Minnesota Workplace Safety Report 2012

MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY
RESEARCH AND STATISTICS

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Brian Zaidman
Research and Statistics

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LABOR & INDUSTRY

443 Lafayette Road N.
St. Paul, MN 55155-4309
(651) 284-5025
dli.research@state.mn.us

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Brian Zaidman

Executive summary

The most recent estimates show Minnesota's workers experienced similar rates of injuries and illnesses from 2009 through 2012. During 2012, there were an estimated 3.9 OSHA-recordable injury and illness cases per 100 full-time-equivalent (FTE) workers. About 28 percent of these cases involved one or more days away from work, an estimated rate of 1.1 cases per 100 FTE workers. The 2012 survey results show there were an estimated 77,600 recordable injury and illness cases, of which about 21,200 involved one or more days away from work.

There were 70 work-related fatalities in 2012, an increase from 60 fatalities in 2011 and the same number as in 2010.

This annual report gives information about Minnesota's work-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. The report also presents information about Minnesota OSHA activities and programs, based on administrative data collected by the Minnesota Department of Labor and Industry.

Nonfatal occupational injuries and illnesses

Incidence rates

- The estimated total case incidence rate was 3.9 per 100 FTE workers in 2012, a 35 percent decrease from the 2002 rate of 6.0 cases per 100 FTE workers, and slightly higher than the 2011 rate of 3.8 cases per 100 FTE workers.

- The estimated rate of cases with days away from work was 1.1 per 100 FTE workers in 2012, a 35 percent decrease from the 2002 rate of 1.7 cases per 100 FTE workers and unchanged from 2011.

- For 2010 through 2012, Minnesota's industry sectors with the highest average total injury and illness rates per 100 FTE workers were:
  - construction (5.6);
  - natural resources and mining (5.2); and
  - education and health services (5.0).

- For 2010 through 2012, the industry subsectors with the highest total case rates per 100 FTE workers were:
  - local government nursing home and residential care establishments (16.0);
  - state government nursing home and residential care establishments (13.7); and
  - primary metals manufacturing (11.1).

- Among cases with any days away from work (DAFW), the median number of days away from work was six days in 2012. From 2010 through 2012, 30 percent of the cases had only one or two days away from work and 23 percent of the cases had more than 20 days away.

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 2010 through 2012.

- Twenty-one percent of injured workers were 55 and older in 2012, an increase from 13 percent in 2002. The percentage of workers age 55 and older increased from 14 percent in 2002 to 21 percent in 2012.

- Building and grounds cleaning and maintenance occupations had the highest rate of DAFW cases of all the occupation groups during the 2010 through 2012 period (296 cases per 10,000 FTE workers),

followed by transportation and material moving occupations (267 cases) and health care support occupations (217 cases).

- Sprains, strains and tears accounted for an average of 38 percent of the 2011 and 2012 DAFW cases. The second-highest category was soreness and pain, with 15 percent of the cases.

- Workers injured their backs more than any other body part; back injuries accounted for 23 percent of DAFW cases, averaged over 2011 and 2012, 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 (16 percent and 12 percent of the DAFW cases, respectively, averaged over 2011 and 2012).

- Floors and ground surfaces and the injured worker's own motion or bodily position were the most frequent sources of injury (16 percent and 15 percent of the DAFW cases, respectively, averaged over 2011 and 2012).

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.

- Seventy workers were fatally injured while working in Minnesota in 2012. For 2008 through 2012, Minnesota had an annual average of 65 fatally injured workers, consisting of 41 wage-and-salary workers and 24 self-employed people.

- Among industry sectors from 2008 through 2012, agriculture, forestry, fishing and hunting recorded the highest number of worker fatalities, with 113. Construction had the second-highest number of fatalities, with 58 cases.

- The most frequent causes of Minnesota's fatal work injuries for 2011 and 2012 were contact with objects and equipment (25 percent) and falls, slips and trips (17 percent).

Minnesota OSHA activities

During federal-fiscal-year 2013 (October 2012 through September 2013), Minnesota OSHA:

- Conducted 2,943 compliance inspections affecting the workplaces of 80,152 workers;

- Identified 5,373 violations of OSHA standards, resulting in the assessment of $4.8 million in penalties;

- Conducted 722 worksite consultations that identified 4,085 safety and health hazards; and

- Conducted 590 worksite consultation training and intervention visits, plus many other safety and health presentations and seminars.

Contents

1
Introduction

Each day during 2012, 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 $1.57 billion in 2012, or $1.33 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 2010 (the most current data available), the estimated average amount of benefits paid for a workers' compensation claim was $10,400 (adjusted to 2012 wage levels). For claims with cash benefits, 23 percent of all cases, the combined average medical and cash benefit cost estimate was much higher — $41,500 (adjusted to 2012 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 from 2009 through 2012, following a downward trend from 1994 through 2009. During 2012, there were an estimated 3.9 recordable injury and illness cases per 100 full-time-equivalent (FTE) workers. About 45 percent of these cases involved one or more days away from work, job tranfer or work restrictions (DART), an estimated rate of 1.8 cases per 100 FTE workers. The 2012 rates are about 40 percent lower than the estimates for 2002, when there were 6.0 total cases and 3.1 DART cases per 100 FTE workers.

There were 70 work-related fatal injuries in 2012, an increase from the 60 fatalities in 2011 but the same as the number in 2010. The number of workplace fatalities in 2012 was higher than the annual average of 66 fatalities for the 2007 through 2011 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 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 2012; most MNOSHA statistics are available through federal-fiscal-year 2013 (October 2012 through September 2013).

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 (from OSHA 301 forms or their equivalent). The SOII is a mandatory survey; businesses selected

[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 2012* (www.dli.mn.gov/RS/WcSystemReport.asp). This report provides statistics about workers' compensation benefit costs and is the source of the costs cited.

to participate are required to provide their data.[3] Approximately 4,700 Minnesota work establishments provided data for the 2012 SOII. Injury and illness reports were collected from 98.2 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] Additionally, the SOII only counts OSHA recordable injuries and illnesses; injuries that are treated with only first aid are not included. Because the SOII data are collected during the first half of the following year, the estimates do not include injuries and illnesses or changes in case type that are reported or occur at a later point.

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 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.

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 instructed 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 OSHA recordable cases are those 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

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

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

[5] See Minnesota Statutes §176.021, subd. 1.

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 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 to which the SOII undercounts these cases.[8] DLI partnered 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 has been gathered through telephone interviews with those who prepare the SOII data at a random sample of worksites. Included in the interview were 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. DLI and BLS researchers are analyzing that information.

Fatal injuries

BLS, in cooperation with state and other federal agencies, conducts the nationwide Census of Fatal Occupational Injuries (CFOI). 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, the same coding system used for the SOII, and due to changes in the OIICS, comparisons and multi-year totals involving fatality case characteristics for before and after 2011 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 and health consultation services. Source statistics used in this report come from the MOOSE and IRIS information systems used 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 DAFW case characteristics.

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 the 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 injury and illness incidence rates for Minnesota and the U.S., rates for Minnesota's industry sectors from 1988 through 2012, and the case and demographic characteristics tables and charts for private ownership workplaces are available at www.dli.mn.gov/RS/StatWSH.asp. The Minnesota CFOI tables for 2012 are 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 2013, is available at www.dli.mn.gov/OSHA/PDF/annualreport13.pdf.

Minnesota's workers' compensation claims database contains claims-related information for approximately 950,000 workers' compensation indemnity claims dating from 1983. This data resource is used to respond to inquiries about workplace injuries and illnesses at a more detailed level than is possible with the SOII data. The database includes information about workers' compensation indemnity benefit payments; it does not include information about medical services and costs. Statistical inquiries should be sent to the Research and Statistics unit at dli.research@state.mn.us.

The workers' compensation data is used in the annual *Minnesota Workers' Compensation System Report* available at www.dli.mn.gov/RS/WcSystemReport.asp and in the claims characteristics brochure at www.dli.mn.gov/RS/ClaimCharac.asp. Tables of workers' compensation claims characteristics are presented at www.dli.mn.gov/RS/StatWC.asp.

The Minnesota Department of Health's Center for Occupational Health and Safety compiles 21 occupational health and safety indicators for Minnesota, which are current through 2011. These indicators were created through a joint effort of the National Institute of Occupational Safety and Health and the Council of State and Territorial Epidemiologists. The indicators use a wide variety of data sources, including the SOII, CFOI and workers' compensation claims, to provide a common set of measures of occupational health and safety that can be compared and monitored over time and used for establishing state priorities for education and prevention initiatives. These indicators are

available at www.health.state.mn.us/divs/hpcd/cdee/occhealth/indicators/index.html#indicators.

The occupational health and safety indicators are:

- nonfatal work-related injuries and illnesses reported by employers;
- work-related amputations with days away from work reported by employers;
- state workers' compensation claims for amputations with lost work time;
- work-related musculoskeletal disorders with days away from work reported by employers;
- work-related hospitalizations;
- hospitalizations from work-related burns;
- hospitalizations from or with pneumoconiosis;
- mortality from or with pneumoconiosis;
- acute work-related pesticide-associated illnesses and injuries reported to poison control centers;
- incidence of malignant mesothelioma;
- state workers' compensation claims for carpal tunnel syndrome with lost work time;
- fatal work-related injuries;
- work-related low back disorders requiring hospitalization;
- occupational exposure and hazard indicators;
- elevated blood lead levels among adults;
- percentage of workers employed in industries at high risk for occupational morbidity;
- percentage of workers employed in occupations at high risk for occupational morbidity;
- percentage of workers employed in industries and occupations at high risk for occupational mortality;
- occupational intervention indicators;
- occupational safety and health professionals;
- OSHA enforcement activities;
- occupational socio-economic indicators;
- employment demographics; and
- workers' compensation awards.

2

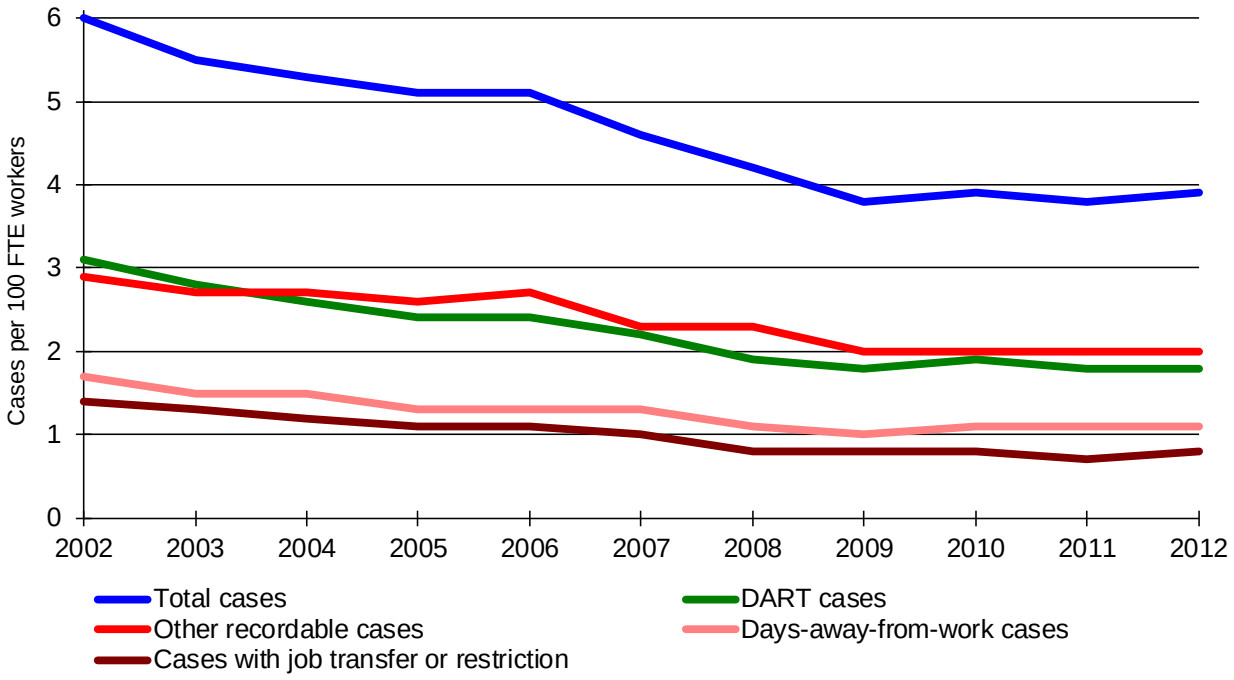
An overview of nonfatal workplace injuries and illnesses in Minnesota

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 2012, 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 estimated rate of 3.8 cases per 100 FTE workers in 2009 and has remained at or near that level, with a 2012 rate of 3.9 cases per 100 FTE.

Figure 2.1 Injury and illness cases per 100 FTE workers, Minnesota, 2002-2012



Year of injury	Total recordable cases	Cases with days away from work or job restriction or transfer (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
2010	3.9	1.9	1.1	0.8	2.0
2011	3.8	1.8	1.1	0.7	2.0
2012	3.9	1.8	1.1	0.8	2.0

Number of cases

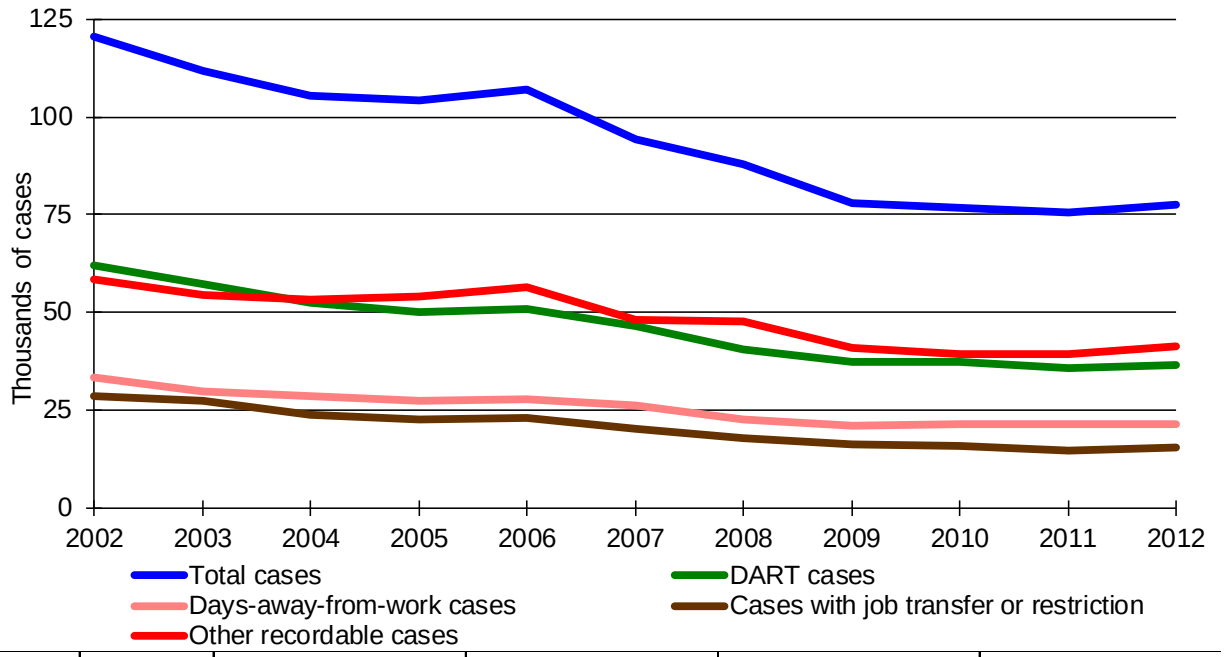
The number of cases shows the magnitude of the occupational injury and illness situation in Minnesota, a state with approximately162,000 work establishments and 2,615,000 workers in 2012, excluding the federal government.

There were an estimated 77,600 OSHA-recordable injury and illness cases in Minnesota in 2012. This was the fourth consecutive year the estimated number of injury and illness cases was below 80,000.

Figure 2.2 shows estimated numbers of nonfatal injuries and illnesses in Minnesota for 2002 through 2012 for the various case types.

- From 2007 to 2012, while employment decreased 2 percent, the estimated number of recordable cases decreased 18 percent. All the decrease occurred by 2009.
- The distribution of cases among the various case types in 2012 was similar to the distribution in prior years.

Figure 2.2 Number of injury and illness cases, Minnesota, 2002-2012



Year of injury	Total recordable cases (1,000s)	Cases with days away from work or job restriction or transfer (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	120.5	62.0	51%	33.5	28%	28.5	24%	58.6	49%
2010	76.7	37.3	49%	21.5	28%	15.8	21%	39.4	51%
2011	75.4	35.9	48%	21.4	28%	14.5	19%	39.4	52%
2012	77.6	36.5	47%	21.2	27%	15.3	20%	41.1	53%

Comparing Minnesota with the nation

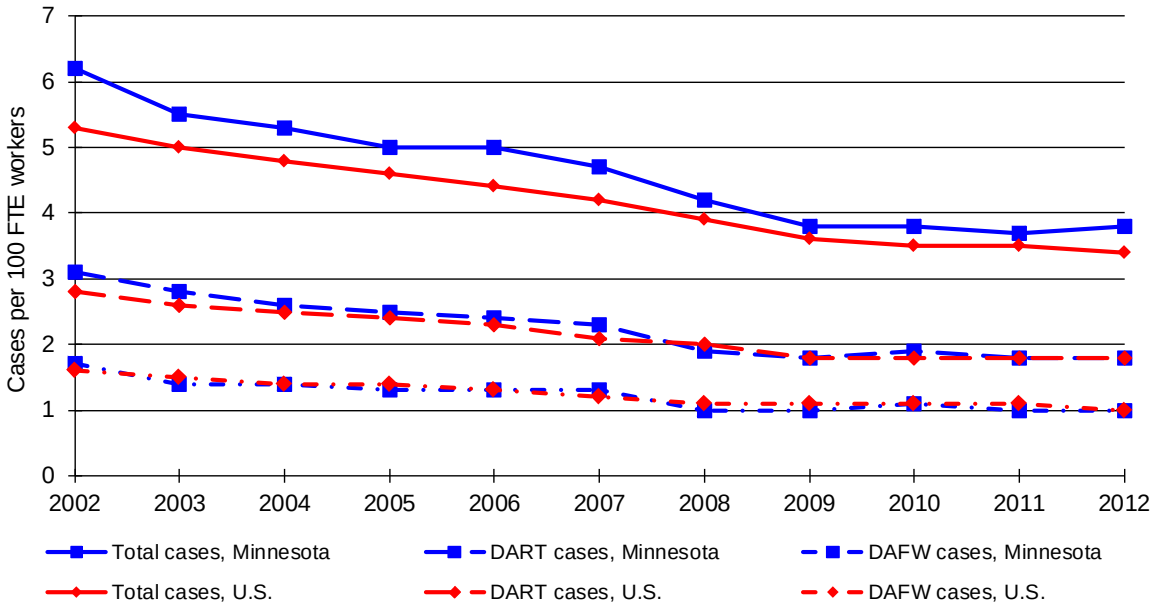
Figure 2.3 compares the estimated rates of total cases, DART cases and DAFW cases in the private sector for Minnesota and the United States for 2002 through 2012.[9] Differences in the relative proportions of industries between Minnesota and other states may lead to differences in the overall rates. For example, Minnesota has a higher proportion of total employment in health care and social assistance, 16 percent in 2012, than the nation as a whole, with 12 percent. Variations in reporting between Minnesota and other states may affect the estimated rates.[10]

Employers' reporting on the SOII is influenced by their state's workers' compensation laws, especially the waiting period for indemnity benefits.[11]

- Minnesota's 2012 estimated private-sector total case rate was 3.8 cases per 100 FTE workers, while the U.S. rate was 3.4 cases. Minnesota's estimated total case rate has been above the U.S. estimated rate since 1993.

- Minnesota's private-sector DART rate in 2012 was 1.8 cases per 100 FTE workers, the same as the national estimated rate.

Figure 2.3 Injury and illness case incidence rates for Minnesota and the United States, private sector, 2002-2012



	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.
2003	5.5	5.0	2.8	2.6	1.4	1.5
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
2012	3.8	3.4	1.8	1.8	1.0	1.0

[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.

[11] See figure 1 in Mendeloff and Burns (2013). The waiting period is the number of days that an injured worker must have a work disability before workers' compensation indemnity benefits are paid.

- Minnesota's DAFW case rate has been almost identical to the U.S. DAFW rate since 1996.

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.

Minnesota relative to other states

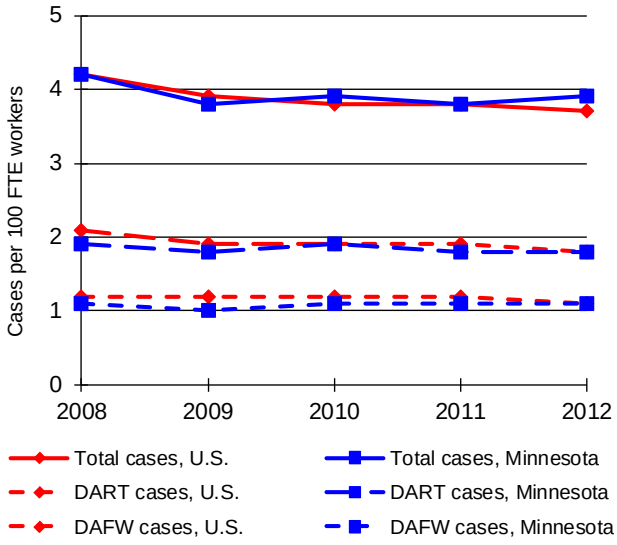
The ranking of Minnesota's incidence rates with those from other states provides a context for the current level and recent trend in Minnesota's injuries and illnesses. The results reinforce the comparison of Minnesota and the national rates.

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 are available for 42 states in 2012. States with lower rates have lower rankings.

- Minnesota's estimated total case rate and DART rates are at the middle of the states' rates, while the estimated DAFW rate is in the lower half of the participating states.

- Among the 18 states in the SOII with a three-day waiting period for workers' compensation indemnity benefits, Minnesota had the eighth lowest DART rate and the fifth lowest DAFW rate.

Figure 2.4 Injury and illness incidence rates for Minnesota and the U.S., public and private sectors, 2008-2012



	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
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
2012	3.9	3.7	1.8	1.8	1.1	1.1

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)

Incidence rate	2009 (40 states)	2010 (41 states)	2011 (41 states)	2012 (42 states)
Total cases	18	23	21	24
DART cases	15	19	17	20
DAFW cases	13	18	12	17
Cases with job transfer or restriction	18	20	14	21
Other recordable cases	22	27	24	29
DART rate as percentage of total case rate	11	11	13	6

Incidence of illnesses

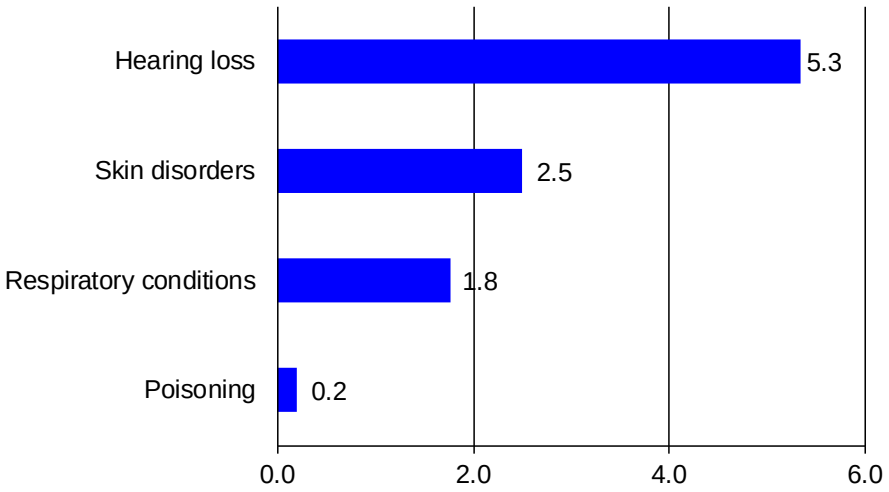
The BLS defines an occupational illness as any abnormal condition or disorder caused by exposure to factors associated with employment, other than those resulting from an instantaneous event or exposure. It includes acute and chronic illnesses or diseases that may be caused by inhalation, absorption, 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 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 2012, there were an estimated 1,900 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 2010 to 2012 period because of the 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, 2010-2012



3
Injuries and illnesses by industry

The estimated injury and illness rates vary from year to year because of the structure of the SOII and the size of the sample used for the estimates. Due to the relatively small sizes of the samples, the figures in this chapter are based on three years of survey results to present more stable estimates. Estimated incidence rates and case counts for each year are available at www.dli.mn.gov/RS/StatWSH.asp.

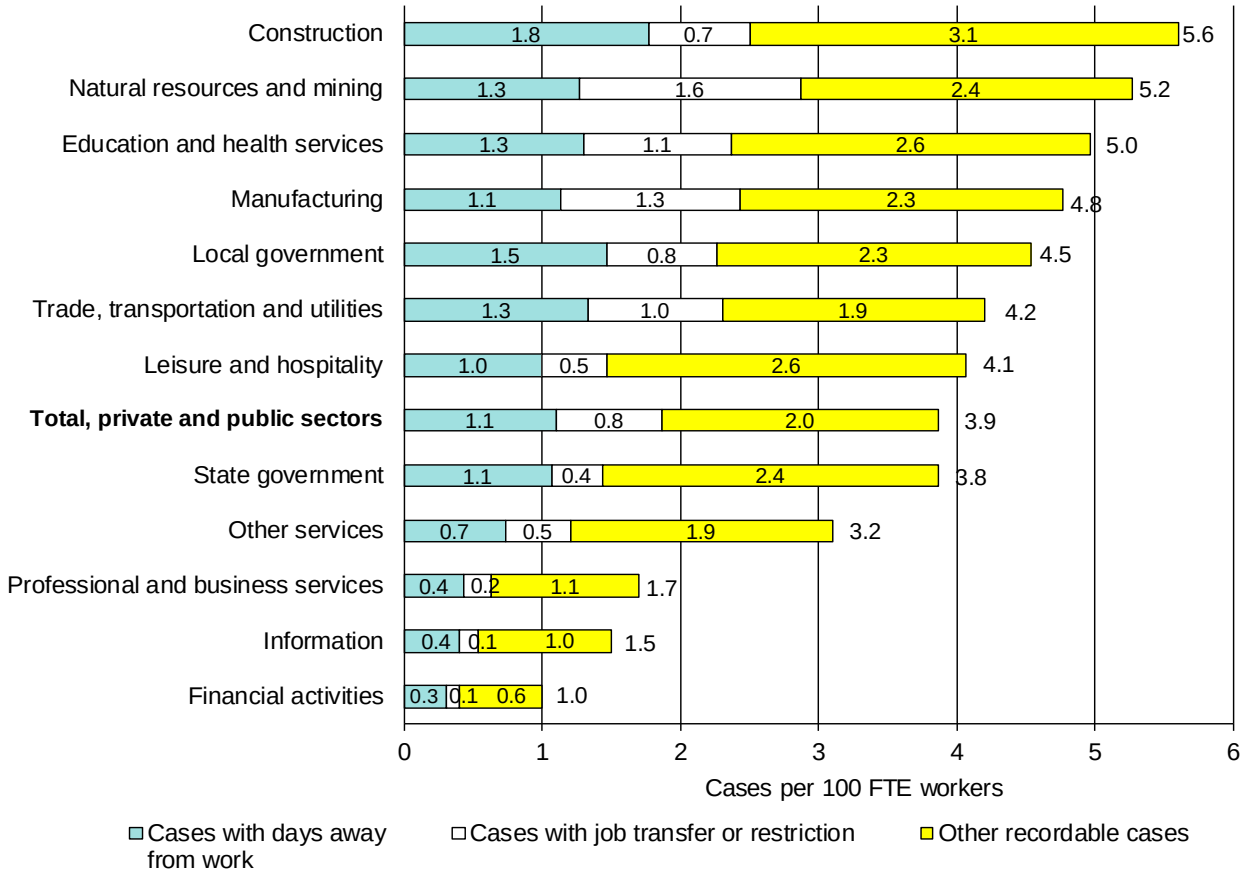
The injury and illness surveys for 2010 through 2012 show:

- Construction and natural resources and mining had the highest estimated average total case rates, with more than five cases per 100 FTE workers; and
- Computed across all industries, establishments with 50 to 249 employees had the highest incidence rates, while establishments with 10 or fewer employees had the lowest rates. However, there were different patterns within industries.

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

Figure 3.1 Average incidence rates by industry supersector,[1] 2010-2012



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

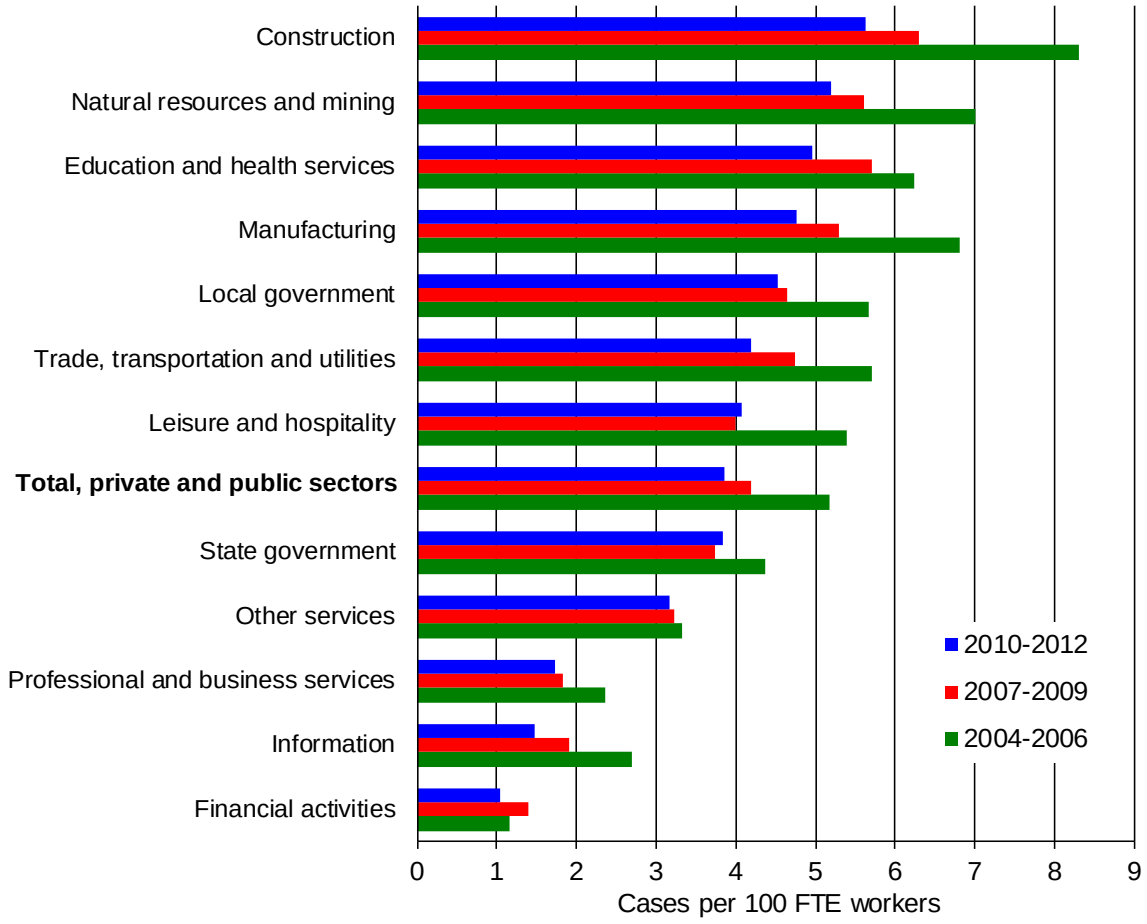
digits. For each type of ownership — private, state government and local government — there are 20 industry sectors in NAICS. For brevity of presentation, SOII results are often presented in supersectors. The 11 supersectors include from one to four industry sectors. The state government and local government 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 average total case rate for 2010 through 2012.

- Construction had the highest total recordable case rate, followed by natural resources and mining and education and health services.
- Construction had the highest rate of DAFW cases.
- Manufacturing and natural resources and mining were the only supersectors with estimated job transfer or restriction case rates higher than their estimated DAFW case rates.

Figure 3.2 compares the three-year average total recordable case rates for each supersector with its rates for the two previous three-year periods. The figure shows a decreasing rate trend for most of the supersectors and the relative order of the supersectors has changed very little during this time period.

Figure 3.2 Three-year average rates of total nonfatal occupational injuries and illnesses per 100 FTE workers by industry supersector,[1] 2004-2012

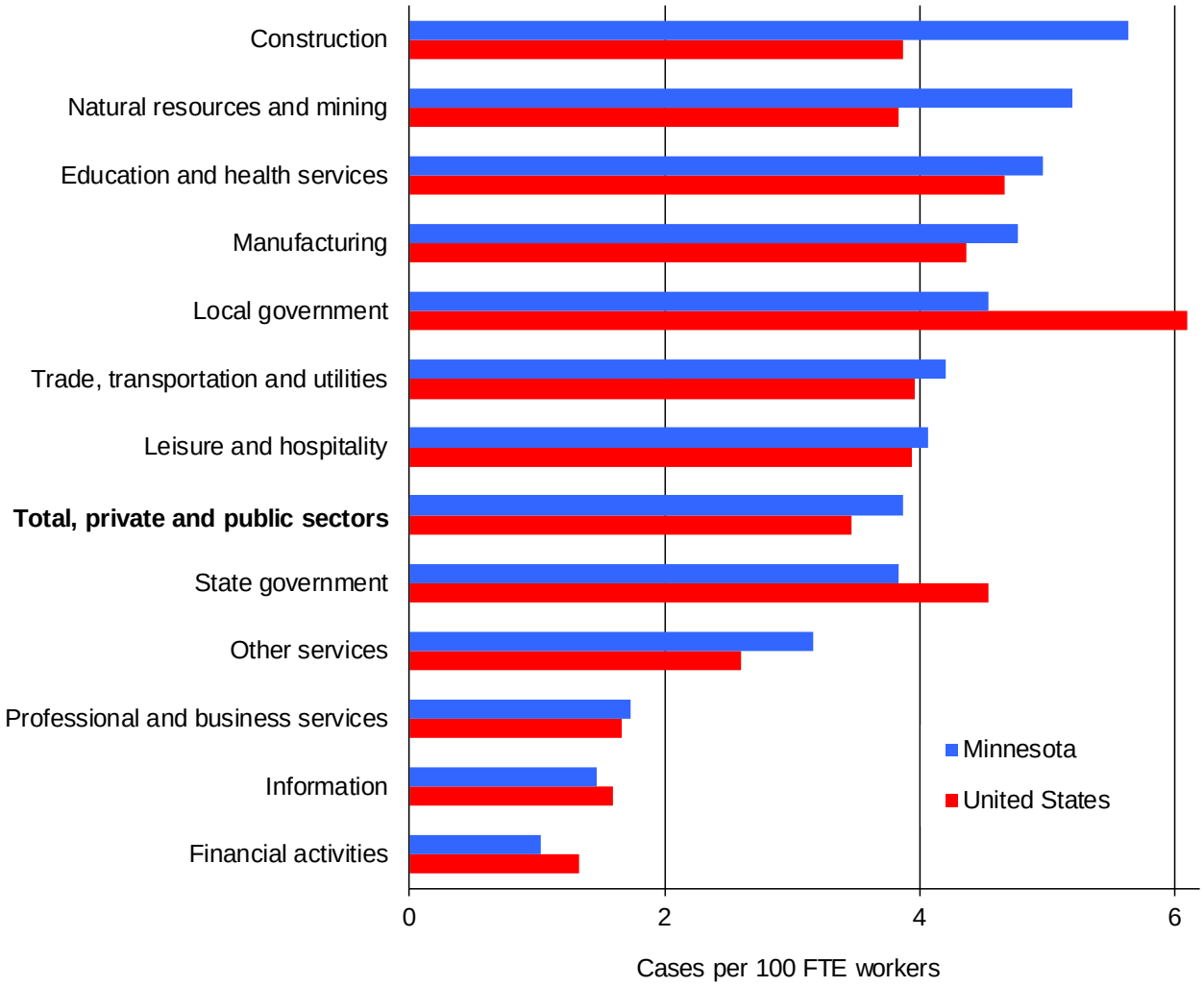


1. Except for state and local government, all supersectors include only privately owned establishments.

Figure 3.3 compares Minnesota's 2010 through 2012 average total case incidence rate estimates with the average U.S. rate estimates for each supersector. Comparisons should be made with caution because the distribution of employment across industries within each supersector may be different in Minnesota than in the U.S.

- Four Minnesota supersectors had estimated rates less than the corresponding U.S. rates, including both state and local government.

Figure 3.3 Rate of total nonfatal occupational injuries and illnesses per 100 FTE workers by industry supersector[1], Minnesota and United States, 2010-2012

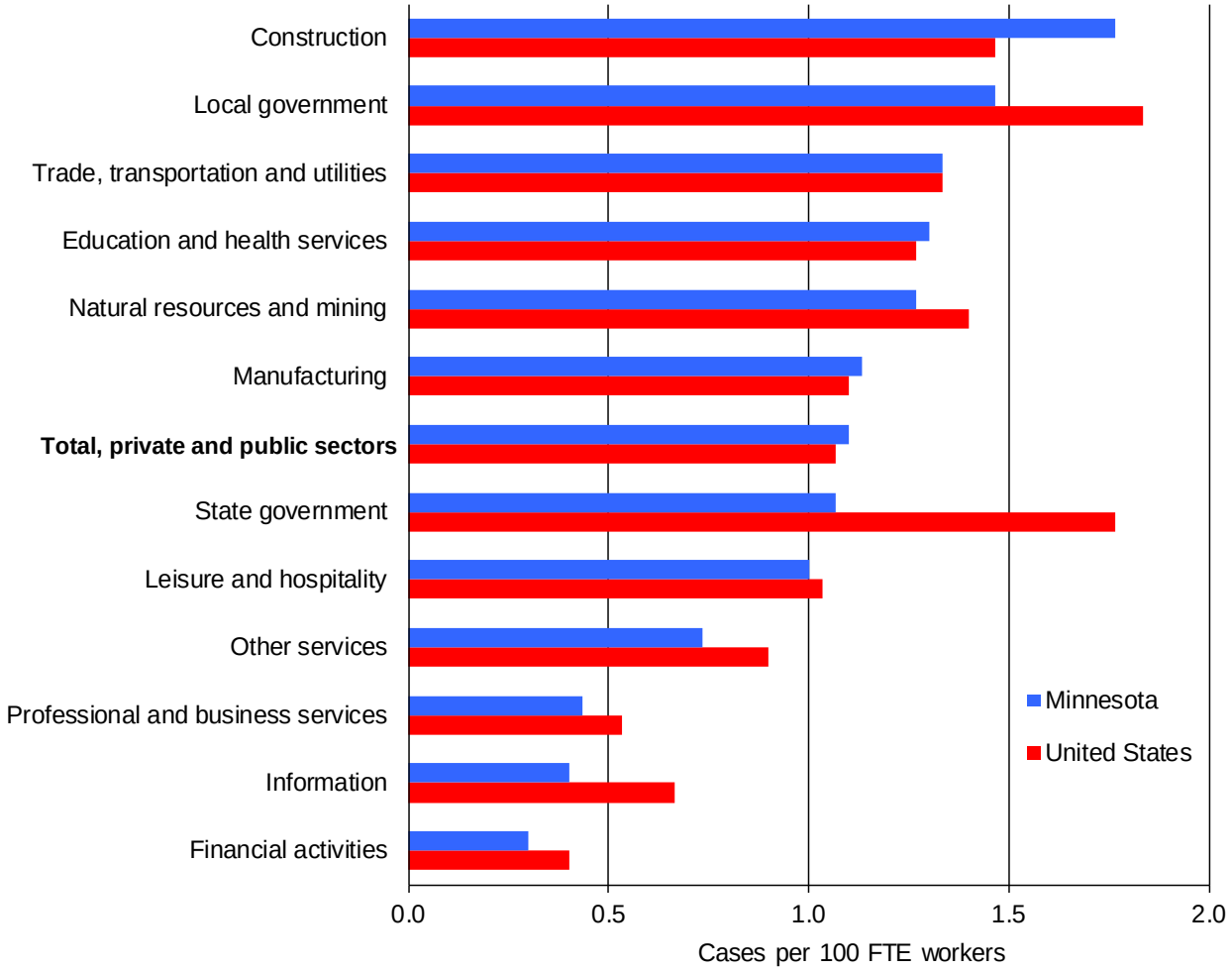


1. Except for state and local government, all supersectors include only privately owned establishments.

Figure 3.4 compares Minnesota's average estimated DAFW case incidence rates with the corresponding U.S. rate average estimate for each industry supersector for 2010 through 2012.

- Minnesota's supersectors generally had DAFW rates similar to the U.S. rates.
- Minnesota had four supersectors with average rates noticeably lower than the average U.S. rates: State government, local government, natural resources and mining and other services.
- The average DAFW rate for construction was higher in Minnesota than for the U.S. as a whole.

Figure 3.4 Rate of cases with days away from work per 100 FTE workers by industry supersector,[1] Minnesota and United States, 2010-2012

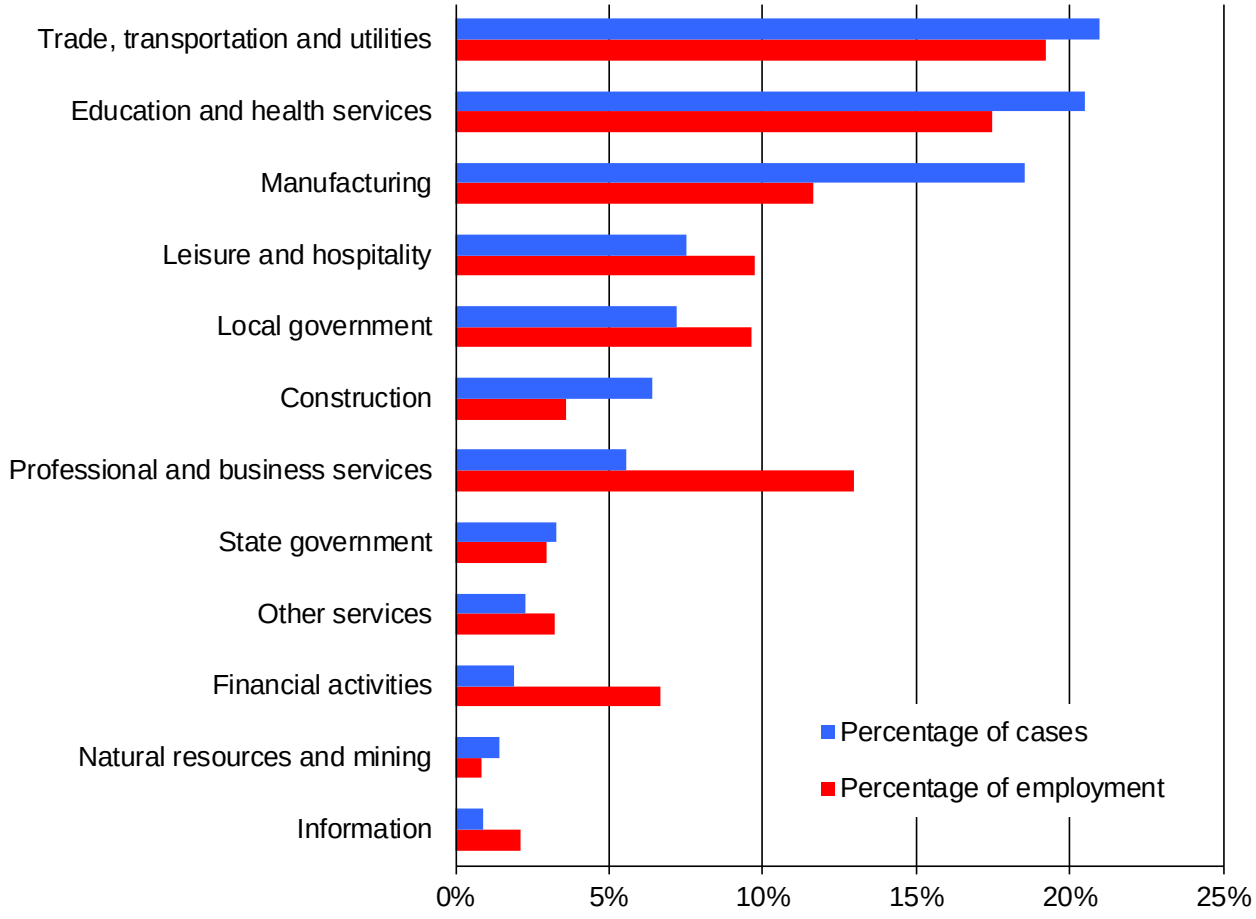


1. Except for state and local government, all supersectors include only privately owned establishments.

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 60 percent of the injury and illness cases and for 48 percent of employment.
- Education and health services accounted for 17 percent of employment and 20 percent of the SOII cases.
- Trade, transportation and utilities, with 19 percent of Minnesota's employment, accounted for 21 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 supersector,[1] 2010-12



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.

- Four of the subsectors are in local government.

The industry subsectors with the highest DAFW case incidence rates in Minnesota are shown in Figure 3.7.

- Nursing and residential care accounts for three of the subsectors.
- Six of the subsectors are also among the subsectors with the highest total case rates (Figure 3.6).

Figure 3.8 shows the industry subsectors with the highest number of DAFW cases. Only two industry subsectors, truck transportation and nursing and residential care, are 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 8,700 DAFW cases, 41 percent of the state total.

Figure 3.6 Industry subsectors[1] with the highest average total case rates, 2010-2012

Industry subsector[2]	Cases per 100 FTE
Nursing and residential care (local gov.)[3]	16.0
Nursing and residential care (state gov.)	13.7
Primary metal manufacturing	11.1
Utilities (local gov.)	10.0
Crop production	9.3
Beverage and tobacco product mfg.	8.5
Nursing and residential care	8.1
Couriers and messengers	8.0
Hospitals (local gov.)	7.4
Justice, public order, and safety activities (local gov.)	7.2

1. Industry subsectors use the first three NAICS digits.
2. Industries are private sector unless otherwise noted.
3. Average rate based on two years of data.

Figure 3.7 Industry subsectors[1] with the highest average rate of days-away-from-work cases, 2010-2012

Industry subsector[2]	DAFW cases per 100 FTE
Nursing and residential care (state gov.)	7.8
Nursing and residential care (local gov.)[3]	7.6
Transit and ground passenger transportation (local gov.)	4.1
Air transportation	3.2
Beverage and tobacco product mfg.	2.9
Primary metal manufacturing	2.7
Justice, public order, and safety activities (local gov.)	2.5
Warehousing and storage	2.4
Nursing and residential care	2.4
Truck transportation	2.3

1. Industry subsectors use the first three NAICS digits.
2. Industries are private sector unless otherwise noted.
3. Average rate based on two years of data.

Figure 3.8 Industry subsectors[1] with the highest average number of days-away-from-work cases, 2010-2012

Industry subsector[2]	DAFW cases[3]
Nursing and residential care	1,610
Hospitals	1,450
Specialty trade contractors	920
Educational services (local gov.)	910
Food services and drinking places	810
Merchant wholesalers, durable goods	700
Food manufacturing	620
Administrative and support services	610
Merchant wholesalers, nondurable goods	560
Truck transportation	550

1. Industry subsectors use the first three NAICS digits.
2. Industries are private sector unless otherwise noted.
3. Average annual 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, 27 percent of the recordable cases in 2012 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 2012, the median number DAFW, for cases with one or more DAFW, was six days, unchanged from 2011 and one more than in 2010.

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 17 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.

- Information and natural resources and mining had the highest median days away from work, more than double the statewide average. However, these supersectors each accounted for less than 2 percent of the DAFW cases.

Figure 3.9 Distribution of days-away-from-work cases by number of days away from work, 2010-2012

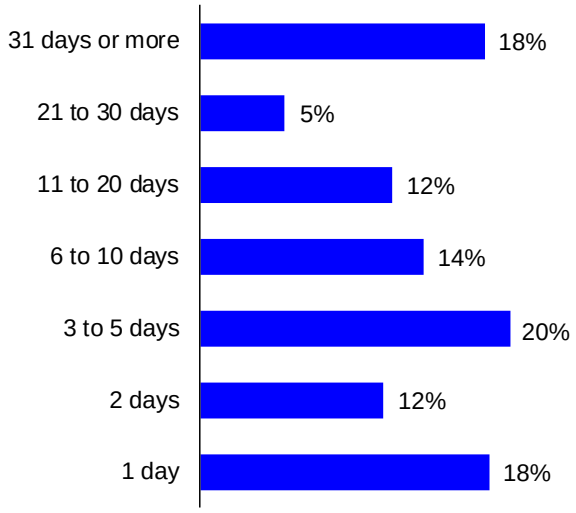


Figure 3.10 Percentage trends of days away from work, 2003 to 2012

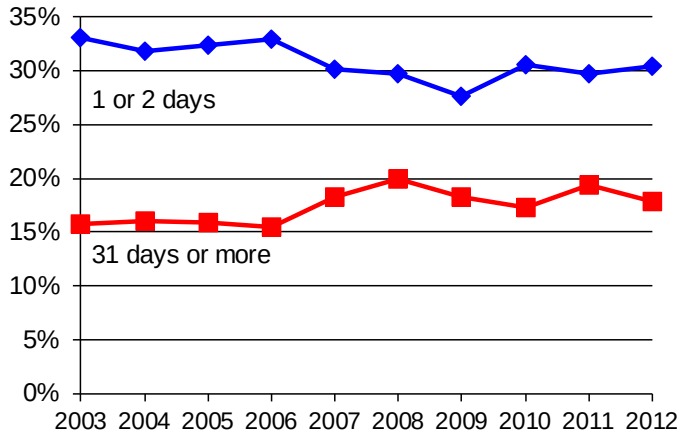


Figure 3.11 Median days away from work by industry supersector,[1] average of 2010-2012

Industry supersector	Avg. value
Information	13.0
Natural resources and mining	12.7
Construction	8.7
Trade, transportation and utilities	7.0
Manufacturing	6.3
Professional and business services	6.3
Total, private and public	**5.7**
State government	5.7
Leisure and hospitality	5.3
Financial activities	5.0
Local government	5.0
Education and health services	4.7
Other services	4.3

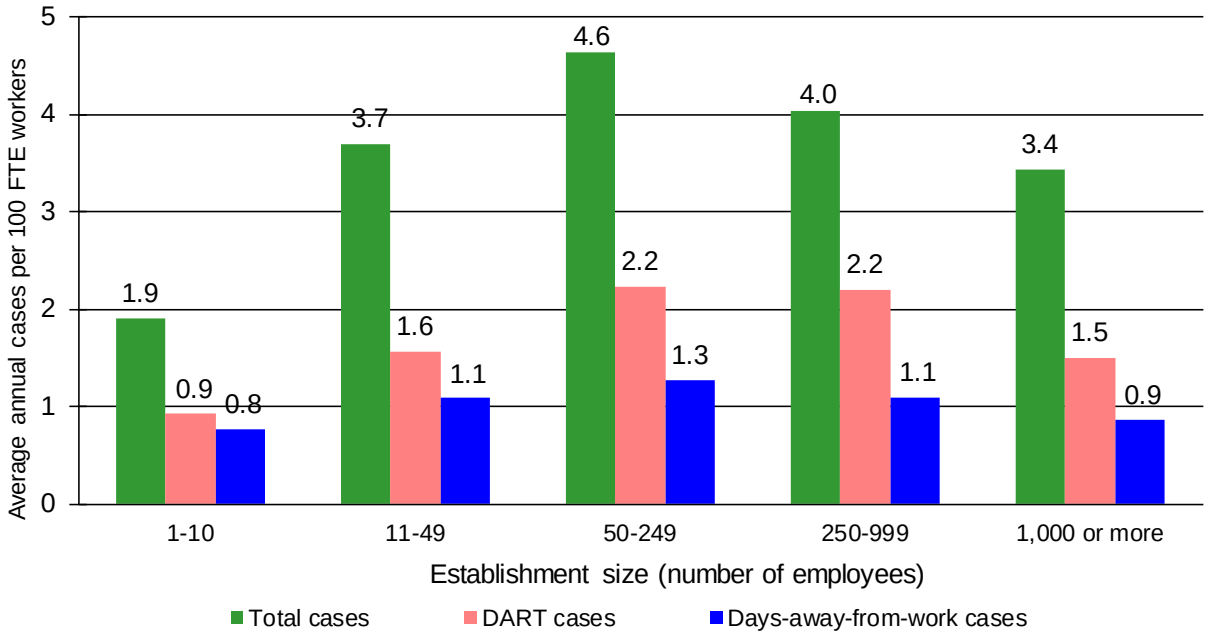
1. Except for state and local government, all supersectors include only privately-owned establishments.

Incidence by size

The incidence of reported workplace injuries and illnesses varies by establishment size. Figure 3.12 shows the 2010 through 2012 average case incidence by case type and establishment size, and presents the total case rates by establishment size and industry supersector.

- Estimated incidence rates were lowest for the smallest establishments (one to 10 employees) and highest for mid-sized establishments (50 to 249 employees).
- For leisure and hospitality and local government, estimated injury and illness rates were highest among establishments with 250 to 999 employees.

Figure 3.12 Injury and illness case incidence rates by establishment size, all ownerships, 2010-2012



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	5.2	0.7	3.8	8.3	4.4	--
Construction	5.6	3.9	7.4	6.4	2.3	--
Manufacturing	4.8	--	6.0	5.6	4.5	2.8
Trade, transportation and utilities	4.2	1.8	4.0	5.3	4.4	5.0
Information	1.5	--	--	1.6	1.5	0.4
Financial activities	1.0	--	1.6	1.9	0.7	0.6
Professional and business services	1.7	--	2.5	2.3	1.5	1.0
Education and health services	5.0	--	3.6	5.5	5.6	5.5
Leisure and hospitality	4.1	--	3.1	4.5	8.5	6.1
Other services	3.2	--	2.1	5.5	4.1	--
State government	3.8	--	5.4	3.8	3.3	4.1
Local government	4.5	--	4.1	4.3	5.3	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 for at least two years 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 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 average of the 2010, 2011 and 2012 survey results.

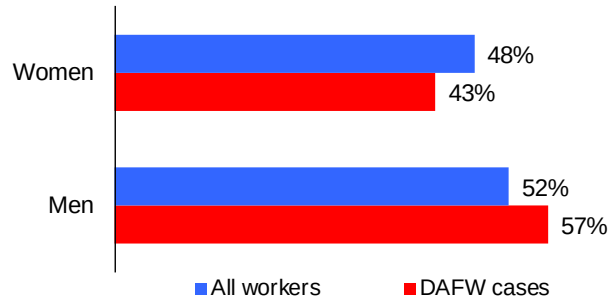
BLS revised the injury and illness characteristics classification system for the survey year 2011 data.[13] Due to the changes to the definition of categories and the rules used for coding cases, the injury and illness characteristics for 2011 and later are not comparable with those from earlier years. The injury characteristics use the average of the 2011 and 2012 estimates.

Worker demographic characteristics

Gender

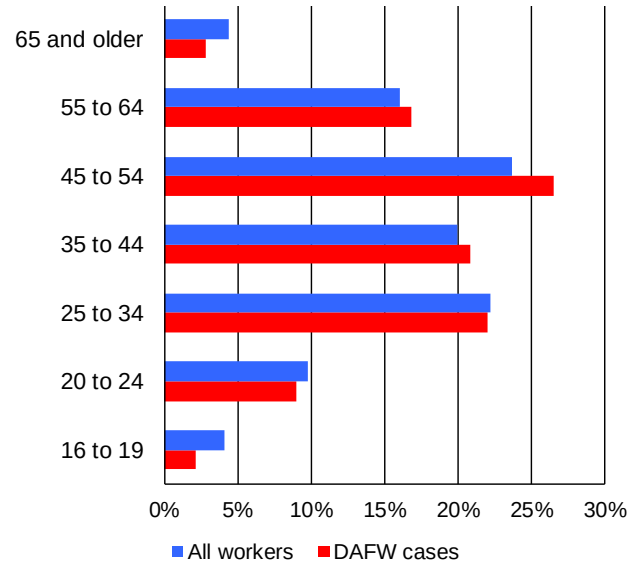
- The percentage of women among DAFW cases was 5 percentage points lower than the percentage of women among all Minnesota workers.[14]
- The average DAFW case incidence rates per 10,000 FTE workers[15] for 2011 and 2012 were similar: 110 cases for men and 101 cases for women.

Figure 4.1 Gender of all workers and workers with days-away-from-work cases, 2010-2012



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, 2010-2012



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.

[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*, 2010, 2011, 2012. 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.

Age

- The age distribution of workers with DAFW cases (Figure 4.2) is very similar to the age distribution of employed workers.[16]
- 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 2002 and 2012, the number of workers younger than age 55 increased by 443,000 (29 percent), while the number of workers age 55 or older increased by 305,000 (110 percent).[17]
- With the declining DAFW case rate since 2002, this means that although there are fewer seriously injured workers, they now tend to be older than those a decade ago.[18]
- 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 34 percent in 2012. The percentage of injured workers who were age 55 and older increased from 13 percent in 2002 to 21 percent in 2012 (Figure 4.3).
- The estimated incidence rate of DAFW cases during the 2010 through 2012 period was highest for workers 55 to 64 years old, at 116 cases per 10,000 FTE workers (Figure 4.4). The lowest rate was for workers 65 years and older (82 cases per 10,000 FTE workers).
- The median days away from work generally increased with age (Figure 4.5). The median duration for workers age 65 and older was more than three times longer than the median for the youngest workers.

Figure 4.3 Distribution of age of workers with days-away-from-work cases, 2002-2012

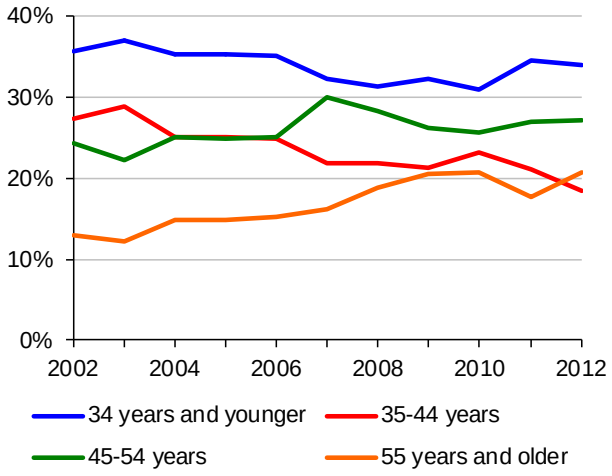


Figure 4.4 Incidence of cases with days away from work by age group, 2010-2012 average

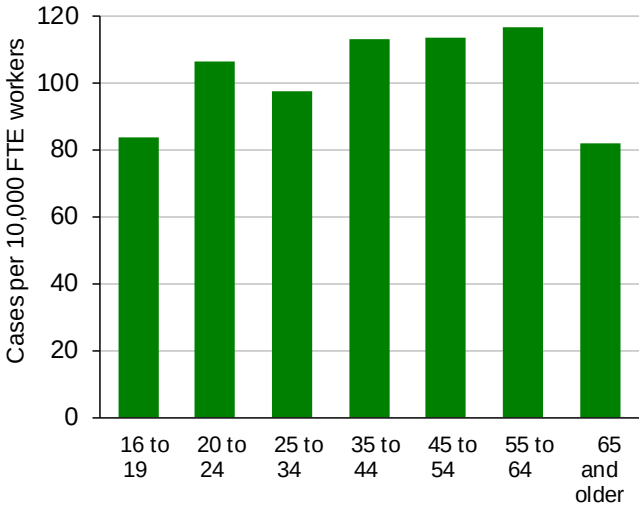
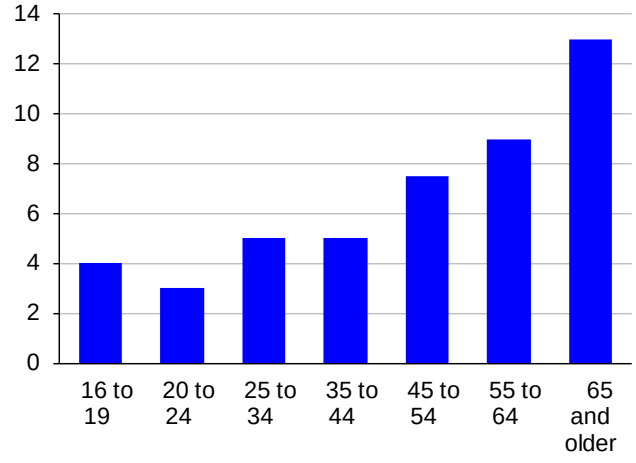


Figure 4.5 Median days away from work by age group, private ownership, 2010-2012 average



[16] Current Population Statistics, *Geographic Profile of Employment and Unemployment*, 2010, 2011 and 2012. Bureau of Labor Statistics, www.bls.gov/gps.
[17] Current Population Statistics, *Geographic Profile of Employment and Unemployment*, 2002 and 2012. Bureau of Labor Statistics, www.bls.gov/gps.
[18] This trend has been analyzed using Minnesota workers' compensation data in "Changing worker demographics lead to changing injury characteristics," *COMPACT*, February 2005.

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.

- Nonwhite and Hispanic workers accounted for an annual average of 15 percent of the cases with a reported race or ethnicity in the 2010 to 2012 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 14 percent of total employment for 2012.[19]

- While the overall number of reported nonwhite or Hispanic workers with DAFW cases decreased by 35 percent from 2002 to 2012, the number of injured workers identified as Asian has remained constant. The average number of Asian workers with one or more days away from work was 250 cases for 2003 through 2005, and for 2010 through 2012.

Figure 4.6 **Race or ethnic origin of workers with days-away-from-work cases, 2010-2012 average**

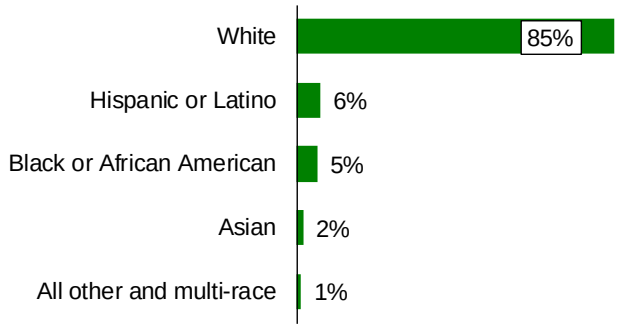
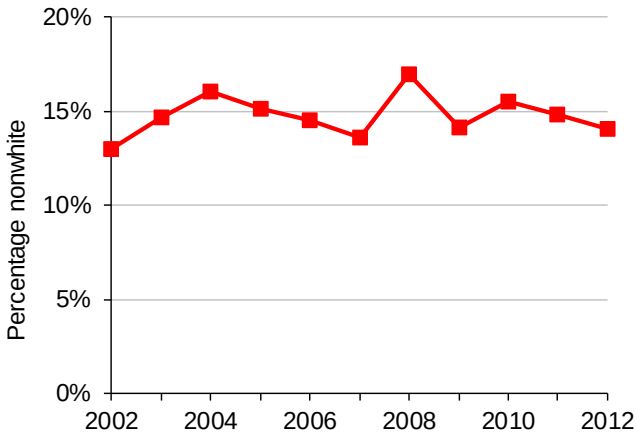


Figure 4.7 **Percentage of nonwhite and Hispanic workers among days-away-from-work cases, 2002-2012**



[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 tenures 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 2012,[20] 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 22 percent of the DAFW cases during 2010 through 2012. This percentage was below the 27 percent annual average reported from 2005 through 2007.

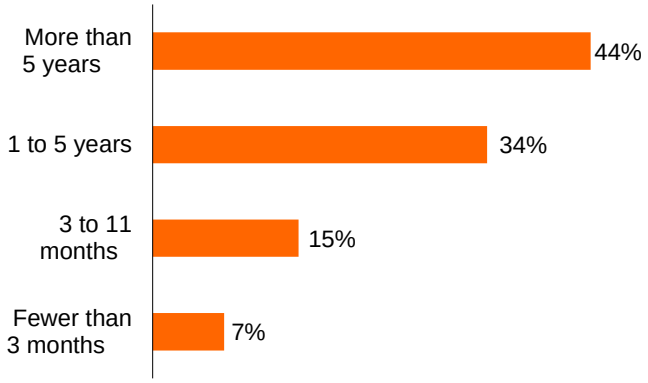
This drop in the percentage of short-tenured workers may be the result of several different forces:

- 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, 2010-2012 average



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

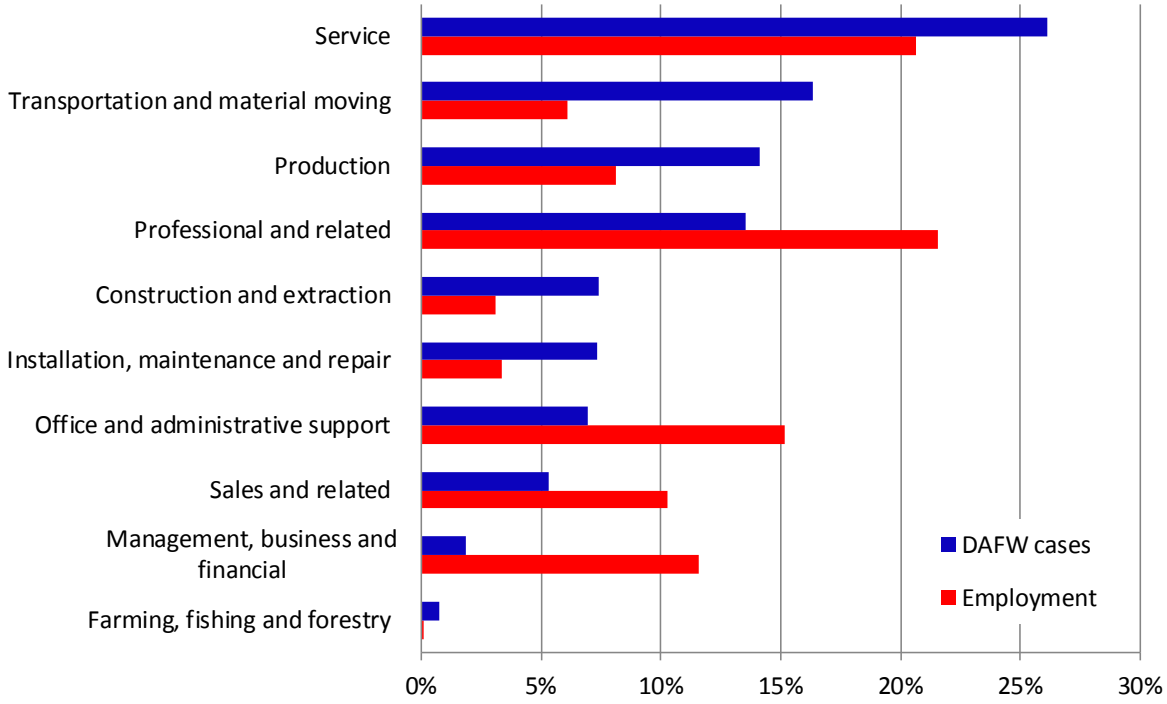
Occupation

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 that affect their safety and health.

Figure 4.9 shows the broad occupation category distributions of workers in 2012[22] and DAFW cases for 2010 through 2012.[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 26 percent of the DAFW cases and 21 percent of employment.
- Transportation and material moving occupations, which include truck drivers and delivery people, airline workers and unskilled, nonconstruction manual laborers, had the second-highest percentage of cases, with 16 percent, but only 6 percent of workers.
- Professional and related occupations, which includes engineers, attorneys, teachers and health care 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 aggregated occupation group, 2010-2012 average



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

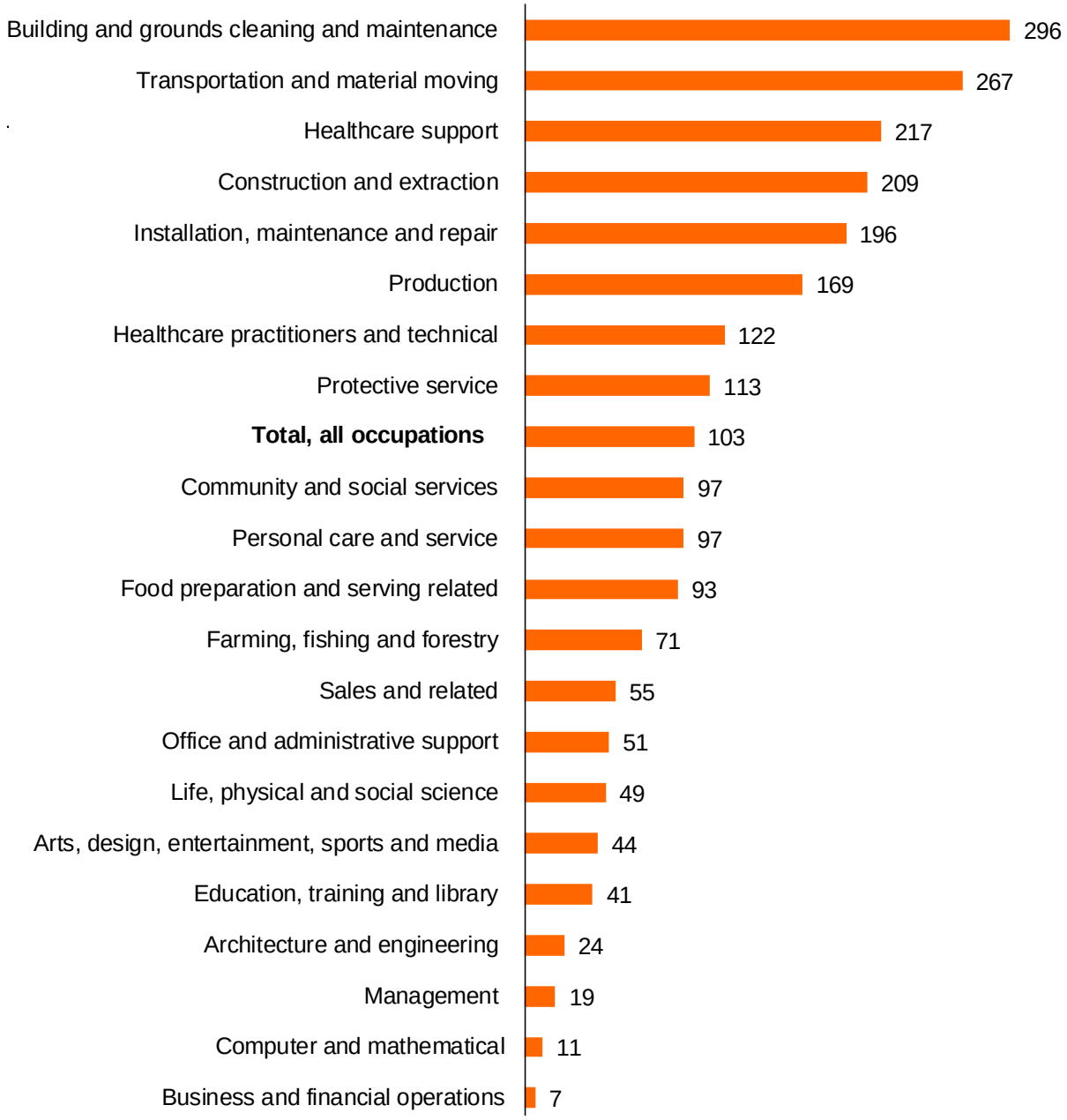
[22] BLS Occupational Employment and Wage Estimates, May 2011, downloaded from www.bls.gov/oes/oes_dl.htm.

[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.
- Building and grounds cleaning and maintenance had the highest DAFW case rate, followed by transportation and material moving.

Figure 4.10 Average annual incidence rates of days-away-from-work cases by major occupation group, per 10,000 FTE workers, private sector, 2010-2012



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).

The distributions reflect the average of the percentages for 2011 and 2012.

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 (Figure 4.11). (These include multiple injuries that mention sprains.)

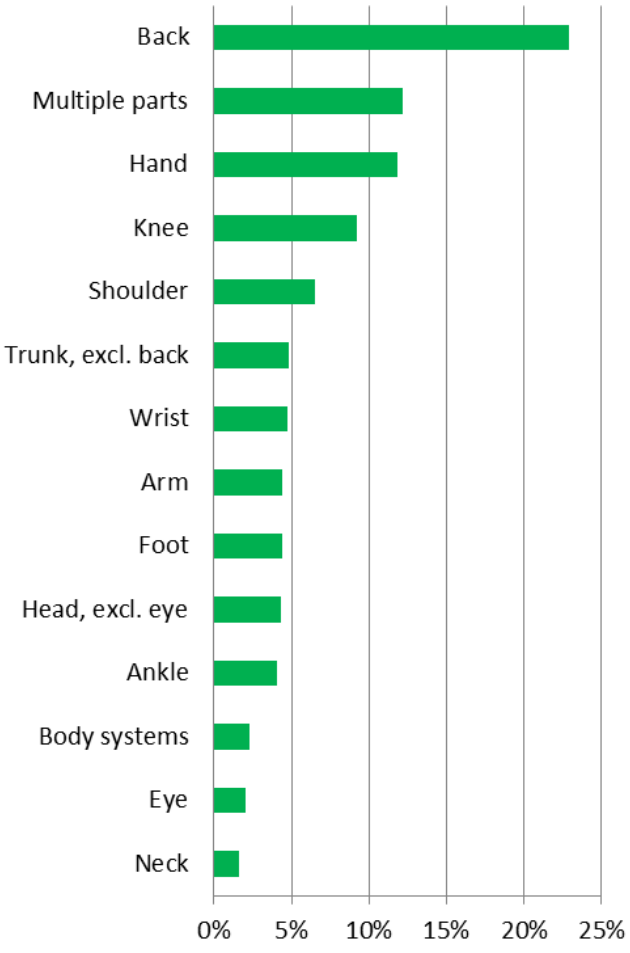
Part of body

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

- The back, with 23 percent of the DAFW cases, is injured more often than other body part (Figure 4.12).

Figure 4.11 Nature of injury, 2011-2012 average

Figure 4.12 Part of body injured, 2011-2012 average



[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.

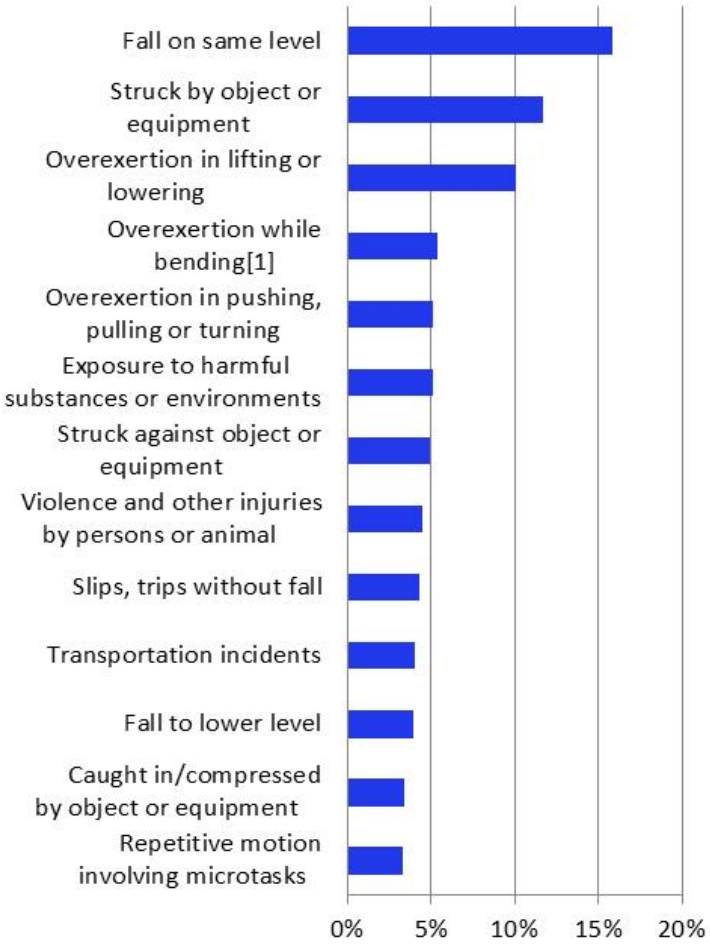
- The three most common event types accounted for 38 percent of all the DAFW cases. This indicates these events are common to many different industries and that companies that focus on these events can have a significant impact on their overall safety results.
- Women accounted for 63 percent of the falls on the same level in 2012.

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.

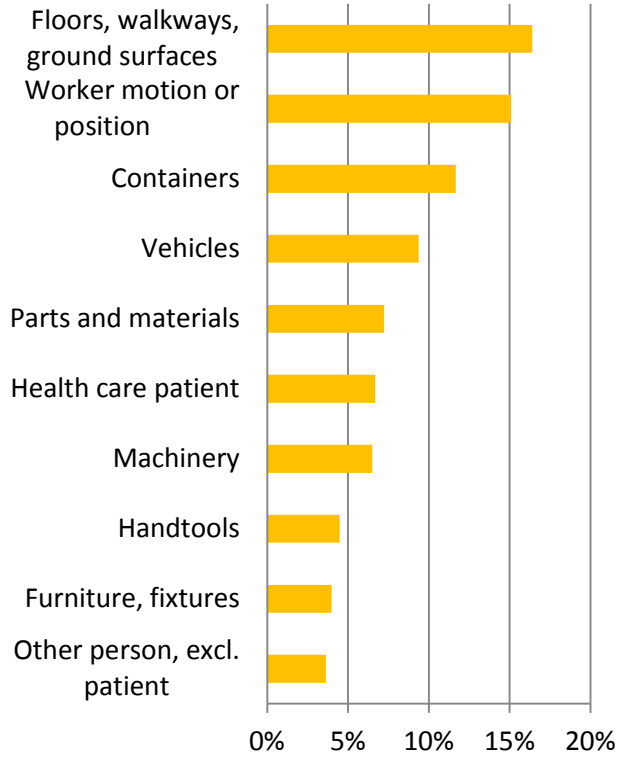
- Floors, walkways and ground surfaces are the source for falls on the same level.
- Worker motion or position, the second most common source, includes many injuries that occur as a result of overexertion or repetitive motion where other objects, such as tools and containers, are not involved in causing the injury.

Figure 4.13 Event or exposure, 2011-2012 average



1. Exertion or bodily reaction while bending, crawling, reaching, twisting, climbing or stepping.

Figure 4.14 Source of injury or illness, 2011-2012 average



Musculoskeletal disorders

BLS uses the reported injury characteristics to produce an estimate of the number of cases with musculoskeletal disorders (MSDs) among the DAFW cases. Although employers do not directly identify MSDs on the OSHA log, information about the injured body part and the event or exposure is combined to produce this estimate. BLS defines MSDs as disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal discs that **are not caused** by slips, trips, falls, motor-vehicle accidents or other similar accidents.

- Figure 4.15 shows the estimated number of MSD and non-MSD cases from 2003 to 2012. The number of DAFW cases with MSDs in Minnesota decreased 29 percent from 2003 to 2012. During this period, non-MSD cases also decreased by 29 percent. The estimated number of MSD cases has remained near 8,000 cases since 2009.

- MSD cases accounted for an average of 38 percent of the DAFW cases in 2011 and 2012.

- The three private-ownership industries with the highest numbers of MSD cases are health care and social assistance, manufacturing and retail trade. These three industries accounted for 62 percent of the MSD cases.

- The private-sector industries with the highest average 2011 and 2012 percentages of MSD injuries among DAFW cases were health care and social assistance with 54 percent and retail trade, with 48 percent.

- MSD injuries had a median of seven days away from work, compared to a median of six days for all DAFW cases in 2012.

Figure 4.16 shows some demographic characteristics of workers with MSD injuries.

- Averaged over the 2011 and 2012 estimates, the number of cases, the percentage of MSD cases among all DAFW cases and the incidence of MSD cases generally increased with age until peaking in the 45- to 54-years age group.

- MSD injuries were least common among workers with less than three months of job tenure and most common among workers with more than five years of job tenure.

- Among occupations, MSD cases accounted for 48 percent of the DAFW cases among healthcare practitioners and technical occupations and 47 percent among office and administrative support workers.

Figure 4.15 Estimated number of days-away-from-work cases with and without musculoskeletal disorders, 2003-2012

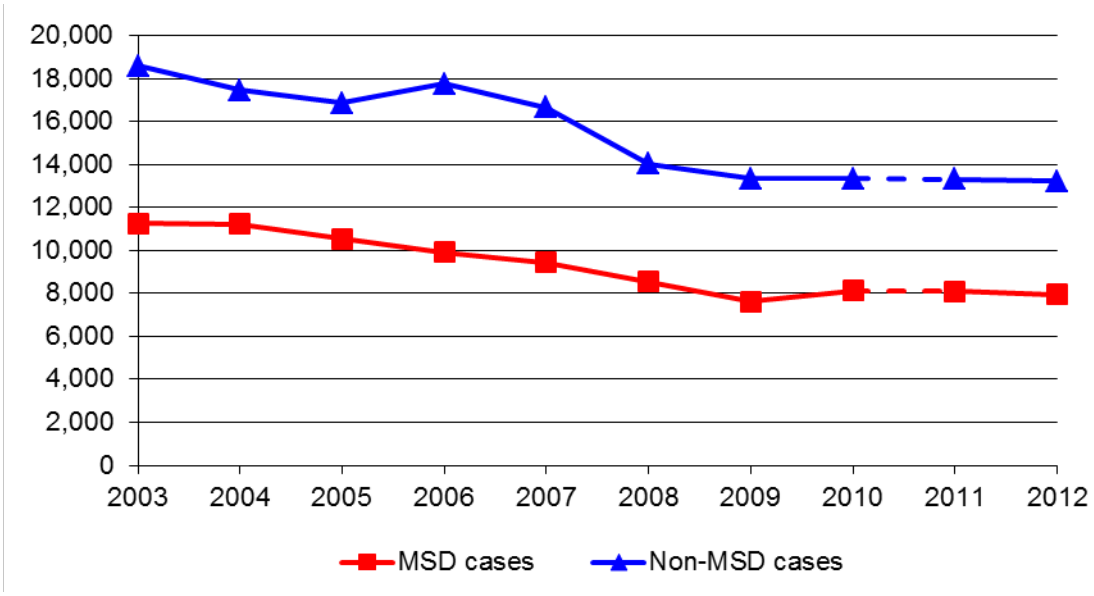


Figure 4.16 Distribution and incidence of musculoskeletal disorder cases by worker characteristics, average of 2011 and 2012

Characteristic	Avg. estimated number of DAFW cases	Avg. estimated number of MSD cases	Percentage MSD among cases in row	Incidence rate per 10,000 FTE workers
Total	21,290	8,020	38%	40
Gender				
Male	12,340	4,410	36%	39
Female	8,870	3,600	41%	41
Age				
16 to 19 years	510	110	20%	28
20 to 24 years	1,970	740	37%	38
25 to 34 years	4,790	1,740	36%	37
35 to 44 years	4,190	1,750	42%	41
45 to 54 years	5,730	2,380	42%	44
55 to 64 years	3,470	1,170	34%	40
65 years and older	600	140	28%	25
Length of service with employer				
Fewer than 3 months	1,730	520	30%	
3 months to 11 months	3,410	1,260	37%	
1 year to 5 years	6,750	2,450	36%	
More than 5 years	9,320	3,780	41%	
Occupation category				
Management, business and financial	480	110	23%	
Computer, engineering and science	240	80	36%	
Education, legal, community service, arts and media	1,120	200	18%	
Healthcare practitioners and technical	1,300	630	48%	
Service	5,410	2,200	41%	
Sales and related	1,130	470	42%	
Office and administrative support	1,420	670	47%	
Farming, fishing and forestry	200	50	26%	
Construction and extraction	1,550	480	32%	
Installation, maintenance and repair	1,560	500	32%	
Production	3,020	1,170	39%	
Transportation and material moving	3,850	1,480	38%	

5
Fatal occupational injuries

In 2012, 70 Minnesota workers were fatally injured on the job, an increase from the 60 fatalities in 2011. Nationally, 4,628 workers were fatally injured during 2012, slightly below the 2011 total of 4,693.

Statistics about fatal occupational injuries are gathered through the nationwide Census of Fatal Occupational Injuries (CFOI), conducted by 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, such as 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 2012, there is a preliminary count of 50 workers' compensation fatality claims due to injury and illness, similar to the 2011 count of 49 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; no violence-related fatalities are included in the current MNOSHA fatality counts.

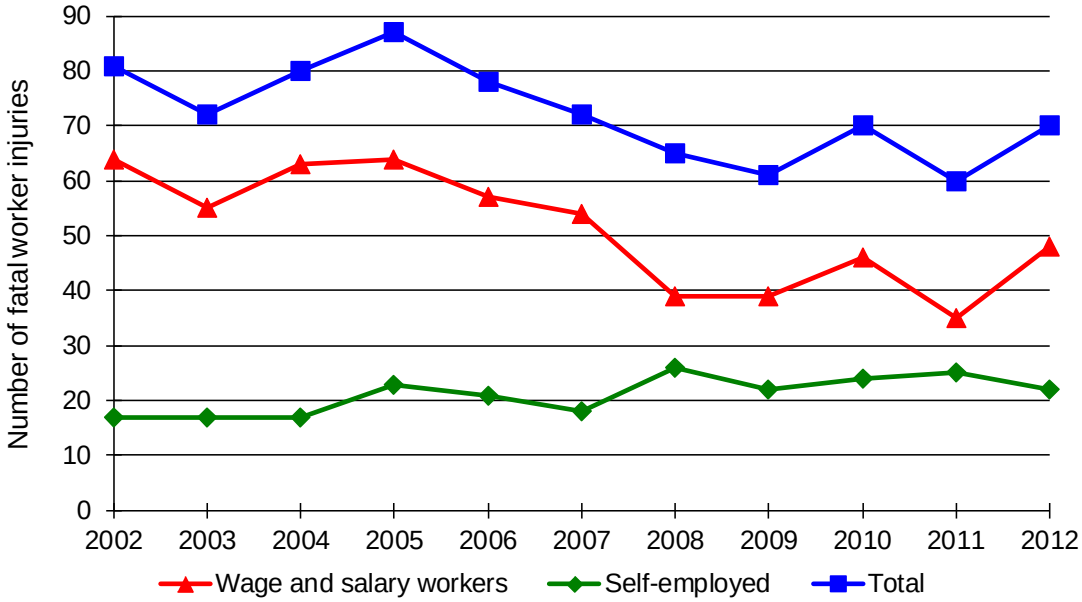
MNOSHA investigates fatalities to determine cause, whether any MNOSHA standards were violated and whether additional standards might help prevent similar incidents. The MNOSHA-investigated fatalities are shown in Figure 6.3.

[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 21, 2014 (Minnesota workers' compensation claims database).

Number of fatal injuries

- From 2002 through 2012, Minnesota's number of fatal work injuries has varied from 60 (in 2011) to 87 (2005) (Figure 5.1).
- For wage-and-salary workers, the annual fatality toll ranged from 35 (2011) to 64 (2002).
- For self-employed workers, the annual fatality figure ranged between 17 (2002, 2003, 2004) and 26 fatalities (2008).
- The fatality toll for 2008 through 2012 was 326 workers, with a five-year average of 65 fatalities a year. This consisted of 41 wage-and-salary workers and 24 self-employed workers.
- Fatal injuries for the self-employed were 31 percent of the 2012 total, far higher than the estimated 10 percent self-employed share of total state employment.[26]

Figure 5.1 Fatal work injuries, 2002-2012[1]



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

Year of death	Wage and salary workers	Self-employed workers	Total
2002	64	17	81
2008	39	26	65
2009	39	22	61
2010	46	24	70
2011	35	25	60
2012	48	22	70
Avg. 2008-2012	41.4	23.8	65.2

[26] 2012 American Community Survey, U.S. Census Bureau.

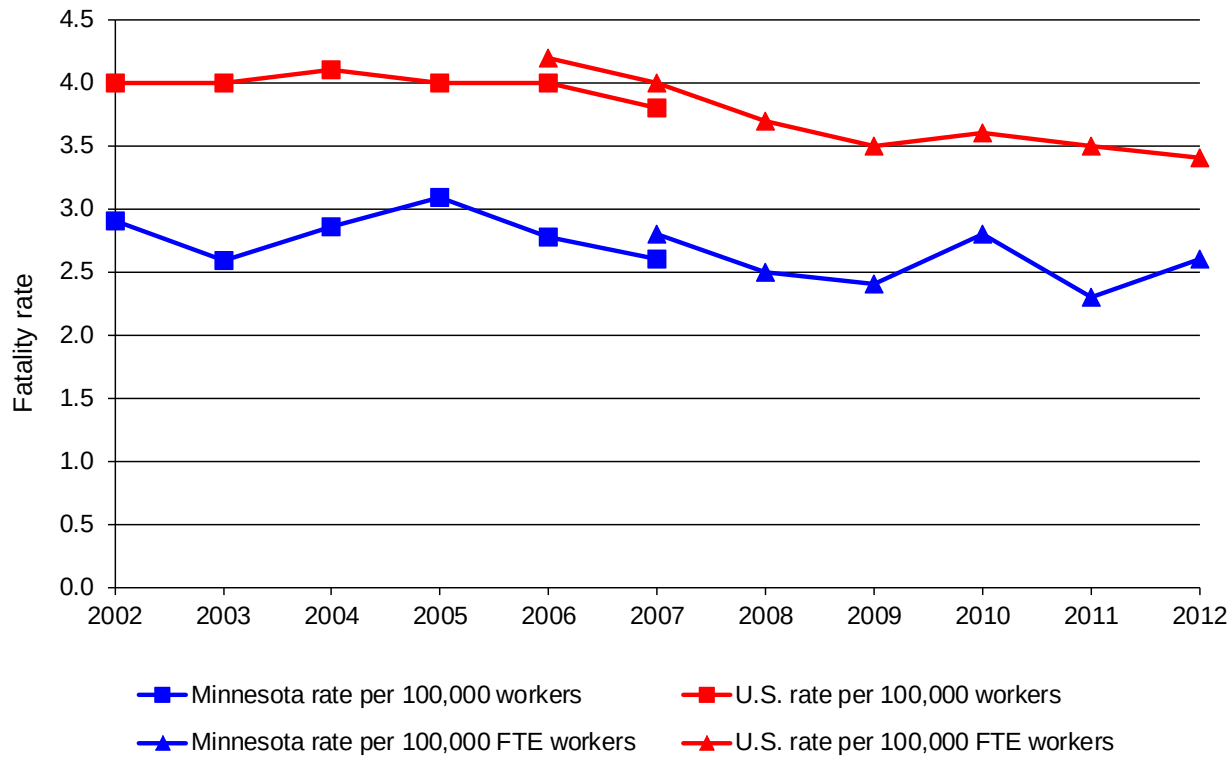
Rate of fatal injuries

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 state rates for 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 of 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 2012 fatality rate for Minnesota was 2.6 deaths per 100,000 FTE workers, close to the 2008 through 2012 average of 2.5 fatalities per 10,000 FTE workers.
- For the entire United States, the fatality rate for 2012 was 3.4 deaths per 100,000 FTE workers. The rate was 2.8 for wage-and-salary workers and 12.8 for self-employed workers.

Figure 5.2 Fatal work injury rates per 100,000 workers and per 100,000 FTE workers,[1] Minnesota and U.S., 2002-2012



Fatality rates per 100,000 FTE workers

	Minnesota	U.S.
2009	2.4	3.5
2010	2.8	3.6
2011	2.3	3.5
2012	2.6	3.4

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 and 2012.

- 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 and 2012 was falls, slips and trips. Most of these fatalities were falls to a lower level.

Figure 5.3 Event or exposure causing fatal work injury, 2011 and 2012

Event or exposure	Number of fatalities[1]	Percentage of fatalities
Total	**130**	**100.0%**
Contact with objects and equipment	**33**	**25.4%**
Struck by object or equipment	19	14.6%
Struck by powered vehicle—nontransport	9	6.9%
Struck by falling object	8	6.2%
Caught in or compressed by equipment or objects	9	6.9%
Caught in running equipment or machinery	8	6.2%
During maintenance or cleaning	3	2.3%
During regular operation	4	3.1%
Struck, caught in or crushed in collapsing materials	4	3.1%
Transportation incidents	**16**	**12.3%**
Pedestrian vehicular incident	4	3.1%
Roadway incidents	24	18.5%
Roadway collision with other vehicle	14	10.8%
Roadway collision with object other than vehicle	4	3.1%
Roadway noncollision incident	6	4.6%
Nonroadway incident involving motorized land vehicles	12	9.2%
Nonroadway noncollision incident	11	8.5%
Falls, slips, trips	**22**	**16.9%**
Falls to lower level	21	16.2%
Violence and other injuries by persons or animals	**16**	**12.3%**
Intentional injury by a person	15	11.5%
Fire or explosion	**4**	**3.1%**
Exposure to harmful substances or environments	**11**	**8.5%**

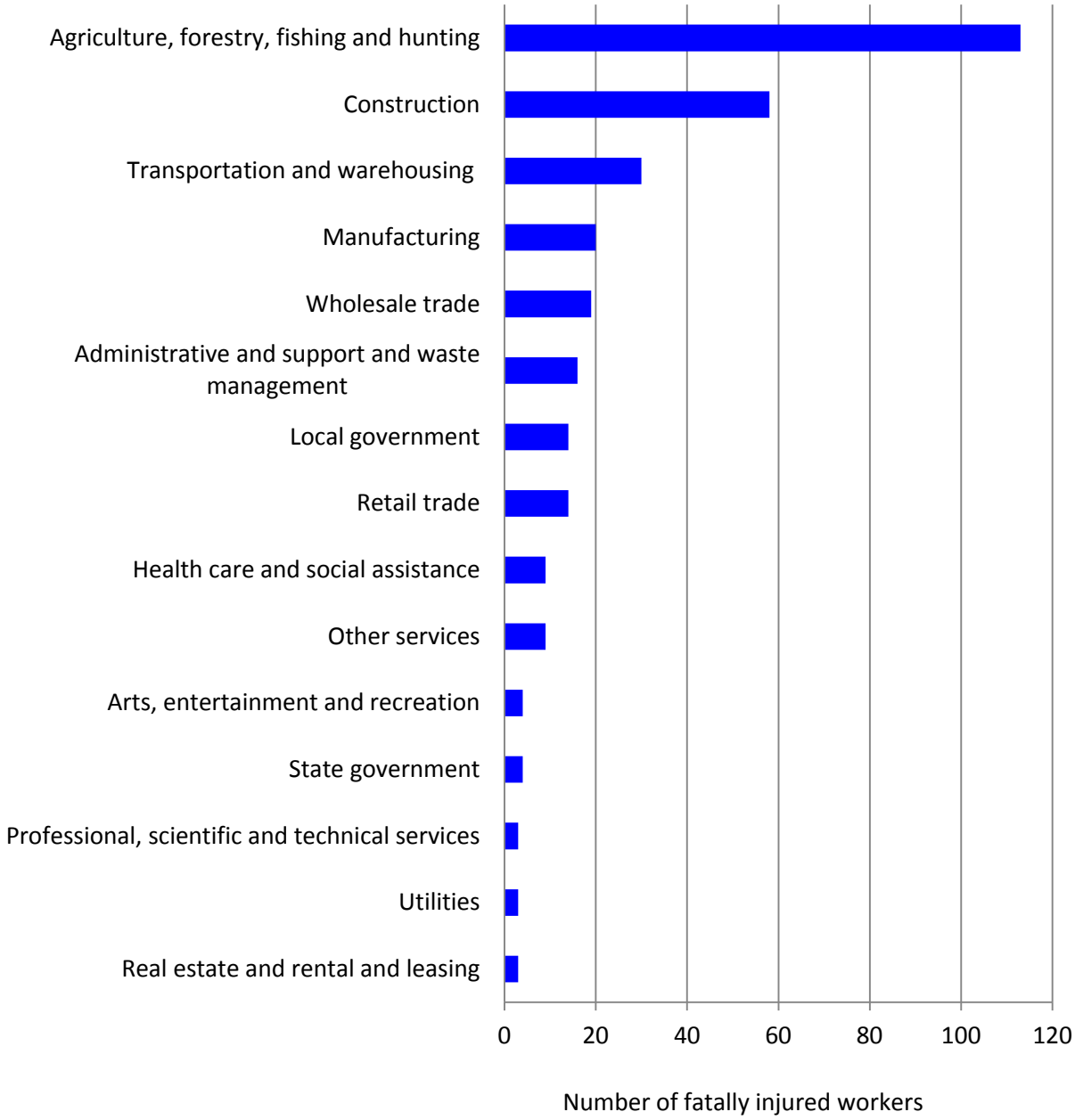
1. Totals for major categories may include subcategories not shown separately. Major categories may not sum to overall total due to one or more categories that do not meet publication criteria.

Fatal injuries by industry

Figure 5.4 shows the total number of Minnesota's fatal work injuries by industry supersector for 2008 through 2012.

- The highest number of fatal injuries was in agriculture, forestry and fishing, with 20 fatalities in 2012 and 113 fatalities from 2008 through 2012, an annual average of 22.6 fatalities. The majority of the fatally-injured workers in this industry are self-employed farmers and ranchers; for 2012, 16 of the workers were self-employed.
- Construction has the second-highest number of fatalities from 2008 through 2012, with 58. There were 13 fatalities reported in 2012, including three fatalities to self-employed workers. The specialty trade construction subsector accounted for 36 of the fatalities from 2008 through 2012.

Figure 5.4 Fatal work injuries by industry supersector,[1] 2008-2012



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 326 fatality cases from 2008 through 2012. 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 2012 results are very similar to these multi-year results.

Gender

- Men accounted for 93 percent of fatally injured workers in 2012 and for 95 percent of the fatalities from 2008 through 2012. Fewer than 10 women have been fatally injured annually since 2003.

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 increased, matching the aging of the entire workforce. The percentage of fatalities to workers 45 years and older has increased since the start of the CFOI. Figure 5.7 shows that the percentage for successive five-year periods has increased from 47 percent to 60 percent. For 2012, 56 percent of the fatalities were among these older workers.

Figure 5.5 **Number of fatally injured women workers, 2002-2012**

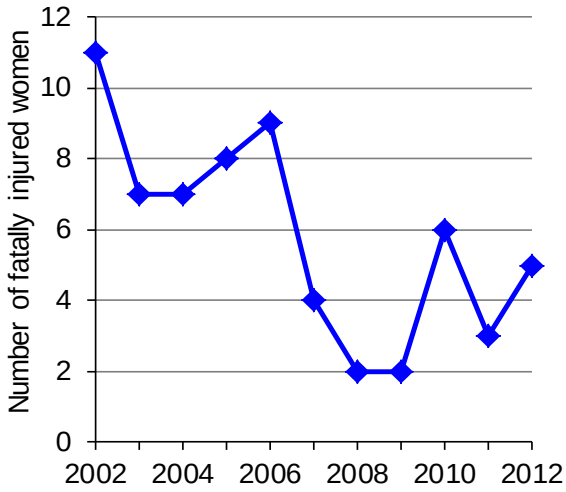


Figure 5.6 **Number of fatally injured workers by age group, 2008-2012**

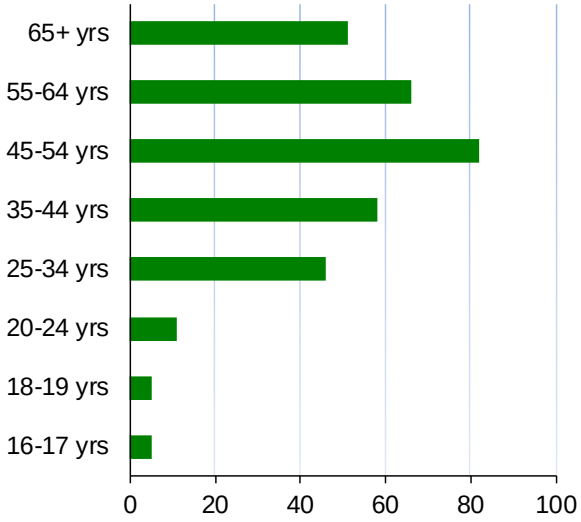
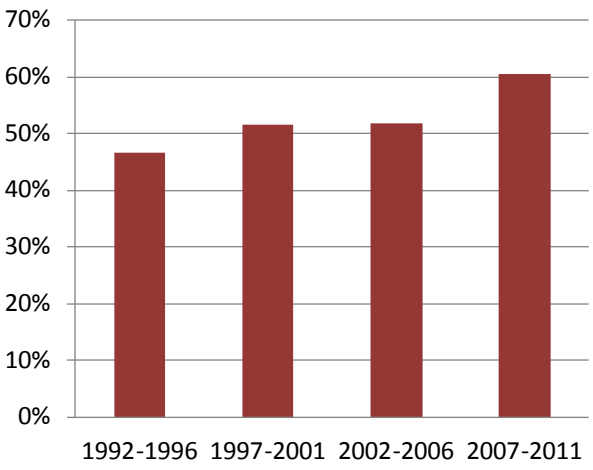


Figure 5.7 **Percentage of fatally injured workers 45 years and older, five-year averages**



Race

- Since 2002, the number of fatalities to nonwhite and to Hispanic workers has ranged from zero to nine, with considerable annual variation. The highest percentage of fatalities to nonwhite and to Hispanic workers was 13 percent in 2003 and 2010.

- Nonwhite and Hispanic workers accounted for 5.5 percent of the fatalities for the 2008 to 2012 period. Minnesota's nonwhite and Hispanic employment was estimated at 14 percent of total employment for 2012.[27]

Occupation

- Fatally injured workers were concentrated in the agricultural manager occupation group, which primarily includes farmers and ranchers, and in construction and extraction occupations. These two occupation groups accounted for 40 percent of the fatalities from 2008 through 2012.

Figure 5.8 Number of nonwhite or Hispanic fatally injured workers, 2002-2012

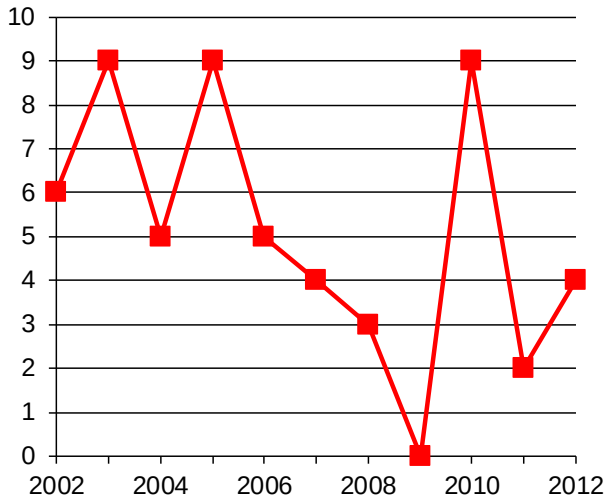
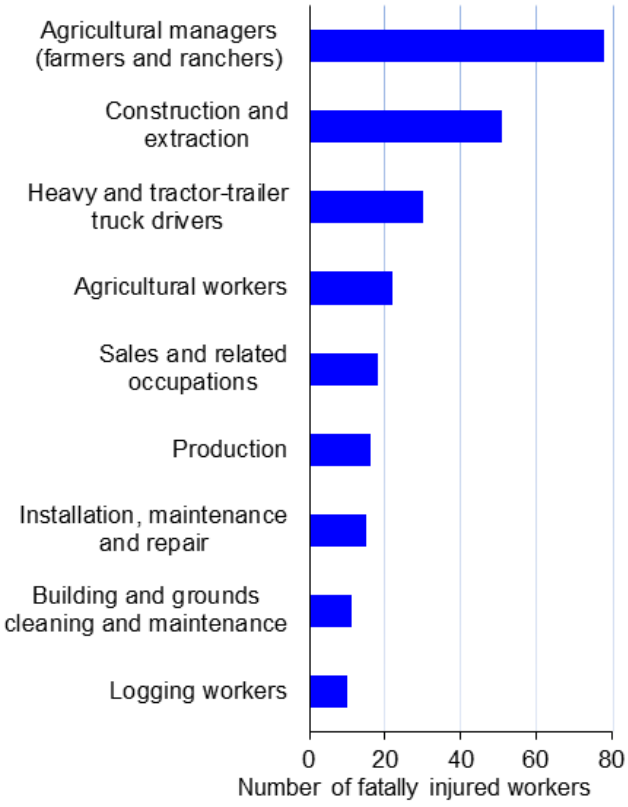


Figure 5.9 Occupations with 10 or more fatally injured workers, 2008-2012



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

Characteristics of fatal injury events

Worker activity

Worker activity categories indicate each fatally injured worker's activity at the time of the event. The two most common activity groups accounted for 60 percent of the fatalities.

- Vehicular and transportation operations, such as driving a truck or a farm vehicle, accounted for 122 fatalities (37 percent).
- Constructing, repairing and cleaning activities accounted for 76 fatalities (23 percent).

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.
- Sixty-eight fatalities, 21 percent of the work-related fatal injuries, occurred in an industrial workplace.

Figure 5.10 Activity of fatally injured workers, 2008-2012

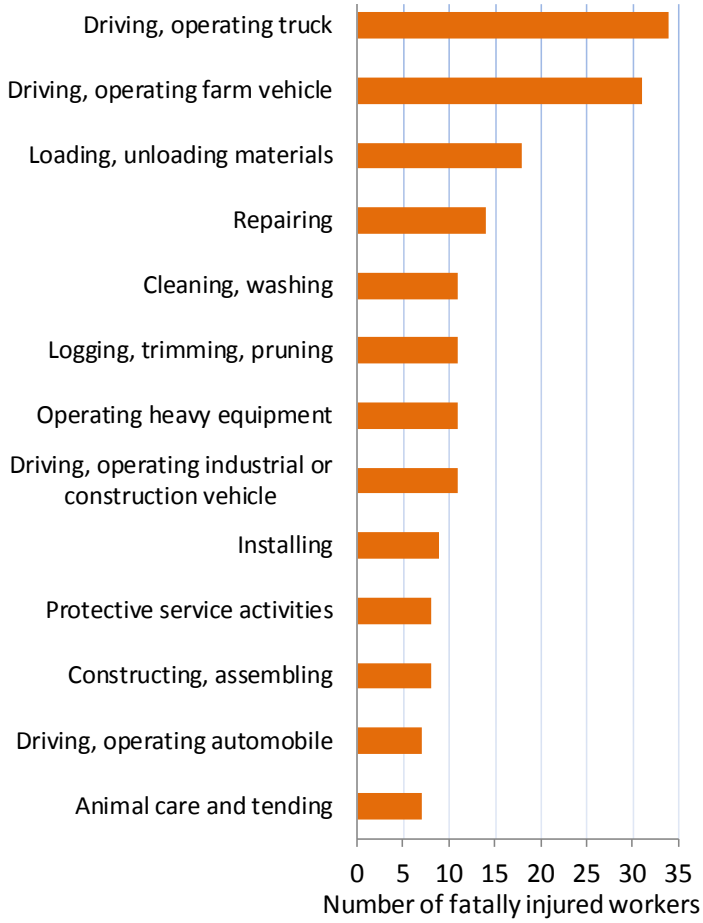
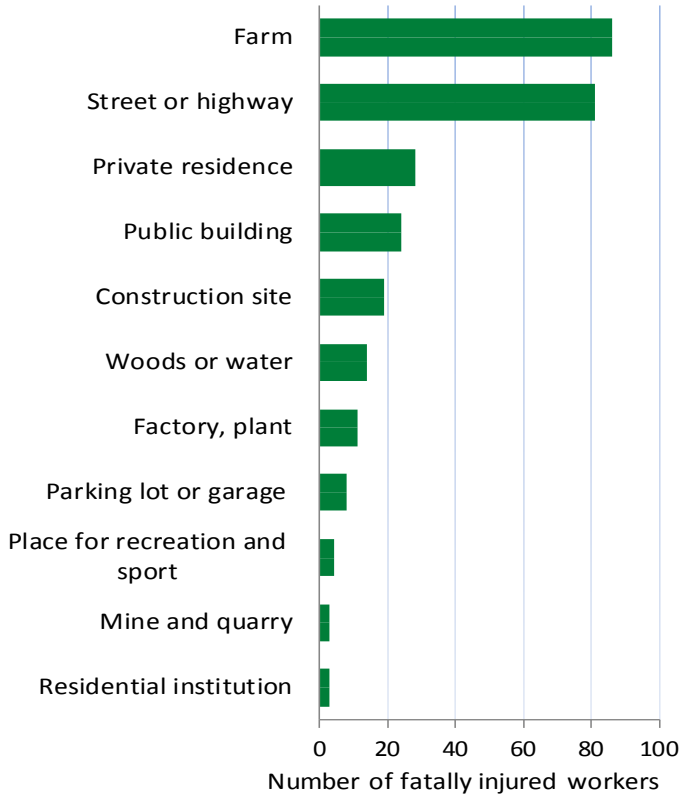


Figure 5.11 Fatal incident location, 2008-2012



Month of fatality

- There was considerable variation in the number of fatalities per month during the 2008 to 2012 period. The number of fatal work injuries was highest in July, with 39 fatalities, and lowest in December, with 13 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 73 fatalities, and lowest on Sunday, with 19 fatalities.

Figure 5.12 Month of fatal worker injury, 2008-2012

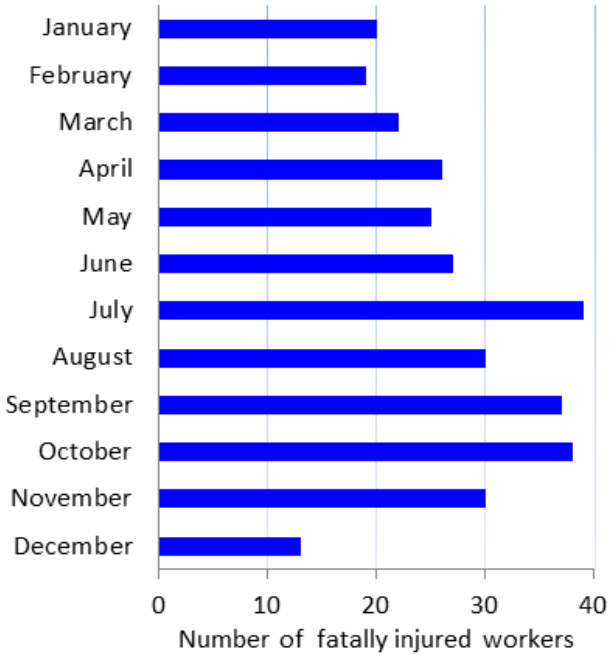
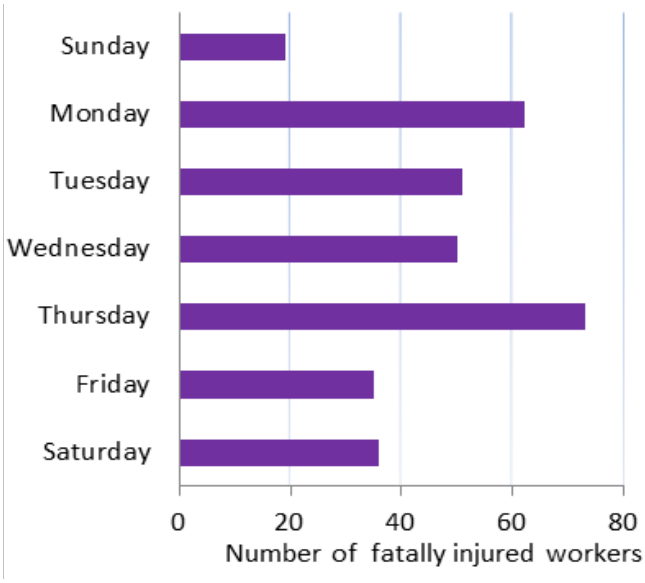


Figure 5.13 Day of week of fatal work injury, 2008-2012



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. MNOSHA's Strategic Management Plan for 2014 through 2018 is available at www.dli.mn.gov/OSHA/Reports.asp.

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 MNOSHA 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.

MNOSHA activities are also summarized in an annual report published by the Occupational Safety and Health State Plan Association at www.dli.mn.gov/OSHA/Reports.asp.

MNOSHA 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 may be 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.

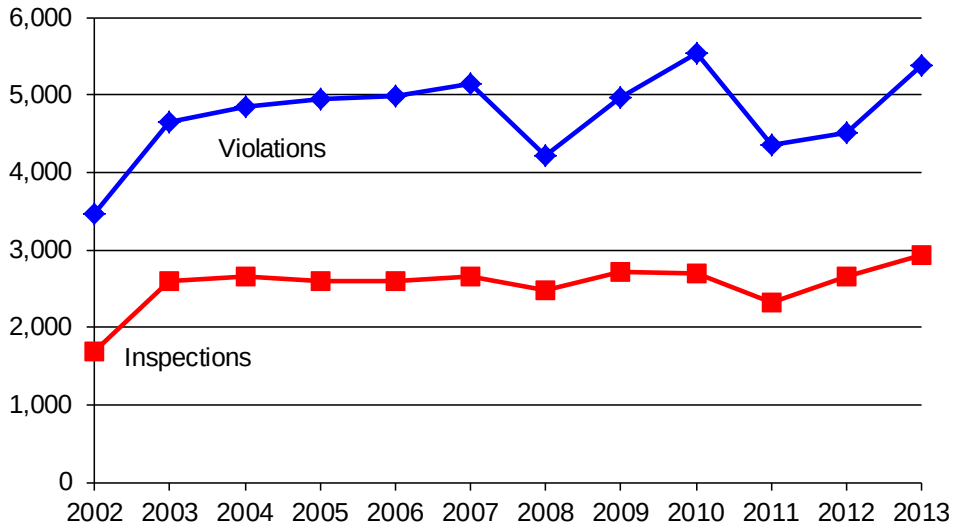
Figure 6.1 shows statistics for compliance inspections from federal fiscal-years (FFY) 2002 through 2013 (federal fiscal-years begin Oct. 1 of the preceding year). More statistics describing MNOSHA activities are available from the State OSHA Annual Report at www.dli.mn.gov/OSHA/PDF/annualreport13.pdf.

- During the most recent five-year period, FFY 2009 through FFY 2013, an average of 2,670 inspections were conducted annually,

covering an average of 122,600 workers. MNOSHA Compliance conducted 2,943 inspections in FFY 2013, resulting in the identification of 5,373 violations of OSHA standards.

- During FFY 2013, 69 percent of inspections resulted in at least one violation cited. Among inspections with violations, 2.6 violations were cited, on average.
- Among private-sector employers, serious violations accounted for 74 percent of the safety violations and for 69 percent of the health violations cited in FFY 2013. The average penalty for these violations was $956.

Figure 6.1 MNOSHA Compliance inspections and violations cited, FFY 2002-2013[1]



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
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
2013	2,943	80,152	2,043	5,373	$4.75

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, not adjusted for inflation.

Source: Minnesota OSHA Operations System Exchange database.

- Figure 6.2 shows that the majority of inspections in most industries were planned, programmed inspections.

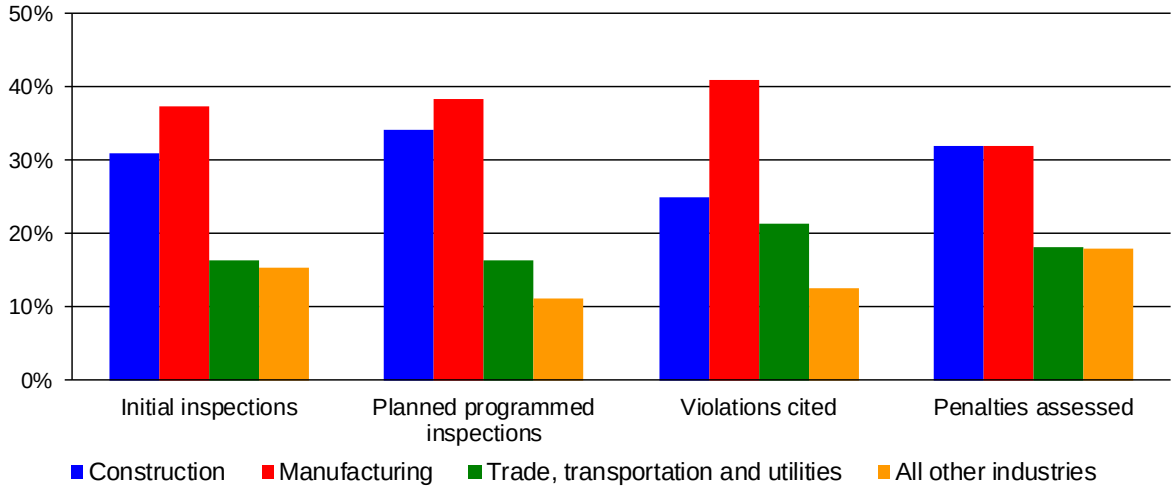
- Manufacturing accounted for 37 percent of the inspections, down from 39 percent in 2012, and for 41 percent of the violations, similar to the 40 percent in 2012. Planned programmed inspections accounted for 87 percent of the inspections.

- Construction accounted for 31 percent of inspections, unchanged from FFY 2012. Construction also accounted for 34 percent of programmed inspections. Planned, programmed inspections accounted for 93 percent of the construction visits. Construction also accounted for 25 percent of the violations.

- 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 Compliance hosted five construction seminars during FFY 2013, with 258 construction managers, supervisors and employees in attendance.

- MNOSHA Compliance conducted 48 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 2013



Industry	NAICS code(s)	Initial inspections	Planned programmed inspections	Violations cited	Penalties assessed[1]
Natural resources and mining	11, 21	19	11	28	$ 51,675
Construction	23	910	844	1,342	$ 1,518,739
Manufacturing	31-33	1,098	951	2,201	$ 1,521,525
Wholesale trade	42	113	90	336	$ 327,050
Retail trade	44-45	281	253	661	$ 307,275
Transportation and warehousing	48-49	75	54	121	$ 173,600
Utilities	22	12	9	33	$ 50,400
Information	51	9	6	16	$ 24,175
Financial activities	52-53	27	19	15	$ 27,225
Professional and business services	54-56	134	76	182	$ 293,250
Education	61	47	36	101	$ 118,750
Health care and social assistance	62	85	50	123	$ 127,725
Leisure and hospitality	71-72	29	8	54	$ 63,350
Other services	81	30	5	71	$ 59,950
State and local government	all	147	115	246	$ 314,700

1. These are the initial penalty assessment amounts for both serious and regulatory violations.
Source: Minnesota OSHA Operations System Exchange database.

- MNOSHA Compliance initiated inspections for 18 fatalities during calendar-year 2013 (Figure 6.3).

- From 2009 through 2013, 31 percent of the fatality investigations were in the construction industry. Falls and crushing incidents accounted for 57 percent of the fatalities investigated.

- Figure 6.4 shows MNOSHA Compliance initiated inspections for 46 serious-injury incidents during 2013 and for 195 incidents during the 2009 through 2013 period.

- Falls and crushing injuries led to 46 percent of the serious-incident inspections in 2013 and to 47 percent of the serious-injury investigations from 2009 to 2013. 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, 2009-2013

Fatality type	2009	2010	2011	2012	2013	Total
Asphyxiation/chemical exposure	3	2	1	0	0	**6**
Burn	0	0	0	0	1	**1**
Crushed by	5	5	4	3	6	**23**
Drowning	1	0	2	0	1	**4**
Electrocution	0	1	2	2	1	**6**
Explosion	1	0	1	2	0	**4**
Fall	6	4	7	5	7	**29**
Heat exposure	0	0	1	0	0	**1**
Natural causes	0	3	0	1	0	**4**
Struck by	2	0	5	4	2	**13**
Total	**18**	**15**	**23**	**17**	**18**	**91**
Percent in construction	17%	20%	30%	47%	39%	**31%**

Figure 6.4 Serious injuries investigated by MNOSHA Compliance, 2009-2013

Serious-injury type	2009	2010	2011	2012	2013	Total
Amputation	9	4	6	6	5	**30**
Asphyxiation/chemical exposure	1	3	3	0	4	**11**
Burn	3	0	0	3	3	**9**
Crushed by	3	11	13	10	10	**47**
Electrical shock	2	1	3	4	3	**13**
Explosion	1	3	2	6	0	**12**
Fall	6	7	7	14	11	**45**
Struck by	4	1	5	8	10	**28**
Total	**29**	**30**	**39**	**51**	**46**	**195**
Percent in construction	17%	23%	36%	43%	37%	**33%**

Figure 6.5 shows the most commonly cited OSHA standards violations in FFY 2013 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 2013

Standard[1]	Description	Times cited
General industry		
MN Rules 5206.0700	Employee Right-To-Know training	539
29 CFR 1910.305	Electrical wiring methods, components and equipment for general use	250
29 CFR 1910.147	Control of hazardous energy (lockout/tagout procedures)	215
29 CFR 1910.212	Machine guarding — general requirements	195
29 CFR 1910.134	Respiratory protection	160
MN Statutes 182.653 subd. 8	A Workplace Accident and Injury Reduction (AWAIR) program	156
29 CFR 1910.178	Powered industrial trucks (forklifts)	147
29 CFR 1910.23	Guarding floor and wall openings and holes	141
29 CFR 1910.151	Emergency eyewash and showers	130
MN Rules 5205.0116	Carbon monoxide monitoring	122
Construction		
29 CFR 1926.501	Fall protection	435
MN Statutes 182.653 subd. 8	A Workplace Accident and Injury Reduction (AWAIR) program	151
29 CFR 1926.451	Scaffolds — general requirements	111
29 CFR 1926.1053	Ladders	75
MN Rules 5207.1100	Fall protection on elevating work platform equipment	56
29 CFR 1926.652	Excavations — protective system requirements	45
MN Rules 5206.0700	Employee Right-To-Know training	39
29 CFR 1926.651	Specific excavation requirements	37
29 CFR 1926.503	Fall protection training requirements	26
MN Statutes 182.653 subd. 2	General duty clause – unsafe working condition	23

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

Source: Minnesota OSHA Operations System Exchange database.

Partnerships

In FFY 2012, MNOSHA Compliance entered into revised partnerships in the construction industry with the Minnesota Chapter of Associated Builders and Contractors and with General Contractors of Minnesota. The partnerships are designed to help reduce the number of injuries, illnesses and fatalities at participating employers. These partnerships have three levels. Level 3 is the Cooperative Compliance Partnership (CCP) program. Contractors in the CCP program receive compliance assistance for a specific project lasting between six and 18 months. For the most current information, see www.dli.mn.gov/OSHA/Partnerships.asp.

MNOSHA Workplace Safety Consultation

WSC offers a variety of workplace safety and health 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 2013, WSC conducted 1,312 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 87 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 2013.

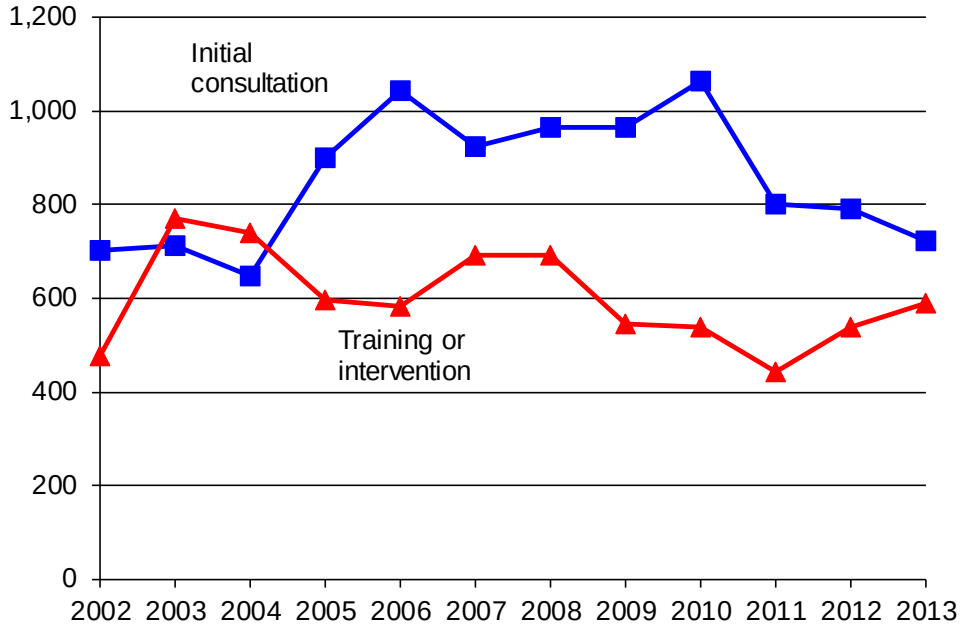
- During the 2009 through 2013 period, WSC conducted an annual average of 868 initial consultation visits, and identified 5,037 safety and health hazards.

- During the past five years, an average of 18,200 employers and employees received training from WSC consultants.

Figure 6.7 shows statistics for WSC services to worksites for some industries during FFY 2013.

- Construction sites accounted for 51 percent of initial consultation visits, followed by manufacturing with 20 percent.

Figure 6.6 MNOSHA Workplace Safety Consultation visit activity, FFY 2002-2013



Federal fiscal-year[1]	Initial consultation visits	Number of safety and health hazards identified	Training or intervention visits	People receiving training and interventions
2002	703	4,162	476	19,285
2009	966	5,707	544	17,670
2010	1,064	5,671	539	16,597
2011	800	5,044	443	15,818
2012	790	4,680	538	16,791
2013	722	4,085	590	24,172

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

Source: Minnesota OSHA IMIS Redesigned Information System.

Figure 6.7 MNOSHA Workplace Safety Consultation activity for selected industries, FFY 2013

Industry	NAICS code	Initial visits	Training assistance
Construction	23	371	19
Manufacturing	31-33	144	71
Trade, transportation and utilities	42-49, 22	55	13
Nursing and residential care	623	22	7
State and local government	92	37	40

Source: Minnesota OSHA IMIS Redesigned Information System.

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 2013, WSC conducted 116 logger/tree-cutting visits and interventions, affecting 174 employers and 1,389 employees.

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 mid-April 2012 and mid-April 2013, WSC awarded $1.1 million to 212 employers that matched the grants with more than $3.9 million of their own funds.

Ergonomics assistance and safe patient-handling

The WSC ergonomics program educates Minnesota employers and employees about the recognition and control of risk factors associated with musculoskeletal disorders. During FFY 2013, WSC conducted 66 initial visits and training/interventions with an ergonomics focus; 14 visits were for safe patient-handling. WSC also presented 12 ergonomics training seminars, conferences and outreach activities, with six events focused on safe patient-handling.

Minnesota requires all licensed health care facilities in the state to implement a safe-patient-handling program that includes 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 mid-April 2012 to mid-April 2013, 27 safety grants, totaling $195,878, were provided to health care facilities.

Through an alliance with the Care Providers of Minnesota, the ergonomics program coordinator has coordinated and conducted four 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. Seven outside facilities have participated in the WSC On-site Experience as training participants.

Two sample safe-patient-handling programs for nursing homes, hospitals and clinics are posted on DLI's website as examples for employers.

A hospital representatives group continues to meet for facilitated discussions, three of which focused on 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 Compliance scheduled 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 recertification.

Two new general industry worksites and three major construction projects were certified as MNSHARP worksites during FFY 2013, bringing the total to 42 certified worksites ─ 37 general industry sites and five construction sites. An additional five sites were placed into the Pre-SHARP program and 13 sites were recertified.

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

MNSTAR Program

The Minnesota Star (MNSTAR) Program is a voluntary program patterned after the federal Voluntary Protection Program.[28] It is available to Minnesota employers of all sizes. Compared to MNSHARP, the MNSTAR Program has more rigorous requirements and confers a higher level of recognition on certified employers.
The MNSTAR Program 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 MNOSHA Compliance scheduled inspections for three years upon initial certification and up to five years upon subsequent recertification. 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 status.

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.

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, General Contractors of Minnesota, American Society of Safety Engineers, American Industrial Hygiene Association and the Minnesota Safety Council.

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

During FFY 2013, compliance staff members provided 104 outreach presentations to 3,101 participants.

WSC provides seminars and training opportunities to help employers and employees understand and comply with safety and health During FFY 2013, WSC training activities included the following events and projects:

- 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;

regulations, and to develop and implement mandatory programs, including Employee Right-to-Know, AWAIR and labor-management safety committees. During FFY 2013, WSC conducted 590 worksite training, intervention and technical assistance visits, reaching 24,172 participants.

- conducted 46 residential construction training sessions, with 1,431 attendees;

- conducted 14 training sessions for youth organizations, with 188 attendees; and

- presented 13 Pro-10 training courses in alliance with Labor-Users-Contractors Council, with 214 attendees.

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.[29] 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.[30] 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.

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.

[29] 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.
[30] This is a count of the total number of employees in the firm, across all establishments.

Job transfer or restriction cases occur when, as a result of a work-related injury or illness, an employer or health care professional keeps or recommends keeping an employee from doing the routine functions of his or her job or from working the full workday the employee would have been scheduled to work before the injury or illness occurred. 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 DAFW cases and whether there is a minimum level of employment in that industry. The confidentiality criteria ensure 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)x200,000 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 information recorded by employers on the OSHA 300 Log of Work-Related Injuries and Illnesses (OSHA log) and on the Form 301: Injury and Illness Incident Report (incident report) is 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. Free recordkeeping seminars are presented at the St. Paul office and the speakers are available to give presentations to employers and to safety groups throughout the state. The recordkeeping web page at www.dli.mn.gov/OSHA/Recordkeeping.asp includes:

- links to the OSHA log forms;
- text of the OSHA recordkeeping requirement;
- notices of upcoming seminars;
- 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.