

Workplace Safety Indices by industry: insights and methodology

Risk Control services
from Liberty Mutual Insurance

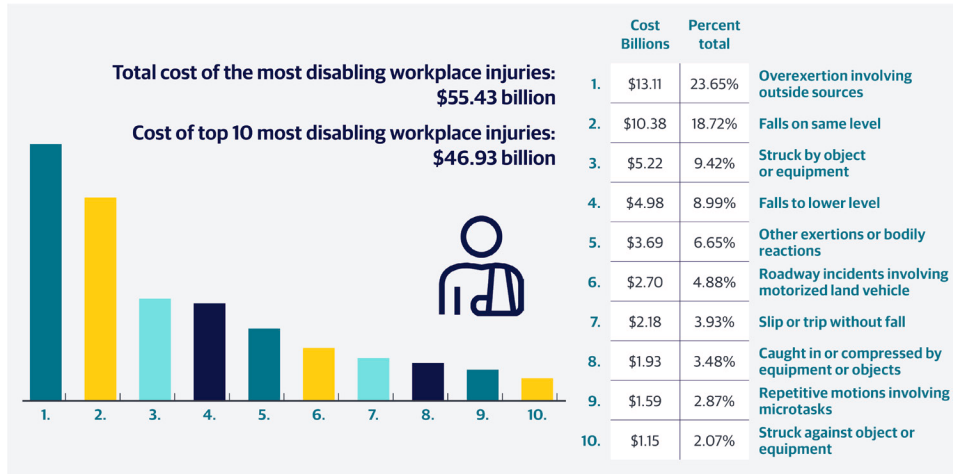


Table 1: The 10 most costly injury causes and direct costs to U.S. businesses.

The Liberty Mutual Workplace Safety Index ranks the top causes of serious workplace injuries by their direct cost to U.S. businesses.

The 2019 Workplace Safety Index (WSI) exposes the highest injury costs for eight industry sectors.

“The annual ranking helps employers, risk managers, and safety professionals improve workplace safety by highlighting financial impact and leading causes of serious work-related injuries and illnesses,” notes James Merendino, General Manager, Risk Control, National Insurance. “While overexertion continues to be the leading cause of serious workplace injuries, falls are a close second.

“This year’s analysis by industry sector adds value to business leaders by helping them further prioritize risk-reduction efforts. To improve safety, employers must understand the root causes of their workplace injuries

and the ways to effectively mitigate these through work design, system controls, technology, and training. Liberty Mutual can be a key resource to employers in these efforts."

Study methodology

The annual Liberty Mutual WSI is based on information from Liberty Mutual, the U.S. Bureau of Labor Statistics (BLS), and the National Academy of Social Insurance. Liberty Mutual and BLS non-fatal injury data are analyzed to determine which events caused employees to miss more than five days of work. The Index then ranks those events by total workers compensation costs, which include medical and lost-wage payments. To capture accurate injury cost data, each Index is based on data three years prior. Accordingly, the 2019 Index reflects 2016 data.

Due to methodology improvements used to derive the 2019 Liberty Mutual Workplace Safety Index, <https://business.libertymutualgroup.com/business-insurance/Documents/Services/RC2026.pdf>, the current Index cannot be compared to previous years' Indices. Nevertheless, the top ten causes were the same between the 2018 and 2019 reports. Their rank order, however, had some subtle changes. Injury causes by industry sectors are reported for the first time and reveal different sets of causes for the eight industry sectors with the most direct costs.

The 2019 Index represents a break from previous Indices in the following ways:

- Improvements were made in the methods to categorize injury causes and better reflect national costs of non-fatal indemnity claims with days away from work. The improved categorization of causes resulted in a broader distribution of injuries across all causes, including causes not within the top ten.
- Adjustments were made to the methods to calculate the total cost so that the cost reported from now on will more closely reflect costs paid in the year reported.
- Data were analyzed to determine leading injury causes by industry sector.

Additional sources of data were used to complete the industry sector analysis. The National Compensation Survey (<https://www.bls.gov/ncs/ect>) data were used to estimate the cost of workers compensation to employers in 2016 by industry sector (per hour worked). The Current Employment Statistics National Database (<https://www.bls.gov/ces>) was then used to estimate the total number of hours worked by industry sector. From these data the percentage of total direct costs of injuries by industry sector was estimated. Because data were analyzed by both industry sector and cause (BLS event type), some combinations of sector and cause have a small number of claims; thus, not all industry

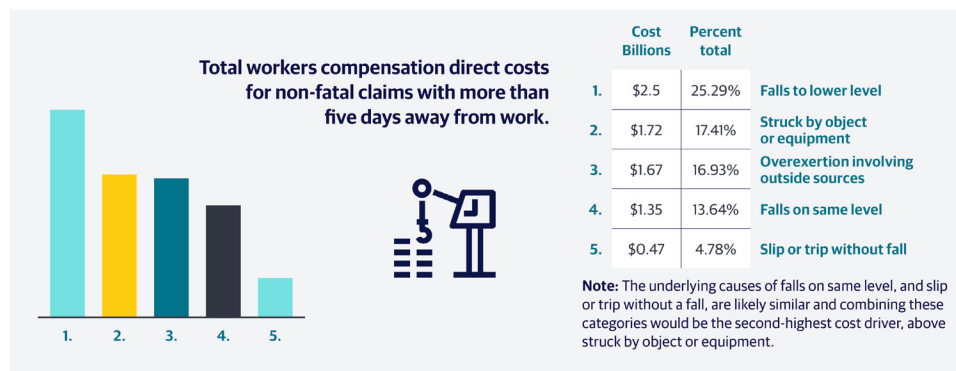
sectors could be included in the analysis. Industry sectors with sufficient data represented 85.7 percent of all direct costs for non-fatal injuries with more than five days away from work.

| Industry sector | Cost (Billions) | Percent of all industries | Top five causes as a percent of sector |
|------------------------------------|-----------------|---------------------------|----------------------------------------|
| Construction | \$9.87 | 17.8% | 78% |
| Professional and Business Services | \$7.86 | 14.2% | 70% |
| Manufacturing | \$7.62 | 13.7% | 67% |
| Healthcare and Social Assistance | \$5.17 | 9.3% | 79% |
| Retail | \$5.09 | 9.2% | 79% |
| Transportation and Warehousing | \$4.37 | 7.9% | 67% |
| Wholesale | \$4.04 | 7.3% | 71% |
| Leisure and Hospitality | \$3.46 | 6.2% | 71% |
| Total: | \$47.48 | 85.7% | |

Observations by industry

For each of the following eight industry sectors there was sufficient data to report the top five causes of workers compensation direct costs for non-fatal claims with more than five days away from work.

Construction

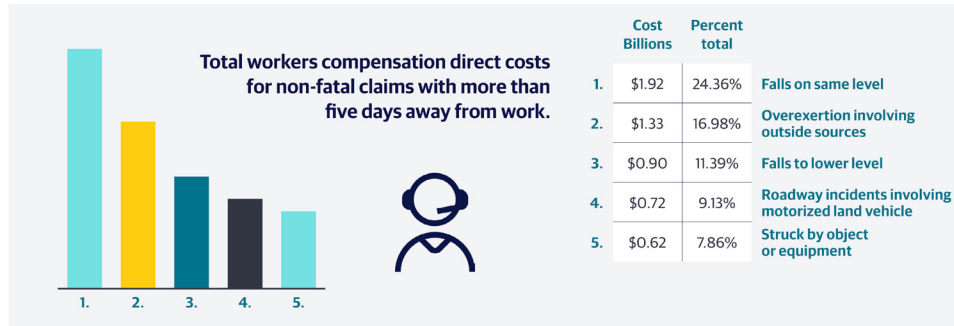


1. *Falls to lower level* accounts for \$2.5 billion in losses and represents 25.29 percent of this industry's non-fatal injury cost. Construction is the only industry where this is the leading injury cause.
2. *Struck by object or equipment* (\$1.72 billion, 17.41 percent).
3. *Overexertion involving outside sources* (\$1.67 billion, 16.93 percent).

4. *Falls on same level* (\$1.35 billion, 13.64 percent).
5. *Slip or trip without a fall* (\$0.47 billion, 4.78 percent).

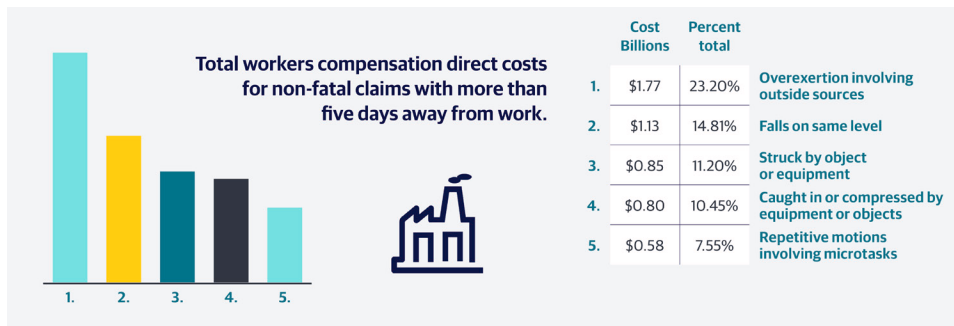
The underlying causes of *falls on same level* and *slip or trip without a fall* are likely similar, and combining these categories would be the second-highest cost driver, above *struck by object or equipment*.

Professional and Business Services



1. *Falls on same level* accounts for \$1.92 billion in losses and represents 24.36 percent of this industry’s non-fatal injury cost.
2. *Overexertion involving outside sources* (\$1.33 billion, 16.98 percent). These data may seem surprising given that job tasks in this sector are generally considered low-demand, but even office work has exposures to lifting and handling of office supplies and equipment.
3. *Falls to lower level* (\$0.90 billion, 11.39 percent), which includes falls from ladders.
4. *Roadway incidents involving motorized land vehicles* (\$0.72 billion, 9.13 percent). This industry sector is one of three to have this injury cause within the top five, and this sector has the highest total cost for this cause – even higher than transportation and warehousing.

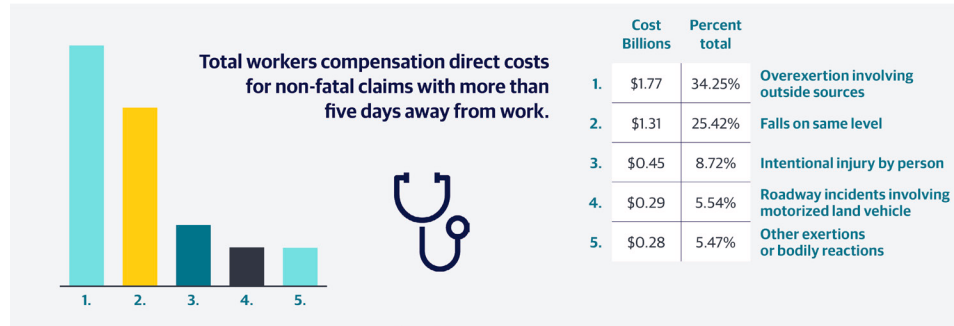
Manufacturing



1. *Overexertion involving outside sources* accounts for \$1.77 billion in losses and represents 23.2 percent of the manufacturing industry’s non-fatal injury cost.

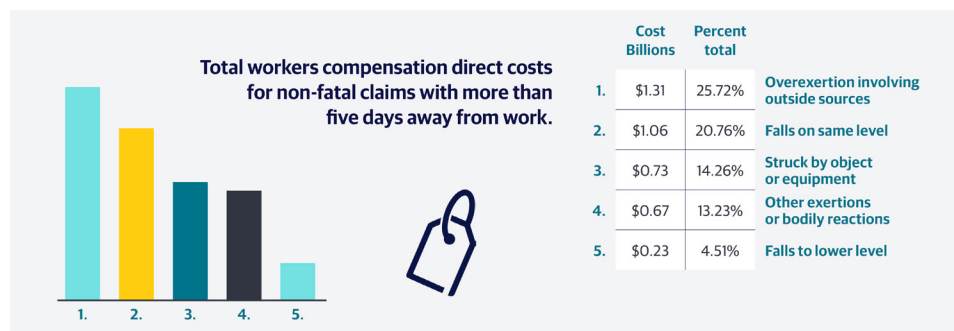
2. *Caught in or compressed by equipment or objects* (\$0.8 billion, 10.45 percent).
 3. *Repetitive motions involving microtasks* (\$0.58 billion, 7.55 percent).
- Manufacturing is the only sector to have *caught in or compressed by* or *repetitive motions involving microtasks* within the top five causes.

Healthcare and Social Services



1. *Overexertion involving outside sources* (\$1.44 billion in losses, and 34.25 percent of this industry's non-fatal injury cost). This industry sector has the highest percent of losses attributed to its leading cause. The majority of the injuries in this category are possibly patient handling injuries.
2. *Falls on same level* (\$1.31 billion, 25.42 percent) also make up a large portion of the losses in this sector.
3. *Intentional injury by person* (\$0.45 billion, 8.72 percent). This sector is the only one to have this injury cause as one of the top five causes.

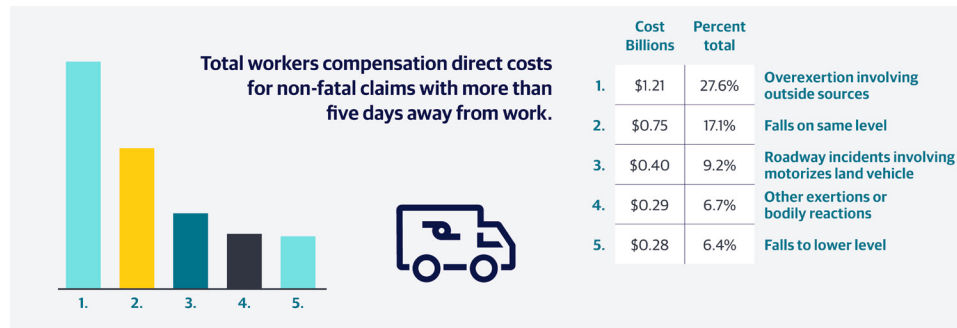
Retail



1. *Overexertion involving outside sources* (\$1.31 billion in losses, and 25.72 percent of this industry's non-fatal injury cost).
2. *Falls on same level* (\$1.06 billion, 20.67 percent).
3. *Struck by object or equipment* (\$0.73 billion, 14.26 percent).
4. *Other exertions or bodily reactions* (\$0.67 billion, 13.23 percent).
5. *Falls to lower level* (\$0.23 billion, 4.51 percent).

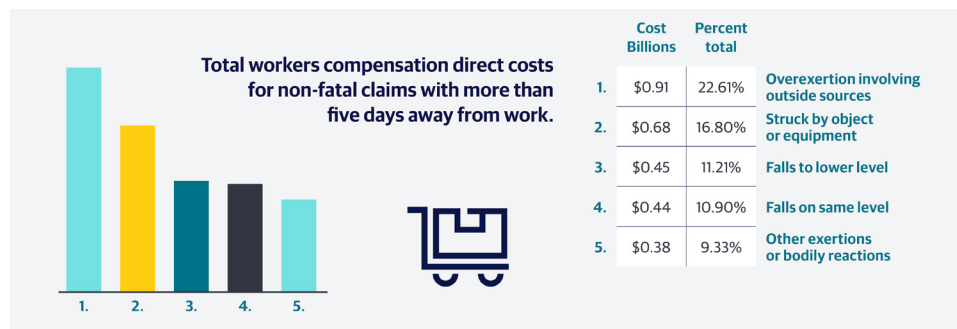
Within the retail sector *other exertions or bodily reactions* make up the largest portion of serious injury losses compared to the other industry sectors reported. This injury cause is defined by the BLS as, "...generally resulting from *a single or prolonged instance of free bodily motion* which imposed stress or strain upon some part of the body. This category also includes the assumption of an unnatural position for a prolonged period of time."

Transportation and warehousing



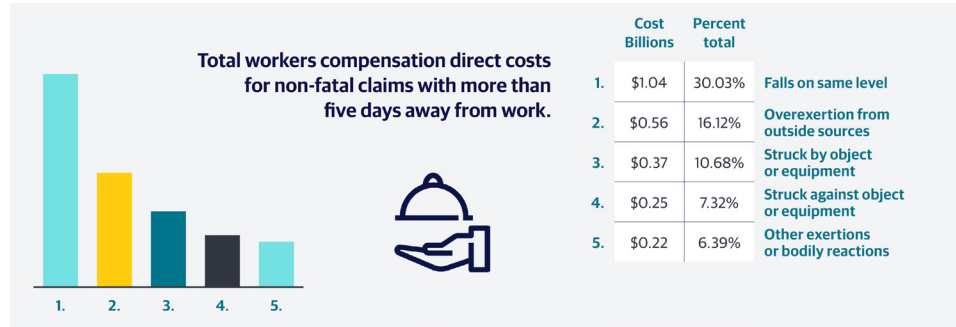
1. *Overexertion involving outside sources* (\$1.21 billion in losses, and 27.6 percent of this industry's non-fatal injury cost). Due to the manual handling in this industry, it can be expected that this injury cause leads the top causes.
2. *Falls on same level* (\$0.75 billion, 17.1 percent).
3. *Roadway incidents involving motorized land vehicles* (\$0.4 billion, 9.2 percent).

Wholesale



1. *Overexertion involving outside sources* (\$0.91 billion in losses, and 22.61 percent of this industry's non-fatal injury cost).
2. *Struck by object or equipment* (\$0.68 billion, 16.8 percent).
3. *Falls to lower level* (\$0.45 billion, 11.21 percent).
4. *Falls on same level* (\$0.44 billion, 10.9 percent).
5. *Other exertions or bodily reactions* (\$0.38 billion, 9.33 percent).

Leisure and hospitality



1. *Falls on same level* (\$1.04 billion in losses, and 30.03 percent of this industry's non-fatal injury cost. Only the healthcare and social services sector has a higher proportion of losses attributed to this injury cause).
2. *Overexertion involving outside sources* (\$0.56 billion, 16.12 percent) is nearly half of the cost associated with *falls on same level*.
3. *Struck by object or equipment* (\$0.37 billion, 10.68 percent).
4. *Struck against object or equipment* (\$0.25 billion, 7.32 percent).
5. *Other exertions or bodily reactions* (\$0.22 billion, 6.39 percent).

Each industry requires a unique focus to help mitigate the causes of injury that affect them most. The table below shows how the top five most costly non-fatal injuries requiring more than five days away from work vary by industry.

| Industry | Ranking of Cause of Loss | | | | |
|------------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------------|
| | 1st | 2nd | 3rd | 4th | 5th |
| All Industries | Overexertion, outside sources | Falls, same level | Struck by object or equipment | Falls, to lower level | Other exertions or bodily reactions |
| Construction | Falls, to lower level | Struck by object or equipment | Overexertion, outside sources | Falls, same level | Slip or trip without a fall |
| Prof. Services | Falls, same level | Overexertion, outside sources | Falls, to lower level | Roadway incidents | Struck by object or equipment |
| Manufacturing | Overexertion, outside sources | Falls, same level | Struck by object or equipment | Caught in, compressed by equipment | Repetitive motions, microtasks |
| Healthcare | Overexertion, outside sources | Falls, same level | Intentional injury by person | Roadway incidents | Other exertions or bodily reactions |
| Retail | Overexertion, outside sources | Falls, same level | Struck by object or equipment | Other exertions or bodily reactions | Falls, to lower level |
| Transport & Warehousing | Overexertion, outside sources | Falls, same level | Roadway incidents | Other exertions or bodily reactions | Falls, to lower level |
| Wholesale | Overexertion, outside sources | Struck by object or equipment | Falls, to lower level | Falls, same level | Other exertions or bodily reactions |
| Leisure & Hospitality | Falls, same level | Overexertion, outside sources | Struck by object or equipment | Struck against object or equipment | Other exertions or bodily reactions |

Although differences exist, there are some consistencies:

- *Overexertion involving outside sources* is the leading cost driver for five of the eight industry sectors reported.
- *Overexertion involving outside sources* and *falls on same level* are the first and second leading causes, respectively, for five of the eight sectors, and first or second for six of them.
- Only *Overexertion involving outside sources* and *falls on same level* are in the top five causes for each of the eight industry sectors reported.

Note: The cost of an injury cause in one industry sector can be very different in another industry sector even though the cause category is the same. For example, *struck by* injuries in retail are likely to be much less severe than *Struck by* injuries in construction.

For additional detail on the kinds of injuries included in each event category, refer to the Injury and Illness Classification Manual (<https://www.bls.gov/iif/oshoiics.htm>).



The illustrations, instructions, and principles contained in the material are general in scope and, to the best of our knowledge, current at the time of publication. Our risk control services are advisory only. We assume no responsibility for: managing or controlling customer safety activities, implementing any recommended corrective measures, or identifying all potential hazards.

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