

# INJURY UPDATE

*A Report to Oklahoma Injury Surveillance Participants\**

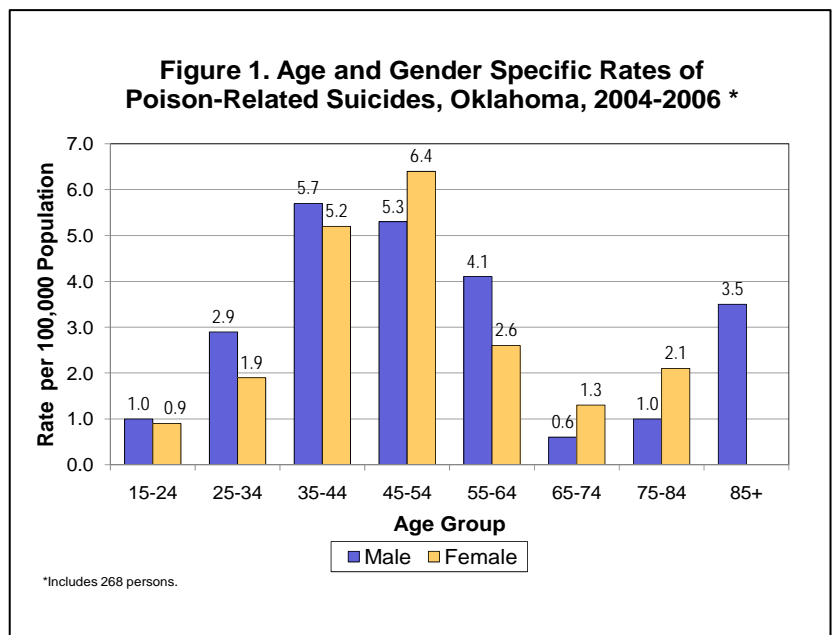
October 23, 2009

## Poison-Related Suicides, Oklahoma, 2004-2006

Suicide was the 11<sup>th</sup> leading cause of death in the United States (U.S.) from 2004-2006. Poisoning accounted for 18% of suicides and was the third leading method behind firearms and suffocation (e.g., hanging and strangulation). From 1999-2006, the rate of suicide by poisoning in Oklahoma was 32% higher than the national rate (2.5 and 1.9 per 100,000, respectively). A poison is a toxic substance that causes damage when inhaled, injected, or absorbed into the human body, and poisons may include gases, chemicals, vitamins, recreational drugs, and over-the-counter and prescription medications. In 2004, 75% of suicide by poisoning deaths in the U.S. were caused by legal or illegal drugs.

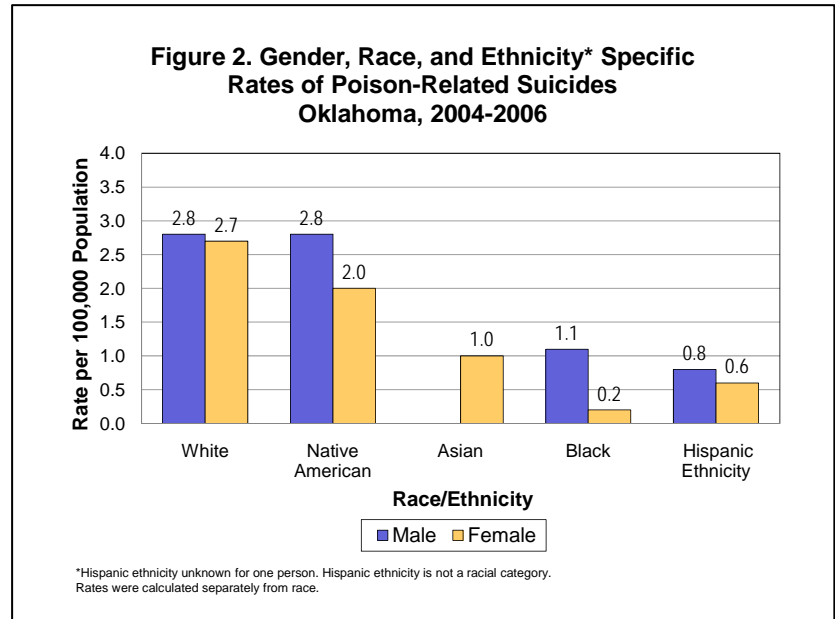
Oklahoma is among 18 states participating in the National Violent Death Reporting System (NVDRS). NVDRS links data from coroner or medical examiner reports, death certificates, police/sheriff reports, and crime laboratories into a single database to provide detailed information about homicides, suicides, deaths by legal intervention (excluding executions), deaths of undetermined manner, unintentional firearm injury deaths, and terrorism-related deaths. Oklahoma Violent Death Reporting System (OK-VDRS) data were used to assess the magnitude and characteristics of poison-related suicide deaths in Oklahoma. All rates are per 100,000 population.

During 2004-2006, Oklahoma had a total of 268 poison-related suicides (rate = 2.5), which represented 17% (268/1544) of all suicides. The rate of poison-related suicide increased 17% from 2004 to 2006 (2.3 and 2.7, respectively). Fifty-one percent (n=137) of the decedents were male. The age of the decedents ranged from 17 to 93 years of age with a mean age of 46 and median age of 45. Forty-six percent of persons who committed suicide by poisoning were 45-64 years of age, 42% were 25-44 years of age, 6% were 15-24 years of age, and 6% were 65 years and older. The rate of suicide by poisoning among persons 35-54 years of age (5.7) was 3 times higher than the rate among all other ages combined (1.9). The overall rates of poison-related suicide among males and females were similar, 2.6 and 2.4, respectively. Females 45-54 years of age had the highest rate of suicide by poisoning. Males had higher rates than females in every age group except 45-54 years of age and 65-84 years of age (Figure 1).



\*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 are also available at <http://ips.health.ok.gov>.

Eighty-eight percent of victims were white, 9% were Native American, 2% were black, and 1% were Asian/Pacific Islander or other race. White males and Native American males had the highest rates of suicide by poisoning. Among females, whites had the highest rate (Figure 2). Ninety-eight percent of poison-related suicides were among non-Hispanics. The rate among non-Hispanics (2.6) was 3.7 times higher than the rate among Hispanics (0.7).



Thirty-seven percent of individuals 15 years of age and older who committed suicide by poisoning were married, 36% were divorced or separated, 15% were never married, 11% were widowed, and the marital status was unknown for 1% of the victims. Thirty-six percent of persons 25 years of age and older had a high school diploma or a GED, 23% had a 12<sup>th</sup> grade education or less (no diploma), 21% had some college education, 19% were college graduates (associates, bachelors, masters or doctoral degree), and for 1% educational status was unspecified.

Fourteen percent of persons who committed suicide by poisoning were veterans of the U.S. Armed Forces. These veterans ranged in age from 28 to 93 years of age, with a mean age of 51 and a median age of 52. Nearly all (97%) of these veteran were males, reflecting the composition of the veteran population. Forty percent of the veterans were divorced or separated, 34% were married, 21% widowed, and 5% were never married. Among those 25 years of age and older, 45% had a high school degree or GED, 21% were college graduates (associates, bachelors, masters, or doctoral degree), 16% had a 12<sup>th</sup> grade education or less (no diploma), 16% had some college education, and for 2% the educational level was unknown.

The vast majority of the deaths (83%) occurred in a residence, 4% occurred in a motor vehicle, 3% occurred in a hotel/motel, and 10% occurred in other/unknown places.

Circumstances surrounding the poison-related suicide were known for 94% of the incidents reported to the OK-VDRS. Psychological-related conditions were among the leading circumstances, followed by physical health problems, social, and environmental issues. Almost half (47%) of the victims had a current depressed mood and 43% had a current mental health problem at the time of suicide. These were the most common circumstances for both males and females. A current depressed mood and intimate partner problems were documented more frequently among males than females. Drug abuse, suicide attempt history, physical health problems, and current mental health problems were

**Table 1. Leading Circumstances Associated with Poison-Related Suicides by Gender, Oklahoma, 2004-2006**

Circumstances*	Males (n=137)		Females (n=131)		Total (n=268)	
	Number	%	Number	%	Number	%
Current depressed mood	73	53	54	41	127	47
Current mental health problem	56	41	60	46	116	43
Suicide attempt history	40	29	51	39	91	34
Physical health problem	41	30	48	37	89	33
Intimate partner problem	38	28	29	22	67	25
Drug Abuse History	21	15	41	31	62	23

\*More than one circumstance may have been associated with the death.

documented more frequently among females than males (Table 1). Seventeen percent of the victims with a history of a suicide attempt also had a current depressed mood. Fifteen percent of persons who had a physical health problem also had a co-existing mental health problem.

Among persons with a diagnosed mental health condition, 19% had been diagnosed with more than one mental health condition. Mental health conditions included clinical depression (38%), bipolar disorder (20%), schizophrenia (9%), and other diagnoses (7%). Other diagnoses included eating disorders, obsessive-compulsive disorder, anxiety disorder, and post-traumatic stress syndrome. Mental health diagnoses were not specified for 36% of persons with a mental health condition. Thirty-nine percent of the decedents were being treated for a mental health condition at the time of the suicide.

Among the victims of suicide by poisoning, 34% disclosed their intent to commit suicide prior to the attempt and 32% left a suicide note.

Overall, 500 substances were implicated in the deaths. Among the substances used, 89% were drugs or alcohol, 9% were carbon monoxide poisoning, and 2% were other poisons (e.g., rat poison and pesticide). Prescription drugs were used in a substantial portion of deaths (66%). Over-the-counter medications were involved in 12% of the deaths, 11% carbon monoxide gas and other poison, 5% involved alcohol, 3% involved recreational drugs, and for 3% of poisonings, the type of drug/poison was not specified.

Opiates and antidepressants were the most common types of drugs used, 21% and 19%, respectively (Table 2). More than half of the opiates used were hydrocodone, oxycodone, and methadone. Barbiturates and tranquilizers accounted for 19% of the drugs. Among barbiturates and tranquilizers, 61% were alprazolam, quetiapine, diazepam, and cyclobenzaprine hydrochloride. Forty-six percent of the decedents had multiple substances in their system at the time of death.

Oklahoma (n=54) and Tulsa (n=47) counties, the most densely populated areas, had the highest number of suicide by poisoning deaths (Figure 3).

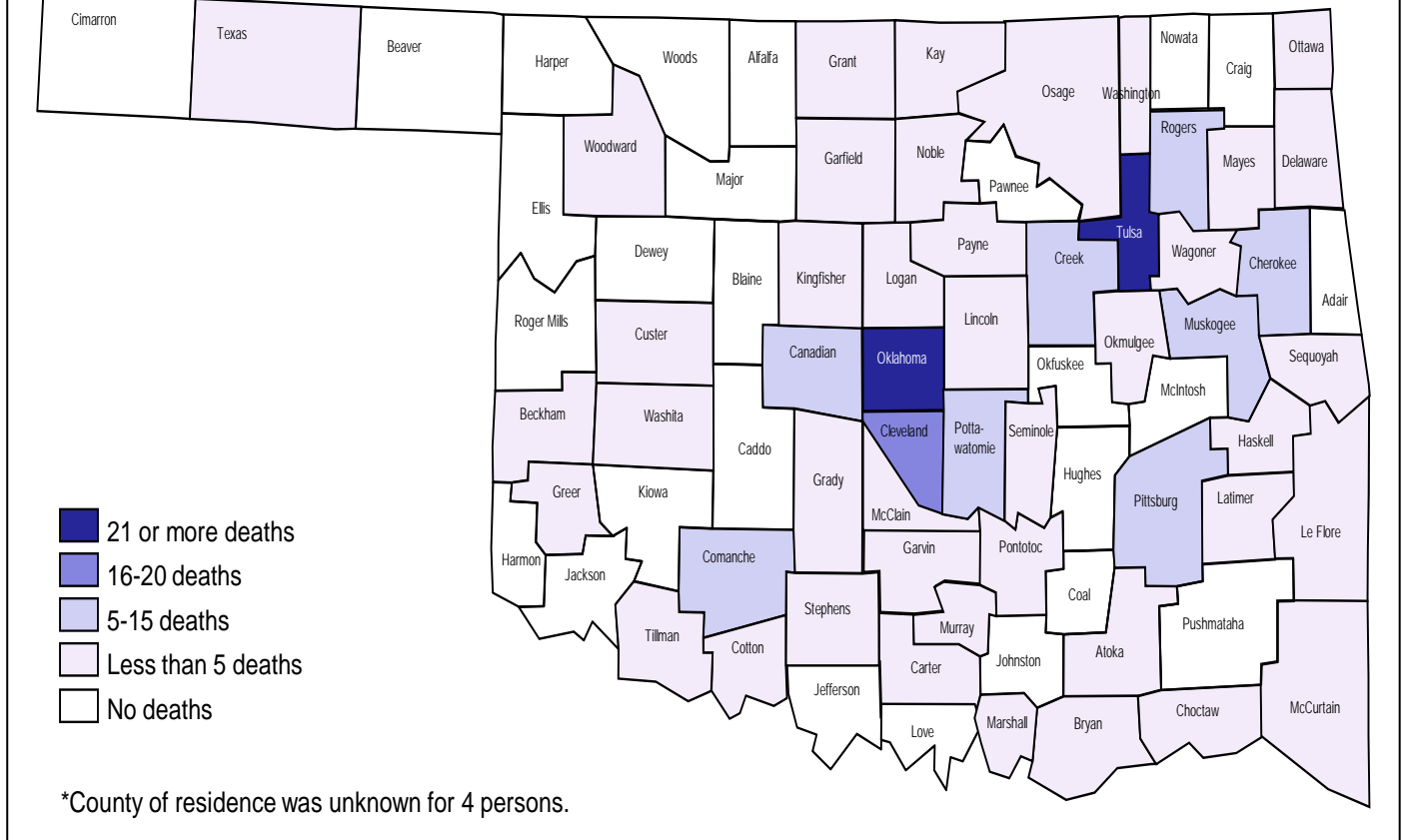
**Table 2. Types of Substances Involved in Poison-Related Suicides, Oklahoma, 2004-2006\***

	<b>Number</b>	<b>Percentage of All Substances Used</b>
<b>Opiates</b>	<b>103</b>	<b>21</b>
Hydrocodone Bitartrate	23	5
Oxycodone Hydrochloride	19	4
Methadone	16	3
Morphine Sulfate	11	2
Propoxyphene Hydrochloride	11	2
Propoxyphene/Acetaminophen	8	2
Tramadol Hydrochloride	8	2
Other Opiates	7	1
<b>Antidepressants</b>	<b>97</b>	<b>19</b>
Amitriptyline	27	5
Bupropion	12	2
Doxepin	9	2
Sertraline	9	2
Other Antidepressants	40	8
<b>Alcohol</b>	<b>27</b>	<b>5</b>
<b>Recreational Drugs</b>	<b>16</b>	<b>3</b>
Methamphetamine	7	1
Cocaine	9	2
<b>Barbiturates/Tranquilizers</b>	<b>94</b>	<b>19</b>
Alprazolam (Benzodiazepine)	29	6
Quetiapine (Antipsychotic)	12	2
Diazepam (Benzodiazepine)	8	2
Cyclobenzaprine Hydrochloride (Muscle Relaxant)	8	2
Other Barbiturates/Tranquilizers	37	7
<b>Analgesics</b>	<b>36</b>	<b>7</b>
Acetaminophen	30	6
Salicylate	6	1
<b>Antihistamine</b>	<b>17</b>	<b>3</b>
<b>Other Drugs</b>	<b>54</b>	<b>12</b>
<b>Gases/Other Poisons</b>	<b>56</b>	<b>11</b>
Carbon Monoxide	45	9
Other Poisons	11	2
<b>Total Substances**</b>	<b>500</b>	<b>100</b>

\*More than one substance may have been involved in the death.

\*\*Excludes 5 unknown substances.

**Figure 3. Number of Suicide Related Poisoning Deaths by County, Oklahoma, 2004 to 2006**



## CASE BRIEFS

- A 64-year old male was found dead from an overdose of two prescription medications. He had been depressed for several years following his wife's death. He left several suicide notes.
- A 56-year old female died as a result of a prescription drug overdose. She had been addicted to pain and muscle relaxant medication for many years. Bottles were found on her counter, including one belonging to a friend. She had a history of unintentional overdose and suicide attempts. The decedent had a strained marital relationship and had disclosed to her family the intent to kill herself.
- A 64-year old female was found dead at her home during a well-being check by coworkers. She left a note stating she was depressed, alone, and responsible for her husband's death due to her not insisting that he receive medical attention. Death resulted from combined drug toxicity.

## PREVENTION

Even though the rate of suicide has been fairly constant over the last decade, suicide still remains a major public health issue in the U.S. There is a great need for effective prevention plans to reduce the number of suicides since it is one of the leading causes of death. Abuse of prescription drugs is an escalating problem in both the U.S and Oklahoma. Prescription drug poisoning was one of the three most common methods for

suicide deaths in Oklahoma. Suicide is preventable. Therefore, it is imperative to recognize the multiple risk factors and warning signs associated with suicide so that public health officials can focus prevention efforts on populations at greatest risk.

A useful mnemonic tool for recognizing suicide warning signs is “IS PATH WARM.”

**I**deation – Person verbally expressing intent to commit suicide; uncharacteristically speaking or writing about death or suicide; threatening to harm or kill one’s self; searching for ways to kill one’s self.

**S**ubstance Abuse – Person abuses alcohol or drugs

**P**urposelessness – Person lacks the motivation to live

**A**nxiety – Abnormal sleeping habits are observed

**T**rapped – No escape from life’s problems

**H**opelessness – Person lacks ambition or drive

**W**ithdrawal – Person is isolated from society, family, and friends

**A**nger – Person seeks vengeance

**R**ecklessness – Person participates in dangerous activities

**M**ood change – Person has dramatic mood shifts

A combination of factors has been associated with suicide. Risk factors for suicide include:

- Previous suicide attempts
- Family history of suicide
- Mental health or mood disorders, including depression, bipolar illness, or schizophrenia
- Chronic physical illnesses
- Unemployment, retirement, widowed or divorced, and occupation (physicians, nurses, lawyers, hotel industry workers, and writers)
- Childhood abuse
- Low socioeconomic status

According to the Centers of Disease Control and Prevention (CDC), the national annual cost of suicide is about \$25 billion, which includes investigations, health care services, funerals, autopsies, and lost productivity. Suicide poisoning prevention should include a variety of approaches at various levels involving collaborative efforts among individuals, communities, and society as a whole.

The strategies listed below have not yet been shown to prevent poison-related suicides specifically, but some have been scientifically proven to prevent either suicide or poison-related events.

- Implementing suicide prevention programs in the community that build on life skills and enhance personal, familial, and community interactions.
- Encouraging physicians to effectively and resourcefully treat mental illness and pain management.
- Considering alternative methods of treatment for mental illness and pain management.
- Using screening to detect depression in primary health care settings.
- Teaching gatekeepers, those who have contact with susceptible populations, to identify individuals at risk for suicide and refer them for proper evaluation and treatment. Gatekeepers may include healthcare professionals, counselors, clergy, pharmacists, geriatric caregivers, and persons in schools, prisons, and military settings.

- Reducing and restricting access to means of suicide, particularly drugs, has been proven effective for preventing poison-related events.
  - Using the National All Schedules Prescription Electronic Reporting (NASPER) system to transmit prescription data to law enforcement agencies, pharmacists and physicians throughout the U.S.
  - Implementing regulatory measures to circumvent illegal utilization and distribution of prescription drugs.

The following strategies are considered promising:

- Creating prescription guidelines based on scientific data to help reduce prescription drug abuse and misuse.  
For example:
  - Manufacturing a tamper resistant capsule for drugs with abusive potential.
  - Developing a new class of non-opioid medications for pain management.
  - Placing cautions on controlled substance labels warning that it is unlawful to distribute or sell them.
- Training pharmacists, physicians, and residents to pinpoint risky suicidal behavior, drug abuse, and drug addiction.
- Educating patients and their families about the dangers of abusing prescription drugs.

Help for individuals at risk can be found at the *National Suicide Prevention Hotline: 1-800-TALK (8255)*. Additional suicide resources include:

**American Association of Suicidology** <http://www.suicidology.org>

**Centers for Disease Control and Prevention** <http://www.cdc.gov/ViolencePrevention/suicide/index.html>

**National Strategy for Suicide Prevention** <http://mentalhealth.samhsa.gov/suicideprevention/federal.asp>

**Oklahoma Department of Mental Health and Substance Abuse Services** <http://www.odmhsas.org>

**Suicide Prevention Resource Center** [http://www.sprc.org/featured\\_resources/index.asp](http://www.sprc.org/featured_resources/index.asp)

Prepared by: Tishri Casey  
Practicum Student

Sheryll Brown, MPH  
Director of Violence Prevention Programs