



OVERDOSE RESPONSE STRATEGY

PUBLIC HEALTH | PUBLIC SAFETY | PARTNERSHIP



June 2024
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Emerging Threat Bulletin

Medetomidine – Adulterant Found in Illicit Street Drugs

Purpose:

(U) The objective of this announcement is to notify Arkansas law enforcement officials, public health officials, first responders, medical examiners, coroners, and all other related communities about new information surrounding the emergent drug adulterant medetomidine (also referred to as dexmedetomidine or DOMITOR).¹ There is no indication that medetomidine has been identified in Arkansas to date, however, it has been found in the Missouri drug supply.

Background:

(U) 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 settings; 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.²

(U) Medetomidine is the latest central nervous system 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, 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 Center for Forensic Science, Research and Education issued a Toxic Adulterant Alert for medetomidine following its emergence in the recreational drug supply.³

(U) To date, medetomidine has been commonly identified alongside fentanyl and xylazine. The proportion of medetomidine in the drug material varies by sample. Medetomidine has also been identified alongside heroin, in the absence of xylazine. In addition, 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.⁴



The Overdose Response Strategy, jointly sponsored by the Office of National Drug Control Policy and Centers for Disease Control, is a unique collaboration between public health and public safety to help local communities reduce drug overdoses and save lives by sharing timely data, pertinent intelligence and innovative strategies.



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(U) Medetomidine has been identified across several states in the United States and Canada, and is recently being observed in severe overdose outbreaks in major metropolitan areas.⁵ The chart below represents initial medetomidine identifications and overdose events:

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.

(U) Medetomidine was also reported in samples received from additional states (e.g., North Carolina, Ohio) to those mentioned above by a drug checking program.⁶ The map below represents all known states and major metropolitan areas where medetomidine has been confirmed:



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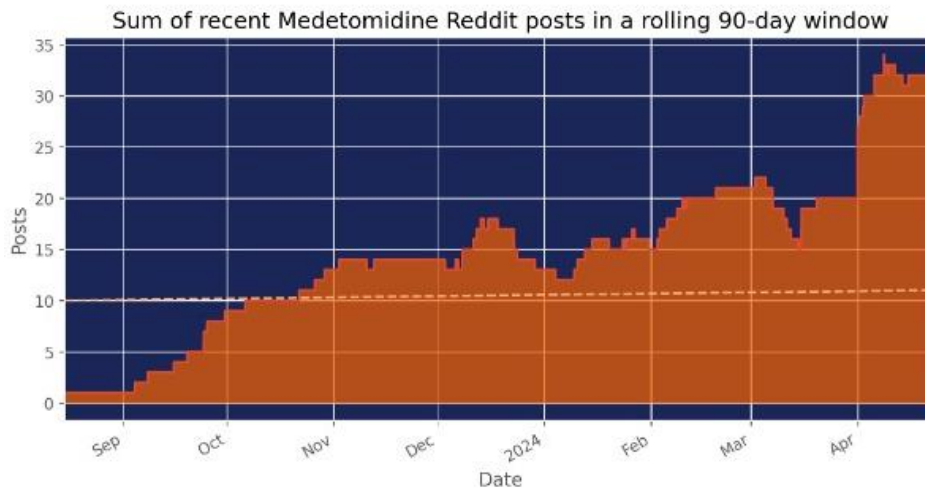
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Implications:

(U) According to a June 2024 public alert from the National Drug Early Warning System (NDEWS), online discussions on platforms like Reddit reveal that medetomidine is often used in combination with opioids for recreational purposes. Reddit users report the drug's potent sedative effects are an order of magnitude greater than those of xylazine. Some users mention that medetomidine may have reduced peripheral vasoconstriction and hypertension compared to xylazine. The combined CNS depression of a fentanyl-medetomidine mixture is highlighted by commenters as a major danger, potentially leading to a severe respiratory depression and overdose. The discussion also notes that the potency difference between medetomidine and other sedatives like xylazine may not be well understood, leading to unintentional overdoses.⁷ Like xylazine, medetomidine cannot be reversed with naloxone.⁸ However, in the case of an overdose, naloxone should still be administered to counteract the effects of any fentanyl that may be in the system and then subsequent rescue breaths should be given.



Source: National Drug Early Warning System

For questions or to provide additional information please contact arorsa@gchidta.org.

Feedback can be provided at: <https://www.nhac.org/SurveySite/SurveyPage.aspx?LMSID=ea3fd276-a7f2-43dd-af56-b039e95dc333>

This report was prepared based on information received from: The Arkansas State Crime the DEA South Central Lab

¹ www.cfsre.org/nps-discovery/public-alerts

² www.cfsre.org/nps-discovery/public-alerts

³ www.cfsre.org/nps-discovery/public-alerts

⁴ www.cfsre.org/nps-discovery/public-alerts

⁵ www.cfsre.org/nps-discovery/public-alerts

⁶ www.cfsre.org/nps-discovery/public-alerts

⁷ <https://ndews.org/newsletter/weekly-briefing-issue-186/>

⁸ <https://www.michigan.gov/mdhhs/inside-mdhhs/newsroom/2024/06/06/medetomidine>



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