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Select Abstract:

Novel, Illicit Fentanyl-Analog Causes 14 Overdose Deaths — Rhode Island, 2013

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Background: The United States is experiencing an opioid abuse epidemic, with opioid overdose deaths quadrupling between 1999 and 2010. The introduction of more potent illicit opioids increases overdose risk. We characterized a cluster of overdose deaths involving acetyl fentanyl, a novel illicitly-produced opioid about four times more potent than heroin.

Methods: We abstracted data from the Rhode Island (RI) Medical Examiner Database for illicit drug overdose deaths (IDOD) during March 2012–March 2013, and from post-mortem toxicology reports for acetyl fentanyl overdose deaths (AFODs). AFODs, a subset of IDODs, were defined by identification of acetyl fentanyl or 4-Anilino-n-phenethylpiperidine by gas chromatography/mass spectrometry (GC/MS). We performed a case-case risk factor analysis comparing AFODs to other IDODs.

Results: In March 2013, 10 AFODs contributed to a significant increase in total IDODs ($n = 20$) compared to the previous year monthly average (mean = 8.9; $P < .001$). Fourteen AFODs occurred during March–May 2013; decedents were 19–57 years old and 71% male. AFODs were more likely than other IDODs to occur in a northern RI city (43% vs. 8%; $P < .001$). No other risk factor differences were identified. GC/MS toxicology results for 12 AFODs showed various mixtures of other drugs, including cocaine (64%), other opioids (36%), and ethanol (36%); all AFODs tested negative for fentanyl. No AFODs have occurred in RI since May 2013.

Conclusions: This is the first time acetyl fentanyl has been identified in illicit drug use and overdose deaths. Without RI's extensive toxicology testing, the cause of the outbreak might have gone unidentified. This investigation increased awareness of and laboratory capacity to identify acetyl fentanyl nationally, leading to confirmation of six AFODs in two other states.

Keywords: opioid, drug overdose, outbreaks, fentanyl, drug screening, forensic toxicology