



Pathology Biology Section – 2009

G60 Fentanyl-Related Drug Deaths in Virginia (2000-2006)

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After attending this presentation, attendees will recognize the growing contribution of fentanyl to drug deaths, especially in combination with other drugs and alcohol.

This presentation will impact forensic scientists, primary care physicians, pharmacists, and patients by demonstrating the danger of combining fentanyl with other medications, street drugs, or alcohols.

Fentanyl is an opiate analgesic with about 81 times the therapeutic effect of morphine. Initially used mostly in hospital settings, fentanyl is increasingly used for outpatient management of chronic pain, especially delivered transdermally or through mucous membranes. Over the past years fentanyl has appeared more frequently in toxicology screens associated with drug deaths.

All deaths investigated by the Virginia Office of the Chief Medical Examiner between January 1, 2000 and December 31, 2006 in which fentanyl was detected on toxicological examination were received. Cases where fentanyl was used therapeutically in natural deaths were excluded from this analysis. Cases where fentanyl was present but the cause of death was a traumatic injury were excluded.

Analysis demonstrated a progressive increase in number of cases from three in 2000 to 51 in 2006. Deaths involving fentanyl typically occurred in the 3rd and 4th decade of life (average 40 years). There was a slight male predominance (about 60%), and 97% of the victims were white. There was significant geographic disparity in the data. There are four District Offices in Virginia, each office serving approximately 25% of the population. The relatively rural Western District had 51% of the fentanyl-associated death cases. The more urban Central, Eastern, and Northern Districts had 15%, 19%, and 15% of the cases respectively. Most of the deaths were classified as accidental (88%) with 10% suicidal and 2% undetermined.

Only 12% of the deaths in this study were caused by fentanyl alone. In the remaining cases other drugs were present and contributed to the death. The other drugs included prescription medications, street drugs, over the counter medications, and alcohol. Prescription medications were involved in 85% of the cases and included analgesics, muscle relaxants, and mental maintenance drugs. Prescription drugs were over-estimated in this study since medications which may have been obtained illegally (i.e., oxycodone and methadone) were classified as prescription drugs. Morphine was classified as prescription unless 6-acetylmorphine was also present. Street drugs were involved in 14% of cases, over-the-counter drugs (acetaminophen, antihistamines, and dextromethorphan) in 8% and alcohol in 13%.

This analysis documents the marked increase (17-fold) increase in fentanyl-related deaths over the last six years. The observation that most of the deaths are associated with other drugs suggests a role for increased caution by physicians in prescribing fentanyl, especially in combination with other medications. Increased education of patients is essential with emphasis on the critical importance of using the medication as directed. Patients should also understand the danger of mixing fentanyl with non-prescribed substances such as street drugs, alcohol, and sedating over-the-counter drugs.

Fentanyl, Drug Death, Epidemiology