



The Epidemiology Of Gunshot Injuries In Oklahoma, 1995-1996

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The Injury Prevention Service collected information on Oklahomans who died or were treated at a hospital for a penetrating or superficial wound that resulted from the discharge of a gun (including firearms and BB/pellet gun injuries) during 1995 and 1996. Information was collected from hospital emergency departments, hospital medical records departments, the Office of the Chief Medical Examiner, selected police departments, emergency medical services, and newspaper clippings. Data were gathered from as many of these sources as possible for each case in an attempt to best determine the true circumstances of the incident. This report details the epidemiology of firearm injuries and BB/pellet gun injuries among Oklahomans in 1995 and 1996.

FIREARM INJURIES

In 1995 and 1996, 2856 Oklahomans (annual incidence rate 45 per 100,000 population) sustained a firearm injury (excludes BB/pellet gun injuries) that resulted in death, hospitalization, or treatment in a hospital emergency department. One thousand forty-eight persons died (case fatality rate 37%). Seven hundred fifty-two deaths occurred at the scene, 195 persons were dead on arrival or died in an emergency department, 94 died during an inpatient stay and 2 died shortly after a hospital stay (Figure 1). Place of death was not known for five persons. Among survivors, 898 were treated in an emergency department and released to home, and 823 were hospitalized. The hospitalization/outcome status of 87 persons was not known.

The ages of injured persons ranged from less than 1 to 93 years of age with an average age of 33 years (Figure 2). Eighty-four percent of injured persons were male. Firearm injury rates were more than three times higher among blacks than Native Americans and whites (annual rates per 100,000 population 130, 37, and 36, respectively). The highest rate of injury was among black males 15-24 years of

Figure 1. Firearm Injuries by Outcome and Treatment Status, Oklahoma, 1995-1996

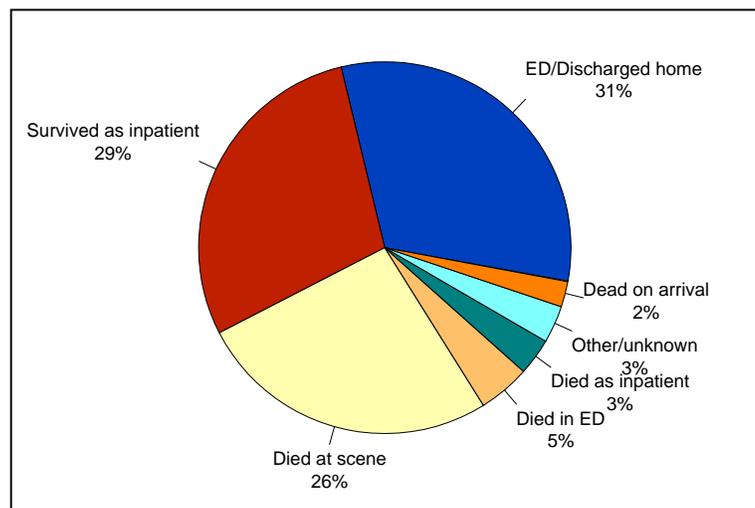
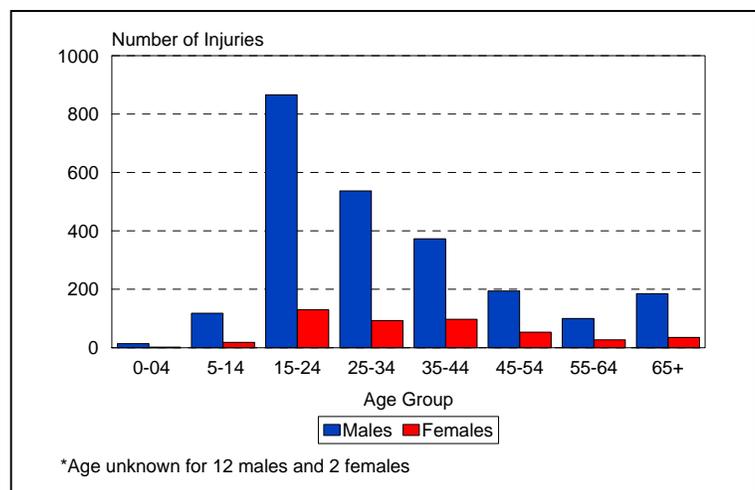


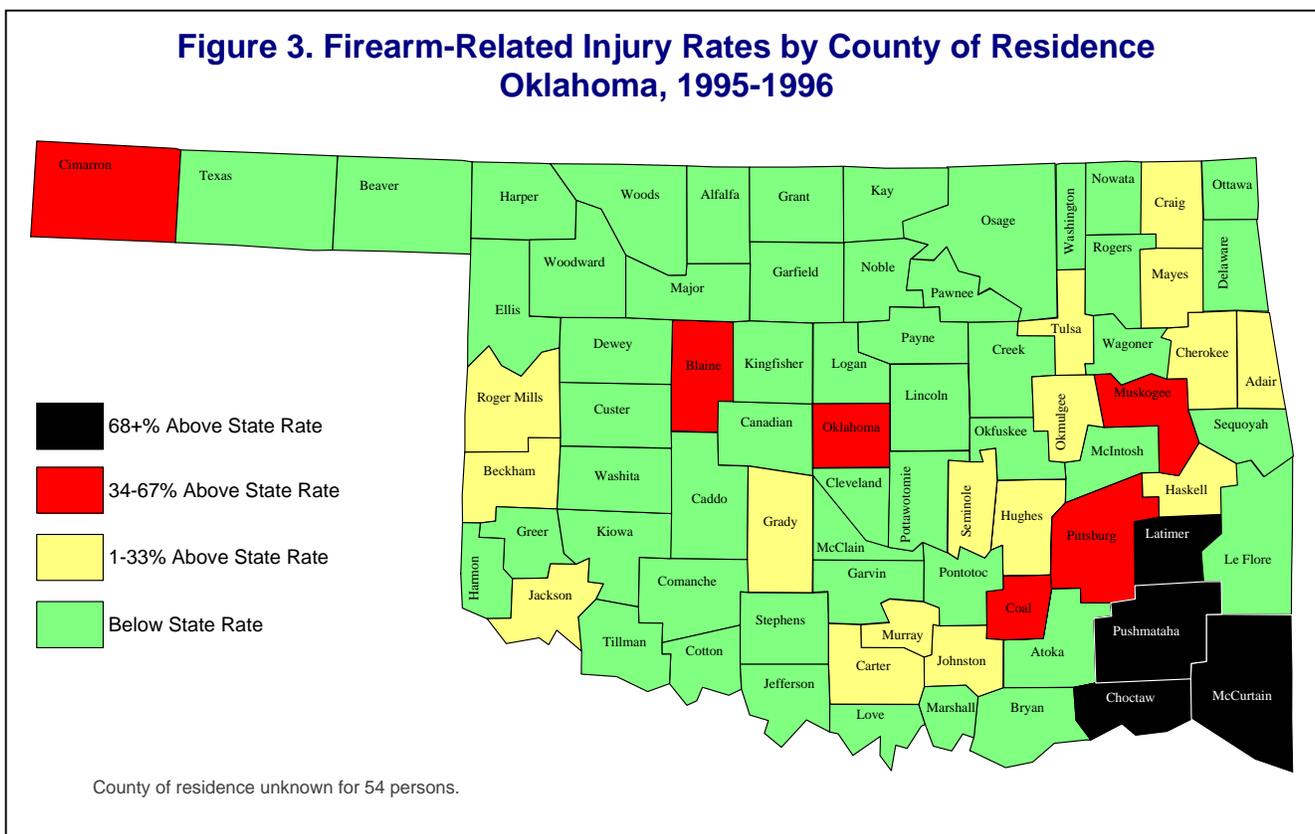
Figure 2. Firearm Injuries by Age* and Sex, Oklahoma, 1995-1996



age (annual rate 632 per 100,000 population). Sixty-five percent of the firearm injuries were intentional, 26% were unintentional, and the intent was not reported for 9% of cases. Nearly one-third (30%) of firearm wounds among persons under 15 years of age were intentional whereas two-thirds (67%) of injuries among persons 15 years and older were intentional. Forty-seven percent of firearm wounds were inflicted by another person, 47% were self-inflicted, and for 6% it was not reported who shot the gun. Among injuries known to be inflicted by another person, 29% were inflicted by a friend/acquaintance, 19% by a stranger, 9% by a family member other than a spouse, 9% by a partner/ex-partner, 4% by a law enforcement officer, and 2% had another specified type of relationship. The relationship between the shooter and the victim was unknown or not reported for 28% of injuries. The type of gun used was recorded for 2346 (82%) events. Among the incidents in which the type of gun was known, a handgun was used in 70% of incidents, a rifle in 15%, and a shotgun in 15%.

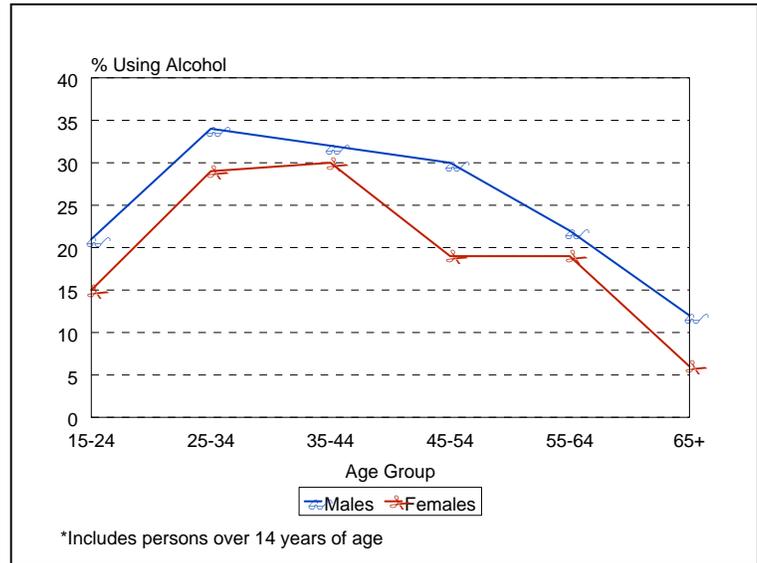
Firearm injuries occurred most commonly between the hours of 8:00 p.m. and midnight (26% of cases with a known time) and peaked during the months of July and August. Forty-five percent of firearm injuries occurred in a home; 75% of injuries in a home occurred in the victim's home. The rate of firearm injuries was highest in the southeast part of the state (Figure 3). Among persons over 14 years of age, 22% of survivors and 30% of persons who died had likely or definitely been drinking alcohol prior to the injury. Percent alcohol use was highest among males 25-44 years of age (Figure 4).

Figure 3. Firearm-Related Injury Rates by County of Residence Oklahoma, 1995-1996



At least 11% of injured persons sustained multiple firearm wounds. The most common anatomic site of injury was the extremities (46%); 27% of persons sustained a firearm wound to the leg/foot and 21% to the arm/hand. Other sites included the head/neck (33%), chest (21%), and abdomen/pelvis (11%). Fifteen (1%) firearm wounds resulted in a spinal cord injury. The average length of hospital stay for persons who were admitted was 6 days, with a range of 1 to 112 days. Sixty-seven percent of persons who were admitted underwent an operation. Twenty-seven percent of survivors who were hospitalized were noted to have some type of sequelae or dysfunction at discharge.

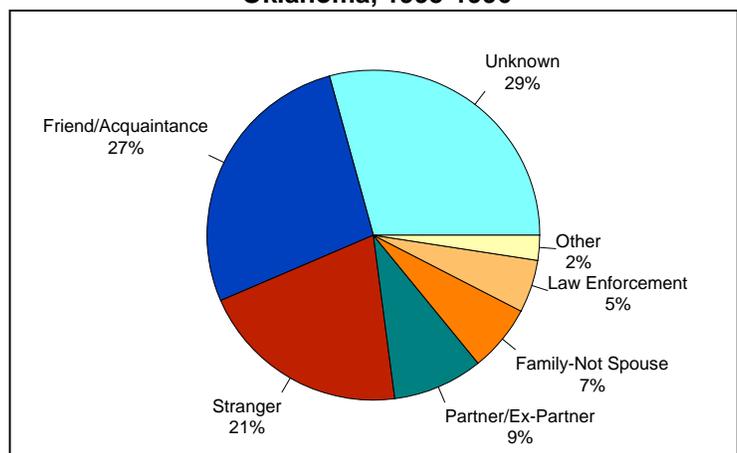
Figure 4. Firearm Injuries by Age*, Sex, and Alcohol Use, Oklahoma, 1995-1996



Intentional Firearm Injuries Inflicted by Another Person

One thousand sixty-four persons sustained a firearm injury that was reportedly inflicted intentionally by another person; 329 (31%) died. Among survivors, 56% were hospitalized. The average age at injury was 29 years. Sixty percent of injuries occurred among males 15-34 years of age. The rate of injury was 6-9 times higher among blacks than for Native Americans and whites (annual rates 87, 14, and 10 per 100,000 population, respectively). Forty-one percent of injuries occurred at a home; of these, 54% were in the home of the victim. Thirty-seven percent of injuries followed a fight/argument, 15% occurred during another crime, 12% resulted from a drive-by shooting, and 3% were work-related. Twenty-seven percent of injuries were inflicted by a friend/acquaintance, 21% by a stranger, 9% by a partner/ex-partner, 7% by a family member other than a spouse, 5% by a law enforcement officer, and 2% had another specified type of relationship (Figure 5). The relationship of the victim to the shooter was unknown or not reported for 29% of cases. Information on the age, sex, and race of the shooter was available for 43%, 60%, and 32% of incidents, respectively. For incidents with information available, the mean age of the shooter was 30 years. Ninety-one percent of shooters were male, 54% were black, and 44% were white. A handgun was used in 59% of incidents, a shotgun in 11%, and a rifle in 8%. The type of gun was unknown or not reported for 22% of incidents.

Figure 5. Relationship between the Shooter and Victim for Intentional Injuries Inflicted by Another Person, Oklahoma, 1995-1996



Intentional Self-Inflicted Firearm Injuries

Twenty-seven percent (785) of firearm injuries were intentionally self-inflicted, 85% (670) died. Two-thirds of the deaths (66%) occurred at the scene. Only 9 (1%) persons with an intentional self-inflicted firearm injury were treated in an emergency department and released home. The highest number and rate of injuries occurred among persons over 65 years of age followed by persons 15-24 years of age (annual rates per 100,000 population: 19 and 16, respectively). Persons over 55 years of age had a case fatality rate of 95%. Males were 4.6 times more likely to intentionally shoot themselves than females. Seventy-six percent of injuries occurred in a home; of these, 92% were in the victim's home. At least 13% of injuries followed some type of fight or argument. The most common anatomic sites of intentional self-inflicted firearm wounds were the head/neck (72%) and the chest (20%). The type of gun used most commonly was a handgun (59%), followed by a shotgun (16%), and a rifle (16%). The type of gun used was unknown for 10% of incidents. Among survivors of intentional self-inflicted firearm injuries, 24% had sequelae documented upon discharge. Among persons over 14 years of age, 27% of persons who died and 38% of persons who survived were reported to have used alcohol prior to the injury.

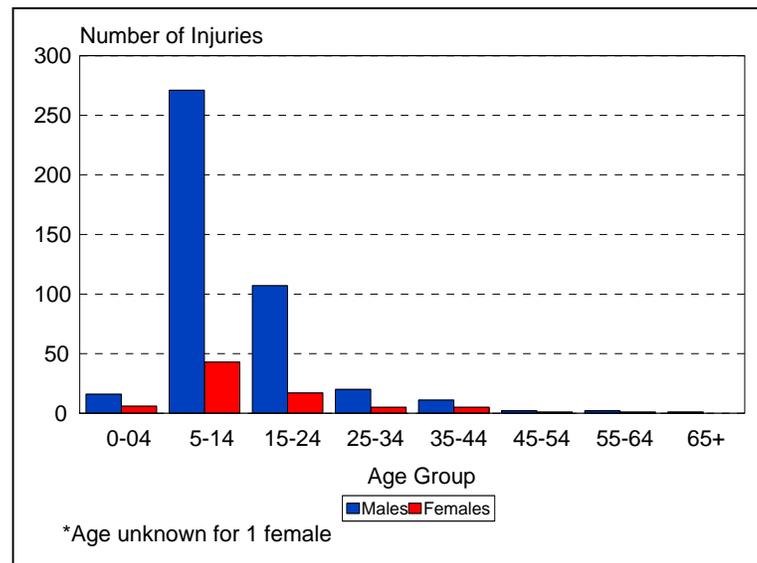
Unintentional Firearm Injuries

Seven hundred twenty-nine persons suffered an unintentional firearm injury; 28 (4%) died. Among survivors, 61% were treated in an emergency department and released home and 35% were admitted to a hospital with an average stay of 5 days. The hospital/discharge status was unknown for 4% of survivors. Seventy-two percent of firearm wounds were self-inflicted, 23% were inflicted by another person, and it was unknown or not reported who shot the gun for 5% of cases. Persons 15-24 years of age accounted for more than 1/3 (36%) of unintentional firearm injuries. Fifty percent of injuries among persons under 15 years of age were inflicted by another person and 76% of injuries among persons 15 years and older were self-inflicted. The majority (79%) of injuries were to the extremities; 85% of self-inflicted unintentional firearm injuries were to an extremity. Sixty-three percent of injuries were from handguns, 20% from rifles, 11% from shotguns; the type of gun was not known for 7% of injuries. Among persons over 14 years of age, 15% had definitely or likely consumed alcohol prior to being injured.

BB/PELLET GUN INJURIES

A total of 509 persons were treated in an emergency department or were hospitalized as a result of being shot by a BB/pellet gun in 1995 or 1996. Ninety percent of injured persons were treated in an emergency department and released, 8% were admitted, and the hospital status was unknown for 2%.

Figure 6. BB/Pellet Gun Injuries by Age* and Sex, Oklahoma, 1995-1996



There were no deaths from BB/pellet gun injuries. The age of injured persons ranged from less than 1 to 69 years with an average age of 15 years. The highest number of injuries occurred among 5-14 year olds (Figure 6). Eighty-four percent of injuries occurred among males. Seventy-three percent of injuries were unintentional, 12% were intentional, and the intent was unknown for 15%. Fifty-nine percent of injuries were inflicted by another person, and 27% were self-inflicted. The shooter was not reported for 14% of the injuries. Half of the self-inflicted BB/pellet gun injuries occurred among children 5-14 years of age and 38% among persons 15-24 years of age. Sixty-seven percent of unintentional BB/pellet gun injuries inflicted by another person occurred among 5-14 year olds; 92% of these injuries were inflicted by a friend/acquaintance or a family member.

PREVENTION

This special two-year study of gunshot injuries was the first in Oklahoma to evaluate the magnitude and epidemiology of fatal and nonfatal firearm-related injuries statewide. Although information on the magnitude of firearm-related deaths has been available for many years, prior to establishment of this surveillance system, no single data source in Oklahoma had complete medical and circumstantial data on nonfatal shootings statewide. Establishing a surveillance system is an important first step to developing targeted prevention programs.

Firearm injury prevention efforts conducted in Oklahoma have included educational presentations by police officers and physicians, firearm safety lessons in elementary schools, and education on restricting access to firearms among youth and persons deemed at risk for suicide. Additional coordinated programs should be conducted and evaluated; successful programs should be expanded.

The Institute of Medicine's Committee on Injury Prevention and Control recommends a comprehensive approach for the nation including "firearm surveillance, firearm safety regulation, multidisciplinary research, enforcement of existing restrictions on access by minors and other unlawful purchasers, prevention programs at the state and local levels, and mobilization of public support."¹

1. Institute of Medicine. 1999. Reducing the Burden of Injury: Advancing Prevention and Treatment. Washington, DC: National Academy Press.