Summary of Data from the U.S. Census of Fatal Occupational Injuries, 2008-2018

Fatal Work-Related Injuries in Wyoming & Surrounding States

Every year, two programs at the Wyoming Department of Workforce Services monitor and report work-related injury deaths that occurred in Wyoming: the State Occupational Epidemiology program and the federally-run Census of Fatal Occupational Injuries (CFOI). Often, the differences in program confidentiality restrictions and information access result in the two strategies producing different counts of workplace deaths. The two programs collect similar information but have two different goals: the federal CFOI program facilitates the collection of standardized data across states and the nation; while the State Occupational Epidemiology program provides more detailed reporting of workplace deaths that have occurred in the state.

More information and data from State Occupational Epidemiology: wyomingworkforce.org/data/epidemiology/

More information and data from the Census of Fatal Occupational Injuries: doe.state.wy.us/lmi/safety.htm

Introduction

This document provides a summary of select, public access data from the U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries (CFOI). Ample information is available to understand the methods and scope of this national fatality surveillance system. In general, the federal CFOI data includes fatalities for which traumatic injury or acute exposure during work was the primary cause of death.

This summary of occupational fatalities was compiled using data from the public CFOI data tables, which are published annually for each calendar year. The CFOI, for confidentiality reasons, typically restricts (or suppresses) the publication of very small numbers in any given subset category, such as cause, industry or age. Thus, in this summary document, the category label “Not Reported” represents the number of fatalities that were not accounted for in the public CFOI annual data tables. To obtain more inclusive data, users can request CFOI data that is aggregated into multiple-year increments, as has been done by our program for other reports.

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1 Occupational fatality data from the U.S. Census of Fatal Occupational Injuries are published annually each December for the prior calendar year. This summary report will be updated annually after new data become available.
Data Summary
According to the U.S. Census of Fatal Occupational Injuries (CFOI), Wyoming consistently has one of the highest occupational fatality rates in the country. On average from 2008-2018, Wyoming experienced 30 worker deaths per year, a rate of 11.2 per 100,000 full time equivalent workers (FTE). (Figure 1) This average rate is more than three times higher than the national average of 3.5 per 100,000 FTE during the same period. Since 2008, 334 workers have been fatally injured on the job in Wyoming, and the state has not experienced a sustained reduction in the annual rate of worker deaths.ii

Figure 1: Number and Crude rate of Fatal Occupational Injuries per 100,000 Full-time Equivalent Workers, Wyoming and the United States, 2008-2018 (n=334)

![Bar chart showing the number and crude rate of fatal occupational injuries per 100,000 full-time equivalent workers in Wyoming and the United States from 2008 to 2018. The chart includes data suppression for certain industries, particularly in the categories of Government and Manufacturing.](chart.png)

By Industry
Figure 2 shows the percent of fatal occupational injuries by select industry during 2008-2018, as defined by the North American Industry Classification System (NAICS).iii The industry categories presented in Figure 2 do not cover all possible industry categories – they were selected for this report to provide an overview of the industries known to have higher risk and a large burden of occupational fatality in Wyoming.

In Figure 2, the percentage of deaths in any single industry category may be under-reported due to the CFOI data publication restrictions (See Introduction). Data suppression during 2008-2018 was especially prevalent in the categories of Government, and Manufacturing, thus, the percentage of fatalities attributed to those industries is likely under-represented.

During 2008-2018, public data suppression was not apparent in the industry categories of Mining, Quarrying & Oil Gas Extraction, and Transportation & Warehousing, thus the proportion of fatalities attributed to those industry groups is likely more accurate.

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ii Fatality rate data for Wyoming are not available prior to 2008.

iii Since 2003, CFOI has used several versions of the North American Industry Classification System (NAICS) to define industry. More information: https://www.bls.gov/iif/oshcfdef.htm
By Cause Event or Exposure

Figure 3 shows the percent of fatal occupational injuries by event or exposure group during 2008-2018, as defined by the BLS Occupational Injury and Illness Classification System (OIICS). The six event/exposure groups presented in Figure 3 are the most prevalently reported categories defined by the OIICS, covering the majority of occupational fatalities in the U.S. and Wyoming:

<table>
<thead>
<tr>
<th>BLS OIICS Event/Exposure Categories</th>
<th>As labeled in Figure 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violence and other injuries by persons or animals</td>
<td>Violence</td>
</tr>
<tr>
<td>Transportation incidents</td>
<td>Transportation</td>
</tr>
<tr>
<td>Fires and explosions</td>
<td>Fires and explosions</td>
</tr>
<tr>
<td>Falls, Slips, Trips</td>
<td>Falls, Slips, Trips</td>
</tr>
<tr>
<td>Exposure to harmful substances or environments</td>
<td>Exposure</td>
</tr>
<tr>
<td>Contact with objects and equipment</td>
<td>Contact</td>
</tr>
</tbody>
</table>

In Figure 3, the percentage of deaths in a single event/exposure category may be under-reported due to the CFOI data publication restrictions (See Introduction). Occupational fatality events that were not accounted for in annual data tables were classified as "Other Cause or Not Reported." This category is substantial in the Wyoming data compared to the U.S. because small numbers of events are more likely to be suppressed in the CFOI annual public data tables.

The CFOI annual data suppression for Wyoming during this reporting period was especially prevalent in the categories of Fires and Explosions, and Exposure to Harmful Substances and Environments. Thus it is difficult to draw any conclusions on the distribution of fatalities in these categories as compared to the U.S.

Data suppression was not apparent in the Transportation Incidents category for Wyoming during 2008-2018, thus conclusions regarding this category can be made with greater confidence. Compared to the United States, Wyoming experienced a higher proportion of workplace fatalities due to transportation incidents (51% vs. 41%)

See the Bureau of Labor Statistics, Occupational Injury and Illness Classification System overview for more information: https://www.bls.gov/iif/oshoiics.htm
The percent of fatal occupational injuries attributed to transportation incidents has fluctuated in Wyoming, with a low of 41% in 2016 and a high of 61% in 2018, the most recent year on record. It is important to note that this category includes car and truck crashes, as well as industrial equipment, aircraft, watercraft and railroad incidents. 

* Figures 3 and 4: Percent of Fatal Occupational Injuries by Event or Exposure, 2008-2018

* See the Bureau of Labor Statistics, Occupational Injury and Illness Classification System overview for more information: https://www.bls.gov/iif/oshoiics.htm
By Worker Demographics

Figure 5 shows the proportion of occupational fatal injuries by select worker demographic. As in previous subcategory analyses presented in this report, a small number of fatalities in any given demographic category in any given year may not have been published in the CFOI annual reports (See Introduction). Thus, in this multi-year summary (Figure 5), the percentage of deaths in any demographic category, but especially minority populations, is likely under-reported. For this summary, occupational fatality events not accounted for in the CFOI annual data tables were classified as “Not Reported.” This category is substantial in the Wyoming data, as small numbers of events are more likely to be suppressed for confidentiality. However, a couple of conclusions can still be made from these data.

Male workers are over-represented in incidence of work-related death in Wyoming, an indication that they face higher risk for fatal injury. During 2008-2018, at least 91% of occupational fatalities in Wyoming occurred among men. (Figure 5) However, during this same time period, only 55% of employed workers in Wyoming were male.\(^5\) This same trend is observed on the national scale and data show that males dominate employment in jobs with higher mortality risk such as construction, extraction, and agriculture.\(^6,7,8\)

Older workers are over-represented in incidence of work-related death in Wyoming, an indication that they face higher risk for fatal injury. During 2008-2018, at least 13.8% of occupational fatalities in Wyoming occurred among workers age 65 and over. (Figure 5) This was on par with the national average (13.0%), but much higher than the proportion of the total employed workforce in that age group in Wyoming, which was approximately 6% during that time.\(^5\) This same trend is observed on the national scale. Across the U.S., workers age 65 and over experience the highest rates of occupational fatality by age, more than double the all-worker rate (9.6 vs. 3.5 per 100,000 FTE in 2018).\(^9\)

More complete data is needed to accurately understand the burden of occupational fatality among minority populations in Wyoming. During 2008-2018, the proportion of occupational deaths in Wyoming among White (non-Hispanic) workers was much higher than the national average (87.1% vs. 68.6%, respectively). (Figure 5) During this same period, Wyoming’s employed workforce overall was approximately 88% White (non-Hispanic),
1% Black or African American (non-Hispanic), and 8% Hispanic or Latino.\textsuperscript{5} However, the race/ethnicity of occupational fatalities in Wyoming was not reported for 6.6% of incidents during 2008-2018, meaning the percentages assigned to minority populations are likely under-estimates.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure5.png}
\caption{Percent of Fatal Occupational Injuries by Worker Demographics, Wyoming and the U.S., 2008-2018}
\end{figure}

Comparison to Surrounding and Similar States
Figure 6 compares Wyoming’s annual fatality rates to neighboring states and states similar with regard to population size and percentage of the workforce in mining and agriculture. Research previously conducted by
the DWS Research & Planning Section suggested that nearly three-fourths of the difference in state fatal occupational injury rates can be explained by the proportion of employment in each state that is found in production agriculture and mining.¹⁰ In recent years, Wyoming ranked 50th in the nation for population size, yet first for the percentage of the workforce in mining and agriculture. (Figure 6)

In this comparison, North Dakota is the most similar to Wyoming in population, as well as mining and agriculture employment; both states had an average fatality rate of approximately 11 deaths per 100,000 FTE workers. Alaska is similarly known for its small population size and high proportions of workers in high-risk occupations, such as commercial fishing and logging, yet its average fatality rate was less than Wyoming (8.9 vs. 11.2 deaths per 100,000 FTE, respectively).
### Figure 6: Comparison of Wyoming Occupational Fatality Rates to Similar and Neighboring States, 2008-2018 & Averages

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>50th (lowest)</td>
<td>1st (highest)</td>
<td>2008</td>
<td>2009</td>
</tr>
<tr>
<td>Wyoming</td>
<td>50</td>
<td>11.6</td>
<td>12.4</td>
<td>7.5</td>
</tr>
<tr>
<td>Vermont</td>
<td>49</td>
<td>2.4</td>
<td>3.2</td>
<td>2.9</td>
</tr>
<tr>
<td>Alaska</td>
<td>48</td>
<td>4.4</td>
<td>10.6</td>
<td>5.6</td>
</tr>
<tr>
<td>North Dakota</td>
<td>47</td>
<td>10.8</td>
<td>8.3</td>
<td>7.9</td>
</tr>
<tr>
<td>Montana</td>
<td>43</td>
<td>6.6</td>
<td>8.2</td>
<td>12.1</td>
</tr>
<tr>
<td>Colorado</td>
<td>21</td>
<td>2.9</td>
<td>4.2</td>
<td>3.4</td>
</tr>
<tr>
<td>United States</td>
<td>n/a</td>
<td>2.2</td>
<td>3.7</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Percent employment: DWS Research & Planning (http://doe.state.wy.us/LMI/trends/0714/a3-tables.htm#table2)

"Mining" includes establishments categorized as Mining (Sector 21) in the North American Industry Classification System, including Oil & Gas Extraction, and Support Activities for Mining.

"Agriculture" includes establishments categorized as Agriculture, Forestry Fishing and Hunting (Sector 11) in the North American Industry Classification System.
Conclusions

Wyoming consistently has one of the highest work-related fatality rates in the United States. This trend is at least partly influenced by the high proportion of Wyoming’s workforce engaged in high-risk employment. High-risk industries and occupations are those which demonstrate injury, illness and fatality rates at least twice the national average. In 2010, compared to a sample of 27 states and the nation, Wyoming had the highest state percentage of workers employed in industries (36.7%) and occupations (30.7%) deemed high-risk for mortality.

Compared to the U.S. overall, Wyoming tends to have a slightly higher proportion of fatal occupational injuries attributed to transportation incidents. (Figure 5) This event/exposure category includes commercial truck transportation, which is a known hazard of concern in Wyoming, as well as other incidents involving employer-owned passenger vehicles, all-terrain vehicles, industrial equipment on job sites, aircraft, watercraft and railroad incidents. The DWS State Occupational Epidemiology annual fatality reports have demonstrated that these non-truck incidents are a substantial contributor to this event/exposure category in Wyoming.

The federal CFOI data presented in this report are recognized as the official statistical record of occupational injury deaths for Wyoming and the United States. However, much of the federal data publically available for Wyoming do not contain sufficient detail to target specific prevention strategies or priorities. For these reasons, the Wyoming Department of Workforce Services, State Occupational Epidemiology Program, conducts independent monitoring of fatal occupational injuries to produce more detailed reporting and information. More information and reports from that program are available online.

For more information contact:

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vi For example, industries such as crop and animal production, metal and non-metal mining, oil and gas extraction, and truck transportation are identified as high-risk. High-risk occupations include agricultural managers, fire fighters, construction laborers, and mining machine operators, to name a few.
References

12 Council of State and Territorial Epidemiologists (CSTE), Occupational Health Indicators Data. Indicator #16:Workers Employed in Industries and Occupations with High Risk for Occupational Mortality. 2010 Data. Accessible online: www.cste.org/IOHindicators