

# INJURY UPDATE

*A Report to Oklahoma Injury Surveillance Participants\**

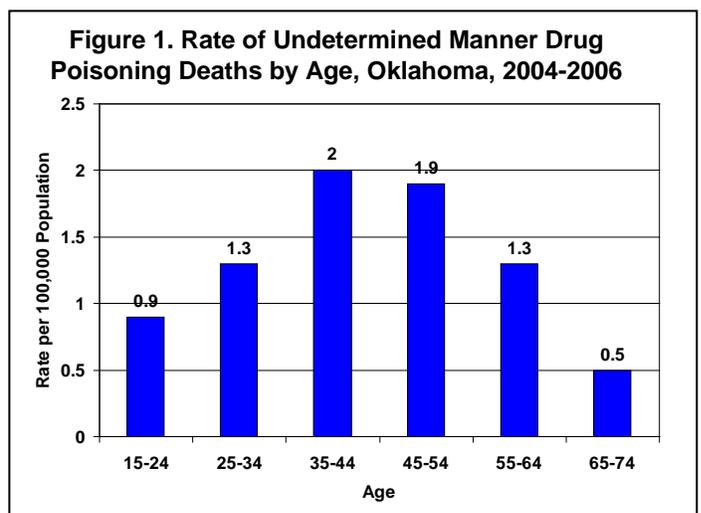
February 6, 2009

## Undetermined Manner Drug Poisoning Deaths, Oklahoma, 2004-2006

In 2005, poisoning was the second leading cause of unintentional injury death in the United States (U.S.), following motor vehicle crashes. The rate of poisoning deaths in the U.S. increased by 63% from 1999 to 2004. Most poisoning deaths were among middle-aged males and involved legal or illegal drugs. In 2000, poisoning injuries were responsible for 6% of the total cost of all injuries, accounting for \$26 billion. Poisonings can result from intentional or unintentional actions. Poisonings are classified as intentional when persons take or give a drug with the intent to cause harm. If persons take a drug but do not intend to cause harm, it is considered an unintentional poisoning. When the intent of a poisoning death is unknown, the manner of death is classified as undetermined. In 2005, a total of 32,691 poisoning deaths occurred in the U.S. Seventy-two percent of these deaths were due to unintentional poisonings, 18% were intentional poisonings, and for 10% the intent was undetermined. From 2001-2005, the rate of undetermined manner drug poisoning deaths in the U.S. increased by 6%, while in Oklahoma during the same time period, this rate nearly tripled.

Oklahoma Violent Death Reporting System (OK-VDRS) data for 2004-2006 were used to examine the characteristics of drug poisoning deaths where the manner of death could not be determined. Data are collected from death certificates, medical examiner reports, and law enforcement reports and linked into one database. OK-VDRS collects data on suicides, homicides, undetermined manner deaths, legal interventions, unintentional firearm injury deaths, and terrorism deaths. Cases for this report included Oklahoma residents, 15 years of age and older, where the manner of death was undetermined and actual or suspected drug (including alcohol) toxicity was described in the cause of death text of the death certificate or medical examiner's narrative.

From 2004-2006, there were 108 undetermined manner deaths related to drug poisoning (rate=1.0 per 100,000 population). Seventy-three percent of persons died from confirmed drug poisonings. In 27% of the deaths, drug poisoning was suspected. Fifty-three percent (n=57) of decedents were male and 47% (n=51) were female. The mean age of decedents was 42 years of age (range = 16 to 71 years). Fifty percent of persons were 35-54 years of age, 31% of persons were 15-34 years of age and 18% were 55 years and older. The rate among persons 35-54 years of age (1.9 per 100,000 population) was 2.7 times higher than the rate among persons of all other ages combined (0.7) (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>.

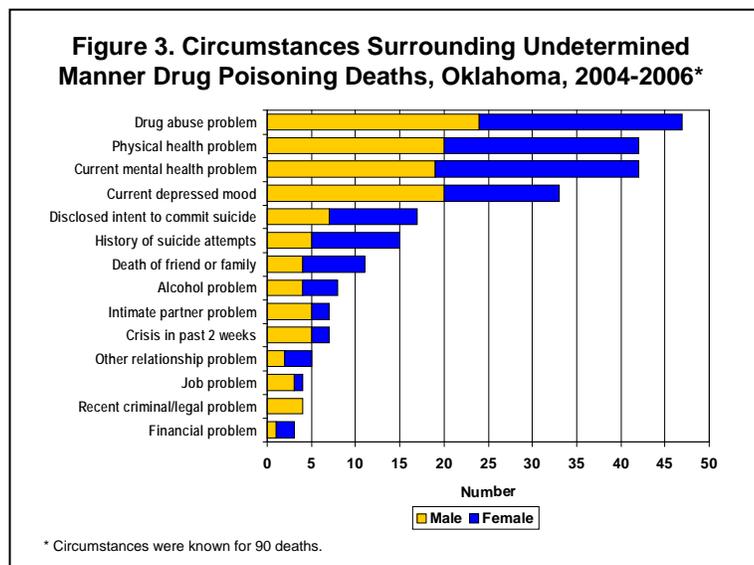
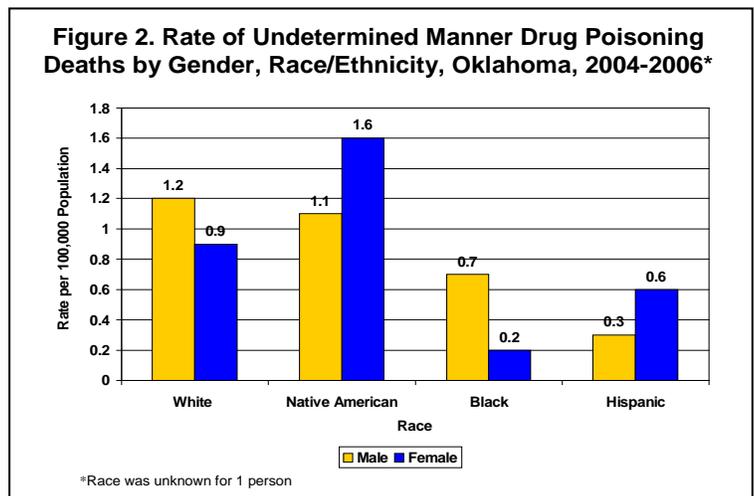
The vast majority of decedents were white (83%); 12% were Native American, 4% were black, and race was unknown for one person. The rate of undetermined manner drug poisoning deaths among Native Americans (1.4) was 40% higher than the rate among whites (1.0) and 3.5 times higher than the rate among blacks (0.4). Among males, whites had the highest rate of undetermined manner drug poisoning deaths (1.2), and among females, Native Americans had the highest rate (1.6). The rate among non-Hispanics (1.0) was 2.5 times higher than the rate among Hispanics (0.4) (Figure 2).

Nine percent of persons who died had served in the U.S. Armed Forces. Thirty-five percent of decedents were married, 35% were divorced or separated, 21% were single, 7% were widowed and marital status was unknown for 2%. Among decedents 24 years and older, 42% had a high school diploma or GED, 27% had some college education, 20% had less than a high school degree or GED, and 11% had an associate, bachelor or graduate degree.

Eighty-eight percent of the incidents occurred in a residence, 3% occurred in a hotel/motel, 2% occurred in jail or prison, 3% occurred in other locations and for 4%, the location of the incident was unknown.

Nearly half (46%) of the persons who died had a history of drug abuse. Physical health problems and mental health problems were involved in a substantial proportion of deaths as well (39%, each). Twenty percent of decedents had a mental health problem co-occurring with a drug abuse problem. Thirty-five percent of persons had a physical health problem co-occurring with a mental health problem (19%) or drug abuse problem (16%). Among males, a drug abuse problem was documented in 24 incidents (42%), a current depressed mood in 20 incidents (35%) and physical health problems in 20 incidents (35%). Nearly half (23) of female decedents had a drug abuse problem, 23 (45%) had a current mental health problem, and 22 (43%) had a physical health problem (Figure 3). Among persons with a current mental health problem (42), 64% had one or more diagnoses documented in the records and for 36%, the diagnosis was unknown. Among persons with documented diagnoses, 59% had a diagnosis of clinical depression, 37% bipolar disorder, 15% schizophrenia, 15% anxiety disorder, and 15% had other diagnoses.

Among persons who died from confirmed drug poisoning, prescription drugs were involved in 78% of the deaths and multiple drugs combined or in combination with alcohol were involved in 13% of the deaths (Table 1). A total of 152 confirmed substances were involved in the deaths (Table 2). Of all the substances involved, opiates and antidepressants were the most common (43% and 16%, respectively).



More than two thirds (68%) of the opiates involved were hydrocodone, morphine and methadone. Almost half of the antidepressants used were amitriptyline and doxepin.

Oklahoma and Tulsa counties had the highest number of undetermined manner drug poisoning deaths (Figure 4).

**Cases Briefs**

- A 30-year-old male was found dead at his residence. He had a history of abusing illicit and prescription drugs and was going through a divorce because of his drug problem. The night before, he asked his wife to reconsider finalizing the divorce. He was reportedly depressed over the pending divorce. Because of his history of drug abuse and no specific suicide threats, the manner of death was classified undetermined.
- A 40-year-old male was found dead at his residence. He had a history of chronic medical problems. A bottle of prescription drugs filled three days before was found empty in the residence. He had no known suicidal ideation or medicine abuse. Suicide could not be confirmed or excluded.
- A 69-year-old female was taken to the hospital with a decreased level of consciousness. She had a history of over-medication with previous hospitalizations. She had a history of chronic pain, was a heavy smoker, and had numerous surgeries in the past. Her death was due to salicylate toxicity of undetermined manner.
- A 19-year-old male was found unresponsive in bed on a welfare check. He had a history of drug and alcohol abuse. He also had a history of bipolar disorder and a suicide attempt. He had been released from a

**Table 1. Categories of Confirmed Drugs Involved in Undetermined Manner Poisoning Deaths, Oklahoma, 2004-2006**

| Drug Category                           | Number | Percentage of Deaths |
|---|--------|----------------------|
| Prescription drug                       | 62     | 78%                  |
| Recreational (Illegal) drug             | 3      | 4%                   |
| Alcohol                                 | 3      | 4%                   |
| Over-the-counter (OTC) drug             | 1      | 1%                   |
| Drug combination                        | 10     | 13%                  |
| <i>Alcohol + Prescription drug</i>      | 4      | -                    |
| <i>OTC + prescription drug</i>          | 3      | -                    |
| <i>Illegal drug + prescription drug</i> | 2      | -                    |
| <i>Illegal drug + alcohol</i>           | 1      | -                    |
| Total*                                  | 79     | 100%                 |

\*Number of persons who died from confirmed drug poisoning.

**Table 2. Types of Confirmed Substances\* Involved in Undetermined Manner Poisoning Deaths,\*\* Oklahoma, 2004-2006**

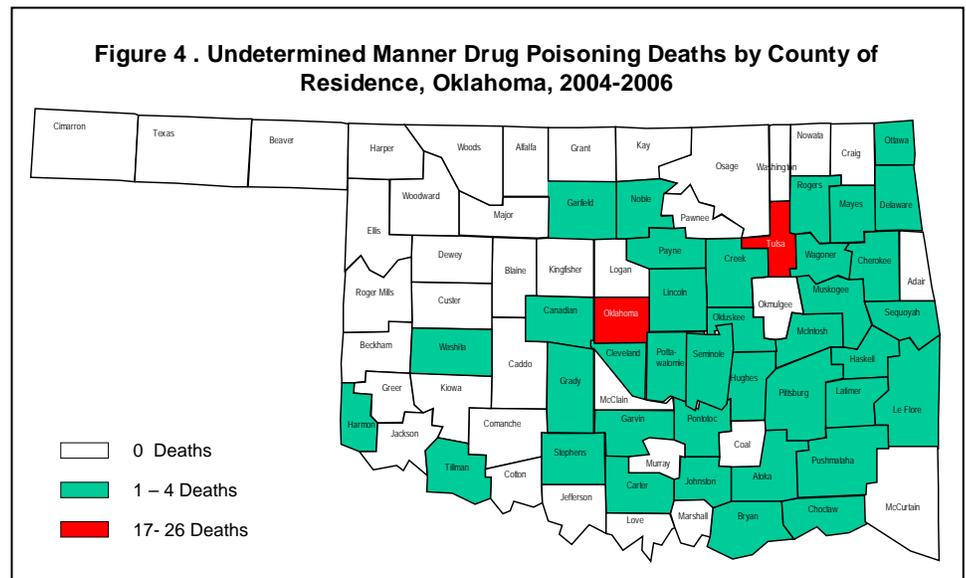
| Drug Type                    | Number     | Percentage of all drugs used |
|------------------------------|------------|------------------------------|
| <b>Opiates</b>               | <b>65</b>  | <b>43%</b>                   |
| Hydrocodone                  | 16         | 11%                          |
| Morphine                     | 15         | 10%                          |
| Methadone                    | 13         | 9%                           |
| Oxycodone                    | 7          | 5%                           |
| Propoxyphene                 | 5          | 3%                           |
| Fentanyl                     | 4          | 3%                           |
| Codeine                      | 2          | 1%                           |
| Tramadol                     | 2          | 1%                           |
| Hydromorphone                | 1          | 1%                           |
| <b>Antidepressants</b>       | <b>24</b>  | <b>16%</b>                   |
| Amitriptyline                | 6          | 4%                           |
| Doxepin                      | 5          | 3%                           |
| Fluoxetine                   | 3          | 2%                           |
| Paroxetine                   | 3          | 2%                           |
| Bupropion                    | 1          | 1%                           |
| Citalopram                   | 1          | 1%                           |
| Imipramine                   | 1          | 1%                           |
| Nortriptyline                | 1          | 1%                           |
| Sertraline                   | 1          | 1%                           |
| Venlafaxine                  | 1          | 1%                           |
| Clomipramine                 | 1          | 1%                           |
| <b>Recreational Drugs</b>    | <b>7</b>   | <b>5%</b>                    |
| Methamphetamine              | 5          | 3%                           |
| Cocaine                      | 1          | 1%                           |
| Gamma Hydroxybutyrate (GHB)  | 1          | 1%                           |
| <b>Other Drugs</b>           | <b>48</b>  | <b>32%</b>                   |
| Benzodiazepine               | 15         | 10%                          |
| Muscle relaxant              | 8          | 5%                           |
| Analgesic                    | 7          | 5%                           |
| Other psychiatric medication | 6          | 4%                           |
| Other                        | 12         | 8%                           |
| <b>Alcohol</b>               | <b>8</b>   | <b>5%</b>                    |
| <b>Total</b>                 | <b>152</b> | <b>100%</b>                  |

\* A total of 152 substances were involved. More than one drug may have been involved.

\*\* The type of substance was unknown for 23 persons.

psychiatric hospital one week prior to his death and appeared to be happy. The evening before, he had taken his medications and appeared groggy. He reportedly told someone that he thought he had an allergic reaction and it was difficult for him to swallow.

- A 43-year-old female was found dead in her motel room where she had been living. She had reportedly been depressed. A bottle of prescription drugs that was recently filled was found empty.
- A 36-year-old male was found unresponsive and taken to a hospital where he died. He had a history of drug abuse. Police were called recently several times to his residence for possible overdosing, but he refused to go to the hospital. His wife said that he had taken an entire bottle of antidepressants in three days. The manner and cause of death were undetermined. Documents indicated there was a possibility of multiple drug combination toxicity.



### Prevention

Undetermined manner drug poisoning deaths are likely unintentional poisoning or suicide deaths. A ruling of suicide requires that the force was used against oneself and the preponderance of evidence shows that the force was intentional. A ruling of undetermined manner results from the lack of evidence to support whether the use of the force (i.e., the drug) was intended to harm oneself or not. The increase of unintentional poisoning deaths over the past 20 years has coincided with an increase in undetermined manner poisoning deaths. The increase in unintentional drug poisoning deaths is largely due to the abuse of prescription drugs, primarily painkillers. Prevention measures aimed at reducing unintentional poisoning deaths will likely reduce the number of undetermined manner drug poisoning deaths as well. The Centers for Disease Control and Prevention recommend that efforts to prevent deaths from unintentional drug poisoning include:

- Enforcing regulatory measures to decrease unsafe use of drugs.
- Sharing data between state prescription drug monitoring programs with law enforcement officials to investigate the misuse of certain controlled substances.
- Using Medicaid population data to detect high levels of drug users.
- Encouraging insurers to take steps to modify the behavior of patients who use dangerous amounts of prescription drugs.
- Establishing best practices for treating drug dependence and educating physicians and pharmacists on the appropriate pharmacologic treatment of pain and psychiatric problems.
- Modifying prescription drugs to reduce the potential for abuse by making drugs more difficult to tamper with.

More information can be found at: <http://www.cdc.gov/washington/testimony/2007/t20071024.htm>.

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