

INJURY UPDATE

*A Report to Oklahoma Injury Surveillance Participants**

July 31, 2008

Work-Related Deaths in Oklahoma, 1998-2007

Background

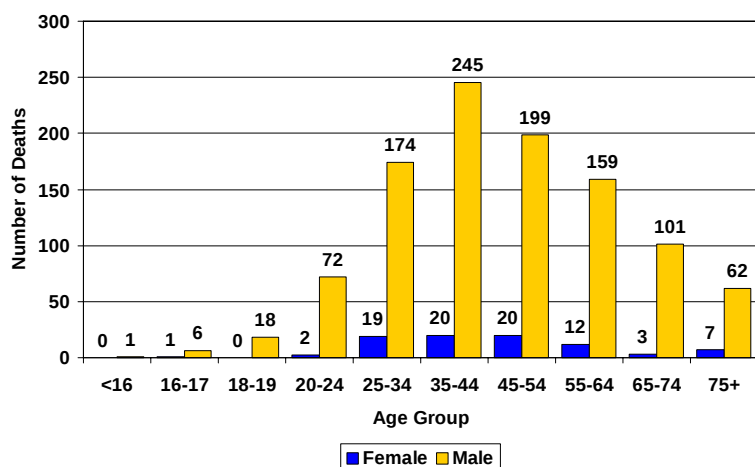
In the United States, a total of 5,840 work-related deaths (rate of 4.0 per 100,000 workers) were reported in 2006. Historically, the annual rate of work-related deaths has been higher in Oklahoma than the national rate. In July 1997, the Commissioner of Health declared work-related fatalities a reportable condition in Oklahoma. The Injury Prevention Service of the Oklahoma State Department of Health monitors work-related injury deaths in Oklahoma. Both intentional and unintentional work-related injury deaths are included. Data are collected from multiple sources including the Oklahoma State Department of Health Vital Statistics, the Office of the Chief Medical Examiner, the Occupational Safety and Health Administration (OSHA), the Public Employees Occupational Safety and Health Program, the Department of Public Safety, and a newspaper clipping service. Hospital medical records and law enforcement reports are also used to provide supplemental information.

Results

From January 1, 1998 through December 31, 2007, a total of 1122 work-related deaths were identified in Oklahoma with an average of 112 deaths per year (rate of 7.0 deaths per 100,000 workers). The ages of persons who died ranged from 13 to 91 years old, with an average age of 46 years. Twenty-four percent of deaths occurred among workers between the ages of 35-44 years, and 20% of deaths occurred among those 45-54 years of age. Males outnumbered females 9 to 1, with males accounting for 93% of all work-related deaths (Figure 1). Eighty-three percent of persons who died were white, 6% were Native American, 5% were black, 2% were Asian or Pacific Islander, and 4% were of other or unknown race. Seven percent of persons who died were of Hispanic ethnicity.

The leading causes of work-related deaths included motor vehicle crashes (37%), machinery (16%), and falls from elevation (12%). Other common causes of work-related deaths included homicide/assault, being struck and/or crushed by an object, electrocution, fire/explosion, and suicide at work (Table 1).

**Figure 1. Work-Related Deaths by Gender and Age,*
Oklahoma, 1998-2007**



*Age unknown for one male

*The INJURY UPDATE is a report produced by the Injury Prevention Service, Oklahoma State Department of Health. Other issues of the INJURY UPDATE may be obtained from the Injury Prevention Service, Oklahoma State Department of Health, 1000 N.E. 10th Street, Oklahoma City, Oklahoma 73117-1299, 405/271-3430 or 1-800-522-0204 (in Oklahoma). INJURY UPDATES and other IPS information are also available at <http://ips.health.ok.gov>.

Truck driving/delivery was the occupation resulting in the greatest number of work-related deaths in Oklahoma with 264 deaths (24%). Farming/ranching (17%) and construction (10%) were the occupations with the second and third greatest number of deaths statewide. Additional occupational fatalities occurred among oilfield workers, repair/mechanics, electricians, public employees, retail business owners/workers, and others such as pilots, health care providers, and persons involved in services such as car sales, bar or club, food and lawn care services (Figure 2).

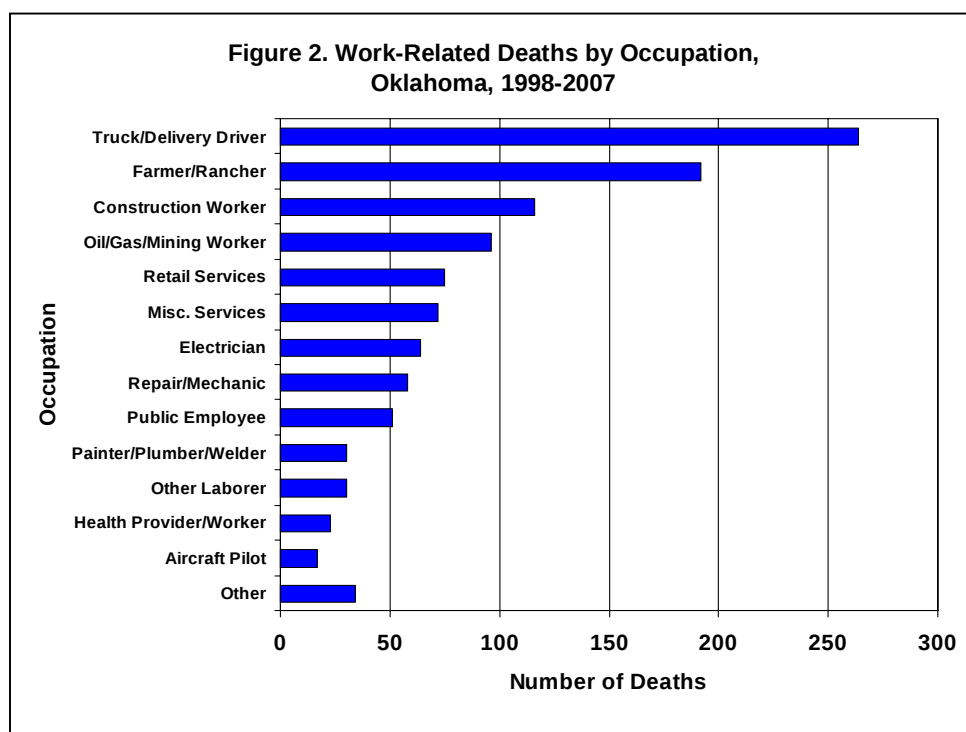
Multiple traumatic injuries were the most frequently reported immediate cause of work-related deaths, contributing to 35% of deaths. Traumatic head injuries, accounted for 21% of deaths and traumatic chest injuries were responsible for 7% of deaths. Suffocation (6%), thermal burns (5%), and electrocution (5%) were other reported immediate causes of work-related deaths (Table 2). Eighty-one deaths (7%) resulted from a gunshot wound to head, neck, chest, or abdomen. The date of incident was known for 847 deaths. Seventy-eight percent of these deaths occurred on the day of the incident. Forty-five persons (5%) died the next day and fourteen persons (2%) died two days later. One hundred and fifteen deaths (14%) took place between 3 days to 6 months after the incident happened. The other nine persons (<1%) succumbed to their injuries after 1 year to 28 years after the incident occurred. These workers died from complications of long-term effects of work-related injuries.

Work-related incidents most commonly occurred in the warmer months of the year, May through October (Figure 3).

Table 1. Causes of Work-Related Deaths, Oklahoma, 1998-2007

Type of Incidents	Number of Deaths	Percent
Motor Vehicle Crash	417	37%
Machine-Related	184	16%
Falls from Elevation	130	12%
Homicide/Assault	84	7%
Struck and/or Crush by Object	76	7%
Electrocution	64	6%
Fire/Explosion	48	4%
Suicide	26	2%
Toxic Exposure	20	2%
Caught by or between	19	2%
Heat /Cold Related	12	1%
Drowning	9	1%
Other*	33	3%
TOTAL	1122	100%

*Unintentional gunshot wounds, animal-related injuries (gored by deer, mauled by tigers, thrown by horses), and late effects of old injuries.



Sixty-nine percent of work-related incidents occurred between 8:00 a.m. and 8:00 p.m., with the highest frequency (30%) between noon and 4:00 p.m. (Figure 4). The geographic distribution of work-related deaths is depicted in Figure 5.

Approximately one-third (33%) of work-related deaths were initially identified through the Office of the Chief Medical Examiner, followed by OSHA (20%), Vital Statistics (16%), a statewide newspaper clipping service (15%), Injury Prevention Service surveillance (11%), Department of Public Safety (4%), and others (1%).

Case Briefs

- A 51-year old farmer was fueling his farm tractor at a service station. When he was beginning to leave the station, the tractor died. He got out of the tractor and tried to start it by using his pliers, but he left the tractor in gear. The man was standing between the tires when the engine engaged and the tractor leaped forward. The tractor's dual tires ran over him above the waist and he died at the scene. A bystander jumped inside the moving tractor and stopped it from entering the roadway.
- A 31-year old supervisor for a drywall contractor was part of a two-man crew installing drywall inside an addition to a hospital. The supervisor was working from a 6-foot mobile scaffold installing drywall on the top section of the room when he suddenly fell and hit his head on the floor. The scaffold was not fully planked and the wheels were not locked. He died at a hospital the following day from head injuries.
- A 54-year old construction worker was operating a bucket lift at a construction site when it backed into a drop approximately nine feet deep. He was catapulted approximately 40 feet and impacted the side of a parked truck. The worker was pronounced dead at a local hospital.
- A 57-year old welder was welding inside a confined space when residue inside the space caught fire. He was hospitalized for ten days and died a month later due to breathing difficulties.

Table 2. Immediate Causes of Work-Related Deaths, Oklahoma, 1998-2007

Causes	Percent*
Multiple Traumatic Injuries	35%
Traumatic Head Injuries	21%
Traumatic Chest Injuries	7%
Suffocation	6%
Thermal Burns	5%
Electrocution	5%
Internal Injuries	3%
Pulmonary Complications	3%
Cardiac Complications	3%
Traumatic Neck Injuries	2%
Traumatic Abdominal Injuries	1%
Drowning	1%
Others (Traumatic injuries with unspecified body locations, complications of traumatic injuries, heat stroke, sepsis, drug toxicity/gas poisoning, etc.)	9%

Figure 3. Work-Related Deaths by Month of Incident, Oklahoma, 1998-2007

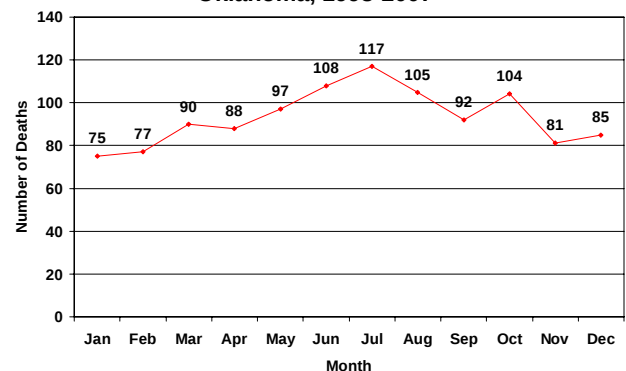
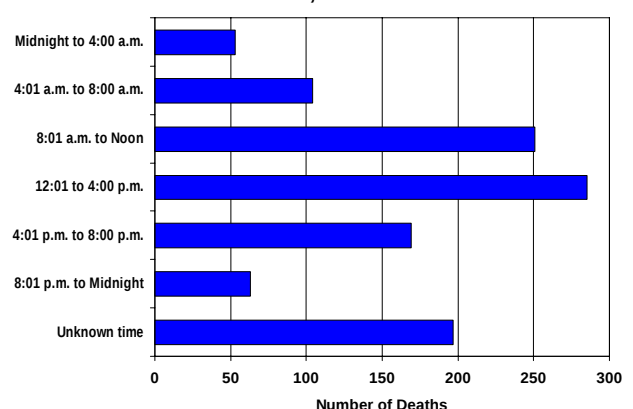
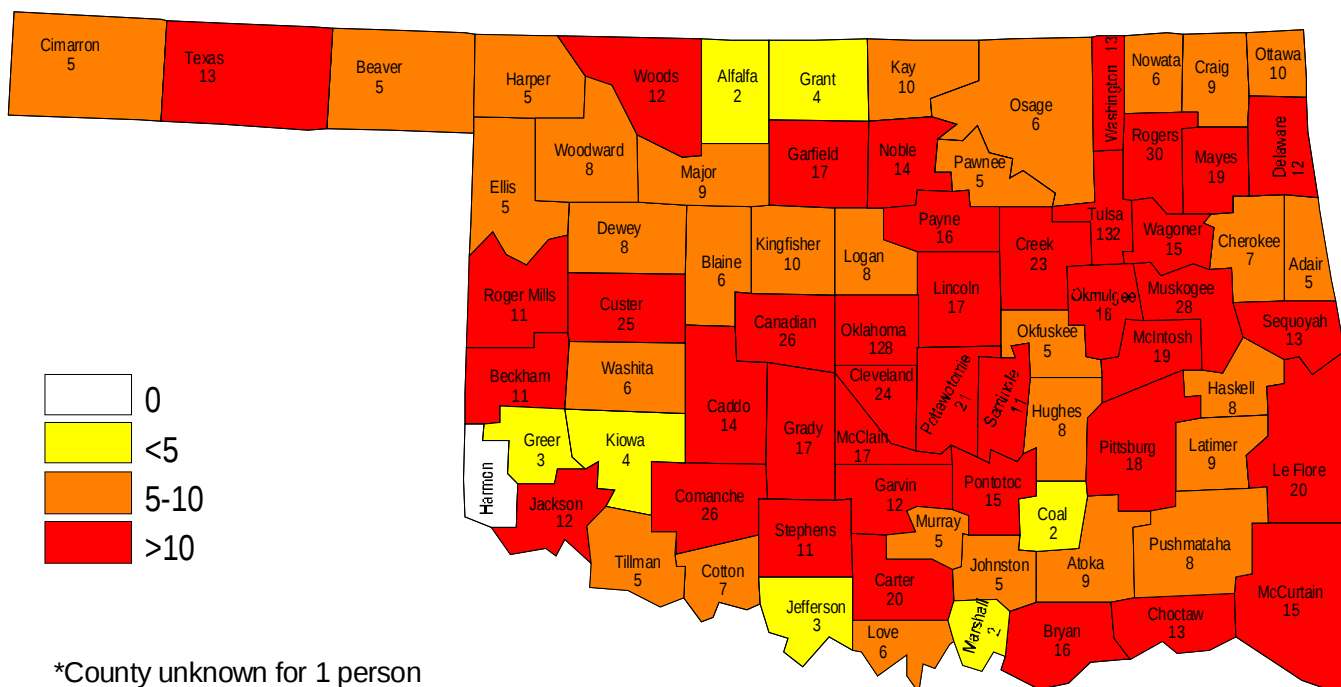


Figure 4. Work-Related Deaths by Time of Incident, Oklahoma, 1998-2007



- A 27-year old police officer was responding to an emergency call with his siren and flashers activated when he entered an intersection. A van struck the patrol car on the driver-side and the officer was pinned in his vehicle. He was pronounced dead at the scene from multiple injuries.
- A 61-year old heavy equipment operator was spreading gravel on the road using a road grader, which became stuck. Another road grader was going to pull the stuck grader out using a 47-foot towrope. The nylon rope had a circumference of 10 inches. The victim attached the rope to his grader and put a loop over a ripper tine of the second grader. As the second grader tightened the rope and began pulling, the ripper tine came loose and the tine was propelled toward the stuck grader. The tine bounced one time and then flew into the back window of the stuck grader. It struck the victim in the head and then traveled out the front window. The victim was transported to a hospital where he was pronounced dead.
- A 21-year old transportation laborer was a rear seat passenger in a company 2-ton utility truck driven by another employee. The driver of the vehicle fell asleep and veered into the right lane and struck a pickup truck. Both vehicles struck a bridge retaining wall. After they cleared the wall, they exited the roadway and went down an embankment. The utility truck rolled one and a half times clockwise, ejecting all 4 occupants. The vehicle came to rest on its top. The truck traveled 651 feet from the point of impact to the point of rest. The decedent was found about 30 feet from the truck. The driver had been awake for a long period of time and was very tired. It was reported that he was driving dangerously and forced numerous people off the roadway.
- A 41-year old driver of a tractor-trailer was towing a mobile home. As he approached a bridge on a highway, his tractor-trailer went left of center on a curve and hit another tractor-trailer rig, which caused the mobile home to jack-knife. The front end of the tractor-trailer jumped the bridge railing and slid along it until it struck the opposite bridge abutment and separated the cab from the trailer. The driver was ejected and sustained blunt injuries to the head and chest. He succumbed to his injuries an hour later at a nearby hospital.

Figure 5. Work-Related Injury Deaths by County,* Oklahoma, 1998-2007



- A 29-year old worker and a 43-year old co-worker were found shot to death at a motel where they were working. Police believed that robbery was the likely motive for the deaths because money was missing from the drawer.
- A 35-year old electroplating worker was pulling a frame door from a 50-ft semi-truck and was being helped by another employee driving a forklift. The forklift driver jumped off the forklift in order to help the victim unhook the chain from the load but forgot to set the parking brake. The forklift rolled forward and pinned the decedent between the forklift and the semi-trailer truck. The victim died from traumatic internal injuries.
- A 42-year old roofer slipped and fell 25 feet off the roof of a corporate retail store. He was taken to a local hospital and discharged a few days later. He reportedly suffered from traumatic chest injuries. Within the same week, the worker was re-admitted to the hospital and he died.

Prevention

Work-related injuries and deaths are often preventable. To reduce work-related injuries and deaths, employers and employees must work together to develop and maintain a safe work environment. It is an employer's responsibility to provide a safe and healthy work environment. Employees are responsible for following safety standards and guidelines. There are a number of agencies dealing with work-place safety in Oklahoma, including OSHA, the Oklahoma Department of Labor, and the Oklahoma Safety Council. Prevention recommendations are usually very specific to each work environment. Detailed reports from across the U.S. on targeted injuries are prepared for dissemination to employers and organizations, such as union and trade associations that can potentially make changes in workplaces. There are many electronic reports available to assist, inform, and educate employers and employees. The reports are electronically displayed on the National Institute of Occupational Safety and Health (NIOSH), the Bureau of Labor Statistics' Census of Fatal Occupational Injuries (CFOI) and OSHA websites. Comprehensive reports by type of industry (or occupation) and data on fatal work injuries can be found on the following websites:

<http://www.cdc.gov/niosh/injury/>

<http://www.bls.gov/iif/oshcfoi1.htm>

<http://www.osha.gov/index.html>

The following preventive measures are general interventions that may reduce work-related injuries and deaths:

- Identify exposures to hazards in specific industries and provide workers with proper training in handling hazardous materials.
- Comply with existing OSHA standards for proper safety procedures.
- Develop, implement, and enforce comprehensive written safety programs.
- Use task-specific equipment.
- Post safety signs to remind workers of potential hazards in working environments.
- Provide well-lighted work environments.
- Protect workers from exposure to electrical hazards.
- Require workers to wear personal protective equipment specific for their work environment.
- Conduct proper maintenance of equipment with all safety features in place.
- Watch for road closures and detouring of traffic.
- Drive with courtesy and observe traffic laws.

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