

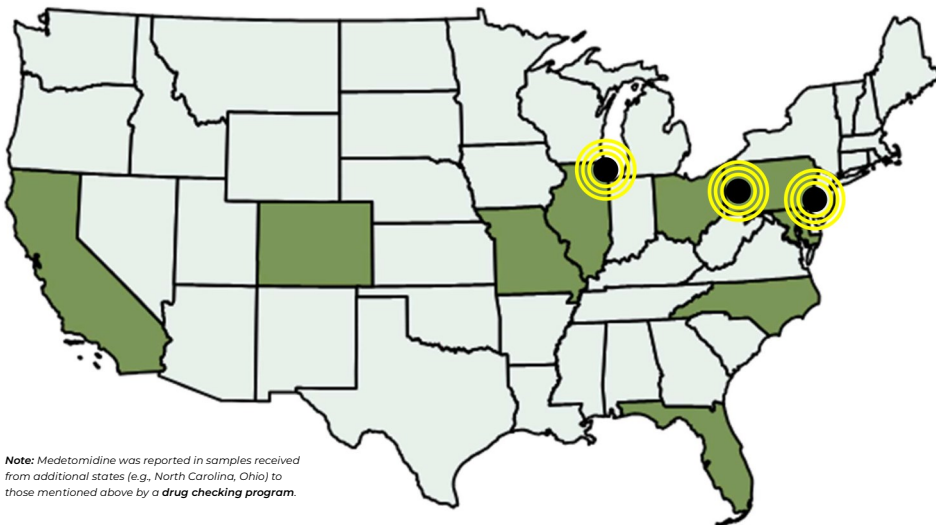
MEDETOMIDINE RAPIDLY PROLIFERATING ACROSS USA — IMPLICATED IN RECREATIONAL OPIOID DRUG SUPPLY & CAUSING OVERDOSE OUTBREAKS

PURPOSE: The objective of this announcement is to notify public health, harm reduction, first responders, clinicians, medical examiners and coroners, forensic and clinical laboratories, and all other related communities about new information surrounding the emergent adulterant **medetomidine** (also referred to as dexmedetomidine).

BACKGROUND: Medetomidine is an alpha-2 agonist, belonging to the same family of drugs as xylazine and clonidine. Medetomidine is synthetically manufactured and exists in two enantiomeric forms: **dexmedetomidine** and levomedetomidine, the former being active and potent. Dexmedetomidine is approved for use in humans and is administered in hospital, while differing forms of medetomidine are available for use in veterinary medicine. The effects of **medetomidine** can include sedation, analgesia, muscle relaxation, anxiolysis, bradycardia, hypotension, hyperglycemia, and hallucinations. Duration of action is noted to be longer for medetomidine relative to xylazine.

SUMMARY: Medetomidine is the latest CNS depressant to appear as an adulterant alongside fentanyl in the recreational drug supply. Recent mass overdose outbreaks in Philadelphia, Chicago, and elsewhere have all been associated with fentanyl or heroin drug products containing medetomidine, as well xylazine and/or other substances. In cases where medetomidine ingestion is suspected or confirmed, severe adverse effects have been noted, including **heightened sedation and profound bradycardia**. In December 2023, the CFSRE and the Colombo Plan issued a **Toxic Adulterant Alert** for medetomidine following its emergence in the recreational drug supply.

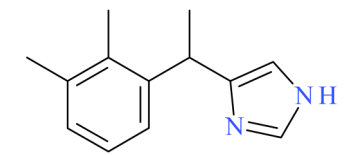
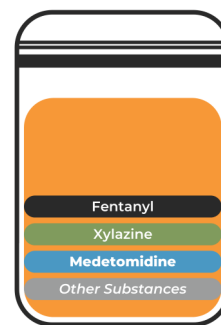
TIMEFRAME	DESCRIPTION OF MEDETOMIDINE IDENTIFICATIONS AND OVERDOSE EVENTS
Late 2022	Medetomidine begins appearing more regularly in the Maryland drug supply, following its first detection in July 2022. Medetomidine is commonly identified alongside fentanyl, xylazine, and other substances.
Mid-to-Late 2023	Medetomidine is sporadically identified in toxicology specimens collected from patients presenting to emergency departments after suspected opioid overdose (confirmed to not be administered). Overdose events originated from Missouri, Colorado, Pennsylvania, California, and Maryland . Medetomidine is commonly detected with fentanyl.
January 2024	An alert is issued out of Toronto, ON , about the emergence of medetomidine in the drug supply. This is followed by increased positivity in subsequent weeks and months, as medetomidine is found alongside fentanyl in suspected opioid products and commonly in combination with xylazine and other substances.
Early 2024	Medetomidine detections increase in drug materials and toxicology specimens originating from western Canada, including Vancouver, BC , commonly alongside fentanyl and other opioids.
Late April 2024	Medetomidine first appears in drug products in Philadelphia, PA , causing a large scale outbreak of overdoses and adverse events. Medetomidine is identified alongside fentanyl and xylazine.
Early May 2024	Medetomidine first appears in a drug product in Pittsburgh, PA , associated with overdoses and adverse events. Medetomidine is identified alongside fentanyl and xylazine.
Early May 2024	Medetomidine first appears in drug products in Chicago, IL , causing a large scale outbreak of overdoses and adverse events. Medetomidine is identified alongside fentanyl and xylazine, or alongside heroin without xylazine.



Note: Medetomidine was reported in samples received from additional states (e.g., North Carolina, Ohio) to those mentioned above by a drug checking program.

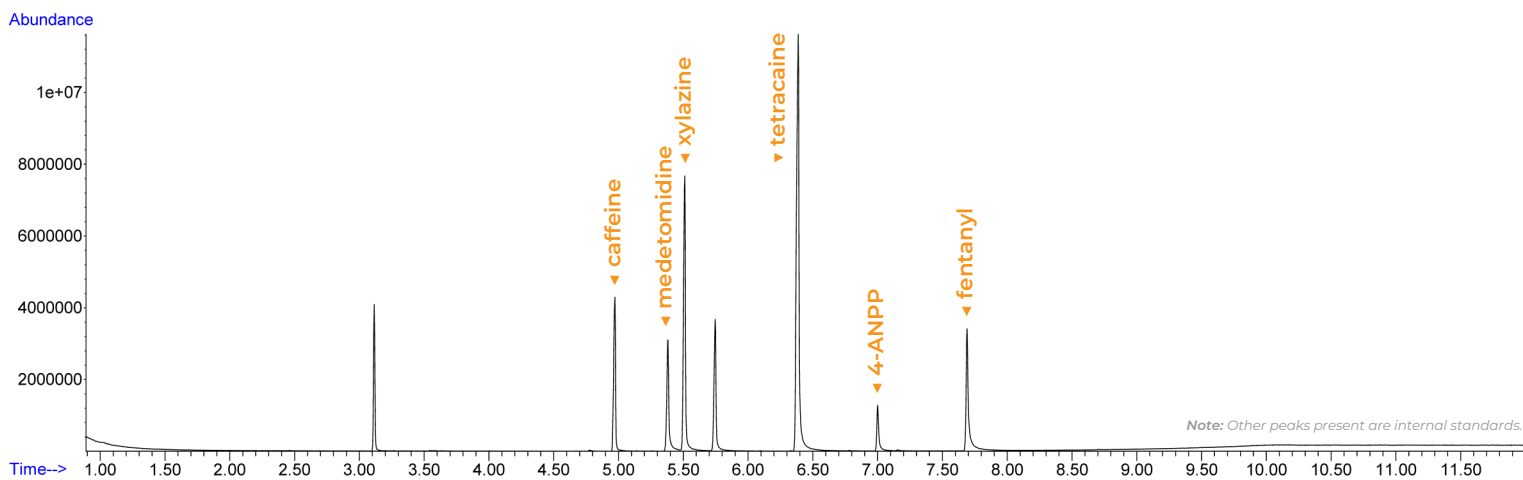
◀ GEOGRAPHICAL DISTRIBUTION OF MEDETOMIDINE EMERGENCE

Medetomidine has been identified across several states in the U.S. and Canada, and is recently being observed in severe overdose outbreaks in major metropolitan areas.



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EXAMPLE CHROMATOGRAM OF A DRUG MATERIAL CONTAINING MEDETOMIDINE COLLECTED FROM PHILADELPHIA IN EARLY MAY 2024



DRUG MATERIALS CONTAINING MEDETOMIDINE AND OTHER SUBSTANCES

SUMMARY OF RESULTS:

► To date, medetomidine has been commonly identified alongside fentanyl and xylazine, and the proportion of medetomidine in the drug material varies by sample.

► Medetomidine has been identified alongside heroin, in the absence of xylazine.

► Tetracaine has been identified alongside fentanyl, xylazine, and medetomidine in drug products, but not uniformly or consistently.

► Real-time drug material and toxicological testing are on-going to track the emergence and proliferation of medetomidine.

PHILADELPHIA, PA			
DRUG	RELATIVE PARTS	DRUG	RELATIVE PARTS
Fentanyl	1p	Fentanyl	1p
Xylazine	1.9p	Xylazine	0.4p
Medetomidine	0.8p	Medetomidine	1.9p
Tetracaine	3.9p	para-Fluorofentanyl	0.1p
Other Substances?	Caffeine	Other Substances?	No

PITTSBURGH, PA	
DRUG	RELATIVE PARTS
Fentanyl	1p
Xylazine	1.5p
Medetomidine	0.1p
Tetracaine	0.5p
Other Substances?	pFF, Caffeine

CHICAGO, IL			
DRUG	RELATIVE PARTS	DRUG	RELATIVE PARTS
Fentanyl	1p	Heroin	1p
Xylazine	2p	Fentanyl	Trace
Medetomidine	0.6p	Medetomidine	6.3p
Diphenhydramine	0.5p	Diphenhydramine	2.6p
Other Substances?	pFF, Nitazenes, etc.	Other Substances?	No

