

User Self Report and Detection of Clandestine Fentanyl among Adult Heroin Users

Matthew Griswold¹, Peter Chai¹, Brittany Chapman¹, Melissa Friscia², Alexander Krotulski², Edward Boyer¹, Barry Logan², Kavita Babu¹

¹University of Massachusetts School of Medicine, Worcester, MA, USA, ²Center for Forensic Science Research and Education, Willow Grove, PA, USA

Background: The adulteration of heroin with clandestine fentanyl is one suspected etiology for the increase in heroin-related overdose deaths. Normally an efficient method of assessing dimensions of drug use, self-report may be inaccurate because heroin users are frequently unaware of the fentanyl adulteration. In this study, we compared heroin user self-report with gold standard urine testing.

Research Question: Can heroin users accurately self-report fentanyl exposure in the setting of overdose?

Methods: Adult heroin users presenting to an urban, tertiary care ED after overdose were eligible for enrollment if they had received naloxone and were able to provide verbal consent in English. Subjects underwent a semi-structured interview and a urine specimen was collected. Results were evaluated using descriptive statistics. This study was approved by the Institutional Review Board.

Results: Between August and October 2016, twenty adult heroin users who presented after overdose were enrolled in a convenience sample; two subjects declined to participate. Average age was 31, 50% identified as female. Users reported injection heroin use (12/20), intranasal use (7/20), and both (1/20). Two subjects denied possible fentanyl exposure, while 6/20 remained uncertain. Suspicion of fentanyl exposure was reported by 12/20 participants, with qualitative reports of change variations in the effects, texture, and color of the drug. No patients reported pharmaceutical fentanyl use or attempts to purchase fentanyl. Urine testing revealed the presence of fentanyl (or metabolites) in 20/20 of cases, with an absence of heroin metabolites in 2/20 cases.

Discussion: All enrolled heroin overdose individuals in this study had urine Liquid Chromatography Time-of-Flight Mass Spectrometry screens positive for fentanyl. Individual self-report of suspected fentanyl contamination did not correlate with urine testing. In this small sample, we found universal presence of fentanyl in heroin users presenting after an overdose requiring naloxone. Limitations of this pilot study include the small sample size, convenience sampling, and regional/temporal variation of heroin adulterants.

Conclusion: In this pilot study, the presence of fentanyl was detected in 100% of heroin overdose individuals presenting to the ED after receiving naloxone, with only 60% agreement between user self-report of fentanyl exposure and the identification of fentanyl.