MT Worker Health
Montana Occupational Health & Safety Surveillance

Occupational Health Indicators: Montana 2004-2014

Prepared by
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LABOR & INDUSTRY

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List of terms and abbreviations:

ACBS: Asthma Call-Back Survey

BLS: U.S. Bureau of Labor Statistics

BRFSS: Montana Behavioral Risk Factor Surveillance System

CDC: Centers for Disease Control and Prevention

CFOI: BLS Census of Fatal Occupational Injuries

CPS: BLS Current Population Survey

CSTE: Council for State and Territorial Epidemiologists

DPHHS: Montana Department of Public Health and Human Services

FTE: Full-Time Employees

MHA: Montana Hospital Association

MOHSS: Montana Occupational Health and Safety Surveillance Program

NIOSH: National Institute for Occupational Safety and Health Program

OHI: Occupational Health Indicator

SOII: BLS Survey of Occupational Injuries and Illnesses

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INTRODUCTION

Occupational health surveillance identifies, tracks, and monitors work-related injuries and diseases and their causes in order to identify and address unsafe workplace activities, hazards, and exposures. The goal of the Montana Occupational Health & Safety Surveillance System (MOHSS) is to bridge the gap between occupational health surveillance and prevention and safety activities in Montana. Monitoring the occupational health and safety landscape in Montana will reveal areas in need of more detailed surveillance and guide prevention efforts for Montana workers.

This report presents information and commentary on 24 occupational health indicators (OHIs) for the state of Montana over the past decade. These indicators provide a measure of occupational health for various workplace environments and occupations, based on data from a variety of sources. These indicators were developed and recommended by the Council for State and Territorial Epidemiologists (CSTE), in collaboration with the National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention.

Occupational health indicators included in this report:

- 16 Health Effect indicators – measures of injury or illness that indicate harmful effects from exposure to known or suspected occupational hazards

- 1 Exposure indicator – measure of markers in human tissue or fluid that identify the presence of a potentially harmful substance resulting from exposure in the workplace

- 4 Hazard indicators – measures of potential for worker exposure to health and safety hazards in the workplace

- 2 Intervention indicators – measures of intervention activities or intervention capacity to reduce workplace health and safety hazards

- 1 Socioeconomic Impact indicator – measure of the economic impact of work-related injuries and illnesses

The purpose of developing the OHIs was to "allow a state to compare its health or risk status with that of other states and evaluate trends over time with the state, and guide priorities for prevention and intervention efforts" (CSTE). The hope is that the generation of indicator data will help raise awareness and build capacity for tackling occupational health issues within individual states. The current instructions (as of March 2016) for calculating the occupational health indicators included in this report can be found at http://www.cste.org/group/OHIndicators.

Note: Calculations using 2014 data have not yet been verified by NIOSH, and results presented here for 2014 are considered to be preliminary.

Important definition: This report uses "incidence rates" to describe specific work-related injuries and illnesses. When talking about work-related issues, these incidence rates refer to the number of cases of work-related injury or illness in a year divided by the number of full-time employees (FTE).

- *Example*:
    - The Incidence Rate of 4.5 cases of non-fatal work-related injuries and illnesses per 100 full-time employees for private industry in Montana in 2014 means that there were *4.5 non-fatal work-related injuries and illnesses for every 100 full-time workers in the private industry in Montana during that year*.

Montana Employment Demographics

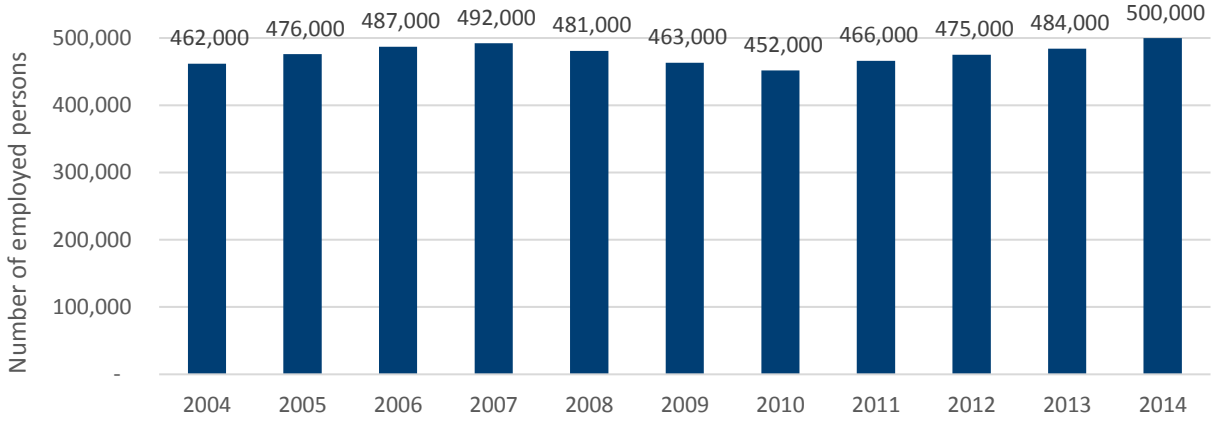
Background

It is essential to understand the detailed composition of Montana's workforce in order to measure possible work-related risks and to develop effective prevention activities for the worker population. Understanding characteristics of the workforce allows for more detailed analysis of worker subgroups and industries that may be experiencing higher than expected rates of work-related injuries or illnesses.

Results

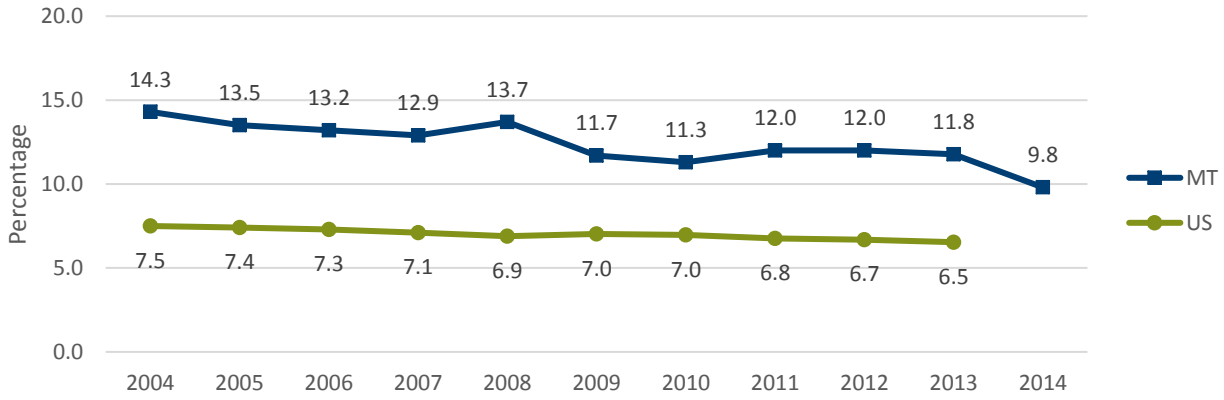
In 2014, Montana's workforce was 500,000 persons, with an unemployment rate of 4.6%. Self-employed and part-time workers represented 9.8% and 22.2% of the workforce, respectively.

Figure P.1 – Total number of employed persons in Montana, 2004-2014



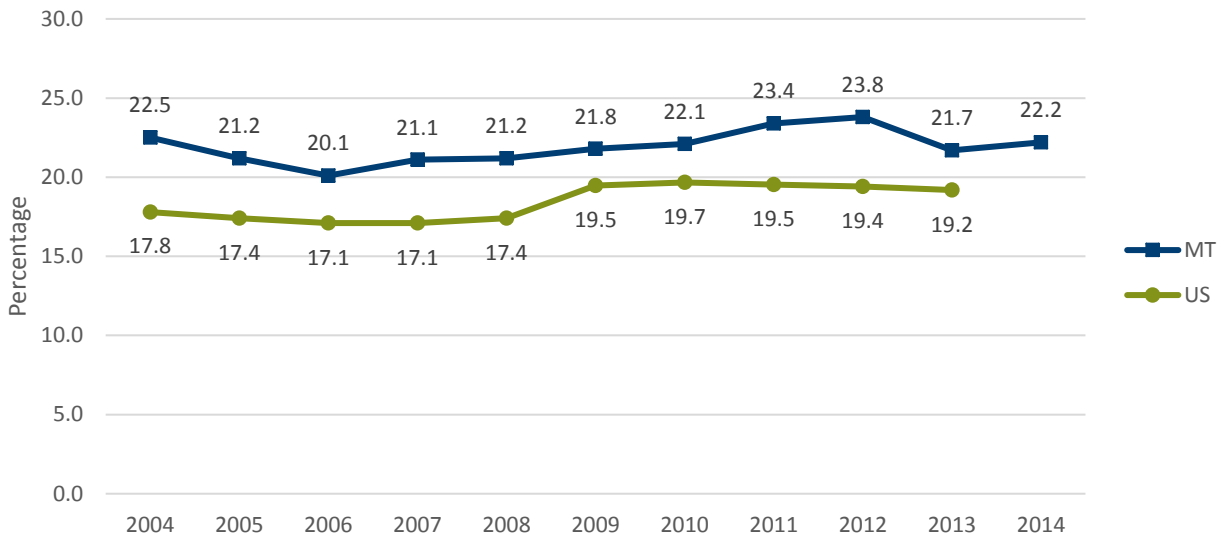
Source: BLS Geographic Profiles of Employment and Unemployment

Figure P.2 - Percentage of employed persons that are self-employed, Montana and the U.S., 2004-2014



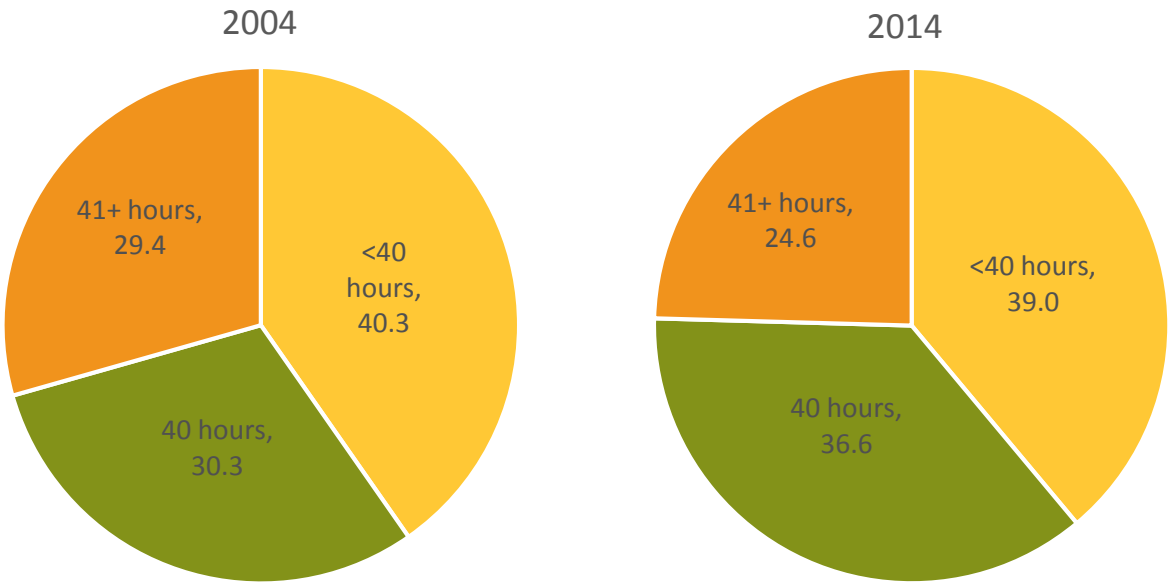
Source: BLS Geographic Profiles of Employment and Unemployment. National data not yet available for 2014.

Figure P.3 – Percentage of employed workers in part-time jobs, Montana and the U.S., 2004-2014



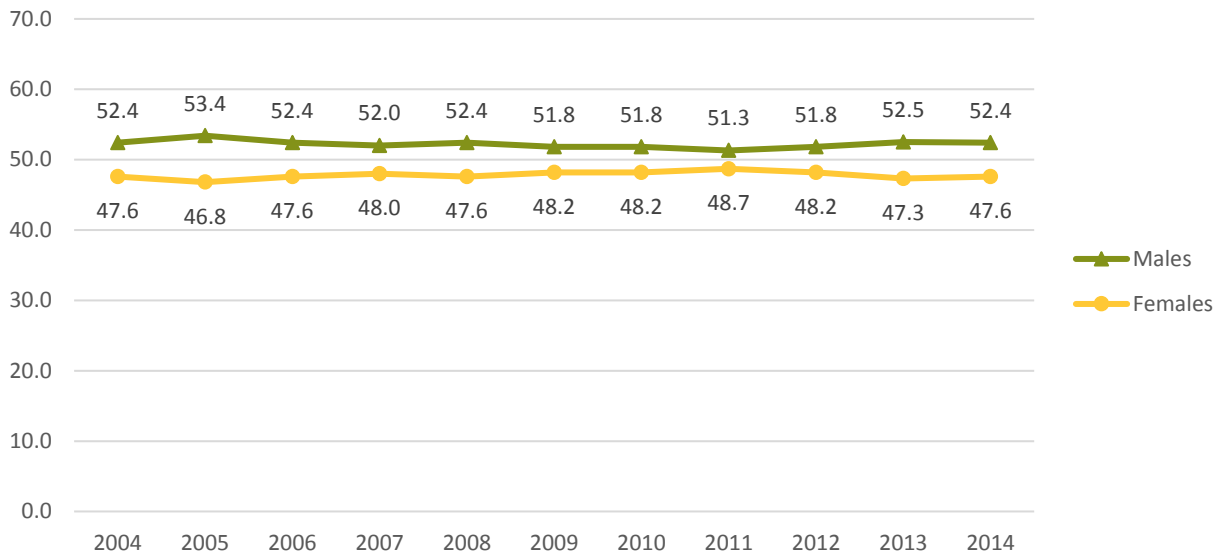
Source: BLS Geographic Profiles of Employment and Unemployment. National data not yet available for 2014.

Figure P.4 – Percentage of employed persons by hours worked weekly in Montana, 2004 and 2014



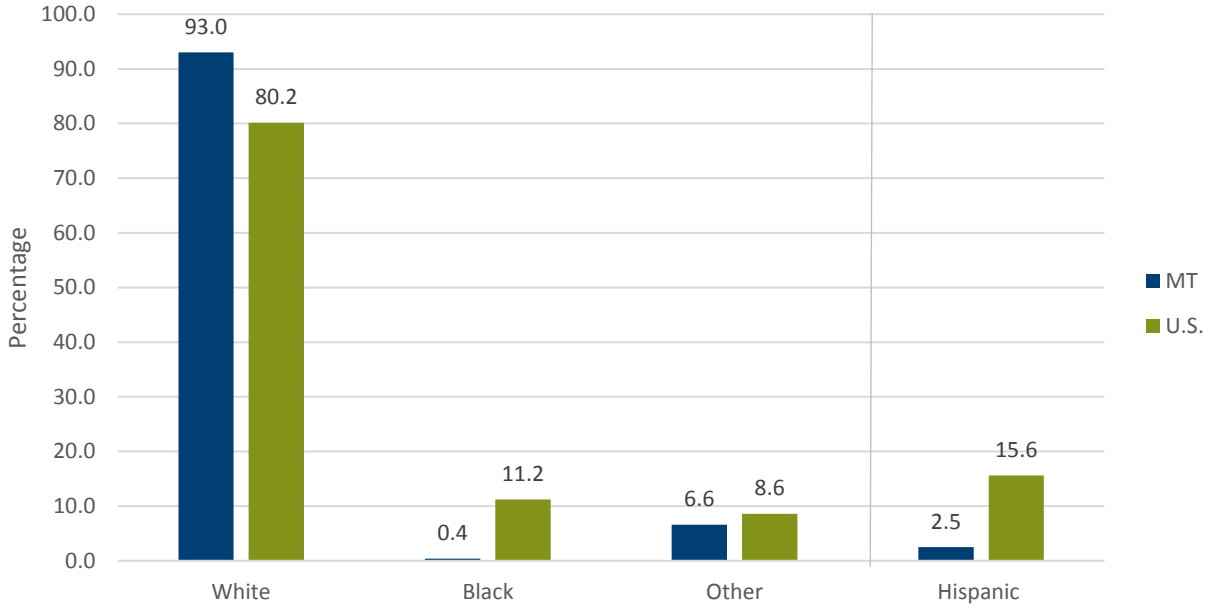
Source: BLS Geographic Profiles of Employment and Unemployment.

Figure P.5 – Percentage of employed workers by sex in Montana, 2004-2014



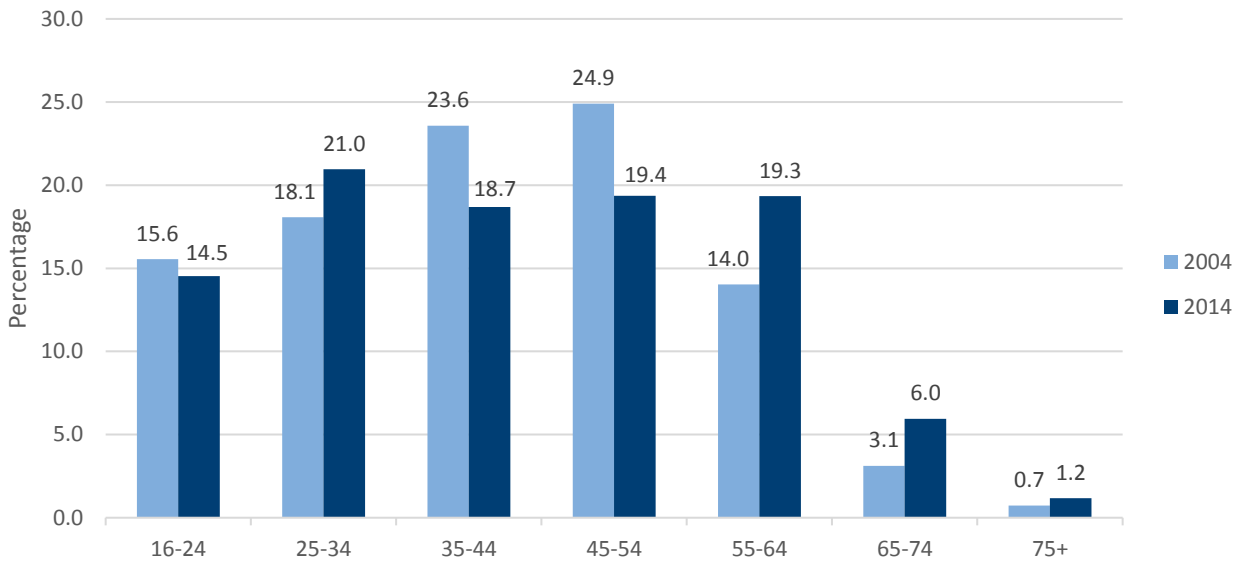
Source: BLS Geographic Profiles of Employment and Unemployment

Figure P.6 – Percentage of employed persons by race and Hispanic origin in Montana and the U.S., 2013



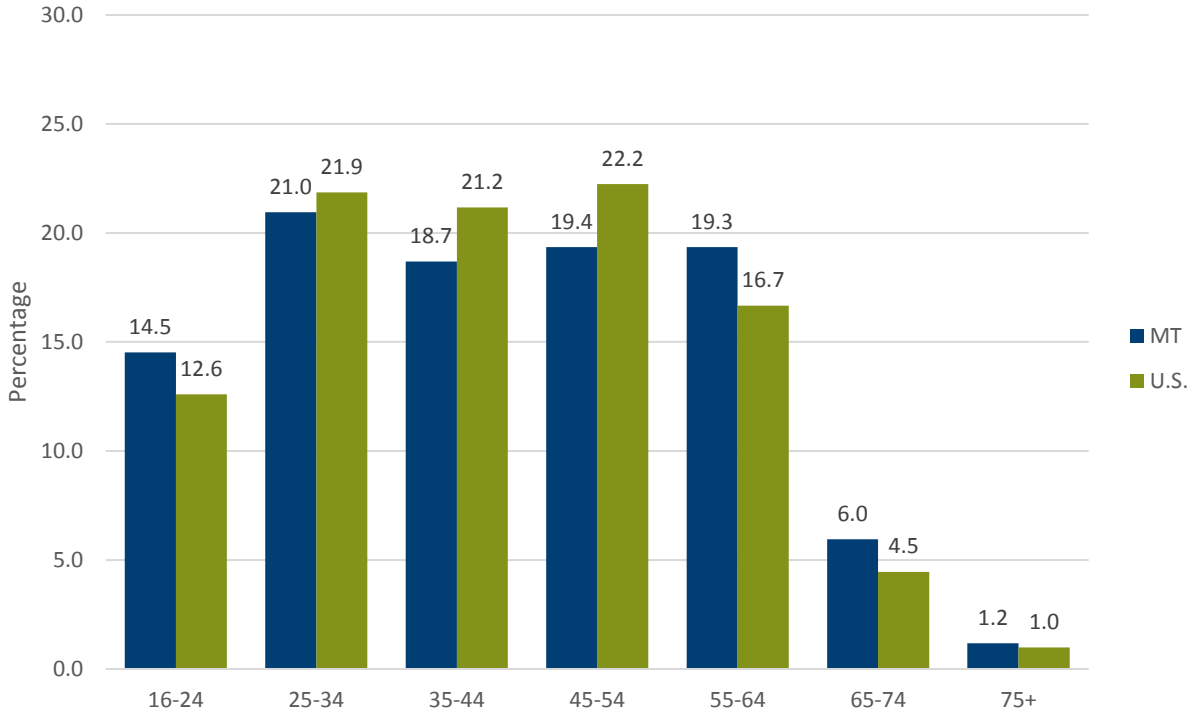
Source: BLS Geographic Profiles of Employment and Unemployment. National data not yet available for 2014, so data for 2013 was used to compare Montana and U.S. data for this indicator. The indicator of percentage of employed persons of Hispanic origin is separate from the indicator of percentage by race, designated by a solid vertical line.

Figure P.7 – Percentage of employed persons by age in Montana, 2004 and 2014



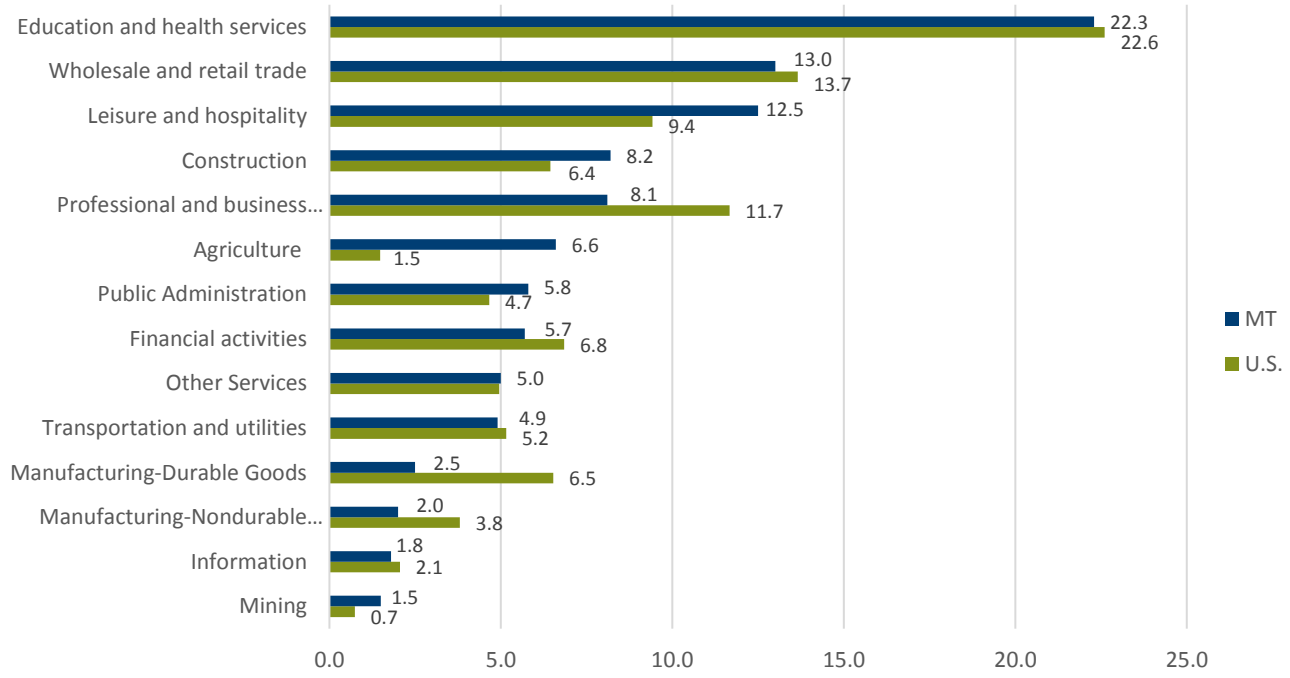
Source: BLS Geographic Profiles of Employment and Unemployment

Figure P.8 – Percentage of employed persons by age in Montana and the U.S., 2014



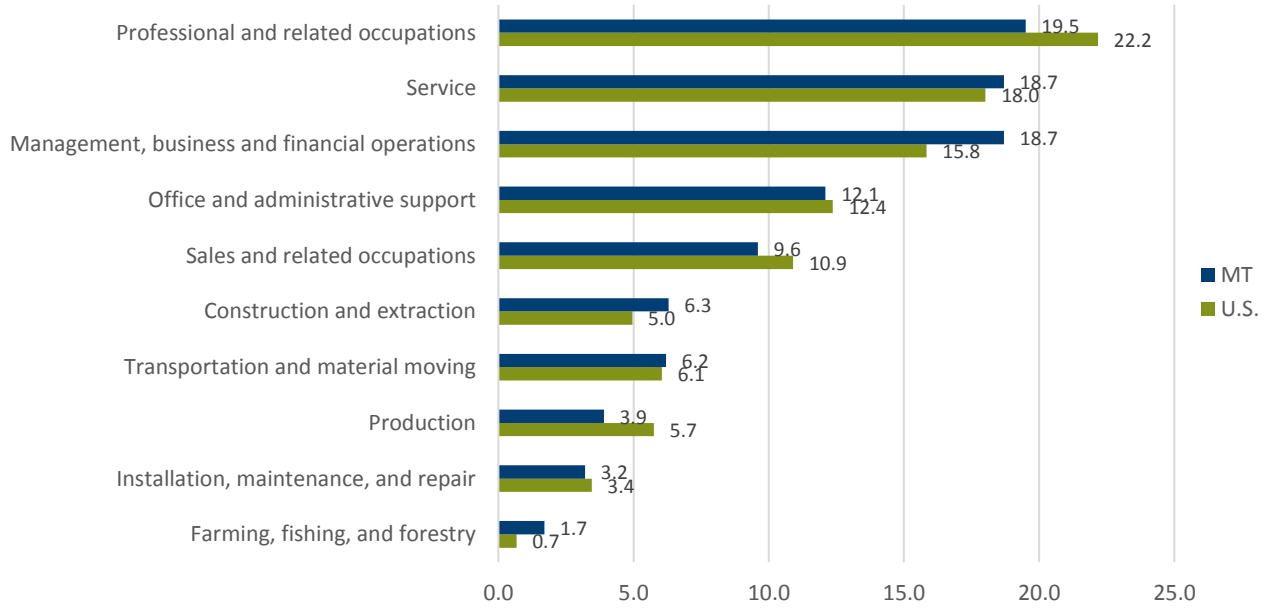
Source: BLS Geographic Profiles of Employment and Unemployment

Figure P.9 – Percentage of employed workers by industry, Montana and the U.S., 2013



Source: BLS Geographic Profiles of Employment and Unemployment

Figure P.10 – Percentage of employed workers by occupation, Montana and the U.S., 2013



Source: BLS Geographic Profiles of Employment and Unemployment

Table P.1 - Top Industries and Occupations in Montana, 2014

Industry	Percent of employment
Education and health services	20.8
Wholesale and retail trade	15.4
Leisure and hospitality	11.9
Construction	9.0
Professional and business services	8.4
Agriculture	5.7
Financial activities	5.6

Occupation	Percent of employment
Service	19.6
Professional and related occupations	19.6
Management, business, and finance	16.7
Office and administrative support	11.3
Sales and related occupations	10.6
Construction and extraction	7.1
Transportation and material moving	6.0

Source: Montana Department of Labor & Industry "Montana Occupational Injuries and Illnesses 2014" report

Indicator 1: Non-Fatal Work-Related Injuries and Illnesses

Background

Work-related injuries are generally defined as injuries that result from a single event, such as falls, being struck or crushed by objects, electric shocks, or assaults. Work-related illnesses, such as asthma, silicosis, and carpal tunnel syndrome, typically occur as the result of long-term or repetitive exposure to physical or chemical hazards. Many work-related illnesses take a long time to develop, and may not appear until many years after the worker has left employment.

This indicator provides information on the estimated annual frequency and rate of non-fatal work-related injuries and illnesses in Montana and the United States. These details can provide a birds-eye view of trends of injuries and illnesses in Montana for workers, employers, health professionals, policymakers, and other stakeholders. Indicator 1 uses data from the U.S. Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses (SOII), which surveys a representative sample of private industry employers. The SOII is not an exact count of all employers and, therefore, is subject to sampling error. Military personnel, self-employed workers, federal agencies, and farms with fewer than 11 employees are excluded from the survey. The incidence rates of work-related injuries and illnesses in the SOII data may be underestimated if survey respondents underreport injuries and illnesses on their OHSA logs. Industry concentration and sample size may differ between states, so it is not accurate to directly compare the Montana rates with national or other state rates by dividing the rates into ratios or percentages.

Results

Note: It is not accurate to directly compare rates for Montana to national or state rates by dividing the rates into percentages or ratios. Some differences in these rates can be attributed to differences in industry concentration or sample size between states.

The incidence rates of non-fatal work-related injuries and illnesses for the United States and Montana both declined from 2004 to 2014, but the incidence rate for Montana remained considerably higher than the national rate at the end of the 10 years. In 2008, Montana had the highest incidence rate for non-fatal injuries and illnesses in private industry in the United States (6.4 per 100 full-time employees (FTE)). In 2014, Montana had the fourth highest incidence rate for non-fatal work-related injuries and illnesses (4.5 cases per 100 FTE). There is certainly still substantial work to be done to reduce rates of work-related injuries and illnesses in Montana's workforce.

From 2004 to 2014, in Montana:

- Total number of work-related injuries and illnesses dropped from 18,800 to 12,600 cases
- Incidence rate of total work-related injuries and illnesses dropped from 7.2 to 4.5 cases per 100 FTE
- Incidence rate of total work-related injuries and illnesses involving "days away from work" dropped from 2.3 to 1.4 cases per 100 FTE

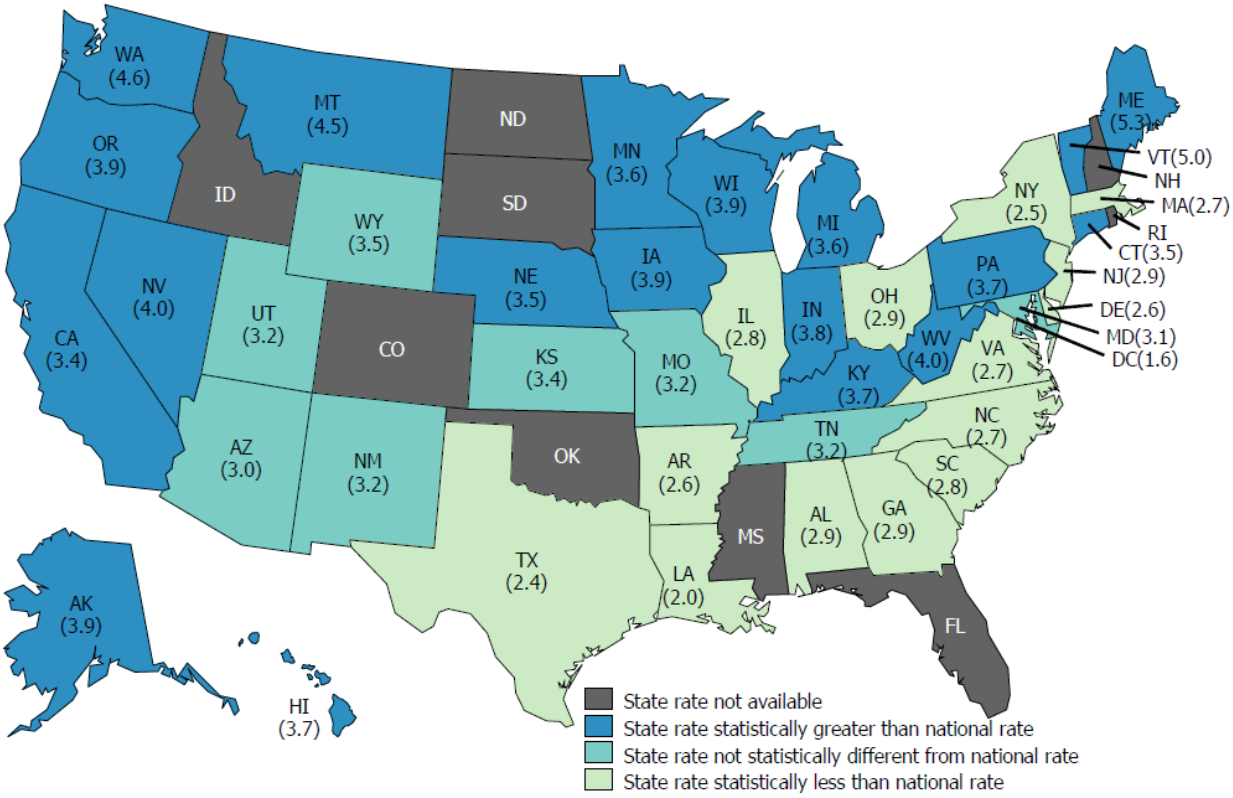
In 2014, the following industries in Montana had the highest rates of non-fatal work-related injuries and illnesses (cases per 100 FTE):

- Agriculture, forestry, fishing, and hunting (8.8)
- Manufacturing (6.4)
- Education and health services (6.2)
- Accommodation and food services (5.3)
- Construction (5.3)

The occupations that had the highest numbers of non-fatal work-related injuries and illnesses in 2014 were:

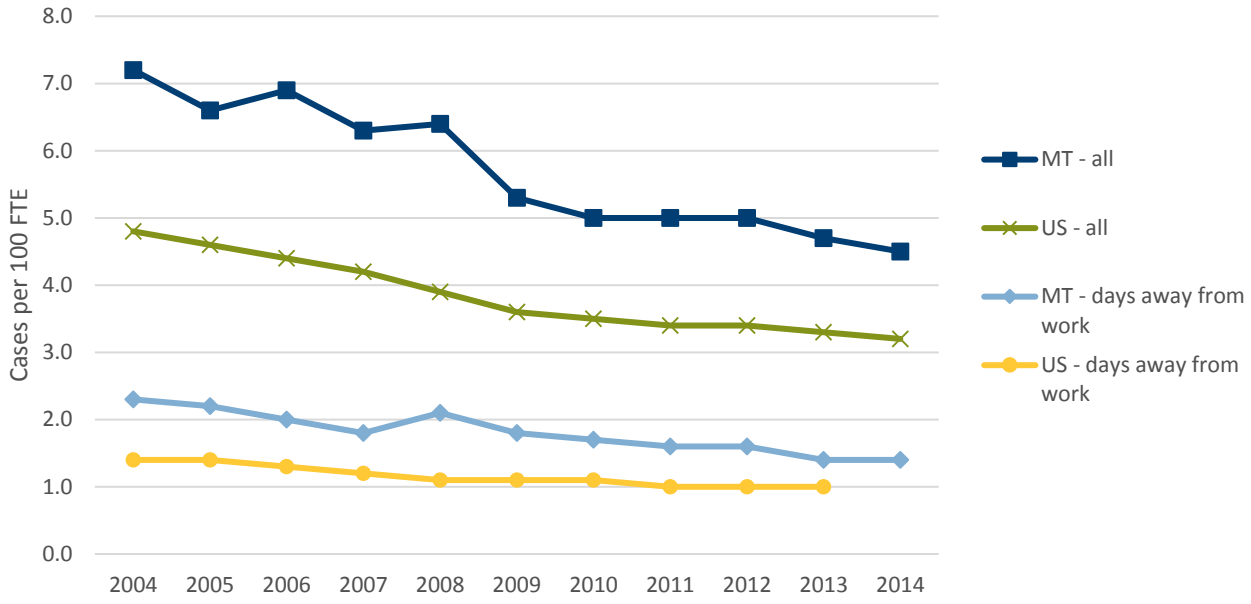
- Nursing assistants (220)
- Retail salespersons (210)
- Heavy and tractor-trailer truck drivers (210)
- Construction laborers (160) `

Figure 1.1 - State non-fatal occupational injury and illness incidence rates (per 100 FTE) compared to the national rate, private industry, 2014



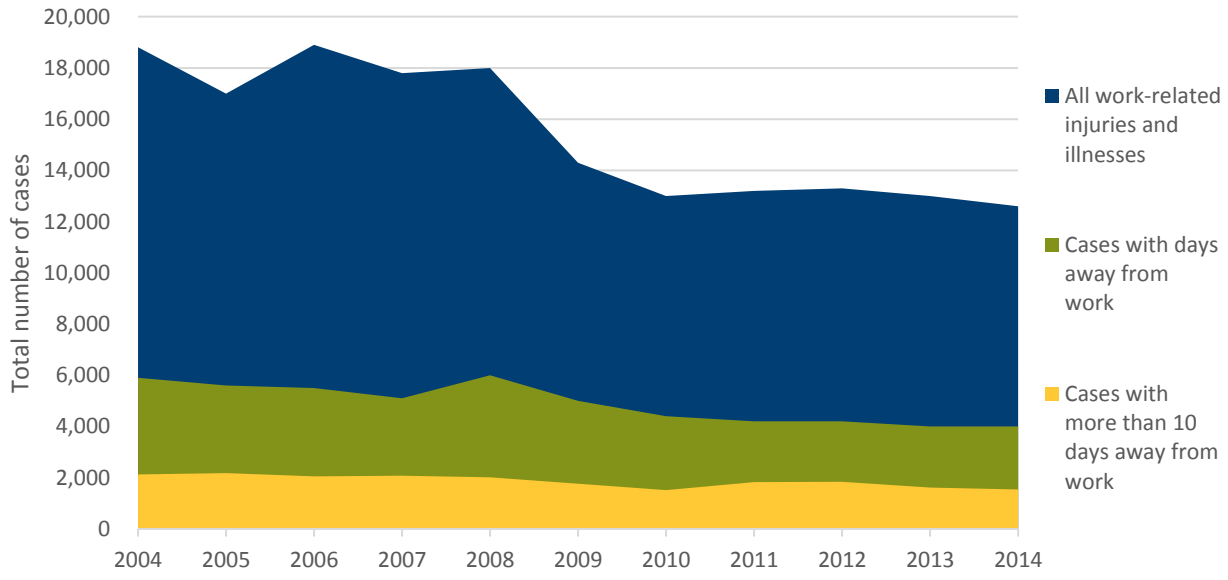
Source: Chart from the Survey of Occupational Injuries and Illnesses Summary Estimates Charts Package, BLS

Figure 1.2 – Estimated rates (per 100 FTE) of all cases of non-fatal work-related injuries and illnesses, and those cases with days away from work in Montana and the U.S., 2004-2014.



Source: BLS Survey of Occupational Injuries and Illnesses (SOII)

Figure 1.3 – Estimated numbers of all non-fatal work-related injuries and illnesses, cases involving days away from work, and cases involving more than 10 days away from work in Montana, 2004-2014



Source: BLS Survey of Occupational Injuries and Illnesses (SOII)

Indicator 2: Work-Related Hospitalizations

Background

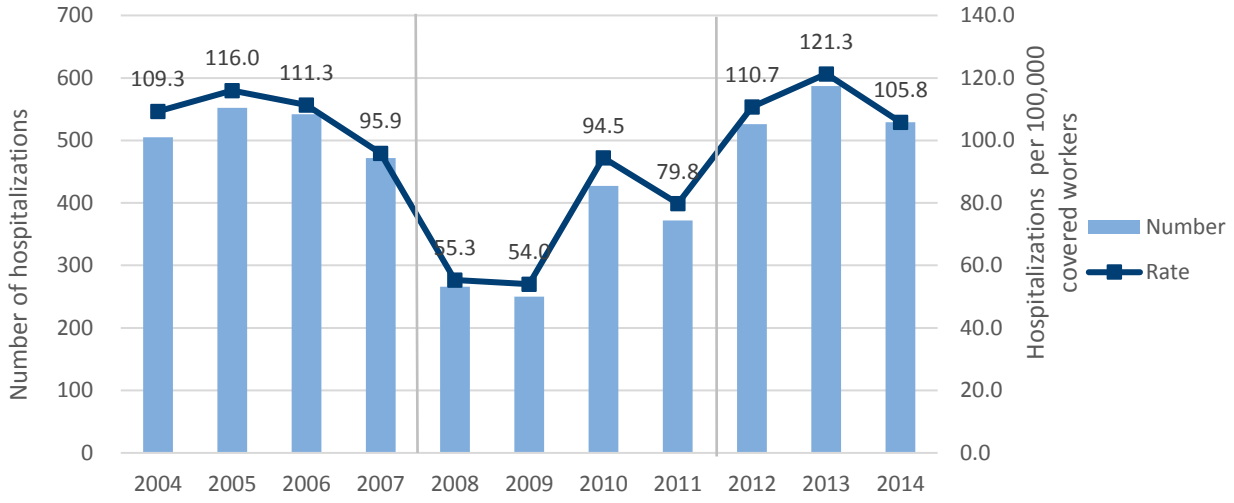
Work-related injuries and illnesses may result in hospitalization for observation, stabilization, treatment, or other medical reasons. Hospitalization can occur either at the time of injury/illness or at a point in the future. These injuries and illnesses are usually more costly monetarily and can sometimes result in long-term disability for the worker.

This indicator uses hospital discharge data from the Montana Department of Public Health and Human Services and data from the BLS Current Population Survey (CPS). Hospital discharge data does not provide explicit information about the "work-relatedness" of a condition for which a patient is hospitalized, so workers' compensation as primary payer for the hospital stay is used as a good proxy for work-relatedness of the injuries. Hospital discharge data between states may not be comparable due to the differences in workers' compensation programs. The CPS excludes active-duty members of the military, inmates in institutions, and workers less than 16 years old. Additionally, the CPS data may underestimate percentages for certain worker populations that do not have permanent residents. The Montana Hospital Association (MHA) changed the coding of payer in 2008, therefore the numbers of hospitalizations from the periods 2000-2007 and 2012-2014 vs. 2008-2011 are not comparable.

Results

The rate of work-related hospitalizations in Montana remained fairly steady when the rates are properly compared within the reporting periods. Due to the data reporting change in 2008, the rates for 2008 to 2011 are not comparable to the rates for the other time periods. However, the rate of work-related hospitalizations did increase substantially from 54.0 to 94.5 hospital discharges per 100,000 covered workers from 2009 to 2010.

Figure 2.1 - Number and crude rate (per 100,000 FTE) of work-related hospitalizations in Montana, 2004-2014



Source: Montana hospital discharge data, BLS Current Population Survey (CPS) Montana Hospital Association (MHA) changed reporting of payer in 2008; Numbers of hospitalizations from the periods 2000-2007 and 2012-2014 vs. 2008-2011 are not comparable. Indicated by vertical lines.

Indicator 3: Fatal Work-Related Injuries

Background

A fatal work-related injury is an injury that occurs at work and results in death. In the past 10 years, more than 5,800 workers died from fatal work-related injuries every year in the United States. Workplace design, workplace processes, work organization, worker characteristics, and other factors may contribute to work-related deaths.

This indicator uses data from BLS Census of Fatal Occupational Injuries (CFOI) to examine all worker fatalities in Montana that resulted from traumatic injuries at work. The CFOI thoroughly collects and verifies information on all work-related fatal injuries in the United States, including military personnel and volunteers. Fatalities commuting to and from work are not counted. Fatalities of military personnel and people younger than 16 years old may be included in the count of fatal work-related injuries, but are not included in the calculation of the rate due to employment data collection methods. Additionally, CFOI reports data on work-related fatalities by the state in which the fatal incident occurred, which is not necessarily the state of death or the state of residence.

Results

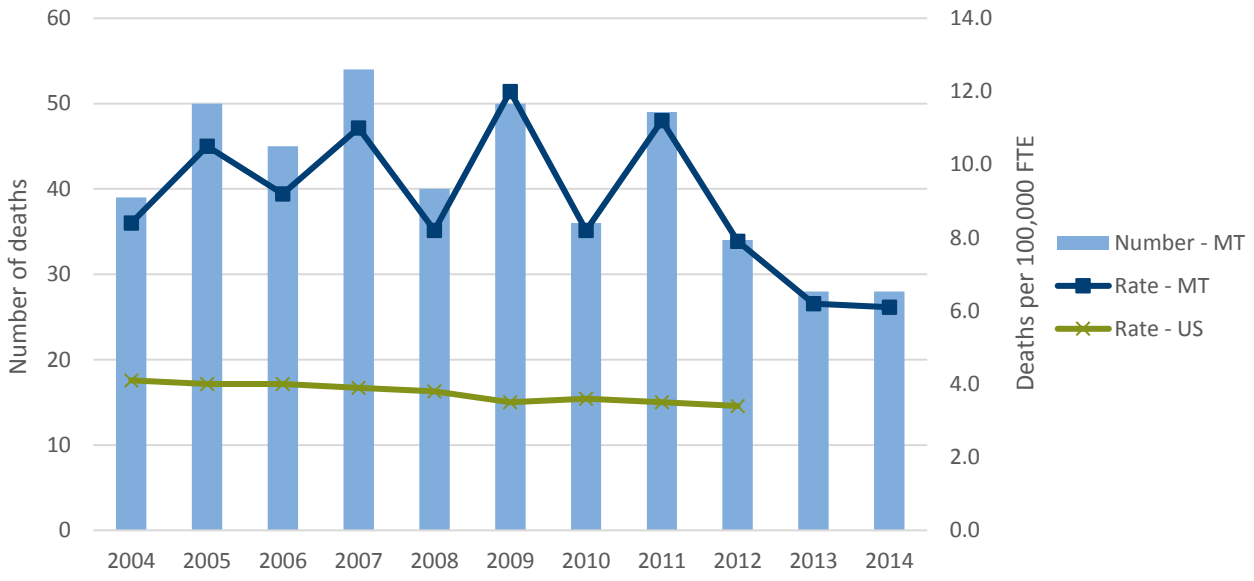
Overall, the work-related fatality rate in Montana dropped from 8.4 to 6.1 fatalities per 100,000 FTE from 2004 to 2014. However, there was not a steady downward trend, as the fatality rates fluctuated from year to year. The highest fatality rate was 12.0 fatalities per 100,000 FTE in 2009, representing 50 persons killed in work-related injuries. The highest number of fatalities in a single year was in 2007, with 54 persons killed in work-related injuries. Most recently, in 2013 and 2014, the number of worker deaths has declined to 28 fatalities in each year. Transportation incidents accounted for about 50% of the work-related fatalities in Montana from 2004 to 2014. The industries that had the most work-related fatalities in Montana from 2004 to 2014 were *agriculture, forestry, fishing, and hunting* (34%), and *trade, transportation, and utilities* (20%).

While the work-related fatality rate has consistently declined in Montana since 2011, and is currently at a ten year low (6.1 fatalities per 100,000 FTE in 2014), each worker death is one too many. The work-related fatality rates are still much higher than the national rates. Future actions must address these still-too-high levels.

There were a total of 28 occupational fatalities in Montana in 2014. Transportation incidents accounted for 10 occupational fatalities, and fall, slips and trip accounted for 9 occupational fatalities. The industries with the highest counts of occupational fatalities in 2014 were:

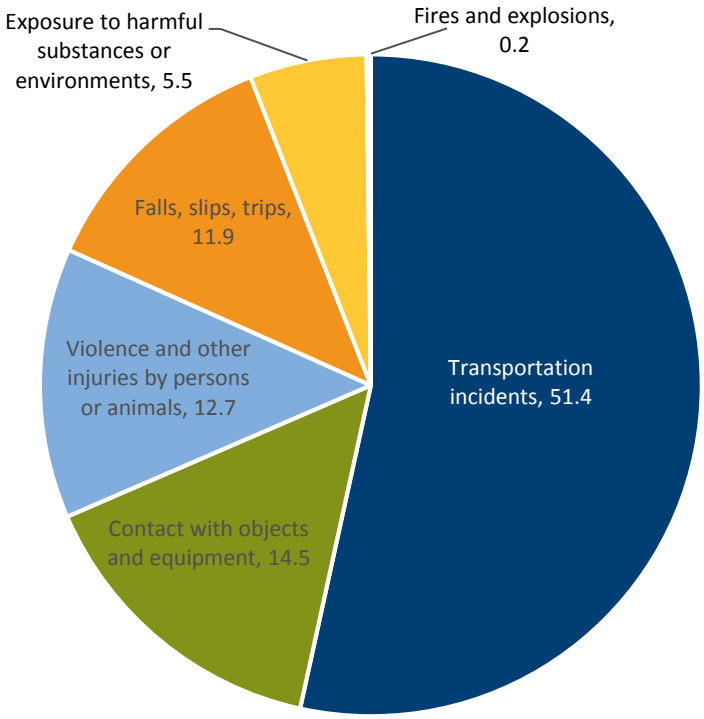
- Natural resources and mining (7)
- Government (5)
- Trade, transportation, and utilities (5)
- Construction (3)
- Professional and business services (3)
- Manufacturing (2)
- Other services, except public administration (2)

Figure 3.1 - Number and rate (per 100,000 FTE) of fatal work-related injuries in Montana and U.S., 2004-2014



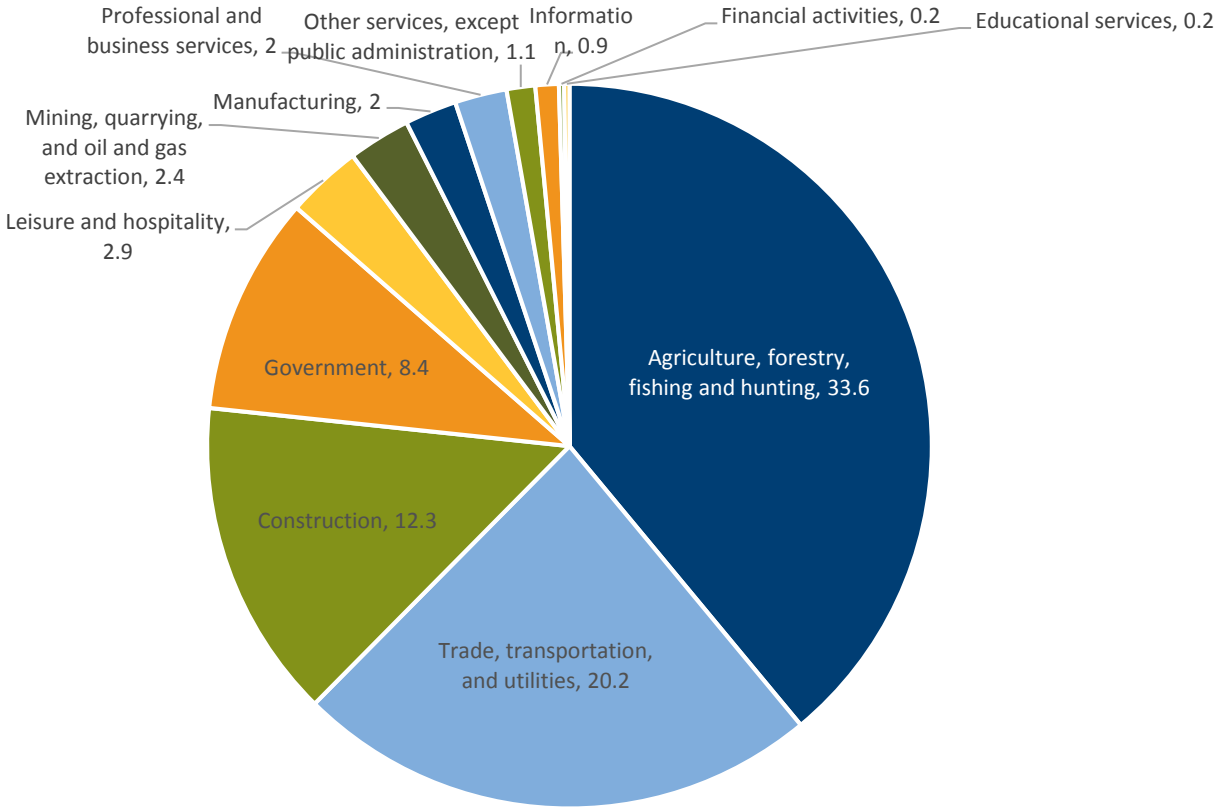
Source: BLS Census of Fatal Occupational Injuries (CFOI), BLS Current Population Survey (CPS)

Figure 3.2 – Percentage of fatal work-related injuries by event or exposure in Montana, 2004-2014.



Source: BLS Census of Fatal Occupational Injuries (CFOI). Counts included if met CFOI publication criteria.

Figure 3.3 - Percentage of fatal work-related injuries by industry in Montana, 2004-2014.



Source: BLS Census of Fatal Occupational Injuries (CFOI). Counts included if met CFOI publication criteria.

Indicator 4: Work-Related Amputations with Days Away From Work

Background

An amputation is defined as the full or partial loss of a protruding body part – an arm, hand, finger, leg, foot, toe, ear, or nose. Work-related amputations involving at least one day away from work are injuries that may greatly affect a worker's capability to perform their job at the time of injury, maintain or increase earnings, and participate in other activities. In 2014, approximately 4,900 workers experienced work-related amputations in the private sector in the United States, and about 95% of those amputations involved damage to the wrist, hand, or finger.

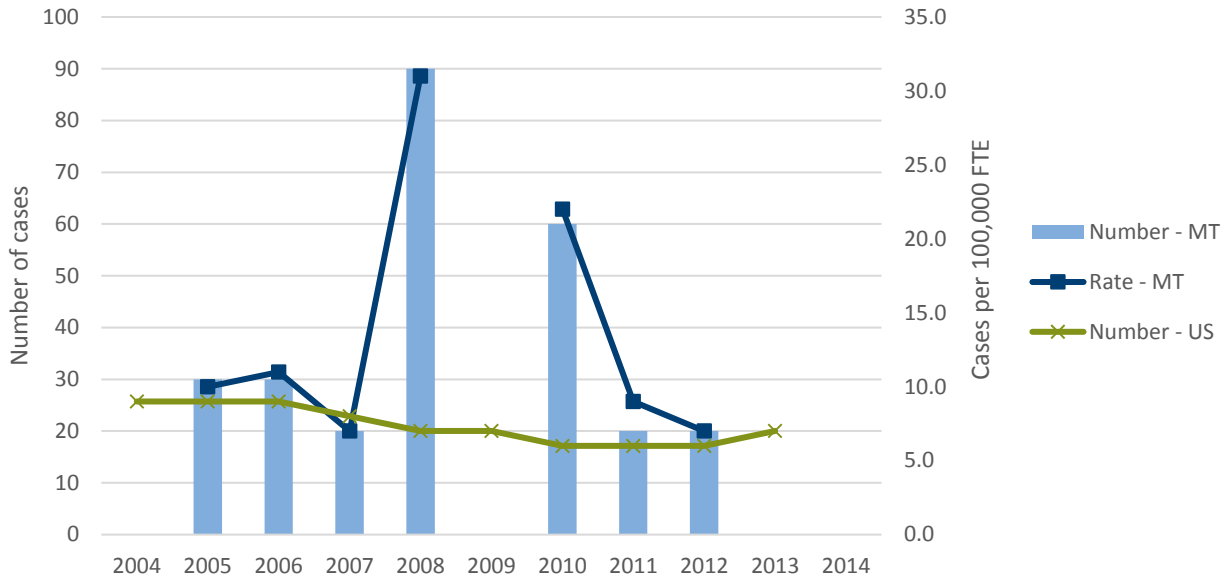
Indicator 4 uses data from the U.S. Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses (SOII), which surveys a representative sample of private industry employers. The SOII is not an exact count of all employers, and, therefore, is subject to sampling error. Military personnel, self-employed workers, federal agencies, and farms with fewer than 11 employees are excluded from the survey. The incidence rates of work-related injuries and illnesses in the SOII data may be underestimated if survey respondents underreport injuries and illnesses on their OHSA logs. Industry concentration and sample size may differ between states, so it is not accurate to directly compare the Montana rates with national or other state rates by dividing the rates into ratios or percentages.

Results

Note: It is not accurate to directly compare rates for Montana to national or state rates by dividing the rates into percentages or ratios. Some differences in these rates can be attributed to differences in industry concentration or sample size between states.

In 2008 and 2010, the rate of work-related amputations reported by employers in Montana was much higher than the national rate. The BLS data shows an increase from 20 cases in 2007, to 90 cases in 2008 and 60 cases in 2010. This difference could be caused by underreporting by employers in the other years, or by sampling error in the SOII survey during that time period. Due to the lack of data on amputations reported by employers in 2009, it is difficult to determine a possible pattern for the counts and rates in Montana. If the count and rate of amputations in 2009 were similarly high in 2008 and 2010, then it is possible that there was in fact a much higher increase in work-related amputations during this time in Montana, rather than being an artifact of the survey data. However, the data on work-related amputations for Indicator 5 do not seem to confirm the increase in amputations during that time period. The rate of work-related amputations reported by employers in Montana was similar to the national rates in 2005, 2006, 2007, 2011, and 2012.

Figure 4.1 - Estimated number and incidence rate (per 100,000 FTE) of work-related amputations involving days away from work in Montana and U.S., 2004-2014



Source: BLS Survey of Occupational Injuries and Illnesses (SOII), BLS Current Population Survey (CPS)
National data for this indicator was not available for 2014. Data for this indicator in Montana was not reported for 2004, 2009, 2013, and 2014.

Indicator 5: Amputations Identified in Workers' Compensation System

Background

An amputation is defined as full or partial loss of a protruding body part – an arm, hand, finger, leg, foot, toe, nose, or ear. An amputation may greatly reduce a worker's job skills, earning potential, and quality of life. For this indicator, amputation cases were limited to amputations identified through "lost-time" claims in the workers' compensation system, when workers missed more than 4 days or 32 hours of work.

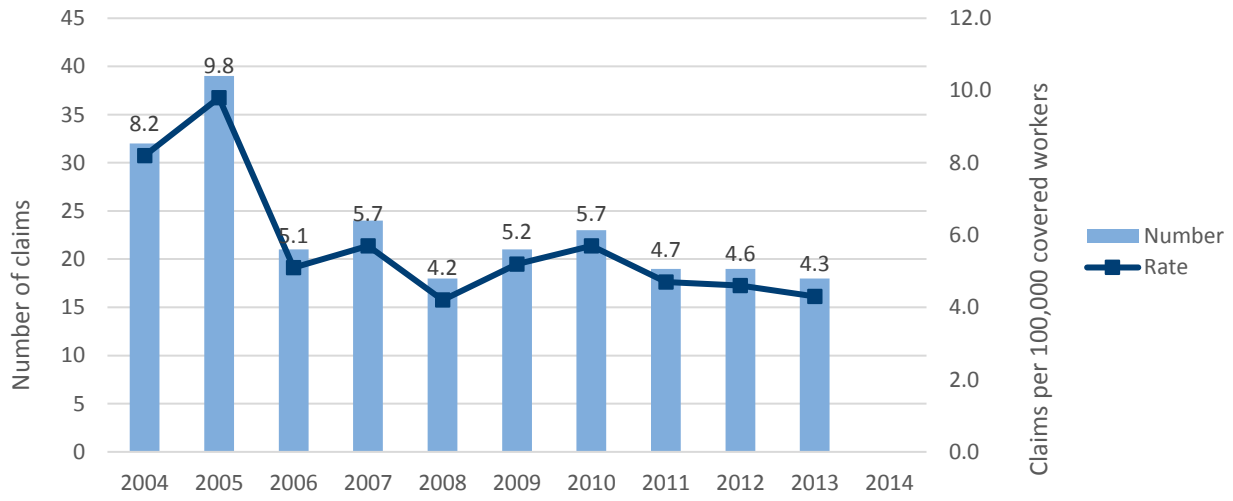
Indicator 5 uses data from the Montana Department of Labor & Industry's Worker Compensation Administration Network (WCAN) and the National Academy of Social Insurance (NASI). WCAN data gives the number of amputation claims in Montana, and NASI data provides the total number of workers covered by workers' compensation in the state.

Montana's workers' compensation system requires insurance carriers or their representatives to report all work-related injuries to the Department of Labor & Industry. Reporting follows national standard developed by the International Association of Industrial Accident Boards and Commissions (IAIABC). The waiting period for eligibility for workers' compensation wage-loss benefits is 4 days or 32 hours in Montana. Work-related amputations may be underestimated when using workers' compensation data because individuals with work-related injuries and illnesses do not always file a workers' compensation claim. Workers' compensation claims may also be denied. Additionally, federal employees and self-employed individuals, such as farmers and independent contractors, are not covered by Montana's workers' compensation system.

Results

In Montana, the incidence rate of amputations with lost work-time decreased from 8.2 to 4.3 amputations per 100,000 workers from 2004 to 2013. In 2004, there were 32 amputations with lost work-time in Montana, and this count decreased to only 18 amputations in 2013.

Figure 5.1 - Number and rate of amputations with lost work-time filed with workers' compensation in Montana, 2004-2013



Source: Montana Workers' Compensation Network (WCAN), National Academy of Social Insurance (NASI). Data for this indicator in Montana was not available yet for 2014.

Indicator 6: Hospitalizations for Work-Related Burns

Background

Hospitalizations for work-related burns include injuries to tissues caused by contact with heat (fire or steam), chemicals, electricity, friction, or radiation.[1] Burns are extremely expensive to treat and can result in significant disability for the worker. Thermal and chemical burns are the most frequent types of work-related burns in the United States, and the majority of burns affect the upper extremities. Welders, cooks, laborers, food service workers, and mechanics generally have the highest rates of burn injury in the United States.

This indicator uses hospital discharge data from the Montana Department of Public Health and Human Services and data from the BLS Current Population Survey (CPS). Hospital discharge data does not provide explicit information about the "work-relatedness" of a condition for which a patient is hospitalized, so workers' compensation as primary payer for the hospital stay is used as a good proxy for work-relatedness of the injuries. Hospital discharge data between states may not be comparable due to the differences in workers' compensation programs. The CPS excludes active-duty members of the military, inmates in institutions, and workers less than 16 years old. Additionally, the CPS data may underestimate percentages for certain worker populations that do not have permanent residents. The Montana Hospital Association (MHA) changed the coding of payer in 2008, and so the numbers of hospitalizations from the periods 2000-2007 and 2012-2014 vs. 2008-2011 are not comparable.

Results

Due to the changes in MHA reporting, the number and rates of cases are not comparable across all years. However, the number of hospitalizations for work-related burns were very low every year from 2004 to 2014, and never exceeded 6 hospitalizations a year. Rates were unable to be calculated for counts of less than 5 cases per year.

All years had less than 5 cases of work-related burn hospitalizations, except for:

- 2004 = 5 cases (Annual rate = 1.1 per 100,000 FTE)
- 2013 = 6 cases (Annual rate = 1.2 per 100,000 FTE)

Source: Montana hospital discharge data, BLS Current Population Survey (CPS)

Indicator 7: Work-Related Musculoskeletal Disorders

Background

Musculoskeletal disorders (MSDs) affect the body's muscles, joints, tendons, nerves, and ligaments. Most work-related MSDs develop over time, and can significantly impact the ability of workers to continue performing their everyday duties effectively. Work activities that usually contribute to MSDs include repetitive motion, awkward body movement, bending and twisting, handling of equipment that vibrates, and lifting of heavy objects. MSDs that affect the low back area are often associated with work-related lifting and forceful movements.

MSDs are some of the most common and costly work-related health problems in the U.S. Nationally, MSDs consistently account for over 33% of all work-related injuries and illnesses involving days away from work reported by employers over the last decade.

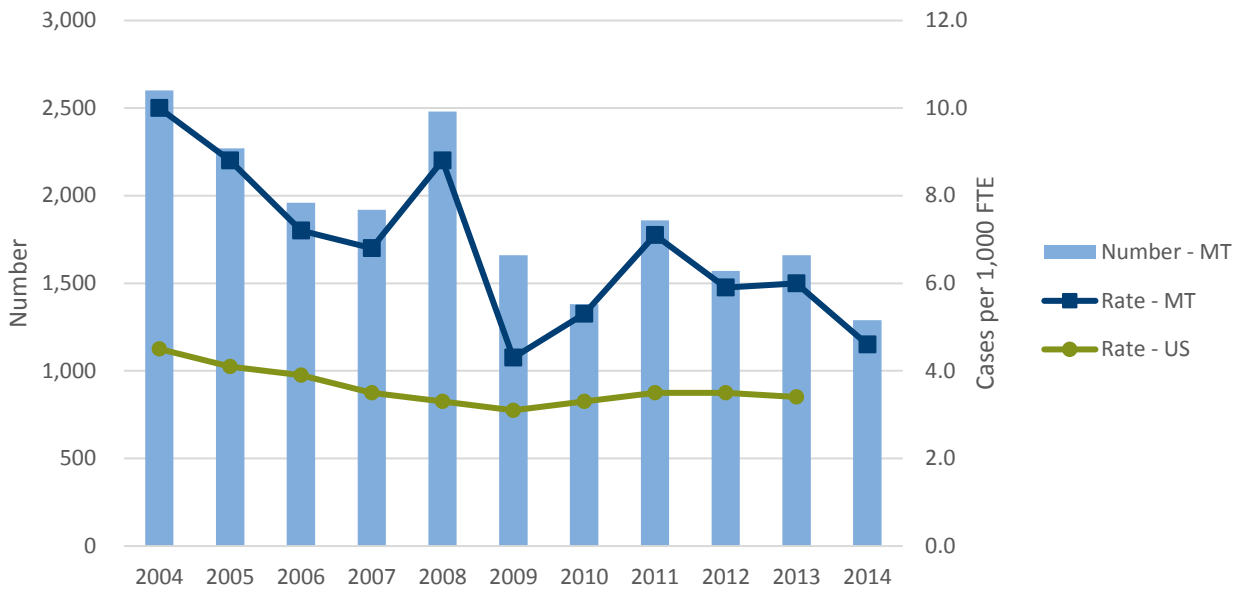
Indicator 7 examines cases of MSDs involving days away from work by using data from the U.S. Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses (SOII), which surveys a representative sample of private industry employers. The SOII is not an exact count of all employers, and, therefore, is subject to sampling error. Military personnel, self-employed workers, federal agencies, and farms with fewer than 11 employees are excluded from the survey. The incidence rates of work-related injuries and illnesses in the SOII data may be underestimated if survey respondents underreport injuries and illnesses on their OHSA logs. Industry concentration and sample size may differ between states, so it is not accurate to directly compare the Montana rates with national or other state rates by dividing the rates into ratios or percentages.

Results

Note: It is not accurate to directly compare rates for Montana to national or state rates by dividing the rates into percentages or ratios. Some differences in these rates can be attributed to differences in industry concentration or sample size between states.

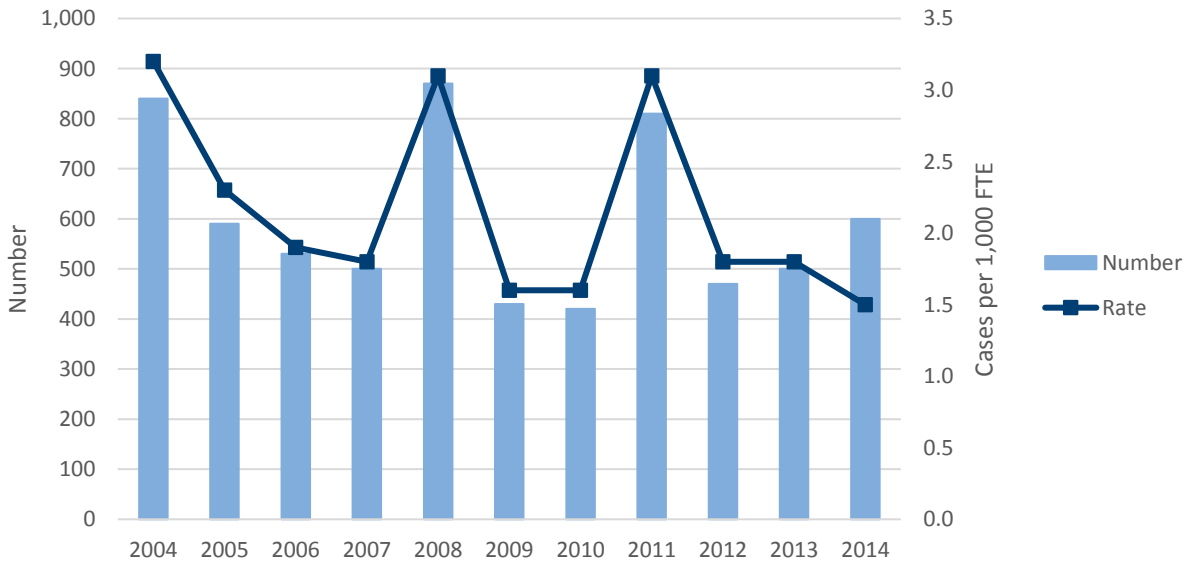
Overall, Montana workers saw a decrease in MSDs involving days away from work from 2004 to 2014, with the incidence rate decreasing from 10 to 4.6 cases per 1,000 FTE. There were 2,600 MSD cases involving days away from work in 2004, which decreased to 1,290 cases in 2014 in Montana. The overall trend demonstrated a decrease in MSDs, but there was a noticeable increase in MSD cases involving days away from work in 2008 and, to a lesser extent, 2011. These increases in 2008 and 2011 appear to be attributable to disorders of the back, neck, and upper extremities, rather than carpal tunnel syndrome. Trends in carpal tunnel syndrome involving days away from work reflected a trend in the opposite direction: rates of cases were lowest from 2007 to 2009 but increased sharply in 2010, 2011, and again in 2013.

Figure 7.1 – Estimated number and incidence rate (per 1,000 FTE) of all MSD cases involving days away from work in Montana and U.S., 2004-2014



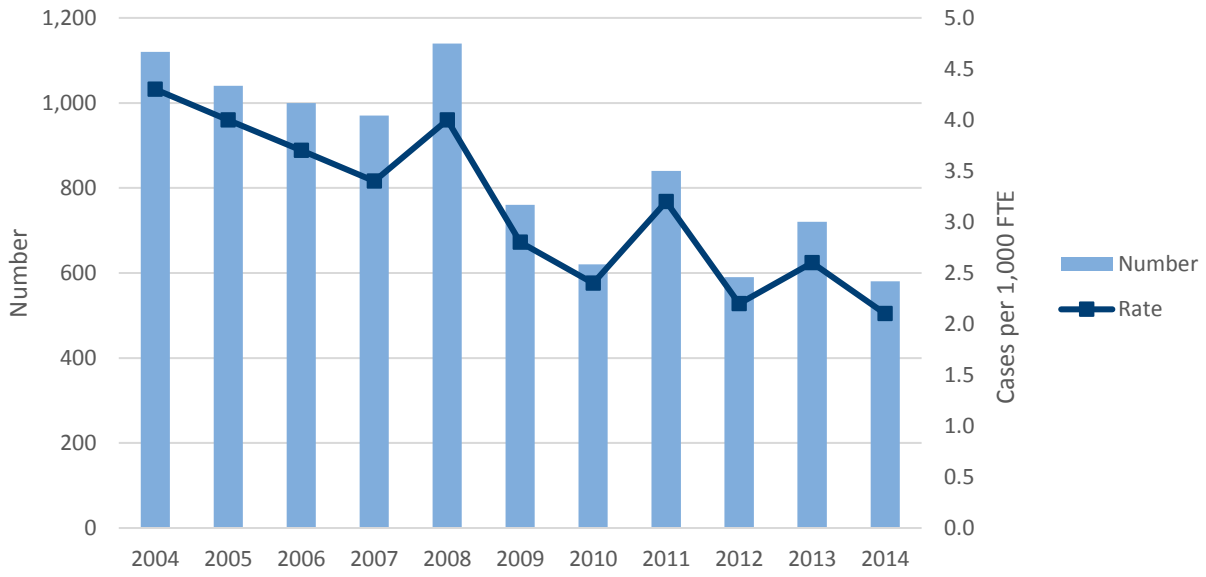
Source: BLS Survey of Occupational Injuries and Illnesses (SOII)

Figure 7.2 – Estimated number and incidence rate (per 1,000 FTE) of MSD cases of the neck, shoulder, and upper extremities involving days away from work in Montana, 2004-2014



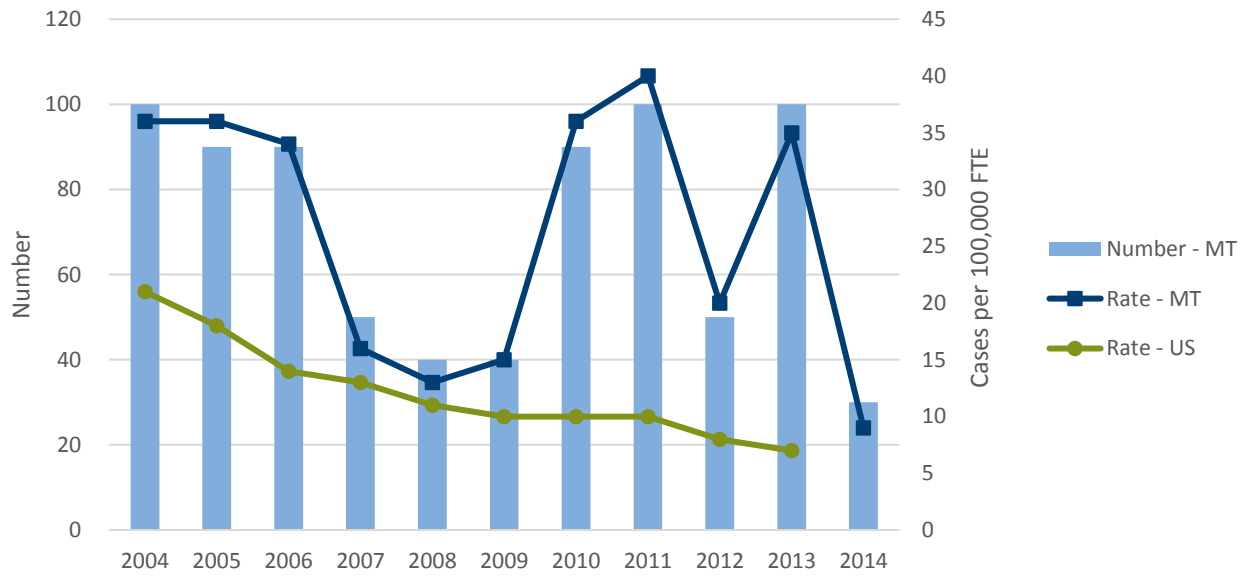
Source: BLS Survey of Occupational Injuries and Illnesses (SOII)

Figure 7.3 – Estimated number and incidence rate (per 1,000 FTE) of MSD cases of the back involving days away from work in Montana, 2004-2014



Source: BLS Survey of Occupational Injuries and Illnesses (SOII)

Figure 7.4 – Estimated number and incidence rate (per 100,000 FTE) of carpal tunnel syndrome cases involving days away from work, Montana, 2004-2014



Source: BLS Survey of Occupational Injuries and Illnesses (SOII)

Indicator 8: Workers' Compensation Claims for Carpal Tunnel Syndrome

Background

Carpal tunnel syndrome (CTS) occurs when nerves in the hand or wrist are compressed. Contributing workplace factors include direct trauma, repetitive forceful motions, awkward hand postures, and use of vibrating tools or equipment. Carpal tunnel syndrome has the longest average disability duration among the top ten workers' compensation conditions in the United States.

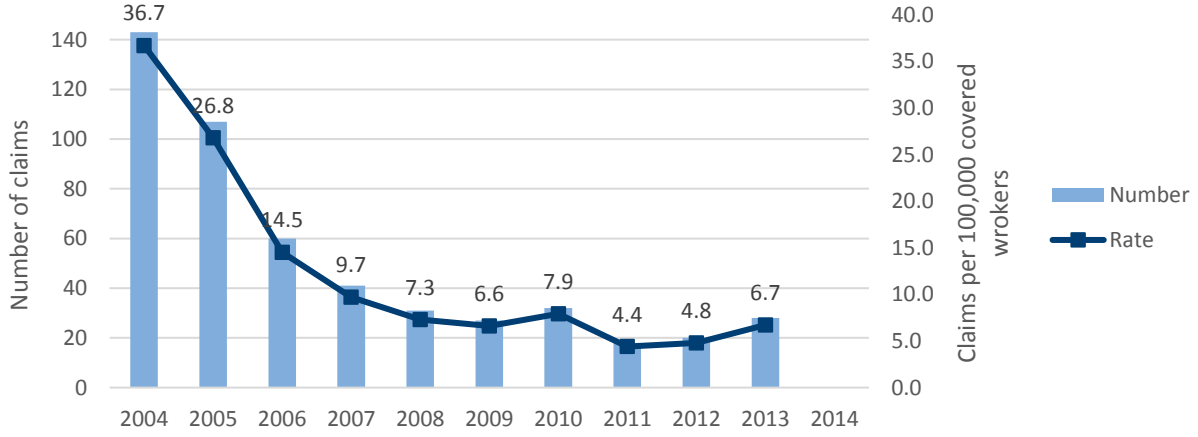
Indicator 8 uses data from the Montana Department of Labor & Industry's Worker Compensation Administration Network (WCAN) and the National Academy of Social Insurance (NASI). WCAN data gives the number of carpal tunnel syndrome claims in Montana, and NASI data provides the total number of workers covered by workers' compensation in the state. "Lost work-time" for workers' compensation claims data was defined as missing more than 4 days or 32 hours of work.

Montana's workers' compensation system requires insurance carriers or their representatives to report all work-related injuries to the Department of Labor and Industry. Reporting follows national standard developed by the International Association of Industrial Accident Boards and Commissions (IAIABC). The waiting period for eligibility for workers' compensation wage-loss benefits in Montana is 4 days or 32 hours. Work-related carpal tunnel syndrome claims may be underestimated when using workers' compensation data because many individuals with work-related injuries and illnesses do not file for workers' compensation. Workers' compensation claims may be denied. Additionally, federal employees and self-employed individuals, such as farmers and independent contractors, are not covered by Montana's workers' compensation system.

Results

Carpal tunnel syndrome cases filed with workers' compensation have declined substantially in Montana from 2004 to 2013, from a rate of 36.7 to 6.7 cases per 100,000 workers covered. This steady decline in rates of carpal tunnel syndrome in Montana could result from increased awareness and prevention efforts over the years, with a focus on stretching and exercising the wrist, hand, and fingers, combined with better ergonomics in the workplace.

Figure 8.1 - Number and incidence rate (per 100,000 workers covered) of carpal tunnel syndrome cases involving lost work-time filed with workers' compensation in Montana, 2004-2014.



Source: BLS Survey of Occupational Injuries and Illnesses (SOII), BLS Current Population Survey (CPS.) Data for this indicator in Montana was not available yet for 2014.

Indicator 9: Hospitalizations From or With Pneumoconiosis

Background

Pneumoconiosis is a chronic lung disease, caused by inhalation of tiny particles in the air, and is most often found in miners. Typically cases of pneumoconiosis develop after many years of cumulative exposure, and are more common in older individuals, long after initial exposure to harmful particles. Pneumoconiosis includes: silicosis, asbestosis, coal workers' pneumoconiosis (CWP), and cases due to a variety of other mineral dusts, such as talc, aluminum, bauxite, and graphite. All of these diseases are ultimately incurable. Complications of pneumoconiosis can include cancer, tuberculosis, autoimmune conditions, and chronic renal failure. Nearly all pneumoconiosis cases are attributable to occupational exposures. Good ventilation and use of protective equipment in the work environment can help curb the onset of pneumoconiosis by reducing exposure to particles in the air.

Indicator 9 uses hospital discharge data from the Montana Department of Public Health and Human Services to examine hospitalizations from or with pneumoconiosis. State population estimates from the U.S. Census Bureau and the Year 2000 U.S. standard population are used to calculate rates. Even though only a small number of people with pneumoconiosis are hospitalized for this condition, the discharge data provides useful population-based surveillance data for quantifying the burden of pneumoconiosis in the population of Montana. Pneumoconiosis has a long latency period between exposure and onset of disease, therefore the state where the individual was exposed may not be the same as the state where the individual was diagnosed.

Results

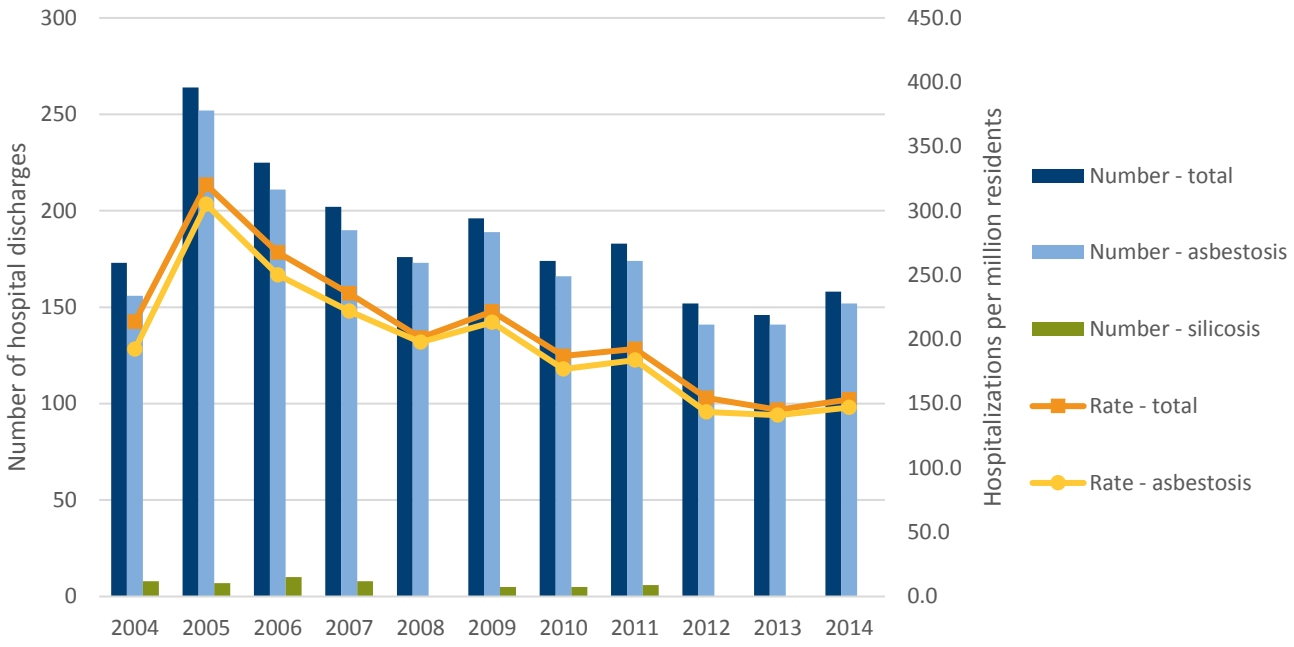
In Montana, 158 cases of hospitalizations for pneumoconiosis were reported in 2014, translating into a rate of 153.2 hospitalizations per million residents. The rate of hospitalizations from or with pneumoconiosis declined from 2005 to 2014, with the highest rate of hospitalizations occurring in 2005 (320.2 hospitalizations per million residents, 264 cases). From 2004 to 2014, the main cause of hospitalization from or with pneumoconiosis was exposure to asbestos. Hospitalizations for pneumoconiosis may be underreported due to the difficult nature of pinpointing symptoms directly to pneumoconiosis.

Table 9.1 – Number of pneumoconiosis hospitalizations by type of pneumoconiosis, Montana, 2004-2014

Hospital Discharge Type	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Pneumoconiosis (total)	173	264	225	202	176	196	174	183	152	146	158
Asbestosis	156	252	211	190	173	189	166	174	141	141	152
Coal Workers' Pneumoconiosis	9	<5	<5	<5	<5	<5	<5	<5	5	<5	<5
Silicosis	8	7	10	8	<5	5	5	6	<5	<5	<5
Other and unspecified pneumoconiosis	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

'Source: Montana hospital discharge data. Numbers were not provided for case counts less than 5 (<5).

Figure 9.1 – Number and age-standardized rates (per million residents) of pneumoconiosis hospitalizations by type of pneumoconiosis, Montana, 2004-2014



Source: Source: Montana hospital discharge data, U.S. Census Bureau population estimates

If there are less than 5 cases, the number may be too small to produce reliable estimates or may violate confidentiality requirements. Rates should not be calculated for counts less than 5 events. Indicators based on MT DPHHS personal health information data with counts <20 cases should be interpreted with the understanding that these rates could be imprecise, based on DPHHS publication guidelines.

Indicator 10: Mortality From or With Pneumoconiosis

Background

Pneumoconiosis is a chronic lung disease, caused by inhalation of tiny particles in the air, and is most often found in miners. Typically cases of pneumoconiosis develop after many years of cumulative exposure and are more common in older individuals, long after initial exposure to harmful particles. Pneumoconiosis includes: silicosis, asbestosis, coal workers' pneumoconiosis (CWP), and cases due to a variety of other mineral dusts, such as talc, aluminum, bauxite, and graphite. All of these diseases are ultimately incurable.

Indicator 10 uses data from death certificate records from the Montana Office of Vital Records to examine cases with pneumoconiosis as an underlying or contributing cause of death. State population estimates from the U.S. Census Bureau and the Year 2000 standard population are used to calculate rates. Pneumoconiosis deaths are usually underreported because of a lack of recording and clinical recognition due to latency and difficult identification of symptoms. Causes of death listed on individuals' death certificate and coding of the cause may be inaccurate. Death certificates identify only a small percentage of the individuals who develop pneumoconiosis from occupational exposures. An additional limitation of the data is that the state of residence upon death may not be the state of exposure that lead to development of pneumoconiosis.

Results

The Montana Department of Public Health and Human Services collects death certificate information on underlying and contributing causes of death. In 2014, there were 26 reported deaths due to pneumoconiosis, with an annual mortality rate of 31.1 deaths per million residents. The majority of deaths from pneumoconiosis in Montana were due to exposure to asbestos.

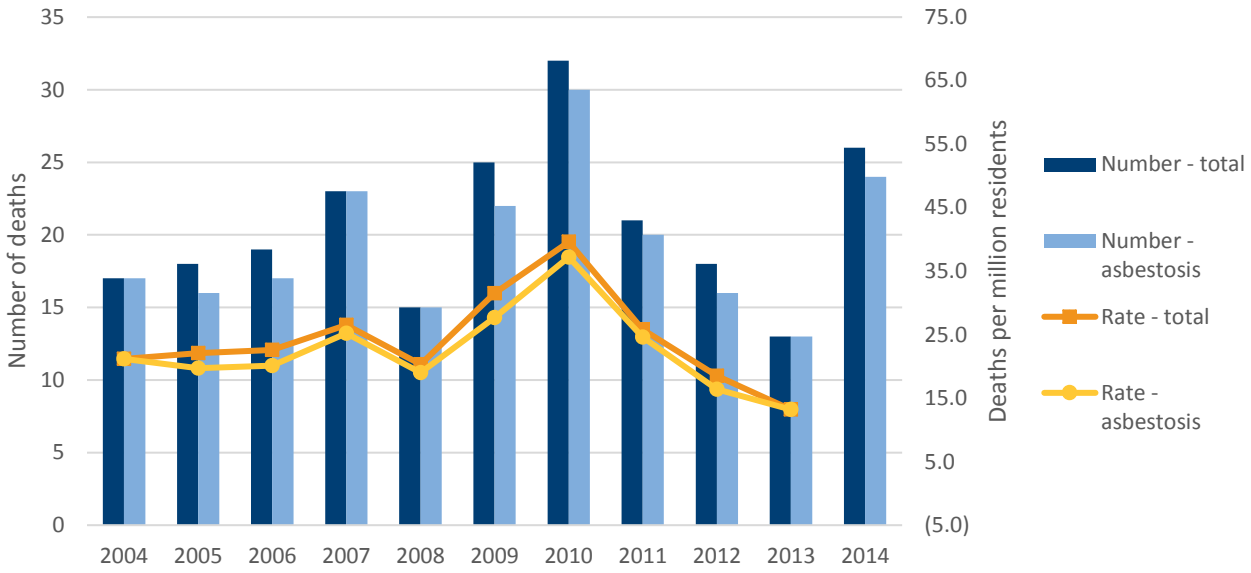
Table 10.1 – Number of deaths from pneumoconiosis by type of pneumoconiosis, Montana, 2004-2014

Type	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Pneumoconiosis (total)	17	18	19	23	15	25	32	21	18	13	26
Asbestosis	17	16	17	23	15	22	30	20	16	13	24
Coal Workers' Pneumoconiosis	<5	<5	<5	<5	<5	<5	<5	<5	<5	0	0
Silicosis	<5	<5	<5	<5	<5	<5	<5	<5	<5	0	<5
Other and unspecified pneumoconiosis	<5	<5	<5	<5	<5	<5	<5	<5	<5	0	<5

Source: Montana Department of Public Health and Human Services Office of Vital Records

If there are less than 5 cases (<5), the number may be too small to produce reliable estimates or may violate confidentiality requirements. Rates should not be calculated for counts less than 5 events. Indicators based on MT DPHHS personal health information data with counts <20 cases should be interpreted with the understanding that these rates could be imprecise, based on DPHHS publication guidelines.

Figure 10.1 - Number and age-standardized rates (per million residents) of total pneumoconiosis deaths and asbestosis deaths in Montana, 2004-2014



Source: Montana Department of Public Health and Human Services Office of Vital Records

Data used to calculate age-standardized rates was not available in 2014.

If there are less than 5 cases, the number may be too small to produce reliable estimates or may violate confidentiality requirements. Rates should not be calculated for counts less than 5 events. Indicators based on MT DPHHS personal health information data with counts <20 cases should be interpreted with the understanding that these rates could be imprecise, based on DPHHS publication guidelines.

Indicator 11: Acute Work-Related Pesticide-Associated Illness and Injury Reported to Poison Control Centers

Background

A pesticide is a substance or mixture of substances used to prevent or control undesired insects, plants, animals, or fungi. An estimated one billion pounds of pesticides are used each year in the United States, involving more than 16,000 pesticide products. In 2007, glyphosate was the most used active ingredient in pesticides in the United States.[4] Pesticides protect the food supply and control disease vectors, but pesticides also present adverse health effects if used heavily or for extended periods of time. Agricultural workers and those applying pesticides have the highest risk of severe pesticide poisonings. The Environmental Protection Agency (EPA) estimates that 20,000 to 40,000 work-related pesticide poisoning cases occur each year.

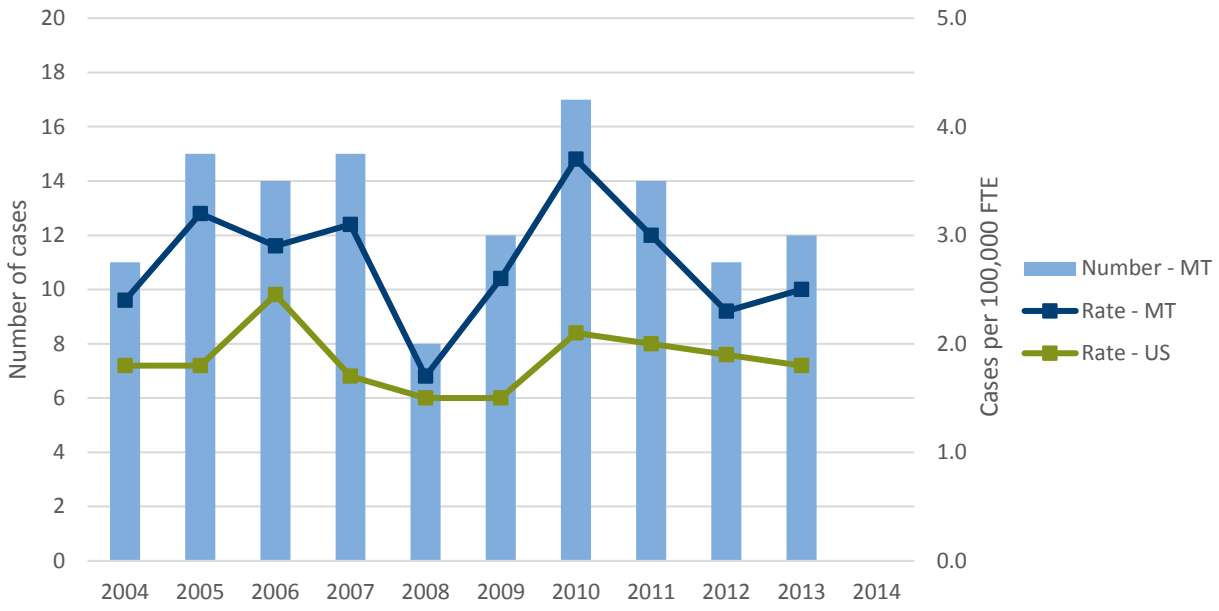
The Montana Department of Agriculture has an established cooperative agreement with the EPA to assume the primary responsibility for regulating pesticides in Montana. Employers must provide their employees with the proper protective equipment and pesticide safety training under EPA's Worker Protection Standards. Private pesticide applicators wanting to use restricted pesticide products and commercial applicators wanting to use pesticide products must go through a specific certification process. Homeowners and farmers do not have to be certified if using general use pesticide products. Prevention and education efforts are ongoing in Montana, including initial and continuing education trainings for commercial and government applicators, as well as private applicators. More information on such programs can be found at http://www.pesticides.montana.edu/index.html and http://agr.mt.gov/agr/Programs/Pesticides/.

Indicator 11 uses data from the American Association Poison Control Centers to examine acute occupational pesticide-related illnesses. Data from BLS Current Population Survey (CPS) is used to calculate rates of these pesticide-related illnesses. Poison Control Centers (PCCs) do not systematically collect data on occupation and industry of reported cases, but this information can be identified. A limitation of the data is that PCCs capture only about 10% of acute occupational pesticide-related illnesses. Additionally, pesticide exposures may occur in workers under age 16, but corresponding denominator data to calculate rates are not readily available.

Results

Rates of reported work-related pesticide poisoning cases in Montana were higher than the national rates from 2004 to 2013. The lowest number of reported pesticide poisonings was in 2008, with 8 reported poisonings. The highest number of reported pesticide poisonings occurred in 2010, with 17 reported poisonings. The rate of reported work-related pesticide poisonings in Montana has declined since 2010.

Figure 11.1 - Number and incidence rate (per 100,000 FTE) of reported work-related pesticide poisonings in Montana and the U.S., 2004-2014



Source: American Association of Poison Control Centers, BLS Current Population Survey (CPS). National data and data in Montana for this indicator were not available yet for 2014.

Indicator 12: Incidence of Malignant Mesothelioma

Background

Malignant mesothelioma is a rare, highly fatal cancer of the thin membranes lining the chest cavity (pleura) and abdominal cavity (peritoneum). Approximately 2,500 people die of malignant mesothelioma each year in the United States. The only well-established risk factor for mesothelioma is inhalation of loose asbestos fibers in the air. Asbestos exposure, primarily in the workplace, has been reported in 62 to 85 percent of all mesothelioma cases. The time between exposure and onset of symptoms is typically 20 to 40 years after exposure.

High levels of asbestos and occupational exposure to asbestos occurred during World War II through the 1970s.[1] The Environmental Protection Agency (EPA) implemented a ban of many uses of asbestos in the United States in 1999. However, approximately 1.3 million workers in the United States continue to be exposed to asbestos in many industries and activities. Asbestos continues to be used in many manufactured products. Additionally, materials containing asbestos have been found in schools, public buildings, and residential dwellings throughout the country.

Vermiculite Mountain, outside of Libby, Montana, had the largest vermiculite mine in the state from the 1920s until 1990, and provided over 80% of the world's vermiculite at one time. Unfortunately, most of the vermiculite was contaminated with asbestos. Many residents of Montana who mined, processed, or transported the vermiculite and asbestos ores had high exposures to these minerals.

From 1979 to 2002, the counties with the highest number of mesothelioma cases in Montana were Cascade (28), Yellowstone (23), Flathead (16), Missoula (16), and Lincoln (12). Lincoln, Cascade, and Rosebud counties had the highest mesothelioma rates per population, while Gallatin and Yellowstone counties had the lowest rates.

Indicator 12 uses data from the Cancer Registry in the Montana Department of Public Health and Human Services to obtain counts and rates of newly diagnosed cases by year (incident cases) of mesothelioma in Montana. Exact counts of cases were not available in 2012, except that there were less than 19 cases recorded. State population estimates from the U.S. Census Bureau and the Year 2000 U.S. standard population are used to calculate rates. Age-standardized rates of malignant mesothelioma were not calculated prior to 2013. Not all cases of malignant mesothelioma are caused by occupational exposures. Because cancer is a disease of long latency, current frequencies are not suggestive of current exposures, and it may be many years before reductions in occupational exposures affect frequency of the disease. Additionally, the state of residence of the individual may not have been the state of exposure that lead to the development of mesothelioma.

Results

The number of newly diagnosed cases (incident cases) of malignant mesothelioma declined from 2004 to 2009, but increased again from 2009 to 2013, with a noticeable decrease again in 2014. From 2004 to 2014, the lowest number of newly diagnosed malignant mesothelioma cases was 7 cases in 2009, and the highest number of cases was 20 cases in 2013. Age-standardized rates of mesothelioma cases decreased from 20.9 to 11.8 cases of mesothelioma per million residents from 2013 to 2014.

Based on data provided by the Montana Department of Public Health and Human Services, 125 cases of mesothelioma were diagnosed from 2005 to 2014 (data missing = 23%). The mean age at

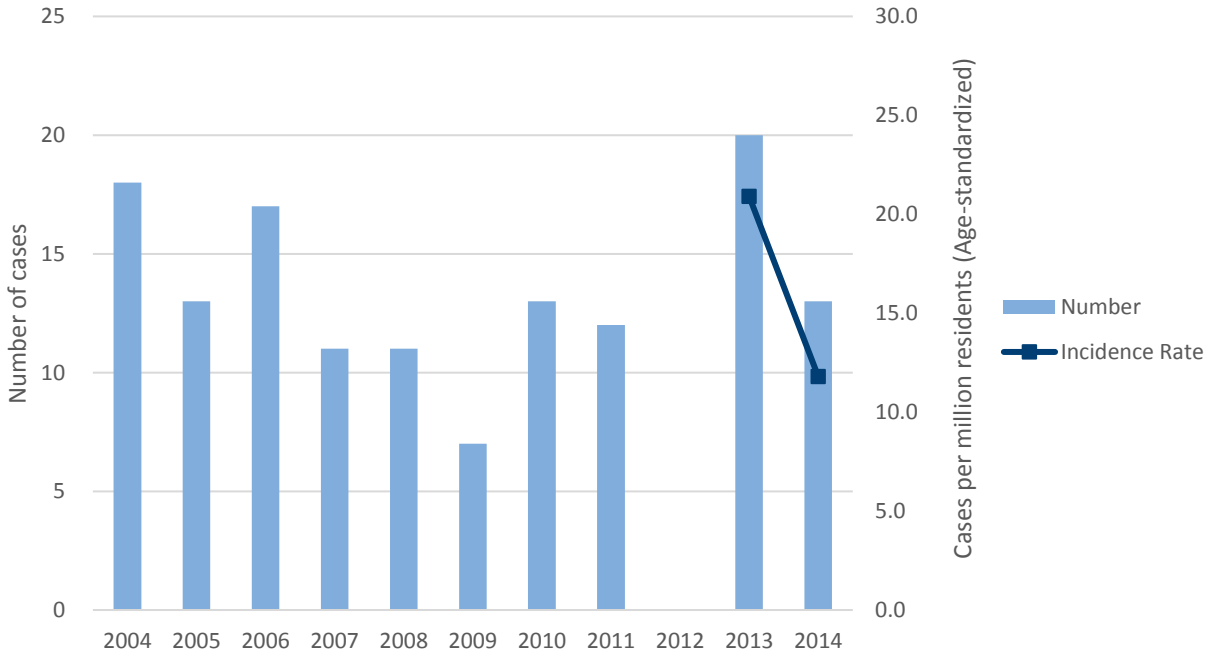
diagnosis was 72 years old, with 4.8% of cases diagnosed at less than 50 years of age. Men comprised 71.2% of all mesothelioma cases (71.2%).

Twenty-nine counties in Montana had mesothelioma cases, but nearly all the individual counties had too small of case counts to calculate rates of mesothelioma by geographic area at this time. A rate of 1.5 cases per 100,000 people was calculated for Yellowstone County, and this rate is similar to the state-wide rate of mesothelioma cases.

When industry information was available for cases, 35% of cases were in industries that asbestos exposure may have occurred:

- Agriculture, forestry, and fisheries
- Mining
- Construction
- Manufacturing
- Transportation
- Communications
- Other public utilities

Figure 12.1 – Number and age-standardized incidence rate (per million residents) of malignant mesothelioma in Montana, 2004-2014



Source: Montana Department of Public Health and Human Services Cancer Registry, U.S. Census Bureau population estimates, National Cancer Institute Year 2000 U.S. Standard population

Data for this indicator in Montana was available for exact counts, except for in 2012, where only an estimate of <19 cases was reported. Age-standardized rates were only calculated in 2013 and 2014. For the previous years, only crude rates were reported. If there are less than 5 cases, the number may be too small to produce reliable estimates or may violate confidentiality requirements. Rates should not be calculated for counts less than 5 events.[2] Indicators based on MT DPHHS personal health information data with counts <20 cases should be interpreted with the understanding that these rates could be imprecise, based on DPHHS publication guidelines.

Indicator 13: Elevated Blood Lead Levels (BLL) Among Adults

Background

Lead poisoning is a medical condition caused by increased levels of the heavy metal lead in the body. Lead can harm multiple organ systems, including the heart, bones, intestines, and kidneys, and can cause permanent damage. In adults, lead exposure can cause anemia, nervous system dysfunction, kidney damage, hypertension, decreased fertility, and miscarriage.

Lead poisoning among adults is primarily due to work-related exposure. Occupational exposure may occur in workers engaged in battery storage, mining of lead and zinc ores, working in firing ranges, and painting and paper hanging. The Occupational Safety and Health Administration (OSHA) requires employers to monitor blood lead levels if the employees are often exposed to airborne lead in the workplace. Workers can also “bring home” lead dust on clothing that can expose their families and co-inhabitants to lead.

The blood lead level (BLL) is the best indicator of recent lead exposure in the body. The average BLL of the general U.S. population is <2 micrograms per deciliter (µg/dL). Prior to 2009, the NIOSH-funded Adult Blood Lead Epidemiology and Surveillance (ABLES) program used a benchmark of 25 µg/dL for reporting cases. Currently, the benchmark used to report cases is 10 ug/dL, which was set in place in 2009.

Indicator 13 uses data from the Montana Adult Blood Lead Epidemiology Surveillance program (ABLES) in the Montana Department of Public Health and Human services to obtain data on blood lead levels (BLLs) from laboratory records. Data from the BLS Current Population Survey (CPS) is used to calculate rates. ABLES data was not available for 2013, so electronic laboratory records were pulled, resulting in a higher count than previous years. BLLs reflect the levels of lead in the blood from the release of internal lead stores from bone, as well as external exposures to lead. For people without significant amounts of existing lead in their bodies, a BLL is a good indicator of recent (preceding 3-5 weeks) external lead exposure. For persons with significant body burden, a single BLL may not be an accurate indicator of recent external exposure, as lead is also being released into the blood from bone stores.

Results

In Montana, it appears that the number of elevated blood lead cases increased substantially in 2013, but data collection for this year was different than previous years. In 2013, state-level data was not collected in Montana through ABLES, therefore related searches were completed using electronic laboratory records, which captured many more cases than previous years. The use of these different data sources resulted in much higher counts for 2013, and the magnitude of the difference in rates should be cautiously interpreted. From 2010 to 2012, the rate of prevalent cases with BLL >= 10 µg/dL ranged between 6.2 and 7.8 cases per 100,000 FTE.

Table 13.1 - Number and prevalence rate (per 100,000 FTE) and incidence rate (per 100,000 FTE) of adults with elevated blood lead levels >= 10 µg/dL in Montana, 2010-2013

Year	Number of residents with BLL >=10 µg/dL	Prevalence rate (per 100,000 FTE)	Number of new cases with BLL >=10 µg/dL	Incidence rate (per 100,000 FTE)
2010	34	7.5	20	4.4
2011	29	6.2	17	3.6
2012	37	7.8	<5	*
2013	68	14.1	57	11.8

Source: Reports of BLLs from electronic laboratory records (Montana Department of Public Health and Human Services), BLS Current Population Survey (CPS)

**Rates for counts less than 5 were not reported.*

Table 13.2 - Number and prevalence rate (per 100,000 FTE) of adults with elevated blood lead levels >= 25 µg/dL in Montana, 2004-2013

Year	Number of residents with BLL >=25 µg/dL	Prevalence rate (per 100,000 FTE)
2004	8	1.7
2005	<5	*
2006	6	1.2
2007	<5	*
2008	7	1.5
2009	7	1.5
2010	<5	*
2011	<5	*
2012	<5	*
2013	21	4.3

Source: Reports of BLLs from electronic laboratory records (Montana Department of Public Health and Human Services), BLS Current Population Survey (CPS)

**Rates for counts less than 5 were not reported. Data was not yet available for this indicator for 2014.*

Indicator 14: Workers Employed in Industries with High Risk for Occupational Morbidity

Background

In 2014, there were almost 3 million work-related injuries and illnesses reported by employers in the private industry in the United States. In 2004, there were 4.4 million work-related injuries and illnesses estimated by BLS in the private industry in the United States. Industries are considered at "high risk" for occupational morbidity if their injury and illness rates are more than twice the national rate.[1] Morbidity is a term that means "a diseased condition or state." The list of high-risk industries used to calculate this indicator is updated every five years, most recently to be used beginning in 2013.[2] Over 50 industries were classified as high-risk industries in the most recent list, including vehicle manufacturing, meat processing, air transportation, nursing care facilities, skiing facilities, veterinary services, and delivery services.

Indicator 14 uses data from the U.S. Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses (SOII), which surveys a representative sample of private industry employers. The SOII is not an exact count of all employers, and, therefore, is subject to sampling error. Military personnel, self-employed workers, federal agencies, and farms with fewer than 11 employees are excluded from the survey. The incidence rates of work-related injuries and illnesses in the SOII data may be underestimated if survey respondents underreport injuries and illnesses on their OHSA logs. Industry concentration and sample size may differ between states, so it is not accurate to directly compare the Montana rates with national or other state rates by dividing the rates into ratios or percentages.

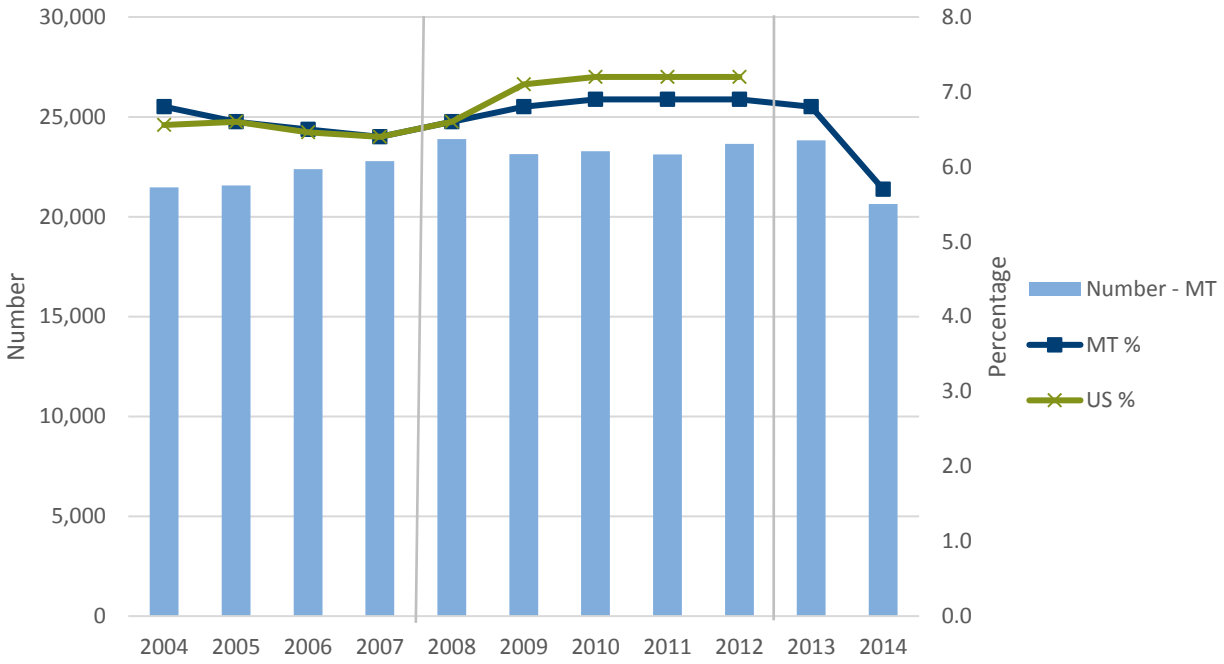
Results

Note: It is not accurate to directly compare rates for Montana to national or state rates by dividing the rates into percentages or ratios. Some differences in these rates can be attributed to differences in industry concentration or sample size between states.

In 2014, Montana had 20,629 workers, or 5.7% of the state's workforce, employed in industries identified as "high risk" for occupational injuries and illnesses. The high-risk industries in Montana with the largest number of workers were:

- Nursing care facilities (4,171 workers)
- Retirement communities/Assisted Living facilities (3,635 workers)
- Couriers and express delivery services (1,617 workers)
- Veterinary services (1,567 workers)
- Skiing facilities (1,464 workers)

Figure 14.1 - Number and percentage of workers employed in industries with high risk for occupational morbidity in Montana and U.S., 2004-2014



The two vertical lines indicate when an updated list of high-risk industries was used beginning in 2008 and in 2013.

Indicator 15: Workers Employed in Occupations at High Risk for Occupational Morbidity

Background

In 2014, there were almost 3 million work-related injuries and illnesses reported by employers in the private industry in the United States. In 2004, there were 4.4 million work-related injuries and illnesses estimated by BLS in the private industry in the United States. Occupations are considered at "high risk" for occupational morbidity if their injury and illness rates are greater than two times the national rate. Morbidity is a term that means "a diseased condition or state." The list of high-risk occupations used to calculate this indicator is updated every five years, most recently to be used beginning in 2013.

Indicator 15 uses data from the U.S. Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses (SOII), which surveys a representative sample of private industry employers. The SOII is not an exact count of all employers, and, therefore, is subject to sampling error. Military personnel, self-employed workers, federal agencies, and farms with fewer than 11 employees are excluded from the survey. The incidence rates of work-related injuries and illnesses in the SOII data may be underestimated if survey respondents underreport injuries and illnesses on their OHSA logs. Industry concentration and sample size may differ between states, so it is not accurate to directly compare the Montana rates with national or other state rates by dividing the rates into ratios or percentages.

Results

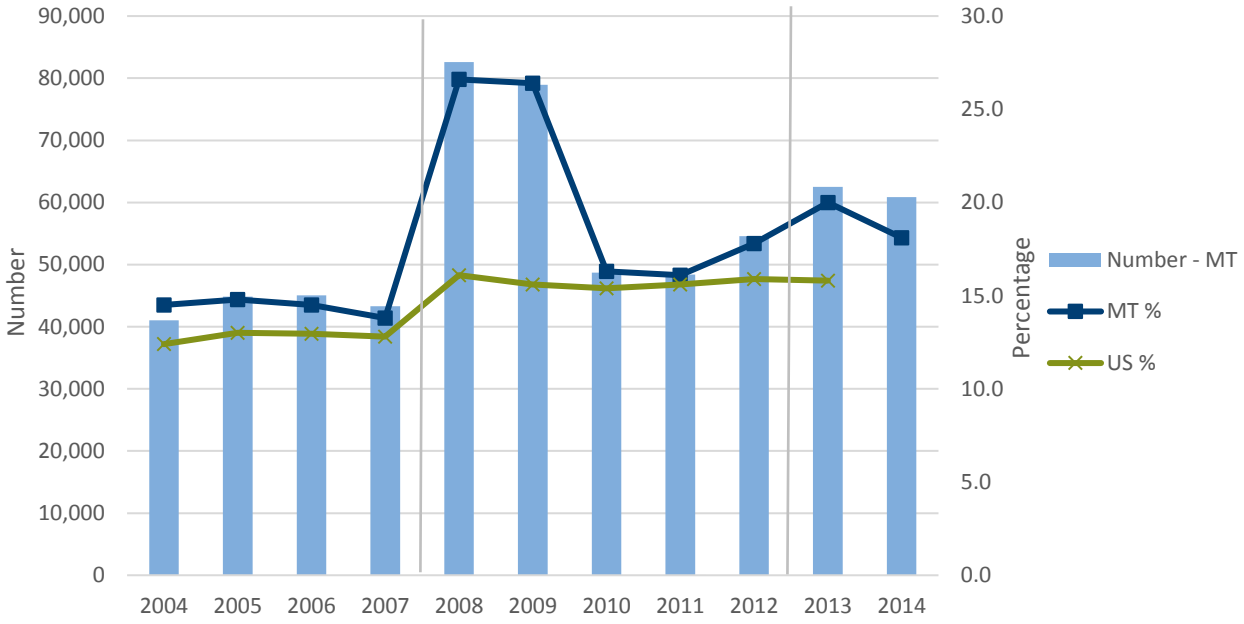
Note: It is not accurate to directly compare rates for Montana to national or state rates by dividing the rates into percentages or ratios. Some differences in these rates can be attributed to differences in industry concentration or sample size between states.

From 2004 to 2014, the percentage of workers employed in occupations with high risk for occupational morbidity in Montana increased from 14.5% to 18.1%, with a large increase in the percentage of workers employed in these occupations in 2008 and 2009 (approximately 26% of employed population). This increase in 2008 and 2009 could be a result of the change in occupations selected for inclusion in 2008, but may also be due to other factors because the increase was not sustained over the whole time period that the new list was used.

In 2014, Montana had 60,853 workers, or 18.1% of the state's workforce, employed in occupations identified as "high risk" for occupational injuries or illnesses. The high-risk occupations with the largest number of workers were:

- Driver/sales workers and truck drivers (11,434 workers)
- Laborers and freight, stock, and material movers, hand (6,219 workers)
- Construction laborers (5,761 workers)
- Nursing, psychiatric, and home health aides (5,725 workers)
- Janitors and building cleaners (5,111 workers)

Figure 15.1 – Number and percentage of workers employed in occupations with high risk for occupational morbidity in Montana and U.S., 2004-2014



The two vertical lines indicate when an updated list of high-risk occupations was used beginning in 2008 and in 2013.

Indicator 16: Workers Employed in Industries and Occupations at High Risk for Occupational Mortality

Background

Workers in certain industries and occupations sustain fatal injuries at a much higher rate than the overall workforce. This indicator examines the number of employees that are employed in industries and occupations in the private sector that are considered to be high mortality risks. Industries and occupations are selected as high risk industries or occupations if the fatal injury rates are more than double the national fatal injury rate. The list of high-risk occupations and industries used to calculate this indicator is updated every five years, most recently to be used beginning in 2013. High mortality risk industries include animal production, construction, truck transportation, crop production, sawmills, and mining. High mortality risk occupations include construction laborers, truck drivers, electricians, grounds maintenance workers, agricultural workers, and railroad operators.

Indicator 16 uses data from the BLS Current Population Survey (CPS) and BLS Census of Fatal Occupational Injuries program (CFOI). Counts of the number of workers employed in the high-risk industries and occupations are provided by the CPS. The CPS estimates employment information for the civilian non-institutionalized population from a probability sample of households in the United States. Independent contractors and self-employed persons are included in the CPS data. The CFOI collects information on all work-related fatal injuries in the United States, including military personnel and volunteers. Fatalities commuting to and from work are not counted. CFOI reports data on work-related fatalities by the state in which the fatal incident occurred, which is not necessarily the state of death or the state of residence.

Results

Montana had much higher percentages of workers employed in industries and occupations with high risk of death than the overall United States. In 2013, 25.1% of workers were employed in high-risk industries in Montana, compared to 15.4% nationally. In 2013, 19.1% of the worker population in Montana was employed in high-risk occupations, while 12.5% of the national worker population was employed in high-risk occupations.

The top industries with high risk of death that employed the most workers in Montana in 2013 were:

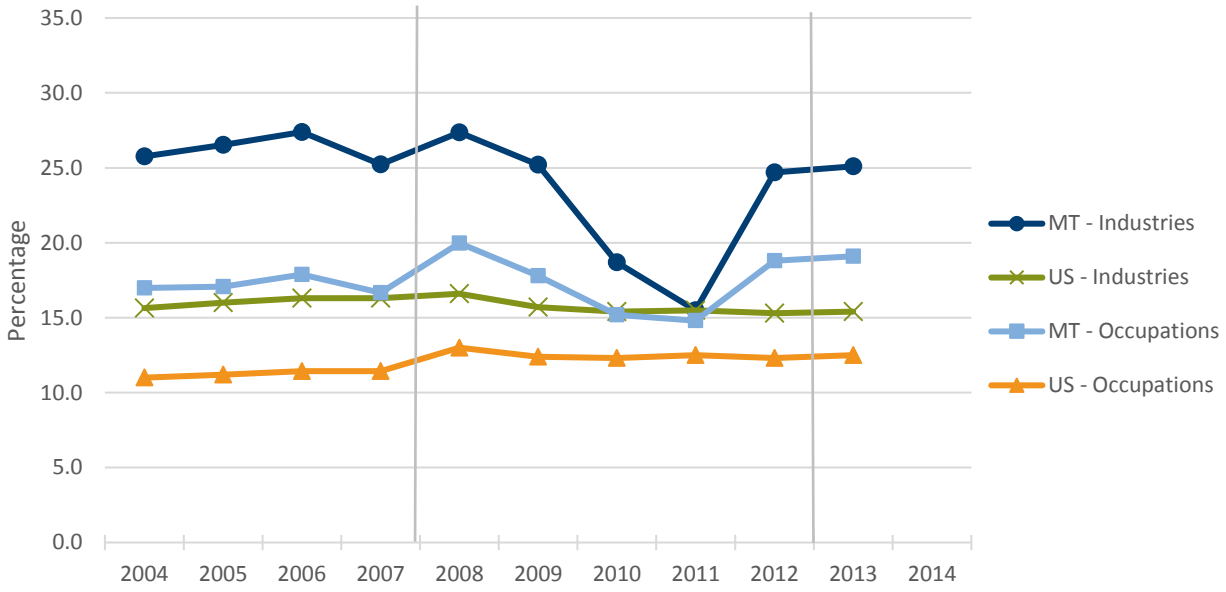
- Construction (36,430 workers)
- Animal production (18,807 workers)
- Truck transportation (7,253 workers)
- Crop production (6,963 workers)
- Drinking places, alcoholic beverages (3,040 workers)

The top high mortality risk occupations that employed the most workers in Montana in 2013 were:

- Farmers, ranchers, and other agricultural managers (20,591 workers)
- Drivers/sales workers and truck drivers (13,733 workers)
- Construction laborers (5,656 workers)
- Miscellaneous agricultural workers, including animal breeders (5,191 workers)
- Grounds maintenance workers (3,017 workers)

There was a noticeable decrease in the percentage of workers employed in high-risk industries in Montana in 2010 and 2011 (Figure 16.1). This sudden decrease in the number of Montana workers employed in such high-risk industries could be due to large job losses during the recession. The construction industry had the largest job losses during the recession in Montana.

Figure 16.1 - Percentage of workers employed in industries and occupations at high risk for occupational mortality in Montana and U.S., 2004-2014



National data and data for Montana was not available for 2014. The two vertical lines indicate when the list of high-risk occupations and industries was updated.

Indicator 17: Occupational Safety and Health Professionals

Background

Occupational safety and health (OSH) professionals identify hazardous conditions and observe materials and practices in the workplace. These professionals help employers and workers reduce the risks and hazards in the work environment. Montana must have a sufficient number of OSH professionals to support safety and health intervention and prevention efforts.

Indicator 17 provides information on the number of occupational safety and health professionals in Montana. This indicator uses records from NIOSH on occupational safety and health professional organization memberships and BLS Current Population Survey (CPS) to determine the number of occupational safety and health professionals in the state. The organizations included in this indicator do not encompass all occupational and safety health professionals in Montana, as professionals may not be board certified or a member of the organizations. Other important occupational health specialties, such as fire prevention, health physics, and ergonomics, are not included in this calculation.

Results

In 2013, the number of occupational safety and health professionals able to serve the state of Montana included 15 American College of Occupational and Environmental Medicine (ACOEM) members, 9 board certified occupational health registered nurses, 17 board certified industrial hygienists, 14 American Industrial Hygiene Association (AIHA) members, 57 board certified safety health professionals, and 142 American Society of Safety Engineers (ASSE) members. The number of occupational safety and health professionals in Montana remained fairly consistent from 2004 to 2013, with slight growth in the capacity to serve the community.

It is vital to continue to increase this safety and health capacity in Montana, in order to properly address occupational safety and health concerns across Montana.

Table 17.1 - Number of occupational safety and health professionals in Montana, 2004-2013

OSH Professional Type	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Board certified occupational physicians	5	5	5	6	7	7	8	-	9	-
ACOEM members	8	8	9	10	11	12	14	-	15	15
Board certified occupational health registered nurses	5	6	6	6	7	8	9	-	-	9
AAOHN members	8	10	8	7	8	7	0	-	8	-
Board certified industrial hygienists	16	16	18	21	23	24	20	-	11	17
AIHA Members	31	27	27	17	26	24	21	-	24	14
Board certified safety health professionals	18	26	26	28	33	36	39	-	49	57
ASSE members	95	118	103	94	120	104	125	-	156	142

Source: American Board of Preventative Medicine database, American College of Occupational and Environmental Medicine (ACOEM) member rosters, American Board of Occupational Health Nurses directory, American Association of Occupational Health Nurses (AAOHN) member roster, American Board of Industrial Hygiene data, American Industrial Hygiene Association (AIHA) member directory, Board Certified Safety Health Professionals (BCSP) member directory, American Society of Safety Engineers (ASSE) member directory, BLS Current Population Survey (CPS) data.
Data was not available for 2011.

Table 17.2 – Rate (per 100,000 workers) of occupational safety and health professionals in Montana, 2004-2013

OSH Professional Type	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Board certified occupational physicians	1.1	1.1	1.1	1.0	1.2	1.5	1.7	-	1.9	-
ACOEM members	1.7	1.7	1.8	2.0	2.3	2.6	3.0	-	3.2	3.1
Board certified occupational health registered nurses	1.1	1.3	1.2	1.2	1.5	1.7	1.9	-	-	1.9
AAOHN members	1.7	2.1	1.6	1.4	1.7	1.5	0.0	-	1.7	-
Board certified industrial hygienists	3.5	3.4	3.7	4.3	4.8	5.2	4.3	-	2.3	3.5
AIHA Members	6.7	5.7	5.5	3.5	5.4	5.2	4.5	-	5.1	2.9
Board certified safety health professionals	3.9	5.5	5.3	5.7	6.9	7.8	8.4	-	10.3	11.8
ASSE members	20.6	24.8	19.1	19.1	25.0	22.5	26.8	-	32.8	29.3

Source: American Board of Preventative Medicine database, American College of Occupational and Environmental Medicine (ACOEM) member rosters, American Board of Occupational Health Nurses directory, American Association of Occupational Health Nurses (AAOHN) member roster, American Board of Industrial Hygiene data, American Industrial Hygiene Association (AIHA) member directory, Board Certified Safety Health Professionals (BCSP) member directory, American Society of Safety Engineers (ASSE) member directory, BLS Current Population Survey (CPS) data.
Data was not available for 2011.

Indicator 18: OSHA Enforcement Activities

Background

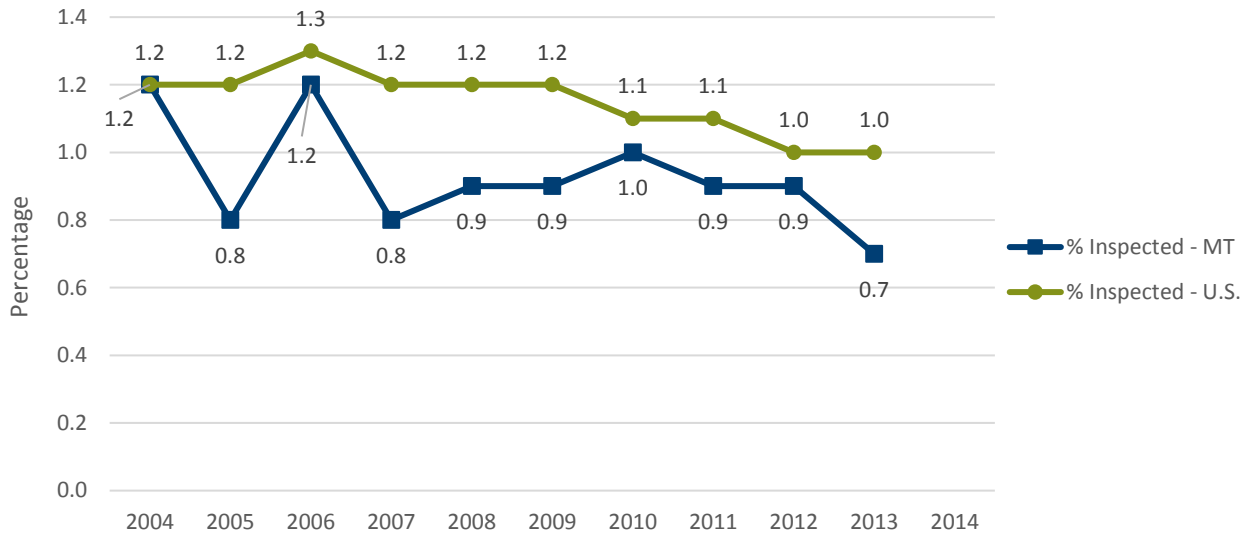
The Occupational Safety and Health Administration (OSHA), under the U.S. Department of Labor, conducts investigations and inspections at worksites to ensure compliance with employee safety and health standards and regulations. OSHA jurisdiction in Montana includes private and federal employers and employees. The Montana Safety Culture Act and the Montana Occupational Safety and Health Act require safety and health inspections of workplaces of public employers. There are approximately 100 single public entities to be inspected statewide under this mandatory inspection program. Investigations and inspections typically occur at worksites in the event of work-related fatal and non-fatal injuries, hospitalizations, employee complaints, and outside referrals. Random inspections are also conducted at high-risk worksites.

This indicator uses data on OHSA inspections of public and private sectors obtained by the National Institute for Occupational Safety and Health (NIOSH) and data from BLS Quarterly Census of Employment and Wages (QCEW) to measure OSHA enforcement activity in Montana. Montana falls under federal OSHA jurisdiction. Farms with 10 or fewer employees are not inspected by OSHA. The percentage of establishments inspected may be slightly overestimated because OSHA may conduct multiple inspections of the same establishment during the calendar year. Additionally, the number of workers covered by OSHA inspections may also be overestimated because OSHA may conduct multiple inspections of the same worksite during the year.

Results

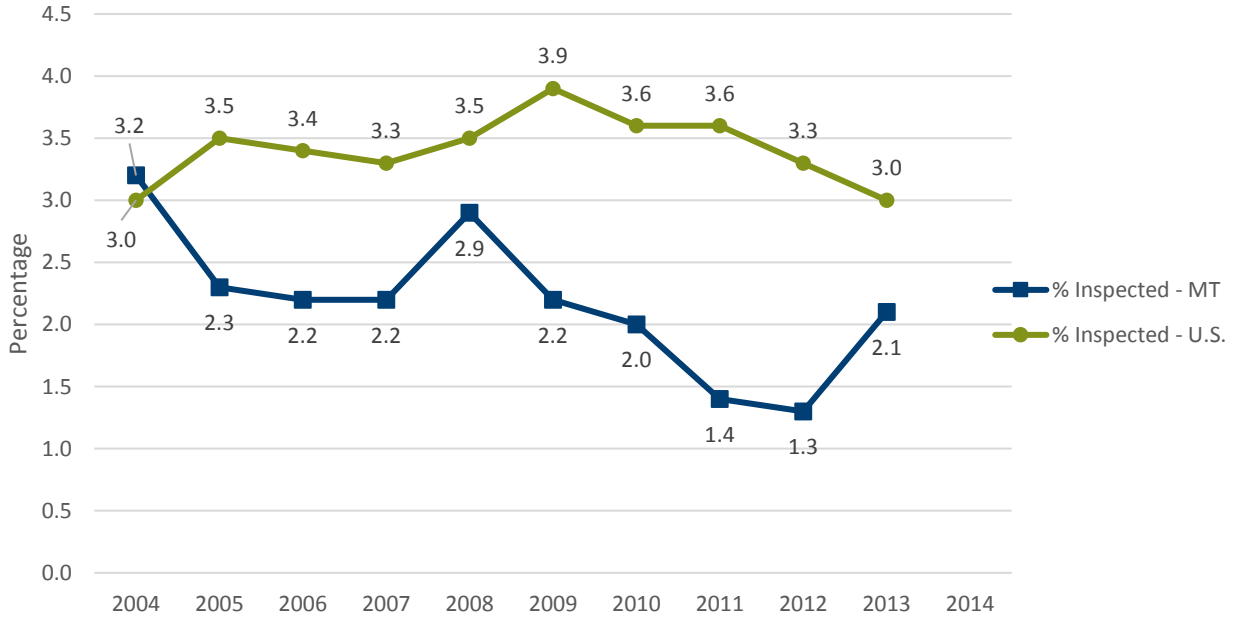
In 2013, there were 40,841 establishments under OSHA jurisdiction in Montana, and OSHA inspected 295 establishments (0.7%), down from a high of 1.2% of establishments inspected in 2004. The number of Montana covered employees eligible for inspections was 356,331 in 2013, compared to 329,060 employees in 2004. In 2013, OSHA inspected 2.1% of eligible employees, compared to 3.2% of eligible employees inspected in 2004.

Figure 18.1 – Percentage of establishments under OSHA jurisdiction that were inspected by OSHA in Montana and the U.S., 2004-2014



Data for this indicator was not available for 2014.

Figure 18.2 – Percentage of employees working at an establishment that was inspected by OSHA in Montana and the U.S., 2004-2014



Data for this indicator was not available for 2014

Indicator 19: Workers' Compensation Benefits

Background

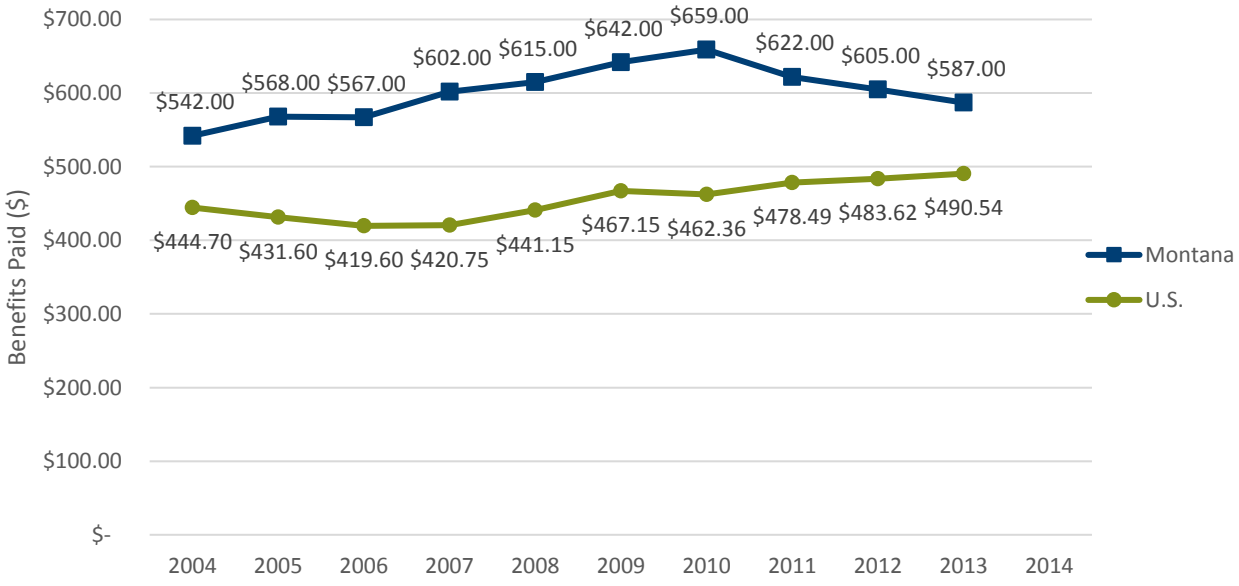
Workers' compensation is a state-based social insurance program that covers work-related injuries and illnesses. Benefits can include lost wages, related medical expenses, disability payments, and survivor benefits. Amounts of paid benefits represent the direct financial burden of work-related injuries and illnesses. Montana Code Annotated (MCA) requires mandatory workers' compensation coverage for any persons in the state in service of an employer specified by law (39-71-118, MCA). This includes agricultural workers, undocumented workers, minors, part-time and full-time employees, and elected and appointed paid public officers. Montana statute provides for many exemptions from coverage, including independent contractors, household or domestic workers, barbers and cosmetologists, and respite care and companionship services, to name a few. Indicator 19 uses data from the National Academy of Social Insurance (NASI) to examine annual workers' compensation benefits paid in Montana. Compensation award payments are frequently made over time; thus, annual awards may not reflect the full cost of injuries and illnesses for a given year.

Results

In Montana, total workers' compensation benefits paid in 2013 were $247,003,000, which represented a slight decrease from $250,542,000 paid in 2012. In 2004, total paid workers' compensation benefits were $211,460,000.

The average benefit paid per covered worker was $587, compared to the national average of $491. This average is slightly higher than the average benefit paid in 2004 in Montana, which was $542 per covered worker.

Figure 19.1 – Average amount of workers' compensation benefits paid per covered worker in Montana and the U.S., 2004-2014



National data and data for Montana for this indicator was not available for 2014

Indicator 20: Work-related Low Back Disorder Hospitalizations

Background

Hospitalizations for work-related disorders have serious and costly effects in the workplace, including higher medical costs, significant functional impairment and disability, high absenteeism, reduced work performance, and lost productivity. Each year, 15-20% of Americans report back pain, resulting in over 100 million workdays lost and more than 10 million physician visits. Back pain represents about 20% of workers' compensation claims yet comprises almost 40% of the costs. The National Health Interview survey estimates that 66% of all low back cases are attributable to occupational activities. Work that involves heavy lifting, pushing, and pulling can result in low back injury and pain. Work that is more inactive in nature may still lead to low back injury and pain due to poor posture or inadequate back support if sitting for extended periods of time.

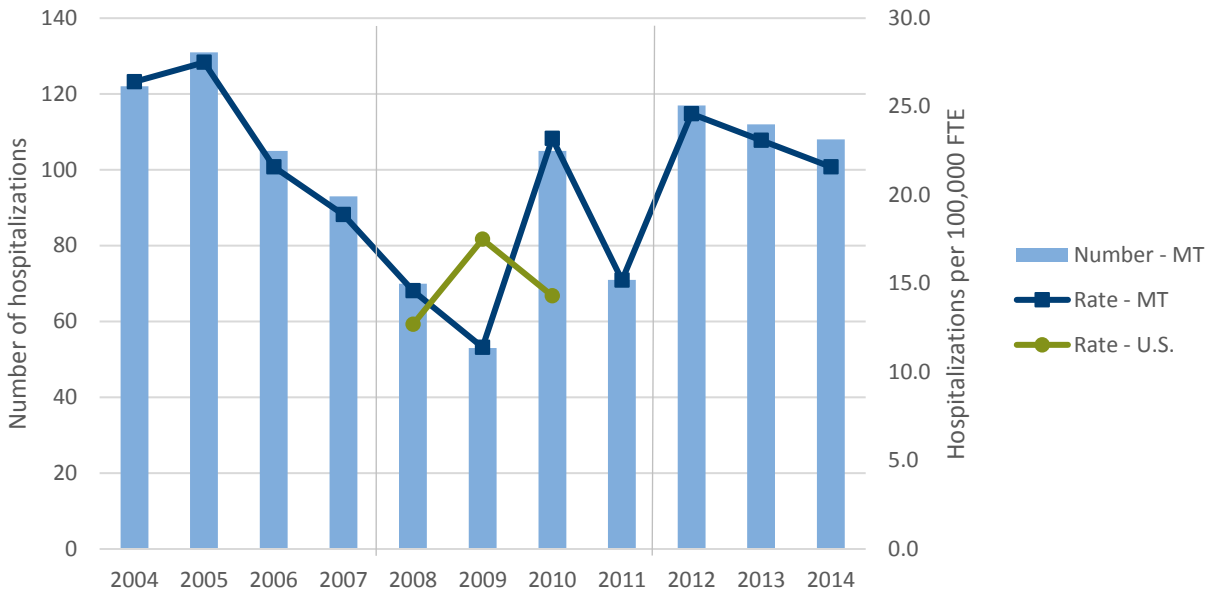
Indicator 20 uses hospital discharge data from the Montana DPHHS to examine low back disorder hospitalizations overall in Montana, including surgical low back disorder hospitalizations. State population estimates were taken from BLS Current Population Survey (CPS) in order to calculate rates. Hospital discharge data does not provide explicit information about the "work-relatedness" of a condition for which a patient is hospitalized, so workers' compensation as primary payer for the hospital stay is used as a good proxy for work-relatedness of the injuries. Hospital discharge data between states may not be comparable due to the differences in workers' compensation programs. The CPS excludes active-duty members of the military, inmates in institutions, and workers less than 16 years old. Additionally, the CPS data may underestimate percentages for certain worker populations that do not have permanent residents. This indicator only captures cases that were admitted to the hospitals as inpatient cases; acute cases admitted via the emergency department, but not admitted as inpatient cases, are not included in this indicator. The Montana Hospital Association (MHA) changed the coding of payer in 2008, and, therefore, the numbers of hospitalizations from the periods 2000-2007 and 2012-2014 vs. 2008-2011 are not comparable.

Results

The rate of work-related low back disorder hospitalizations had declined from 26.4 to 18.9 hospitalizations per 100,000 FTE from 2004 to 2007. There was a substantial increase in hospitalizations from 2009 to 2010; the rate almost doubled from 11.4 to 23.2 hospitalizations per 100,000 FTE. The rate declined again in 2011, back to 15.2 hospitalizations per 100,000 FTE. From 2012 to 2014, the rate of work-related low back disorder hospitalizations has decreased slightly from 24.6 to 21.6 hospitalizations per 100,000 FTE.

Data on work-related surgical low back disorder hospitalizations was not available prior to 2012. From 2012 to 2014, the rate of work-related surgical low back disorder hospitalizations decreased slightly from 19.4 to 17.8 hospitalizations per 100,000 FTE.

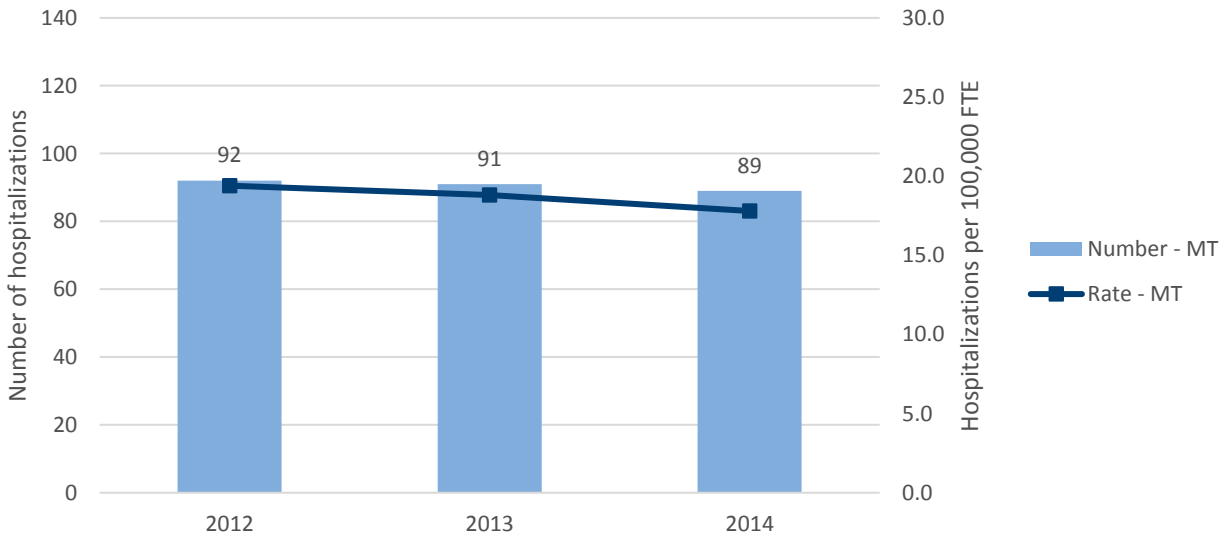
Figure 20.1 – Number and rate (per 100,000 FTE) of work-related low back disorder hospitalizations in Montana and the U.S., 2004-2014



Montana Hospital Association (MHA) changed reporting of payer in 2008; Numbers of hospitalizations from the periods 2000-2007 and 2012-2014 vs. 2008-2011 are not comparable. Indicated by vertical lines.

Rates of hospitalizations for this indicator for the U.S. were only available for 2008-2010.

Figure 20.2 – Number and rate (per 100,000 FTE) of work-related surgical low back disorder hospitalizations in Montana and the U.S., 2004-2014



Montana Hospital Association (MHA) changed reporting of payer in 2008; Numbers of hospitalizations from the periods 2000-2007 and 2012-2014 vs. 2008-2011 are not comparable. Indicated by vertical lines.

Data on surgical low back hospitalizations was not available prior to 2012. U.S. rates were not available at this time.

Indicator 21: Asthma Cases Caused or Made Worse by Work

Background

Asthma is a chronic inflammatory disease of the airways that affects more than 18 million adults in the United States. Work-related asthma describes asthma that has a connection between asthma symptoms and the time spent in a work environment. It has been estimated that 36-58% of adult asthma is caused or made worse by workplace exposures in the United States, but work-related asthma continues to be underdiagnosed.

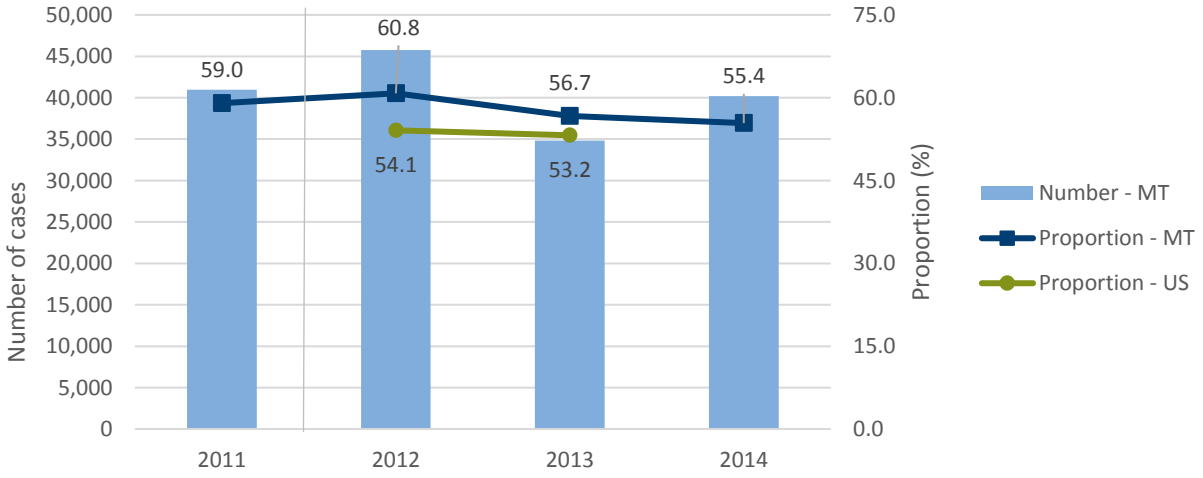
Work-related asthma is preventable but often goes undiagnosed or is under-diagnosed by physicians. Research has shown that work-related asthma can have harmful effects on the worker, including sickness, socioeconomic impacts, and difficulty getting and sustaining work. Estimating the burden of asthma caused or made worse by work can help target prevention programs and activities.

Indicator 21 represents a population-based estimate of asthma caused or made worse by work. This indicator uses data from the Asthma Call-Back Survey (ACBS) conducted by the Montana Behavioral Risk Factor Surveillance System (BRFSS). BRFSS is a cross-sectional telephone health survey of non-institutionalized adults that is collected on a monthly basis. The ACBS is an in-depth asthma survey among BRFSS respondents and contains multiple questions related to work-relatedness of the respondent's asthma. The indicator does not distinguish between new asthma cases and work-aggravated asthma. The ACBS began new weighting methods in 2011, and the wording and order of questions changed in 2012. Any comparisons for trend would need to be restricted to 2012 forward. The data are subject to measurement, nonresponse, and sampling errors.

Results

In Montana, the proportion of adults with work-related asthma has remained fairly consistent, with 55.4% of adults with asthma reporting their asthma was work-related in 2014. This proportion was slightly higher than the national proportion in 2012 and 2013.

Figure 21.1 - Number and proportion of adults with asthma caused or made worse by work in Montana and U.S., 2011-2014



National data was not available for this indicator for 2011 and 2014. Data for this indicator was not collected prior to 2011. Trend analysis is restricted to 2012 forward, due to weighting and wording changes in the survey (vertical line).

Indicator 22: Work-Related Severe Traumatic Injury Hospitalization

Background

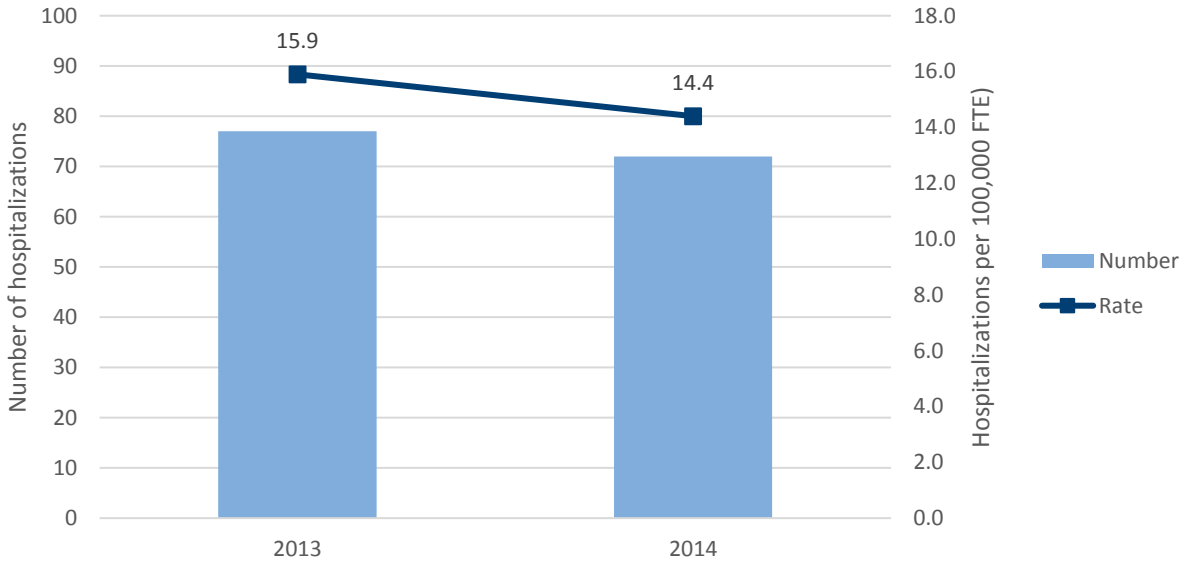
Severe work-related trauma is a leading cause of death and disability for U.S. workers. Severe traumatic injury can lead to long-term pain and disability and is very costly for workers' compensation systems and society as a whole.

Indicator 22 uses hospital discharge data from the Montana DPHHS to examine work-related severe trauma injury hospitalizations overall in Montana. State population estimates were taken from BLS Current Population Survey (CPS) in order to calculate rates. Hospital discharge data does not provide explicit information about the "work-relatedness" of a condition for which a patient is hospitalized, so workers' compensation as primary payer for the hospital stay is used as a good proxy for work-relatedness of the injuries. Hospital discharge data between states may not be comparable due to the differences in workers' compensation programs. The CPS excludes active-duty members of the military, inmates in institutions, and workers less than 16 years old. Additionally, the CPS data may underestimate percentages for certain worker populations that do not have permanent residents. The Montana Hospital Association (MHA) changed the coding of payer in 2008, and so the numbers of hospitalizations from the periods 2000-2007 and 2012-2014 vs. 2008-2011 are not comparable.

Results

The number of work-related hospitalizations for severe traumatic injuries in Montana decreased from 77 cases to 72 cases from 2013 to 2014. The crude rate of these hospitalizations decreased from 15.9 to 14.4 cases per 100,000 FTE from 2013 to 2014. Additional years of data will be useful in evaluating any emerging trend in hospitalizations due to severe traumatic injuries.

Figure 22.1 – Number and rate (per 100,000 FTE) of work-related hospitalizations for severe traumatic injuries in Montana, 2013-2014



Data for this indicator was not reported prior to 2013, when the indicator was first introduced. National data not available.

Indicator 23: Influenza Vaccination Coverage Among Healthcare Personnel

Background

Influenza has long been recognized as a significant cause of morbidity and mortality, resulting in an average of 23,706 influenza-related deaths from 1976 to 2007 in the United States. Healthcare workers can serve as vectors for influenza transmission because they are at risk for both acquiring influenza from patients and transmitting it to patients. Higher influenza vaccination coverage among healthcare workers is associated with reductions in hospital-acquired influenza among hospitalized patients. The Healthy People 2020 target goal is to increase the percentage of healthcare workers in the United States who are vaccinated against seasonal influenza annually to 90%.

In Montana, 3,886 influenza cases and 339 hospitalizations due to influenza were reported to the Montana DPHHS from September 1, 2015 to April 4, 2016. Fifteen deaths were attributed to influenza in Montana during that time period.

Data and directions are not yet available to complete calculations for Indicator 23 at this time.

Indicator 24: Occupational Heat-Related Emergency Department Visits

Background

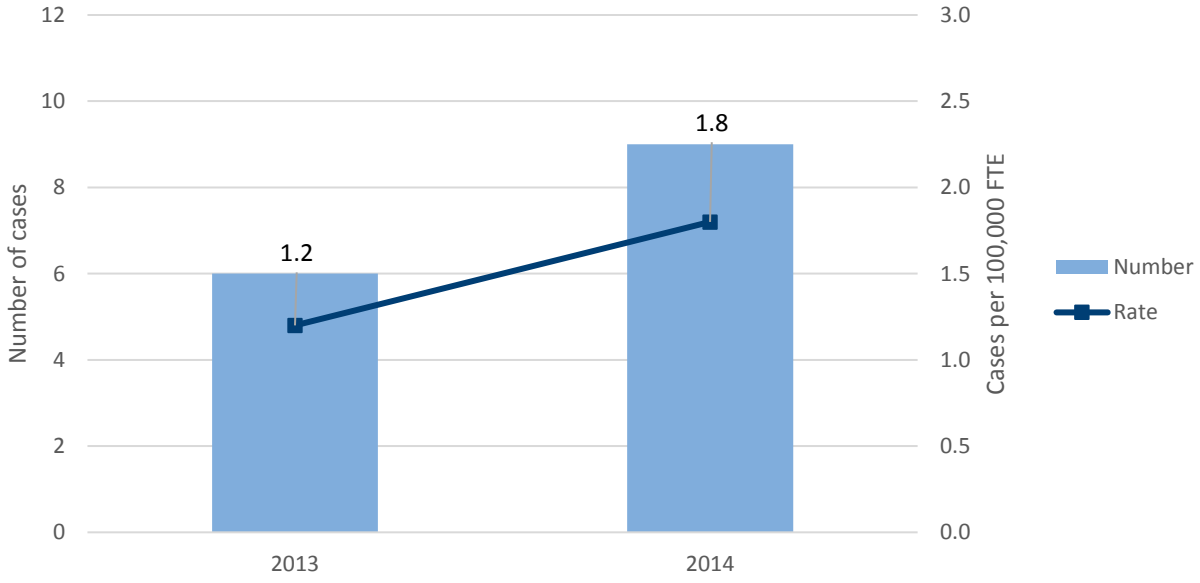
Exposure to environmental heat is a recognized hazard for many occupations where individuals are not able to maintain safe body temperatures due to their work environment, required clothing type, and usage of protective equipment. In 2010, approximately 3,470 private sector workers in the United States experienced a non-fatal work-related injury or illness that required days away from work due to environmental heat exposure (e.g., heat stroke).

Indicator 24 examines data on emergency department visits that are heat-related and work-related in nature. Rates of occupational heat-related department visits are calculated based on data from the Montana DPHHS and BLS Current Population Survey (CPS). Industry and occupation are not collected in the emergency department. The data does not provide explicit information about the "work-relatedness" of a condition for which a patient is hospitalized, but the designation of workers' compensation as primary payer for the hospital visit is a good proxy for work-relatedness of the injuries. Attribution of primary payer as workers' compensation in the data may not be accurate, and data between states may not be comparable due to the differences in workers' compensation programs. The CPS excludes active-duty members of the military, inmates in institutions, and workers less than 16 years old. Additionally, the CPS data may underestimate percentages for certain worker populations that do not have permanent residents.

Results

In Montana, rates of occupational heat-related emergency department visits were fairly low, with 6 cases in 2013 and 9 cases in 2014. The rate increased from 1.2 to 1.8 visits per 100,000 FTE in Montana from 2013 to 2014.

Figure 24.1 - Number and rate (per 100,000 FTE) of emergency department visits for occupational heat-related illnesses in Montana, 2013-2014



Data for this indicator was not reported prior to 2013, when the indicator was first introduced.

KEY FINDINGS & CONCLUSIONS

The Montana Occupational Health & Safety Surveillance Program (MOHSS) put together this foundational report with the intent to begin to track and describe occupational health issues impacting the Montana workforce.

- Montana consistently has a much higher incidence rate of non-fatal occupational injuries and illnesses, compared to the overall United States (Figure 1.2). The incidence rates of non-fatal work-related injuries and illnesses for the United States and Montana both declined from 2004 to 2014, but the incidence rate for Montana remained considerably higher than the national rate at the end of the 10 years. In 2008, Montana had the highest incidence rate for non-fatal injuries and illnesses in private industry in the United States (of 42 surveyed states). In 2014, Montana had the third highest incidence rate for non-fatal work-related injuries and illnesses (4.5 cases per 100 FTE).

- In 2014, 5.7% of the Montana's workforce were employed in industries identified as "high risk" for injury or illness, as described by BLS. The high-risk industries with the largest number of workers in 2014 were (a) nursing care facilities, (b) retirement communities/assisted living facilities, (c) couriers and express delivery services, (d) veterinary services, and (e) skiing facilities.

- From 2004 to 2014, the percentage of workers employed in occupations with high risk for occupational injury and illness in Montana increased from 14.5% to 18.1%, with a large increase in the percentage of workers employed in these occupations in 2008 and 2009 (approximately 26% of employed population).

- In 2014, 18.1% of the Montana's workforce were employed in occupations identified as "high risk" for injury or illness, as designated by BLS. The high-risk occupations with the largest number of workers in 2014 were (a) driver/sales workers and truck drivers, (b) freight, stock, and material movers, (c) construction laborers, (d) nursing/psychiatric/home health aides, and (e) janitors or building cleaners.

- Montana had much higher percentages of workers employed in industries and occupations with high risk for death than the nation overall (Figure 16.1). In 2013, 25.1% of workers were employed in high-risk industries in Montana, and 19.1% of the worker population in Montana was employed in high-risk occupations.

- A considerably high percentage of workers in Montana are self-employed. The percentage of self-employed workers in Montana has been substantially higher than the national percentage (11.8% vs. 6.5% in 2013).

- The workforce in Montana is aging. In 2004, almost 50% of employed Montanans were between 35-54 years of age, and less than 20% of employed Montanans worked beyond 55 years of age. In 2014, more employed Montanans worked beyond age 55, with 20% of the workforce falling between 55-64 years of age.

Workers in Montana are faced with unique challenges. Intervention or prevention efforts aimed at improving the health and safety of Montana workers should be based on information of the unique occupational health issues in Montana. Workplace injuries and illnesses are preventable, and the

Montana Occupational Health & Safety Surveillance program will continue to actively track work-related injuries and diseases to advise intervention and prevention efforts based on the realities of working in Montana.

Recommendations

Based on the results in this foundational report, the Montana Occupational Health & Safety Surveillance program recommends the following steps to create a safer future for our workforce:

- Continued research and awareness of the "Big Four" industries: Construction, Manufacturing, Agriculture, and Health Care

For the past decade, these four industries have had incidence rates of non-fatal injuries at much higher rates than those for industry overall in Montana. Construction, manufacturing, healthcare and social assistance, and agriculture, forestry, fishing, and hunting industries were the only private industry sectors to have injury rates above the overall private industry injury rate in Montana every year for the last 10 years. While this is not the only measure to take into consideration when determining research priorities and activities, this trend certainly cannot be ignored. More detailed investigation into the injuries and workplace hazards within each specific industry will provide an excellent foundation to identify specific areas of need and action. We hope to collaborate with agencies, organizations, and other stakeholders to make meaningful and practical strides in reducing workplace injuries and fatalities in these specific industries.

- Emphasize Young Worker Safety

As previously mentioned in this report, the Montana workforce is aging. Apprenticeship and on-the-job training programs have started to be emphasized more in Montana recently, in order to fill the gaps potentially created as older workers retire or leave work. Research has shown that young workers are faced with different workplace challenges compared to more experienced coworkers, and we need to remain mindful of how these challenges can affect worker health. Safety training and safety culture should be especially tailored to Montana's young worker population. As more young workers rise to fill in employment gaps created by an aging workforce, Montana has a responsibility to make sure that these workers have thorough safety training available and a culture of safety to welcome them into the Montana workforce.

- Research and awareness of the importance of transportation safety in all jobs

Over 50% of all work-related fatalities in Montana involved transportation incidents in the last decade, and this trend was not limited to the transportation industry. In fact, the agriculture and construction industries were involved most frequently in work-related fatalities in Montana. Safety issues such as high speeds, lack of seatbelt use, reckless driving, and distracted driving are very common in Montana. Those safety issues in daily life extend into the workplace. We could greatly reduce the injuries and fatalities due to transportation issues if workers and employers adopted practices that emphasized transportation safety, such as encouraging seatbelt use and driving a safe speeds. The Montana Department of Transportation has a "Vision Zero" initiative with the goal of eliminating all deaths and injuries on Montana highways, and we think this vision of zero injuries and fatalities should extend to each workplace in Montana. We hope to collaborate with agencies and organizations involved in transportation in Montana to develop practical prevention and intervention efforts moving forward.

- Encourage the use of safety resources available to Montanans

The task of establishing a safety culture and addressing safety issues in every workplace in Montana can be a daunting task. The Safety and Health Bureau at the Montana Department of Labor & Industry has helpful, free resources available to employers and organizations that want to improve safety and health. In particular, the Safety and Health Bureau's Consultation Program and Outreach Program provide excellent guidance and training on safety issues.

Employers and employees can request a free on-site safety consultation to identify safety and health hazards, eliminate or reduce hazards, and improve overall safety and health at the worksite. The Consultation Program staff can also assist with compliance of OSHA regulations for the private and public sectors. The consultations are confidential, and no fines or penalties are levied for any hazards observed during the consultation. To schedule a free consultation, please call the Consultation Program at (406) 494-0324, or visit http://erd.dli.mt.gov/safety-health/onsite-consultation.

The Safety and Health Bureau also provides free safety trainings through the state of Montana and throughout the year. The bureau offers free on-site workplace safety trainings, which can be customized to meet specific training needs and requests. The bureau also provides free OSHA 10-Hour Training classes in Construction and General Industry in high schools and colleges. Safety training classes are also provided to Montana businesses through a partnership with Job Services Offices across the state. In addition, the bureau puts together extensive free safety training events through SafetyFestMT. SafetyFestMT is an opportunity for workers and employers to receive free safety training events geared to the specific needs of the communities where the SafetyFest trainings take place. To request a free on-site workplace safety training, please visit http://erd.dli.mt.gov/safety-health/workplace-safety-training, or call the bureau at (406) 444-6401. Current information about SafetyFestMT events can be found at http://safetyfestmt.com/.

For more information about all other available trainings and resources through the Safety and Health Bureau, please visit http://erd.dli.mt.gov/safety-health.

Other helpful workplace safety and health resources are available through these programs:

- SafeMT – http://safemt.com/
- Rocky Mountain Center of Occupational & Environmental Health - http://medicine.utah.edu/rmcoeh/continuing-education/
- Montana Safety Services Council - http://www.mssc.org/

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For more information about the Montana Occupational Health & Safety Surveillance program, and resources on worker health and safety issues in Montana, please visit us at our website: www.mtworkerhealth.com.

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Reference Tables – Occupational Health Indicators, Montana, 2004-2014

Demographics	2004	2005	2006	2007	2008	200	2010	2011	2012	2013	2014
Total Employed Persons (FTE)	462,000	476,000	487,000	492,000	481,000	463,000	452,000	466,000	475,000	484,000	500,000
P1. Percentage of civilian workforce unemployed	4.9	4.4	3.6	3.6	5.2	7.1	7.7	7.3	6.1	5.5	4.6
P2. Percentage of civilian employment self-employed	14.3	13.5	13.2	12.9	13.7	11.7	11.3	12.0	12.0	11.8	9.8
P3. Percentage of civilian employment in part-time jobs	22.5	21.2	20.1	21.1	21.2	21.8	22.1	23.4	23.8	21.7	22.2
P4. Percentage of civilian employment by number of hours worked											
<40 hours	40.3	40.8	38.2	37.8	39.3	43.6	40.3	41.4	40.8	37.2	39.0
40 hours	30.3	29.6	32.0	32.5	33.9	33.0	35.2	35.0	36.8	38.6	36.6
41+ hours	29.4	29.6	29.8	29.7	26.8	23.3	24.3	23.4	22.7	24.4	24.6
P5. Percentage of civilian employment by sex											
Males	52.4	53.4	52.4	52.0	52.4	51.8	51.8	51.3	51.8	52.5	52.4
Females	47.6	46.8	47.6	48.0	47.6	48.2	48.2	48.7	48.2	47.3	41.6
P6. Percentage of civilian employment by age group											
16 to 17	2.6	2.3	2.5	2.0	1.7	1.5	1.1	1.1	1.6	1.2	1.7
18 to 64	93.5	93.6	93.2	93.4	93.1	93.1	93.7	91.6	89.6	90.6	91.2
65+	3.9	4.1	4.2	4.6	5.2	5.3	5.2	7.3	8.8	8.3	7.1
P7. Percentage of civilian employment by race											
White	93.1	94.3	94.5	93.9	94.4	93.3	93.0	94.0	93.7	93.0	93.6
Black	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.6	0.4	0.6
Other	6.5	5.3	5.1	5.7	5.2	6.3	6.4	6.0	5.7	6.6	5.8
P8. Percentage of civilian employment by Hispanic Origin	2.2	2.2	1.9	1.8	1.6	2.2	2.7	1.9	1.7	2.5	2.2
P9. Percentage of civilian employment by industry											
Mining	0.8	0.8	1.5	1.3	0.8	0.6	1.3	1.1	1.5	1.5	1.6
Construction	10.4	11.1	10.7	10.9	10.6	8.7	7.8	7.3	8.1	8.2	9
Manufacturing-Durable Goods	3.5	2.5	3.5	3.4	2.8	2.8	3.0	3.4	2.8	2.5	2.9
Manufacturing-Nondurable Goods	1.9	1.5	1.3	1.8	1.2	1.7	2.1	1.5	1.3	2.0	1.4
Wholesale and retail trade	16.1	15.4	15.5	15.1	15.0	13.9	14.3	14.2	14.8	13.0	15.4
Transportation and utilities	4.7	4.6	4.1	3.5	4.3	4.5	4.0	4.1	4.6	4.9	5

Information	2.0	1.7	2.2	2.2	2.3	2.2	1.9	1.4	1.5	1.8	2.1
Financial activities	5.7	5.6	5.9	6.2	5.9	6.1	6.4	6.6	6.1	5.7	5.6
Professional and business services	6.4	7.2	7.4	7.3	7.5	8.9	9.1	9.1	8.9	8.1	8.4
Education and health services	21.0	20.3	20.0	20.9	21.3	22.7	23.0	24.5	22.2	22.3	20.8
Leisure and hospitality	9.9	11.4	11.0	10.2	10.3	10.8	12.6	12.9	11.1	12.5	11.9
Other Services	5.2	4.9	4.2	4.3	4.7	4.3	4.1	3.7	5.4	5.0	4.7
Public Administration	5.2	5.2	6.0	6.2	5.2	5.0	4.2	4.5	4.5	5.8	5.4
Agriculture	7.2	6.8	6.7	6.7	8.3	7.4	6.2	5.9	7.3	6.6	5.7
P10. Percentage of civilian employment by occupation											
Management, business and financial operations	16.8	15.0	15.4	15.7	17.7	17.1	17.3	16.1	17.0	18.7	16.7
Professional and related occupations	17.4	17.7	18.4	18.9	18.4	19.9	19.9	19.8	18.7	19.5	19.6
Service	17.0	19.1	17.8	16.6	18.4	19.5	19.9	20.2	18.8	18.7	19.6
Sales and related occupations	11.3	12.9	11.5	11.2	11.2	11.3	10.5	11.0	11.0	9.6	10.6
Office and administrative support	13.0	10.8	12.4	14.0	12.0	11.5	11.7	12.7	13.5	12.1	11.3
Farming, fishing, and forestry	2.7	2.5	2.2	1.4	1.5	1.9	2.0	1.7	1.8	1.7	1.5
Construction and extraction	7.5	9.3	8.6	8.9	8.3	6.3	6.3	5.5	6.2	6.3	7.1
Installation, maintenance, and repair	4.3	3.5	3.7	3.4	3.0	3.5	3.5	3.5	3.7	3.2	3.9
Production	4.5	4.0	4.0	4.1	3.8	3.9	3.9	3.9	3.6	3.9	3.7
Transportation and material moving	5.6	5.1	6.0	5.8	5.7	5.2	5.1	5.8	5.7	6.2	6.0
Indicator 1 - Nonfatal Work-Related Injuries & Illness Reported by Employers	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
1.1 Estimated Annual Total Number of Work-Related Injuries and Illnesses	18,800	17,000	18,900	17,800	18,000	14,300	13,000	13,200	13,300	13,000	12,600
1.2 Estimated Annual Total Work-Related Injuries and Illness Incidence Rate per 100,000 FTE	7,200	6,600	6,900	6,300	6,400	5,300	5,000	5,000	5,000	4,700	4,500
1.3 Estimated Annual Total Number of Cases Involving Days Away From Work	5,900	5,600	5,500	5,100	6,000	5,000	4,400	4,200	4,200	4,000	4,000
1.4 Estimated Annual Total Incidence Rate for Cases Involving Days Away From Work per 100,000 FTE	2,300	2,200	2,000	1,800	2,100	1,800	1,700	1,600	1,600	1,400	1,400

1.5 Estimated Annual Total Number of Cases Involving More Than 10 Days Away From Work	2,130	2,180	2,050	2,080	2,020	1,770	1,510	1,830	1,840	1,610	1,540
Indicator 2 - Work-Related Hospitalizations	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
2.1 Annual Number of Work-Related Hospitalizations	505	552	542	472	266	250	427	372	526	587	529
2.2 Annual Rate of Hospitalization per 100,000 FTE	109.3	116.0	111.3	95.9	55.3	54.0	94.5	79.8	110.7	121.3	105.8
Indicator 3 - Fatal Work-Related Injuries	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
3.1 Annual Number of Work-Related Traumatic Fatalities	39	50	45	54	40	50	36	49	34	28	28
3.2 Annual Fatality Rate per 100,000 FTE	8.4	10.5	9.2	11.0	8.2	12.0	8.2	11.2	7.9	6.2	6.1
Indicator 4 - Work-Related Amputations with Days Away from Work Reported by Employers	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
4.1 Estimated Annual Number of Amputations Involving Days Away from Work	-	30	30	20	90	-	60	20	20	-	-
4.2 Estimated Annual Incidence Rate of Amputations Involving Days Away from Work per 100,000 FTE	-	10.0	11.0	7.0	31.0	-	22.0	9.0	7.0	-	-
Indicator 5 - State Workers' Compensation Claims for Amputations with Lost Work-Time	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
5.1 Annual Number of Amputations filed with Workers' Compensation System with >4 days away from work	32	39	21	24	18	21	23	19	19	18	#
5.2 Annual Incidence Rate of Amputations filed with Workers' Compensation System per 100,000 Workers Covered with >4 days away from work	8.2	9.8	5.1	5.7	4.2	5.2	5.7	4.7	4.6	4.3	#
Indicator 6 - Hospitalizations for Work-Related Burns	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
6.1 Annual number of work-related burn hospitalizations	5	<5	<5	<5	<5	<5	<5	<5	< 5	6	2
6.2 Annual rate of work-related burn hospitalizations per 100,000 FTE	1.1	*	*	*	*	*	*	*	*	1.2	0.4

Indicator 7 - Work-Related Musculoskeletal Disorders with Days Away from Work	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
7.1 Estimated annual number of all musculoskeletal disorders	2,600	2,270	1,960	1,920	2,480	1,660	1,380	1,860	1,570	1,660	1,290
7.2 Estimated annual incidence rate of all musculoskeletal disorders per 100,000 FTE	1,000	880	717	681	878	430	531	706	591	601	461
7.3 Estimated annual number of MSDs of the neck, shoulder & upper extremities	840	590	530	500	870	430	420	810	470	500	600
7.4 Estimated annual incidence rate of disorders of neck, shoulder, and upper extremities per 100,000 FTE	324	231	192	178	308	159.0	161	306	177	182	149
7.5 Estimated annual number of carpal tunnel syndrome cases	100	90	90	50	40	40	90	100	50	100	30
7.6 Estimated annual incidence rate of carpal tunnel syndrome cases per 100,000 FTE	36	36	34	16	13	15	36	40	20	35	9
7.7 Estimated annual number of musculoskeletal disorders of the back	1,120	1,040	1,000	970	1,140	760	620	840	590	720	580
7.8 Estimated annual incidence rate of musculoskeletal disorders of the back per 100,000 FTE	430	402	366	343	403	281	236	320	222	260	205
Indicator 8 - State Workers' Compensation Claims for Carpal Tunnel Syndrome	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
8.1 Annual number of carpal tunnel syndrome cases filed with State WC with >4 days away from work	143	107	60	41	31	27	32	18	20	28	#
8.2 Annual incidence rate of carpal tunnel syndrome cases filed with WC per 100,000 workers covered with >4 days away from work	36.7	26.8	14.5	9.7	7.3	6.6	7.9	4.4	4.8	6.7	#
Indicator 9 - Hospitalizations from or with Pneumoconiosis	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
9.1.1 Annual number of total pneumoconiosis hospital discharges	173	264	225	202	176	196	174	183	152	146	158
9.1.2 Annual rate of total pneumoconiosis hospital discharges per million residents	231.4	385.5	293.0	259.5	223.5	246.7	215.6	224.7	185.2	176.1	188.9

9.1.3 Annual, age-standardized, rate of total pneumoconiosis hospitalizations per million residents	213.8	320.2	267.5	235.6	201.3	221.6	187.1	192.5	154.6	145.2	153.2
9.2.1 Annual number of coal workers' pneumoconiosis hospital discharges	9	<5	<5	<5	<5	<5	<5	<5	5	<5	<5
9.2.2 Annual rate of coal workers' pneumoconiosis hospital discharges per million residents	12.0	*	*	*	*	*	*	*	6.1	*	*
9.2.3 Annual, age-standardized, rate of coal workers' pneumoconiosis hospital discharges per million residents	11.4	*	*	*	*	*	*	*	5.2	*	*
9.3.1 Annual number of asbestosis hospital discharges	156	252	211	190	173	189	166	174	141	141	152
9.3.2 Annual rate of asbestosis hospital discharges per million residents	208.7	332.7	274.7	244.1	219.7	237.9	205.7	213.7	171.8	170.1	181.8
9.3.3 Annual, age-standardized, rate of asbestosis hospital discharges per million residents	192.3	305.0	250.0	221.9	197.9	213.2	177.0	183.8	143.6	141.0	146.9
9.4.1 Annual number of silicosis hospital discharges	8	7	10	8	<5	5	5	6	<5	<5	<5
9.4.2 Annual rate of silicosis hospital discharges per million residents	10.7	9.2	13.0	10.3	*	6.3	6.2	7.4	*	*	*
9.4.3 Annual, age-standardized, rate of silicosis hospital discharges per million residents	10.1	8.9	12.4	9.7	*	6.1	6.2	5.9	*	*	*
9.5.1 Annual number of other and unspecified pneumoconiosis hospital discharges	<5	<5	<5	<5	<5	<5	<5	<5	< 5	<5	<5
9.5.2 Annual rate of other and unspecified pneumoconiosis hospital discharges per million residents	*	*	*	*	*	*	*	*	*	*	*
9.5.3 Annual, age-standardized, rate of other and unspecified pneumoconiosis hospital discharges per million residents	*	*	*	*	*	*	*	*	*	*	*
Indicator 10 - Mortality from or with Pneumoconiosis	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
10.1.1 Annual number of total pneumoconiosis deaths	17	18	19	23	15	25	32	21	18	13	26

10.1.2 Annual total pneumoconiosis death rate per million residents	22.7	23.8	24.7	29.5	20.3	31.5	39.6	25.8	21.9	15.7	31.1
10.1.3 Annual, age-standardized total pneumoconiosis death rate per million residents	21.2	22.1	22.6	26.5	20.3	31.5	39.6	25.8	18.5	13.2	-
10.2.1 Annual number of coal workers' pneumoconiosis deaths	<5	<5	<5	<5	<5	<5	<5	<5	< 5	0	0
10.2.2 Annual coal workers' pneumoconiosis death rate per million residents	*	*	*	*	*	*	*	*	*	*	*
10.2.3 Annual, age-standardized rate of coal workers' pneumoconiosis deaths per million residents	*	*	*	*	*	*	*	*	*	*	*
10.3.1 Annual number of asbestos deaths	17	16	17	23	15	22	30	20	16	13	24
10.3.2 Annual asbestosis death rate per million residents	22.7	21.1	22.1	29.5	19.0	27.2	37.2	24.6	19.5	15.7	28.7
10.3.3 Annual, age-standardized asbestosis death rate per million residents	21.2	19.7	20.1	25.2	19.0	27.7	37.2	24.6	16.4	13.2	-
10.4.1 Annual number of silicosis deaths	<5	<5	<5	<5	<5	<5	<5	<5	< 5	0	1
10.4.2 Annual silicosis death rate per million residents	*	*	*	*	*	*	*	*	*	*	*
10.4.3 Annual, age-standardized silicosis death rate per million residents	*	*	*	*	*	*	*	*	*	*	*
10.5.1 Annual number of other and unspecified pneumoconiosis deaths	<5	<5	<5	<5	<5	<5	<5	<5	< 5	0	1
10.5.2 Annual other and unspecified pneumoconiosis death rate per million residents	*	*	*	*	*	*	*	*	*	*	*
10.5.3 Annual, age-standardized pneumoconiosis death rate per million residents	*	*	*	*	*	*	*	*	*	*	*
Indicator 11 - Acute Work-Related Pesticide Illness and Injury Reported to Poison Control Centers	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**

11.1 Annual number of reported work-related pesticide poisoning cases	11	15	14	15	8	12	17	14	11	12	#
11.2 Annual incidence rate of reported work-related pesticide poisoning cases per 100,000 FTE	2.4	3.2	2.9	3.1	1.7	2.6	3.7	3.0	2.3	2.5	#
Indicator 12 - Incidence of Malignant Mesothelioma	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
12.1 Annual number of incident mesothelioma cases	18	13	17	11	11	7	13	12	< 19	20	13
12.2 Annual mesothelioma incidence rate per million residents	24.0	17.1	22.1	14.1	14.0	8.8	16.1	14.7	*	24.1	15.5
12.3 Annual, age-standardized mesothelioma incidence rate per million residents	-	-	-	-	-	-	-	-	*	20.9	11.8
Indicator 13 - Elevated Blood Lead Levels Among Adults	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
13.1.1 Annual number of residents with elevated blood lead levels (>=10 mcg/dL)	-	-	-	-	-	-	34	29	37	68	#
13.1.2 Annual prevalence rate per 100,000 FTE	-	-	-	-	-	-	7.5	6.2	7.8	14.1	#
13.1.3 Annual number of incident cases	-	-	-	-	-	-	20	17	< 5	57	#
13.1.4 Annual incidence rate per 100,000 FTE	-	-	-	-	-	-	4.4	3.6	*	11.8	#
13.2.1 Annual number of residents with elevated blood lead levels (>=25 mcg/dL)	8	<5	6	<5	7	7	<5	<5	< 5	21	#
13.2.2 Annual prevalence rate per 100,000 FTE	1.7	*	1.2	*	1.5	1.5	*	*	*	4.3	#
13.2.3 Annual number of incident cases	8	<5	6	<5	7	7	<5	<5	< 5	20	#
13.2.4 Annual incidence rate per 100,000 FTE	1.7	*	1.2	*	1.5	1.5	*	*	*	4.1	#
13.3.1 Annual number of residents with elevated blood lead levels (>=40 mcg/dL)	<5	<5	<5	<5	<5	<5	<5	<5	< 5	<5	#
13.3.2 Annual prevalence rate per 100,000 FTE	*	*	*	*	*	*	*	*	*	*	#
13.2.3 Annual number of incident cases	<5	<5	<5	<5	<5	<5	<5	<5	< 5	<5	#

13.2.4 Annual incidence rate per 100,000 FTE	*	*	*	*	*	*	*	*	*	*	#
Indicator 14 - Workers' Employed in Industries at High Risk for Occupational Morbidity	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
14.1 Number of employed persons in high morbidity risk NAICS industries	21,464	21,557	22,383	22,786	23,893	23,135	23,277	23,122	23,655	23,819	20,629
14.2 Percentage of employed persons in high morbidity risk NAICS industries	6.8	6.6	6.5	6.4	6.6	6.8	6.9	6.9	6.9	6.8	5.7
Indicator 15 - Workers' Employed in Occupations at High Risk for Occupational Morbidity	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
15.1 Average number of employed persons in high morbidity risk Bureau of the Census Occupations	41,033	44,853	45,031	43,318	82,571	78,934	48,716	48,388	54,555	62,519	60,853
15.2 Percentage of employed persons in high morbidity risk Bureau of the Census Occupations	14.5	14.8	14.5	13.8	26.6	26.4	16.3	16.1	17.8	20.0	18.1
Indicator 16 - Workers' Employed in Industries & Occupations at High Risk for Occupational Mortality	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
16.1 Average number of employed persons in high mortality risk Bureau of Census industries	97,046	103,274	109,157	102,065	110,875	96,556	55,948	46,518	95,868	99,501	#
16.2 Percentage of employed persons in high mortality risk Bureau of Census industries	25.8	26.5	27.4	25.2	27.4	25.2	18.7	15.5	24.7	25.1	#
16.3 Average number of employed persons in high mortality risk Bureau of Census occupations	63,966	66,402	71,232	67,411	80,925	67,915	45,487	44,500	73,045	75,764	#
16.4 Percentage of employed persons in high mortality risk Bureau of Census occupations	17.0	17.1	17.9	16.7	20.0	17.8	15.2	14.8	18.8	19.1	#
Indicator 17 - Occupational Safety & Health Professionals	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
17.1 Number (Rate) of board-certified occupational physicians per 100,000 FTE	5 (1.1)	5 (1.1)	5 (1.1)	6 (1.0)	7 (1.2)	7 (1.5)	8 (1.7)	-	9 (1.9)	-	#
17.2 Number (Rate) of ACOEM members per 100,000 FTE	8 (1.7)	8 (1.7)	9 (1.8)	10 (2.0)	11 (2.3)	12 (2.6)	14 (3.0)	-	15 (3.2)	15 (3.1)	#

17.3 Number (Rate) of board-certified occupational health registered nurses per 100,000 FTE	5 (1.1)	6 (1.3)	6 (1.2)	6 (1.2)	7 (1.5)	8 (1.7)	9 (1.9)	-	-	9 (1.9)	#
17.4 Number (Rate) of members of the AAOH per 100,000 FTE	8 (1.7)	10 (2.1)	8 (1.6)	7 (1.4)	8 (1.7)	7 (1.5)	0 (0)	-	8 (1.7)	-	#
17.5 Number (Rate) of board-certified industrial hygienists per 100,000 FTE	16 (3.5)	16 (3.4)	18 (3.7)	21 (4.3)	23 (4.8)	24 (5.2)	20 (4.3)	-	11 (2.3)	17 (3.5)	#
17.6 Number (Rate) of AIHA per 100,000 FTE	31 (6.7)	27 (5.7)	27 (5.5)	17 (3.5)	26 (5.4)	24 (5.2)	21 (4.5)	-	24 (5.1)	14 (2.9)	#
17.7 Number (Rate) of board certified safety health professionals per 100,000 FTE	18 (3.9)	26 (5.5)	26 (5.3)	28 (5.7)	33 (6.9)	36 (7.8)	39 (8.4)	-	49 (10.3)	57 (11.8)	#
17.8 Number (Rate) of ASSE membership per 100,000 FTE	95 (20.6)	118 (24.8)	103 (19.1)	94 (19.1)	120 (25.0)	104 (22.5)	125 (26.8)	-	156 (32.8)	142 (29.3)	#
Indicator 18 - OSHA Enforcement Activities	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
18.1 Annual number of employer establishments inspected by OSHA	487	292	460	333	358	359	411	369	357	295	#
18.2 Number of OSHA-Covered Establishments that are Eligible for OSHA Inspection (excluding mines & farms)	39,242	37,765	38,838	40,176	40,708	40,297	39,900	39,756	40,144	40,841	#
18.3 Percentage of OSHA-Covered Establishments Eligible for Inspection that were Inspected by OSHA	1.2	0.8	1.2	0.8	0.9	0.9	1.0	0.9	0.9	0.7	#
18.4 Annual Number of Employees whose Work Areas were Inspected by OSHA	10,575	7,767	7,807	8,104	10,296	7,612	6,867	4,764	4,425	7,339	#
18.5 Number of OSHA-Covered Employees (excluding miners & farm workers) Eligible for Inspection	329,060	338,542	350,193	360,351	360,338	343,982	340,358	343,181	350,237	356,331	#
18.6 Percentage of OSHA-Covered Employees Eligible for Inspection Whose Work Areas were Inspected by OSHA	3.2	2.3	2.2	2.2	2.9	2.2	2.0	1.4	1.3	2.1	#
Indicator 19 - Workers' Compensation Awards	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
19.1 Total amount of workers' compensation benefits paid (in thousands)	$211,460	$227,321	$234,247	$254,661	$260,835	$261,105	$266,821	$252,550	$250,542	$247,003	#

19.2 Average amount of workers' compensation benefits paid per covered worker	$542	$568	$567	$602	$615	$642	$659	$622	$605	$587	#
Indicator 20 - Low Back Disorder Hospitalizations	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
20.1 Annual number of work-related surgical low back disorder hospitalizations for persons age 16 years or older	-	-	-	-	-	-	-	-	92	91	89
20.2 Annual rate of work-related surgical low back disorder hospitalization per 100,000 FTE	-	-	-	-	-	-	-	-	19.4	18.8	17.8
20.3 Annual number of work-related low back disorder hospitalizations for persons age 16 years or older	122	131	105	93	70	53	105	71	117	112	108
20.4 Annual rate of work-related low back disorder hospitalization per 100,000 FTE	26.4	27.5	21.6	18.9	14.6	11.4	23.2	15.2	24.6	23.1	21.6
Indicator 21 - Asthma Among Adults Caused or Made Worse by Work	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
21.1 Weighted estimate of the number of ever-employed adults with current asthma who report that their asthma was caused or made worse by exposures at work								40,970	45,762	34,816	40,177
21.2 Estimated proportion of ever-employed adults with current asthma who report that their asthma was caused or made worse by exposures at work								59%	60.8%	56.7%	55.4%
Indicator 22 - Work-Related Severe Traumatic Injury Hospitalization	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
22.1 Annual number of work-related inpatient hospitalizations for severe traumatic injury for persons age 16 years or older										77	72
22.2 Annual crude rate of work-related inpatient hospitalizations for severe traumatic injury per 100,000 FTE										15.9	14.4

Indicator 23 - Influenza Vaccination Coverage Among Healthcare Personnel	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Data and directions not available.										-	-
Indicator 24 - Occupational Heat-Related ED Visits	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
24.1 Annual number of ED visits for occupational heat-related illness for persons 16 years and older										6	9
24.2 Annual crude rate of ED visits for occupational heat-related illness per 100,000 FTE										1.2	1.8

Key:
* Result is not statistically significant
- Data not available
Data not yet available for 2014

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