

Unintentional Illicit and Prescription Drug Overdose Death Trends, 2008

New Mexico continues to experience serious negative consequences of drug use. National household survey data for 2005-2007 estimated that roughly 58,000 New Mexicans aged 12 years or older were in need of drug treatment (personal communication, SAMHSA). Overdose is a common occurrence among people who use drugs. In 2006, unintentional drug overdose accounted for roughly 9% of life lost due to premature death in New Mexico (8,043 of 91,859 years of potential life lost before age 65 from all causes of death), higher than the U.S. percentage of 5.6¹.

Data from the New Mexico Office of the Medical Investigator (OMI) were analyzed to clarify recent drug overdose death trends. The OMI database provides more detail regarding drug overdose and circumstances of death than can be gained from International Classification of Disease codes which arise from death certificates. Because of an increase in heroin overdose death, a sub-analysis was conducted to clarify differing heroin overdose death patterns observed in 2008 compared to previous years.

Methods

The OMI investigates unnatural deaths in New Mexico including many that occur on federal and tribal jurisdictions. All deaths suspected of being due to the effect of drugs or poisons were diagnosed based on information from the medicolegal investigation: autopsy, circumstances of death, scene investigation, medical records and toxicology results (blood concentration levels of one or more substances), as determined by the forensic pathologist. Death from unintentional drug overdose was defined as a death that was drug-caused, either alone or in combination with other substances. This analysis included only unintentional drug overdose deaths and therefore is not comparable to drug-caused death statistics as reported in the OMI Annual Report that includes both intentional and unintentional drug-caused death.

Nina Shah, MS

*Epidemiology and Response Division
New Mexico Department of Health*

This report is based on updated OMI data and therefore may be slightly different than drug overdose totals reported in prior Epidemiology Reports. The number and rates (expressed per 100,000 person-years) of drug overdose deaths were calculated for one-year and three-year time periods. Death rates were age-adjusted to the 2000 U.S. standard population. For the sub-analysis, chi-square tests were used to compare categorical covariates and Wilcoxon rank-sum tests were used to analyze continuous data.

Results

Statewide data for 2007 and 2008 were analyzed. The age-adjusted unintentional drug overdose death rate in New Mexico increased from 17.5 per 100,000 in 2007 to 19.6 per 100,000 in 2008. The illicit drug overdose death rate increased 7% (10.1 per 100,000 in 2007 and 10.8 per 100,000 in 2008) while the prescription drug overdose death rate slightly decreased (11.1 per 100,000 in 2007 and 10.8 per 100,000 in 2008).

Toxicology data was available for 92% of all unintentional drug overdose deaths in 2008. There were no statistically significant increases when examining the drug(s) causing death, either alone or in combination with other substances. However, the most notable rate change from 2007 to 2008 was for heroin, increasing from 5.4 to 7.4 deaths per 100,000. The largest increase in heroin overdose death was observed among Hispanic (from 15.1 to 18.8 deaths per 100,000) and white males (6.6 to 9.1 per 100,000), but was not statistically significant.

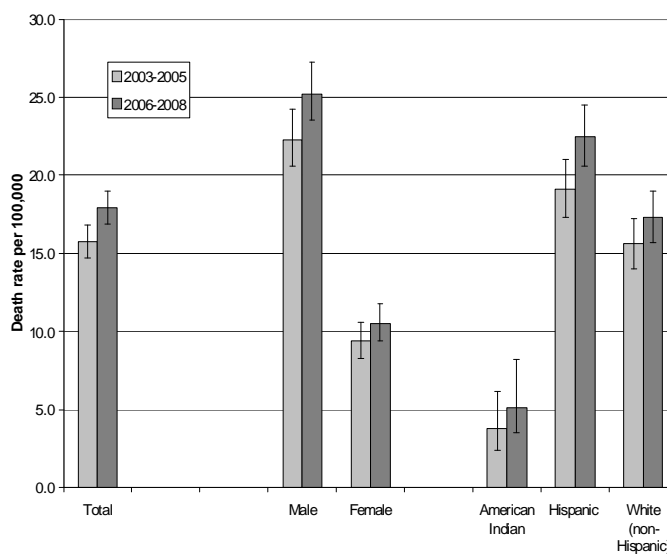
The death rates from cocaine (5.8 per 100,000 in 2007 and 5.0 per 100,000 in 2008), methamphetamine (1.7 per 100,000 in 2007 and 1.1 per 100,000 in 2008) and methadone (2.9 per 100,000 in 2007 and 2.6 per

100,000 in 2008) slightly decreased from 2007 to 2008. There was a slight rate increase in overdose death from prescription opioids other than methadone (i.e., oxycodone, hydrocodone, morphine)(6.7 deaths per 100,000 in 2007 to 7.2 deaths per 100,000 in 2008) and tranquilizers/muscle relaxants (4.4 per 100,000 in 2007 and 5.0 per 100,000 in 2008), while the death rate from antidepressants increased slightly (2.8 per 100,000 in 2007 and 2.9 per 100,000 in 2008). The overdose death rate from the combined effects of drugs and alcohol increased 25% from 4.4 per 100,000 in 2007 to 5.5 per 100,000 in 2008.

Figure 1 shows age-adjusted death rates by sex and the three largest racial/ethnic groups during the three-year periods of 2003-2005 and 2006-2008. The death rate among males increased 13% from 22.3 per 100,000 during 2003-2005 to 25.2 per 100,000 during 2006-2008. Overdose death among females increased at the same rate from 9.4 per 100,000 during 2003-2005 to 10.5 per 100,000 during 2006-2008. Rates increased among racial groups as well during these two time periods. The death rate for American Indians increased almost 35%, from 3.8 per 100,000 to 5.1 per 100,000. The death rate among Hispanics was 19.1 per 100,000 during 2003-2005 and 22.5 per 100,000 during 2006-2008, an 18% increase. The drug overdose death rate among whites in New Mexico increased from 15.6 per 100,000 during 2003-2005 to 17.3 per 100,000 during 2006-2008. The change in death rates between time periods was not statistically significant by sex or race/ethnicity.

Figure 2 shows three-year rolling rates for total unintentional drug overdose death in New Mexico by region during 1990-2008. Examining the moving average death rate over time allows for smoothing short-term fluctuations and recognition of long-term trends. The highest death rates were consistently found among residents of Bernalillo County and the Northeast Region. However, after 2000, the rate disparity by region appeared to diminish as the regions with lower rates, especially the Southeast Region, had substantial rate increases. During 2006-2008, the five counties with the highest drug overdose death rates were Rio Arriba (52.2 per 100,000), Guadalupe (45.8), Valencia (24.4), Bernalillo (24.0) and Eddy (22.7) (17.9 per 100,000 for New Mexico).

Figure 1. Unintentional Drug Overdose Death Rates by Sex and Race/Ethnicity, New Mexico, 2003-2005 and 2006-2008



A sub-analysis was performed comparing decedents from heroin overdose in 2008 to the prior five years, 2003-2007. Decedents in 2008 were significantly younger than decedents in 2003-2007 (median age of 39.0 versus 42.2 years; $p=0.02$). Specifically, a significantly larger proportion of decedents in 2008 were between the ages of 18 and 34 years, compared to decedents during 2003-2007 (40% versus 30%; $p=0.02$). Compared to decedents during 2003-2007, decedents in 2008 were significantly less likely to die from heroin overdose combined with cocaine (42% versus 28%; $p=0.001$), but more likely to die from heroin combined with an opioid other than methadone (8% versus 16%; $p=0.004$) and heroin combined with antidepressants (3% versus 8%; $p=0.006$). Although marginally significant, 2008 heroin decedents were slightly less likely to have died from a multi-drug overdose, compared to 2003-2007 decedents (69% versus 76%; $p=0.06$).

Discussion

In 2008, New Mexico experienced the same rates of overdose death from prescription and illicit drugs. Drug overdose death has been increasing in recent years and since much of the increase has been attributed to prescription drugs^{2,3,4}, it is hopeful that the death rate from prescription drugs decreased slightly in New Mexico from 2007 to 2008. However, heroin overdose death increased to the second highest level observed in New Mexico (7.4 deaths per 100,000 in

2008 and 7.6 deaths per 100,000 in 1998), driven by an increase among males.

Compared to heroin decedents during 2003-2007, decedents from heroin overdose in 2008 were significantly younger and more likely to have died from heroin combined with a prescription opioid other than methadone or antidepressant. It is possible that young users who died of heroin overdose in 2008 had been using heroin for a short time, compared to older, more experienced users. There are also increasing reports that people who are dependent on or addicted to prescription opioids (i.e., oxycodone, hydrocodone) are switching to heroin, largely because it is less expensive to maintain. This is troubling considering many young people are initiating their drug use with prescription drugs, second only to marijuana in prevalence of use, as they are easily obtained and not perceived to be as dangerous (2007 NSDUH). Drug use prevention and education is important because of this misconception and the possibility that these young users may subsequently initiate heroin use. Compared to 2003-2007, cocaine was found less often causing death in combination with heroin than in 2008, 42% and 28% respectively. Compared to previous years, it is likely that younger decedents in 2008 were primary heroin/opioid users and may not have progressed to speedballing, the risky practice of injecting a mixture of heroin and cocaine.

Drug availability may also influence rates of drug use and overdose death. Even prior to 2008, violence and strife related to the drug trade was escalating along the corridors that supply illicit drugs to New Mexico and other U.S. destinations. The National Drug Intelligence Center (NDIC) suggested that the wholesale price of heroin in Las Cruces decreased significantly from December 2007 to December 2008. This may have led to heroin becoming more available and less expensive statewide. But cocaine became significantly more expensive during the same time period in Albuquerque, according to NDIC. This may have resulted in a reduction of cocaine availability, higher price and/or lower “quality” (i.e., more adulterants, cutting agents) at the retail level, all of which may have resulted in less cocaine consumption.

It is important to increase penetration of harm reduction services since the burden from heroin increased in 2008 and the population of concurrent illicit and pre-

scription drug users is growing. Young drug users may lack the experience and education, and then find themselves in circumstances where fatal overdose is difficult to avoid. It is important to reach this vulnerable, high-risk subpopulation. Harm reduction is a crucial bridge to healthcare and treatment, given adequate treatment slots are available⁵, for new and longer term users alike^{6,7}.

Among other beneficial outcomes of drug treatment, there is a lower risk of overdose for people who are in treatment compared to those not in treatment. Since 2002, 15-22% of all New Mexico clients in substance abuse treatment were being treated with methadone or buprenorphine in facilities with Opiate Treatment Programs (National Survey of Substance Abuse Treatment Services, SAMHSA). However, during 2007-2008, three-quarters of all unintentional drug overdose deaths were caused by heroin and/or prescription opioids. Because of the growing problems associated with opioid addiction, it seems warranted to increase accessibility to medication-assisted therapy.

Finally, it is paramount to raise awareness about the risk of overdose among users of illicit and/or prescription drugs. Ongoing surveillance using various data sources is necessary to characterize the diverse subgroups that should be targeted for prevention efforts, highlight patterns at the state and sub-state level, and promote communication among stakeholders about emerging trends.

References

1. Web-based Injury Statistics Query and Reporting System, Centers for Disease Control and Prevention. Accessed August 7, 2009.
2. CDC. (2007) [Unintentional poisoning deaths--United States, 1999--2004](#). *MMWR*, 56; 93-96.
3. Mueller MR, Shah N & Landen MG. (2006) Unintentional prescription drug overdose deaths in New Mexico, 1994-2003. *American Journal of Preventive Medicine*, 30(5), 423-429.
4. Shah N, Lathrop SL, Reichard RR & Landen MG. (2008) Unintentional drug overdose death trends in New Mexico (USA), 1990-2005: combinations of heroin, cocaine, prescription opioids and alcohol. *Addiction*, 103(1), 126-136.
5. Shah N, Celentano DD, Vlahov D, Stambolis V, Johnson L, Nelson KE & Strathdee SA. (2000) Correlates of enrollment in methadone maintenance programs differ by HIV-serostatus. *AIDS*, 14(10), 2035-2043.
6. Strathdee SA, Celentano DD, Shah N, Lyles CM, Stambolis V, Macalino G, Nelson KE & Vlahov D. (1999) Needle exchange and health care utilization promote entry into detoxification. *Journal of Urban Health*, 76(4), 448-460.
7. Des Jarlais DC, McKnight C, Goldblatt C, Purchase D. (2009) Doing harm reduction better: syringe exchange in the United States. *Addiction*, 104(9), 1441-1446.

The New Mexico Epidemiology Report

C. Mack Sewell, Dr.P.H., M.S.
State Epidemiologist

Michael G. Landen, M.D., M.P.H.
Deputy State Epidemiologist & Editor

The New Mexico Epidemiology Report
(ISSN No. 87504642) is published monthly

by the

Epidemiology and Response Division
New Mexico Department of Health

1190 St. Francis Dr.

P.O. Box 26110, Santa Fe, NM 87502

Toll-Free Reporting Number:
1-800-432-4404

24-Hour Emergency Number:
(505) 827-0006
www.health.state.nm

Presorted
Standard
US Postage
PAID # 390
Santa Fe, NM

**Figure 2. Unintentional Drug Overdose Death Rates by Region
New Mexico, 1990-2008**

