



Pathology Biology Section – 2007

G99 “Drop Dead”: An Epidemic of Intravenous Fentanyl Deaths in Cook County, Illinois: 2005 to Present

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The goal of this presentation is to understand that fentanyl has suddenly appeared as an intravenous drug of abuse, and that medical examiners, public health officials, and emergency physicians should realize that clusters of sudden death may appear as an epidemic of fentanyl intoxications.

This presentation will impact the forensic community and/or humanity by demonstrating the response of the medical examiners office to a sudden onset and ongoing epidemic of sudden unexplained death, subsequently found to be from illicit intravenous fentanyl abuse. This has implications for public health in monitoring and quickly diagnosing clusters of sudden unexpected death in an urban population.

In November 2005 in Cook County, Illinois, an epidemic of intravenous fentanyl deaths began and quickly accelerated, and has not slowed as of June 2006. This epidemic of fentanyl intoxication in Cook County has not been previously described. Prior to 2005, fentanyl intoxication fatalities, or fentanyl-related deaths, in Cook County were almost exclusively from abuse or misuse of fentanyl transdermal delayed-release patches. Fentanyl is approximately 50 times more potent than heroin, and is a synthetic opiate used clinically during invasive medical procedures and for outpatient pain control through a transdermal patch delivery system. Some of the more unusual fentanyl intoxications in Cook County have been previously presented (Wu Chen, N, et al. Suicide by transdermal patch, AAFS abstract K19, Orlando, FL, 1999).

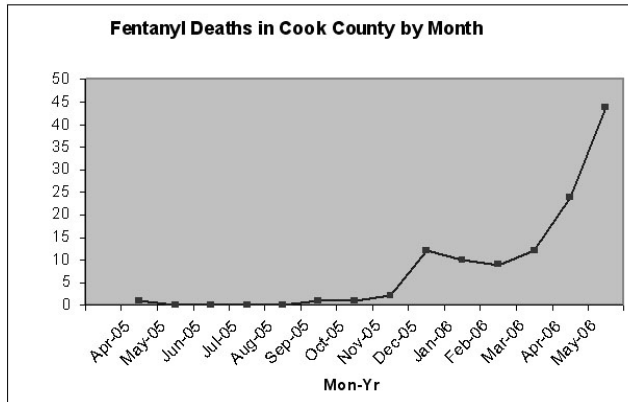
Cook County, Illinois, is a compact major metropolitan area of approximately 5.5 million people within an area of 950 square miles that surrounds and includes the city of Chicago. In December 2005 hospital emergency rooms began to report an increase of tight clusters of overdoses initially concentrated in the Near South Side of Chicago. In the emergency department setting, some of the survivors' urine toxicology testing results was positive for opiates from heroin, but some were not, even though all showed clinical signs and symptoms of a rapid acute opiate overdose. At the same time, fatalities occurring in these small clusters of apparent opiate intoxications were brought to the Cook County Medical Examiners Office for examination.

Death scene investigations and histories of these fatalities often showed a rapid collapse after the injection and the term “Drop Dead” was coined on the street to describe this new “tainted heroin.” The police used the local media to warn the public about a deadly heroin product mixed with fentanyl. Syringes found next to the victims were sent by the Chicago Police to the Illinois State Police Crime Laboratory for rapid testing, revealing the presence of fentanyl. The fentanyl was purchased from street corner drug sellers as a white powder, in amount and consistency similar to heroin. Prior to this epidemic, fentanyl was not routinely tested for in the Cook County toxicology laboratory. A fentanyl testing protocol was begun for all suspected drug intoxication deaths after the epidemic was discovered, and then tested for retrospectively to September 2005.

Data of fentanyl intoxication deaths were retrospectively collected for the years 1995 through early 2006 from the Office's database. As numbers of fentanyl intoxications accelerated in 2006, data was collected and analyzed prospectively for entry into a real-time CCME Fentanyl Intoxication Database. For January 1995 to November 2005, the CCMEO averaged four cases per year (range 1 (1995, 2000) to ten (2002)). Criteria for certification for fentanyl intoxication deaths were similar to the office's criteria for opiate-related deaths. Intravenous fentanyl intoxication deaths from April 2005 through May 2006 are shown:



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Fentanyl-related deaths initially appeared in November (2), accelerated in December (12), stabilized in January (10) and February (9), but then accelerated again through March (12), April (24) and May (44). Initial June data shows this upward trend is continuing. Of the fatalities from April 2005 through May 2006, 96 were male and 20 female. The average and median ages were 40 years, with a range of 16 to 61. The average concentration of fentanyl in postmortem peripheral blood was 23 ng/ml (median 17; range 0.9 to 134). These 116 fentanyl epidemic deaths through May 31, 2006, were further subcategorized as fentanyl intoxication without other drugs (43, 37%); fentanyl and opiate intoxication (20, 17%); fentanyl and cocaine intoxication (29, 25%); fentanyl, opiate and cocaine intoxication (6, 5%); fentanyl, opiate, cocaine and alcohol intoxication (3, 3%); fentanyl and alcohol intoxication (6, 5%); fentanyl, alcohol and opiate and intoxication (5, 4%); and fentanyl, cocaine and alcohol intoxication (4, 3%). This data shows that fentanyl is being sold in Chicago predominately as a single drug, not as a so-called "tainted heroin" product. But it also shows that fentanyl is being abused in combination with heroin or cocaine, although less frequently. Other drugs detected with fentanyl could either represent the purchase of a combined product, or the concurrent use of each individual drug. The origin of this illicit white powder fentanyl and the reason for its rapid and continued influx into the Chicago land area is currently under intense investigation by numerous government agencies.

Fentanyl Intoxication, Sudden Death, Cook County, Illinois