

## **A Discussion of Highway Accident Data Collection and Statistics**

*Prepared by Carola Cowan, Bureau of Labor Statistics Programs Supervisor; Valerie Davis, Senior Economist; and Sara Saulcy, Senior Economist  
Wyoming Department of Employment, Research & Planning  
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### **Introduction**

Wyoming consistently has among the highest state occupational fatality rates. Only Alaska, Montana, and Wyoming had 5-year averages in the double-digits (14.7, 10.4, and 13.5, respectively, per 100,000 workers). By comparison, the U.S. average over the period was 4.2 per 100,000 workers.

Occupational fatalities are documented on the basis of where an injury occurred. The occupational fatality rate for each state is calculated as the sum of fatal injuries divided by the total number of workers employed in a state. The sum of fatal injuries includes both residents and nonresidents, but the denominator includes only those workers employed in the state. States such as Wyoming, Montana, and Alaska, which consistently experience high numbers of nonresident occupational fatalities, tend to show artificially inflated fatality rates.

In Wyoming and around the country, highway accidents represent a disproportionate share of work-related deaths and injuries. Wyoming recorded 46 work-related deaths in 2005, of which 17 were highway accidents (37.0%). In 2004, Wyoming recorded an incidence rate of 5.3 nonfatal injuries and illnesses per 100 workers. For transportation events specifically, the nonfatal incidence rate per 100 workers was 6.1. Work-related fatalities to nonresidents on the state's highways represent a significant share of Wyoming's occupational deaths.

Fatal occupational injuries on highways and roads are unique in that they are not investigated for workplace safety purposes by federal or state agencies. For example, an accident that occurs at a manufacturing site is investigated by the Occupational Safety and Health Administration (OSHA). Similarly, workplace accidents that occur on railroads are investigated by the Federal Railroad Administration (FRA). The Mine Safety and Health Administration (MSHA) has oversight of mine sites that extract minerals such as trona, coal, and other solid minerals. None of the agencies, however, investigate highway accidents, nor is highway accident prevention a primary part of their missions.

The Research & Planning (R&P) section of the Wyoming Department of Employment collects work-related fatal and nonfatal injury and illness data for the Census of Fatal Occupational Injuries (CFOI) and the Survey of Occupational Injuries and Illnesses (SOII) programs. These programs exist for the purpose of supporting the Occupational Safety and Health Act of 1970 ([http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=OSHACT&p\\_id=2743#18](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=OSHACT&p_id=2743#18)). OSHA promotes highway safety as part of its overall goal of improving workplace safety, however, highway accidents are outside of the investigative authority of OSHA.

In this report, we discuss the primary sources of highway accident statistics (involving injuries and/or fatalities, work-related or not) in the U.S. We discuss the data collected and the information reported by each one. These sources are the National Center for Statistics and

Analysis (NCSA), CFOI and SOII. Both CFOI and SOII are programs of the Bureau of Labor Statistics (BLS). Because of the overlap between CFOI and SOII, they are discussed in a single section beginning on page 4. We also discuss the documentation collected for the CFOI program's highway accident statistics. Additionally, we discuss how inclusion of nonresident deaths in the rate calculation adversely impacts the Wyoming occupational fatality rate.

## **National Center for Statistics and Analysis**

The National Center for Statistics and Analysis (NCSA) is a sub-agency of the National Highway Traffic Safety Administration (NHTSA; <http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/>). In turn, the NHTSA is an agency of the U.S. Department of Transportation (USDOT). There are a variety of agencies within USDOT which collect transportation accidents including NCSA, the Bureau of Transportation Statistics (BTS), and the National Transportation Safety Board (NTSB). However NCSA is the primary entity that oversees collection of highway accident statistics.

The NCSA data collection systems primarily operate as federal-state programs, similar to the federal-state programs within the Bureau of Labor Statistics (e.g., Current Employment Statistics (CES), Occupational Employment Statistics (OES), Census of Fatal Occupational Injuries (CFOI), Survey of Occupational Injuries and Illnesses (SOII)). Fatal and nonfatal accidents are reported in two systems, the State Data System (SDS) and the Fatality Analysis Reporting System (FARS). A total of 29 states participate in the SDS. States collect data on fatal and nonfatal accidents for SDS. The disadvantage of SDS is that it is not an exhaustive count of accidents. By contrast, all states participate in the FARS program, which yields a complete census of fatal highway accidents.

Most states' departments of transportation or safety are the intake point for their fatal and nonfatal highway accident data. They are responsible for data collection, editing, and maintenance. In Wyoming, the Highway Safety Program of the Wyoming Department of Transportation (WYDOT) is the data collecting entity for both FARS and SDS. The majority of accident data across states come from accident reports completed by highway patrol officers, sheriff's officers, city police, and other law enforcement officers. The NCSA then populates databases and publishes reports using state-submitted data. States also publish their own reports. The Wyoming Highway Safety Program publishes an annual report detailing accidents on the state's roads and highways. The report, "Wyoming's Comprehensive Report on Traffic Crashes," is available in hard copy form only. However, a summary of state facts for 2005 is available from NCSA at <http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/STSI/USA%20WEB%20REPORT.HTM>.

Accident data collected by states and submitted to NCSA are wide ranging. Among the data elements collected are:

- Month of accident
- Driver and passenger residency status
- Use of seatbelts and other safety equipment (e.g., helmets)
- Time accidents occur
- Type of vehicle(s) involved (see below for additional discussion)

- Road conditions (e.g., gravel road, paved highway)

Reported accidents that occur on public roads, whether they are municipal, county, federal, located in a forest, or any other public road location, are included in the data collection. Motor vehicle accidents that occur on non-road areas (e.g., parking lots) are not included in highway accident statistics.

Two types of data are not typically reported in publications by NCSA or state agencies. The first is the residence of drivers based on whether or not the trip was work-related. Secondly, drivers' residence and vehicle type cross tabulations are currently not published. Wyoming's 2004 publication on traffic crashes indicates that there were 101 nonresident deaths on Wyoming's highways. Of the nonresident deaths, 22 were documented by the CFOI program as on the job (51.2% of all occupational fatalities in Wyoming). With so many work-related deaths of nonresidents on the state's highways, cross tabulations by residence and work status, and residence and vehicle type, could potentially be useful data.

Work-related accident information is captured by states primarily in terms of the types of vehicles involved. The following are the categories of vehicles for which accidents (fatal and nonfatal) are tracked:

- Passenger cars
- Pickups
- Pickups with campers
- Trucks
- Motorcycles
- Bicycles
- Motor homes
- Busses
- Vans
- School busses
- Construction machines
- Farm machines
- Emergency vehicles
- Tractor/trailer
- Semi tractor only
- Snowmobiles
- Other (e.g., golf carts, all-terrain vehicles)
- Unknown

While accidents involving drivers or passengers of farm machines, emergency vehicles, semi tractors, tractor-trailers, and school busses are often work-related, there are many accidents that are work-related which do not involve these types of vehicles. This is especially true of passenger cars and pickups. For example, if a State of Wyoming employee was injured while driving a state-owned passenger car, the accident would be tallied as work related.

## Bureau of Labor Statistics

At present, the CFOI and SOII programs are the only programs at the federal level known by R&P to track work-related fatalities for all vehicle types. R&P collects data for the two programs as part of larger federal-state programs within BLS.

Counts of all occupational fatalities for the U.S. and individual states 2005 were released by BLS on August 10, 2006, as were national occupational fatality rates. Data for 2006 are expected to be released in August of 2007. Occupational fatality rates by state for 2004 data were released in March of 2006. Fatality rates by state for 2005 are anticipated to be released in March of 2007.

The SOII also collects highway accident data, but its source is an actual survey (participation by employers is required by law), rather than other publicly produced documents. It is limited in that only a portion of Wyoming's employers are sampled to participate. OSHA requires a sample of private industry employers to track work-related injuries and illnesses by maintaining OSHA 300 forms for one year. The following year, employers use selected data from these OSHA forms to complete the annual survey. The surveys are returned to R&P, which is responsible for collecting the data.

For purposes of SOII, a work-related injury or illness is considered recordable on the OSHA 300 form if it results in one or more of the following:

- Death
- Days away from work
- Restricted work or transfer to another job
- Medical treatment beyond first aid
- Loss of consciousness
- A significant injury or illness diagnosed by a physician or other licensed health care professional

SOII collects the following data elements:

- Date of injury, illness (month, day)
- Time injured started work on day of injury, illness
- Time of the injury, illness
- Number of days away from work
- Number of days of job transfer or restriction
- Nature of injury, illness
- Part of body affected
- Source of the injury, illness
- Event or exposure
- Secondary source of injury, illness (e.g., a person who falls through a skylight and breaks their leg on a saw horse; the skylight is the secondary source).

The case and demographic data, published by the BLS at <http://www.bls.gov/iif/home.htm>, present details on case characteristics (nature of the injury or illness, part of body affected, event or exposure, and primary and secondary sources of the injury or illness) of the workers and the

demographic characteristics (occupation, age, gender, race, length of service; and if the accident occurred before, during, or after work shift) of the more seriously injured and ill workers. *More seriously* is defined as involving days away from work. The day of injury and the day the person returned to work are not counted. Also, days beyond 180 per case are not counted. Another data element is the Other Recordable case. This type of injury or illness did not require days away from work, or days of job transfer or restriction, but did require medical treatment beyond first aid.

BLS estimates of incidence rates are generated from a computer estimation system using the annually collected data. Incidence rates by industry record the number of injuries and illnesses per 100 employees. National rates are also determined from standard surveys conducted throughout the country.

Starting in 2003, the North American Industry Classification System (NAICS) replaced the Standard Industrial Classification (SIC) codes for industry results. The classification system for occupations was also replaced in 2003. The Standard Occupational Classification (SOC) system, now used by most federal statistical programs, took the place of the Occupational Injury and Illness Occupational Coding Manual used prior to 2003. These changes, along with changes in 2002 recordkeeping requirements, represent a time-series break in the data preventing over-the-year comparisons from 2001 to 2003. However, same-year comparisons between Wyoming, other states, and the U.S. are possible. Starting with 2004 data, over-the-year comparisons for Wyoming can be made. These changes affect both SOII and CFOI data.

Transportation accidents are recorded by CFOI and SOII as events or exposures. In 2004, the nonfatal incidence rate for transportation accidents was 6.1 for Wyoming. Note that, while the majority of accidents included in the value are highway accidents, it also includes railroad, boating, aircraft, and other types of transportation accidents. This year's (2005 data) press release dates for the SOII are October 19 for the Summary Statistics and November 17 for Case and Demographics data.

The OSHA mission does not include the investigation of work-related highway accidents. Only as a matter of general workplace safety recommendations is OSHA involved with highway safety. This issue was discussed at the Governor's Safety Conference this past March in R&P's presentation about recent CFOI and SOII data.

### **Highway Accidents and Occupational Fatalities**

Table 1 (page 7) shows the documentation most commonly collected by R&P for fatal accidents for the CFOI program. The collection of data from multiple sources permits identification of occupational fatalities that may involve a vehicle such as a passenger car or a pickup that may not be readily identified as being in use for work purposes. A single work-related highway accident will typically be reported in three or more data sets or statistics, including the National Center for Statistics and Analysis in the National Highway Traffic Safety Administration, the CFOI program, and the National Centers for Disease Control. Additionally, if a person was fatally injured while on the job and the person's employer was part of the sample for SOII, the fatality will be counted in SOII as well.

Occupational fatalities are tallied by the CFOI program on the basis of where an incident occurs. For example, if a worker from Idaho is injured in Lincoln County, Wyoming and subsequently dies at a Utah hospital, that worker's death is counted in Wyoming's occupational fatality statistics, not Utah's or Idaho's. When state fatality rates are computed by BLS, the numerator for the rate includes all fatal injuries that occurred in Wyoming, while the denominator is the state's population as determined by the Current Population Survey (CPS). The consequence is an inflated fatality rate for Wyoming, since residents of other states who were fatally injured in the state are included in the numerator for the rate calculation but not the denominator.

Table 2 (page 8) illustrates how two hypothetical deaths on Wyoming's highways contribute to the State fatality rate. One person is a truck driver employed in Wyoming and the other is a truck driver employed in Oregon working in Wyoming. Both the Wyoming and Oregon workers' deaths are included in the fatality count (N). However, only the Wyoming employee is counted in the Wyoming employment value (W); the Oregon employee is counted in Oregon's employment, even though the person died while at work in Wyoming.

In 2004, a total of 43 work-related deaths occurred in the state. Of the 43 deaths, 22 were nonresidents (51.2%). Work-related deaths on Wyoming's highways frequently involve nonresident drivers and passengers. Occupational fatalities due to highway accidents accounted for more than half (25 total deaths; 58.1%) of all work-related deaths (residents and nonresidents) in 2004. Nonresident deaths accounted for 14 of the 25 deaths on the state's highways (56.0%). The result is that a substantial number of nonresidents were counted in the calculation of the state's fatality rate of 15.5 deaths per 100,000 workers.

## **Summary**

Accidents on Wyoming highways are a significant source of fatal and nonfatal worker injuries. Highway safety is unique in worker safety. At present, no specific agency has as its charge the prevention or investigation of work-related accidents on roads and highways. States such as Montana, Wyoming, and Alaska experience significant numbers of nonresident work-related deaths, particularly on highways and roads. If only one or two individuals employed outside of Wyoming died on Wyoming's highways, the occupational fatality rate calculation would not be significantly affected. However, because so many nonresidents are included in the calculation of the Wyoming occupational fatality rate, the true quality of safety in the state's workplaces is not accurately reflected.

**Table 1: Documentation Collected for the Bureau of Labor Statistics Census of Fatal Occupational Injuries Program by the Research & Planning Section of the Wyoming Department of Employment for Fatal Work-Related Highway Accidents**

Documentation Type	Nonresident		Documentation Type	Resident	
	Source(s)	Availability		Source(s)	Availability
Highway accident briefing	Sgt. John Townsend, Wyo. Highway Patrol	Usually within 2 weeks of accident.	Highway accident briefing	Sgt. John Townsend, Wyo. Highway Patrol	Usually within 2 weeks of accident.
News article about accident	Casper Star-Tribune, newspapers in towns near where accident occurred (e.g., Gillette News-Record)	Within 4 days for the Casper Star-Tribune. For other newspapers, have to wait until they become available at the library, usually within one week of an accident.	News article about accident.	Casper Star-Tribune, other Wyoming newspapers.	Within 4 days for the Casper Star-Tribune. For other newspapers, have to wait until they become available at the library, usually within one week of an accident.
Obituary	Nonresidents' hometown newspaper.	2-3 weeks. Larger newspapers especially tend to post obits online. Obits sometimes not available because newspaper not online, requirement to pay for access to an online newspaper, or obit not published.	Obituary	Casper Star-Tribune, hometown newspapers.	2-3 weeks. Casper Star-Tribune posts obits online. Most local newspapers (e.g., Rawlins Daily Times) available at Natrona County Library within 1 week of accident. Occasionally an obituary is not available.
Follow-up news article.	Casper Star-Tribune, newspapers in towns near where accident occurred (e.g., Gillette News-Record)	Depends on the significance of the accident. For example, several follow-up articles were published after the 36-vehicle accident on I-80 in 2004.	Follow-up news article.	Casper Star-Tribune, newspapers in towns near where accident occurred (e.g., Gillette News-Record)	Depends on the significance of the accident. For example, several follow-up articles were published after the 36-vehicle accident on I-80 in 2004.
Accident report	Prepared by various law enforcement agencies & warehoused in the Wyo. Dept. of Transportation Highway Safety Program. The Highway Safety Program also submits the data to the National Center for Statistics & Analysis within the National Highway Traffic Safety Administration.	Approximately 2 months.	Accident report	Prepared by various law enforcement agencies & warehoused in the Wyo. Dept. of Transportation Highway Safety Program. The Highway Safety Program also submits the data to the National Center for Statistics & Analysis within the National Highway Traffic Safety Administration.	Approximately 2 months.
Workers' Compensation report	Employer's state Workers' Comp. agency. May not be available if worker was self employed or fits other criteria that excludes the employer from paying Workers' Comp.	2-6 months.	Workers' Compensation report	The WINGS system of Wyoming Workers' Compensation computer system. May not be available if person self employed or if employer does not meet criteria to submit Workers' Comp. Record may be incomplete if person was using drugs or alcohol at time of accident.	Complete record usually available within 2 months.
Death certificate	State vital records agency. If death occurs in Wyoming, death certificate comes from Wyoming Vital Records. If death occurs in another state, death certificate is usually obtained from the other state's CFOI staff, which obtains the death certificate from their state's vital records agency.	2-6 months.	Death certificate	State vital records agency. If death occurs in Wyoming, death certificate comes from Wyoming Vital Records. If death occurs in another state, death certificate is usually obtained from the other state's CFOI staff, which obtains the death certificate from their state's vital records agency.	2-6 months.

**Table 2: Contribution of the Hypothetical Deaths of Two Drivers on Wyoming Highways to the Wyoming Occupational Fatality Rate**

<b>Truck Driver Employed in Wyoming Working in Wyoming</b>	
*Death and employment included in both the fatalities count (N) and employment (W), respectively.	<p><b>Wyoming Fatality Rate Calculation</b></p> <p>Hypothetical fatality rate (per 100,000 workers) = 14.2</p> <p>Fatality rate = (N/W) x 100,000</p>
<p><b>Truck Driver Employed in Oregon Working in Wyoming</b></p> <p>*Victim's death recorded in the Wyoming fatalities count (N).</p> <p>*Victim's employment (W) recorded in Oregon.</p>	

N = number of civilian worker fatal injuries, age 16 and older.  
W = annual average number of employed civilians, age 16 and older.