



Still The Season of
SLIPS, TRIPS, & FALLS

Still The Season of

SLIPS, TRIPS, & FALLS

December 2024

STATE OF MONTANA

Greg Gianforte, Governor

MONTANA DEPARTMENT OF LABOR & INDUSTRY

Sarah Swanson, Commissioner

AUTHOR

Andrew Matheison, Occupational Epidemiologist

CONTRIBUTORS

Becka Stone, Graphic Designer

CREATED BY

Employment Standards Division

Montana Occupational Health and Safety Surveillance

P.O. Box 8011

Helena, MT 59604

(406) 444-6543

erd.dli.mt.gov

Falls are one of the most common causes of injury for Montana workers. In the past five years, researchers at the Montana Department of Labor & Industry (DLI) identified falls as the second greatest source of injury behind strains or sprains. A noteworthy feature of fall injuries is seasonal variability; unlike most other types of injury, which remain relatively consistent throughout the year, the rate of fall injury is over twice as high in winter months compared to summer months. This report will provide an update to prior DLI reporting on both local and national trends in workplace fall injury, incorporating new data to reach the following findings:

- Falls are becoming less common but remain a leading cause of injury.
- Falls caused by snow or ice or same-level falls are major drivers of the seasonal variability of fall injuries, as other falls occur at consistent rates throughout the year.
- Falls account for a substantial portion of sprains, bruises, concussions, fractures, and multiple-component injuries.
- Falls are the top cause of whole-body injury and a major cause of leg or torso injury.
- About 21% of falls result in a workers' compensation benefit payout, slightly above the average 16% for all injuries, suggesting falls are slightly more likely to result in injuries significant enough to require a worker miss work to recover.
- Montana has a slightly higher rate of fall injuries, and a substantially higher rate of fall injuries caused by snow or ice, compared to the national average; however, these rates do not differ meaningfully from the rates of other states with similar winter weather.

The goal of this report is to promote greater awareness of the hazards that can lead to workplace falls, and subsequently to reduce the prevalence and severity of workplace falls.

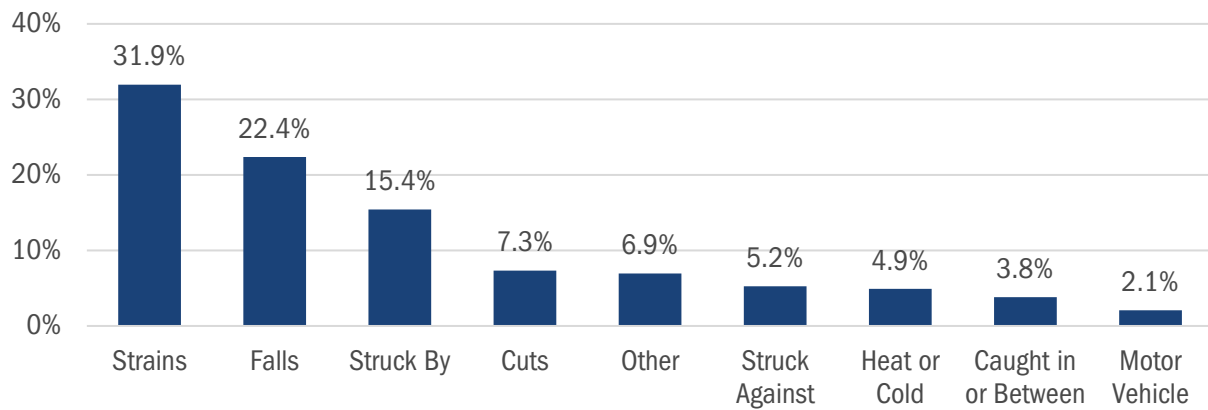
Background

In January of 2019, DLI researchers published “The Season of Slips, Trips, & Falls”, a report which used Montana workers' compensation data from 2009 to 2018 along with Bureau of Labor Statistics (BLS) injury data from 2011 to 2016 to identify an elevated risk of fall injury during the winter. Specifically, they found:

- Falls comprised 22.4% of all injuries and 27.7% of all wage-loss claims.
- Falls increased in prevalence during the winter months.
- When considering specific cause of injury, only “on ice or snow” and “on same level” falls saw a meaningful increase in prevalence during the winter months.
- Falls were a leading cause of multi-component injuries and were responsible for substantial percentages of concussions, fractures, dislocations, bruises/swelling, or sprains/strains.
- The state of Montana reported rates of injury from falls caused by snow or ice between 2 and 5 times greater than the national average rate.

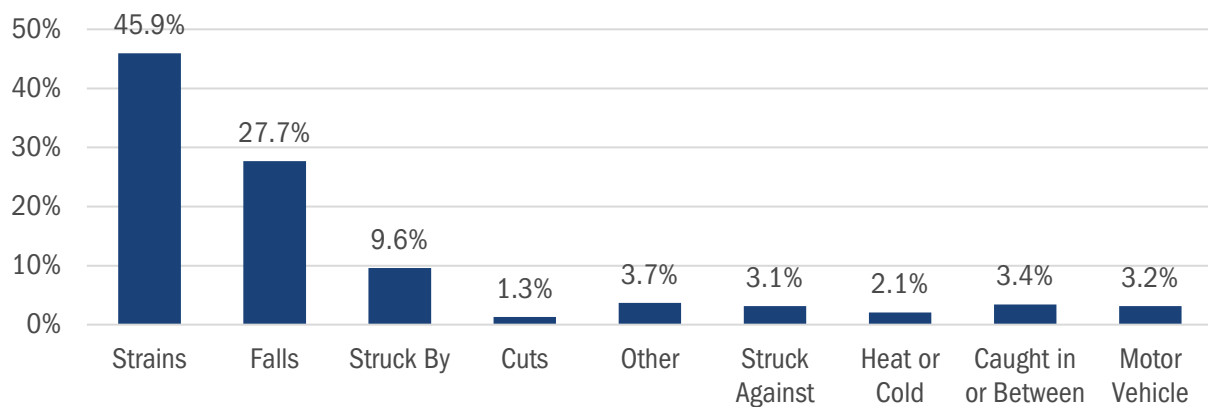
The visualizations from the 2019 report have been provided for reference:

Percent of Injuries by Injury Type, 2009-2018



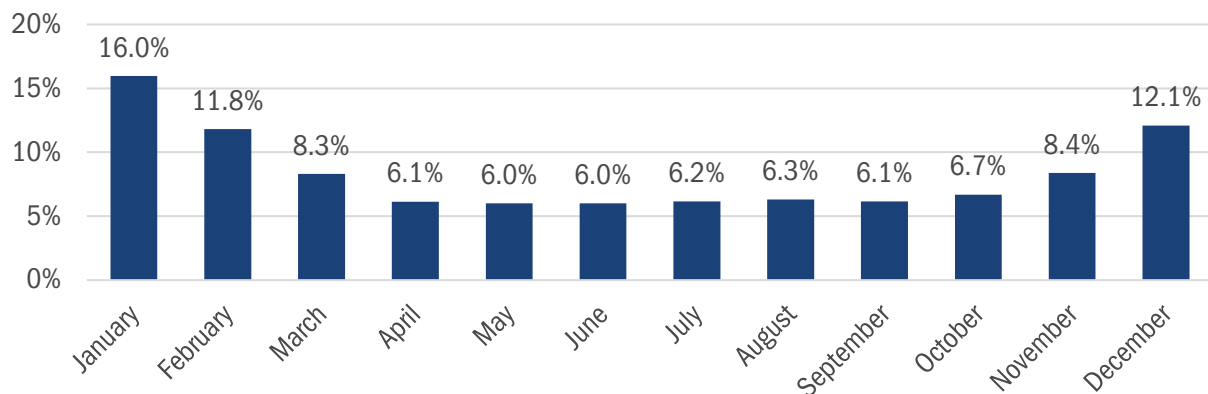
Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

Percent of Wage-Loss Claims by Injury Type, 2009-2018



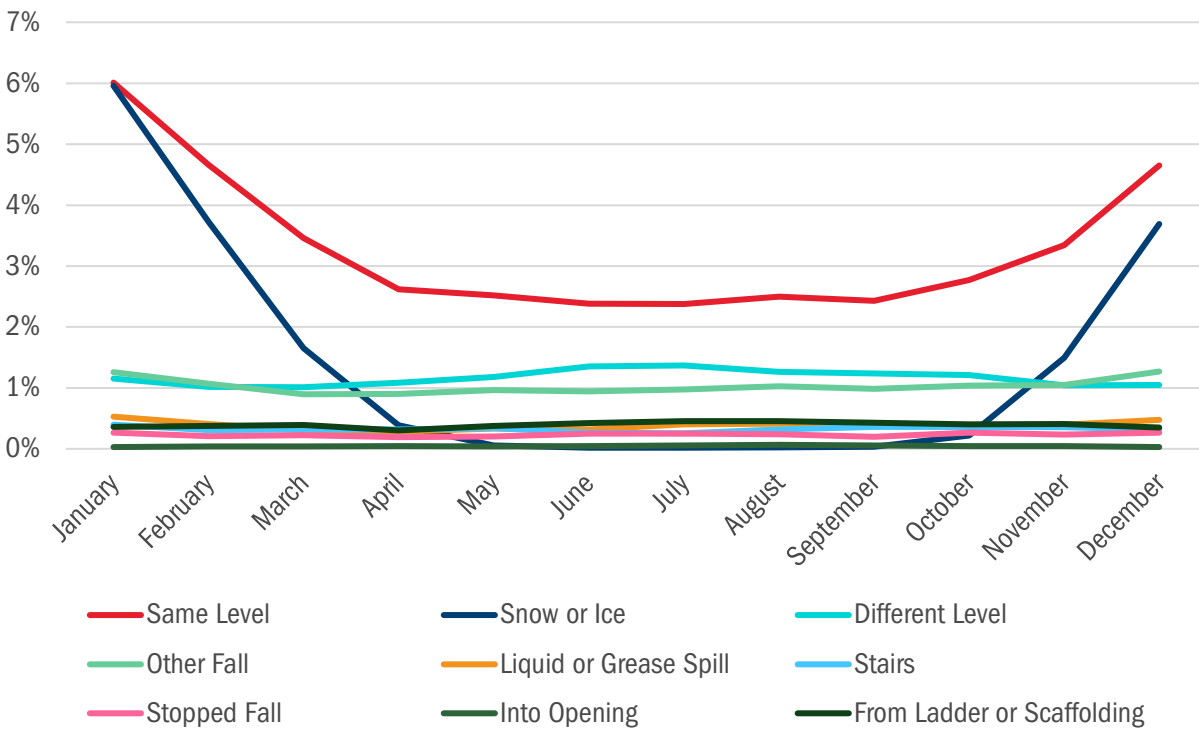
Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

Fall Injury Reporting by Month, 2009-2018



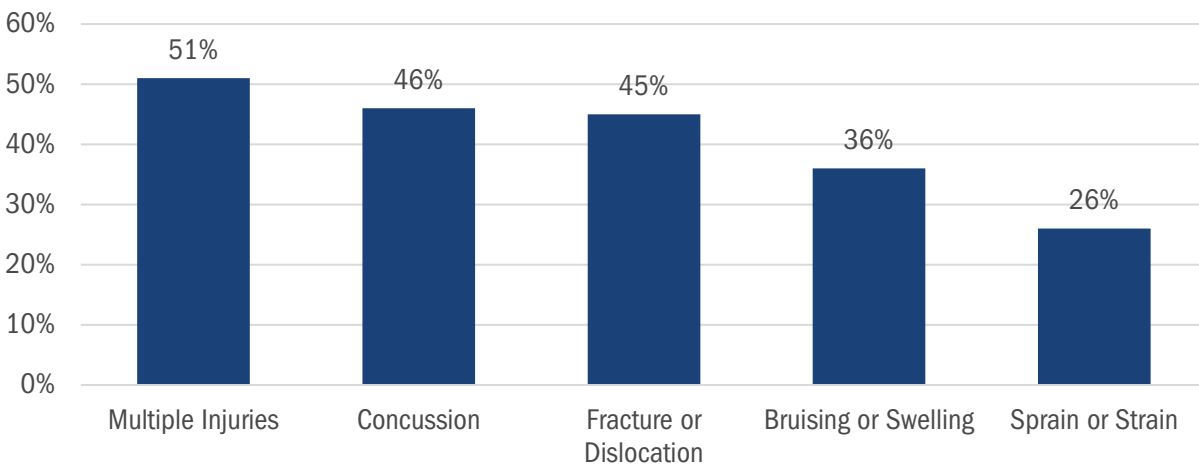
Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

Monthly Fall Injury Reporting by Fall Type, 2009-2018



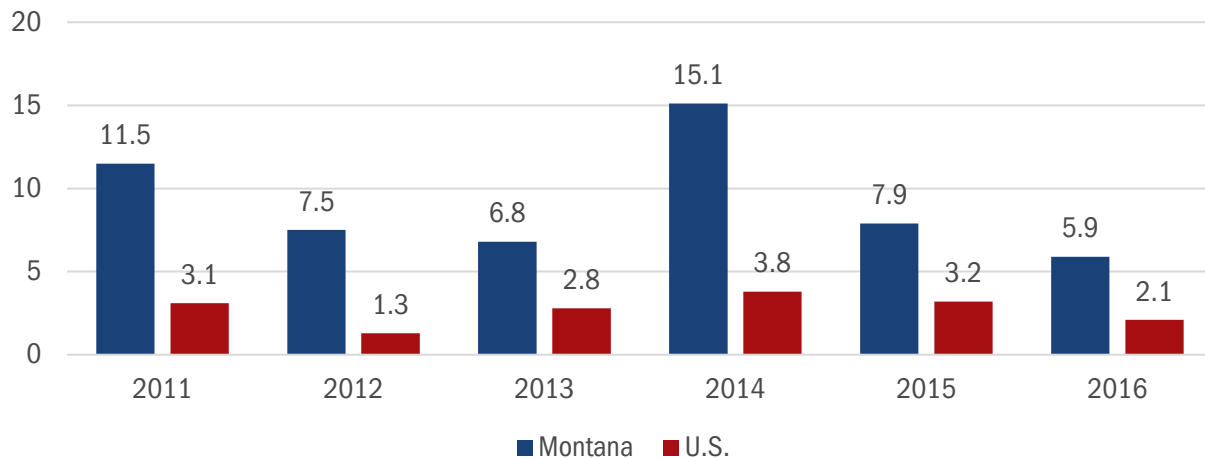
Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

Percent of Injuries Caused by Falls, 2009-2018



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

Injury Rate per 10,000 FTE from Falls on Snow or Ice, 2011-2016



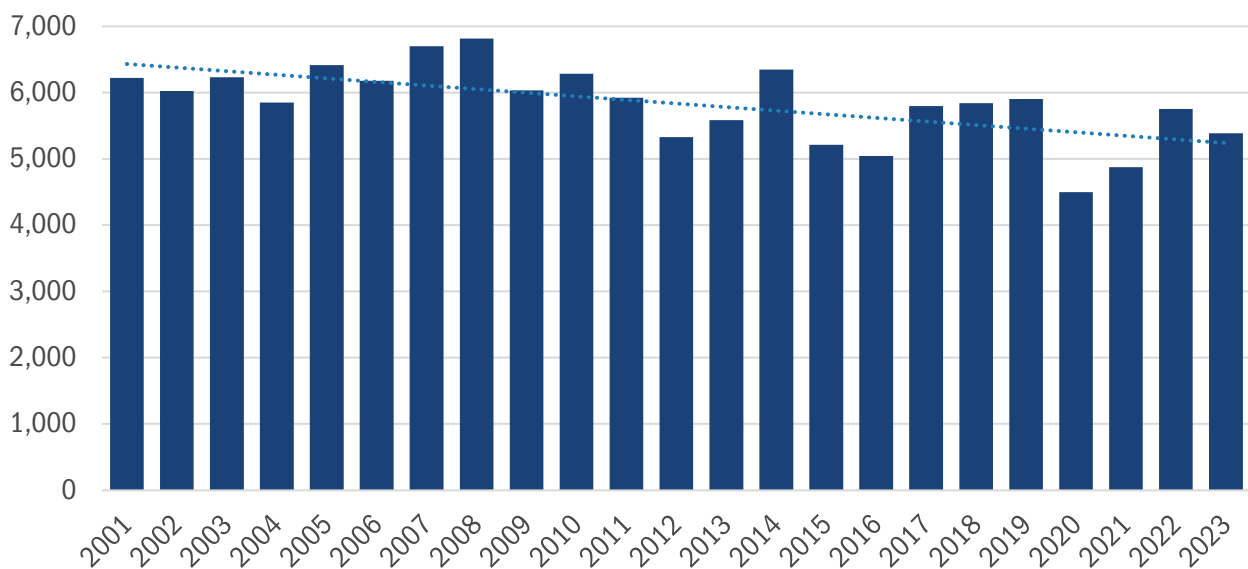
Source: U.S. Bureau of Labor Statistics

Analysis Design

Much of the data used in both the 2019 fall injury report and this report came from DLI’s Workers’ Compensation Administrative Network (WCAN). This database contains all information on workplace injuries reported to DLI and associated workers’ compensation benefit payments. Both reports also use data from BLS, which gathers annual injury data and releases findings to the public through the Injuries, Illnesses, and Fatalities (IIF) program. Unlike the previous report, DLI researchers gathered data on fall rates in all participating states, allowing researchers to draw regional comparisons. Data from these sources was compiled, sorted, and visualized to reach the conclusions provided in the following section. In many cases, these results have been presented as percentages to allow for easy comparison with the findings of the 2019 report.

Findings

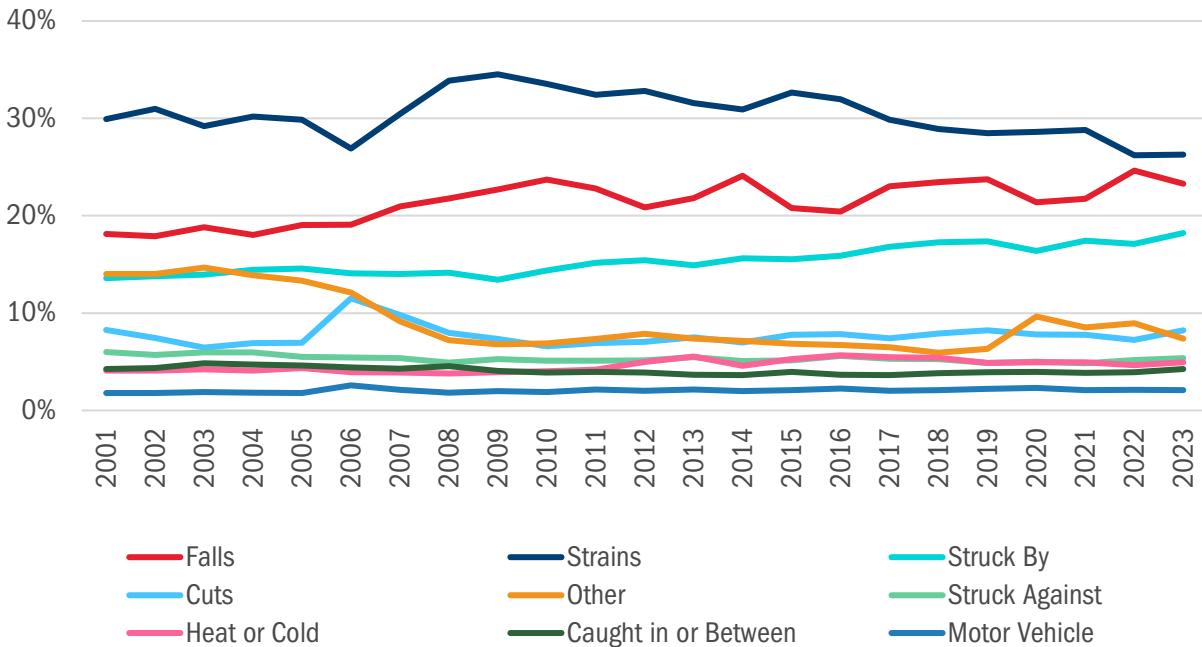
FIGURE 1: Workplace Fall Injuries, 2001-2023



Source: Workers’ Compensation Administrative Network, Montana Department of Labor & Industry

Between 2001 (the first year DLI stored workplace injury data in WCAN) and 2023, Montana workers reported over 134,000 injuries from falls. Figure 1 displays the number of fall injuries per year, with a trendline indicating the number of fall injuries has decreased over the past two decades. However, fall injuries have not declined as substantially as other sources of injury; the result, displayed in figure 2, is that falls have grown as a source of workplace injury in recent years.

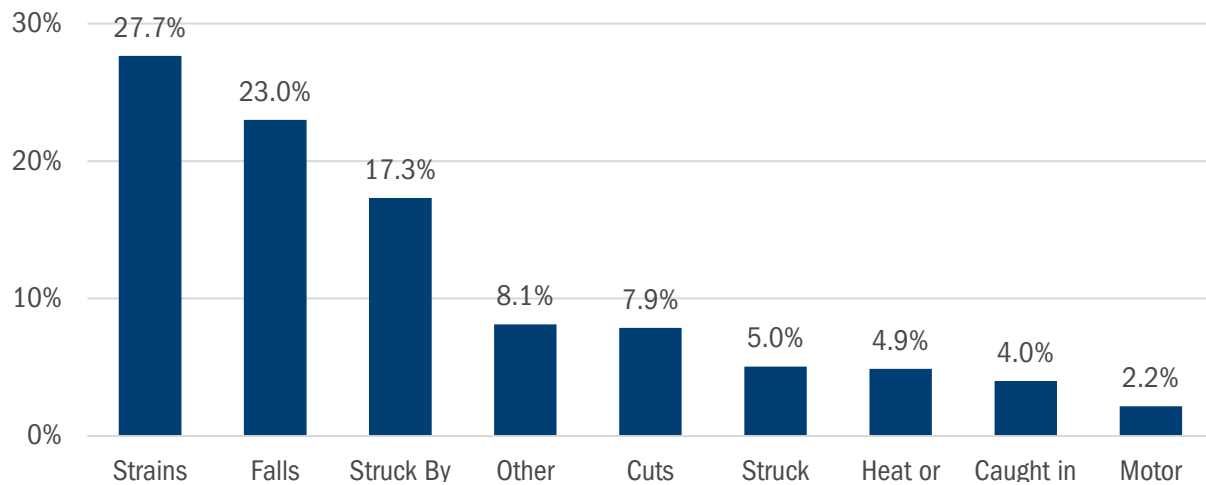
FIGURE 2: Percent of Annual Injuries by Injury Type, 2001-2023



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

Figure 3 provides an update to the first figure of the 2019 report. Falls accounted for 23% of all injuries, a very small increase from the 2019 observation.

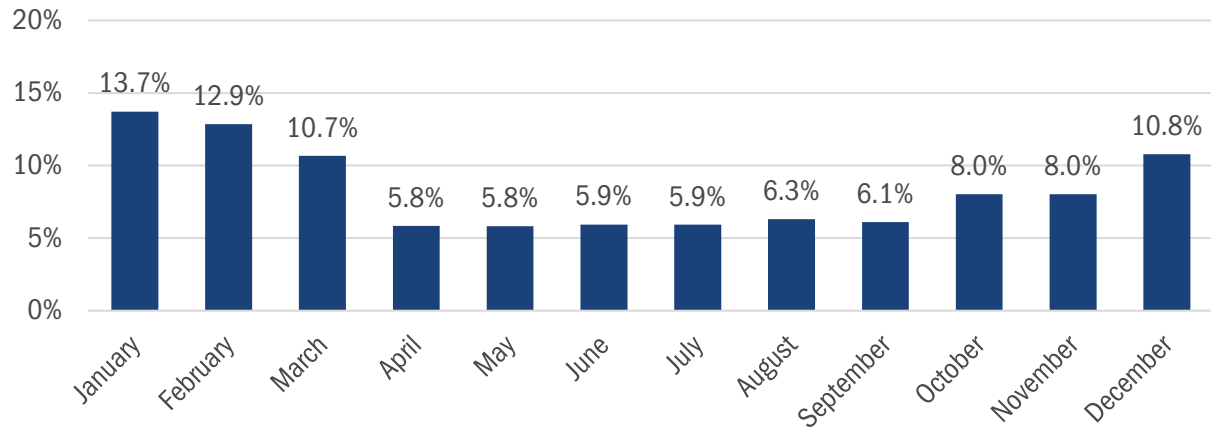
FIGURE 3: Percent of Injuries by Injury Type, 2019-2023



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

Organizing the 2019-2023 fall injury data according to injury month indicates trends remain about the same as they did in the 2009-2018 data. Figure 4 shows that fall injuries rise in the winter to roughly double their summertime rate.

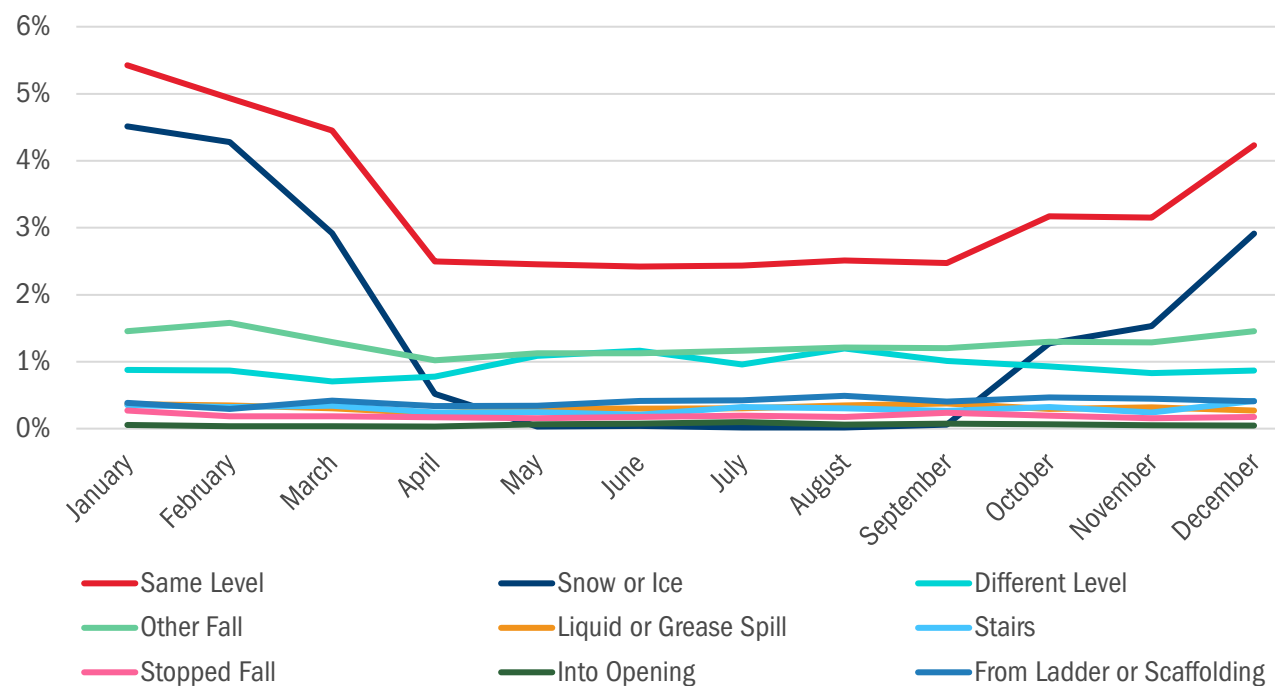
FIGURE 4: Monthly Fall Injury Reporting, 2019-2023



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

When breaking fall injuries down further to identify what hazards preceded the fall, the same two types of falls- same level falls and falls caused by snow or ice- continue to account for the greatest share of injuries and experience the greatest degree of seasonal fluctuation. Figure 5 depicts most fall injuries remaining steady throughout the year while same level and snow / ice falls rise in the winter and decline in the summer.

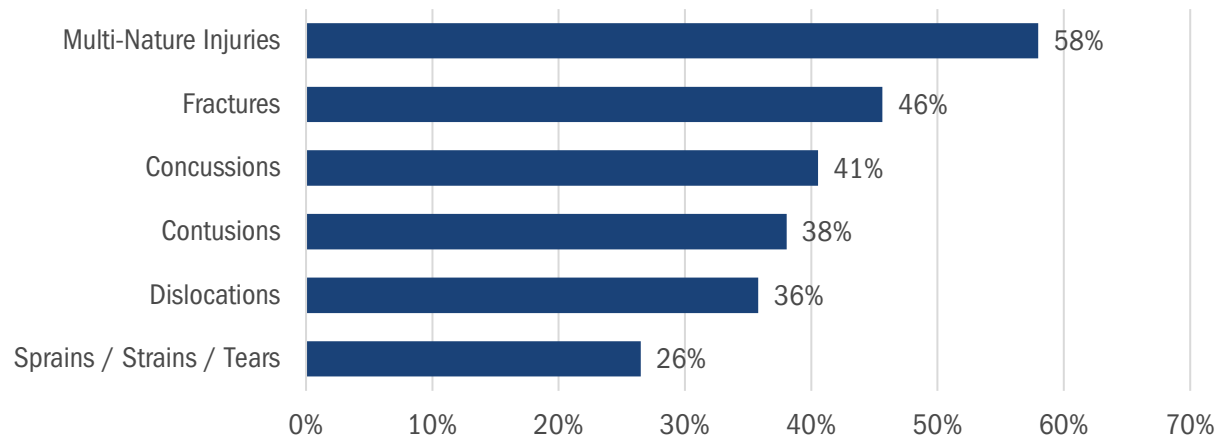
FIGURE 5: Monthly Fall Injury Reporting by Fall Type, 2019-2023



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

Falls continue to be a primary reason for several types of injuries. Figure 6 provides insight into the kinds of injuries that are often attributable to falls. Many of the same injuries identified in the 2009-2018 data, including multi-nature injuries, fractures, concussions, contusions, and dislocations, were still likely to be caused by falls at a similar rate in 2019-2023. Falls were also a major reason for sprain, strain, or tear injuries, although other activities (such as lifting, twisting, carrying, or pushing / pulling) were the most common source of injury.

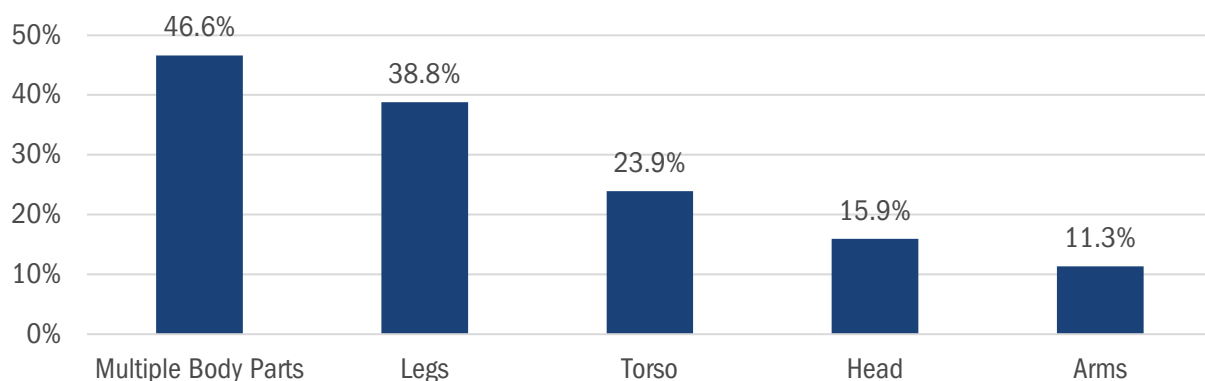
FIGURE 6: Percent of Select Injuries from Falls, 2019-2023



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

When examining the body-part codes for injuries, falls were found to be the root of nearly half of all injuries affecting multiple body parts. Figure 7 provides percentages for other body parts, identifying falls as a primary cause of leg injuries and a major cause of injuries to the torso. It should be noted falls accounted for roughly 1,750 head injuries and 4,000 arm injuries between 2019 and 2023, but these body parts were subject to more injuries from other causes, which lowered the percentage of injuries caused by falls.

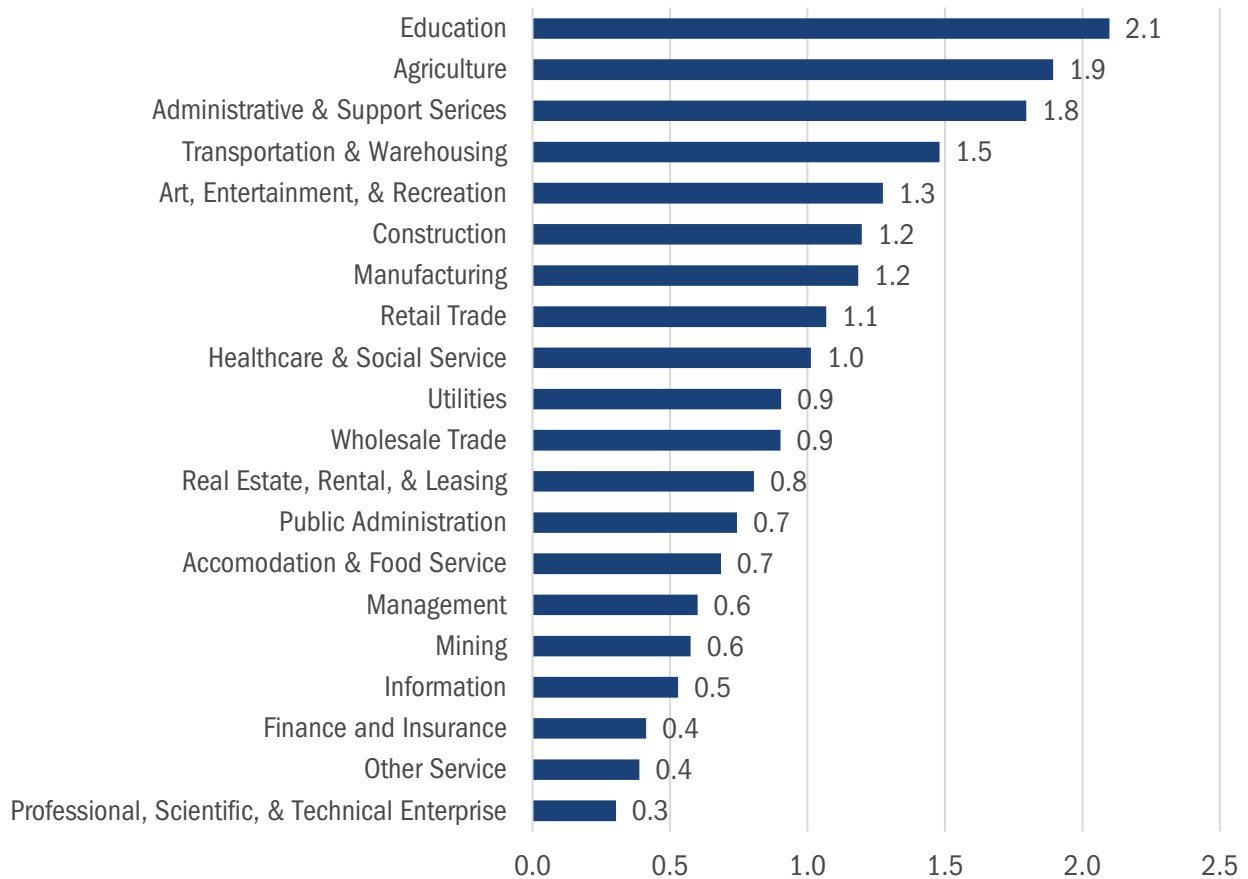
FIGURE 7: Percent of Injuries from Falls by Body Part Injured, 2019-2023



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

Including data on the industry in which the fall injury occurred provides insights on how fall hazards vary in different work settings. Figure 8 provides the fall rate per 100 full-time equivalent workers (FTE) calculated by dividing the count of injuries by the average industry employment. It identifies the highest rates of injury from falls in education, agriculture, and administrative & support services.

FIGURE 8: Fall Rate by Industry per 100 FTE, 2019-2023



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry; Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics

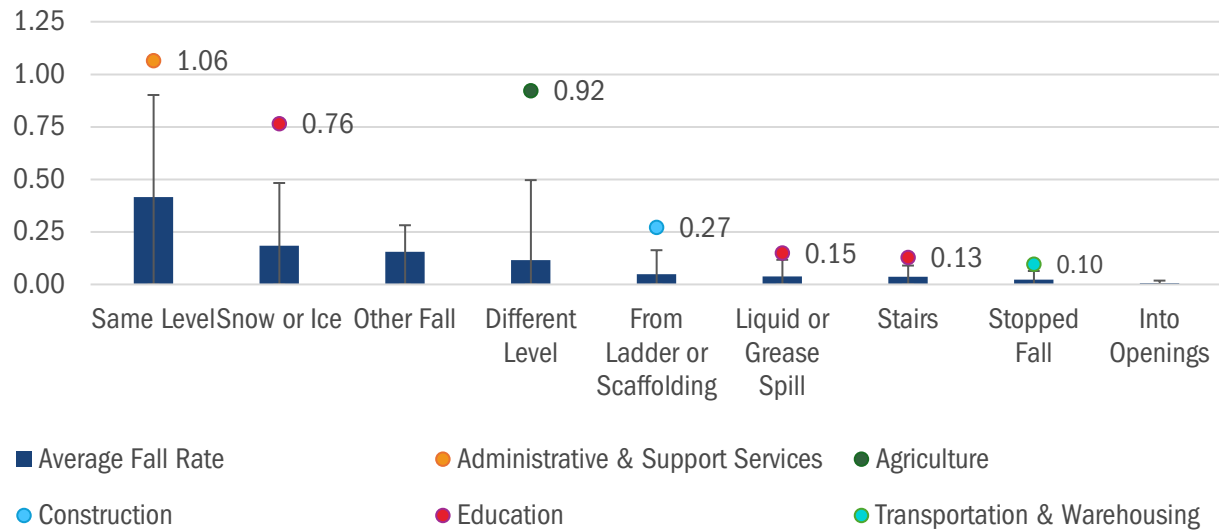
Industry data also can be used to identify how certain types of falls are unevenly concentrated in different industries. Figure 9 provides the average rate of injury in 100 FTE for each type of fall along with a confidence interval and identifies the industries which reported rates exceeding that interval in the 2019-2023 period. This figure identifies the following industries as reporting statistically significant rates of falls:

- **Administrative & Support Services:** This industry, which includes a variety of clerical and janitorial workers, reported the highest rate of same-level falls, over twice that of the state average.
- **Agriculture:** Workers on Montana farms and ranches, as well as those involved with logging, reported injuries from elevated falls at a rate eight times greater than the state average. Accident descriptions suggest falls off equipment were a driving force.
- **Construction:** Workers in the construction industry reported 42% of all falls from ladders or scaffolding, leading to a rate of injury five times greater than the state average.
- **Education:** Teachers and other workers in education reported the highest rate of injury from falls on

snow or ice, at a rate four times greater than the state average. They also reported elevated rates of injury from slips on liquid or grease spills and falls when traversing stairs. Accident descriptions suggest many workers were distracted assisting students prior to injury.

- Transportation & Warehousing: Workers involved with moving or storing freight reported injury from stopped falls at four times the state average.

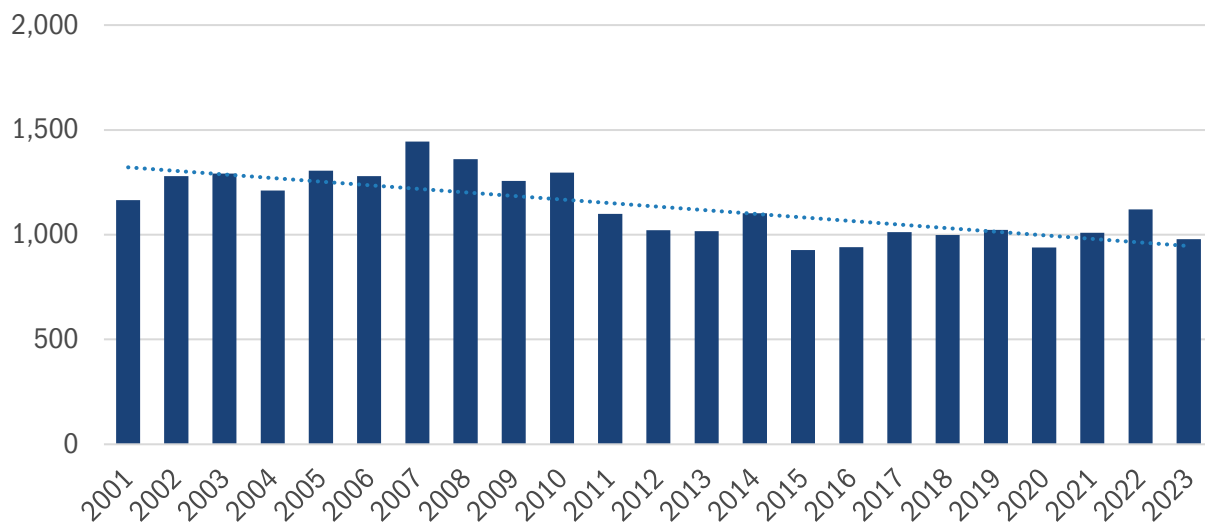
FIGURE 9: Average Rate of Fall Injury by Fall Type with Confidence Interval and Outlier Industry Identifiers per 100 FTE, 2019-2023



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry; Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics

Only about 20% of fall injuries resulted in indemnity benefit payouts. Figure 10 displays the number of fall injuries which resulted in indemnity benefit payouts by year. As injury counts declined, so did the number of injuries that resulted in lost-time benefit payouts.

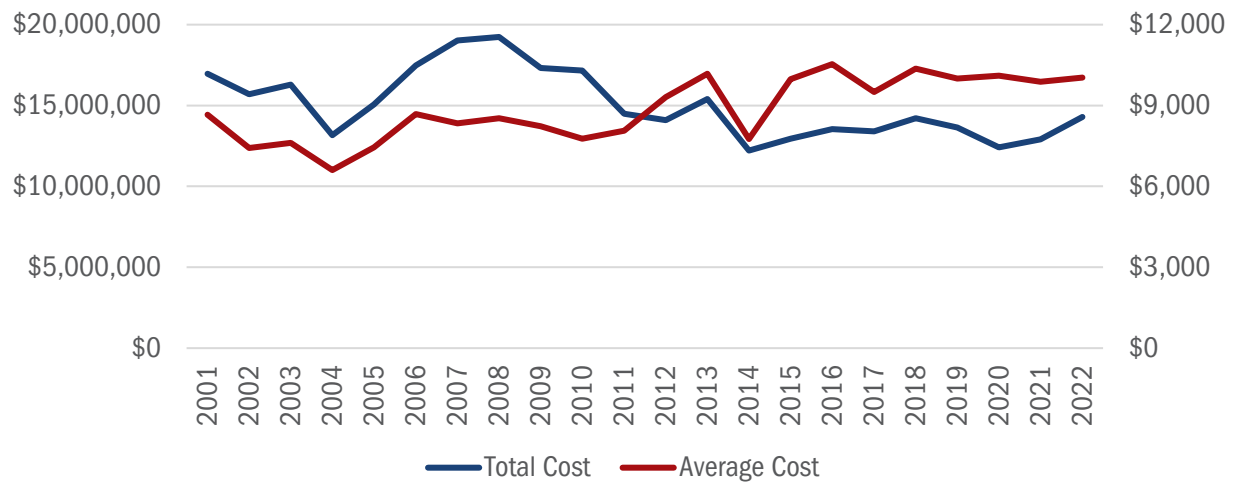
FIGURE 10: Falls to Lost-Time Benefit Payout, 2001-2023



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

The cost of indemnity benefit payouts can be measured as either a sum or an average. Figure 11 provides both views, with total in blue measured on the left Y-axis and average in red measured on the right Y-axis. This figure indicates the annual total cost has decreased slightly over the past twenty years while the average cost has increased. This trend can be attributed partly to the decline in total injuries resulting in indemnity benefit payouts and an increase in the costs specific to each individual injury. Note that this data excludes 2023, as payment data has not been finalized for that year.

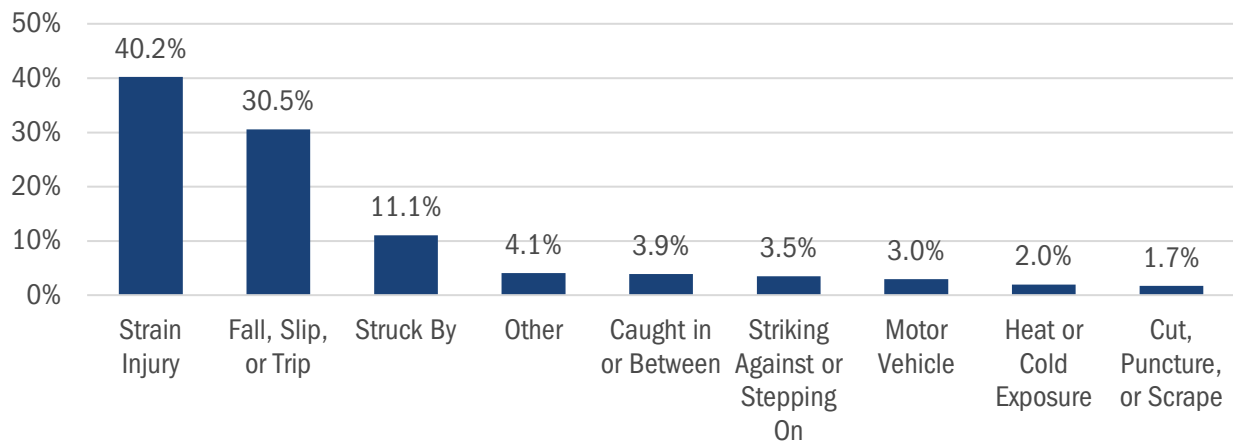
FIGURE 11: Total Cost and Average Cost of Lost-Time Workers' Compensation Claims from Falls, 2001-2022



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

Falls constitute a greater share of injuries leading to indemnity benefit payouts than they do of all reported injuries. Figure 12 indicates over 30% of indemnity benefits payouts can be traced to fall injuries, an increase from the 23% of all injuries from falls shown in Figure 3.

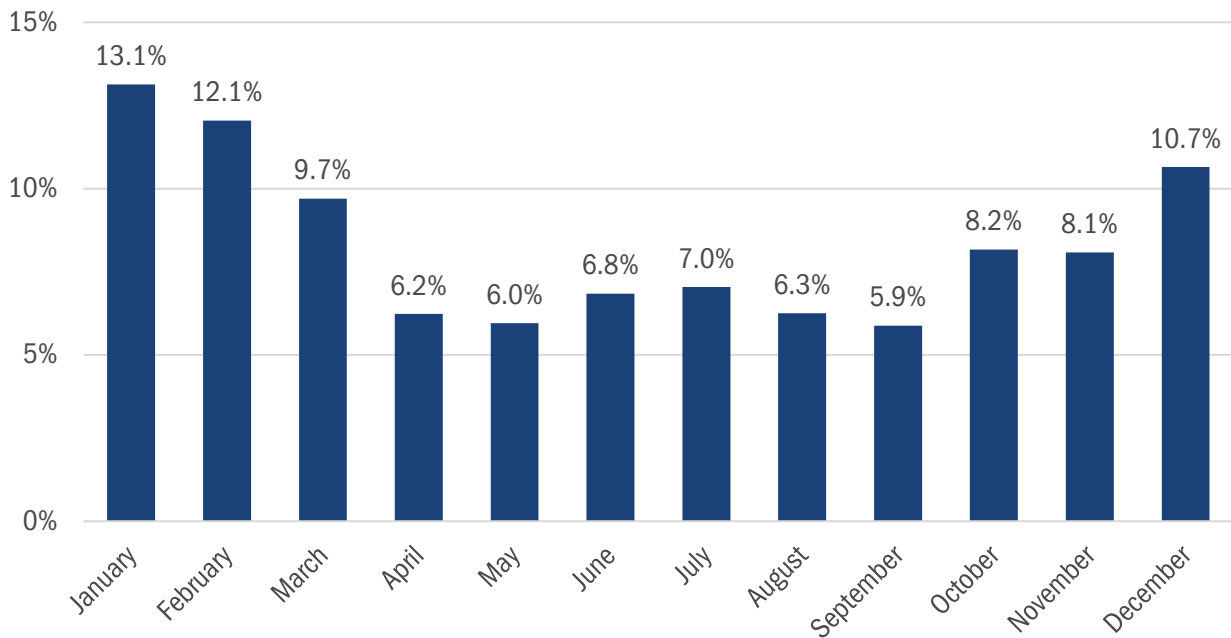
FIGURE 12: Percent of Lost-Time Benefit Payouts by Injury Type, 2019-2023



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

Much like the general monthly breakdown of fall injuries, the fall injuries leading to indemnity benefits are more common in the winter months. Figure 13 indicates falls leading to benefit payouts happen more often in the winter months than the summer months.

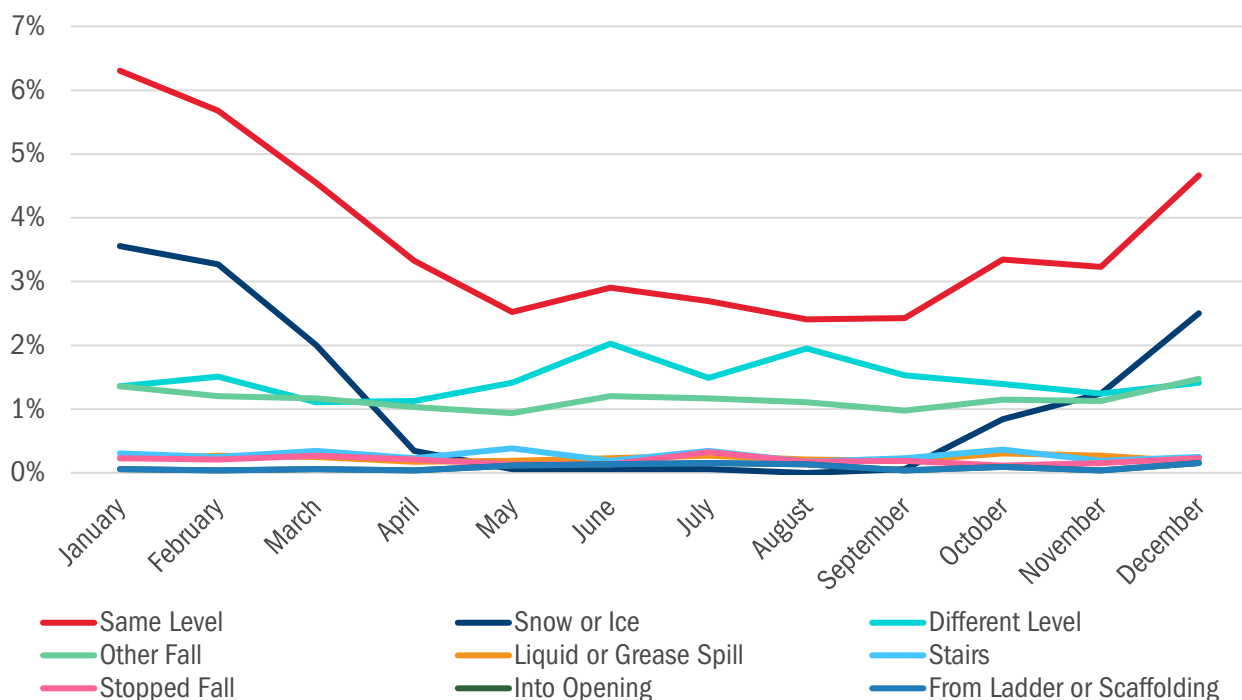
FIGURE 13: Monthly Lost-Time Payouts from Falls, 2019-2023



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

By adding the specific kind of fall injury to the monthly indemnity benefit analysis, as done in Figure 14, the seasonal variation of falls is highlighted. Just as Figure 5 did for all fall injuries, Figure 14 isolates the same level and snow / ice falls as driving the winter increase in injury. It also indicates that different level falls increase during the summer to nearly twice their winter rate.

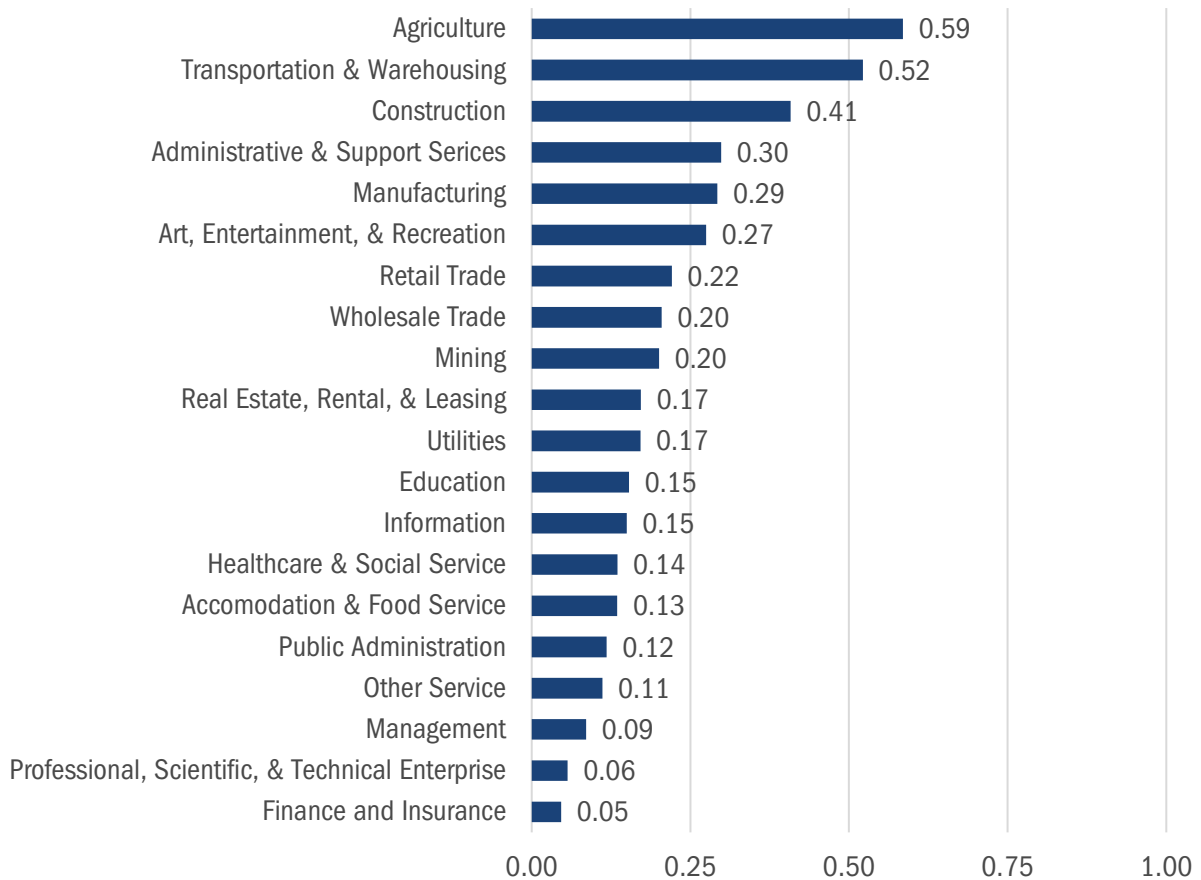
FIGURE 14: Monthly Falls Resulting in Lost-Time Benefit Payouts by Fall Type, 2019-2023



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry

Finally, the incorporation of industry data helps isolate which workplaces see fall injuries which require recovery time. Figure 15 provides that view with the same axis scale as Figure 8, supporting the observation that most fall injuries do not result in indemnity benefit payout. It also shows that the industries with the greatest share of falls leading to indemnity benefit payouts are different, with industries such as agriculture, transportation and warehousing, and construction leading the way.

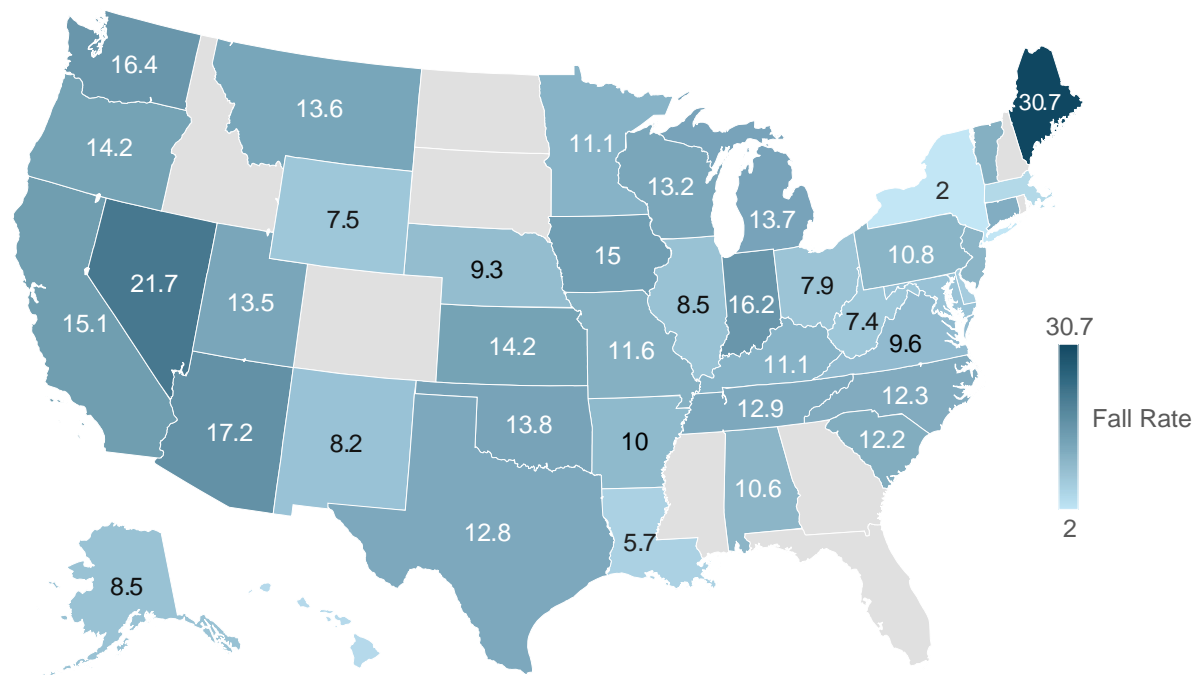
FIGURE 15: Fall injuries Resulting in Lost-Time Payout by Industry per 100 FTE, 2019-2023



Source: Workers' Compensation Administrative Network, Montana Department of Labor & Industry; Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics

Comparing Montana to other states, the rate of fall injuries is slightly above the national average. Figure 16 provides the rate of injury from falls in over 40 states for the most recent federal biennium (2021-2022). Montana exceeds the national average (11.7) but remains comparable to many other states.

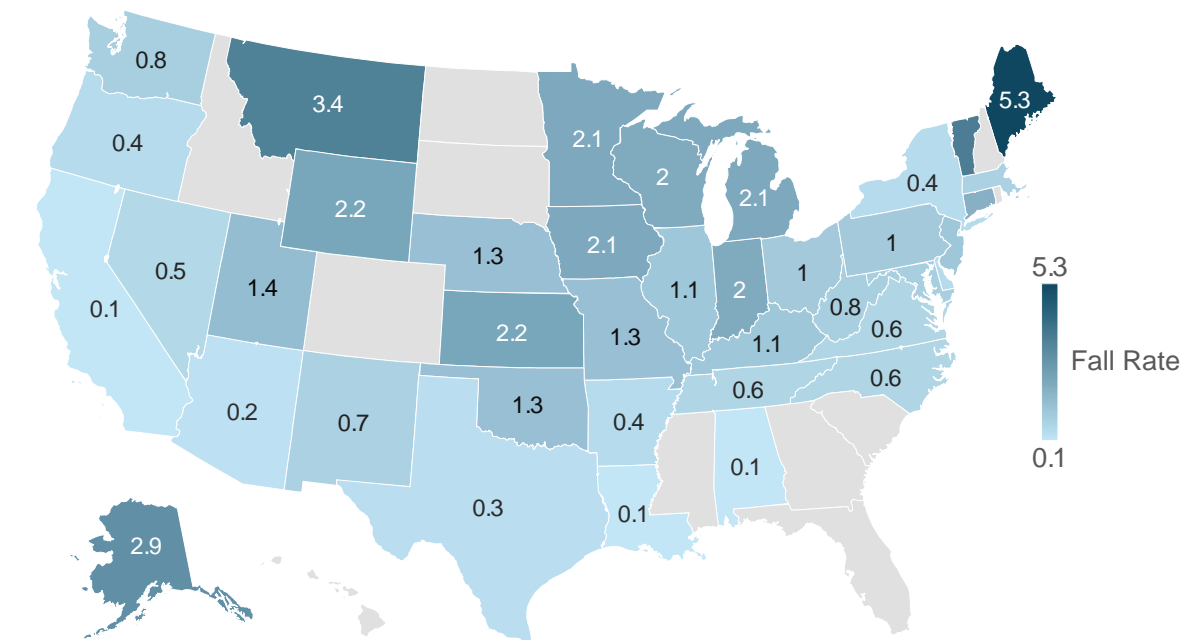
FIGURE 16: Rate of Fall Injuries for the U.S.



Source: U.S. Bureau of Labor Statistics

While Montana is toward the middle of the reporting states for total rate of fall injuries, it stands out as a state with a high rate of injuries from falls caused by snow or ice. Figure 17 indicates that Montana workers experienced falls at a rate of 3.4 injuries per 100 FTE, roughly 4 times greater than the national average of 0.8. Montana had the third highest rate, behind Vermont and Maine. Other states concentrated in the Great Lakes or Northern Plains regions also reported rates well above the national average.

FIGURE 17: Rate of Fall Injuries from Snow or Ice



Source: U.S. Bureau of Labor Statistics

Discussion

This new report on the facts surrounding workplace fall injuries in Montana shows that much of what was observed in 2019 remains true. Falls continue to be one of Montana's main sources of workplace injury. The new data also confirmed that falls remain more common in the winter months, as slick walking conditions pose an additional threat to workers. The tendency of falls to result in multi-nature, body-wide injuries was supported by the new data. Finally, national data comparisons indicate that Montana continues to exceed the U.S. national average. While these findings are not encouraging, there are some more positive details in this report. The number of fall injuries decreased over the past five years. When calculating injury as a rate per worker, the decline was even more dramatic, as the Montana workforce has grown rapidly while injuries have become less common. Additionally, while Montana's rate of injury exceeds the U.S. average, the inclusion of data from other states indicates that Montana is not an outlier and has a comparable rate of fall injury to states with similar winter weather.

This report also developed the understanding of the prevalence of specific types of falls in specific types of workplaces, as depicted in Figure 8 and Figure 9. The first provides a rate of injury from fall injuries, helping to identify which workplaces are reporting the greatest proportion of injuries from falls and therefore are most likely to be vulnerable to fall-related hazards. The second provides further specificity, isolating the role of unique fall hazards in some workplaces (such as the role of agricultural equipment or scaffolding in creating elevated fall hazards). While most of these findings are intuitive, establishing their role is necessary for ensuring hazard mitigation and training efforts are properly conducted.

Resources

In closing this report, the researchers at the Montana Department of Labor & Industry aim to increase awareness on the state of workplace hazards surrounding fall injuries and encourage Montana workers and employers to take steps to create the safest working environment possible. Fortunately, numerous resources exist to help reduce the risk of falls in the workplace, including:

Montana Department of Labor & Industry's SafetyFest: DLI provides free safety training at in-person and virtual events every year, including a session on fall safety.

Occupational Safety and Health Administration (OSHA): This federal agency has issued numerous publications on the hazards of workplace falls and provided guidance on avoiding injury and death from falls. Much of the OSHA focus is on construction settings, where falls are the leading cause of death; however, the agency also recognizes the role of non-fatal falls in many other workplaces.

National Safety Council: This organization works closely with OSHA to provide training on identifying and reducing the risks surrounding falls in all workplaces.

In addition to these resources, workers' compensation insurers provide safety training and resources, as required by the Montana Safety Culture Act. Contact your insurer to learn more.