

WORK-RELATED FATAL INJURIES IN WYOMING 2012-2015

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Occupational Epidemiology Program

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Executive Summary

The Wyoming Department of Workforce Services (DWS) State Occupational Epidemiology (OccEpi) program has collected and reported data on workplace injury fatalities since 2012. This is the fourth report of this effort; however, **this is the first report that summarizes the multiple years of fatality data compiled to date.**

Select data from the federal Census of Fatal Occupational Injuries (CFOI) are also included in this report. Data from DWS OccEpi and CFOI are collected using similar methods and sources, but are not directly comparable, due to possible differences in case ascertainment and classification. This report also provides a limited comparison of DWS OccEpi state data and CFOI federal data. **In comparison, state data were similar to federal data in terms of annual fatality counts, industry distribution and causal events/exposures, thus validating state DWS OccEpi data as a reliable source of provisional workplace fatality information.** While state data can provide more detail about occupational fatalities, continuing to assess and monitor federal CFOI data is also essential as it is the only occupational fatality surveillance system nationally standardized to allow state ranking and comparison to national trends.

The state DWS OccEpi program identified 30 workplace fatalities in 2015; this is a reduction from the 34 fatalities identified using the same methods in 2014 (Figure 1). Some industries experienced an increase in fatalities (agriculture, construction and transportation), while others experienced a decrease (oil and gas extraction and mining) (Figure 1). From 2014-2015, there was observed stability across the major causes of occupational fatalities (Figure 4).

The federal CFOI identified 37 fatalities in 2014 and a fatality rate of 13.1 per 100,000 full-time equivalent workers, which was the highest rate among states and higher than the overall national rate that year (Figure 3). Federal CFOI data for 2015 will be released in late 2016. Results of a tailored CFOI data request in this report provide a historical view of industry-specific fatality in Wyoming during 2003-2014. Noteworthy observations include a slight upward trend in the number of fatalities in the agriculture sector, with cattle ranching and farming accounting for over half of these fatalities in 2003-2014 (Table 1). These data also show that long-distance general freight trucking accounted for 43% of all truck transportation industry deaths during 2003-2014 (Table 1).

Results from the DWS OccEpi multi-year summary highlight several opportunities for targeted prevention among Wyoming's known high-risk industries. For example, falls from height and motor vehicle incidents involving a pedestrian are the two leading causes of fatality in the construction industry, while over-the-road motor vehicle crashes have been a leading cause of fatality among oil and gas extraction workers (Table 5). Strategies for these types of incidents should be considered for future activities of Wyoming's industry safety alliances.

Data on non-fatal occupational injuries are not included in this report, but are available in prior DWS OccEpi reports and in other reports of the DWS Research & Planning Section.

Introduction

The Wyoming Department of Workforce Services (DWS) Occupational Epidemiology (OccEpi) program has collected and reported data on workplace injury-related fatalities since 2012. This is the fourth report of this effort; however, this is the first report that summarizes the multiple years of fatality data compiled to date. Data for occupational fatality cases occurring in 2012-2014 were reviewed and reclassified for this multi-year summary; case descriptions of these fatalities are available in prior DWS OccEpi reports.¹ The 2012-2014 fatality information provided in this report may differ from previous state reports as case details are subject to change with review or when new information becomes available.

Also included in this report are select data from the U.S. Department of Labor Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries (CFOI). These CFOI data are recognized as the official statistical record of workplace fatality counts and rates in Wyoming and for the United States. The CFOI data are collected and reported in coordination between the DWS Research & Planning Section and the BLS Occupational Safety and Health Statistics program. However, there is a one to two year lag before CFOI data are available to the public or researchers, and, due to small annual numbers of occupational fatalities in Wyoming, published data do not contain sufficient detail to identify specific or targeted prevention initiatives and priorities. Therefore, DWS OccEpi conducts independent fatality surveillance for more timely and informative reporting of workplace fatalities in Wyoming.

Note all data in this report are subject to change over time as more information becomes available from other agencies or partners involved in workplace fatality investigations and reporting. Also note data on non-fatal occupational injuries are not included in this report.

Methods

Federal Census of Fatal Occupational Injuries

Select federal CFOI data are presented in this report. Data collection and classification methods for the federal data are published online.^{2,3} These data are published annually and accessible through reports of the BLS or the DWS Research & Planning Section.^{4,5}

Additionally, a tailored data request was submitted to the national BLS CFOI office to obtain multiple years of fatality count data aggregated in four year intervals. The resulting data from this request are presented.

State Occupational Epidemiology

Methods for state-level fatality monitoring are summarized as follows:

Data sources

Information was collected from a variety of sources for each fatality case, including:

- Workers' compensation claims
- Death certificates (State Vital Records)

- Coroners' reports
- Motor vehicle crash reports
- Wyoming OSHA and State Mine investigation records
- Newsprint and online media

Inclusion criteria

- Deaths for which traumatic injury at or during work was the primary cause of death were included. Fatalities with latency between date of injury and date of death were also included if the traumatic injury at or during work was deemed the originating, underlying cause of death. Note, however, latent injury deaths are often more difficult to identify in data sources available.
- Deaths for which an acute exposure at or during work resulted in acute toxic illness death were included.
- As of calendar year 2015, deaths that occurred out-of-state, but as a result of an in-state workplace injury or exposure, were included. Critical injuries in rural areas of Wyoming may be stabilized and transported to a neighboring state trauma care center and deaths that occur at an out-of-state center are certified in that state. These types of cases are relatively rare in occupational fatality tracking, however they are essential for understanding fatal injury causes within the originating state. Note deaths that occurred out-of-state, but as a result of an in-state injury, may have been excluded in prior reports.

Exclusion criteria

Deaths caused by natural disease, or chronic illness or exposure were excluded from this report. Data sources and methods used for traumatic injury deaths differ from those that could be used to more reliably identify deaths with a long latency between the work exposure and diagnosis of illness.

Industry classification

Industry categories were assigned based on the industry within which the victim was working at the time of death using the 2012 version North American Industry Classification System (NAICS).⁶ In nearly all cases, this was the same as the victim's industry of employment. However, occasionally there was discordance between the industry of employment (as classified by workers' compensation or some other data source) and the industry of work activity (as apparent from compiled case information). This could occur in situations where the employer was a subcontractor working within another industry, such as a heavy construction company subcontracted to work on a mine site, and in situations when a worker was conducting part-time, supplemental or volunteer work outside his/her primary employment industry. It is also possible that employer industry was misclassified in the data sources available.

The following categories were used to classify industry of work activity:

- Agriculture (NAICS 11)
- Construction (NAICS 23)
- Manufacturing (NAICS 31-33)
- Transportation (NAICS 48)
- Mining (excluding oil & gas) (NAICS 21, excluding 211, 213111 & 213112)
- Oil & Gas Extraction (NAICS 211, 213111 & 213112)
- Other (all other NAICS)

Employer industry was also provided to the level of detail available for each 2015 fatality case narrative using the 2012 NAICS structure.

General and detailed causal event/exposure categories

Fatality cause categories were assigned in two tiers: a general description was assigned to match event/exposure categories typically presented in the federal CFI data, and a more detailed category was assigned to provide additional information about the event or exposure.

Case narratives

Case descriptions of fatalities occurring in 2015 were included in this report using the following general structure:

Age. Sex. Occupation. Brief summary of event. Possible contributing factors, if known. Vehicle position and seatbelt use, if applicable. Employer industry (NAICS 2012). State of residency. Any additional notes on case status or inclusion determination.

Similar case descriptions of fatalities occurring in 2012-2014 are available in prior DWS OccEpi reports.⁷ Fatal case information in previous reports may slightly differ from information provided in this report as case details are subject to change with review or when new information becomes available.

Results

State Fatality Monitoring Overview by Industry, 2012-2015

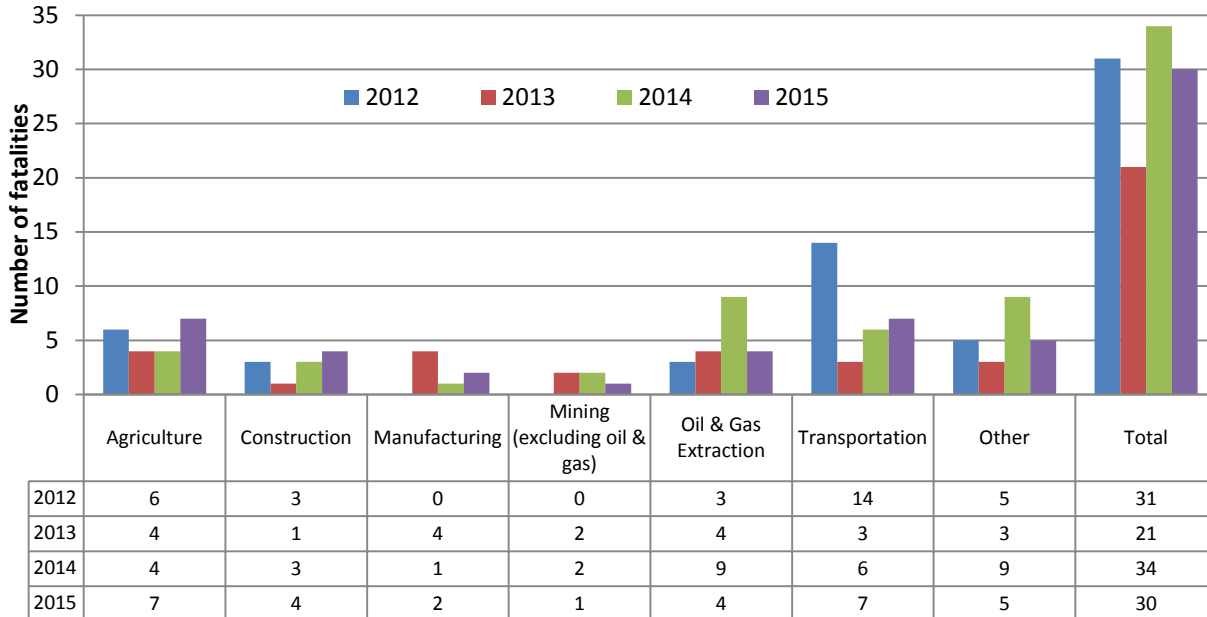
The Wyoming Department of Workforce Services (DWS) Occupational Epidemiology (OccEpi) program identified 30 fatalities in 2015 (Figure 1). This is four fewer than were identified in 2014 using the same methods. Detailed case narratives for each of the 2015 fatalities are presented in Table 8. By industry, the 2015 fatalities were comprised of:

- Seven (7) in agriculture
- Four (4) in construction
- Two (2) in manufacturing
- One (1) in mining (result of a 2007 injury)
- Four (4) in oil & gas extraction
- Seven (7) in transportation
- Five (5) in other industries

Figure 1 also provides insight into recent industry-specific trends. In 2015, seven agriculture fatalities were identified compared to only four in 2014. In 2015, there was a marked decrease in fatalities associated with the oil and gas extraction industry, from nine in 2014 to four in 2015. There was also a decrease in fatalities attributed to other miscellaneous industries, from nine in 2014 to five in 2015. Fatality counts among the construction, manufacturing, and transportation industries differed very little between 2014 and 2015.

Figure 1: Number of occupational injury fatalities by industry of work activity by year, Wyoming, 2012-2015 (N=116)

Source: DWS Occupational Epidemiology



NOTE: The mining fatality in 2015 was the latent result of an injury that occurred in 2007

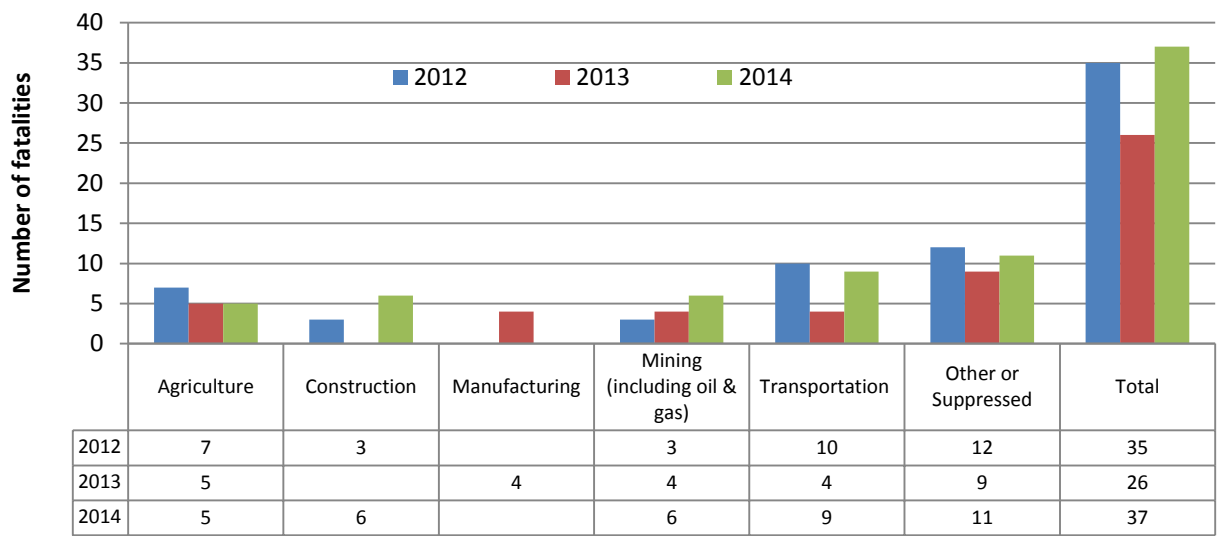
Source: Wyoming Department of Workforce Services, Occupational Epidemiology

State Data Compared to Federal Data, 2012-2014

The federal Census of Fatal Occupational Injuries (CFOI) data for 2015 were not available at the time of this report. However, as a comparison to DWS OccEpi data in Figure 1 above, CFOI data for 2012-2014 are presented in Figure 2. (Note in Figure 2 that mining includes the oil & gas extraction industry, per the structure of published data from CFOI.) Whereas DWS OccEpi identified 34 fatalities in 2014 (Figure 1 above), the federal CFOI identified 37 (Figure 2 below).

The annual trends within any given industry are not directly comparable between CFOI and DWS OccEpi, likely due to differences in industry classification and potential data suppression of small numbers in CFOI public reports. However, a visual comparison of Figures 1 and 2 confirms that the relative distribution by industry between the two systems is similar. Of note, deaths in the agriculture sector demonstrate a nearly identical pattern between the two systems: the federal CFOI count for years 2012/2013/2014 was 7/5/5 (Figure 2) compared to the state DWS OccEpi count of 6/4/4 (Figure 1). Agriculture sector deaths are arguably the least likely to be misclassified between the two systems. The construction, mining and transportation sectors frequently co-mingle with inter-industry sub-contracting and support activities, thus increasing uncertainty of accurate classification.

Figure 2: Number of occupational injury fatalities by industry by year, Wyoming, 2012-2014* (N=98)
 Source: Census of Fatal Occupational Injuries



Blank cells indicate no data reported or data that do not meet publication criteria.

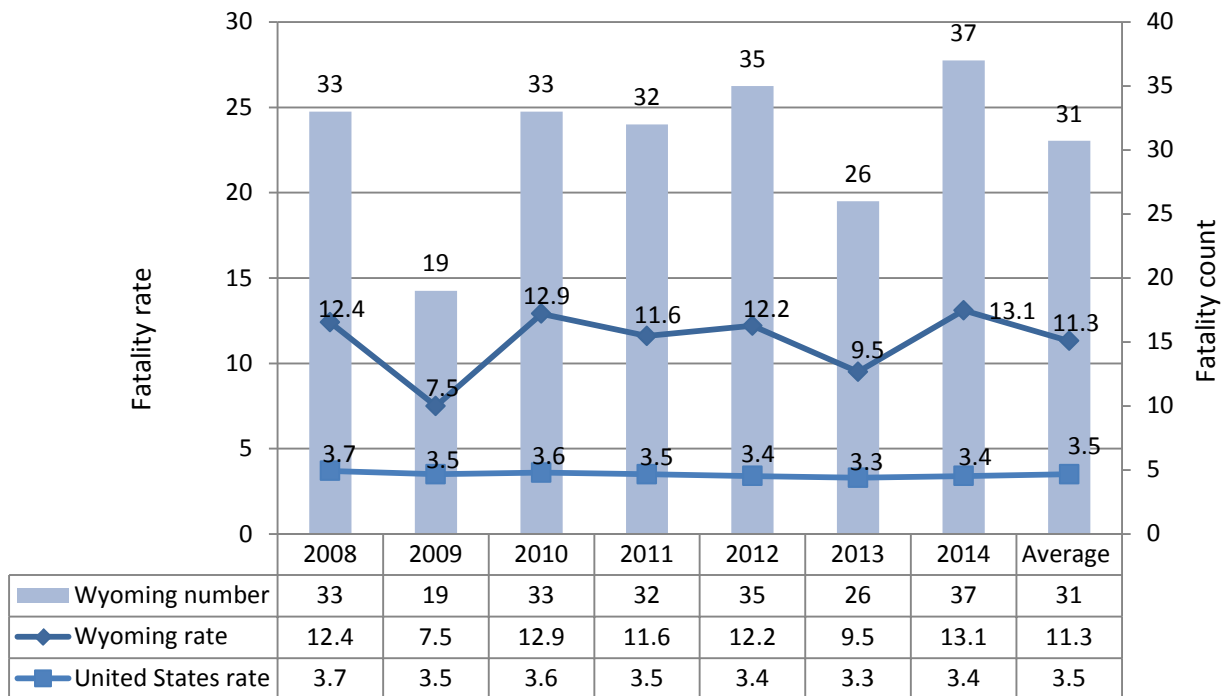
Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries.

Historical Trends from the Federal Census of Fatal Occupational Injuries, 2003-2014

The federal Census of Fatal Occupational Injuries (CFOI) remains the only occupational fatality surveillance system nationally standardized to allow state ranking and comparison to national trends. Figure 3 displays recent trends in fatality numbers and rates for Wyoming and the United States. During 2008-2014, Wyoming experienced an average occupational fatality rate of 11.3 per 100,000 full-time equivalent workers. This was over three times higher than the national average for the same period (3.5 per 100,000). In 2014, Wyoming’s occupational fatality rate of 13.1 per 100,000 full-time equivalent workers was the highest of any state in the country and nearly four times higher than the overall national rate (3.4 per 100,000).^{8,9} Figure 3 also shows that the annual rate of occupational fatalities in Wyoming has not demonstrated any sustained change since 2008.

Figure 3: Total number and rate of fatal occupational injuries per 100,000 full-time equivalent (FTE) workers, Wyoming and the United States, 2008-2014

Source: Census of Fatal Occupational Injuries



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries.

While annual industry-specific fatality rates for Wyoming are not consistently available through the federal CFI publications due to small annual numbers of deaths, Table 1 below provides some insight into industry-specific trends using four-year interval count data from 2003-2014.

Since 2003, according to federal data, some industries have experienced a general decrease in their fatality numbers, some have experienced an increase, and some have not changed significantly (Table 1). For example, the mining, quarrying and oil and gas extraction industry (NAICS 21), demonstrated a clear overall decrease in fatality counts, from 37 in 2003-2006, to 25 in 2007-2010, to 18 in 2011-2014. However, fatality counts within one mining subsector, support activities for oil and gas operations (NAICS 213112), did not significantly change over the same time period. Similarly, fatalities in truck transportation (NAICS 484) also remained relatively constant over this 12 year period, with long-distance general freight trucking accounting for over 43% (32 of 74) of workplace trucking fatalities. Meanwhile, Wyoming’s agricultural sector (NAICS 11) demonstrated a slight upward trend in fatality counts during 2003-2014. Cattle ranching and farming accounted for nearly 53% (27 of 51) of these fatalities.

Table 1: Number of fatal occupational injuries by industry, Wyoming, 2003-2014 (4 year aggregate intervals) (N=425)

2012 NAICS	Industry – All Ownerships	2003 – 2006	2007-2010	2011-2014	Row Total
	Total¹	162	133	130	425
	Goods producing industries	76	67	58	201
11	Agriculture, forestry, fishing and hunting	14	16	21	51
111	Crop production	*	3	4	7
112	Animal production and aquaculture	10	12	13	35
	Cattle ranching and farming	8	8	11	27
113	Forestry and logging	3	*	*	3
115	Support activities for agriculture and forestry	*	*	3	3
21	Mining, quarrying, and oil and gas extraction²	37	25	18	80
211	Oil and gas extraction	5	*	*	5
212	Mining (except oil and gas)	5	3	3	11
213	Support activities for mining	27	22	15	64
213111	Drilling oil and gas wells	12	6	4	22
213112	Support activities for oil and gas operations	15	16	11	42
23	Construction	21	23	12	56
236	Construction of buildings	5	*	*	5
237	Heavy and civil engineering construction	8	9	4	21
238	Specialty trade contractors	7	13	6	26
31-33	Manufacturing	4	3	7	14
	Service providing industries	86	66	72	224
42	Wholesale trade	4	8	3	15
423	Merchant wholesalers, durable goods	*	5	*	5
44-45	Retail trade	3	4	5	12
48-49	Transportation and warehousing	40	24	32	96
482	Rail transportation	*	3	*	3
484	Truck transportation	27	19	28	74
	General freight trucking	14	9	12	35
	General freight trucking, long-distance	13	9	10	32
	Specialized freight trucking	9	6	12	27
	Specialized freight (except used goods) trucking, local	3	*	7	10
	Specialized freight (except used goods) trucking, long distance	5	3	4	12
488	Support activities for transportation	4	*	*	4
492	Couriers and messengers	6	*	*	6
54	Professional, scientific, and technical services	6	4	3	13
541	Professional, scientific, and technical services	6	4	3	13
	Architectural, engineering, and related services	3	3	*	6

2012 NAICS	Industry – All Ownerships	2003 – 2006	2007-2010	2011-2014	Row Total
56	Administrative and support and waste management and remediation services	4	*	*	4
561	Administrative and support services	4	*	*	4
61	Educational services	*	*	5	5
71	Arts, entertainment, and recreation	4	*	*	4
72	Accommodation and food services	*	6	8	14
721	Accommodation	*	5	5	10
81	Other services, except public administration	3	7	4	14
811	Repair and maintenance	*	*	3	3
812	Personal and laundry services	*	4	*	4
92	Public administration	12	5	3	20
922	Justice, public order, and safety activities	5	*	*	5

Notes:

Data for 2014 were preliminary at the time of collection.

Only industries for which data was provided are represented in this table. Thus, totals for major industry categories may include subcategories not shown separately.

***Asterisks (*) indicate no data reported or data that do not meet publication criteria, not necessarily zero.** CFOI fatal injury counts exclude illness-related deaths unless precipitated by an injury event.

¹ Industry data from 2003 to 2008 are based on the North American Industry Classification System, 2002. Industry data from 2009 to 2013 are based on the North American Industry Classification System, 2007. Industry data from 2014 to the present are based on the North American Industry Classification System, 2012.

² Includes fatal injuries at all establishments categorized as Mining, quarrying, and oil and gas extraction (Sector 21) in the North American Industry Classification System, including establishments not governed by the Mine Safety and Health Administration (MSHA) rules and reporting, such as those in Oil and Gas Extraction.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries. Provided at the request of a tailored data request, October 2015.

Fatality Causes, State Data 2012-2015

Over-the-road transportation incidents (i.e. motor vehicle crashes) accounted for 38 (32.8%) of DWS identified occupational fatalities during 2012-2015 (Table 2). Among these, 12 (31.6%) of victims were not using a seat belt at the time of the crash (Table 3).

In addition to roadway crashes, there were 16 workers killed from moving vehicles on worksites during 2012-2015 (Table 2). This includes incidents such as off-road utility vehicle roll-overs and workers being struck by a moving vehicle on a job site or road-side. Five such events occurred in 2015; three of them were ATV-related incidents in the agriculture sector (Table 8: 2015 Case Narratives). Falls were another prominent causal event of occupational fatalities from 2012-2015, accounting for 15 (12.9%) fatalities (Table 2). The majority of these were falls from height off a roof (3 of 15) or a stationary work platform, scaffolding or ladder (5 of 15) (Table 4).

Table 2:
Occupational injury fatalities by general and detailed event or exposure type, Wyoming, 2012-2015

Source: DWS Occupational Epidemiology

General Event/Exposure Type	Number	Percent
Contact with object/equipment	20	17.2
Exposure to harmful substances/environments	4	3.4
Falls	15	12.9
Fire/explosion	3	2.6
Transportation	59	50.9
Violence or injury by person/animal	14	12.1
Unknown	1	0.9
Total	116	100.0

Detailed Event/Exposure Type	Number	Percent
Contact with object/equipment	20	17.2
Exposure to harmful substances/environments	4	3.4
Falls		
Fall (from height)	12	10.3
Fall (same level)	3	2.6
Fire/explosion	3	2.6
Transportation		
Transportation (over road)	38	32.8
Transportation (pedestrian/worksites)	16	13.8
Transportation (aviation)	5	4.3
Violence or injury by person/animal		
Violence or injury by animal	6	5.2
Violence or injury by person	2	1.7
Suicide at work	6	5.2
Unknown	1	0.9
Total	116	100.0

Source: Wyoming Department of Workforce Services, Occupational Epidemiology

Table 3:
Fatal occupational over-the-road transportation incidents by seat belt use, Wyoming, 2012-2015

Seat belt use	Number	Percent
Yes	21	55.3
No	12	31.6
Unknown	5	13.2
Total	38	100

Source: Wyoming Department of Workforce Services, Occupational Epidemiology

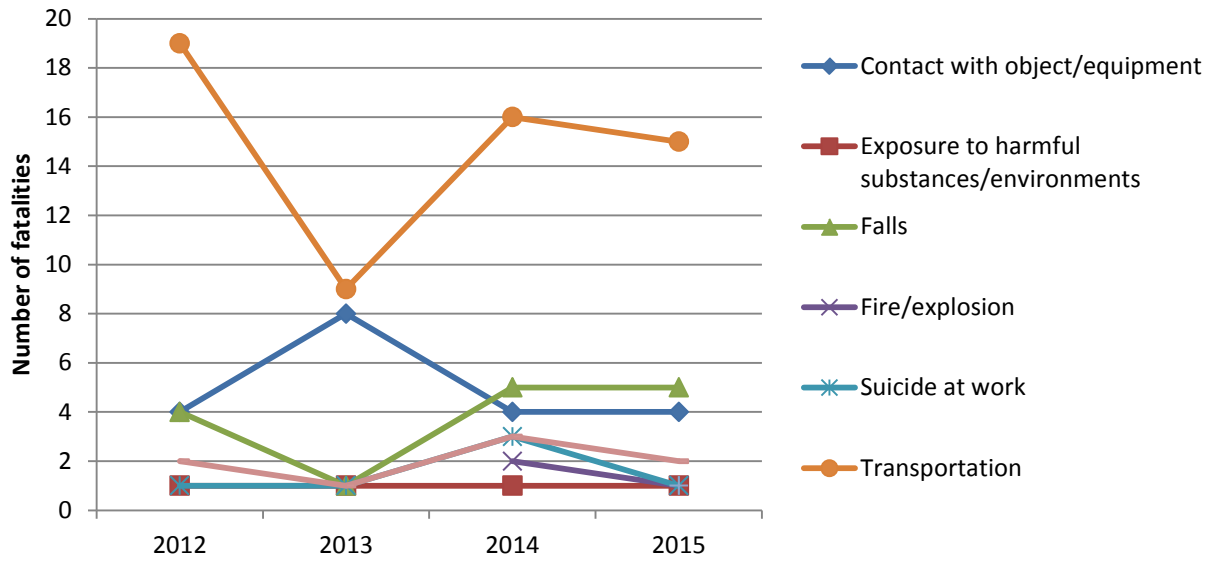
Table 4:
Fatal occupational fall incidents by source of fall, Wyoming, 2012-2015

Source of fall	Number	Percent
Roof	3	20.0
Stationary work platform/scaffolding	3	20.0
Ladder	2	13.3
Ice	2	13.3
Truck	2	13.3
Mobile work platform/lift	1	6.7
Unknown	2	13.3
Total	15	100.0

Source: Wyoming Department of Workforce Services, Occupational Epidemiology

Figure 4 shows that the number of all causal event/exposure categories remained stable or decreased from 2014-2015. This demonstrates recent stability in the various major causes of occupational fatality.

Figure 4:
Number of occupational injury fatalities by general event or exposure type by year, Wyoming, 2012-2015
(N=116)



Source: Wyoming Department of Workforce Services, Occupational Epidemiology

Within a given industry during 2012-2015, state DWS OccEpi data show variation among the leading fatality causal events (Table 5). For example, most construction sector fatalities were caused by a fall from height (45.5%), while most oil and gas extraction fatalities were attributed to an over-the-road motor vehicle crash (50%). Leading fatality causes within the agriculture industry were fairly evenly split between contact with an object or equipment (28.6%), a transportation incident on the worksite (e.g. an ATV roll-over or a worker hit by a moving vehicle) (23.8%), and fatal injury from an animal (e.g. horses or cattle) (23.8%).

Table 5:
Occupational injury fatalities by industry of work activity and detailed event or exposure type, Wyoming, 2012-2015 (N=116)

	Number	Percent by Industry		Number	Percent by Industry
Agriculture	21		Oil & Gas Extraction	20	
Contact with object/equipment	6	28.6	Contact with object/equipment	6	30
Exposure to harmful substances/environments	2	9.5	Fire/explosion	1	5
Fall (from height)	1	4.8	Suicide at work	1	5
Fall (same level)	1	4.8	Transportation (over road)	10	50
Transportation (over road)	1	4.8	Transportation (pedestrian/worksite)	2	10
Transportation (pedestrian/worksite)	5	23.8	Transportation	30	
Violence or injury by animal	5	23.8	Contact with object/equipment	1	3.3
Construction	11		Fall (from height)	3	10.0
Contact with object/equipment	2	18.2	Transportation (aviation)	4	13.3
Fall (from height)	5	45.5	Transportation (over road)	19	63.3
Transportation (over road)	1	9.1	Transportation (pedestrian/worksite)	3	10.0
Transportation (pedestrian/worksite)	3	27.3	Other industries	22	
Manufacturing	7		Exposure to harmful substances/environments	2	9.1
Contact with object/equipment	4	57.1	Fall (from height)	1	4.5
Fall (from height)	2	28.6	Fall (same level)	2	9.1
Transportation (over road)	1	14.3	Fire/explosion	2	9.1
Mining (excluding oil & gas)	5		Suicide at work	4	18.2
Contact with object/equipment	1	20	Transportation (aviation)	1	4.5
Suicide at work	1	20	Transportation (over road)	6	27.3
Transportation (pedestrian/worksite)	3	60	Unknown	1	4.5
			Violence or injury by animal	1	4.5
			Violence or injury by person	2	9.1

Source: Wyoming Department of Workforce Services, Occupational Epidemiology

Fatality Demographics, State Data 2012-2015

Among cases identified by DWS OccEpi, there was some variation in the age of victims by industry (Table 6). Perhaps most noteworthy was that the majority of victims in agriculture (42.9%) were age 65 and older, indicating a clear opportunity for prevention initiatives and strategies tailored for older workers in this sector. Conversely, most construction fatalities (6 of 11, or 54.6%) occurred among workers age 20-34 years old.

Table 6:
Occupational injury fatalities by industry of work activity and age group, Wyoming, 2012-2015 (N=116)

Industry/Age Group	Number	Percent by Industry	Industry/Age Group	Number	Percent by Industry
Agriculture	21		Oil & Gas Extraction	20	
< 16	1	4.8	20-24	2	10.0
20-24	1	4.8	25-34	6	30.0
25-34	3	14.3	35-44	3	15.0
45-54	3	14.3	45-54	4	20.0
55-64	4	19.0	55-64	3	15.0
65+	9	42.9	65+	2	10.0
Construction	11		Transportation	30	
20-24	3	27.3	20-24	1	3.3
25-34	3	27.3	25-34	8	26.7
35-44	2	18.2	35-44	6	20.0
45-54	1	9.1	45-54	5	16.7
55-64	2	18.2	55-64	6	20.0
65+	0	0.0	65+	4	13.3
Manufacturing	7		Other industries	22	
20-24	1	14.3	20-24	1	4.5
25-34	1	14.3	25-34	5	22.7
35-44	0	0.0	35-44	3	13.6
45-54	1	14.3	45-54	4	18.2
55-64	3	42.9	55-64	4	18.2
65+	1	14.3	65+	5	22.7
Mining (excluding oil & gas)	5				
20-24	1	20.0			
25-34	1	20.0			
35-44	1	20.0			
45-54	2	40.0			
55-64	0	0			
65+	0	0			

Source: Wyoming Department of Workforce Services,
Occupational Epidemiology

During the period 2012-2015, Natrona County had the highest number of occupational fatalities, followed by Campbell, Carbon, Sweetwater and Laramie Counties (Figure 5). This observation is likely explained by the underlying distribution of population density and industry employment in Wyoming. Laramie, Natrona, Campbell, and Sweetwater are the top four most populated counties in Wyoming.¹⁰ Natrona, Campbell and Sweetwater Counties have high employment in the natural resources and mining, and construction sectors, while Laramie, Natrona and Sweetwater Counties have high employment in the manufacturing, and transportation and warehousing sectors.¹¹ Carbon County does not rank especially high for population density or employment in these high-risk sectors. However, Carbon County encompasses a highly traveled and rural stretch of Interstate Highway 80 and DWS data indicate that five of the 10 fatalities in Carbon County during this period were due to over-the-road transportation incidents.

Figure 5:
Number of occupational fatalities by county of death, Wyoming, 2012-2015

County	Count	County	Count
Albany	4	Niobrara	0
Big Horn	2	Park	3
Campbell	13	Platte	4
Carbon	10	Sheridan	3
Converse	8	Sublette	2
Crook	3	Sweetwater	9
Fremont	6	Teton	4
Goshen	2	Uinta	2
Hot Springs	1	Washakie	1
Johnson	5	Weston	0
Laramie	9	Out-of-State	5
Lincoln	1	Unknown	1
Natrona	18	Total	116

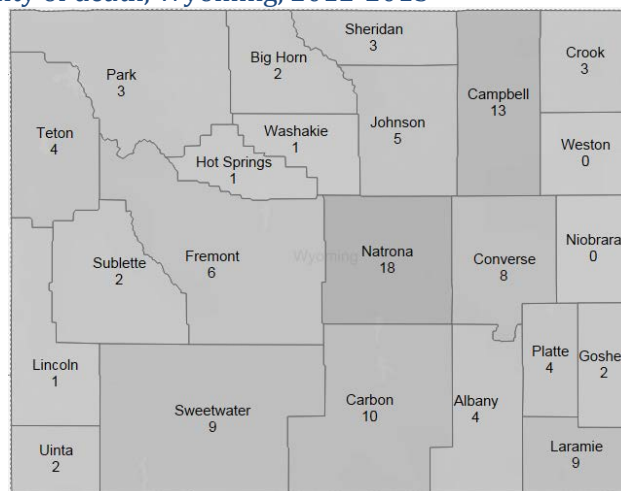


Table 7:
Occupational fatalities by state of residency and industry of work activity, Wyoming, 2012-2015

Overall, 61.2% of occupational fatality victims during 2012-2015 in Wyoming were Wyoming residents (Table 7). This trend varied among industry, however. For example, more agriculture industry deaths were WY residents (85.7%), while fewer transportation industry deaths were WY residents (30%). This finding suggests localized prevention efforts in agriculture would reach the appropriate workers and employers, while fatal injury prevention strategies for truck transportation should be tailored to reach out-of-state drivers and traveling workers. Other states more frequently represented in Wyoming occupational fatalities during 2012-2015 included Texas, Colorado, South Dakota and Utah.

State of Residency: All	Number	Percent
WY	71	61.2
TX	8	6.9
CO	5	4.3
SD	3	2.6
UT	3	2.6
Other	22	19.0
Unknown	4	3.4
Total	116	100.0

State of Residency: By Industry	Number	Percent by Industry
Agriculture	21	
WY	18	85.7
Other	3	14.3
Construction	11	
WY	10	90.9
Other	1	9.1
Manufacturing	7	
WY	6	85.7
Unknown	1	14.3
Mining (excluding oil & gas)	5	
WY	3	60.0
Other	2	40.0
Oil & Gas Extraction	20	
WY	12	60.0
Other	7	35.0
Unknown	1	5.0
Other industries	22	
WY	13	59.1
Other	7	31.8
Unknown	2	9.1
Transportation	30	
WY	9	30.0
TX	7	23.3
Other	14	46.7

Source: Wyoming Department of Workforce Services, Occupational Epidemiology

Fatality Case Narratives, State Data 2015

Table 8 contains preliminary descriptions of fatal occupation injury cases occurring in 2015. Similar case descriptions of fatalities occurring in 2012-2014 are available in prior DWS OccEpi reports.¹²

Table 8:

Provisional description of occupational injury fatalities by industry of work activity, detailed exposure type and investigating agency, Wyoming, 2015 (N=30)

Industry of Work Activity (# cases)	Event/Exposure Type	Lead Investigating Agency*	Incident Description
Agriculture (7)	Contact with object/equipment	Wyoming OSHA	47 year old male logger killed by a fallen tree. He was working alone at the time of the incident. Final OSHA report pending at the time of this publication. Employer industry: Logging. NAICS 11310. WY resident.
	Contact with object/equipment	Local Authorities	76 year old male rancher pinned by the truck he was working on when the hoist came down on him, crushing his chest. Employer industry: Cattle ranching. NAICS 112111. WY resident.
	Fall (from height)	Local Authorities	67 year old male ranch manager fell off a ladder or roof and sustained a head injury. Employer industry: Beef cattle ranching. NAICS 112111. WY resident. NOTE: Records indicate the injury incident occurred in Wyoming, but death occurred out-of-state. Thus, this fatality will likely not be counted in the federal CFI data for Wyoming.
	Transportation (pedestrian/worksites)	Local Authorities	89 year old male rancher killed in a four-wheeler (ATV) roll-over. Reports indicate the ATV landed on the victim pinning him underneath. Employer industry: Ranching. NAICS 112. WY resident.
	Transportation (pedestrian/worksites)	Local Authorities	14 year old male seasonal ranch hand killed in a side-by-side utility vehicle (ATV) roll-over. Victim was the driver. Use of safety restraint or gear unknown. Employer industry: Beef cattle ranching. NAICS 112111. WY resident.
	Transportation (pedestrian/worksites)	Wyoming OSHA	25 year old male killed in a 4-wheeler (standard ATV) roll-over incident while going up an embankment. Victim was the driver. No personal protective equipment was used. Final OSHA report pending at the time of this publication. Employer industry: Soil Preparation, planting, and cultivating. NAICS 115112. WY resident.
	Violence or injury by animal	Local Authorities	66 year old female rancher thrown from her horse. Employer industry: Cattle ranching (likely family owned). NAICS 1121. WY resident.
Construction (4)	Fall (from height)	Wyoming OSHA	53 year old male industrial painter fell approximately 45-50 feet from scaffolding. Final OSHA report pending at time of this publication. Employer industry: Painting and Wall Covering Contractors. NAICS 238320. WY resident.
	Fall (from height)	Local Authorities	60 year old male construction worker (and business owner/operator) fell off a roof. Employer industry: Residential remodeling. NAICS 236118. WY resident.

	Fall (from height)	Wyoming OSHA	23 year old male construction worker fell over 30 feet from a platform or decking that was installed or in the process of being installed. Final OSHA report pending at the time of this publication. Employer industry: Nonresidential construction. NAICS 238132. WY resident.
	Transportation (pedestrian/worksite)	Multiple (WY OSHA & Highway Patrol)	44 year old female road construction flagger. Hit by a semi-truck while working within an interstate highway construction zone. The driver of the vehicle was negligent in maintaining the lane of traffic. Final OSHA report pending at time of this publication. Employer industry: Highway, Street, and Bridge Construction. NAICS 2373. WY resident.
Industry of Work Activity (# cases)	Event/Exposure Type	Lead Investigating Agency*	Incident Description
Manufacturing (2)	Fall (from height)	Wyoming OSHA	65 year old male sawmill worker fell from catwalk and died instantly. Final OSHA report pending at the time of this publication. Employer industry: Wood product manufacturing. NAICS 321113. WY resident.
	Transportation (over road)	Wyoming Highway Patrol	57 year old male cement truck driver drifted off the road (WY-135) and over-corrected, causing the truck to roll. Possible driver inattention or a cardiac event was mentioned as initiating factors. Not belted. Partially ejected. Conditions were clear and dry. Employer industry: Concrete manufacturing. NAICS 327320. WY resident.
Mining (excluding oil & gas) (1)	Transportation (pedestrian/worksite)	State Mine Inspector	52 year old male equipment operator died from complications of a traumatic injury sustained in 2007 when the dozer he was driving rolled off an access ramp. The MSHA report indicated a deleterious change in the ramp's condition that had not been communicated between shifts, nor had the change been signified on the worksite with a barrier or by some other means. Employer industry: Surface coal mining. NAICS 212111. WY resident.
Oil & Gas Extraction (4)	Contact with object/equipment	Wyoming OSHA	25 year old male drill-rig hand killed when a derrick collapsed down on top of him. Preliminary reports indicate there were announcements for workers to clear the well-head area prior to performing the operation that caused the collapse. However, for unknown reasons, the victim had not cleared the area prior to the operation. Final OSHA report is pending as of publication of this report. Employer industry: Well-servicing. NAICS 23891. WY resident.
	Transportation (over road)	Local Authorities	42 year old male mechanic killed in a single vehicle roll-over. Driver lost control of vehicle for unknown reasons, possibly speed related. Not belted. Partially ejected. Clear and dry conditions on a local road. Employer industry: Industrial and drilling waste management and remediation. NAICS 562. WY resident.
	Transportation (over road)	Wyoming Highway Patrol	63 year old male pipeline inspector driving a pick-up truck rear-ended a semi-truck that had slowed for a left turn on WY-59. Victim was belted. Possible contributing factors of driver inattentiveness, cell phone usage, or medical conditions were investigated. Employer industry: Oil & gas engineering services. NAICS 541330. SD resident.

	Transportation (over road)	Wyoming Highway Patrol	23 year old male semi-truck driver was one of two drivers killed in a head-on collision of two semi-trucks on WY-220. This victim was the driver of the truck that drove into the on-coming lane of traffic for unknown reasons. Not belted. Employer industry: Support Activities for Oil and Gas. NAICS 213112. UT resident.
Industry of Work Activity (# cases)	Event/Exposure Type	Lead Investigating Agency*	Incident Description
Transportation (7)	Contact with object/equipment	Wyoming OSHA	49 year old male auto towing and repair worker was on a service call repairing a crane tire when an explosion occurred. Preliminary reports indicate the tire locking ring blew off. Final OSHA report pending at the time of this publication. Employer industry: Motor Vehicle Towing. NAICS 488410. WY resident.
	Transportation (over road)	Wyoming Highway Patrol	37 year old male semi-truck driver carrying a load of gypsum killed in a single-vehicle roll-over coming down a steep grade on a 2-lane mountain pass (US-14). Driving too fast for conditions and vehicle brake failure identified as contributing factors. Not belted. Clear, dry, daylight conditions. Employer industry: Truck transportation. NAICS 484. WY resident.
	Transportation (over road)	Wyoming Highway Patrol	58 year old female truck driver. Killed in a multi-car pile-up on I-80. Driver, seatbelt use unknown. Weather related crash. Employer industry: Truck transportation. NAICS 484. AK resident.
	Transportation (over road)	Wyoming Highway Patrol	54 year old male semi-truck driver rear-ended another semi-truck while traveling along I-80. Fatigue was a possible contributing factor. Victim was belted. Employer industry: Truck transportation. NAICS 484. WY resident.
	Transportation (over road)	Wyoming Highway Patrol	28 year old male semi-truck driver lost his brakes and then control of his vehicle while coming down a mountain pass on Hwy 14. The driver was belted but had driven over the allowable number of hours at the time of the crash. Employer industry: Truck transportation. NAICS 484. AZ resident.
	Transportation (over road)	Wyoming Highway Patrol	63 year old male semi-truck driver was one of two drivers killed in a head-on collision of two semi-trucks on WY-220. Victim was struck by a truck that crossed over into his lane of traffic for unknown reasons. Belted. Employer industry: Truck Transportation. NAICS 484. TX resident.
	Transportation (pedestrian/worksites)	Wyoming Highway Patrol	32 year old male semi-truck driver struck and killed by another semi-truck while working on his disabled vehicle on the shoulder of I-80. The disabled vehicle was visible for three-quarters of a mile, but the driver of the other truck fell asleep while approaching the disabled vehicle. Employer industry: Truck Transportation. NAICS 484. CA resident.
	Other (5)	Suicide at work	Local Authorities
Unknown [‡]		Local Authorities	47 year old female. Victim was engulfed in flames while working at the bar she owned. Investigation into the cause of fire was on-going at the time of this report. Employer Industry: Food Services and Drinking Places. NAICS 722. WY resident. NOTE: Reports suggest victim died out-of-state. Thus this fatality may not be counted in the federal CFOI data for Wyoming.

	Fire/explosion	Multiple (Local Authorities, State of Wyoming Fire Investigator)	28 year old male campground attendant died during a fire in employer's dormitory. Carbon monoxide poisoning was a contributing cause of death. Employer industry: National parks. NAICS 71219. PA resident.
	Exposure to harmful substances/envirnonments	Local Authorities	47 year old female moonlighting as a house cleaner died from carbon monoxide poisoning while working in a private residence. Reports indicate furnace or boiler was damaged or faulty. Self-employed housekeeping. NAICS 56172. WY resident.
	Violence or injury by person	Local Authorities	67 year old male store owner shot and killed during a robbery. Employer industry: Retail trade. NAICS 44. WY resident.

*Lead investigating agency was assigned to the federal or state agency which held primary responsibility for on-site or in-depth investigation of the workers' death. This category is classified as "local authorities" if there was no federal or state level office responsible for conducting an investigation. Note, however, that state and federal authorities typically work closely with local authorities for all death investigations.

‡ This fatality was still under investigation at the time of this report and could later be deemed an unintentional fire/explosion incident, violence or injury by person, or suicide.

Source: Wyoming Department of Workforce Services, Occupational Epidemiology

Discussion

Since initiating fatality monitoring, DWS OccEpi typically identifies fewer work-related injury fatalities compared to the national CFOI surveillance system. Figure 1 shows that DWS OccEpi identified a total of 86 work-related injury fatalities during the three year period 2012-2014; the federal CFOI surveillance identified 98 fatalities in Wyoming during the same time (Figure 2). While data from DWS OccEpi and CFOI are not directly comparable, the two systems do show similar trends in terms of annual fatality counts and industry distribution. Data presented in a prior DWS OccEpi report demonstrate that federal CFOI data also show a similar distribution of fatality causes compared to the state data presented in this report.¹³ These observations help to validate DWS OccEpi data as a reliable source of provisional workplace fatality information to be used for prevention and intervention.

The number of occupational fatalities in Wyoming identified by the state is down in 2015 compared to the previous year (Figure 1). Due to small annual numbers, it is difficult to assign any particular causal trend to explain the overall decrease in fatality counts; however, significant reductions in the number of oil & gas extraction fatalities likely contributed to the decline (Figure 1) as opposed to any significant reduction in a particular cause of fatality (Figure 4).

Occupational fatality numbers have been shown to rise and fall with the rise and fall of employment, especially within certain high-risk industries. Thus, it is important to note that fluctuations in industry-specific fatality numbers presented in this report may be associated with increasing or decreasing employment. To account for employment fluctuations, industry-specific fatality rates would be a better measure of trends and will be calculated by DWS OccEpi in future reports. As mentioned previously, industry-specific rates from the federal CFOI data are not consistently available from year-to-year due to small annual numbers.

Further study is also needed to better understand the most prevalent of all occupational fatality causes, transportation incidents. Table 3 shows that the proportion of unbelted motor vehicle occupants that sustained a fatal crash injury was 31.6%. This is substantially lower compared the proportion typically observed in Wyoming's general population crash data, which was 56.4% in 2014 and 72.1% in 2015.^{14,15} This may be due to the influence of employer policies and federal commercial driver's license (CDL) requirements for occupant restraint use; however, further study of Wyoming's occupational motor vehicle crashes would be needed to verify this hypothesis.

Conclusions

The federal CFOI data indicate there has been no significant trend (down or up) in the total annual number of occupational fatalities in Wyoming since 1992.¹⁶ The annual rate of occupational fatalities in Wyoming has also not shown any sustained change since 2008 (Figure 3). State-level monitoring of occupational fatalities is essential to unveil the causes and contributing factors of these deaths and inform prevention efforts.

The circumstances of each occupational fatality in Wyoming are varied and unique. Still, many fatalities described by DWS Occupational Epidemiology since 2012 could have been feasibly prevented through proven strategies of improved employee training, improved communication on the job site, and the consistent implementation of common workplace safety practices, such as use of fall protection.

These and other intervention and prevention strategies vary greatly by industry sector, which reinforces the need for Wyoming's industry safety alliances and partnerships to remain active and engaged in the effort to reduce occupational fatalities. Based on the results summarized in this report, the following are apparent areas of focus for Wyoming's active industry alliance sectors:

- The Wyoming Transportation Safety Coalition (TSC) should continue to devise strategies to help long-distance truck drivers safely navigate mountain passes and severe weather, and to promote increased seat belt use for all workers in all industries.
- The Wyoming Construction Safety Alliance (WCSA) should emphasize fall prevention and job-site communication and awareness to prevent workers from being hit or struck by moving vehicles or equipment.
- The Wyoming Oil & Gas Industry Safety Alliance (WOGISA) should place emphasis on motor vehicle and driver safety, safe practices for equipment use, and job-site safety communication and awareness.
- Finally, the new Wyoming Agriculture Safety and Health Alliance should target strategies to address the various hazards encountered by cattle ranchers, such as solo work in remote areas, working with large animals, and safe practices for heavy equipment repair and use. Emphasis should also be placed on preventing fatalities among ranchers and farmers age 65 and older.

DWS Occupational Epidemiology will continue to actively participate in these alliance groups and with other public health and community partners to identify and promote solutions to these issues.

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