



### **H138 Drop Dead Again: Surge of Deaths Attributed to Fentanyl Analogues in Cook County, Illinois**

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After attending this presentation, attendees will understand the importance of the forensic pathologists and toxicologists' role in identifying fentanyl analogues resulting in death, and the necessity of regularly modifying toxicology drug panels to increase the likelihood of the detection of these substances.

This presentation will impact the forensic science community by educating death investigators about a surge in deaths due to fentanyl analogues within a large urban setting, highlighting the importance of regularly modifying existing drug screens to include testing for these and other new substances permeating the community.

The purpose of this study is to review toxicology data from the Cook County Medical Examiner's Office (CCMEO), including decedent demographic information, to educate the forensic community about the presence of fentanyl analogues causing death within the urban setting of Cook County, IL, and to identify trends associated with these deaths.

The Chicagoland region serves as a hub for illicit drug distribution in the Midwest. An epidemic involving fentanyl related deaths occurred from 2005-2007 in Cook County, IL. The term "Drop Dead" emerged because of the swift onset of collapse following injection of the drug. These fentanyl deaths were initially thought to be the result of "tainted heroin"; however, further investigation revealed that fentanyl was being sold as a substitute heroin. The Chicago police investigation traced the distribution to the Mickey Cobra gang, and the production of fentanyl to a laboratory in Toluca, Mexico, which was shut down in 2007. European studies attributed the rise in fentanyl-related deaths in the early 2000s to the disruption of production and distribution of opium in the Middle East. The recent surge in fentanyl- and fentanyl analogue-related deaths may again be associated with this trend.

The Centers for Disease Control and the Drug Enforcement Agency have recently issued health advisories in response to the national increase in fentanyl-related overdose fatalities, including deaths attributed to the presence of fentanyl analogues, most commonly, furanyl fentanyl, acetyl fentanyl, despropionyl fentanyl (4-ANPP), and butyryl fentanyl. The phrase "Drop Dead Again" is coined to describe this new epidemic of fentanyl analogues and fentanyl-related deaths.

In April 2015, the CCMEO's toxicology laboratory began detecting fentanyl and fentanyl analogue deaths. In response to this, the toxicology laboratory revised its short-form drug testing panel, which included testing for alcohol, opiates and cocaine, to include routine testing for fentanyl. Fentanyl analogues screen positive for fentanyl using the Enzyme-Linked Immunosorbent Assay (ELISA); however, further testing by Gas Chromatography/Mass Spectrometry (GC/MS) will be negative for fentanyl because fentanyl analogues will have a distinct chromatographic peak and mass spectrum result.

Since the initial detection, at least 71 deaths have been attributed to fentanyl analogues (+/- additional drugs). The various analogues causing death include acetyl fentanyl ( $n=13$ ), despropionyl fentanyl (4-ANPP) ( $n=52$ ), furanyl fentanyl ( $n=45$ ), and butyryl fentanyl ( $n=1$ ).



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For this study, toxicology results and demographic information were reviewed from April 2015 to the present. The decedents ranged in age from 22 to 65 years, with an average age of 41 years. There were 59 male deaths and 12 female deaths. Fentanyl analogue deaths occurred more frequently in association with other drugs and alcohol (55/71 cases). Fentanyl analogues alone were responsible for 16/71 deaths. The most common drugs found in association with fentanyl analogues include heroin ( $n=26/71$ ) and fentanyl ( $n=20/71$ ); cocaine ( $n=13/71$ ) and ethanol ( $n=16/71$ ) were also frequently detected.

One of the many functions of the medical examiner and coroner is protecting the public health and sounding the alarm when new drug trends are detected.

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### **Fentanyl Analogue Intoxication, Sudden Death, Cook County, Illinois**