

Changes in Philadelphia's Drug Supply and Substance Use-Related Emergency Department Visits

Authors: Maya Puleo, MPH; Natalie Ward, MPH; Dana Higgins, MPH; Daniel Teixeira da Silva, MD, MSHP

Changes in the illicit drug supply have been associated with worse morbidity and mortality for people who use drugs, such as overdose, withdrawal, and skin and soft tissue injury (SSTI). Xylazine, a sedative used in veterinary medicine, known as “tranq”, was first associated with drug use in Philadelphia in 2006 and, by 2023, was detected in nearly 100% of illicit fentanyl tested by the Philadelphia Department of Public Health (PDPH).^{1,2} Concurrent use of fentanyl and xylazine has been associated with severe and necrotic SSTIs and has complicated withdrawal treatment. In response, PDPH, community-based organizations, and local hospitals have developed best practices and adapted protocols for managing SSTIs and withdrawal complicated by xylazine use.³⁻⁶

In May 2024, medetomidine, known as “rhino tranq”, was introduced to Philadelphia's drug supply.⁷ Like xylazine, medetomidine is a sedative used in veterinary medicine. However, medetomidine is 100-200 times more potent than xylazine.⁸ Since the introduction of medetomidine, there has been a concomitant decrease in the prevalence of xylazine in Philadelphia's drug supply.⁹ In December 2024, PDPH released a health alert notifying providers of severe withdrawal symptoms requiring intensive care unit level of care attributed to concurrent use of medetomidine and fentanyl.⁹ In May 2025, the CDC published a report describing 165 patients admitted to Philadelphia's health systems between Sept 1, 2024-Jan 31, 2025 with a newly recognized medetomidine withdrawal syndrome, of which 91% were admitted to an intensive care unit and 24% were intubated.¹⁰ The introduction of medetomidine and concomitant decrease of xylazine in Philadelphia's drug supply has mirrored observed increases in emergency department (ED) visits for withdrawal and decreases in ED visits for substance use-related SSTIs.

Prior to the introduction of xylazine, wound care was already an essential clinical harm reduction service for PWUD. Best practices for caring for people with xylazine-associated wounds have informed efforts to treat and prevent substance use-related SSTIs. Efforts to improve care for withdrawal treatment for concurrent use of fentanyl and medetomidine should build off lessons learned from xylazine.

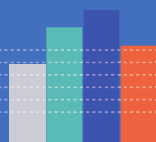
KEY TAKEAWAYS

Philadelphia's drug supply is constantly changing. Disruptions in the drug supply can have harmful effects on people who use drugs.

Like xylazine, medetomidine is a veterinary sedative. However, medetomidine is 100-200 times more potent than xylazine.

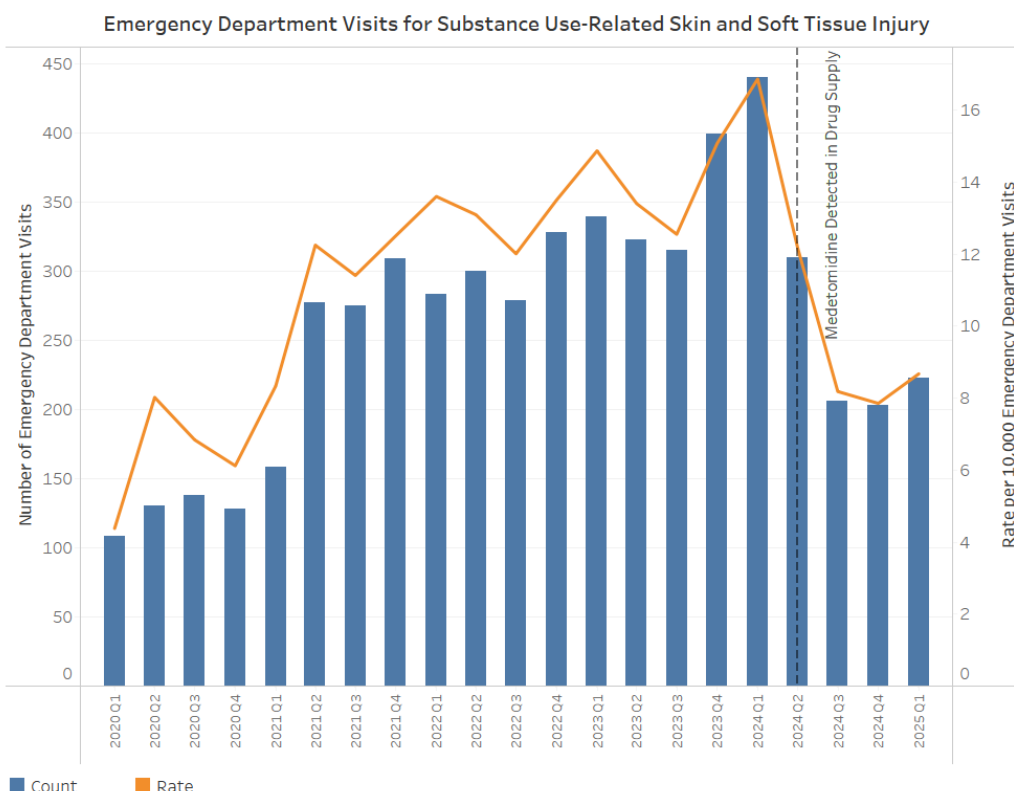
Medetomidine was detected in Philadelphia in May 2024. Since then, the prevalence of xylazine in Philadelphia's drug supply has decreased.

Since May 2024, emergency department visits for substance use-related skin and soft tissue injury have decreased by half, while visits for withdrawal have more than doubled.



New sedatives introduced to the drug supply are increasingly potent and can lead to complex, dangerous, and potentially fatal health outcomes. The addition of veterinary sedatives of increasing potency to the illicit fentanyl supply in Philadelphia has been associated with worsening and severe withdrawal. This CHART presents syndromic surveillance data of presentations of substance use-related ED visits from 2020 Q1 to 2025 Q1 to describe changing trends in SSTIs and withdrawal since the introduction of medetomidine to Philadelphia's drug supply.

Despite large increases from 2020 through the beginning of 2024, emergency department visits for substance use-related skin and soft tissue injury rapidly decreased after 2024 Q1.



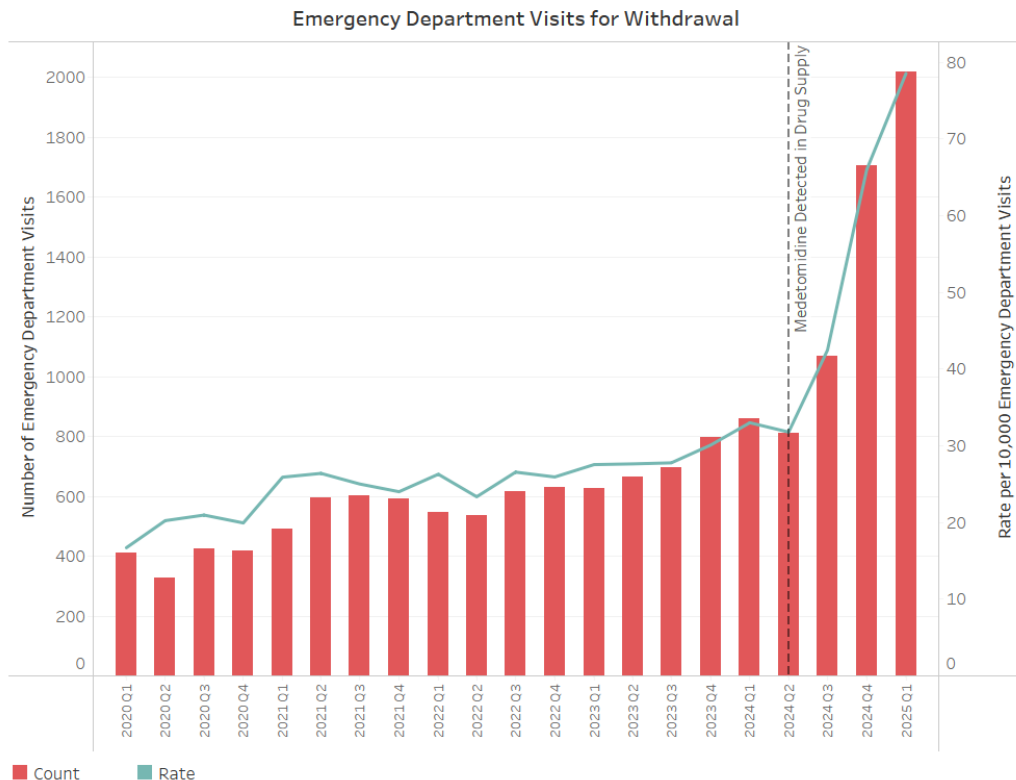
- Between 2020 Q1 and 2025 Q1, there were 5,471 emergency department visits for substance use-related SSTIs, an average of 260 ED visits per quarter.
- The number of ED visits for substance use-related SSTIs increased 307% from 2020 Q1 (n=108) to 2024 Q1 (n=440), which is likely related to the increased prevalence of xylazine in Philadelphia's drug supply. This increase occurred prior to the detection of medetomidine in Philadelphia's drug supply in 2024 Q2.
- Following the historic peak in the number (n=440) and rate (17 per 10,000) of ED visits for substance use-related SSTIs in 2024 Q1, there was a 49% decrease in the number of ED visits for substance use-related SSTIs from 2024 Q1 to 2025 Q1.

Technical Notes

- ED visits for substance use-related SSTIs were defined by using chief complaint and discharge diagnosis fields to identify keywords and ICD-10-CM codes related to substance use and SSTIs.

CHART

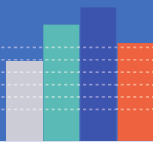
Emergency department visits for withdrawal increased substantially after medetomidine was first detected in Philadelphia's drug supply in May 2024 (2024 Q2).



- Between 2020 Q1 and 2025 Q1, there were 15,445 ED visits for withdrawal.
- The number of ED visits for withdrawal increased 109% from 2020 Q1 (n=412) to 2024 Q1 (n=861), which is likely related to the prevalence of xylazine in Philadelphia's drug supply prior to the detection of medetomidine in 2024 Q2.
- From 2024 Q1 to 2025 Q1, there was a 134% increase in the number of ED visits for withdrawal. The number (n=2,019) and rate (79 per 10,000) of ED visits for withdrawal peaked in 2025 Q1.
 - This increase reflects how a constantly changing illicit drug supply can complicate the clinical care of people who use drugs.

Technical Notes

- ED visits for withdrawal were defined by using the chief complaint and discharge diagnosis fields for keywords and ICD-10-CM codes related to substance use and withdrawal.
- ED visits for withdrawal exclude visits where only alcohol, nicotine, or marijuana withdrawal were documented.
- Counts of ED visits for withdrawal may differ from previous reports due to changes in reporting definitions. Previous definitions did not search for ICD-10-CM codes related to substance use and withdrawal and did not exclude visits where only alcohol, nicotine, or marijuana withdrawal were documented.



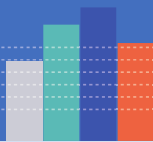
WHAT CAN BE DONE

The Health Department is:

- Testing substances in Philadelphia to detect changes in the illicit drug supply.
 - Informing hospital-based clinicians of changes in the drug supply to inform and improve the care for people who use drugs in Philadelphia.
 - Updating the testing of overdose decedents to reflect the changing drug supply in Philadelphia.
 - Providing clinical health care providers with training and technical assistance on wound care, naloxone, withdrawal management, substance use treatment, and other substance use and harm reduction topics.
 - Distributing medetomidine test strips to community-based organizations.
-

Health care providers should:

- Review the [Health Alert](#) released by the Philadelphia Department of Public Health on 12/10/2024.
 - In the outpatient setting, there should be a low threshold to refer patients who are experiencing withdrawal to a higher level of care if they are exhibiting waxing and waning altered mental status, severe hypertension, intractable vomiting, rapid changes in heart rate, or tremor beyond what is expected in opioid withdrawal.
 - Counsel their patients on changes in the drug supply and risk of severe withdrawal.
 - Take an updated [overdose reversal training](#) that addresses sedatives in the drug supply.
 - Familiarize themselves with best practices for providing [wound care](#) to people who use drugs.
 - Practice [non-stigmatizing language](#) when discussing substance use with patients.
 - Counsel all patients, even those without a substance use disorder, on naloxone and explain that it is available at pharmacies without a prescription or over the counter at major retailers.
 - Practice harm reduction treatment strategies like referring patients to substance use treatment providers or prescribing buprenorphine to opioid dependent patients, and [co-prescribing naloxone](#) with opioids, buprenorphine, methadone, and extended-release naltrexone.
 - Follow [best practices](#) for continuity of care for opioid use disorder in inpatient hospitalization settings and following hospital discharge. [CareConnect](#) can assist with bridge prescriptions and can be reached at 484-278-1679.
 - Familiarize themselves with xylazine, wound care treatment, and the importance of providing withdrawal management in conjunction with opioid use disorder withdrawal management.
-



WHAT CAN BE DONE

People can:

- Visit www.substanceusephilly.com/get-supplies to obtain and get trained on how to use naloxone to prevent opioid overdose deaths. Naloxone is available at pharmacies in Pennsylvania without a prescription, as well as over the counter at major retailers.
 - Medetomidine is used with fentanyl, and using naloxone remains the most effective tool for reversing an overdose involving an opioid.
- For those who use drugs, utilize universal precautions like carrying naloxone, starting with a small amount and going slowly, testing your drugs for medetomidine and fentanyl with medetomidine and fentanyl test strips, and using with others.
 - If you don't want to or can't use with others, let someone know or call a hotline like Never Use Alone (English: 877-696-1996) or SafeSpot (800-972-0590).
 - Avoid taking prescription medications that were not prescribed to you and/or were purchased on the street. If you do take them, use test strips.
- Seek buprenorphine or methadone treatment if dependent on opioids.
 - If you are unsure of what service you require and do not have medical insurance, please contact the Behavioral Health Special Initiative (BHSI) at 215-546-1200, Monday through Friday, between the hours of 8:30 a.m. and 5 p.m.
 - If you want treatment for a substance use challenge and do not have medical assistance or Medicaid, please contact Community Behavioral Health (CBH) at 888-545-2600.
 - Regardless of your insurance status, you can contact the CareConnect Warmline at 484-278-1679 for substance use treatment.

RESOURCES

For help on how to obtain and use naloxone:

Phillynaloxone.com

To learn more about the programs, services, and mission of the Division of Substance Use Prevention and Harm Reduction (SUPHR), visit

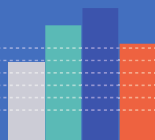
<https://www.substanceusephilly.com/>

For information on how to access treatment:

<https://dbhids.org/addiction-services/>

For harm reduction resources including syringe exchange:

<https://ppponline.org/>



REFERENCES

1. Wong SC, Curtis JA, Wingert WE. Concurrent Detection of Heroin, Fentanyl, and Xylazine in Seven Drug-related Deaths Reported from the Philadelphia Medical Examiner's Office. *Journal of Forensic Sciences*. 2008;53(2):495-498. doi:10.1111/j.1556-4029.2007.00648.x
2. Drug Checking Quarterly Report (Q1 and Q2 2023): Philadelphia, PA, USA. Accessed April 7, 2025. <https://www.cfsre.org/nps-discovery/drug-checking/drug-checking-quarterly-report-q1-and-q2-2023-philadelphia-pa-usa>
3. Philadelphia Department of Public Health, Division of Substance Use Prevention and Harm Reduction. Recommendations for caring for individuals with xylazine-associated wounds. January, 8th, 2024. (https://hip.phila.gov/document/4148/Recommendations_for_Caring_for_People_with_Xylazine-Associated_Wounds_1.12.pdf/, accessed April 7, 2025).
4. Methadone management and methadone initiation in hospital settings: Provider toolkit. Philadelphia Department of Public Health, Division of Substance Use Prevention and Harm Reduction. (substanceusephilly.com, accessed April 7, 2025).
5. London K, Li Y, Kahoud JL, et al. Tranq Dope: Characterization of an ED cohort treated with a novel opioid withdrawal protocol in the era of fentanyl/xylazine. *Am J Emerg Med*. 2024;85:130-139. doi:10.1016/j.ajem.2024.08.036
6. McFadden R, Wallace-Keeshen S, Petrillo Straub K, et al. Xylazine-associated Wounds: Clinical Experience From a Low-barrier Wound Care Clinic in Philadelphia. *J Addict Med*. 2024;18(1):9-12. doi:10.1097/ADM.0000000000001245
7. In Philadelphia, medetomidine, a potent non-opioid sedative, has been detected in the illicit drug supply [Health Alert]. 5/13/2024. Philadelphia Department of Public Health, Division of Substance Use Prevention and Harm Reduction. (<https://hip.phila.gov/document/4421/PDPH-HAN-0441A-05-13-24.pdf/>, accessed April 7, 2025).
8. Virtanen R, Savola JM, Saano V, Nyman L. Characterization of the selectivity, specificity and potency of medetomidine as an alpha 2-adrenoceptor agonist. *Eur J Pharmacol*. 1988;150(1-2):9-14. doi:10.1016/0014-2999(88)90744-3
9. Hospitals and behavioral health providers are reporting severe and worsening presentations of withdrawal among people who use drugs (PWUD) in Philadelphia. 12/10/2024. Philadelphia Department of Public Health, Division of Substance Use Prevention and Harm Reduction. (<https://hip.phila.gov/document/4421/PDPH-HAN-0441A-05-13-24.pdf/>, accessed April 7, 2025).
10. Huo S, et al. Notes from the Field: Suspected Medetomidine Withdrawal Syndrome Among Fentanyl-Exposed Patients—Philadelphia, Pennsylvania, September 2024–January 2025. *MMWR. Morbidity and Mortality Weekly Report*. 2025;74.

Suggested citation:

Philadelphia Department of Public Health. Philadelphia's Changing Drug Supply and Substance Use-Related Emergency Department Visits. CHART 2025;4(7):1-4.



Palak Raval-Nelson, PhD, MPH
Health Commissioner
Philadelphia Department of Public Health
1101 Market Street, 13th floor
Philadelphia, PA 19107

215-686-5200
healthdept@phila.gov
<http://www.phila.gov/health>
@phlpublichealth

All PDPH charts are available at
<http://www.phila.gov/health>