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Collapse in fentanyl supply led US overdose deaths to plummet, says Maryland researcher



Baltimore police and fire officials respond to a series of overdoses at the intersection of Pennsylvania and North avenues, where more than 15 people overdosed in November. (Nia Meyers/ Sun Staff)



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PUBLISHED: January 15, 2026 at 1:17 PM EST | UPDATED: January 16, 2026 at 1:00 PM EST

A nationwide drop in overdose deaths may be driven by a collapse of the international fentanyl supply chain in 2023, a Maryland criminologist in world drug markets [reported in the journal Science](#).

“We were trying to understand why fentanyl overdose deaths, after rising rapidly for a decade in mid-2023 suddenly turned downward,” Peter Reuter, professor of public policy and criminology at the University of Maryland, College Park, told The Baltimore Sun. “We are reasonably sure that something has happened to the precursor chemical supply from China that was a significant cause of the downturn in fentanyl.”

Nationally, all drug overdose deaths dropped from more than 111,000 in August 2023 to 69,000 in August 2025, [according to Centers for Disease Control data](#). Maryland deaths similarly dropped from 2,548 to 1,417 in that time period. [Deaths in Baltimore City](#) fell from 1,043 in 2023 to 778 in 2024.

In 2023, the CDC attributed about 74% of drug deaths to opioids — primarily fentanyl. Fentanyl seizures also dropped from 29,000 kilograms in 2023 to 23,000 kilograms in 2024, [according to DEA data](#).

“Overdose deaths are now 16 times higher than they were in the ’70s,” he said. “That sounds incredible, but we sort of got used to it, because it was gradual. Any temporary downturn was surprising, but in 2024 it kept on going down, and it was substantial.”

Three causes could explain that decline, said Reuter, who has written about drug markets and policy since the early 1980s. There is little evidence that the demand for the drug dropped, he said, because prices have not gone down.

Success in preventing deaths with recovery drugs like Naloxone, such as during several recent mass [overdoses in Baltimore’s Penn North](#) neighborhood, couldn’t explain the numbers either, he added.

That leaves a disruption in supply lines, which Reuter said makes pure fentanyl harder to score.

One clue the team found came from the popular website Reddit’s fentanyl subreddit. Maryland PhD student Kasey Vangelove analyzed several years of discussions and focused on the prevalence of the word “drought.” Originally a rare term on a site where people talk about their drug use, she found “drought” usage surged 10 to 15 times in 2023.

Another clue came from a DEA report that the purity of seized fentanyl also dropped since 2023. Pills sold on the street in 2024 contained about one-third of the fentanyl as those sold in 2023.

That doesn’t mean the drug is less dangerous, the DEA report noted, as dealers began mixing powerful veterinary tranquilizers in their drugs at around the same time.



Fentanyl, like the pills in these bottles, has become harder to produce since 2023, researchers found. (AP file photo)

Chemical contaminants like xylazine and medetomidine have scared users so much that test strips to identify xylazine have become readily available, University of Maryland Medical Center emergency physician Gentry Wilkerson [told The Baltimore Sun](#). Medetomidine is newer on the street but wracks users with severe withdrawal symptoms within a few hours.

The contaminants may reflect refiners' efforts to bolster a weakening drug supply.

“Many Mexico-based fentanyl cooks are having difficulty obtaining some key precursor chemicals,” the DEA’s [2025 National Drug Threat Assessment stated](#). “Some China-based chemical suppliers are wary of supplying controlled precursors to its international customers, ... to comply with recent updates to the United Nations counter-narcotics treaty.”

Canada also saw fentanyl supply disruptions during the same time period. The researchers wrote that drug labs in Canada largely import precursor chemicals and concoct their own fentanyl, whereas dealers in the U.S. typically import the drug from Mexican labs. Very little fentanyl crosses the US/Canadian border, they reported.

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