G116 Suicidal Drug Overdoses in New Mexico: Medical Examiner-Investigated Cases From 2008 to 2012

Linda J. Szymanski, DO, Office of the Medical Investigator, Albuquerque, NM 87131; and Sarah Lathrop, DVM, PhD, Office of the Medical Investigator, 1 University of New Mexico, MSC 07 4040, Albuquerque, NM 87131*

After attending this presentation, attendees will understand the changing toxicology trends in suicide overdoses and the increasing prevalence of multi-drug overdoses.

This presentation will impact the forensic science community by emphasizing the shifting patterns of drugs present in suicidal overdoses, which have already been published in regard to accidental overdoses, in order to inform mental health treatment plans, prescribing practices, and patterns of substances analyzed at autopsy.

In order to better understand the changing toxicology trends in suicidal overdoses, a review of all suicidal drug overdoses between 2008 and 2012 from New Mexico's statewide medical examiner office was conducted. During the study period, there were 365 cases of suicidal drug overdoses, with the number of suicidal overdoses in New Mexico ranging from a low of 63 in 2009 and 2011 to a high of 83 in 2009. This represents 15.1% to 21.8% of the total number of suicides in New Mexico for the years studied. The mean age of the decedents was 48 years (range 17-85). Females were significantly older (mean age 49.1 years) than males (mean age 46.2 years) among suicidal overdoses ($p=0.048$). Between the ages of 30 and 80 years, more females committed suicide by intentional overdoses than males in every age category. Females outnumbered males by a factor of 1.6:1 (226 women, 139 men) in suicidal overdoses, but made up only 25% of all suicides. White non-Hispanics were over-represented in suicides by overdose, comprising 65.8% suicide by overdose but only 36.2% of New Mexico's population, followed by 91 (24.9%) Hispanic decedents, 25 (6.8%) American Indian, 4 (1.1%) African American, and 4 (1.1%) Asian/Pacific Islander/Unknown. Out of 106 separate substances isolated postmortem, the most commonly isolated substance, found in 79 decedents (21.6% of the total), was alcohol, followed by oxycodone (73 decedents, 20%), hydrocodone (56 decedents, 15.3%), alprazolam (50 decedents, 13.7%), acetaminophen (46 decedents, 12.6%), and diazepam (45 decedents, 12.3%). Toxicologic analysis showed 1 to 11 substances isolated, with 196 (53.7% of all cases) having three or more substances isolated. The most common class of prescription drug detected was opioids, detected in 206 (56%) of the 365 cases, followed by antidepressants in 168 cases (46%), anxiolytics in 143 cases (39%), muscle relaxants in 80 cases (22%), Over-The-Counter (OTC) pain medications in 55 cases (15.1%), and antihistamines in 54 cases (14.8%). There was a statistically significant difference ($p=0.03$) in numbers of classes of drugs present by gender, with more women having multiple classes of drugs present at the time of death. Cases in which only prescription drugs were detected (no illicit drugs or poisons detected) made up the largest category of suicidal overdose deaths (310 cases, 85%), followed by combinations of prescriptions drugs and illicit drugs (30 cases, 8%), poisons (8 cases, 2.2%), 3 cases (0.8%) of illicit drugs only, and 3 cases (0.8%) with a combination of prescription drugs and poison. There was a significant association between type of overdose (illicit, prescription, poison, other) and whether or not the overdose was attributable to a single substance ($p<0.0001$). There was also a significant association between the year of the study and the likelihood of the overdose being attributable to a single substance ($p=0.03$), with significantly more deaths attributed to multiple drugs in 2012 than in 2008 ($p=0.01$). Eighty-eight (24%) of the prescription drug-only deaths resulted from a single drug. The most frequent prescription drugs detected from a single-drug overdose were oxycodone and quetiapine in seven cases, diphenhydramine in six cases, and amitriptyline and salicylates in five cases. Increased numbers of deaths from prescription drugs in accidental drug deaths have been examined recently in the forensic pathology literature, but research focusing on suicidal overdoses has been sparse. This research focuses on the shifting patterns of drugs present in intentional overdoses to provide adequate data in order to help inform mental health treatment plans, prescribing practices, and toxicology requests in cases of suspected suicidal overdoses.

Suicide, Overdoses, Multi-Drug

 ** Presenting Author*