

Health Update

Carfentanil is increasingly detected in drug supply and overdose deaths

November 13, 2025

SUMMARY POINTS

- Recent surveillance drug checking has detected carfentanil in one of five suspected dopes samples in Philadelphia.
- Increased detection of carfentanil detection in Philadelphia is consistent with drug checking in other regions of North America.
- Exposure to carfentanil increases risk of overdose.
- Naloxone is effective in reversing an overdose that involves carfentanil.

Drug-related morbidity and mortality remain high in Philadelphia and is complicated by a dangerous and changing drug supply. Carfentanil, a veterinary opioid 100 times more potent than fentanyl, has been increasingly detected in Philadelphia's illicit drug supply and involved in drug-involved deaths.

Carfentanil was first detected in Philadelphia in June 2017 by the Medical Examiner's Office, in the biological samples of three people who died of unintentional overdoses. In 2024, Carfentanil was subsequently detected in 1 of 143 dope samples tested and was also detected in 2 unintentional drug overdose fatalities. Between January 2025 and June 2025, 1 drug sample out of 313 drug sample submissions tested positive for carfentanil. However, between July and September 2025, 77 out of 364 suspected dope samples have tested positive for carfentanil. Out of the suspected dope samples tested between July and September of this year, approximately 1 out of 5 tested positive for carfentanil.

Table 1. Most Common Substances Detected in Suspected Dope Samples (Primary Substance Detected is Heroin or Fentanyl), July-Sept 2025

Most Common Substances Detected	All dope samples (n=364)	Carfentanil-positive dope samples (n=77)	Carfentanil-negative dope samples (n=287)
Fentanyl	350 (96)	77 (100)	273 (95)
4-ANPP	325 (89)	77 (100)	248 (86)
Medetomidine	312 (86)	72 (93)	240 (83)
Lidocaine	267 (73)	56 (73)	211 (73)
Phenethyl-4-ANPP	266 (73)	70 (91)	196 (68)
Procaine	246 (68)	63 (82)	183 (63)
Cocaine	233 (64)	45 (58)	188 (65)
Tetracaine	220 (60)	69 (89)	151 (52)
Xylazine	138 (38)	67 (87)	71 (25)
Acetaminophen	128 (38)	25 (32)	103 (36)
Caffeine	117 (32)	26 (34)	91 (31)
Acetylfentanyl	108 (30)	26 (34)	82 (28)

All dope samples that tested positive for carfentanil (**Table 1**) also tested positive for fentanyl and 4-ANPP, a chemical precursor frequently found in illicit fentanyl.¹ Of note, the positivity of xylazine in dope samples that contained carfentanil is 87 percent, compared to 25 percent in dope samples that did not contain carfentanil. Most samples that contained carfentanil also tested positive for phenethyl-4-ANPP (n=70), a fentanyl-related impurity first reported in 2019. This compound is believed to arise as a byproduct or intermediate from certain

fentanyl synthesis routes.² The number of samples with local anesthetics tetracaine (89 percent vs. 52 percent) and procaine (82 percent vs. 63 percent) are also higher in samples that contained carfentanil.

Since January 2025, five people who died of unintentional drug overdoses in Philadelphia had carfentanil detected in their toxicology analysis. In comparison, 2 people died of a carfentanil-involved overdose in 2024 and 3 people died of a carfentanil-involved overdose in 2017. As overall overdose fatalities decrease, increases in carfentanil-involved overdoses warrant concern, as the potent nature of carfentanil means a slight fluctuation in concentration could cause increased mortality among people who use drugs.³ In addition, surveillance drug checking of drug samples across Pennsylvania has demonstrated a decrease in fentanyl purity from 14.2 percent in 2023 to 6.9 percent in 2025, representing a 51 percent decrease.⁴ A decrease in fentanyl purity can lead people who use opioids to have reduced tolerance and a higher risk of unintentional overdose from variations in opioid potency, such as exposure to carfentanil.

Increases in carfentanil detections in dope samples and carfentanil-involved fatal overdoses have been reported across North America in 2025. In August 2025, 18 percent of samples checked by Toronto's Drug Checking Service contained carfentanil.⁵ In the first half of 2025, Maryland has identified 34 overdose deaths with carfentanil present (more than double the total overdose fatalities with carfentanil detected in 2024), and Maryland's statewide drug checking program has identified three samples with carfentanil present.⁶ Chicago identified carfentanil in their drug supply in a health alert published in August 2025.⁷ Michigan identified 11 overdose deaths with carfentanil present in the first half of 2025.⁸

Providers should talk to and listen to their patients about their substance use using a non-judgmental and trauma-informed approach. Providers should inform patients about the volatility of the illicit drug supply, as well as about the presence of carfentanil. Ensure patients are aware that carfentanil is a more potent opioid, and therefore smaller amounts of dope can lead to unintentional overdose, especially among people with low opioid tolerance. To date, carfentanil in Philadelphia has only been identified in suspected dope samples, though providers should encourage caution among people who use any substances to limit adverse events. Although there is no validated drug testing strip for carfentanil, at this point, all samples testing positive for carfentanil in Philadelphia have also contained fentanyl. Providers can provide and encourage patients to use fentanyl testing strips, which are available through the Philadelphia Department of Public Health's Substance Use Prevention and Harm Reduction Division. Patients should be aware that carfentanil overdoses can be reversed with naloxone (e.g., Narcan™, RiVive™), but that sedatives in Philadelphia's illicit dope supply mean that someone may begin breathing without regaining consciousness. Refer to the [PDPH Health Update](#) from June 10, 2025, for recommendations on responding to opioid overdoses that involve sedatives.⁹ Current evidence shows that, despite the presence of higher potency opioids in the drug supply, most people need 1-2 doses of naloxone to restore breathing from an overdose involving illicit opioids.¹⁰

Resources

For providers to talk to their patients about drug use

- Philadelphia Department of Public Health, Division of Substance Use Disorder and Harm Reduction:
 - o <https://www.substanceusephilly.com/trainings>
 - o <https://www.substanceusephilly.com/language-guide>
- National Institute on Drug Abuse: [Words Matter - Terms to Use and Avoid When Talking About Addiction](#)
- National Harm Reduction Coalition: [Quality Healthcare is Your Right](#)
- Centers for Disease Control and Prevention: [Talking to Patients About Substance Use Disorder](#)

Keeping up to date with the drug supply in Philadelphia

- Philadelphia Department of Public Health, Division of Substance Use Disorder and Harm Reduction: [Changing Drug Supply](#)
- The Center for Forensic Science, Research & Education: [Drug Checking](#)
- PA Ground Hogs: [Data](#)

Connect with Substance Use Disorder Treatment

- Behavioral Health Services Initiative (uninsured): 1-215-546-1200
- Community Behavioral Health (Medicaid): 1-888-545-2600
- CareConnect Warmline: 484-278-1679
- DBHIDS Medication Assisted Treatment: <https://dbhids.org/services/addiction-services/mat/>
- SAMHSA National Helpline: 800-662-HELP (4357)

Recommend patients try not to use alone. If that is what they are doing, then provide resources:

- Never Use Alone: 877-696-1996
- SafeSpot: 800-972-0590

Learn how to get and use naloxone – www.substanceusephilly.com/get-supplies

Get naloxone & fentanyl test strips shipped for free and confidentially – <https://nextdistro.org/philly>

Learn how to use fentanyl test strips:

- <https://www.cdc.gov/stopoverdose/fentanyl/fentanyl-test-strips.html>
- <https://www.youtube.com/watch?v=GmhE6UOZ9YY>

Information sheets on different naloxone products

- [For clinicians](#)
- [For non-clinicians](#)

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