



Objective: The goal of this, and subsequent bulletins, is to provide information regarding identified changes in drug trends, and/or to educate and forewarn about newly identified substances.

Subject Matter: This release attempts to provide information regarding the most recent adulterant proliferating the illicit fentanyl supply, medetomidine, also known by the brand name Domitor. Originally developed for veterinary use, medetomidine's emergence in illicit drug markets, often found in conjunction with substances like fentanyl, xylazine, and various opioids, highlights a disturbing trend towards the use of powerful pharmaceuticals to enhance the effects of narcotics.

Background of Medetomidine: Estimated to be 200 times more powerful than xylazine [1], medetomidine is a synthetic compound extensively utilized as a surgical anesthetic and analgesic, primarily found in its hydrochloride salt form, medetomidine hydrochloride. Medetomidine is not currently classified as a controlled substance, allowing for it to be ordered online from overseas sources.

This drug operates as an intravenously available alpha-2 adrenergic agonist, developed by Orion Pharma and is approved for veterinary use in various countries including the United States and Canada. In the United States, it is distributed by Pfizer Animal Health, while in Canada, distribution is handled by Novartis Animal Health. [2] [3]

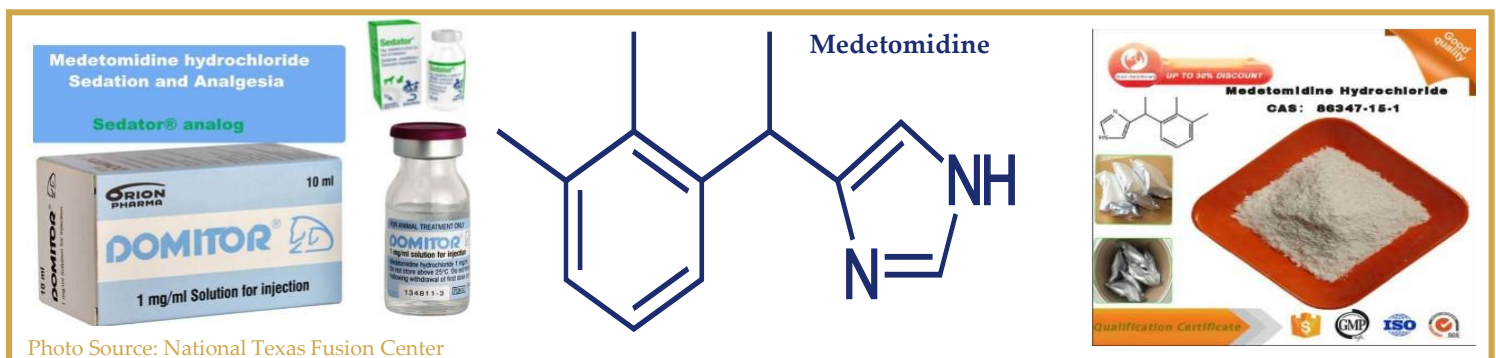


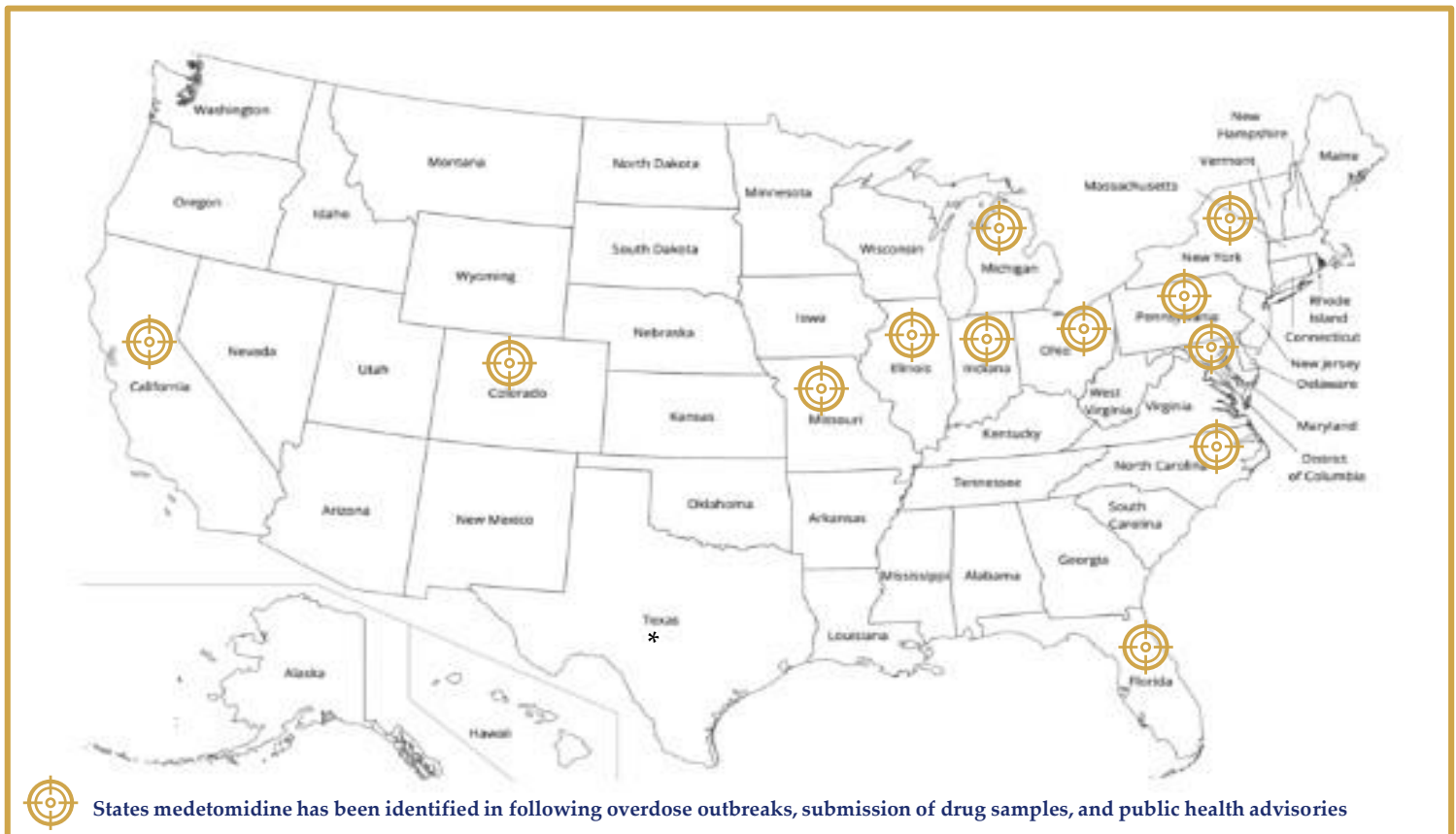
Photo Source: National Texas Fusion Center

Common Side Effects: Medetomidine and xylazine, both α -2-agonists, cause several harmful cardiovascular effects. These effects include slow heartbeats and irregular heart rhythms like 1st and 2nd degree blocks in the heart, which can cut heart blood flow by up to 50% and raise blood vessel resistance. [4] Respiratory depression is another significant risk, particularly when these drugs are used in combination with other sedatives. [4] Additionally, these substances can cause cyanosis (bluish coloring of the skin), muscle twitching, and vomiting, which are indicative of their potent effects on the brain and tiny blood vessels. [4]

Long-Term Effects: Prolonged and frequent use of medetomidine and xylazine can cause significant health issues. For example, these drugs often lead to skin breakdowns like ulcers and abscesses. This happens because they constrict blood vessels in the skin reducing blood flow and raising chances of more infections. [5] Also, the main breakdown product of xylazine known as 2,6-xylidine, could cause cancer and genetic damage, which may increase the risk of cancer in people using it for a long time. [5] These drugs can harm the digestive system too, as they slow down how fast food moves through it. However, this effect can be countered using drugs that block α -2-adrenergic receptors. [4]



Illegal Use Trends: Recent reports indicate a troubling trend where medetomidine is being illicitly added to street drugs such as fentanyl and other opioids to prolong the effects of these narcotics. This addition has been linked to a series of deadly overdoses across the Midwest and Northeast of the United States. Its potent effects pose severe risks, especially since its effects cannot be reversed by naloxone, the standard treatment for opioid overdoses. [6] This emerging trend highlights the drug's migration into wider illicit drug markets, complicating efforts to manage and reverse overdoses effectively.



- 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 in **Missouri**, Colorado, Pennsylvania, California, and Maryland. Medetomidine is commonly detected with fentanyl." [7]
- In Philadelphia, a significant surge in overdoses linked to a dangerous combination of fentanyl and medetomidine was reported, with 160 hospitalizations occurring over a three to four-day period. [8] Medical professionals at Temple University noticed an unusual pattern in these overdoses, with patients exhibiting extremely low heart rates, some as low as in the 20s, far below the normal range of sixty to a hundred beats per minute. [8]
- Early May 2024 - "Medetomidine first appears in drug products in Chicago, IL, causing large scale outbreak of overdoses and adverse events. Medetomidine is identified alongside fentanyl and xylazine, or alongside heroin without xylazine." [7]
- July 2024 - Saint Louis University (SLU) Forensic Toxicology Laboratory reported medetomidine present in submitted human biological samples (<10 cases); thus far, it has been most frequently co-detected with xylazine. [8]
- Public health officials have identified Mexican cartels and domestic gangs as key players in mixing medetomidine with fentanyl, triggering waves of overdoses across the United States. [9]



FAQs

What are the medical applications of medetomidine?

Medetomidine is a synthetic medication primarily used as a surgical anesthetic and pain reliever. It commonly appears in the form of medetomidine hydrochloride, which is a white crystalline solid. This drug functions as an α_2 adrenergic agonist and is typically administered intravenously using a sterile water solution. ^[4]

Does medetomidine belong to the opioid class?

No, medetomidine is not an opioid, nor is it currently a scheduled controlled substance. Similar to xylazine, it is a non-opioid sedative, and its effects cannot be reversed using naloxone. ^[7]

How does medetomidine work?

The effects of medetomidine are dependent on the dosage. Smaller doses generally result in mild sedation and pain relief, whereas larger doses can cause significant sedation and analgesia. ^[7]

Which drug is used to counteract medetomidine?

Atipamezole is the recommended drug to reverse the effects of medetomidine, particularly in veterinary applications. ^[4]

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