

# INJURY UPDATE

*A Report to Oklahoma Injury Surveillance Participants\**

December 10, 2004

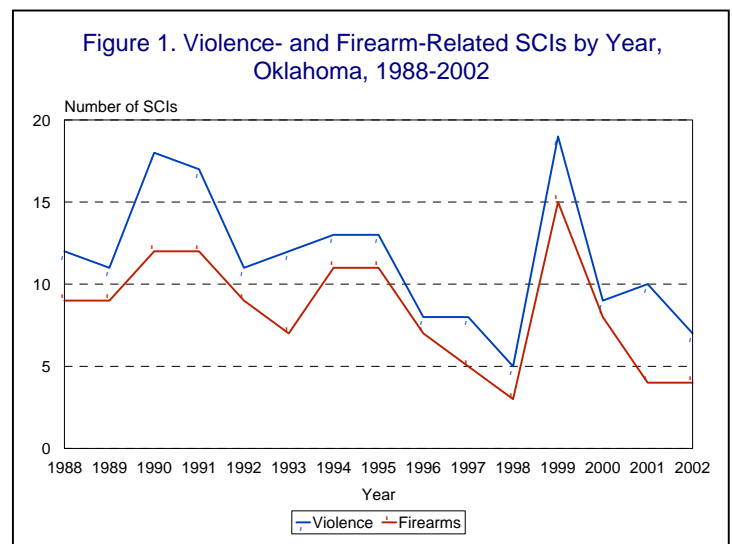
## Firearm-Related Spinal Cord Injuries in Oklahoma 1988-2002

Firearm-related injuries are the second leading cause of injury-related death in the U.S. In 2001, there were 24,573 firearm-related deaths (10.4 deaths per 100,000 population) and 63,012 nonfatal firearm injuries (22.1 per 100,000 population). In Oklahoma, 489 firearm-related deaths (14.1 deaths per 100,000 population) occurred; firearms were the second leading cause of injury death.

Spinal cord injuries (SCI) are one of the most devastating injuries that can result from a firearm. Damage to the spinal cord results in a loss of neurological function such as mobility and/or feeling. Approximately 243,000 people are living with a SCI in the U.S. and 11,000 people (4.0 per 100,000 population) are hospitalized every year for a new SCI. Of these, approximately one in four cases results from a firearm injury. While motor vehicle crashes are the leading cause of SCI in the U.S., violence-related (firearm, assault, stabbing) SCIs have become the second leading cause of SCI. Almost all (90%) violence-related SCIs are caused by firearms. An estimated \$9.7 billion is spent on SCIs annually in the United States. The average medical expenses are \$217,868 in the first year after an SCI due to violence. For each additional year, the average cost of care is \$17,275.

The Oklahoma SCI surveillance system has collected data on SCIs since September 1987. Data is collected on hospitalized and fatal cases of SCI from hospital medical records, rehabilitation reports, and medical examiner reports. From 1988-2002, there were 2,145 cases of SCI in Oklahoma; of these, 173 (8%) resulted from violent acts (firearm, assault, stabbing). The number of violence-related SCIs was highest in 1990 and 1999 (Figure 1). Seventy-three percent (126/173) of violence-related SCIs were caused by firearms. While the proportion of firearm-related SCI to all causes of SCI in Oklahoma (6%) is relatively low, it is a major problem in terms of the impact it has on victims as well as the cost of related health care. In addition, firearm-related SCIs are preventable.

Of the 126 persons with a firearm-related SCI, 10 (8%) died from their injuries. Males accounted for 84% of the cases and were five times more likely than females to sustain a firearm-related SCI. The highest rate of injury occurred in African-Americans (1.4 per 100,000 population), followed by Native Americans (0.3), and whites (0.2).

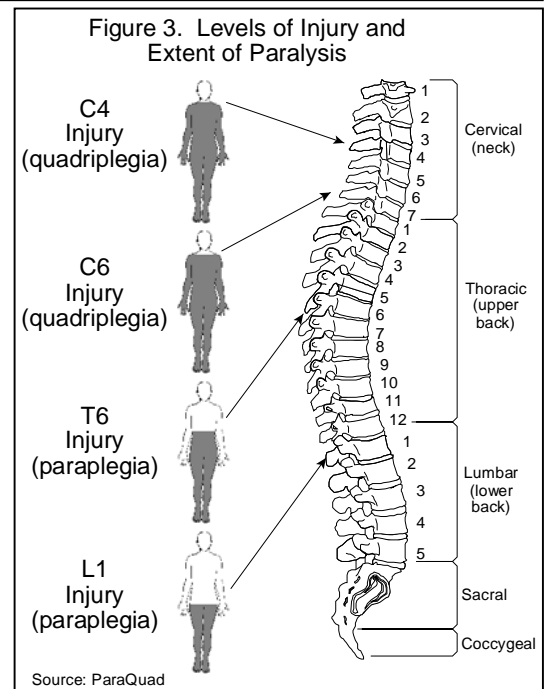
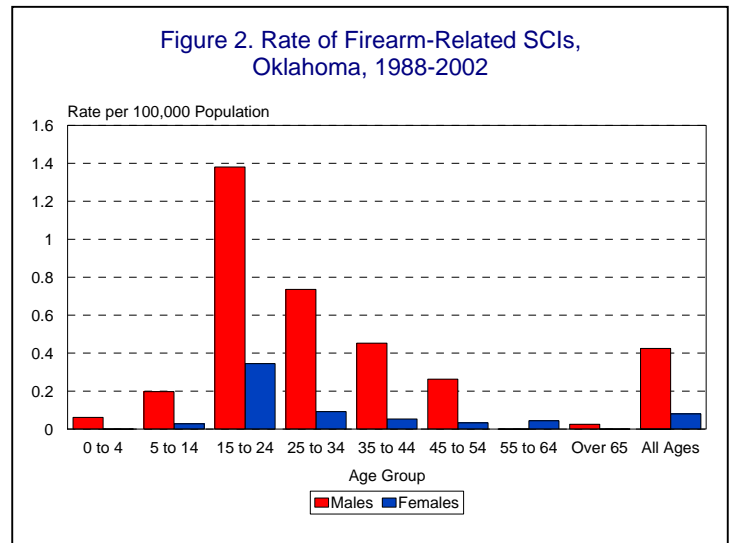


\*The INJURY UPDATE is a report produced by the Injury Prevention Service, Oklahoma State Department of Health. Other issues of the INJURY UPDATE may be obtained from the Injury Prevention Service, Oklahoma State Department of Health, 1000 N.E. 10<sup>th</sup> Street, Oklahoma City, Oklahoma 73117-1299,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

The highest rate of firearm-related SCI occurred among persons 15 to 24 years of age (0.8 per 100,000 population) followed by the 25 to 34 year age group (0.4 per 100,000 population) (Figure 2). Of all firearm-related SCIs, 24% (30/126) occurred among children 18 years of age or younger. Nearly all (89%) firearm-related SCI to children 14 years of age or younger were unintentional and were caused by someone known to the victim.

Overall, 79% (100/126) of firearm-related SCIs were intentional (Table 1). Of the 70 SCIs that were intentional shootings with known circumstances, 47% (33/70) were caused by a shooter known to the victim and 9% (6/70) were caused by police officers or security guards. Attempted suicides resulted in 13% (9/70) of these shootings. Nearly half (49%) of all firearm-related SCIs occurred at the victim’s home. The next most common place of injury was on streets/highways (11%). Among persons 14 years and older, 32% were under the influence of alcohol and 25% were under drug influence. Overall, 25 (20%) firearm-related SCIs were unintentional and 92% (23/25) of these were caused by shooters known to the victim.

There are varying levels of SCI (Figure 3). Complete injuries result in no motor or sensory function below the site of the injury. With incomplete injuries, there is at least some motor or sensory functioning below the site of injury. Quadriplegia/paresis results when the cervical spinal cord (neck) is injured. Paraplegia/paresis results when the thoracic, lumbar or sacral regions of the spinal cord are injured.



**Table 1. Firearm-Related SCI by Shooter and Circumstance, Oklahoma, 1988-2002**

Circumstance	Relationship of Shooter to Victim						Total
	Acquaintance/ Friend	Family & Extended Family	Intimate Partner	Police/ Security	Self	Unknown	
Unintentional	11	7	2	1	3	1	25 (20%)
Argument	4	1				5	10 ( 8%)
Attempted Suicide					9		9 ( 7%)
Domestic Dispute	1	3	10			1	15 (12%)
Drive-by Shooting			2			7	9 ( 7%)
Fight/Brawl	3					8	11 ( 9%)
Legal Action				6		1	7 ( 6%)
Robbery						9	9 ( 7%)
Intentional—Unknown Circumstances						30	30 (24%)
Unknown						1	1 ( 1%)
<b>Total</b>	<b>19 (15%)</b>	<b>11 (9%)</b>	<b>14 (11%)</b>	<b>7 (6%)</b>	<b>12 (10%)</b>	<b>63 (50%)</b>	<b>126 (100%)</b>

Overall, 53% of firearm-related SCIs were incomplete, and 68% resulted in paraplegia (Table 2). The proportion of firearm-related SCI resulting in complete injury (46%) was almost twice (1.8) the proportion of complete injury among non-firearm-related SCIs. The majority of firearm-related SCIs (68%) resulted in paraplegic injuries while 38% of non-firearm-related SCIs resulted in paraplegic injuries.

**Table 2. Firearm-Related Injury by Type and Degree of SCI,\* Oklahoma, 1988-2002**

	Complete	Incomplete	Total
Paraplegia	42	44	86 (68%)
Quadriplegia	16	23	39
Total	58 (46%)	67 (53%)	125 (100%)
*Type and degree not known for 1 person			

## CASE BRIEFS

- A 46-year old unemployed male was very depressed. He drove to a lake, drank a few beers, and tried to kill himself by shooting himself in the abdomen. The bullet went through his abdomen and spinal cord. He suffered complete paraplegia and spent 9 days in the hospital and 29 days in a rehabilitation facility.
- A 16-year old male was at his girlfriend's house with another male friend. They were playing with a .38 caliber pistol that they had found. The friend thought the gun was a toy and fired it at the victim, hitting him in the chest. He immediately lost movement in his lower extremities. He spent 15 days in the hospital and 81 days in a rehabilitation facility with complete paraplegia.
- A 21-year old female was sitting at home with her boyfriend. Her father was in the same room and was starting to disassemble a .45 caliber pistol when it discharged. The bullet went through her boyfriend's abdomen and hit her in the neck. She suffered complete quadriplegia.
- A 35-year old police trainee was involved in a training exercise. Another officer thought he had a paintball gun, however it was a real weapon. The officer shot at the trainee and the bullet penetrated the spinal cord. The trainee suffered complete paraplegia and spent 7 days in the hospital and 22 days in a rehabilitation facility.

## PREVENTION

With proper awareness and prevention measures, firearm injuries can be prevented.

Gun owners should:

- Take a firearm safety course.
- Assume 24-hour responsibility for their firearms.
- Use a gun lock and store firearms unloaded in a gun safe, lock box, or other secure location that is separate from the ammunition.
- Make sure children and unauthorized adults do not have access to guns.
- Teach children that any gun found anywhere is very dangerous and is not a toy.
- Never show off with a firearm.
- Clean and inspect their guns regularly. Never try to fix a gun; get professional help.
- Never assume that a gun is unloaded; there may be a bullet in the chamber.
- Never use alcohol or drugs before or while shooting.
- Keep their finger off the trigger until they are ready to shoot.
- Never point a gun at anyone.

For more information on how to prevent firearm injuries, please visit:

<http://www.health.state.ok.us/program/injury/violence/whatodo.html>