

Medetomidine

Emerging Substance Profile



CASE WESTERN RESERVE
UNIVERSITY
Jack, Joseph and Morton Mandel
School of Applied Social Sciences

Begun Center for Violence Prevention
Research and Education
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Medetomidine has been frequently detected in combination with fentanyl analogues in syringe testing in Cuyahoga County, Ohio.

Medetomidine is a non-opioid veterinary sedative and central nervous system depressant not approved for human use.¹ It can be found in both powdered and liquid forms.¹ It is similar to xylazine, but can be up to 200 times more potent and has a longer duration of effects.² Medetomidine first emerged in the illicit drug supply in 2021 as an adulterant, and its presence has steadily increased in Ohio and the U.S. It is most commonly identified in combination with fentanyl (known as “rhino tranq”) and with xylazine.³

Medetomidine’s effects (see right) can be dangerous when combined with opioids, alcohol, or benzodiazepines. Naloxone does not reverse the effects of medetomidine but is recommended in overdoses due to frequent fentanyl involvement. Medetomidine testing strips are slowly becoming available, but are not yet widely distributed.⁴

Medetomidine Effects⁵

- Sedation
- Analgesia
- Muscle Relaxation
- Low Heart Rate
- Low Blood Pressure
- High Blood Sugar
- Dizziness
- Nausea
- Hallucinations

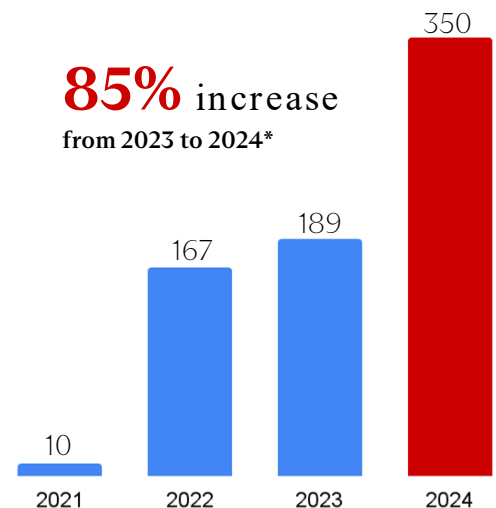
Key Data Takeaways

Ohio Led the Nation in Lab Submissions. Ohio was one of the first states to report medetomidine lab submissions from law enforcement seizures to DEA NFLIS-Drug starting in 2021. Ohio made up 15% of national lab submissions reported in 2024.⁶

Increasing Presence in Ohio. Medetomidine lab submissions from law enforcement seizures in Ohio have consistently increased since 2021, with significant increases from 2023 to 2024 (See Figure 1).⁶

Detection in Syringes in Cuyahoga County. Medetomidine has emerged as a commonly detected drug in syringes tested in Cuyahoga County from August to December 2024. It appeared in 17.6% (51 of 290) samples and co-occurred with fentanyl analogues in 96.1% (49 of 51) of those cases.⁷

Figure 1. Ohio Law Enforcement Medetomidine Seizures Reported to DEA NFLIS-Drug, by Year⁶



Health Risks



Due to limited information on the impacts of medetomidine on humans, much remains to be learned about its effects. Medetomidine used in combination with synthetic opioids such as fentanyl has been found to prolong or increase opioid-related effects in ways similar to xylazine. Additional medetomidine risks appear to be associated with low heart rate and sedation, which can diminish an individual’s response to life-saving naloxone during an opioid-related overdose.⁸ Individuals also may experience severe withdrawal symptoms, including severe autonomic hyperactivity, nausea, vomiting, and tremulousness.

Data Sources: 1. [DEA Medetomidine](#); 2. [Connell et al., 2022](#); 3. [CFSRE Medetomidine Rapid Proliferating Across USA](#); 4. [Zhu & Palamar, 2025](#); 5. [NIJ Medetomidine](#); 6. [NFLIS-DQS](#) (analysis by Begun Center); 7. [Cuyahoga County's Pilot Drug Checking Program](#) – Test results of 290 syringes from Aug to Dec 2024; 8. [Ostrowski et al., 2025](#); 9. [Nham et al., 2024](#).

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