

# INJURY UPDATE

*A Report to Oklahoma Injury Surveillance Participants\**

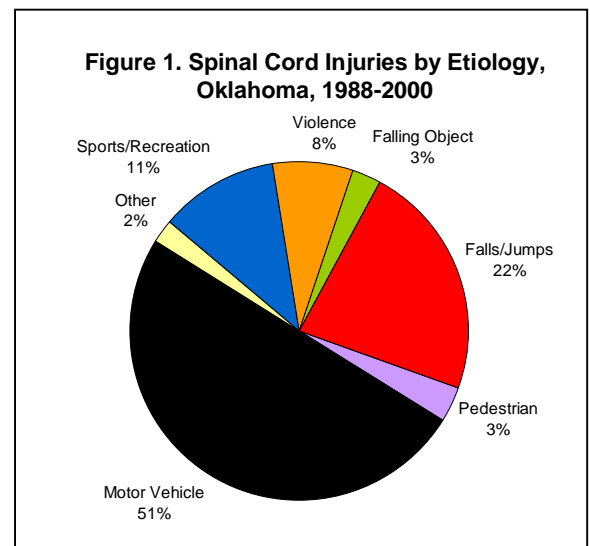
March 15, 2002

## Violence-Related Spinal Cord Injury, Oklahoma, 1988-2000

Spinal cord injury (SCI), results from blunt or penetrating trauma to the vertebral column and spinal cord. It can result in permanent or temporary loss of motor and sensory function below the level of injury. The approximate number of persons in the United States with a SCI is between 183,000 and 230,000, with 7,600-10,000 new cases each year. The total national cost of SCIs is estimated at \$9.7 billion annually. Nationally, motor vehicle crashes are the leading cause of SCIs, resulting in 44% of all reported cases. Since 1990, acts of violence (primarily gunshot wounds) have overtaken falls as the second most common source of SCIs in the United States.

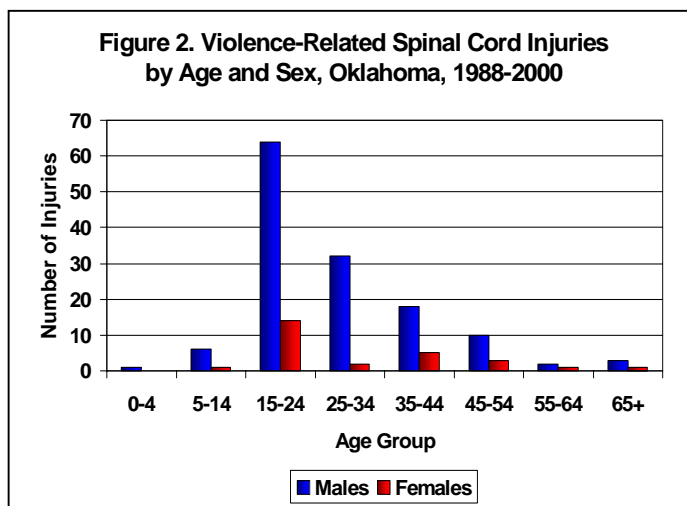
In Oklahoma, SCIs have been reportable since October 1997. Reporting of SCI cases is based on discharge diagnosis and the presence of motor or sensory deficits; data is collected by medical records review. Violence is the fourth leading cause of SCI, behind motor vehicle crashes, falls/jumps, and sports (Figure 1). Of the 1,865 cases of traumatic SCI reported during the 13-year period from 1988 to 2000 in Oklahoma, 153 (8%) were the result of gunshot injuries (intentional or unintentional), stab wounds, or assaults (annual incidence 0.4/100,000 population); 10 (7%) persons died. Of the violence-related SCIs, 86% (132/153) were intentional. Although the number of violence-related SCIs is relatively small, analysis of the data suggests that the outcomes from these injuries are serious.

Eighty-two percent (126/153) of violence-related SCI cases occurred among males, with a male to female ratio of almost 5:1. Injuries peaked among adolescents and young adults 15-24 years of age for both males and females (Figure 2). The most common cause of violence-related SCIs were gunshots (75%), followed by assaults (18%), and stab wounds (7%). Violence-related SCI rates among African Americans (1.8/100,000) were 9 times higher than among whites (0.2/100,000), and nearly 5 times higher than among Native Americans (0.4/100,000). African American males 15-24 years of age had the highest rate of injury (9.8/100,000) followed by Native American males (2.9/100,000) and white males (0.8/100,000). Over half (51%) of violence-related SCIs occurred in someone's home, followed by city streets (9%), highways (2%), county/rural roads (1%), and recreational waters (1%). Thirty-five percent of injuries occurred at another specified location; the location was unknown for 3%.



\*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).

Among the 143 survivors, 88 (62%) suffered a paraplegic/paresis injury (36 complete, 52 incomplete), and 55 (39%) suffered a quadriplegic/paresis injury (18 complete, 37 incomplete). Seventy-two percent (103/143) of the survivors were discharged to an inpatient rehabilitation facility. Hospital stays for all cases ranged from less than 24 hours to 121 days, with an average stay of 18 days. While hospital stays did not vary much for persons who suffered a complete or incomplete injury (20 and 18 days, respectively), those who suffered quadriplegic injuries had longer hospital stays (mean 21 days, median 15 days) than those who suffered paraplegic injuries (mean 17 days, median 12 days).



Among persons 14 years and older, drugs and/or alcohol were a contributing factor in almost half (72/146) of violence-related SCIs (23% used drugs; 37% used alcohol). Among African Americans, drugs and/or alcohol was a contributing factor in 60% (34/57) of violence-related SCI cases, compared to 44% (32/73) among whites, and 30% (3/10) among Native Americans.

Gunshot-related SCIs were the leading cause of violence-related SCIs for both males (77%) and females (67%) over the thirteen-year period. Ten of the 115 persons who sustained a gunshot wound died; two of these cases were unintentional. Females had a higher proportion of assault-related SCIs relative to males (30% vs. 15%, respectively), and males had a higher proportion of stab wound-related SCIs relative to females (8% vs. 4%, respectively). Seventy-two of the 105 (69%) survivors of gunshot-related SCI incidents suffered paraplegia (34 complete, 38 incomplete), and thirty-three of the 105 (31%) persons with a gunshot-related SCI suffered quadriplegia (13 complete, 20 incomplete) (Table 1). Complete paralysis occurred in 45% (47/105) of persons who survived a gunshot-related SCI.

**Table 1. Gunshot-Related Spinal Cord Injuries among Survivors by Type and Degree, Oklahoma, 1988-2000**

Degree of Injury	Quadriplegia/ Paresis	Paraplegia/ Paresis	Total (%)
Complete	13	34	47 (45%)
Incomplete	20	38	58 (55%)
Total	33 (31%)	72 (69%)	105 (100%)

## CASE BRIEFS

- A 29-year old male was drinking and left with a couple of guys in a car. He then received multiple stab wounds to the scalp, neck, and back with a screwdriver. He spent 3 days in acute care and was diagnosed with an incomplete quadriplegia.
- A 21-year old female was assaulted by her boyfriend. She was beaten with a telephone receiver and then slammed against a wall several times. After hitting the wall, she was unable to move her lower extremities. She suffered incomplete paraplegia and spent 3 days in acute care.
- A 19-year old male was assaulted by his mother's boyfriend. He stated he was thrown on his head by the boyfriend. He was discharged to a rehabilitation center after 34 days in acute care for treatment of complete quadriplegia.

- A 10-year old male was accidentally shot by his 12-year old brother who was playing with their grandfather's 22-caliber handgun. He spent 13 days in acute care as a result of complete paraplegia; he was discharged to a rehabilitation center.
- A 19-year old female had been out to a club with her husband where she reportedly had 6-8 drinks. She and her husband went home and an argument took place. She reportedly went to the bedroom and shot herself in the abdomen. The bullet went through her body and came out her back. She spent 31 days in acute care and was diagnosed with incomplete paraplegia; she was discharged to a rehabilitation center.
- A 45-year old male was shot in the neck by his girlfriend. The bullet apparently became dislodged and worked its way through the esophagus and out of his mouth while coughing. The anterior body of the C4 vertebrae was completely destroyed along with some of the C5 vertebrae. He underwent surgery and improved function postoperatively but developed complications, including a ruptured colon, and died of a heart attack after spending 11 days in the hospital.
- A 26-year old male was involved in an altercation with other males. He was pistol whipped and tried to run into his apartment where he was followed and shot twice. He was found on his apartment floor unable to move. He spent 7 days in acute care with complete paraplegia and later died.

## PREVENTION

Acts of violence occur at every level in our society. Violence is a learned behavior that many researchers believe can be changed. Listed below are some preventive measures that may be implemented to reduce the risk of violence and violence-related SCI.

- Develop and implement parenting programs that teach conflict resolution techniques.
- Guns stored in the home should not be loaded and should have a safety lock on at all times. Ammunition and gun(s) should be stored in separate locked locations, completely out of reach of children. Maintain constant supervision of children playing in the home.
- Develop and implement a community/public violence awareness campaign to discuss issues of violence affecting your community.
- Develop community-based violence prevention programs that involve parents, school staff, students, clergy, and other community leaders.
- Develop supervised, school-based before-and after-school programs for children that provide support in a wide range of areas, such as counseling, tutoring, clubs, and community service activities.
- Train medical personnel to recognize domestic abuse and neglect, to report these cases to the proper authorities, and to make appropriate referrals to the patient (i.e., domestic violence services).

Below are internet sites that may provide some useful starting points for those who wish to learn more about violence prevention and intervention in families, schools, and communities.

### **The Commission for the Prevention of Youth Violence**

<http://www.ama-assn.org/violence>

### **Handgun Epidemic Lowering Plan**

<http://www.helpnetwork.org/main.html>

**Oklahoma Criminal Justice Resource Center**

<http://www.ocjrc.net>

**Partners Against Violence Network**

<http://www.pavnet.org>

**National Crime Prevention Council**

<http://www.ncpc.org>

**Centers for Disease Control and Prevention, Division of Violence Prevention**

<http://www.cdc.gov/ncipc>

**Resources for Youth**

<http://preventviolence.org>

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