Xylazine Positivity Rate Among Patients at an Urban Low-Barrier Access Clinic

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INTRODUCTION

- Xylazine, a veterinary sedative, and alpha-2 adrenergic agonist, has increasingly been identified as an adulterant in the opioid drug supply, particularly fentanyl. Its use is associated with sedation and necrotic skin ulcerations, potentially compounding the risks of opioid use disorder.
- Limited data are available on the rate of xylazine contamination in the opioid drug supply. The most recent publicly reported data, from March 2022, indicated that 91% of tested samples of purported heroin or fentanyl in Philadelphia (a drug market closely resembling Camden's) contained xylazine. However, human data on xylazine exposure in this community are scarce, apart from its detection in 34% of overdose deaths in 2022.
- This study evaluates the prevalence of xylazine exposure by analyzing urine drug screens (UDS) from patients presenting to an urban, low-barrier access, walk-in addiction medicine clinic. Understanding the extent of xylazine exposure in this population can help inform local harm reduction efforts, improve clinical care, and address public health challenges arising from this evolving and dangerous trend in the drug supply.

METHODS

- This study was conducted at an urban, low-barrier access, walk-in addiction medicine clinic providing harm reduction and clinical services. All patients who underwent UDS as part of routine clinical care 9/19/2023 - 9/19/2024, were included in the analysis.
- Patients who tested positive for fentanyl on UDS were further screened for xylazine using LC/MS-MS, a definitive analytical method. Demographic data, including race and sex, were collected from the electronic medical record.
- The prevalence of xylazine positivity was calculated among fentanyl-positive patients. Subgroup analyses were conducted to evaluate potential associations between xylazine exposure and patient characteristics.
- This quality assurance project was designed to provide insight into xylazine exposure in an urban clinic setting and to inform harm reduction and clinical care strategies for vulnerable populations.

RESULTS

	Total (n)	Xylazine Positive (%)	Xylazine Negative (%)
Fentanyl +	2,516	2312 (91.89%)	204(8.11%)
Avg Fentanyl Conc (ng/mL)		220	140
Sex			
Female	787	724(92%)	63(8%)
Male	1,729	1,588(91.84%)	141(8.16%)
Race			
White (Non-Hispanic)	1,430	1,321(92.38%)	109(7.62%)
African American	749	678(90.52%)	71(9.48%)
Hispanic	219	204(93.15%)	15(6.85%)
Other	118	109(92.37%)	9(7.63%)

During the study period, a total of 6,096 urine drug screens (UDS) were performed, of which 2,516 (41.27%) tested positive for fentanyl. Among the fentanyl-positive samples, 2,312 (91.89%) were also positive for xylazine. The average fentanyl concentration across all fentanyl-positive samples was 214.08 ng/mL (SD: 193.37). When stratified by xylazine presence, the average fentanyl concentration was significantly higher in xylazine-positive samples at 220.49 ng/mL (SD: 182.52, range: 1–1863) compared to 140.64 ng/mL (SD: 280.40, range: 1–3038) in xylazine-negative samples (Two-Sample t-Test, $p < 0.001$).

Xylazine positivity was consistently high across all demographic groups. There was no statistical difference in xylazine positivity rates between genders (X^2, p=.898). Among fentanyl-positive samples from female patients (n = 787, 31.28% of encounters), 724 (92.00%) tested positive for xylazine. Among fentanyl-positive samples from male patient encounters (n = 1,729, 68.72% of encounters), 1,588 (91.84%) were xylazine-positive.

Racial distribution showed similarly high rates of xylazine positivity with no statistical differences (X^2, p= .416). Among White (non-Hispanic) patient encounters positive for fentanyl (n = 1,430, 56.84%), 1,321 (92.38%) also tested positive for xylazine. African American patient encounters (n = 749, 29.77%) had a xylazine positivity rate of 90.52% (678 positive). Hispanic patient encounters (n = 219, 8.70%) had a xylazine positivity rate of 93.15% (204 positive). Patient encounters categorized as Other (n = 118, 4.69%) had a positivity rate of 92.37% (109 positive).

CONCLUSION

Over 91% of the fentanyl-positive patients presenting to this urban, low-barrier access, addiction medicine walk-in clinic tested positive for xylazine. This finding demonstrates an alarmingly high prevalence of xylazine in the Camden area drug supply. There was no statistical difference in xylazine exposure between gender or racial groups. The significantly higher fentanyl concentrations in xylazine-positive samples may represent a variety of differences among these groups and warrants further investigation. One limitation of this study is that patients using substances other than fentanyl were not screened for xylazine.

The data confirms that xylazine has become deeply embedded in the regional drug supply, posing additional risks to people who use opioids. There is an urgent need for expanded harm reduction initiatives, including xylazine test strip distribution, education for both providers and people who use drugs, and the development of treatment protocols addressing xylazine-related complications. Ongoing surveillance of the evolving drug supply remains essential to mitigate emerging threats and improve outcomes for individuals with OUD.

REFERENCES

Philadelphia Department of Public Health. Health Alert: Risks of Xylazine Use and Withdrawal in People Who Use Drugs in Philadelphia March 16, 2022. Accessed at https://hip.phila.gov/document/2524/PDPH-HAN_Alert_1_Xylazine_03.16.2022.pdf/

D'Orazio J, Nelson L, Perrone J, Wightman R, Haroz R. Xylazine Adulteration of the Heroin-Fentanyl Drug Supply : A Narrative Review. Ann Intern Med. 2023 Oct;176(10):1370-1376. doi: 10.7326/M23-2001. Epub 2023 Oct 10. PMID: 37812779.

Kariisa M, O'Donnell J, Kumar S, Mattson CL, Goldberger BA. Illicitly Manufactured Fentanyl–Involved Overdose Deaths with Detected Xylazine — United States, January 2019–June 2022. MMWR Morb Mortal Wkly Rep 2023;72:721–727.

Johnson J, Pizzicato L, Johnson C, Viner K. Increasing presence of xylazine in heroin and/or fentanyl deaths, Philadelphia, Pennsylvania, 2010-2019. Inj Prev. 2021 Aug;27(4):395-398. doi: 10.1136/injuryprev-2020-043968. Epub 2021 Feb 3. PMID: 33536231.

Kusic DM, Heil J, Zajic S, Brangan A, Dairo O, Heil S, Feigin G, Kacinko S, Buono RJ, Ferraro TN, Rafeq R, Haroz R, Baston K, Bodofsky E, Sabia M, Salzman M, Resch A, Madzo J, Scheinfeldt LB, Issa JJ, Jelinek J. Postmortem toxicology findings from the Camden Opioid Research Initiative. PLoS One. 2023 Nov 1;18(11):e0292674. doi: 10.1371/journal.pone.0292674. PMID: 37910493

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