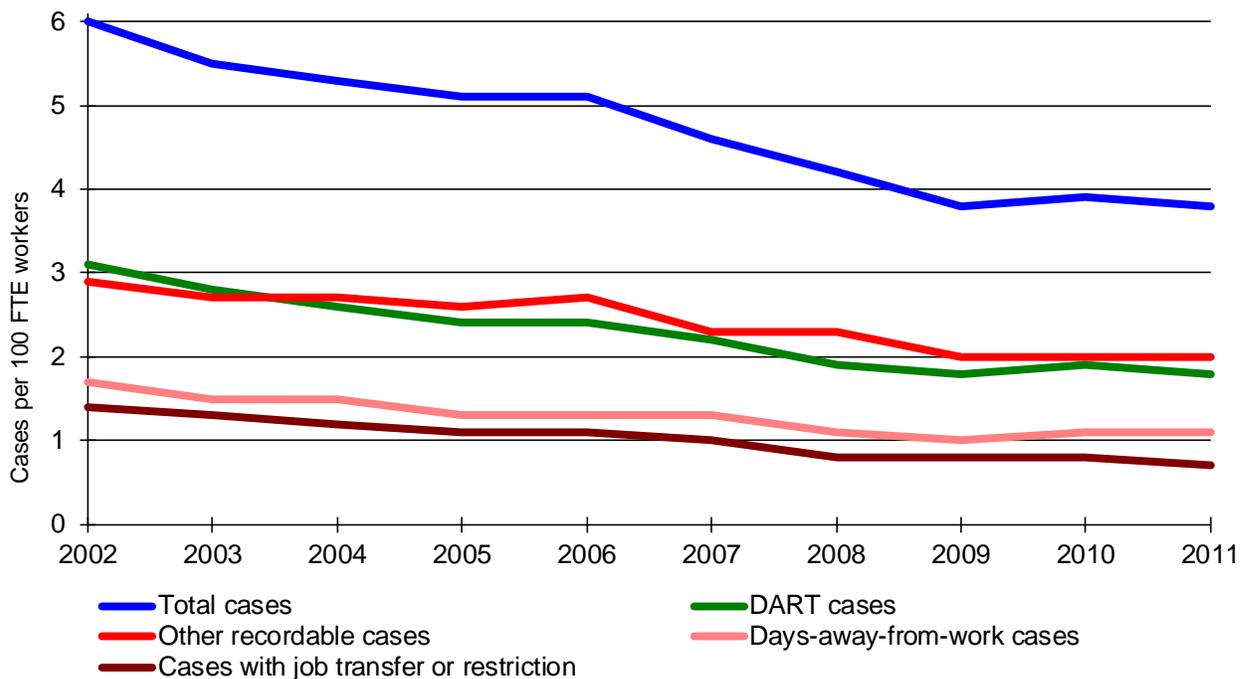
Incidence rates relate the number of recordable injury and illness cases to total hours of work reported by the surveyed employers. Figure 2.1 shows estimates of the incidence of nonfatal injuries and illnesses for Minnesota for 2002 through 2011, expressed as cases per 100 full-time-equivalent (FTE) workers.

- After peaking at a rate of 8.6 cases per 100 FTE workers in 1993 and 1994, the total

recordable case rate decreased to an estimate rate of 3.8 cases per 100 FTE workers in 2009 and again in 2011. The total recordable case rate for 2011 is not statistically significantly different from the 2010 estimate of 3.9 cases per 100 FTE workers.

- The only statistically significant rate change for estimates from 2010 to 2011 occurred for cases with job transfer or restriction, which decreased from 0.8 cases per 100 FTE workers in 2010 to 0.7 cases in 2011.

Figure 2.1 Injury and illness cases per 100 FTE workers, Minnesota, 2002-2011



Year of injury	Total recordable cases	DART cases	Cases with days away from work	Cases with job transfer or restriction	Other recordable cases
2002	6.0	3.1	1.7	1.4	2.9
2009	3.8	1.8	1.0	0.8	2.0
2010	3.9	1.9	1.1	0.8	2.0
2011	3.8	1.8	1.1	0.7	2.0

Number of cases

The number of cases shows the magnitude of the occupational injury and illness situation in Minnesota, a state with approximately 163,000 work establishments and 2.5 million workers in 2011.

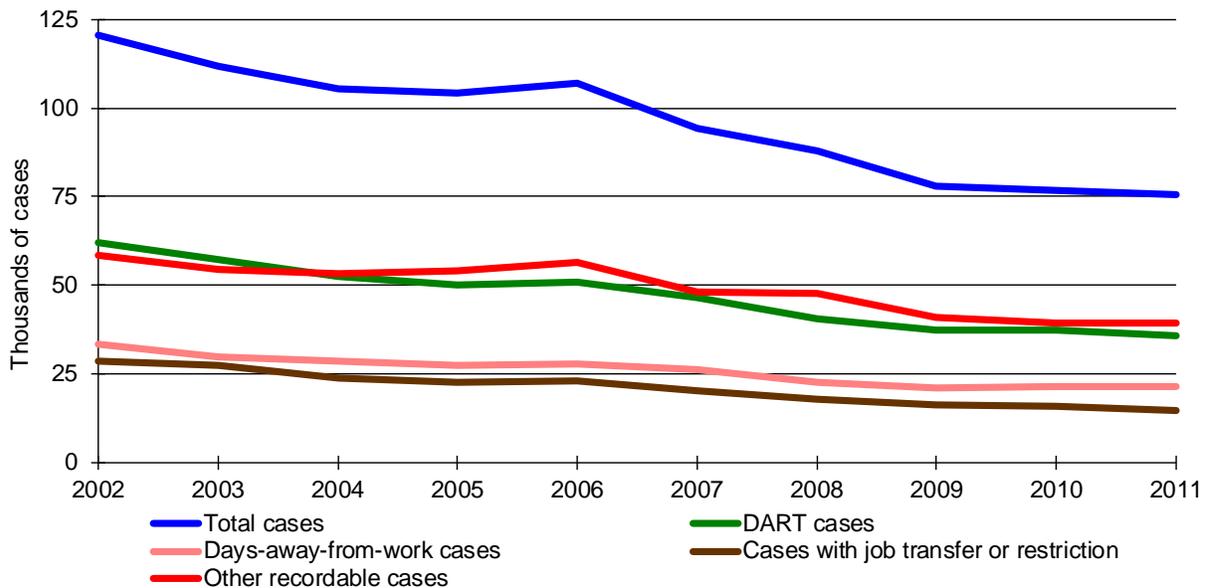
There were an estimated 75,400 OSHA-recordable injury and illness cases in Minnesota in 2011. This is the lowest estimate of cases ever reported in the SOII for Minnesota. It is not known how much of this estimate is due to improved safety and changes in Minnesota’s workplaces and how much may be due to

misunderstandings of injury and illness recordkeeping requirements and to nonreporting of injuries and illnesses.

Figure 2.2 shows estimated numbers of nonfatal injuries and illnesses in Minnesota for 2002 through 2011 for the various case types.

- From 2006 to 2011, while employment decreased 3 percent, the estimated number of recordable cases decreased 29 percent.
- The distribution of cases among the various case types in 2011 was similar to the distribution in prior years.

Figure 2.2 Number of injury and illness cases, Minnesota, 2002-2011



Year of injury	Employment (1,000s)	Total recordable cases (1,000s)	DART cases		Cases with days away from work		Cases with job transfer or restriction		Other recordable cases	
			Number (1,000s)	Pctg. of total	Number (1,000s)	Pctg. of total	Number (1,000s)	Pctg. of total	Number (1,000s)	Pctg. of total
2002	2,551	120.5	62.0	51%	33.5	28%	28.5	24%	58.6	49%
2009	2,600	78.1	37.2	48%	21.0	27%	16.2	21%	40.9	52%
2010	2,519	76.7	37.3	49%	21.5	28%	15.8	21%	39.4	51%
2011	2,548	75.4	35.9	48%	21.4	28%	14.5	19%	39.4	52%

Comparing Minnesota with the nation

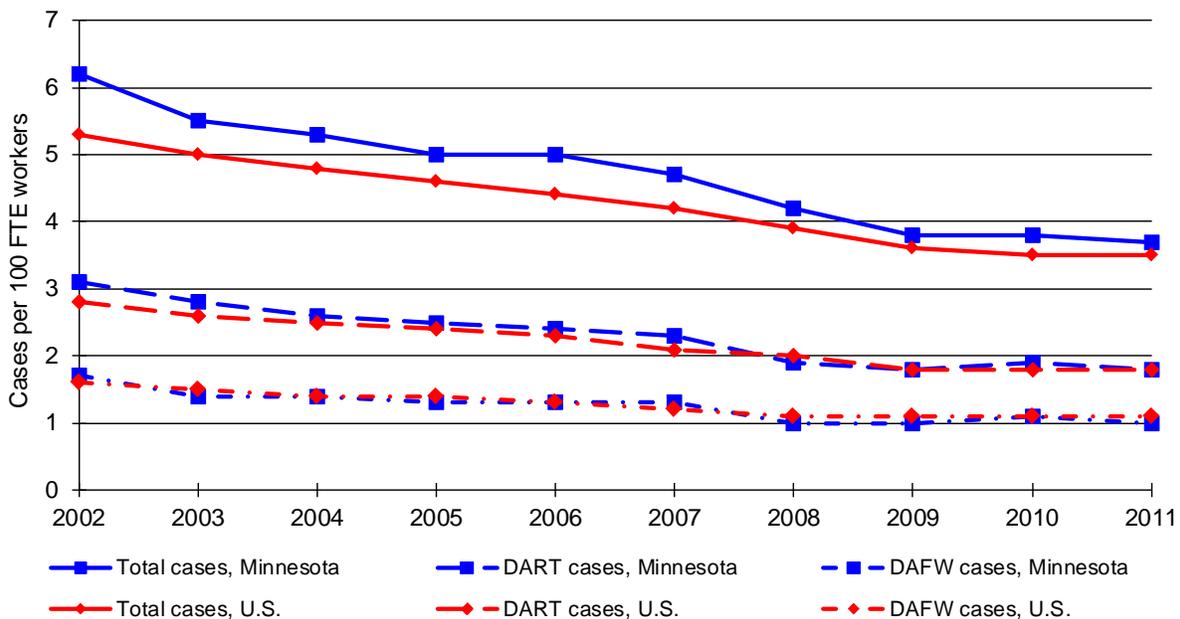
Figure 2.3 compares the estimated rates of total cases, DART cases and DAFW cases in the **private sector** for Minnesota and the United States for 2002 through 2011.⁹

- Minnesota’s 2011 estimated private-sector total case rate was 3.7 cases per 100 FTE workers, while the U.S. rate was 3.5 cases. Minnesota’s estimated total case rate has been above the U.S. estimated rate since 1993.
- Minnesota’s private sector DART rate in 2011 was 1.8 cases per 100 FTE workers,

the same as the national estimated rate. Minnesota’s DAFW case rate has been almost identical to the U.S. DAFW rate since 1996.

Differences in the relative proportions of industries between Minnesota and other states may lead to differences in the overall rates. For example, Minnesota has a higher proportion of total employment in health care and social assistance, 17.9 percent in 2011, than the nation as a whole, with 15.2 percent. There are variations in reporting between Minnesota and other states, which affect the estimated rates.¹⁰

Figure 2.3 Injury and illness case incidence rates for Minnesota and the United States, private sector, 2002-2011



	Cases per 100 full-time-equivalent workers					
	Total recordable cases		Cases with days away from work or job restriction or transfer (DART cases)		Days-away-from-work cases (DAFW cases)	
	Minnesota	U.S.	Minnesota	U.S.	Minnesota	U.S.
2002	6.2	5.3	3.1	2.8	1.7	1.6
2009	3.8	3.6	1.8	1.8	1.0	1.1
2010	3.8	3.5	1.9	1.8	1.1	1.1
2011	3.7	3.5	1.8	1.8	1.0	1.1

⁹ Prior to 2008, participating states had the option to include public-sector worksites in the SOII. Because not all states chose this option, public-sector statistics are not available at the national level prior to 2008.

¹⁰ John Mendeloff and Rachel Burns, “States with low non-fatal injury rates have high fatality rates and vice versa,” *American Journal of Industrial Medicine*, 2013, vol. 56, 509-519.

Since 2008, the combined incidence rates for the public and private sectors are available for both Minnesota and the U.S. Figure 2.4 shows Minnesota's total case rate, DART rate and DAFW rate were very similar to the corresponding national rates.

These comparisons need to be made cautiously, however, because of differences between the types and proportions of industries in Minnesota and nationally. Also, research shows that employers' reporting on the SOII is influenced by their state's workers' compensation laws, especially the waiting period for indemnity benefits.¹¹

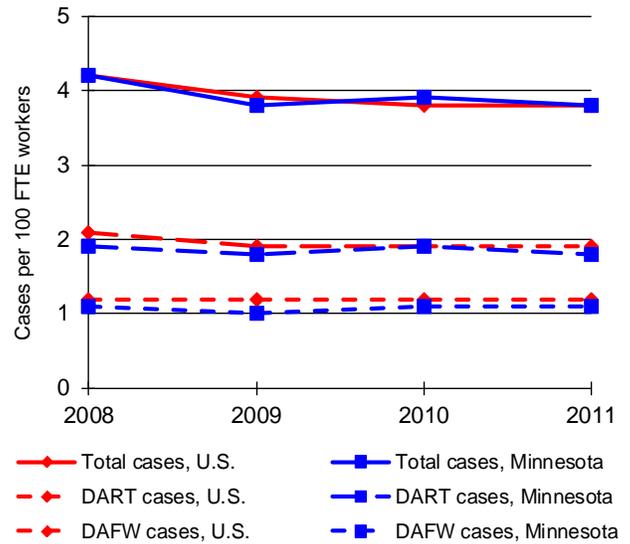
Minnesota relative to other states

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

Figure 2.5 shows Minnesota's ranking for injury and illness rates and for the ratio of DART cases to the total case rate. Comparable private-sector data is available for 41 states in 2011. Lower rates are ranked lower.

- Minnesota's estimated total case rate is at the middle of the states' rates, while the estimated DART rate and its components are among the lower half of the participating states.
- The total case rate can be divided into two broad categories: the DART case rate and the other recordable case rate (see Appendix A for definitions of the case types). When the DART rate is low compared to the total case rate, this may indicate employers are recording many low-severity cases on their OSHA logs or the state has a low overall severity level. The DART case rate was 49 percent of Minnesota's total case rate in 2011, the 13th lowest percentage among all the states reporting.

Figure 2.4 Injury and illness incidence rates for Minnesota and the U.S., public and private sectors, 2008-2011



	Cases per 100 full-time-equivalent workers					
	Total cases		DART cases ¹		Days-away-from-work cases	
	Minn.	U.S.	Minn.	U.S.	Minn.	U.S.
2008	4.2	4.2	1.9	2.1	1.1	1.2
2009	3.8	3.9	1.8	1.9	1.0	1.2
2010	3.9	3.8	1.9	1.9	1.1	1.2
2011	3.8	3.8	1.8	1.9	1.1	1.2

1. DART cases include cases with days away from work and cases with job transfer or restriction.

Figure 2.5 Ranking of Minnesota's estimated private-sector injury and illness rates with other participating states (lowest rate is ranked number 1)

	2008 (41 states)	2009 (40 states)	2010 (41 states)	2011 (41 states)
Incidence rate				
Total cases	19	18	23	21
DART cases	15	15	19	17
DAFW cases	8	13	18	12
Cases with job transfer or restriction	19	18	20	14
Other recordable cases	27	22	27	24
DART rate as percentage of total case rate	3	11	11	13

¹¹ See figure 1 in Mendeloff and Burns (2013).

Incidence of illnesses

The BLS defines an occupational illness as any abnormal condition or disorder caused by exposure to factors associated with employment, other than those resulting from an instantaneous event or exposure. It includes acute and chronic illnesses or diseases that may be caused by inhalation, absorption, ingestion, or direct contact.

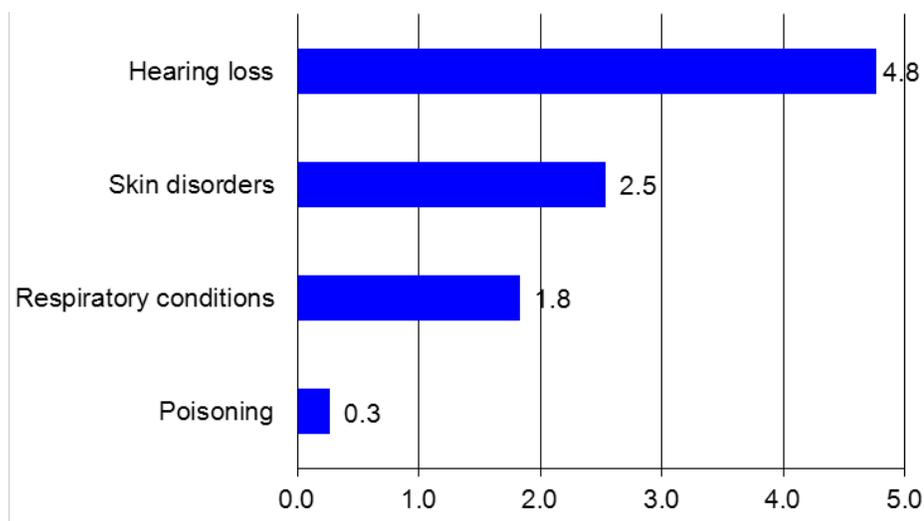
Each year, the SOII produces estimates of the number of new occupational illness cases. However, the BLS recognizes that the SOII underestimates the true number of workers with an occupational disease. Some conditions, such as long-term latent illnesses caused by exposure to carcinogens, are difficult to associate with the workplace, are not adequately recognized and reported, or are not recognized and reported in time to include them with the employers' SOII response. The majority of the reported new illnesses are those that are easier to directly link to workplace activity (such as contact dermatitis).

The SOII statistics for Minnesota include estimates of the number and rate of claims of specific illnesses for all case types. These illnesses are skin diseases or disorders,

respiratory conditions, poisonings and hearing loss. In 2011, there were an estimated 2,000 cases with one of these illnesses. The rates per 10,000 FTE workers for these conditions are shown in Figure 2.6, averaged over the 2009 to 2011 period because of the large year-to-year fluctuations in incidence rates.

- Noise-induced hearing loss is defined as a change in hearing threshold relative to a baseline audiogram. Hearing loss has the highest incidence rate of the illnesses.
- The second most common illness type is skin diseases or disorders. These are illnesses involving the worker's skin that are caused by work exposure to chemicals, plants or other substances.
- Respiratory conditions are illnesses associated with breathing hazardous biological agents, chemicals, dust, gases, vapors or fumes.
- Poisoning includes disorders evidenced by abnormal concentrations of toxic substances in blood, other bodily fluids, tissues or the breath that are caused by the ingestion or absorption of toxic substances into the body.

Figure 2.6 Annual average incidence rates per 10,000 FTE workers for specific illnesses, all recordable cases, 2009-2011



3

Injuries and illnesses by industry

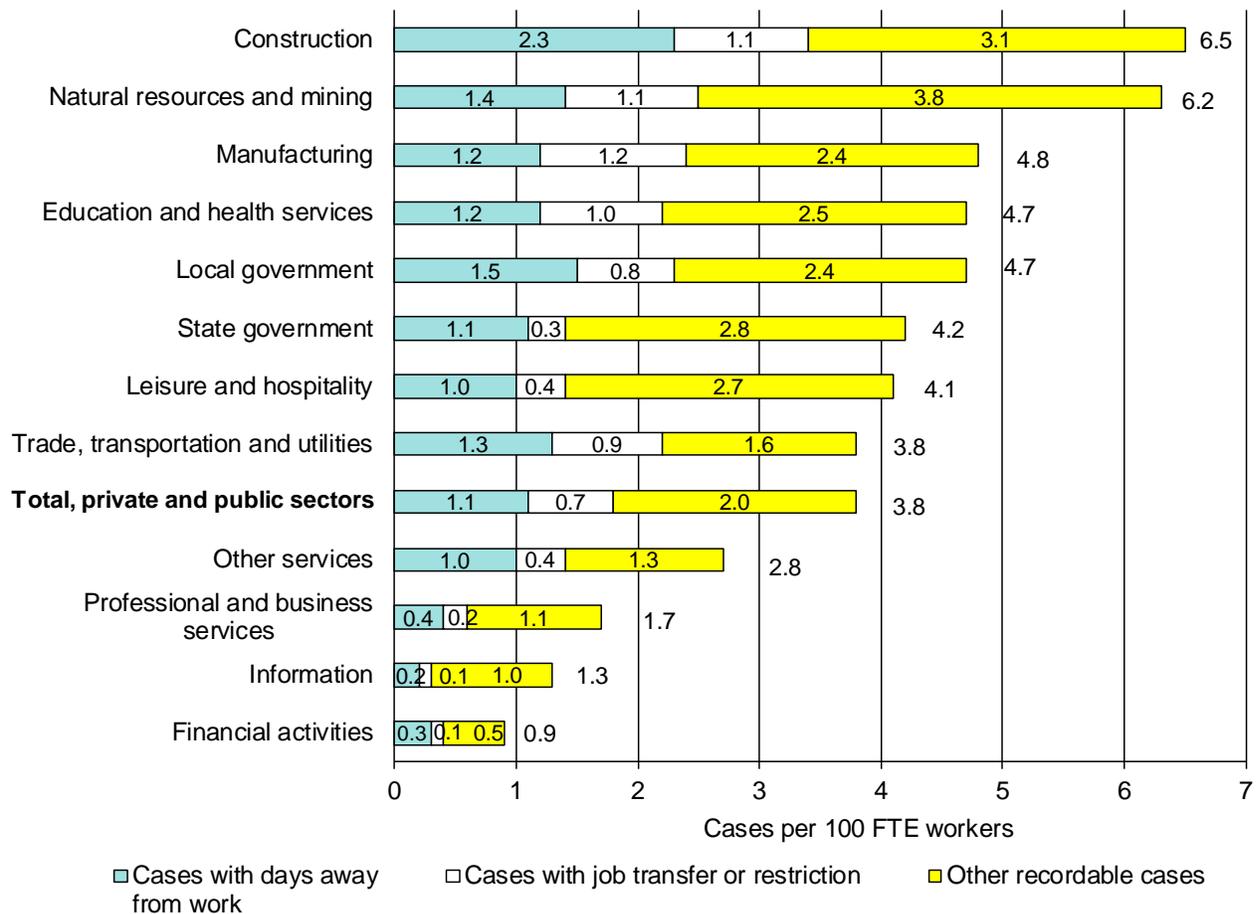
The 2011 injury and illness survey shows:

- construction and natural resources and mining had the highest estimated total case rates, with more than six cases per 100 FTE workers; and
- establishments with 50 to 249 employees had the highest incidence rates, while establishments with 10 or fewer employees had the lowest rates.

Incidence by industry supersector

Industries can be analyzed at different levels of detail. The North American Industry Classification System (NAICS) uses a six-digit hierarchical code in which each successive digit after the second digit indicates a finer level of detail. Industry sectors use the first two NAICS digits. For each type of ownership — private, state government and local government — there are 20 industry sectors in NAICS. For brevity of presentation, SOII results are often presented in

Figure 3.1 Incidence rates by industry supersector¹, 2011



1. Except for state and local government, all supersectors include only privately owned establishments.

supersectors. The 11 supersectors include from one to four industry sectors. The state government and local government supersectors include all establishments in these ownership types regardless of industry code. Employment in these supersectors is concentrated in education and health services and in public administration.

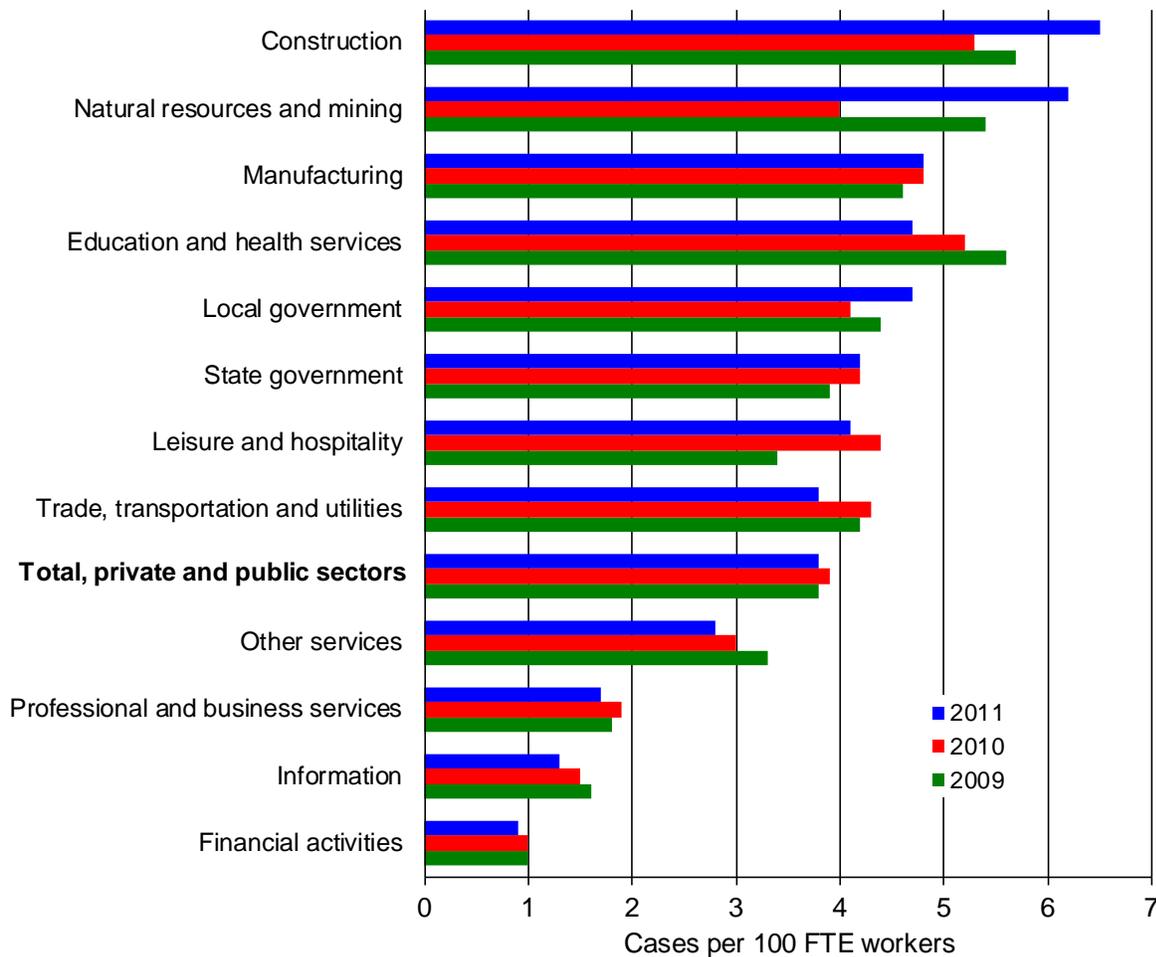
Figure 3.1 shows Minnesota’s injury and illness rates for the case types by industry supersector and for all industries combined. The supersectors are ranked by their total case rate.

- Construction had the highest total recordable case rate, closely followed by natural resources and mining.

- Construction had the highest rate for DAFW cases.
- Manufacturing was the only supersector with an estimated job transfer or restriction case rate equal to or higher than its estimated DAFW case rate.

Figure 3.2 compares the 2011 total recordable case rates for each supersector with its respective 2010 and 2009 rates. Due to the high relative standard errors associated with these estimates, none of the total case rate changes were statistically significant.

Figure 3.2 Rate of total nonfatal occupational injuries and illnesses per 100 FTE workers by industry supersector¹, 2009, 2010 and 2011



1. Except for state and local government, all supersectors include only privately owned establishments.

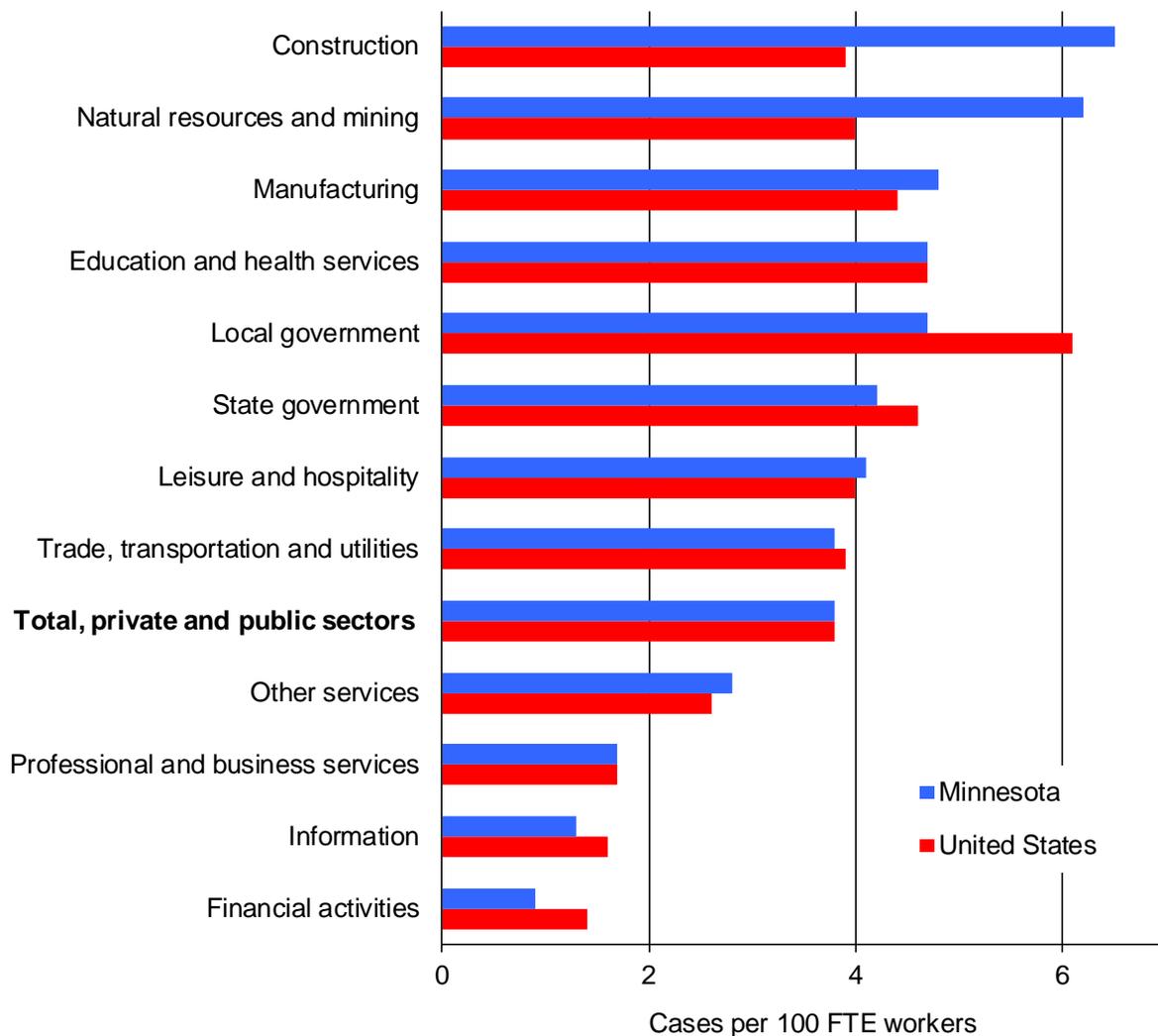
Figure 3.3 compares Minnesota’s 2011 total case incidence rate estimates with the U.S. rate estimates for each supersector.

- While each of the three highest-rate Minnesota supersectors had higher estimated rates than the U.S. rates, only the

construction rate difference was statistically significant.

- Minnesota’s financial activities and local government rate estimates were significantly lower than the corresponding national rates.

Figure 3.3 Rate of total nonfatal occupational injuries and illnesses per 100 FTE workers by industry supersector¹, Minnesota and United States, 2011



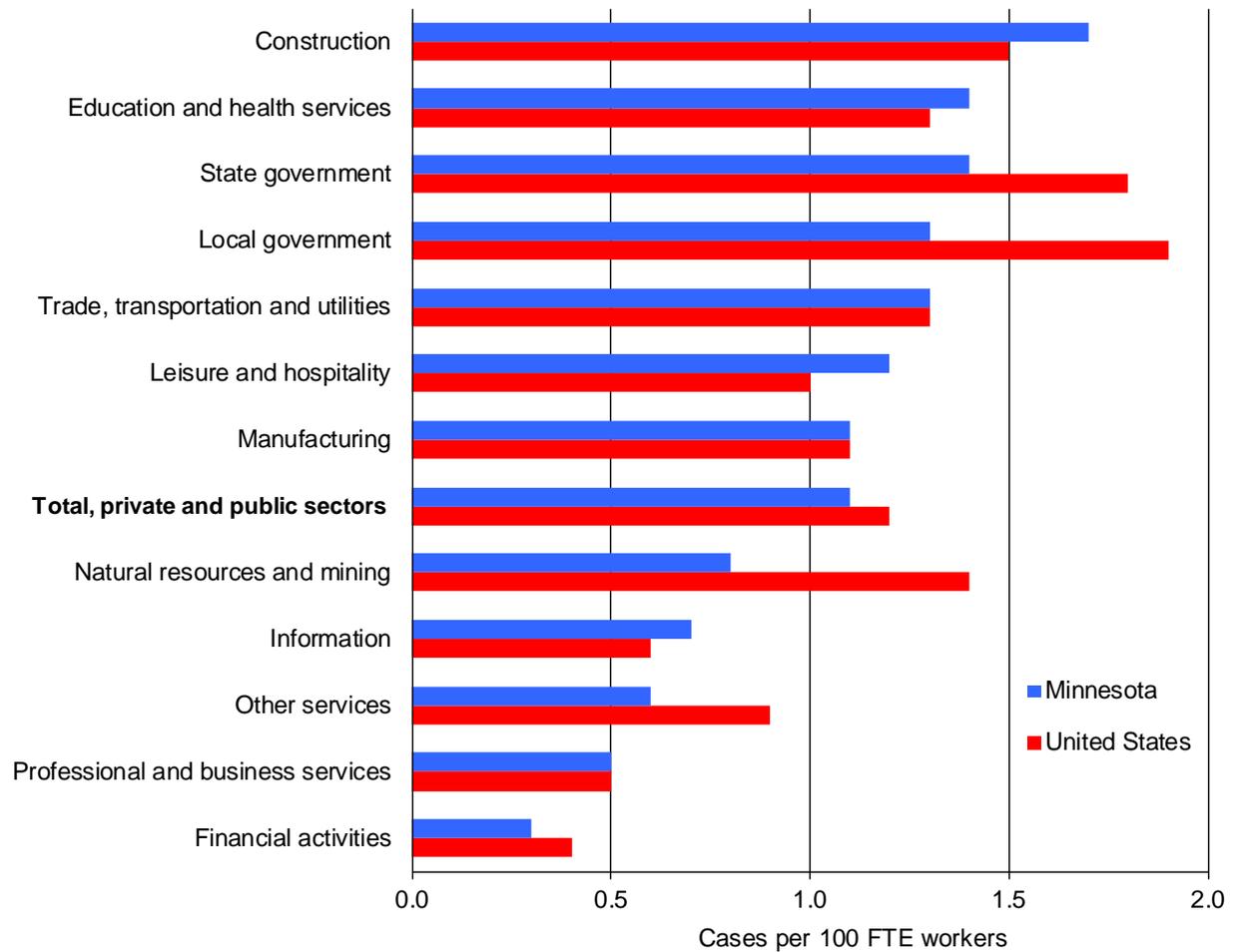
1. Except for state and local government, all supersectors include only privately owned establishments.

Figure 3.4 compares Minnesota’s 2011 estimated DAFW case incidence rates with the corresponding U.S. rate estimate for each industry supersector.

The greatest difference between a Minnesota rate and the corresponding U.S. rate was 0.6

cases per 100 FTE workers in natural resources and mining and in local government, where Minnesota had statistically significant lower estimated rates. However, Minnesota’s distribution of employment across the industries within natural resources and mining is different than the national employment distribution.

Figure 3.4 Rate of cases with days away from work per 100 FTE workers by industry supersector¹, Minnesota and United States, 2011

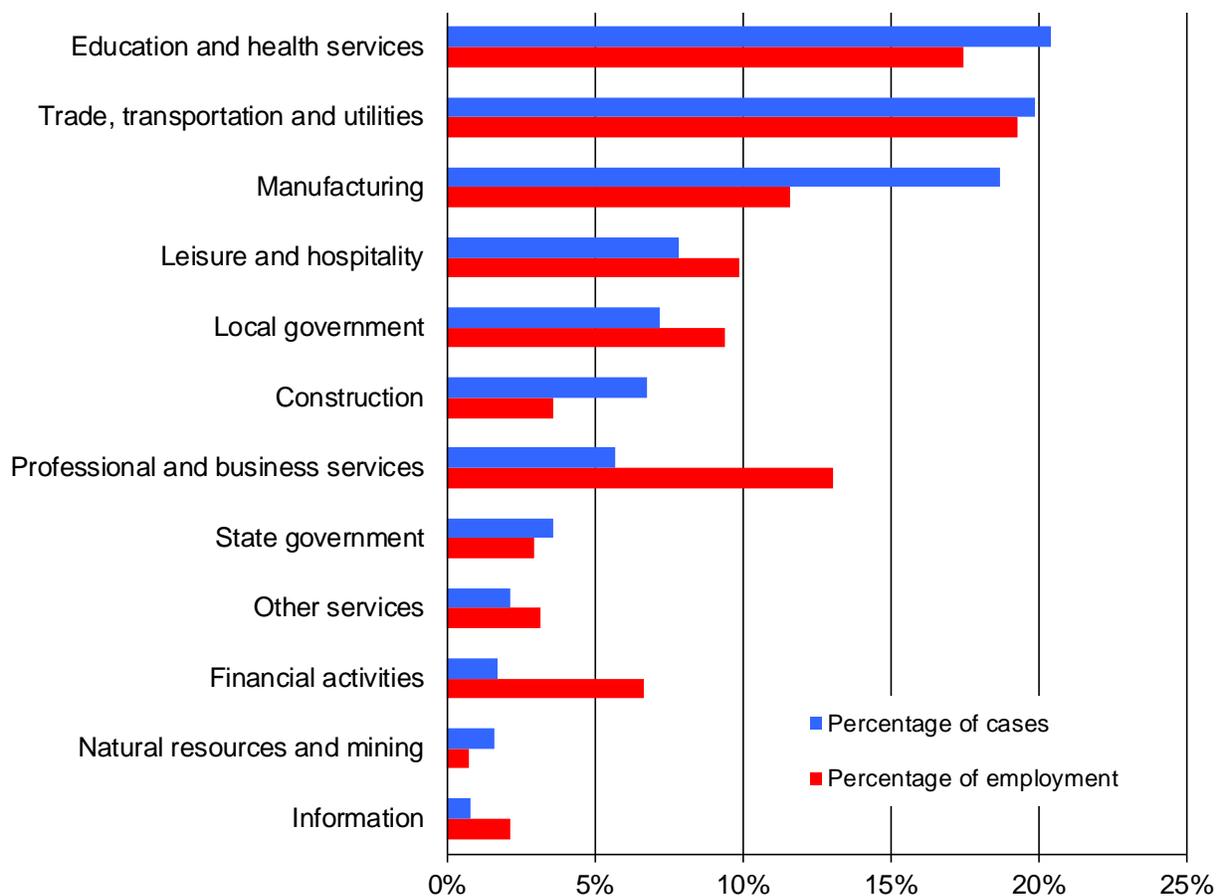


1. Except for state and local government, all supersectors include only privately owned establishments.

Figure 3.5 compares the percentage of workers employed in each supersector with its estimated percentage of total reported cases.

- The three industry supersectors with the largest percentages of cases accounted for 59 percent of the injury and illness cases and for 48 percent of employment.
- Education and health services accounted for 17 percent of employment and 22 percent of the cases.
- Trade, transportation and utilities, with 19 percent of Minnesota’s employment, accounted for 22 percent of the cases.
- Manufacturing had 19 percent of the injury and illness cases and was the fourth-largest employment supersector, with 12 percent of employment.

Figure 3.5 Percentage of total cases and employment by industry supersector¹, 2011



1. Except for state and local government, all supersectors include only privately owned establishments.

Results by industry subsector

Some safety and health resources, such as Minnesota OSHA compliance inspections, are prioritized to those industries with the highest injury and illness rates and the highest numbers of cases.

Figure 3.6 shows the industry subsectors (three-digit NAICS classes) with the highest total case incidence rates in Minnesota.

- Six of the 10 subsectors were on this list last year. State government nursing and residential care had the highest rate of any industry subsector in both 2011 and 2010.
- Three of the subsectors are the nursing and residential care for each ownership type and three are in manufacturing.

The industry subsectors with the highest DAFW case incidence rates in Minnesota are shown in Figure 3.7. Seven of the subsectors were on this list in 2010.

- Two of the subsectors are involved in health care and three are in the transportation and warehousing sector.

Figure 3.8 shows the industry subsectors with the highest number of DAFW cases. Only one industry, truck transportation, is listed in both figures 3.7 and 3.8. This shows that due to differences in employment, most of the industries with the highest estimated DAFW rates are different from the industries with the highest estimated number of cases.

- These 10 industries accounted for 9,100 DAFW cases, 43 percent of the state's total.
- The industries represent a wide variety of Minnesota workplaces. These 10 subsectors come from seven different industry sectors.

Figure 3.6 Industry subsectors¹ with the highest total case rates, 2011

Industry subsector ²	Cases per 100 FTE
Nursing and residential care (state gov.)	14.2
Nursing and residential care (local gov.)	13.7
Utilities (local gov.)	10.4
Crop production	10.3
Furniture and related product mfg.	9.8
Justice, public order, and safety activities (local gov.)	9.3
Primary metal manufacturing	8.9
Beverage and tobacco product mfg.	8.7
Construction of buildings	7.8
Nursing and residential care	7.7

1. Industry subsectors use the first three NAICS digits.

2. Industries are private sector unless otherwise noted.

Figure 3.7 Industry subsectors¹ with the highest rates of days-away-from-work cases, 2011

Industry subsector ²	DAFW cases per 100 FTE
Nursing and residential care (state gov.)	8.7
Nursing and residential care (local gov.)	8.0
Transit and ground passenger transportation (local gov.)	5.0
Crop production	4.2
Beverage and tobacco product mfg.	3.4
Waste management and remediation services	3.2
Warehousing and storage	3.0
Truck transportation	3.0
Justice, public order, and safety activities (local gov.)	2.8
Primary metal manufacturing	2.8

1. Industry subsectors use the first three NAICS digits.

Figure 3.8 Industry subsectors¹ with the highest number of days-away-from-work cases, 2011

Industry subsector ²	DAFW cases ³
Hospitals	1,480
Nursing and residential care	1,450
Specialty trade contractors	1,160
Educational services (local gov.)	930
Food services and drinking places	850
Truck transportation	750
Merchant wholesalers, nondurable goods	680
Food manufacturing	650
Ambulatory health care services	590
Fabricated metal product mfg.	560

1. Industry subsectors use the first three NAICS digits.

2. Industries are private sector unless otherwise noted.

3. Numbers of cases are rounded to nearest 10.

Days away from work

For cases with one or more DAFW, the SOII provides statistics about the number of days away from work. As shown in Figure 2.2, only 28 percent of the recordable cases in 2011 were DAFW cases. DAFW are counted by calendar days, not scheduled work days. In contrast with Minnesota’s workers’ compensation system, the number of days away from work for OSHA recordkeeping and reported in the SOII does not include the day of the event causing the injury or the onset of illness.

For 2011, the median number DAFW, for cases with one or more DAFW, was six days.

Figure 3.9 shows the distribution of DAFW cases by the number of days away from work.

- Thirty percent of the DAFW cases had only one or two days away from work.

As shown in Figure 3.10, the percentage of DAFW cases with one or two DAFW has remained between 28 and 30 percent since 2007, while the percentage of cases with more than 30 DAFW has remained between 18 and 20 percent during that period.

Figure 3.11 shows the three-year average of the median number of DAFW by industry supersector. The weighting system used by BLS to compute the SOII estimates sometimes results in large year-to-year variations for supersectors with relatively few DAFW cases. The median varied widely among the industries and by year within industry. Using a three-year average smoothes the annual fluctuations.

- Construction has the highest median days away, followed by trade, transportation and utilities.

Figure 3.9 Distribution of days-away-from-work cases by number of days away from work, 2011

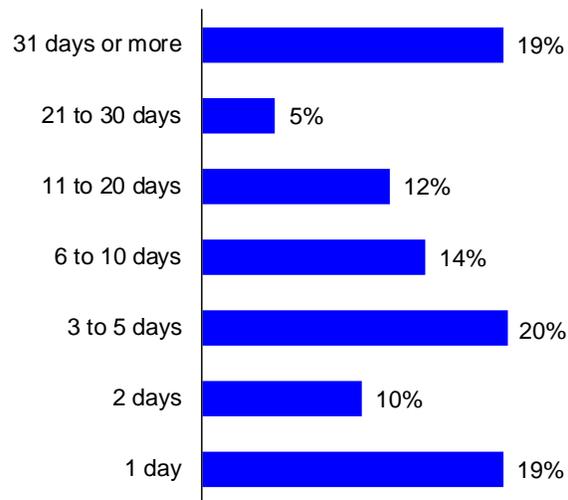


Figure 3.10 Percentage trends of days away from work, 2003 to 2011

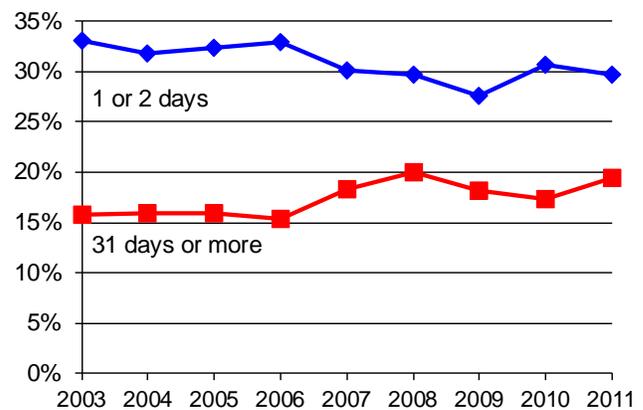


Figure 3.11 Median days away from work by industry supersector¹, 2009-2011

Industry supersector	Avg. value
Construction	9.3
Trade, transportation and utilities	8.3
Information	7.3
Manufacturing	6.7
Natural resources and mining	6.3
Total, private and public	5.7
Professional and business services	5.7
State government	5.3
Other services	5.0
Leisure and hospitality	4.7
Education and health services	4.7
Local government	4.3
Financial activities	4.0

1. Except for state and local government, all supersectors include only privately owned establishments.
 2. Based on a very small number of DAFW cases.

Incidence by size

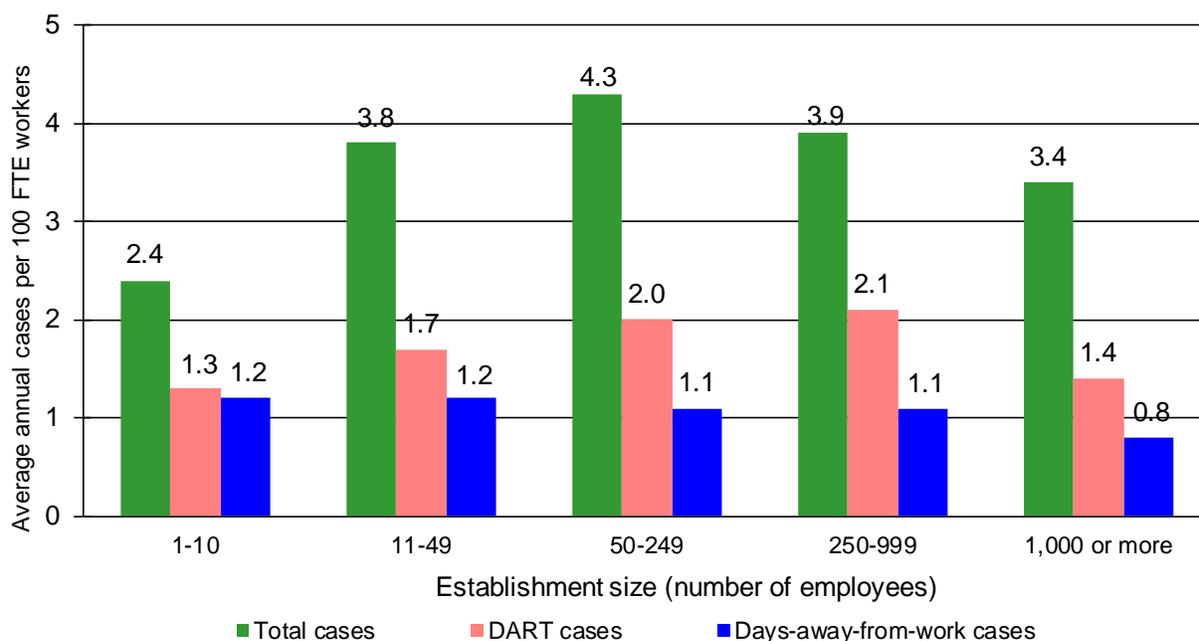
The incidence of reported workplace injuries and illnesses varies by establishment size. Figure 3.12 shows case incidence by case type and establishment size, and presents the total case rates by establishment size and industry.

DAFW cases were lowest for the smallest establishments (one to 10 employees) and highest for mid-sized establishments (50 to 249 employees).

- Estimated incidence rates for total cases and

- For the construction and manufacturing supersectors, estimated injury and illness rates declined as establishment size increased.

Figure 3.12 Injury and illness case incidence rates by establishment size, all ownerships, 2011



Industry supersector ¹	Total recordable cases per 100 FTE workers by establishment size (number of employees) ²					
	All Sizes	1-10	11-49	50-249	250-999	1,000+
Natural resources and mining	6.2	--	3.5	10.1	3.3	--
Construction	6.5	7.2	7.1	5.9	1.4	--
Manufacturing	4.8	--	7.0	5.4	4.3	2.8
Trade, transportation and utilities	3.8	1.2	3.2	5.0	4.6	4.9
Information	1.3	--	--	0.8	1.5	0.3
Financial activities	0.9	0.0	--	1.3	1.0	0.6
Professional and business services	1.7	--	3.4	1.9	1.1	0.8
Education and health services	4.7	--	3.6	4.7	5.4	5.6
Leisure and hospitality	4.1	--	3.2	4.2	7.8	7.7
Other services	2.8	--	1.8	4.7	4.1	--
State government	4.2	4.8	6.7	4.3	3.2	4.2
Local government	4.7	--	5.0	4.2	5.0	3.9

1. Except for state and local government, all supersectors include only privately owned establishments.

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

4

Characteristics of cases with days away from work

This chapter presents, for cases resulting in one or more days away from work, estimates of the demographic characteristics of the workers, their job characteristics, and the characteristics and causes of their injuries and illnesses. Employers participating in the survey provide descriptions for each DAFW case,¹² which are then coded by the DLI Research and Statistics survey staff members.

To reduce variation due to the sampling and estimation processes, statistics for worker and job characteristics use the annual average of the 2009, 2010 and 2011 survey results.

Because the results for the injury and illness characteristics are very consistent, the 2011 results are presented. The BLS revised the injury and illness characteristics classification system for the survey year 2011 data.¹³ Due to the changes to the definition of categories and the rules used for coding cases, the 2011 injury and illness characteristics are not comparable with those from earlier years.

Worker demographic characteristics

Gender

- The percentage of women among DAFW cases increased from an annual average of 37 percent from 2004 through 2006 to 43 percent during 2009 through 2011 (Figure 4.1). Women comprised 48 percent of Minnesota's workers during each year from 2009 through 2011.¹⁴
- The average DAFW case incidence rates per 10,000 FTE workers¹⁵ in 2011 were very similar: 110 cases for men and 103 cases for women.

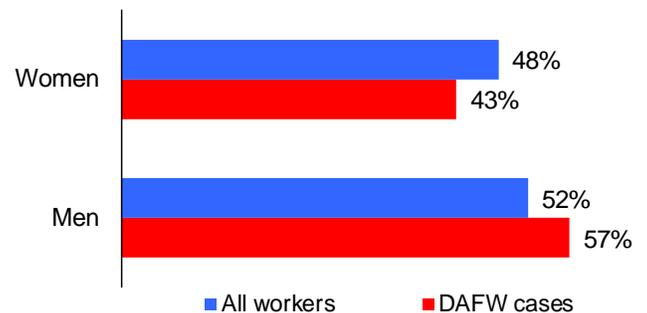
¹² For employers with more than 15 DAFW cases, a sampling scheme is used to select a reduced number of cases. See Appendix B for a variable list.

¹³ See www.bls.gov/iif/oshoiics.htm

¹⁴ Current Population Statistics, *Geographic Profile of Employment and Unemployment*, 2009, 2010, 2011. Bureau of Labor Statistics, www.bls.gov/gps.

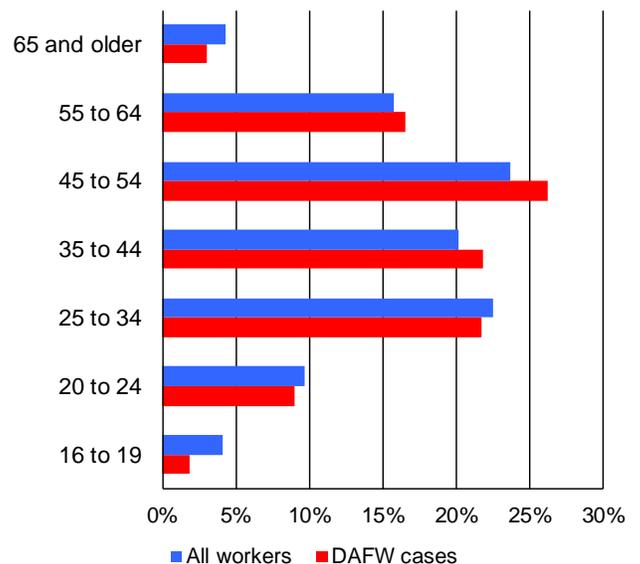
¹⁵ Rates for DAFW cases are expressed as cases per 10,000 FTE workers to differentiate between values that would be very similar when expressed as cases per 100 FTE workers.

Figure 4.1 Gender of all workers and workers with days-away-from-work cases, 2009-2011



Source: Estimates for gender of all workers from the Current Population Statistics, Geographic Profile of Employment and Unemployment. Bureau of Labor Statistics, www.bls.gov/gps.

Figure 4.2 Age of workers with days-away-from-work cases, 2009-2011



Source: Estimates for age of all workers from the Current Population Statistics, Geographic Profile of Employment and Unemployment. Bureau of Labor Statistics, www.bls.gov/gps.

Age

- The age distribution of DAFW cases has changed significantly during the past few decades, reflecting the increasing average age of workers. Comparing the distribution of all Minnesota workers in 2003 and 2011, the number of workers younger than age 55 decreased by 176,000, while the number of workers age 55 or older increased by 162,000.¹⁶
- With the declining DAFW case rate, this means that although there are fewer seriously injured workers, they now tend to be older than those a decade ago.¹⁷
- The age distribution of workers with DAFW cases (Figure 4.2) is very similar to the age distribution of employed workers.¹⁸

The age distribution shows a change for 2011 compared with the trend for the previous nine years.

- The percentage of workers with DAFW cases who were younger than age 35 decreased from 36 percent in 2002 to 31 percent in 2010 and increased to 35 percent in 2011. The percentage of injured workers who were age 55 and older increased from 13 percent in 2002 to 21 percent in 2010 and fell back to 18 percent in 2011 (Figure 4.3).
- The estimated incidence rate of DAFW cases during the 2009 through 2011 period was highest for workers 65 and older, at 114 cases per 10,000 FTE workers (Figure 4.4). The lowest rate was for workers 16 to 19 years old (81 cases).
- The median days away from work generally increased with age (Figure 4.5, next page). The median duration for workers age 65 and older was 355 percent longer than the medium for the youngest workers.

Figure 4.3 Distribution of age of workers with days-away-from-work cases, 2002-2011

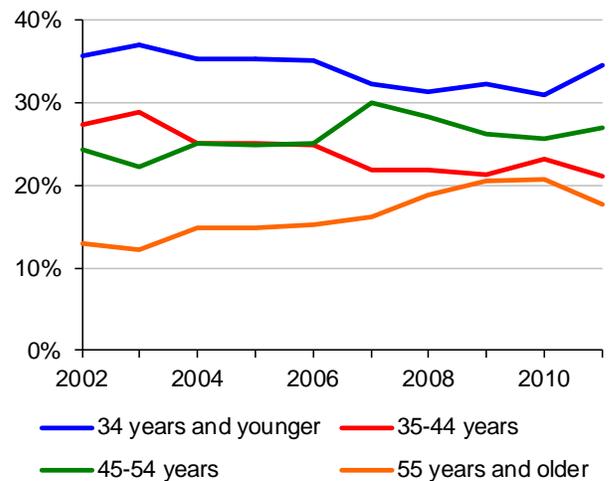


Figure 4.4 Incidence of cases with days away from work by age group, 2009-2011

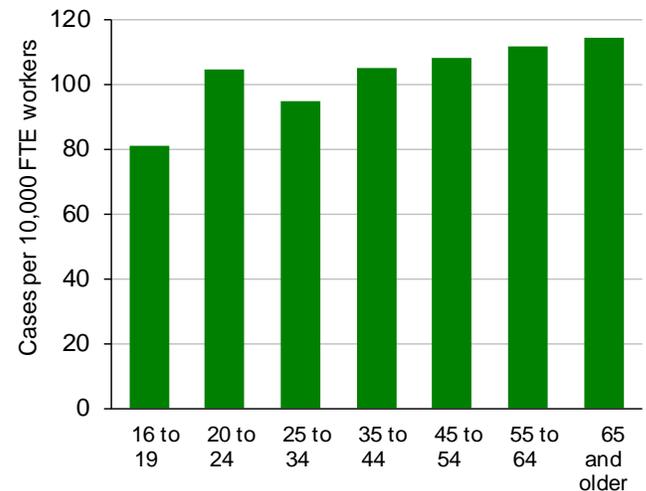
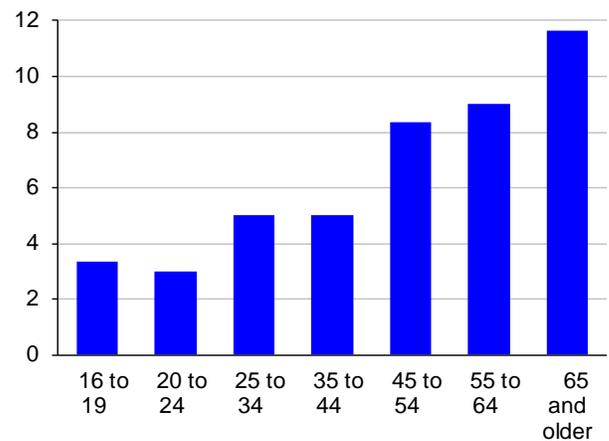


Figure 4.5 Median days away from work by age group, private ownership, 2009-2011



¹⁶ Current Population Statistics, *Geographic Profile of Employment and Unemployment*, 2003 and 2011. Bureau of Labor Statistics, www.bls.gov/gps.

¹⁷ This trend has been analyzed using Minnesota workers' compensation data in "Changing worker demographics lead to changing injury characteristics," *COMPACT*, February 2005.

¹⁸ Current Population Statistics, *Geographic Profile of Employment and Unemployment*, 2009, 2010, 2011. Bureau of Labor Statistics, www.bls.gov/gps.

Race or ethnic origin

Some caution is needed in the analysis of race or ethnic origin, because only 67 percent of the survey responses included the injured worker’s race or ethnic origin. The survey results reflect the increasing diversity of Minnesota’s workforce.

- Nonwhite and Hispanic workers accounted for an annual average of 15 percent of the cases with a reported race or ethnicity in the 2009 to 2011 period (Figure 4.6), compared to less than 10 percent prior to 1997. The percentage of nonwhite and Hispanic workers among the DAFW cases has remained near 15 percent since 2003 (Figure 4.7). Minnesota’s nonwhite and Hispanic employment was estimated at 13 percent of total employment for 2010.¹⁹
- While the overall number of reported nonwhite or Hispanic workers with DAFW cases decreased by 35 percent from 2003 to 2011, the number of injured workers identified as Asian has remained constant. The number of Asian workers with one or more days away from work averaged 250 cases for 2003 through 2005 and averaged 270 cases for 2009 through 2011.

Figure 4.6 Race or ethnic origin of workers with days-away-from-work cases, 2009-2011

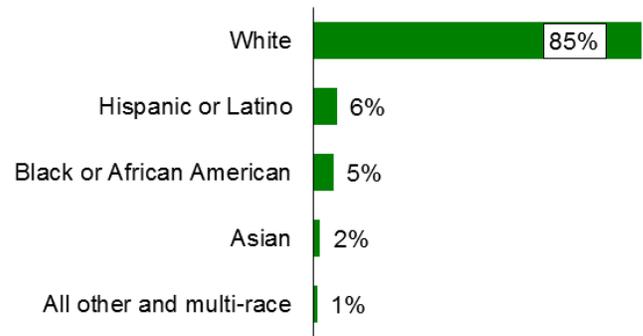
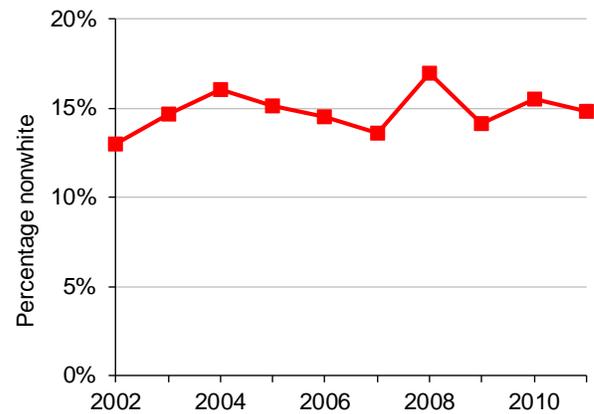


Figure 4.7 Percentage of nonwhite and Hispanic workers among days-away-from-work cases, 2002-2011



¹⁹ U.S. Census Bureau, 2010 American Community Survey. Retrieved from American Factfinder: factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml.

Job characteristics

Job tenure

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

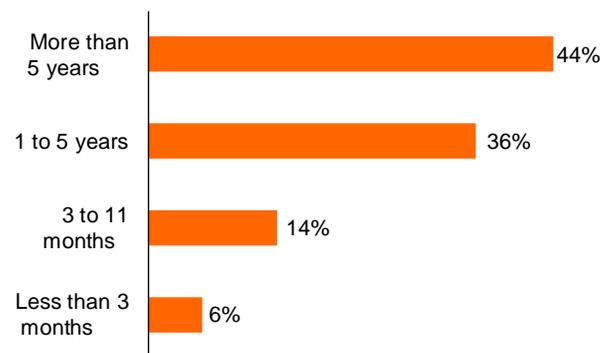
Young workers usually have shorter job tenure than older workers. The general increase in worker age during the past decade has been accompanied by an increase in average job tenure of injured workers.

- According to the *Current Population Survey* statistics for January 2012²⁰, the median job tenure for the United States increased from 4.1 years in 2008 to 4.4 years in 2010, and to 4.6 years in 2012, reflecting large job losses among less-senior workers during the recent recession, possible reductions in job mobility and increases in worker age.
- As shown in Figure 4.8, workers with less than one year of service with their employer accounted for an annual average of 20 percent of the DAFW cases during 2009 through 2011. This percentage was below the 27 percent annual average reported from 2005 through 2007.

This drop in the percentage of short-tenured workers may be the result of several different forces:

- workers with shorter job tenures account for proportionately fewer workers;
- employers are providing more safety training to their newly hired workers; and
- industries with more newly hired workers tend to be those with relatively fewer work-related injuries and illnesses.

Figure 4.8 Length of service of workers with days-away-from-work cases, 2009-2011



²⁰ News release, Bureau of Labor Statistics, Employee tenure in 2012, Sept. 18, 2012 (USD-12-1887). State-level job tenure statistics are not published.

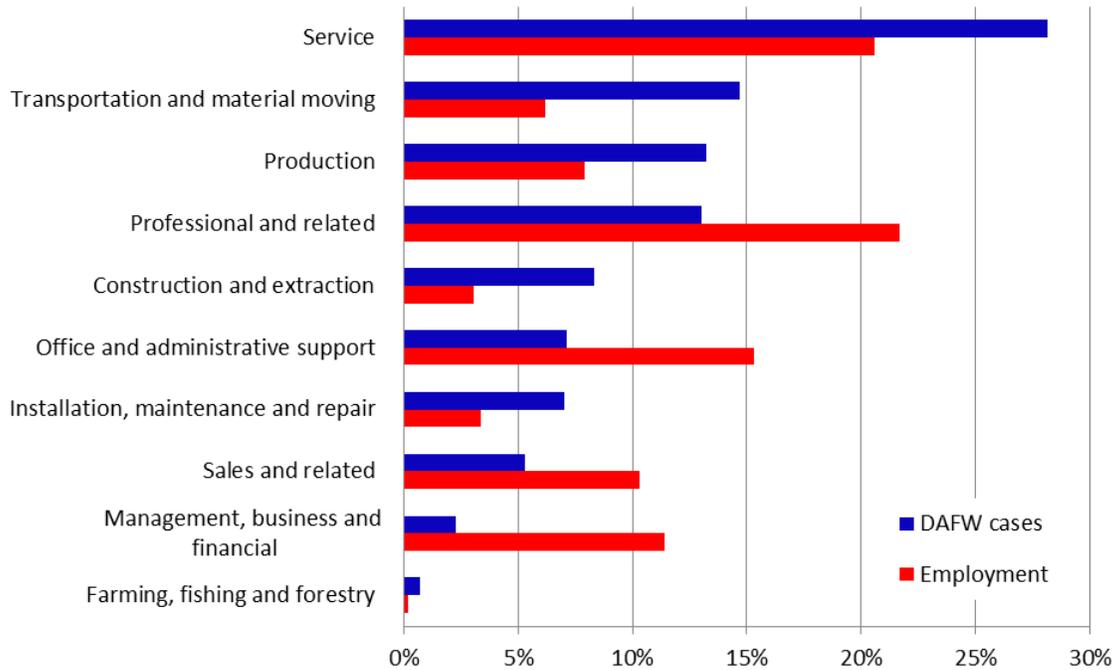
Occupation

Occupation describes a set of characteristics based on the job duties, skills, education or experience needed to accomplish work tasks. While some occupations are concentrated in only one industry, such as nursing aides working in health care, many other occupations, such as management, sales and office support, are found in a wide range of industries.²¹ Workers in the same or similar occupations often encounter similar work conditions, which affect their safety and health.

Figure 4.9 shows the broad occupation category distributions of workers in 2011²² and DAFW cases for 2009 through 2011.²³ These distributions are very different, highlighting the workplace injury and illness risks faced by different occupations.

- Service occupations, which include nursing aides, law enforcement workers, cooks and building maintenance workers, accounted for an average of 28 percent of the DAFW cases and 21 percent of employment from 2009 through 2011.
- Transportation and material moving occupations, which includes truck drivers and delivery people, airline workers and unskilled, nonconstruction manual laborers, had the second-highest percentage of cases, with 15 percent, but only 6 percent of workers.
- Professional and related occupations, which includes engineers, attorneys, teachers and healthcare practitioners, was the largest occupation group among Minnesota workers and had the fourth-highest percentage of DAFW cases.

Figure 4.9 Percentage of workers with days-away-from-work cases and employment by major occupation group, 2009-2011



²¹ See the Minnesota occupation by industry staffing matrix at www.positivelyminnesota.com/Data_Publications/Data/Wages,_Benefits,_Careers/Occupational_Staffing_Patterns.aspx.

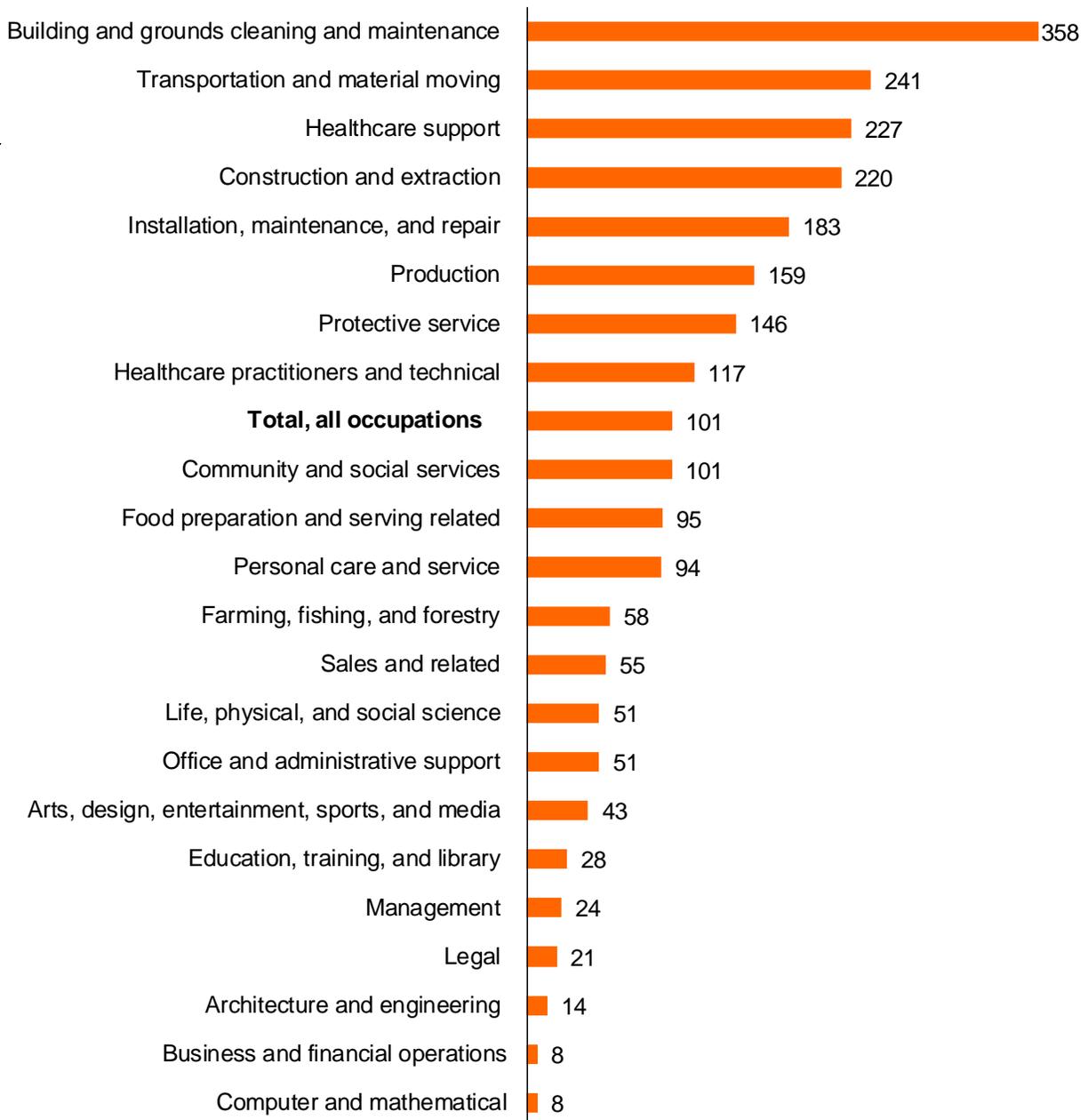
²² BLS Occupational Employment and Wage Estimates, May 2011, downloaded from http://www.bls.gov/oes/oes_dl.htm.

²³ The current figure includes both publicly and privately-owned establishments. In previous editions of the *Minnesota Workplace Safety Report*, Figure 4.9 showed the case distribution among privately owned establishments.

The differences in occupations in major occupation groups for workers in privately owned establishments are revealed by the rate of DAFW cases per 10,000 FTE workers, shown in Figure 4.10. The distribution shows large differences between sets of occupations.

- The incidence rates for the major occupation groups generally follow the degree to which the occupations require physical exertion and exposure to job hazards.

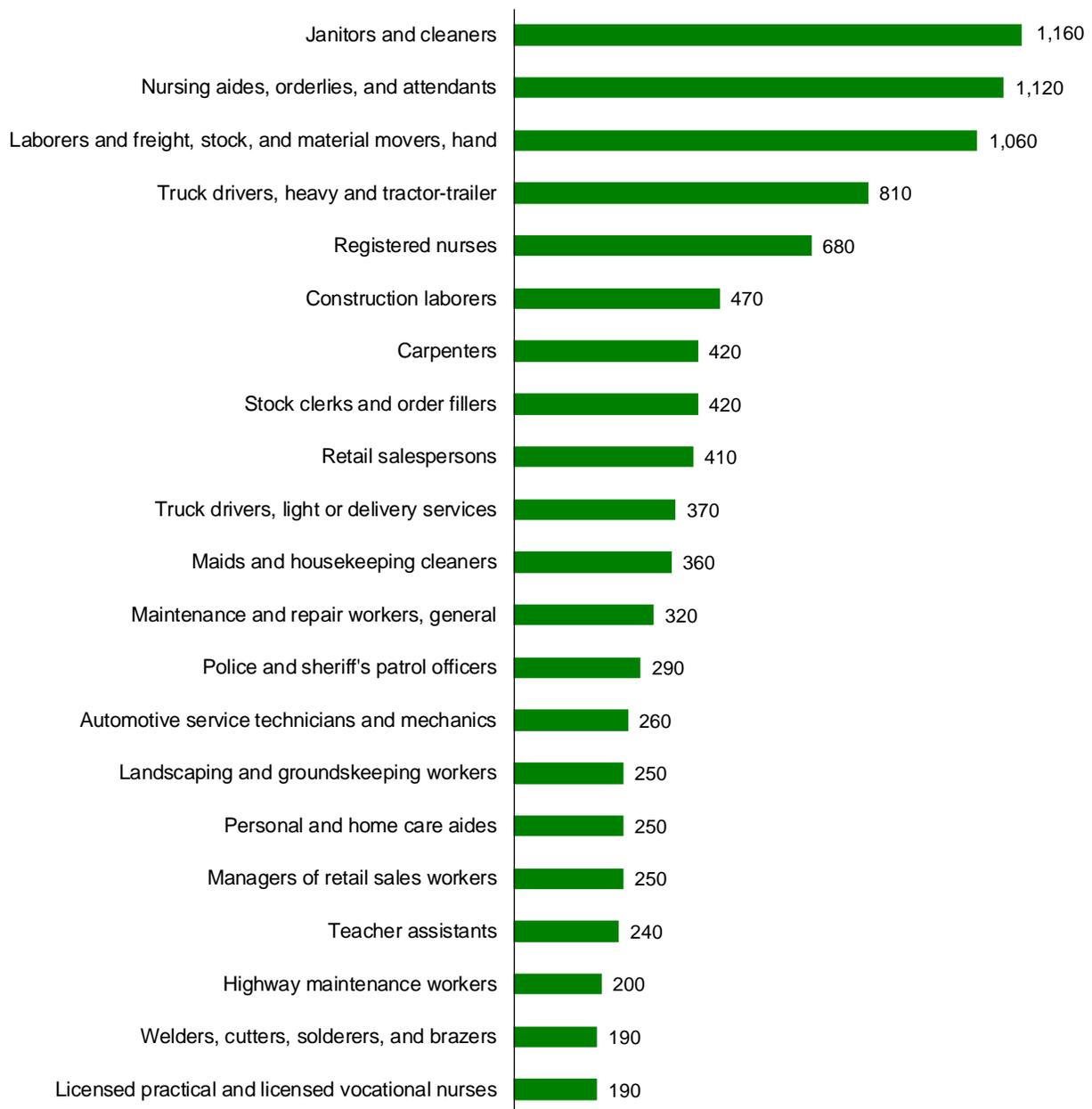
Figure 4.10 Average annual incidence rates of days-away-from-work cases by major occupation group, per 10,000 FTE workers, private sector, 2009-2011



The detailed occupations with an estimated annual average of 190 or more DAFW cases across all ownership types during the 2009 through 2011 period are shown in Figure 4.11. The four specific occupations with at least 800 DAFW cases accounted for 4,160 cases, 20 percent of the estimated annual average number of cases.

- The four health care related occupations on the list — nursing aides, orderlies and attendants, registered nurses, licensed practical and licensed vocational nurses, and home health aides — accounted for an annual average of nearly 2,140 cases, 10 percent of the total annual average.

Figure 4.11 Specific occupations with the highest annual average number of cases, 2009-2011



Injury and illness characteristics

Each DAFW case is characterized by the nature of the injury or illness, the part of the body affected, the event or exposure leading to the injury or illness and the source of the injury or illness.²⁴

As an example of how these characteristics combine to describe injuries and illnesses, consider a retail store clerk who sprains her back while lifting a box of merchandise. The nature of the injury is a sprain or strain; the part of the body affected is her back; the event is overexertion while lifting; and the injury source is a box (a container).

Due to changes in the injury characteristics coding system, estimates for 2011 are not comparable to estimates for prior years.

Nature of injury or illness

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

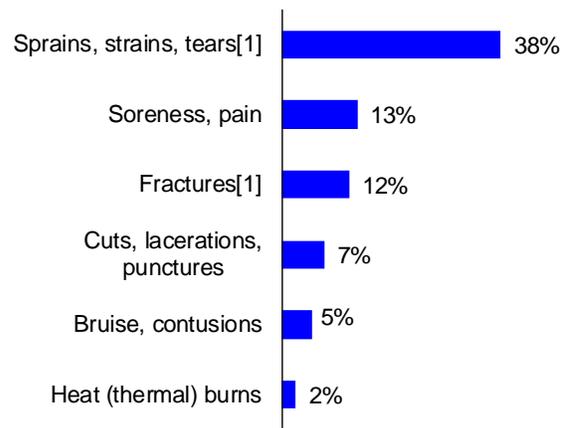
- Sprains, strains and tears of muscles, tendons and joints accounted for an estimated 38 percent of the DAFW cases for 2011 (Figure 4.12). (These include multiple injuries that mention sprains.)

Part of body

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

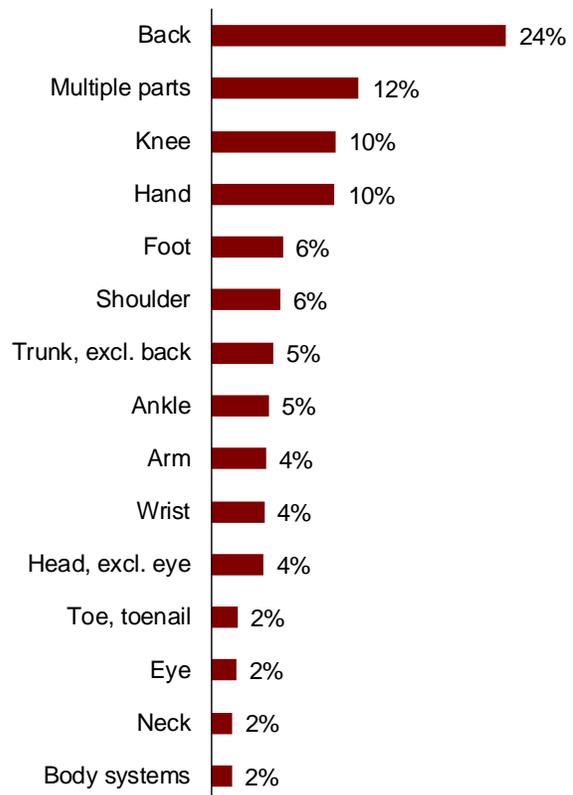
- The back is injured more often than other body parts among cases with days away from work (Figure 4.13), both in the current and previous coding systems.

Figure 4.12 Nature of injury, 2011



1. Sprains and fractures also include cases with multiple injuries.

Figure 4.13 Part of body injured, 2011



²⁴ Injury characteristics beginning with 2011 are coded according to the *Occupational Injury and Illness Classification System Manual*, version 2.01. www.bls.gov/iif/oshoiics.htm.

Event or exposure

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

- The three most common event types accounted for 37 percent of all the DAFW cases in 2011. This indicates these events are common to many different industries and that companies that focus on these events can have a significant impact on their overall safety results.
- Women accounted for 59 percent of the falls on the same level.

Source of injury or illness

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

- Worker motion or position includes many injuries that occur as a result of overexertion or repetitive motion where other objects, such as tools and containers, are not involved in causing the injury.

Figure 4.14 Event or exposure, 2011

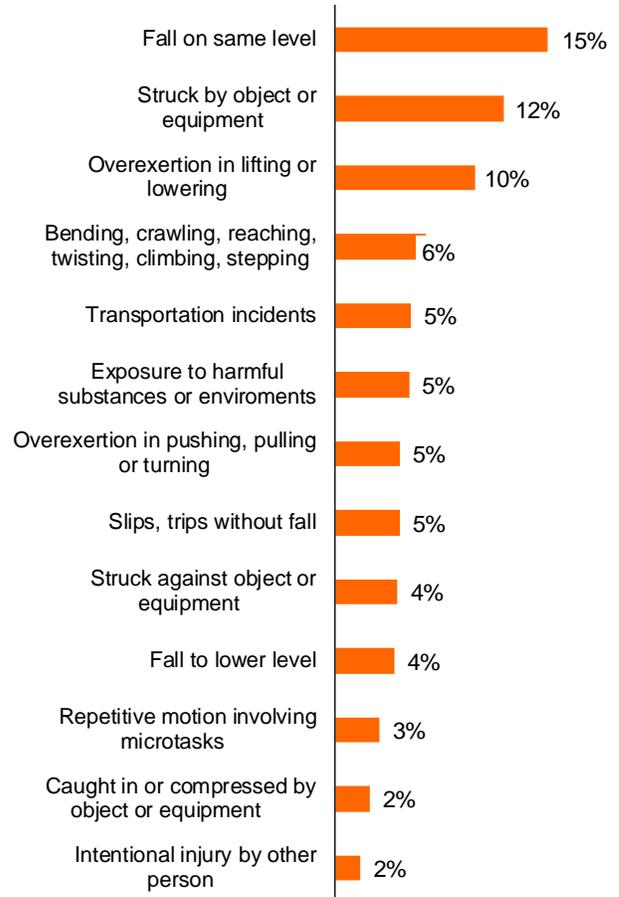
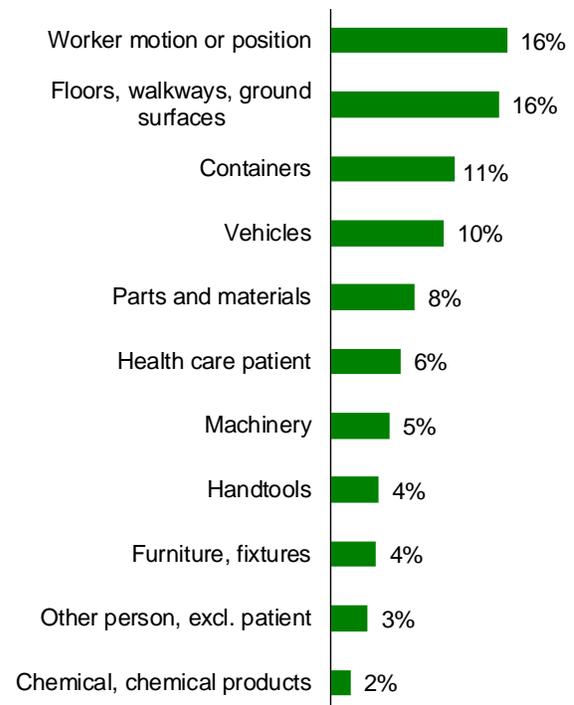


Figure 4.15 Source of injury or illness, 2011



5

Fatal occupational injuries

In 2011, 60 Minnesota workers were fatally injured on the job, a decrease from the 70 fatalities in 2010. Nationally, 4,693 workers were fatally injured during 2011, nearly unchanged from the 2010 total of 4,690.

Statistics about fatal occupational injuries are gathered through the nationwide Census of Fatal Occupational Injuries (CFOI), conducted by the BLS with state and other federal agencies. The Department of Labor and Industry collects Minnesota CFOI data.

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

The CFOI provides a complete count of fatal work injuries by using multiple sources to identify, verify and profile these incidents. The sources include death certificates, coroner reports, workers' compensation reports and news media reports. A preliminary count of fatalities is released during the summer following the reference year, and a final count is released the following spring.

Counting fatalities

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

Minnesota trucking company but is killed in an accident in South Dakota would be counted as a South Dakota CFOI fatality.

By contrast, the workers' compensation count of fatality claims includes fatalities caused by injuries and by illnesses, but only includes workers covered by a Minnesota workers' compensation insurance policy. Self-employed and federal government workers are not included. A Minnesota truck driver killed in another state would be included in the Minnesota workers' compensation fatality count if Minnesota workers' compensation system benefits were paid. For 2011, there is a preliminary count of 40 workers' compensation fatality claims due to injury and illness, similar to the 2010 count of 41 fatalities.²⁵

MNOSHA's fatality count also differs from CFOI. MNOSHA investigates all employee deaths that are under its jurisdiction and result from an accident or illness caused by or related to a workplace hazard. MNOSHA does not investigate fatalities caused by traffic accidents (investigated by the Minnesota Department of Public Safety), airplane crashes (National Transportation Safety Board), mining accidents (Mine Safety and Health Administration), federal workers (federal OSHA), railroad workers (Federal Railroad Administration), farm accidents and accidents to the self-employed (investigation agency depends on type of accident). MNOSHA rarely investigates fatalities due to violence, and no violence-related fatalities are included in the current MNOSHA fatality counts.

MNOSHA investigates fatalities to determine cause, whether any MNOSHA standards were violated and whether additional standards might help prevent similar incidents. The MNOSHA-investigated fatalities are shown in Figure 6.3.

²⁵ The number of fatality claims receiving workers' compensation benefits changes as claims are resolved. The 2011 and 2012 fatality counts are current as of July 22, 2013 (Minnesota workers' compensation claims database).

In 2011, MNOSHA investigated 23 fatality events and in 2012, MNOSHA investigated 17 fatality events. The five-year average, from 2008 to 2012, was 17 fatality event investigations a year. There were three construction fatality investigations each year in 2008, 2009 and 2010, seven investigations in 2011 and eight in 2012.

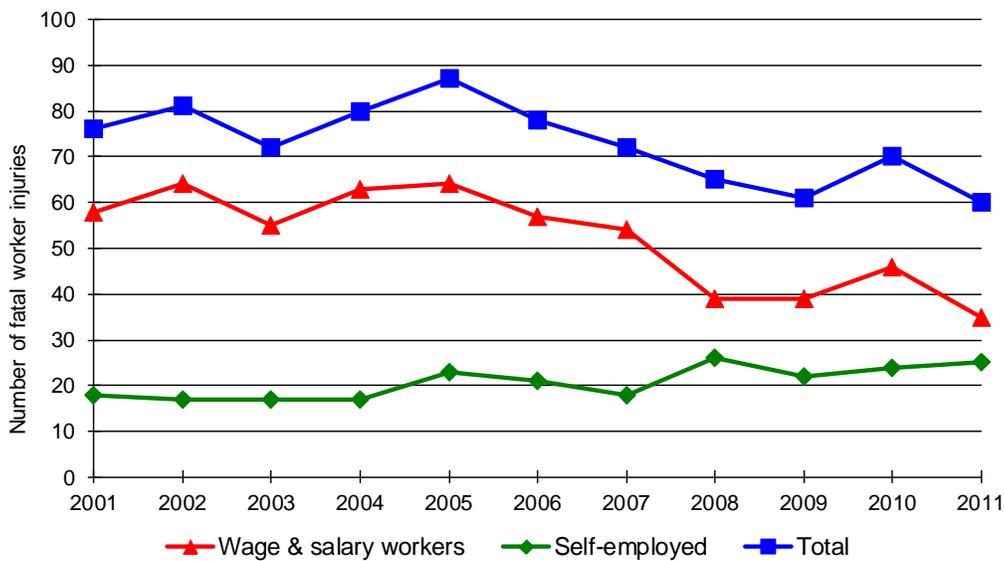
Number of fatal injuries

- Minnesota’s number of fatal work injuries had varied from 61 to 87 a year from 2001 through 2011 (Figure 5.1), with the lowest number in 2011.
- For wage-and-salary workers, the annual

fatality toll ranged from 35 to 64, with the lowest count in 2011.

- For self-employed workers, the annual fatality figure ranged between 17 and 26 fatalities, with the highest number in 2008.
- The fatality toll for 2007 through 2011 was 328 workers, with a five-year average of 66 fatalities a year. This consisted of 43 wage-and-salary workers and 23 self-employed workers.
- Fatal injuries for the self-employed were 42 percent of the 2011 total, far higher than the estimated 14 percent self-employed share of total state employment in 2009.²⁶

Figure 5.1 Fatal work injuries, 2001-2011¹



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

Year of death	Wage and salary workers	Self-employed workers	Total
2000	53	15	68
2007	54	18	72
2008	39	26	65
2009	39	22	61
2010	46	24	70
2011	35	25	60
Avg. 2007-2011	42.6	23.0	65.6

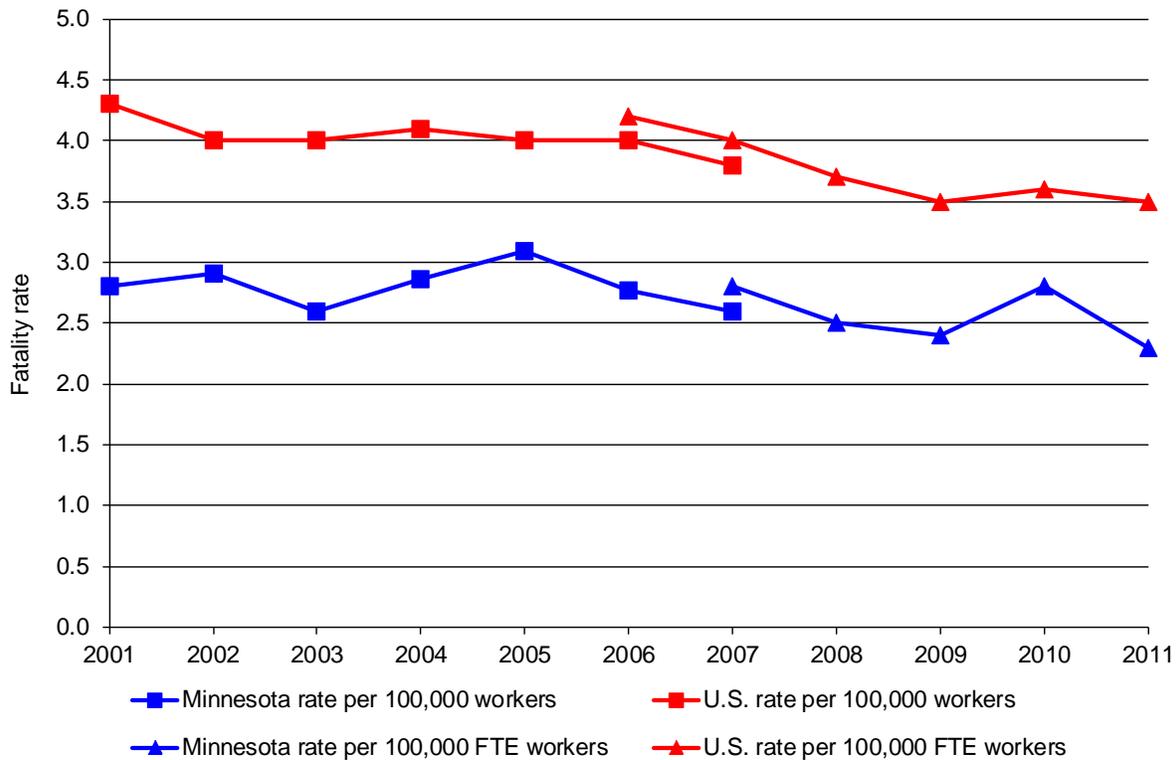
²⁶ Based on Nonemployer Statistics Program, U.S. Census Bureau, and the Quarterly Census of Employment and Wages, Minnesota Department of Employment and Economic Development.

Rate of fatal injuries

Prior to the 2006 results, national and state fatality rates were calculated as the rate per 100,000 workers. BLS began calculating the rates based on 100,000 *full-time-equivalent* (FTE) workers for the national rate for 2006 and for the states beginning in 2007. The FTE-based rate is considered a more accurate measure of workplace exposure to hazards.

The fatality rates of Minnesota and the U.S. are not directly comparable because of differences in the proportions and types of industries in the state and the nation as a whole.

- Figure 5.2 shows the Minnesota and United States fatality rates per 100,000 FTE workers since 2007. The 2011 fatality rate for Minnesota was 2.3 deaths per 100,000 FTE workers.
- For the entire United States, the fatality rate for 2011 was 3.5 deaths per 100,000 FTE workers. The rate was 2.9 for wage and salary workers and 13.1 for self-employed workers.



Fatality rates per 100,000 FTE workers

	Minnesota	U.S.
2008	2.5	3.7
2009	2.4	3.5
2010	2.8	3.6
2011	2.3	3.5

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

Fatal injury events

The CFOI statistics describe the type of event causing the fatality, the source of the fatal injury, and the worker's location and activity. Figure 5.3 shows the event or exposure causing fatal work injuries in Minnesota during 2011.

- The most frequent cause of fatalities was contact with objects and equipment. These cases included workers being struck by an object, caught in or compressed by

equipment or objects, such as running machinery, and being crushed by collapsing materials.

- The second most common event causing fatal injuries in 2011 was transportation incidents. Most of these fatalities were roadway accidents such as vehicle collisions and rollovers. Agriculture, forestry, fishing and hunting accounted for half of the transportation fatalities.

Figure 5.3 Event or exposure causing fatal work injury, 2011

Event or exposure	Number of fatalities ¹	Percentage of fatalities
Total	60	100.0%
Contact with objects and equipment	19	31.7%
Struck by object or equipment	11	18.3%
Struck by powered vehicle--nontransport	6	10.0%
Struck by falling object	4	6.7%
Caught in or compressed by equipment or objects	5	8.3%
Caught in running equipment or machinery	5	8.3%
Caught in or crushed in collapsing materials	6	10.0%
Transportation incidents	16	26.7%
Roadway incidents	10	16.7%
Roadway collision with other vehicle	5	8.3%
Roadway noncollision incident	3	5.0%
Nonroadway incident involving motorized land vehicles	3	5.0%
Nonroadway noncollision incident	3	5.0%
Falls, slips, trips	14	23.3%
Falls to lower level	14	23.3%
Violence and other injuries by persons or animals	5	8.3%
Intentional injury by person	4	6.7%
Exposure to harmful substances or environments	5	8.3%

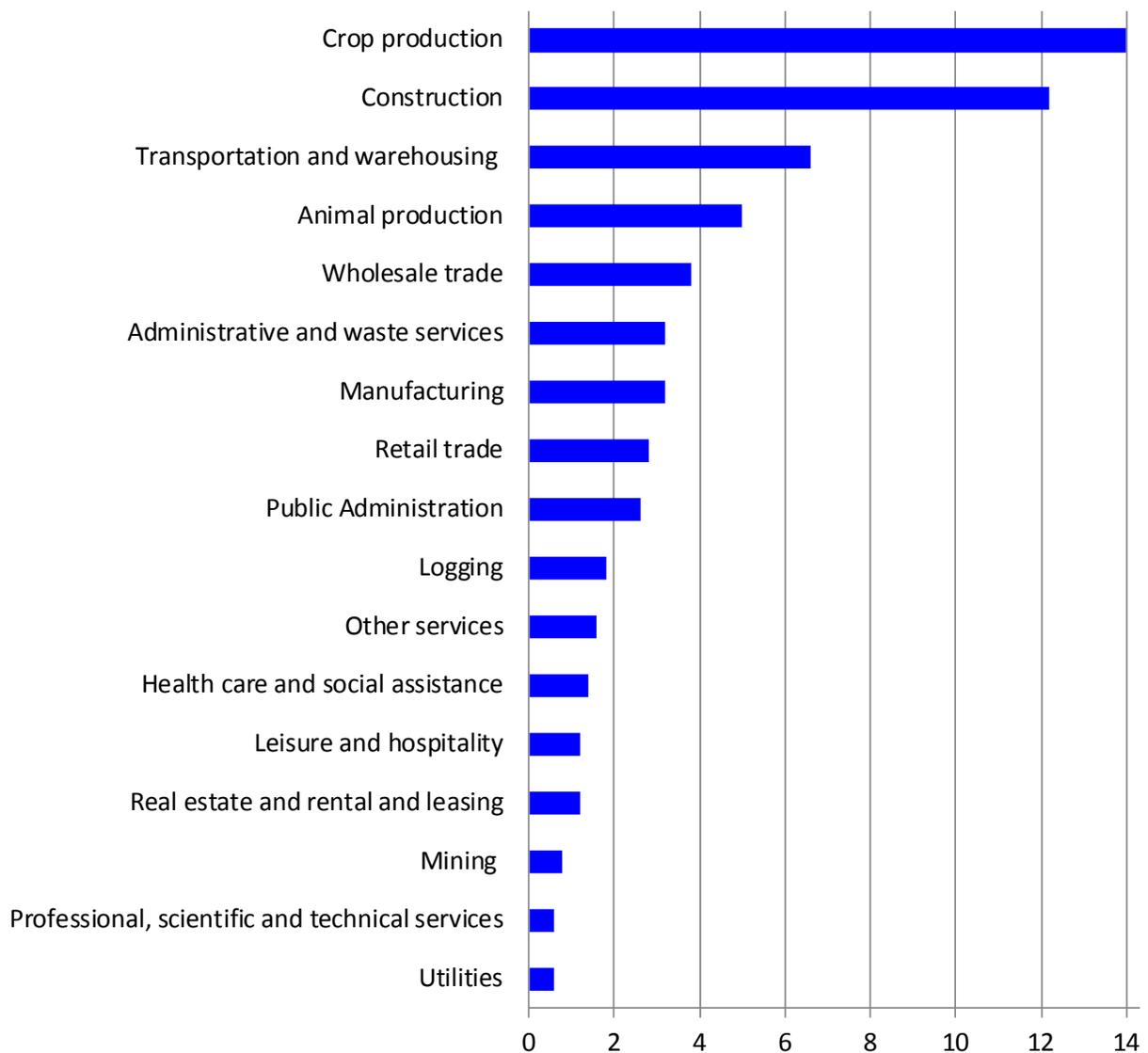
1. Totals for major categories may include subcategories not shown separately. Major categories may not sum to overall total due to one or more categories that do not meet publication criteria.

Fatal injuries by industry sector

Figure 5.4 shows the average number of Minnesota’s fatal work injuries by industry sector for 2007 through 2011.

- The highest number of fatal injuries was in crop production, with 70 fatalities, an annual average of 14.0 fatalities. There were 13 fatalities in this industry in 2011; 12 of the workers were self-employed.
- Construction has the second-highest annual average number of fatalities. There were 17 fatalities reported in 2011, including five fatalities to self-employed workers.
- Nearly one quarter of the fatalities were due to falls to a lower level.
- There were five fatalities due to assaults and violent acts in 2011.

Figure 5.4 Average annual number of fatal work injuries by industry sector, 2007-2011



Characteristics of fatally injured workers

Figures 5.5 through 5.8 show the distributions of demographic characteristics and occupations of fatally injured workers.

The characteristics with distributions displayed in bar charts are based on the 328 fatality cases from 2007 through 2011. Using this multi-year data provides a more stable indicator of the characteristics displayed. Because of the low annual number of fatalities, some characteristics with few cases may show large year-to-year changes that are not indicative of long-term trends. For categories with larger numbers of cases, the percentages have remained fairly stable during this time period. The 2011 results do not show important differences from these multi-year results.

Gender

- Men accounted for 95 percent of fatally injured workers in 2011 and for 95 percent of the fatalities from 2007 through 2011.

Age

- The percentage of fatally injured workers increased with worker age, with the greatest numbers among workers 45 to 54 years of age, and then decreased for the oldest workers.
- The age of fatally injured workers has been gradually increasing, matching the aging of the entire workforce. The percentage of fatalities to workers 45 years and older increased from 47 percent during the 1992 to 1996 period, to 51 percent during the 1998 to 2002 period, and to 57 percent during the 2003 to 2010 period. For 2011, 58 percent of the fatalities were among these older workers.

Figure 5.5 Men as percentage of fatally injured workers, 2001-2011

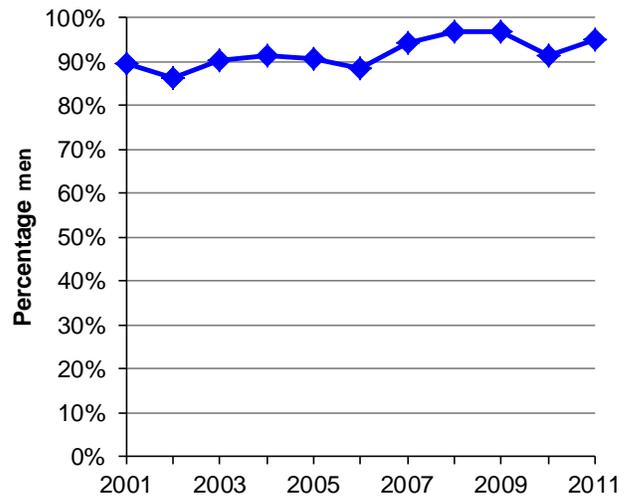
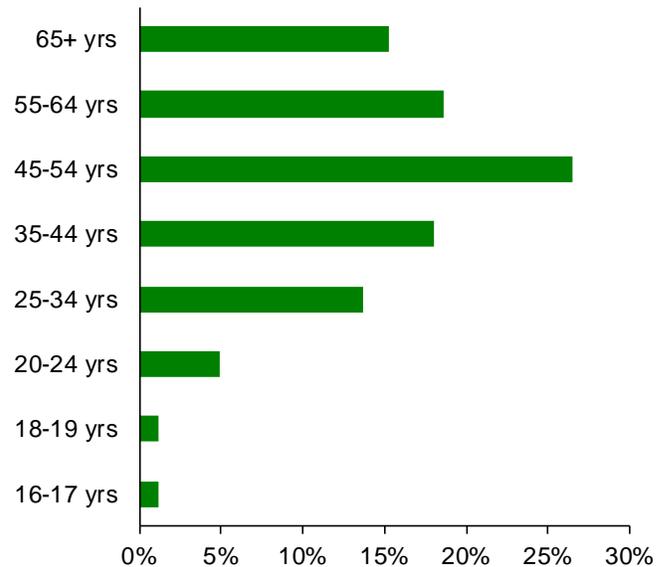


Figure 5.6 Age of fatally injured workers, 2007-2011



Race

- Since 2001, the percentage of fatalities to nonwhite and to Hispanic workers has ranged from 0 percent to 13 percent, with considerable annual variation.
- Nonwhite and Hispanic workers accounted for 5.5 percent of the fatalities for the 2007 to 2011 period. Minnesota’s nonwhite and Hispanic employment was estimated at 13 percent of total employment for 2010.²⁷

Occupation

- Fatally injured workers were concentrated in the occupation groups of farmers and ranchers, construction workers and truck drivers.
- Farmers, ranchers and agriculture workers accounted for 28 percent of the fatalities from 2007 through 2011.
- Among farmers and ranchers, five of the 13 fatalities in 2011 were due to transportation incidents, and 26 of the 61 fatalities for the 2007 through 2010 period were due to transportation accidents.²⁸

Figure 5.7 Percentage nonwhite or Hispanic fatally injured workers, 2001-2011

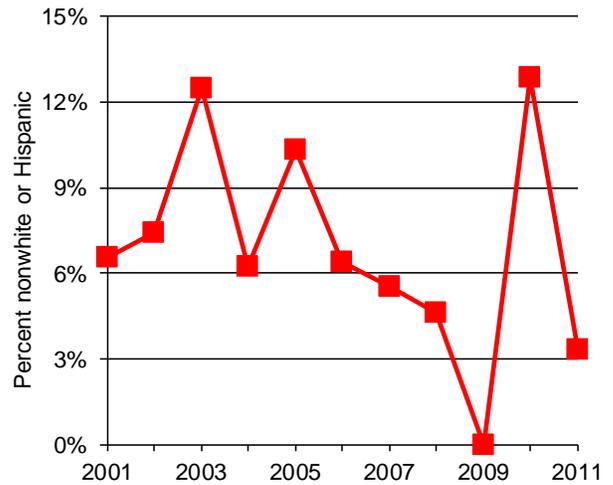
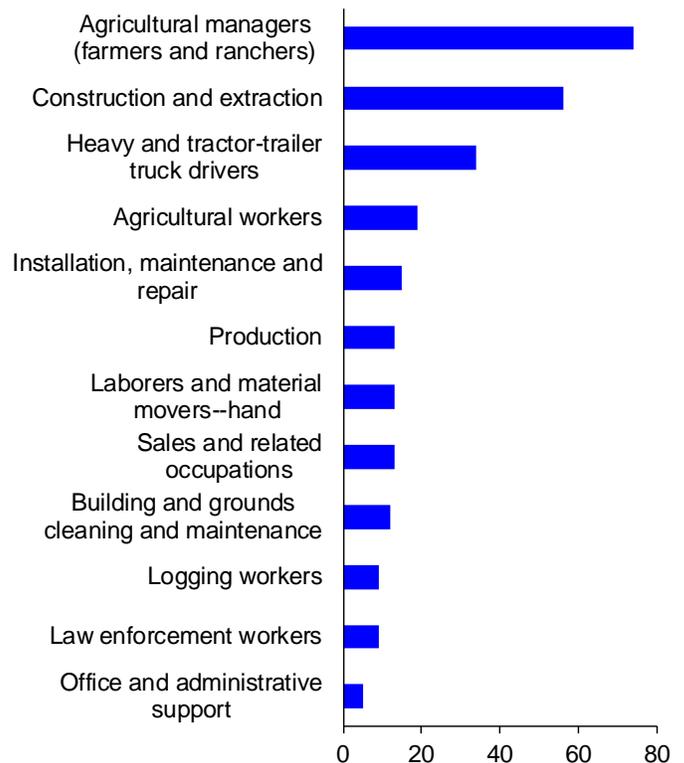


Figure 5.8 Occupations with 10 or more fatally injured workers, 2007-2011



²⁷ U.S. Census Bureau, 2010 American Community Survey. Retrieved from American Factfinder: factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml.

²⁸ Note the change in event name (accidents/incidents) reflecting underlying changes in the OIICS.

Characteristics of fatal injury events

Worker activity

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

- Forty percent of the fatalities from 2007 through 2011 occurred while the workers were using tools or machinery.
- Driving a truck and driving a farm vehicle accounted for the next two most common activity categories, combining for 19 percent of the fatalities. Driving an automobile accounted for only 2 percent of the fatalities.

Location

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

- Farms and streets and highways were the most common fatality locations.
- Fourteen percent of the work-related fatal injuries occurred in an industrial workplace and another 9 percent occurred in a public building, which includes office buildings and stores.

Figure 5.9 Activity of fatally injured workers, 2007-2011

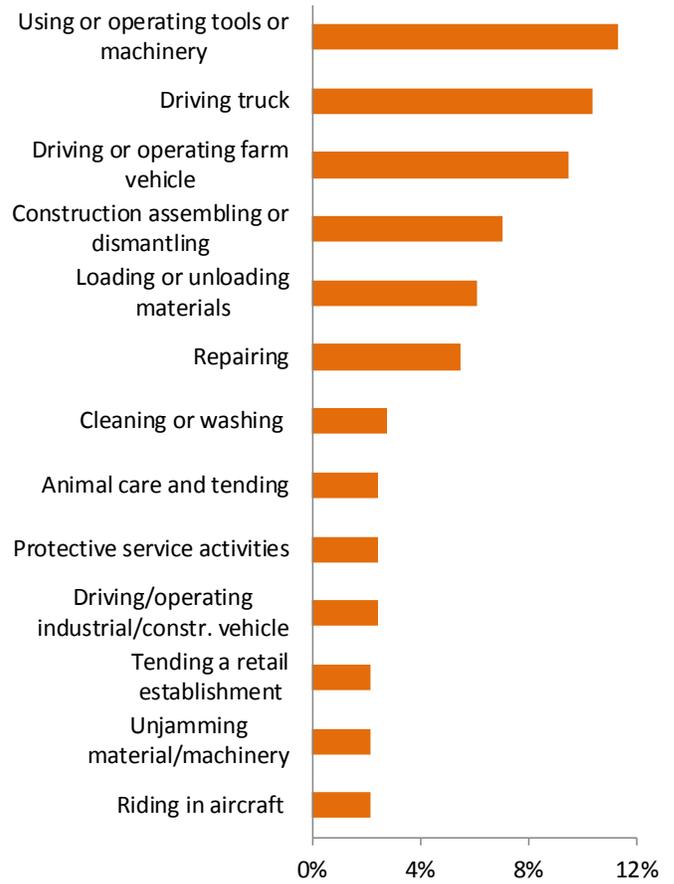
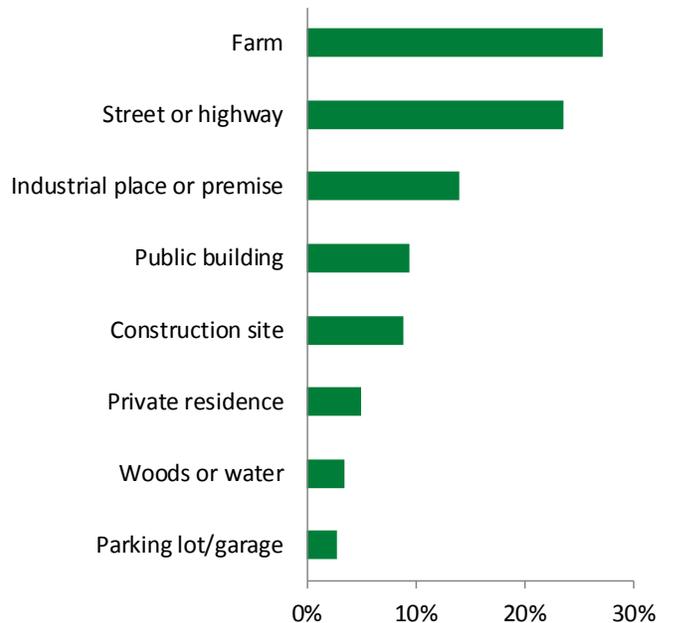


Figure 5.10 Fatal incident location, 2007-2011



Month of fatality

- There was considerable variation in the number of fatalities per month during the 2007 to 2011 period. The number of fatal work injuries was highest in July, with 46 fatalities, and lowest in December, with 14 fatalities.
- The high numbers (and percentage of total fatalities) during the July through October period coincide with the period with the greatest amount of farm and construction activity.

Day of week of fatality

- The number of fatal workplace injuries was highest on Thursday, with 70 fatalities, and lowest on Sunday, with 19 fatalities.

Figure 5.11 Month of fatal worker injury, 2007-2011

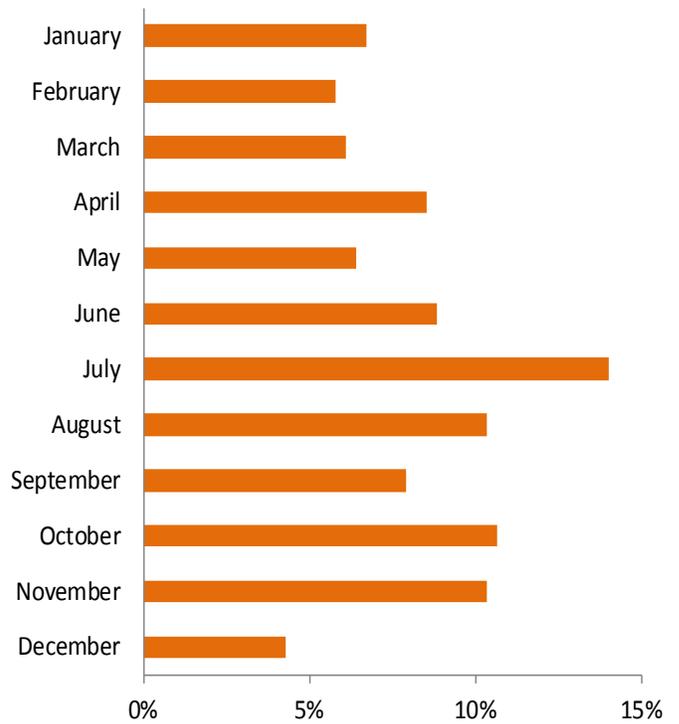
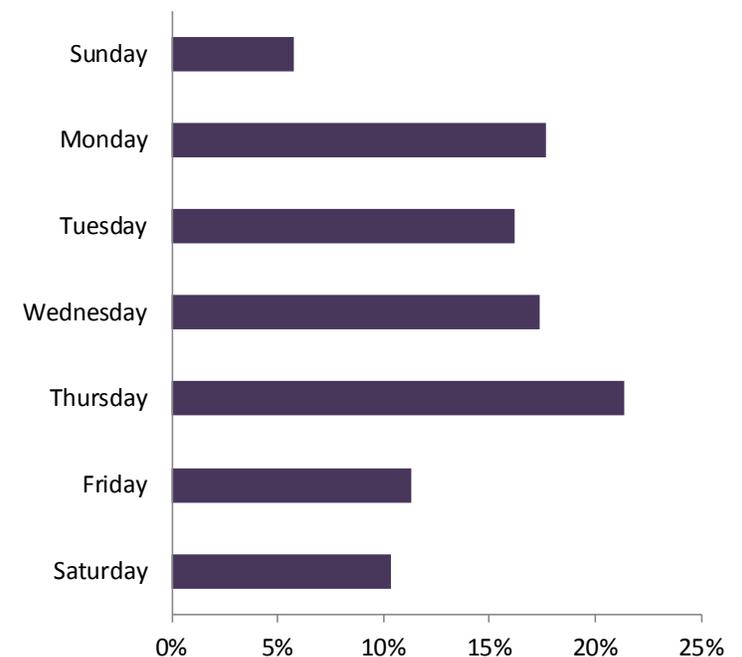


Figure 5.12 Day of week of fatal work injury, 2007-2011



6

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

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

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

Occupational safety and health compliance

Workplace inspections

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

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

- imminent danger — any condition or practice that presents a substantial probability that death or serious physical harm could occur immediately or before the

danger can be eliminated through normal enforcement procedures;

- fatal accidents and catastrophes — accidents causing death or the hospitalization of three or more employees;
- employee complaints not concerning imminent danger;
- referrals from safety, health and government professionals;
- programmed inspections targeting high-hazard employers and industries; and
- follow-up inspections for determining whether previously cited violations have been corrected.

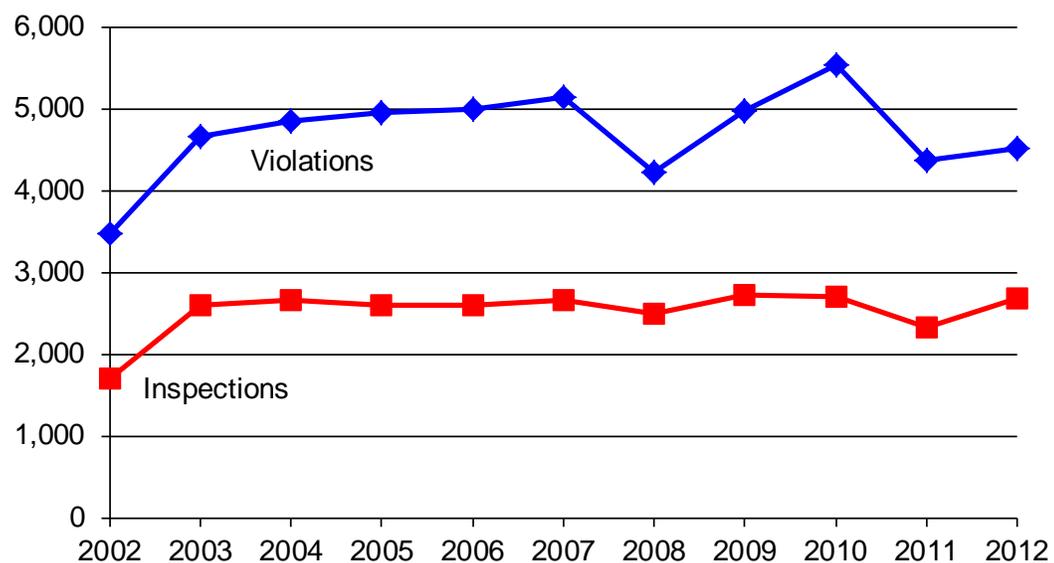
Employers found to have violated MNOSHA standards receive citations for the violations and are assessed penalties on the basis of the seriousness of the violations. These employers are also required to correct the violations. Employers and employees may contest citations, penalties and the time periods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

Figure 6.1 shows statistics for compliance inspections from federal-fiscal-years (FFY, years begin Oct. 1 of the preceding year) 2002 through 2012. More statistics describing MNOSHA activities are available from the State OSHA Annual Report at www.dli.mn.gov/OSHA/PDF/annualreport12.pdf.

- During the most recent five-year period, FFY 2008 through FFY 2012, an average of 2,600 inspections were conducted annually, covering an average of 132,880 workers (Figure 6.1). MNOSHA Compliance conducted 2,667 inspections in FFY 2012, resulting in the identification of 4,505 violations of OSHA standards.
- During FFY 2012, 68 percent of inspections resulted in at least one violation cited. Among inspections with violations, 2.5 violations were cited, on average.

- Among private-sector employers, serious, willful and repeat violations accounted for 77 percent of the safety violations and for 63 percent of the health violations cited in FFY 2012. The average penalty for these violations was \$1,082.
- MNOSHA established the 75/25 Program in FFY 2004. This is a penalty-reduction incentive program available to qualified employers that links workers' compensation claims and MNOSHA Compliance penalties. This program allows an employer to obtain a 75 percent reduction in penalties if that employer reduces the number of workers' compensation claims submitted by 25 percent within the following one-year period. Participants are encouraged to use WSC services to achieve this goal. During FFY 2012, 31 employers entered the 75/25 Program. During the same period, 56 employers completed the 75/25 Program. Of those employers, 38 successfully achieved the 25 percent claims reduction. Information is available at www.dli.mn.gov/OSHA/75-25Program.asp.

Figure 6.1 MNOSHA Compliance inspections and violations cited, FFY 2002-2012¹



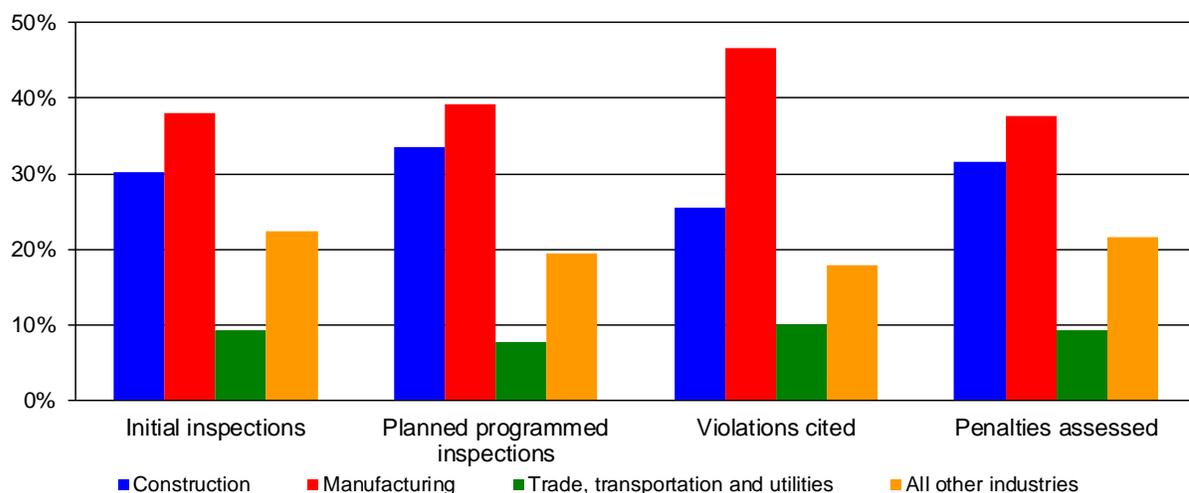
Federal fiscal-year ¹	Inspections conducted	Employees covered ²	Inspections with violations	Violations	Penalties assessed (\$ millions) ³
2002	1,691	68,113	1,165	3,462	\$2.61
2008	2,483	131,748	1,674	4,225	\$3.20
2009	2,717	139,429	1,959	4,962	\$3.37
2010	2,691	175,239	1,904	5,535	\$3.87
2011	2,325	126,145	1,610	4,363	\$4.11
2012	2,667	91,837	1,819	4,505	\$4.39

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

Source: Minnesota OSHA Operations System Exchange database.

- Figure 6.2 shows that the majority of inspections in almost every industry were planned, programmed inspections.
- Manufacturing accounted for 39 percent of the inspections, down from 50 percent in 2011, and for 40 percent of the violations, down from 61 percent in 2011. Planned programmed inspections accounted for 86 percent of the inspections.
- Construction accounted for 31 percent of inspections, up from 20 percent in FFY 2011, but similar to the 32 percent posted in FFY 2010. Construction also accounted for 35 percent of programmed inspections. Planned programmed inspections accounted for 93 percent of the construction visits.
- Construction also accounted for 26 percent of the violations, up from 13 percent in FFY 2011 and 18 percent in FFY 2010.
- Construction safety is a major focus for compliance outreach activities. MNOSHA provides compliance assistance for members of the construction industry responsible for worksite safety to stay current with MNOSHA standards. MNOSHA had five construction seminars, with 310 construction managers, supervisors and employees in attendance.
- MNOSHA Compliance conducted 44 programmed inspections in the meat processing industry and in nursing homes as part of an ergonomics focus.

Figure 6.2 MNOSHA Compliance inspections by industry, FFY 2012



Industry	NAICS code(s)	Initial inspections	Planned programmed inspections	Violations cited	Penalties assessed ¹
Natural resources and mining	11, 21	8	4	11	\$ 36,975
Construction	23	850	788	1,205	\$ 1,388,600
Manufacturing	31-33	1,070	923	2,197	\$ 1,648,925
Wholesale trade	42	93	69	233	\$ 212,225
Retail trade	44-45	67	33	95	\$ 105,200
Transportation and warehousing	48-49	81	66	120	\$ 54,425
Utilities	22	19	14	26	\$ 35,225
Information	51	33	24	31	\$ 22,450
Financial activities	52-53	30	21	14	\$ 28,175
Professional and business services	54-56	118	81	138	\$ 138,050
Education	61	58	47	88	\$ 71,200
Health care and social assistance	62	100	75	122	\$ 123,875
Leisure and hospitality	71-72	35	11	78	\$ 48,500
Other services	81	25	6	37	\$ 15,650
State and local government	all	167	143	234	\$ 236,950

1. These are the initial penalty assessment amounts.

Source: Minnesota OSHA Operations System Exchange database.

- MNOSHA Compliance initiated inspections for 17 fatalities during calendar-year 2012 (Figure 6.3).
- From 2008 through 2012, 28 percent of the fatality investigations were in the construction industry. Falls and crushing incidents accounted for 55 percent of the fatalities investigated.
- Figure 6.4 shows MNOSHA Compliance initiated inspections for 51 serious-injury incidents during 2012 and for 195 incidents during the 2008 through 2012 period.
- Falls and crushing injuries led to 47 percent of the serious-incident inspections in 2012. From 2008 through 2012, 45 percent of the serious injuries investigated involved workers injured by falls and crushing injuries. Details about the fatality and serious injury incident investigations are available at www.dli.mn.gov/OSHA/Information.asp.

Figure 6.3 Fatalities investigated by MNOSHA Compliance, 2008-2012

Fatality type	2008	2009	2010	2011	2012	Total
Asphyxiation/chemical exposure	1	3	2	1	0	7
Burn	0	0	0	0	0	0
Crushed by	6	5	5	4	3	23
Drowning	0	1	0	2	0	3
Electrocution	2	0	1	2	2	7
Explosion	0	1	0	1	2	4
Fall	2	6	4	7	5	24
Heat exposure	0	0	0	1	0	1
Natural causes	0	0	3	0	1	4
Struck by	1	2	0	5	4	12
Total	12	18	15	23	17	85
Percent in construction	25%	17%	20%	30%	47%	28%

Figure 6.4 Serious injuries investigated by MNOSHA Compliance, 2008-2012

Serious-injury type	2008	2009	2010	2011	2012	Total
Amputation	4	9	4	6	6	29
Asphyxiation/chemical exposure	6	1	3	3	0	13
Burn	1	3	0	0	3	7
Crushed by	8	3	11	13	10	45
Electrical shock	5	2	1	3	4	15
Environmental stress	0	0	0	0	0	0
Explosion	4	1	3	2	6	16
Fall	8	6	7	7	14	42
Struck by	7	4	1	5	8	25
Total	43	29	30	39	51	195
Percent in construction	33%	17%	23%	36%	43%	32%

Figure 6.5 shows the most commonly cited OSHA standards violations in FFY 2012 for general industry and for construction.

- Violations associated with the A Workplace Accident and Injury Reduction (AWAIR) Act, the Employee Right-to-Know Act, lockout/tagout procedures and construction fall protection have been at or near the top of the lists for many years.

Under the Employee Right-to-Know Act and its standards — also part of the state’s Occupational

Safety and Health Act — employers must evaluate their workplaces for the presence of hazardous substances, harmful physical agents and infectious agents, and determine which employees are routinely exposed to these substances and agents. Identified employees must be provided with appropriate training and readily accessible written information about identified hazardous substances and agents in their work areas. Containers, work areas and equipment must be labeled to warn employees of associated hazardous substances or agents.

Figure 6.5 Minnesota OSHA’s most frequently cited standards, FFY 2012

Standard ¹	Description	Times cited
General industry		
MN Rules 5206.0700	Employee Right-To-Know training	438
29 CFR 1910.147	Control of hazardous energy (lockout/tagout procedures)	204
29 CFR 1910.305	Electrical wiring methods, components and equipment for general use	202
29 CFR 1910.212	Machine guarding — general requirements	185
29 CFR 1910.134	Respiratory protection	162
29 CFR 1910.151	Emergency eyewash and showers	146
MN Statutes 182.653 subd. 8	A Workplace Accident and Injury Reduction (AWAIR) program	123
MN Rules 5205.0116	Carbon monoxide monitoring	115
29 CFR 1910.1026	Chromium (VI)	106
29 CFR 1910.178	Powered industrial trucks (forklifts)	105
Construction		
29 CFR 1926.501	Fall protection	345
MN Statutes 182.653 subd. 8	A Workplace Accident and Injury Reduction (AWAIR) program	98
29 CFR 1926.1053	Ladders	94
29 CFR 1926.451	Scaffolds — general requirements	77
29 CFR 1926.652	Excavations — protective system requirements	76
29 CFR 1926.651	Specific excavation requirements	57
MN Rules 5207.1100	Fall protection on elevating work platform equipment	44
29 CFR 1926.405	Electrical wiring methods, components and equipment for general use	38
MN Statutes 182.653 subd. 2	General duty clause – unsafe working condition	29
29 CFR 1926.100	Head protection	27

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

Source: Minnesota OSHA Operations System Exchange database.

Window-washing program

MNOSHA Compliance initiated a local emphasis program targeting window-washing operations during FFY 2011. MNOSHA has a team of 12 investigators trained in the recognition of window-washing operation hazards. In FFY2012, MNOSHA Compliance conducted 40 inspections under this emphasis program with 25 proposed citations including 24 serious citations. Among the hazardous situations the MNOSHA investigators found were: improper rigging of load lines and life lines, no fall protection for attendants on rooftops, improper ladder usage, and improper selection and use of anchorage points.

Partnerships

MNOSHA Compliance continues to support and strengthen relationships with organizations that represent safety and health best practices. It currently has two partnerships in the construction industry — Construction Health and Safety Excellence (CHASE) Minnesota and Minnesota Chapter of Associated Builders and Contractors (MN ABC). MNOSHA currently has 25 members in the CHASE Minnesota partnership and 15 members in the MN ABC partnership. For the most current information, see www.dli.mn.gov/OSHA/Partnerships.asp.

Workplace Safety Consultation

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

Workplace consultations

WSC offers free consultation services to help employers improve workplace safety by identifying safety and health hazards and providing safety and health program assessment through on-site consultation. Additional services include training, education and outreach. These

services are targeted primarily toward smaller businesses in high-hazard industries and are also available to public-sector employers. During FFY 2012, WSC conducted 1,475 worksite safety and health visits, training and assistance visits and interventions.

During the consultation visits, the WSC safety and health professionals help employers determine how to improve workplace safety practices and working conditions to comply with, and exceed, MNOSHA regulations and to reduce accidents and illnesses and their associated costs. No citations are issued or penalties proposed as a result of WSC consultations. However, employers are obligated to correct any serious safety and health hazards found. Consultants identify hazards in about 91 percent of their initial visits. Information about an employer is not reported to MNOSHA Compliance unless the employer fails to correct the detected safety and health hazards within a specified period.

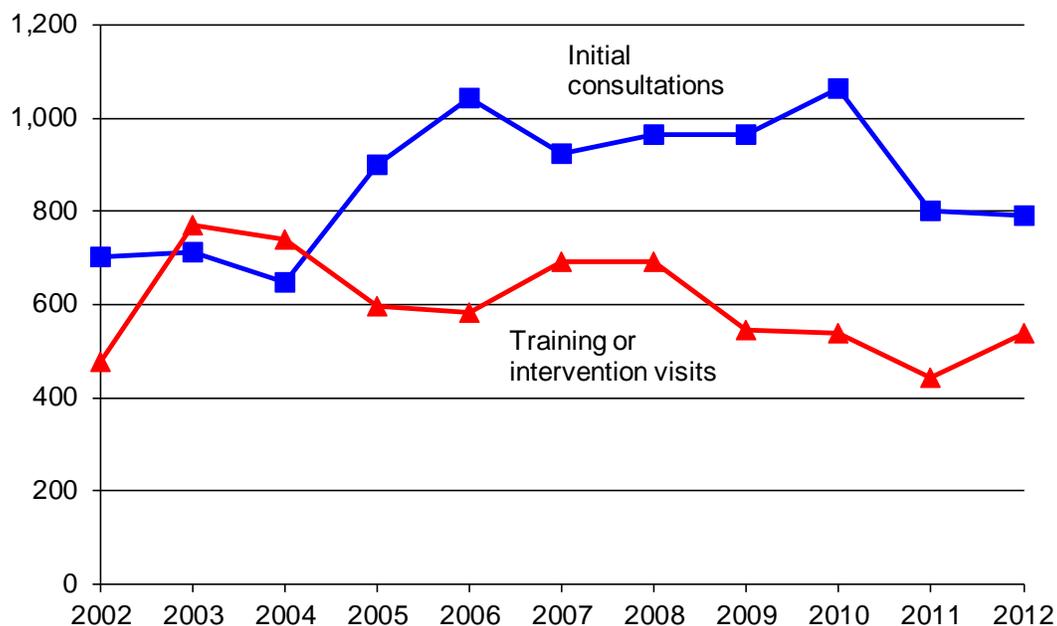
Figure 6.6 shows statistics for WSC visits to worksites for FFY 2002 through 2012.

- During the 2008 through 2012 period, WSC conducted an annual average of 919 initial consultation visits.
- During the past five years, an average of 18,100 employers and employees received training from WSC consultants.
- WSC visits in FFY 2012 identified 4,680 safety and health hazards that could have cost employers approximately \$4.3 million in MNOSHA Compliance penalties, about \$5,400 per consultation.

Figure 6.7 shows statistics for WSC services to worksites for some industries during FFY 2012.

- Construction sites accounted for 50 percent of initial consultation visits, followed by manufacturing with 18 percent.

Figure 6.6 Workplace Safety Consultation visit activity, FFY 2002-2012



Federal fiscal-year ¹	Initial consultation visits	Visits with identified hazards	Potential penalties avoided ² (\$ millions)	Training or intervention visits	People receiving training and interventions
2002	703	882	\$3.23	476	19,285
2008	965	918	\$3.56	691	23,394
2009	966	925	\$3.72	544	17,670
2010	1,064	1,045	\$3.81	539	16,597
2011	800	745	\$4.01	443	15,818
2012	790	719	\$4.27	538	16,791

1. Federal fiscal years are from Oct. 1 of the preceding year to Sept. 30 of the indicated year.

2. Potential penalty amounts expressed using average serious penalty value for each year.

Source: Minnesota OSHA IRIS database.

Figure 6.7 Workplace Safety Consultation activity for selected industries, FFY 2012

Industry	NAICS code	Initial visits	Training assistance
Construction	23	393	101
Manufacturing	31-33	140	120
Trade, transportation and utilities	42-49, 22	48	26
Nursing and residential care	623	49	18
State and local government	92	65	64

Source: Minnesota OSHA IRIS database.

Loggers' Safety Education Program

The Loggers' Safety Education Program (LogSafe) provides logging industry safety training through four-hour seminars throughout the state. The goal of the program is to help reduce injuries and illnesses in the logging industry through on-site consultation services, outreach and training seminars. Since 2009, WSC has contracted out its spring and fall LogSafe seminar training programs.

WSC also provides assistance to companies that are involved in tree-cutting and trimming activities. During FFY 2012, WSC conducted 74 logger/tree-cutting visits and interventions, with 931 attendees.

Safety Grants Program

The Safety Grants Program is a state-funded reimbursement program that awards matching funds up to \$10,000 to qualifying employers for projects designed to reduce the risk of injury and illness to their employees. Projects must be consistent with the recommendations of a safety and health hazard survey. Qualified applicants must be able to finance all project costs to be eligible for reimbursement.

Between April 2011 and April 2012, WSC awarded \$1.0 million to 139 employers that matched the grants with more than \$3.0 million of their own funds.

Ergonomics assistance and safe patient-handling

The main responsibilities of the WSC ergonomics program coordinator are to educate Minnesota employers and employees about the recognition and control of risk factors associated with musculoskeletal disorders. During FFY 2012, WSC conducted 104 initial visits and training/interventions with an ergonomics focus; 16 visits were for safe patient-handling. WSC also presented 26 ergonomics training seminars, conferences and outreach activities with 12 focused on safe patient-handling.

With safe-patient-handling legislation enacted in Minnesota requiring all licensed health care facilities in the state to implement a safe-patient-handling program, a big focus of the ergonomics

program is safe patient-handling. The legislation requires a written safe-patient-handling policy and the establishment of a plan to minimize manual lifting of patients in hospitals, nursing homes, outpatient surgical centers and in medical and dental clinics.

WSC provides financial support for the purchase of patient lifting equipment through the Safety Grants Program. From April 2011 to April 2012, 30 safety grants, totaling \$236,000, were provided to health care facilities.

Through an alliance with the Care Providers of Minnesota, the ergonomics program coordinator has coordinated and conducted eight WSC On-Site Experience joint safety and health visits to facilities that volunteer to host outside facilities during the walk-through portion of their visit. During this full-day visit, representatives from facilities are able to receive hands-on hazard identification training, ask the consultant questions and see first-hand the benefits a consultation can bring to their establishment. Fifteen outside facilities have participated in the WSC On-site Experience as training participants.

A sample safe-patient-handling program for nursing homes and a sample safe-patient-handling program for clinics are posted on DLI's website to provide examples for employers.

A facilitated hospital group has been formed and there have been three meetings to discuss safe patient-handling in hospitals.

The safe-patient-handling legislation and resource materials are available at www.dli.mn.gov/WSC/SPH.asp.

MNSHARP

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

MNSHARP is limited to employers with fewer than 250 workers at the worksite. Participants receive a comprehensive safety and health consultation survey from WSC. If the facility demonstrates a strong commitment to workplace safety and is deemed able to meet all MNSHARP requirements within one year, a one-year action plan is established to correct all identified hazards and management system deficiencies, and the site is granted a limited deferral from MNOSHA scheduled compliance inspections.

During the year, one or more on-site visits are made to provide safety and health assistance and to monitor progress in accomplishing action plan items. If the participant has completed its action plan and the necessary injury and illness reductions are accomplished, the worksite receives a MNSHARP certificate of recognition and is exempted from programmed MNOSHA Compliance inspections for up to two years upon initial certification and up to three years upon subsequent re-certification.

Four new participants were certified into MNSHARP during FFY 2012, bringing the total to 40 certified worksites. The majority of the program participants are manufacturers.

In FFY 2008, WSC launched one of the nation's first safety and health achievement recognition programs for the construction industry. MNSHARP Construction provides incentives and on-site support for large, long-term (18 months or longer) construction worksites and works with the general contractors to develop, implement and continually improve the effectiveness of their workplace safety and health programs.

The total case incidence rates of the general-industry MNSHARP employers during 2012 averaged 15 percent below the 2011 national rate for their industries; their DART rates averaged 34 percent below their national industry rates. For construction projects, the total case rates averaged 67 percent below the national rate and the DART rates averaged 73 percent lower.

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

MNSTAR

The Minnesota Star (MNSTAR) program is a voluntary program patterned after the federal Voluntary Protection Program.²⁹ It is available to Minnesota employers of all sizes. Compared to MNSHARP, MNSTAR has more rigorous requirements and confers a higher level of recognition on certified employers. MNSTAR relies mainly on employer self-assessment and requires an extensive application, including submission of written safety and health policies and procedures. An application cannot be accepted until the worksite requests and receives a full-service safety and health consultation visit. The consultant evaluates safety and health hazards, reviews mandated safety and health programs, and provides a partial assessment of overall safety and health management. Employers that demonstrate a high-level of safety and health management effectiveness can apply for MNSTAR status. After review of the application, an on-site and comprehensive assessment of the worksite's safety and health management system is completed. MNSTAR status is awarded if all eligibility requirements have been met, including an injury and illness rate below the state and national averages for their industry.

MNSTAR recognition exempts employers from programmed MNOSHA Compliance inspections for three years upon initial certification and up to five years upon subsequent re-certification. Merit status is also available for employers that demonstrate a high level of safety and health management effectiveness, but have not fully met all eligibility requirements for MNSTAR.

During FFY 2012, there were 32 worksites with full MNSTAR certification and four worksites in Merit status. This includes two companies receiving initial certification for MNSTAR status and one company reaching Merit status.

During 2012, the total case incidence rates of the general-industry MNSTAR employers averaged 58 percent below the 2011 national rates for their industries; their DART rates averaged 71 percent below the national rates. For contractor employers, the total case rates averaged 89 percent below the national rate and the DART

²⁹ See www.osha.gov/dcsp/vpp.

rates averaged 100 percent below the national rate.

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

Workplace safety and health seminars and outreach activities

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

Compliance staff members present information about MNOSHA standards and other workplace safety topics to employer organizations, safety professionals, unions and labor-management organizations. Many MNOSHA Compliance outreach services are presented at meetings, conferences and employer groups organized by the Midwest Center for Occupational Health and Safety, Minnesota Health and Housing Alliance, Associated Builders and Contractors, Associated General Contractors of Minnesota, American Society of Safety Engineers and the Minnesota Safety Council. During FFY 2012, compliance staff members provided outreach presentations to 4,341 participants.

WSC provides seminars and training opportunities to help employers and employees understand and comply with safety and health regulations, and to develop and implement mandatory programs, including Employee Right-to-Know, AWAIR and labor-management safety committees. During FFY 2012, WSC conducted 538 worksite training, intervention and technical assistance visits, reaching 11,800 participants.

During FFY 2012, WSC training activities included the following events and projects:

- conducted 46 residential construction training sessions, with 1,431 attendees;
 - conducted 14 training sessions for youth organizations, with 188 attendees;
 - presented 13 Pro-10 training courses in alliance with Labor Users Contractors, with 214 attendees.
- along with the Minnesota Safety Council, hosted the first safe-patient-handling conference in Minnesota as a part of the Annual Minnesota Safety and Health Conference, with 150 attendees;

MNOSHA performance

In its five-year strategic plans, MNOSHA sets strategic and performance goals to reduce injury and illness rates and fatality rates for the industries within its jurisdiction. The strategic plan includes a set of emphasis industries that are identified through a combination of factors, including the number of workers in the industry and the industry's DART rate. The current strategic plan is available at www.dli.mn.gov/OSHA/PDF/09-13mnoshaplan.pdf.

Establishments in the emphasis industries receive considerable attention from MNOSHA. During FFY 2012, 75 percent of programmed compliance inspections and 82 percent of the consultation visits were in these emphasis industries.

The case count and rate estimates of days-away-from-work cases for the emphasis industries in the current strategic plan are shown in Figure 6.8. The majority of emphasis industries are in the manufacturing sector. In 2011, the emphasis industries accounted for 18 percent of Minnesota's workplaces, for 27 percent of the workers and for 43 percent of the cases with one or more days away from work.

The 16 percent decrease in the number of cases with days away from work for the emphasis industries is believed to be due, in large part, to the effects of the recession on the construction industry and manufacturing.

Figure 6.8 Minnesota OSHA emphasis industries for the 2009-2013 strategic plan

Industry	NAICS code	Establishments 2011	Wage-and-salary employment 2011	DAFW cases			DAFW rate		
				Average 2006-2008	2011	Pct. change	Average 2006-2008	2011	Pct. change
Logging	1133	180	800	na	na	na	na	na	na
Utilities, except nuclear ¹	221	410	12,800	120	170	42%	1.1	1.4	27%
Construction	23	16,730	90,900	2,230	1,810	- 19%	2.1	2.3	10%
Food manufacturing ²	311	740	43,600	640	650	2%	1.5	1.5	0%
Grain facilities ^{2,3}	31111, 31121, 42451	500	9,400	na	na	na	na	na	na
Animal slaughtering and processing ²	3116	140	15,700	180	160	- 11%	1.1	1.0	- 9%
Beverage and tobacco product mfg.	312	70	2,200	60	80	33%	2.6	3.4	31%
Wood product manufacturing	321	380	10,600	310	140	- 55%	2.2	1.5	- 32%
Petroleum refineries	32411	10	1,400	na	na	na	na	na	na
Nonmetallic mineral product mfg.	327	320	8,000	230	80	- 65%	2.3	1.0	- 57%
Primary metal mfg. ⁴	331	90	5,600	210	160	- 24%	3.0	2.8	- 7%
Foundries ⁴	3315	50	3,800	na	na	na	na	na	na
Transportation equipment mfg.	336	240	9,400	260	110	- 58%	2.0	1.1	- 45%
Furniture and related product mfg.	337	560	8,100	260	170	- 35%	2.2	2.1	- 5%
Building material and garden equipment and supplies dealers	444	1,600	23,800	330	140	- 58%	1.4	0.7	- 50%
Warehousing and storage	493	230	6,100	200	160	- 20%	3.1	3.0	- 3%
Hospitals ⁵	622	170	98,100	1,560	1,480	- 5%	2.4	2.1	- 13%
Nursing care facilities ⁵	6231	420	45,400	1,020	740	- 27%	2.9	2.4	- 17%
State and local government	all	6,530	317,800	3,630	3,210	- 12%	1.4	1.4	0%
Emphasis industry total		29,090	690,900	11,060	9,100	- 18%			
Non-emphasis industry total		133,870	1,856,700	14,400	12,310	- 15%			
State total (excludes federal gov.)		162,960	2,547,600	25,460	21,410	- 16%	1.2	1.1	- 8%
Emphasis percentage of state total		18%	27%	43%	43%				

1. Although nuclear energy establishments are excluded from the emphasis program, the establishments, employment and DAFW statistics include nuclear energy establishments.

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

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

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

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

Sources: BLS Quarterly Census of Employment and Wages and annual Survey of Occupational Injuries and Illnesses

Appendix A

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

The U.S. Bureau of Labor Statistics conducts the annual Survey of Occupational Injuries and Illnesses (SOII) to provide nationwide and state-level information about work-related injuries and illnesses, including their number and incidence.²⁰ The SOII data are collected by state agencies and by BLS regional offices. The survey includes all cases recorded by employers on their OSHA log. Employers with 11 or more employees are required to use the log to record workplace injuries and illnesses, conforming with definitions and recordkeeping guidelines set by the Occupational Safety and Health Administration.²¹ Employers with 10 or fewer employees participating in the survey record their cases on the OSHA log for the survey year.

The SOII data is collected from the OSHA log and from incident reports for cases with at least one day off the job. Employers are notified of their selection for participation in the SOII in December prior to the start of the data collection year.

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

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

²⁰ The survey and other BLS occupational safety and health statistics are described in greater detail in Chapter 9 of the *BLS Handbook of Methods*, at www.bls.gov/opub/hom/homtoc.htm.

²¹ This is a count of the total number of employees in the firm, across all establishments.

Additional criteria that result in a recordable case include:

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

Detailed recordkeeping information and the recordkeeping guidelines are available at www.dli.mn.gov/OSHA/Recordkeeping.asp.

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

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

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

Cases involving days away from work (DAFW) require at least one day away from work with or without days of job restriction, not including the day of the event causing the injury or the onset of the illness.

Job transfer or restriction cases (JTR) occur when, as a result of a work-related injury or illness, an employer or health care professional keeps or recommends keeping an employee from doing the routine functions of his or her job or from working the full workday the employee would have been scheduled to work before the injury or illness occurred. This does not include the day of the event causing the injury or the onset of the illness. If the injured worker had even one day away from work, excluding the day of the event, then the case would be categorized as a DAFW case.

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

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

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

Median days away from work is the measure used to summarize the length of work absences

among the cases with days away from work. The median is the halfway point in the distribution — half the cases involved more days and half involved fewer days.

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

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

Incidence rates for characteristics of DAFW cases are based on 10,000 FTE workers.

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

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

Event or exposure signifies the manner in which the injury or illness was produced or inflicted, e.g., overexertion while lifting or fall from a higher level.

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

Appendix B

Key concepts in OSHA recordkeeping

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

It is critical for the validity of the SOII that employers provide complete and accurate information, in compliance with OSHA recordkeeping requirements.

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

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

In addition to making a log entry, the employer must also complete an incident report or a Minnesota workers' compensation First Report of Injury form for each recordable case. The SOII uses these reports for the cases with days away from work to generate statistics about injured workers and the characteristics of their injuries and illnesses (see Chapter 4 of this report).

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

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

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

Accurate OSHA recordkeeping is an employer's responsibility; it may require training and seeking of technical advice. Given the infrequency of workplace injuries and illnesses for many establishments and the complexity of the forms, recordkeeping errors are common.

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

Employers also confuse the OSHA recordkeeping requirements and the Minnesota workers' compensation reporting requirements, and apply workers' compensation rules for determining work-relatedness and coverage to the OSHA log. For example, workers with work-related post-traumatic stress disorders but without any physical injuries were not covered by the Minnesota workers' compensation system prior to Oct. 1, 2013, but these cases have always been recordable on the OSHA log.

Among the common OSHA log errors are:

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

The Minnesota Department of Labor and Industry provides OSHA recordkeeping advice for employers through multiple channels.

The Web page at www.dli.mn.gov/OSHA/Recordkeeping.asp includes:

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

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

The federal OSHA recordkeeping site also provides resources for employers at www.osha.gov/recordkeeping. This includes the *OSHA recordkeeping handbook* and training presentation slides and scripts.