Canadian Centre on Substance Use and Addiction

Substance Use Trends in Canada

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Medetomidine in Canada: Emerging Trends, Risks and Responses

In This Issue

About This Issue

This issue of *Substance Use Trends in Canada* is an update to our September 2024 issue on medetomidine. Our previous issue covered early trends in medetomidine detection across the country and community reports on its associated harms between January 2023 and August 2024. Since 2024, detection of medetomidine has continued to increase, with significant harms reported in many regions across Canada. This issue includes updated data on where medetomidine is being detected and examines its impact and risks for communities across the country. It also highlights responses that have been implemented or that are being considered to reduce related harms.

Medetomidine, an alpha-2 adrenergic receptor agonist, is a veterinary tranquilizer approved for surgical use in animals but not humans. A related compound, dexmedetomidine, is approved for medical use in humans for sedation. Both act on the body's adrenaline system, causing sedation and lower blood pressure. Their mechanism and effects are similar to xylazine,[1] another common tranquilizer, although medetomidine is substantially more potent (100–200 times more potent[2]). Medetomidine withdrawal is reportedly more severe than xylazine withdrawal, but some harms that have been associated with xylazine use, such as wounds, have not been reported for medetomidine.

Recent data from drug checking services and drug seizure data from Health Canada's Drug Analysis Service (DAS) show increasing detection of medetomidine across many regions in Canada. Medetomidine is rarely detected on its own and is most commonly found in combination with opioids (e.g., fentanyl and its analogues). Samples containing medetomidine across the country have been reported to frequently contain more than one opioid, one or more benzodiazepines, xylazine, other sedatives or a combination of these substances.

Due to the presence of multiple adulterants in the unregulated drug supply, it is difficult to attribute harms to any single compound. However, medetomidine has distinct clinical effects on patients that are exceedingly difficult to manage outside of a monitored healthcare setting. Co-exposure to potentially multiple opioid and non-opioid central nervous system depressants contributes to complex toxicity profiles, in which opioid-related symptoms respond well to naloxone (e.g., restoration of breathing), whereas other non-opioid-related symptoms are unresponsive (e.g., deep sleep or sedation). Despite this, naloxone should always be used in suspected opioid toxicity, with breathing as the primary indicator for administration rather than level of consciousness. Both acute toxicity and withdrawal from

[1] Canadian Centre on Substance Use and Addiction. (2023). *CCENDU bulletin: An update on xylazine in the unregulated drug supply: Harms and public health responses in Canada and the United States*.
[2] META:PHI. (2026). *Combined fentanyl/medetomidine withdrawal in the ambulatory setting*.

discontinuation of medetomidine use (intentional or unintentional) can be fatal and require medical care.

Need to Know

- Across Canada, medetomidine is most commonly detected with opioids, and often with other central nervous system depressants. As a result, drug toxicity events are becoming more complex and difficult to manage. Naloxone should always be administered when opioid involvement is suspected and respiratory depression (<12 effective breaths per minute) is present. Regaining consciousness may take much longer than restoration of breathing if someone is experiencing medetomidine-induced sedation. There is no reversal agent for medetomidine approved for use in humans.
- The adverse effects of medetomidine include severe and prolonged sedation, slow heart rate, low blood pressure (high blood pressure immediately after use is also possible), delirium or hallucinations, dizziness and fluctuating levels of consciousness.
- People who regularly use medetomidine, often because the opioid supply is adulterated, can experience severe withdrawal when use is discontinued.
- Medetomidine withdrawal is clinically diagnosed based on symptoms and an understanding of the prevalence of medetomidine in the regional drug supply, as no rapid testing is available.
    - Medetomidine withdrawal includes symptoms such as elevated heart rate, high blood pressure (which may be severe), nausea and vomiting, sweating out of proportion to usual opioid withdrawal symptoms, waxing and waning alertness, mutism (changes in cognitive function) and other symptoms.[3]
    - Oral clonidine has been noted as the primary initial treatment. In more severe cases when clonidine is ineffective (e.g., severe vomiting makes it difficult to ingest clonidine orally, or the person is extremely unwell), dexmedetomidine (Precedex) may need to be given. In most regions, this requires admission to an intensive care unit (ICU) due to the need for continuous monitoring of cardiac function.
- Test strips are being implemented in some regions to detect and avoid medetomidine and related harms. However, several system-level gaps and challenges are affecting effective responses.
    - Availability of test strips for take-home use may be limited due to the high unit cost.
    - The presence of medetomidine may be underestimated due to technological limitations among different drug checking technologies (e.g., small amounts may go undetected). Detection of medetomidine (e.g., rapid testing) in healthcare settings is critical for patient management. However, it is currently unavailable.

[3] META:PHI. (2026). *Combined fentanyl/medetomidine withdrawal in the ED/acute care setting*.

In regions where medetomidine is widespread in the unregulated opioid supply, it can be difficult for people to avoid it, even if they are aware of its presence in their drugs.

Data Sources and Limitations

To inform this issue, we engaged the Canadian Community Epidemiology Network on Drug Use (CCENDU). The network has expanded to 13 nodes (sites), including three in Ontario, with representation across all 10 provinces and one territory. In total, CCENDU brings together about 81 organizations with over 200 members, including epidemiologists, physicians, forensic pharmacologists, policy analysts, program managers, scientific advisers, researchers, public health officers, police service members, government officials and people with lived and living experience of substance use. Each CCENDU node collects information, such as community reports, from local partners and networks on substance-related trends and response options.

We also consulted the National Drug Checking Working Group (NDCWG), which has more than 60 active members from 40 organizations across Canada, including about 20 community-based organizations. Information was also provided by people with lived and living experience of substance use, Health Canada's Drug Analysis Service (DAS) and Health Canada's National Wastewater Drug Surveillance (NWDS) initiative.[4]

We compiled information on medetomidine, including detection, risks, adverse effects and withdrawal, submitted by participating CCENDU nodes and categorized it by key themes. Where regional information is not presented, this **should not** be interpreted as an absence of medetomidine, harms or response efforts.

The data collected and presented in this issue likely underestimate the true prevalence of medetomidine in the unregulated supply due to limitations in the detection of medetomidine in many regions across the country. Health Canada's DAS data is the most comprehensive source but is not necessarily representative of the amount of medetomidine or of other substances circulating in the unregulated drug market in Canada. Information shared by nodes may not be representative of all regions within a province or territory, as trends can vary within and across communities. Key responses identified by all participating nodes are summarized in the Need to Know section, with additional relevant responses discussed in the What This Means in Practice section.

[4] Data for the NWDS initiative were collected from January to December 2023 and from April 2024 to October 2025. The NWDS currently has limited geographic coverage, which may affect trend interpretation. Regional comparison should therefore be viewed with caution. Please refer to the NWDS website for additional information on data limitations.

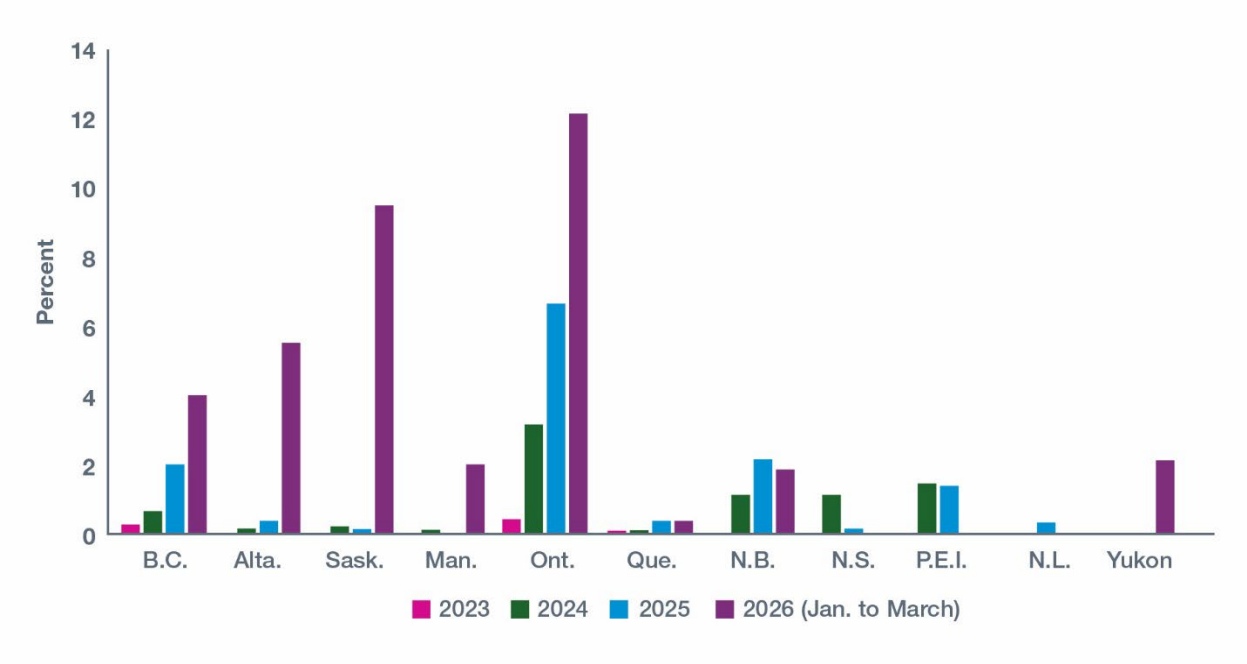
As additional sites continue to join the NWDS, medetomidine may be detected in other parts of the country. The NWDS is also exploring the addition of metabolites to its screening list, including those associated with medetomidine, which may increase detection. The NWDS currently screens for more than 550 drugs and drug metabolites and is actively onboarding new sites to improve coverage across Canada.

National Landscape

Medetomidine Detection Among Seized Samples

Between January 1, 2024, and March 31, 2026, a total of 5,325 samples submitted to Health Canada's DAS contained medetomidine. British Columbia, Ontario and Quebec saw the earliest emergence of medetomidine in 2023. Since then, detections have increased substantially in British Columbia and Ontario but only slightly in Quebec. Medetomidine was first detected in New Brunswick, Nova Scotia and Prince Edward Island in 2024, though New Brunswick had the highest proportion of seized samples containing medetomidine in both 2025 and 2026 (January to March). As in British Columbia and Ontario, sharp increases in medetomidine detection have also been seen in Alberta, Saskatchewan, Manitoba and Yukon in the first three months of 2026, with the increase most pronounced in Saskatchewan.

Figure 1. Proportion of seized samples submitted to Health Canada's DAS that contained medetomidine, by province and territory, 2023–Q1 2026



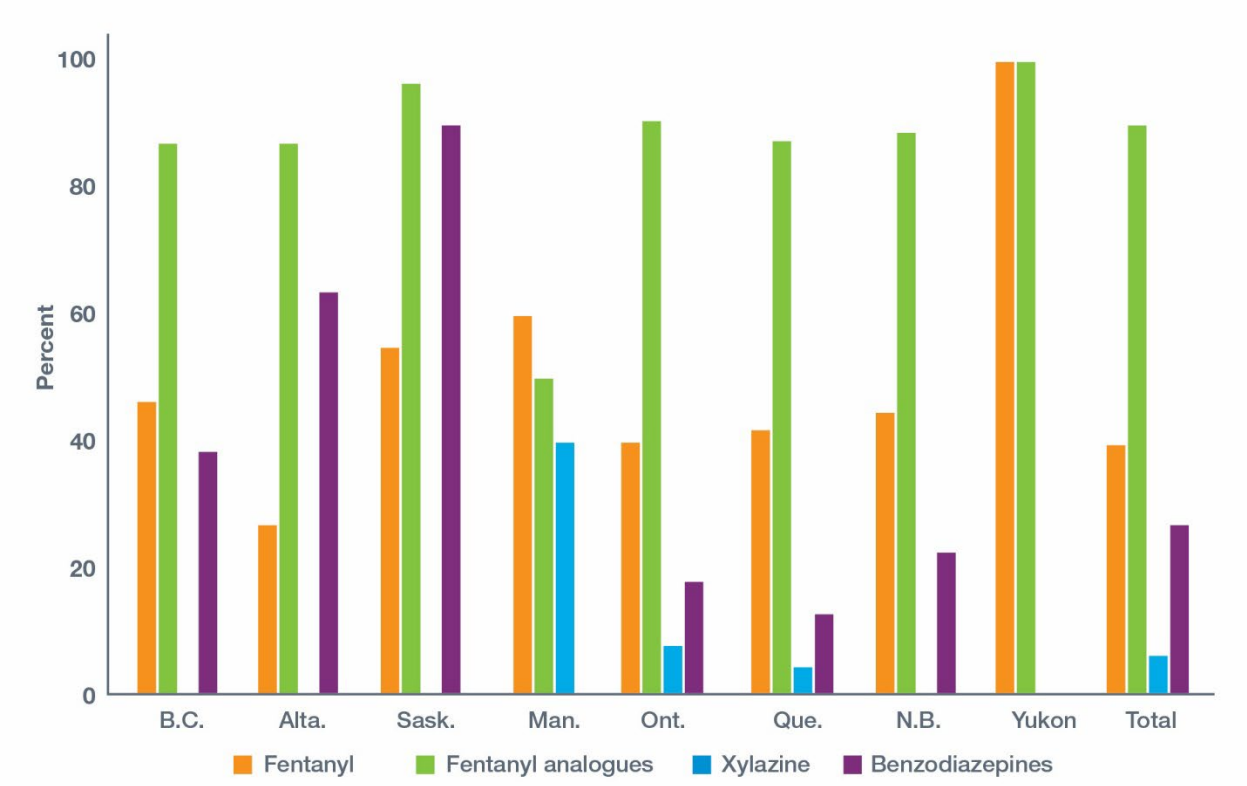
Source. Health Canada's Drug Analysis Service

Notes
Findings presented here may differ from other data from Health Canada's DAS, as these data may have been presented and analyzed using different methods. Additional information about the DAS methodology and data limitations is available through the Analyzed Drug Report.
The figure above does not include data from the Northwest Territories or Nunavut, as no samples submitted to Health Canada's DAS from these regions have contained medetomidine.

From January to March 2026, medetomidine was most often co-detected with fentanyl analogues (refer to Figure 2). This represents a shift from 2024, when it was primarily

detected with fentanyl, and from 2025, when it was detected with both fentanyl and fentanyl analogues (refer to Figure 3). Benzodiazepines were also frequently co-detected with medetomidine during this period, with the highest proportions found in British Columbia, Alberta and Saskatchewan. Manitoba, Ontario and Quebec continued to see co-detection of xylazine with medetomidine (refer to Figure 2), whereas British Columbia, Alberta and New Brunswick did not report this combination from January to March 2026.

Figure 2. Proportion of samples containing medetomidine that also contained other substances, by province and territory, January to March 2026



Source. Health Canada's DAS

Notes

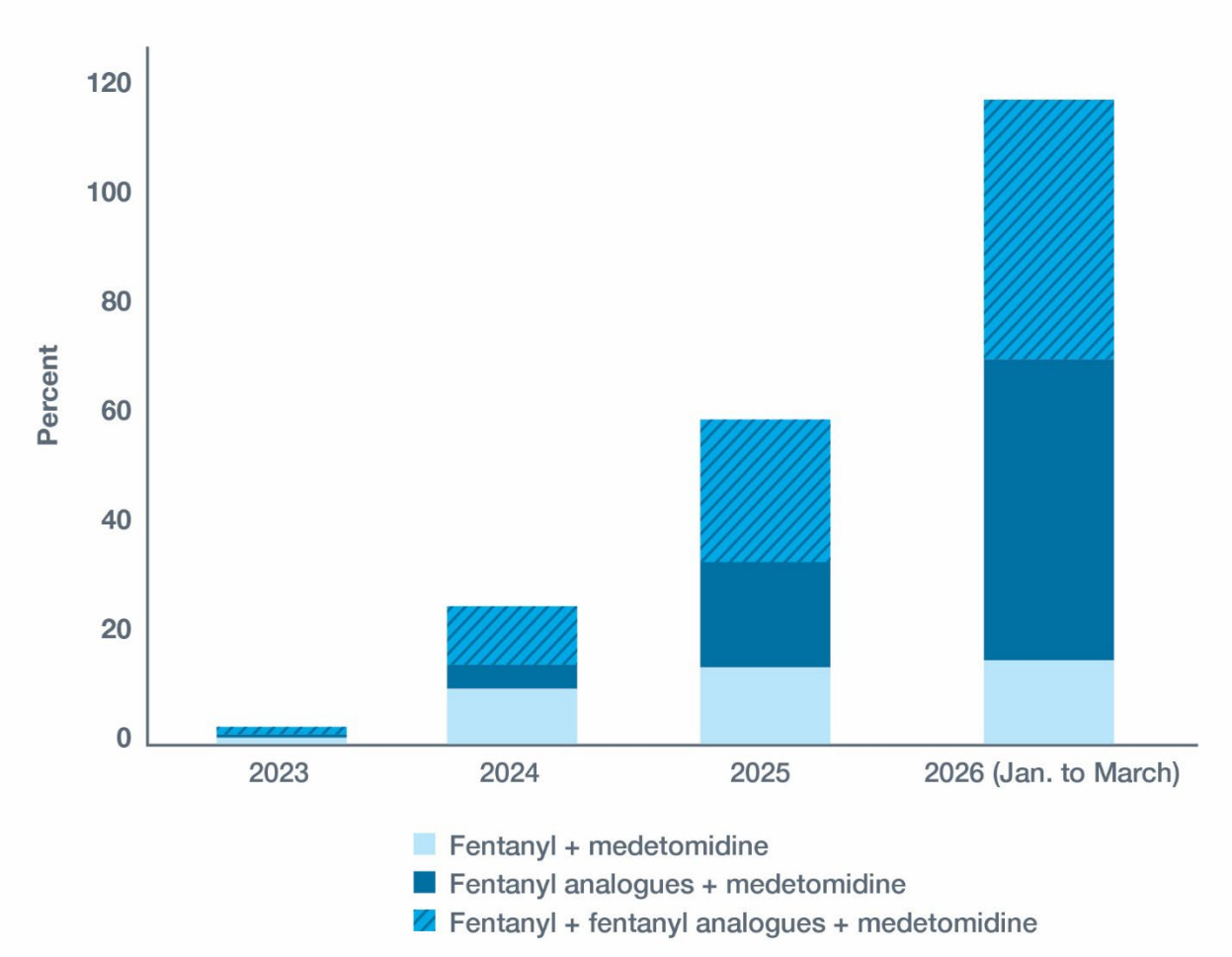
Findings presented here may differ from other data from Health Canada's DAS, as these data may have been presented and analyzed using different methods. Additional information about the DAS methodology and data limitations is available through the Analyzed Drug Report.

The figure above includes data from the provinces and territories where medetomidine was detected by Health Canada's DAS between January and March 2026. The categories are not mutually exclusive, meaning that a sample containing medetomidine may also contain more than one of the substances shown. As a result, percentages within a region may add to more than 100%.

Health Canada's DAS data examining the prevalence of medetomidine in the unregulated opioid supply show that patterns of co-detection have shifted over time. In 2023, medetomidine was detected primarily with both fentanyl and analogues. By January to

March 2026, it was detected primarily with fentanyl analogues without fentanyl (refer to Figure 3).

Figure 3. Proportion of seized samples containing fentanyl, fentanyl analogues or both that also contained medetomidine in Canada, 2023 to January–March 2026



Regional Landscape

This section combines reports from both the CCENDU nodes and NDCWG members (refer to Figure 4), along with data from other sources (refer to the Data Sources and Limitations section). Reports and data submitted by partners cover the period from August 2024 to February 2026.

Each CCENDU node collects information from local partners and networks on substance-related trends and response options. Some partners also provided descriptions of adverse effects and harms observed in their region. Where this information was not provided, this should not be interpreted as an absence of adverse effects or harms.

Figure 4. Provinces and territories included in this issue (data from CCENDU nodes, NDCWG members and other sources)

British Columbia

Detection and Supply Trends

Recent data suggest a substantial increase in medetomidine detection in the unregulated drug supply.

- Among samples sent for secondary testing[5] at Substance (University of Victoria) by community drug checking services partnered with the British Columbia Centre on Substance Use (BCCSU):
  - Medetomidine was detected in about 5% to 20% of opioid samples submitted for secondary testing each month during the first half of 2025.
  - By August 2025, detection had reached nearly 40% of all opioid samples submitted.
  - This upward trend continued through the fall, with medetomidine detection peaking at 45% in November 2025 and reaching an all-time high of nearly 50% in January 2026.
- Among opioid samples submitted for secondary testing, the concentration[6] of medetomidine also increased.

[5] A subset (15–30%) of opioid samples checked at community drug checking services is sent for secondary testing. These samples tend to be more complex, associated with adverse events or both.
[6] "Concentration" describes the amount of a specific substance found in a checked drug sample. Higher concentrations can result in a more rapid onset or increased or prolonged psychoactive and physiological effects, which may increase risk even when the same substance is being consumed.

    - Between January and July 2025, medetomidine concentrations were less than 1% each month. From August 2025 onward, concentrations increased to 1% to 2% each month, except in November 2025, when they reached 2.5%.
- At the same time, increases in 9-1-1 calls for ingestion poisonings (reaching a new one-day high of 1,471 on February 22, 2026) and probable paramedic-attended opioid overdoses have been observed.
- Despite this, deaths have not increased and have remained at a relatively steady level since a decline in October 2024.
- A small number of drug checking samples containing crystalline medetomidine alone have also been reported. However, based on their concentrations, these are not thought to represent street-level samples.

Co-detections with Medetomidine

- Medetomidine is almost always co-detected with fentanyl, fluorofentanyl and often with benzodiazepines (e.g., desalkylgidazepam, bromazolam and ethylbromazolam).
- As medetomidine detection increased among opioid samples sent for secondary testing, xylazine detection decreased.
- In January 2025, secondary testing of samples from drug checking sites identified xylazine in about 25% of opioid samples submitted. By the end of the year, xylazine detection had decreased to 2%.
- In 2025, 10.5% (253/2,407) of all expected “down” (opioid) samples checked also tested positive for xylazine, medetomidine or both. This proportion represents an increase of 4.3% from 2024, when 6.5% of all down samples contained xylazine. In 2025, medetomidine-positive samples accounted for most of the presence of the veterinary tranquilizers.
- Health Canada’s DAS data show that the proportion of seized samples containing medetomidine, fentanyl and fentanyl analogues increased from 2.3% (38/1,634) in 2024 to 18.3% (48/262) in January to March 2026.

Management of Medetomidine-Involved Toxicity Events

- A slight increase in the proportion of patients accepting transportation to hospital after drug poisoning has been observed. However, community reports suggest an increased likelihood of calling 9-1-1, due to concerns about the severity of presentations.
- Community reports indicate that bradycardia is a substantial concern in emergency departments.
- Extended monitoring is required because of prolonged sedation.
    - Addiction medicine clinicians report having seen some cases of severe medetomidine withdrawal. Based on clinical recommendations, clonidine is used as first-line management (refer to the What This Means in Practice section).

    - Vomiting complicates management due to difficulties using oral medication. Concerns have been raised about ICU capacity if the number of cases increases (dexmedetomidine for severe withdrawal is generally administered by infusion in the ICU).
- Service providers are facing increased burnout as staff manage increasingly complex toxicological presentations.

Detection and Response Considerations

- Communication between various levels of overdose responders (e.g., staff at shelters, overdose prevention sites, emergency health services and emergency departments) has been essential to help anticipate and manage the volume of cases.
    - There is a desire to identify alternate sites where people can be monitored if they decline transport to the emergency department, but this is challenging due to the level of medical training required to manage increasingly complex drug poisonings.
- BCCSU led a pilot study of medetomidine test strips[7] for use in community drug checking services in November 2025. Data show that the strips can detect medetomidine with high sensitivity and specificity and can help detect its presence in community drug checking settings. The prevalence of medetomidine during the two-week pilot period was 34% across British Columbia. Medetomidine prevalence varied between regions, ranging from 15-50%.

Alberta

Detection and Supply Trends

Recent data suggest a substantial increase in medetomidine detection in the unregulated drug supply.

- Wastewater data from CCENDU node reports showed a rise in medetomidine from December 2025 to the first few months of 2026 in Calgary, while detections of xylazine decreased.
- While most samples tested by a local drug checking service in late 2025 and the first few months of 2026 were found to contain medetomidine, xylazine has been identified much less frequently.

Co-detections with Medetomidine

- In drugs seized by law enforcement, medetomidine has always been co-identified with fentanyl, fentanyl analogues or both. One sample was found to contain fentanyl, para-fluorofentanyl, carfentanil, medetomidine and caffeine.

[7] British Columbia Centre on Substance Use. (2026). *Piloting medetomidine immunoassay test strips in community drug checking services.*

- Health Canada's DAS data show that the proportion of seized samples containing medetomidine, fentanyl and fentanyl analogues increased from 0.01% (1/1,030) in 2024 to 27.5% (25/91) in January to March 2026.
- In samples submitted by law enforcement agencies in Alberta to Health Canada's DAS and reported in 2025, medetomidine was infrequently co-identified with xylazine.
- The prevalence and impact of medetomidine in the unregulated drug supply in Alberta appear to be more significant than what was observed with xylazine. For example, cardiovascular effects of medetomidine are reported more frequently than those of xylazine.

Management of Medetomidine-Involved Toxicity Events

- The sedative effects can sometimes last up to a week and can be difficult to manage. Clinicians and those working in withdrawal management facilities (also referred to as "detox") have started to lower the threshold for sending patients to hospital.
- Drug toxicity events suspected of involving medetomidine appear to be more severe than those involving xylazine (e.g., severe and prolonged sedation).
- There have been reports of increased doses of naloxone being used, prolonged hospitalizations and the need for increased monitoring.

Detection and Response Considerations

- Several harm reduction and outreach organizations have implemented the use and distribution of medetomidine test strips.
- There is currently limited drug checking capacity in the province.
- A drug alert on medetomidine was issued in December 2025.

Saskatchewan

Detection and Supply Trends

- Health Canada's NWDS reported two detections of medetomidine in wastewater samples in Saskatchewan, most recently in August 2025.
- Drug checking data from the Nēwo-Yōtina Friendship Centre in Regina show that medetomidine has not yet been detected through its drug checking service.
- The Saskatchewan Ministry of Health issued a drug alert[8] on January 28, 2026, reporting that six overdoses occurred over 48 hours, with many requiring multiple doses of naloxone. Individuals experienced heavy sedation, difficulty breathing and, in some cases, required medical intervention, including oxygen administration. While

[8] Saskatchewan Ministry of Health. (2026, January 28). Drug alert.

no direct link to medetomidine was confirmed, one sample[9] tested positive for both fentanyl and medetomidine.

Co-detections with Medetomidine

- Health Canada's DAS data show that the proportion of seized samples containing medetomidine, fentanyl and fentanyl analogues increased from 0% (0/54) in 2024 to 77.3% (17/22) in January to March 2026.

Manitoba

Detection and Supply Trends

- Drug checking data from Street Connections in Winnipeg indicate low but increasing detection of medetomidine over time.
  - Medetomidine was first detected at Street Connections through confirmatory testing in September 2025.
  - A total of 14 samples checked from September 2025 to April 2026 contained medetomidine. Ten of these samples were sent for confirmatory testing.
    - Ten samples contained para-fluorofentanyl and one sample contained carfentanil.
    - Five samples also contained a benzodiazepine.
    - One sample contained only medetomidine.
  - The increased number of samples containing medetomidine from February to April is largely attributed to the incorporation of medetomidine test strips into drug checking services (a total of 10 samples). Before this, medetomidine had only been detected in samples sent to Health Canada's DAS for confirmatory testing.
  - Other drug checking sites in Winnipeg, including Nine Circles Community Health Centre and Sunshine House — Mobile Overdose Prevention Service (MOPS), have observed similar trends.
    - 13 samples checked at Nine Circles from February to April 2026 contained medetomidine and fentanyl, a fentanyl analogue or both, including carfentanil. About half of the samples also contained a benzodiazepine.

Co-detections with Medetomidine

- Health Canada's DAS data show that the proportion of seized samples containing medetomidine, fentanyl and fentanyl analogues increased from 0% (0/165) in 2024 to 16.7% (5/30) in January to March 2026.

[9] Saskatchewan Ministry of Health. (2026, January 28). [Image of drug sample associated with a January 2026 drug alert].

Management of Medetomidine-Involved Toxicity Events

- Severe medetomidine withdrawal, including profuse vomiting, has been reported.
- Multiple drug toxicity events have been reported at several locations, including cases requiring extended monitoring because of prolonged sedation.
- Service providers report acute caregiver strain, including feeling underprepared to manage complex presentations, insufficient support and compounding grief.

Detection and Response Considerations

- Public health advisories on medetomidine[10] and elevated drug toxicity risk[11] have been issued.
- A medetomidine test strip pilot project is underway among drug checking services at Nine Circles, Sunshine House — MOPS and Street Connections.

Ontario

Detection and Supply Trends

Medetomidine detection has increased substantially in Ontario.

- Between August 2024 and March 2026, medetomidine was detected by Toronto's Drug Checking Service in 1,462 samples, almost all of which were expected to be opioids.

Co-detections with Medetomidine

- Medetomidine was detected in 12% (20/170) of expected fentanyl samples in August 2024. Since then, the proportion has increased steadily, peaking in February 2026 (86%, 82/95). In March 2026, it was 77% (104/135).
- From January 2025 to March 2026, the median concentration of medetomidine detected in expected fentanyl samples increased progressively from 0.3% (interquartile range [IQR]: 0.1%–0.7%) to 1.2% (IQR: 0.6%–1.7%).
- Drug checking data show that between August 2024 and March 2026, 96% (1,172/1,226) of samples containing medetomidine also contained at least one high-potency opioid (an opioid considered to be roughly as strong as or stronger than fentanyl), including fentanyl, para-fluorofentanyl, orthomethylfentanyl and protodesnitazene.
- Significant fluctuations in medetomidine co-occurrence with benzodiazepine-related drugs have been reported. Data show that in January 2025, 11% (6/56) of samples containing medetomidine also contained at least one benzodiazepine-related drug.

[10] Street Connections. (2026, May 1). *Public health alert: Medetomidine in Winnipeg's drug supply*.
[11] Street Connections. (2026, May 11). *Public health alert: Elevated overdose risk in Winnipeg*.

    - In March 2025, the proportion of samples containing medetomidine and at least one benzodiazepine-related drug increased to 65% (42/65), then decreased over time to 6% (4/70) in October 2025.
    - Data from March 2026 show that this proportion increased to 41% (41/102).
- Health Canada's DAS data show that the proportion of seized samples containing medetomidine, fentanyl and fentanyl analogues increased from 23.3% (448/1,919) in 2024 to 70.4% (307/436) in January to March 2026.

Management of Medetomidine-Involved Toxicity Events

- Emergency department clinicians have reported increasingly complex withdrawal syndromes, likely from combined medetomidine and opioid withdrawal. In addition, co-occurring withdrawal from other adulterants and substances (e.g., stimulants) may further complicate the clinical picture.
    - People are being transferred from usual withdrawal management settings to more acute care settings because of severe hypertension and cardiac symptoms.

Detection and Response Considerations

- Assessment of BTNX's medetomidine test strips show they work well.[12] However, they are cost prohibitive for many community agencies ($2.75 each).
- Medetomidine is likely to be missed due to technological limitations (e.g., it is generally found in very small amounts that fall below the limit of detection of available portable instruments).

Quebec

Detection and Supply Trends

- Medetomidine was first detected in Quebec in April 2023. Since then, there have been 21 detections in Quebec, representing less than 2% of all detections of this substance in Canada (INSPQ).
- Dopamine, a drug checking service in Montreal, first detected medetomidine in March 2025 and began purchasing medetomidine test strips to offer to service users that same month. From April 2025 to March 2026, medetomidine was detected in 85% of expected fentanyl samples. This proportion increased to 96.3% from January to March 2026. In 2025, the average concentration among a small subset of samples sent to Health Canada's DAS for confirmatory testing was 3.1%, which appears to be higher than in other regions.

[12] Toronto's Drug Checking Service. (2026). Performance assessment: Medetomidine test strips.

Co-detections with Medetomidine

- Drug checking data from CACTUS Montréal show that medetomidine was detected in 94% of fentanyl samples tested between January and mid-March 2026.[13]
- Health Canada's DAS data show that the proportion of seized samples containing medetomidine, fentanyl and fentanyl analogues increased from 10.3% (11/107) in 2024 to 63.6% (7/11) in January to March 2026.

New Brunswick

Detection and Supply Trends

- As of March 2026, medetomidine had been identified in only one drug checking sample at Avenue B Harm Reduction.
- In April 2026, trace amounts of medetomidine were detected in drug checking samples from Ensemble.
    - Three of the nine fentanyl samples tested positive for medetomidine.
    - These fentanyl samples also contained benzodiazepines.

Co-detections with Medetomidine

- Health Canada's DAS data show that the proportion of seized samples containing medetomidine, fentanyl and fentanyl analogues decreased from 30.5% (18/59) in 2024 to 13.6% (3/22) in January to March 2026.
- The proportion of seized samples containing medetomidine and fentanyl analogues (without fentanyl) increased from 1.9% (1/52) in 2024 to 14.3% (5/35) in January to March 2026.

Management of Medetomidine-Involved Toxicity Events

- Reports describe prolonged sedation ("nodding"), with individuals being more difficult to rouse than usual and sedation lasting longer than expected.
- Poor responses to naloxone have been reported.
- At this time, withdrawal management is not typically addressed within harm reduction settings, but people experiencing severe or complex withdrawal symptoms are referred to appropriate medical services for further assessment and care.

Detection and Response Considerations

- The ability to monitor trends is limited by the low number of samples. As more samples become available, there will be a clearer understanding of the presence and impact of medetomidine in New Brunswick.

[13] La Presse. (2026, April 1). Un tranquillisant pour animaux fait des dégâts.

- Responses currently remain consistent with opioid overdose protocols. Naloxone continues to be administered where opioid involvement is suspected, alongside oxygen supplementation and supportive care.
- Drug checking is being actively used through two machines to monitor the supply and inform responses. Standard harm reduction strategies continue to be used (e.g., naloxone administration, oxygen supplementation, encouraging people not to use alone and information exchange on emerging substances).
- Awareness of the need for extended monitoring has increased, especially in cases where sedation persists despite naloxone administration.

Nova Scotia

Detection and Supply Trends

- The presence of medetomidine in the nonpharmaceutical opioid supply was first detected in 2024 in police-seized drug samples. Law enforcement seizure data show that medetomidine has most often been detected with para-fluorofentanyl, with or without fentanyl.
- With respect to mortality, data from the medical examiner show no medetomidine detection among drug toxicity deaths. However, medetomidine is not currently included in the broad-scope postmortem toxicology test used for suspected drug toxicity deaths, and the confirmatory test for medetomidine is relatively new. As a result, some cases may not be detected.[14]
- Medetomidine has been detected using test strips by clients at supervised consumption sites, although uptake of medetomidine test strips has been minimal.

Co-detections with Medetomidine

- Health Canada's DAS data show that the proportion of seized samples containing medetomidine, fentanyl and fentanyl analogues decreased from 66.7% (6/9) in 2024 to 16.7% (2/12) in 2025, with no detections (0/0) in January to March 2026.

Detection and Response Considerations

- The first and ongoing detection of medetomidine in the drug supply is communicated to health system and community partners through monthly situation updates on mortality and findings from law enforcement seizure data.

[14] Currently, medetomidine can be detected as an "out-of-scope" finding by the laboratory used by the Nova Scotia Medical Examiner Service for post-mortem testing (NMS Labs, United States). Additional confirmatory testing can then be ordered, if needed.

Prince Edward Island

Detection and Supply Trends

- A drug checking report from PEERS Alliance covering April 2025 to March 2026 identified five cases in which medetomidine was detected, either in combination with fentanyl or as an unexpected active substance.

Co-detections with Medetomidine

- Health Canada's DAS data show that the proportion of seized samples containing medetomidine, fentanyl and fentanyl analogues was 20% (detected in <5 samples) in 2024 and 15.4% (detected in <5 samples) in 2025, with no detections in January to March 2026.

Detection and Response Considerations

- There are ongoing efforts to expand drug checking and toxicology testing capacity for the province, which will enhance our knowledge of substance use risk in Prince Edward Island.

Newfoundland and Labrador

Detection and Supply Trends

- Medetomidine was detected in two samples submitted to Health Canada's DAS in 2025. No detections of medetomidine were reported between January and March 2026.

Co-detections with Medetomidine

- Health Canada's DAS data show that the proportion of seized samples containing medetomidine, fentanyl and fentanyl analogues was 50% (2/5) in 2025, with no detections (0/0) in January to March 2026.

Detection and Response Considerations

- Timely tracking of medetomidine in the province is difficult due to the following:
    - Limited routine clinical testing capacity;
    - Delays in real-time reporting;
    - The short half-life of medetomidine, which results in it quickly disappearing from blood and urine;
    - Drug checking limitations (e.g., no test strips); and
    - Surveillance systems lagging behind emerging drugs, as Health Canada's DAS data and Office of the Chief Medical Examiner (OCME) death data are the primary surveillance sources).

- Information and education continue to be provided that naloxone does not work on medetomidine (and other novel non-opioid substances). However, because medetomidine is almost always mixed with fentanyl, naloxone should still be administered to reverse the opioid part of the overdose.
- Greater emphasis has been placed on airway management and oxygen support, as well as longer monitoring periods.
- Resources have been compiled and distributed to partners across Newfoundland and Labrador, including information for healthcare providers on medetomidine and harm reduction information related to medetomidine.
- Network and surveillance information are being monitored, as trends show that medetomidine can scale quickly once introduced.

Northwest Territories

- Based on current surveillance systems, no detections of medetomidine have been reported in this region.

What This Means in Practice

This section highlights practical considerations related to medetomidine detection, exposure and withdrawal for healthcare providers, people who use substances, and public health and public safety decision makers. For more information, including clinical guidance, harm reduction considerations and emerging evidence, refer to the Resources section.

Healthcare Service Providers

- Clinicians and overdose responders are reporting increasingly complex presentations associated with suspected medetomidine exposure, with some symptoms presenting more commonly than others, including the following:
    - Deep sedation;
    - Bradycardia (slow heart rate); and
    - Hypertension (elevated blood pressure) in the early stages, followed by hypotension (low blood pressure).
- Given that medetomidine most commonly co-occurs with opioids, signs and symptoms may look like those of an opioid toxicity event (e.g., respiratory depression, unresponsiveness and pinpoint pupils).
- Overdoses involving medetomidine should be initially managed using opioid overdose response protocols. Naloxone should be administered based on breathing as the primary indicator rather than level of consciousness. Overly aggressive naloxone dosing can cause precipitated withdrawal. Additional interventions may be required in acute care settings to manage bradycardia, hypotension and other complications.
- Due to the severity of medetomidine withdrawal symptoms, it is important to recognize that withdrawal can present as tachycardia (often greater than 120 beats per minute), hypertension (potentially severe, >170/110), severe nausea and

vomiting, sweating out of proportion to typical opioid withdrawal symptoms, anxiety and restlessness, waxing and waning alertness and mutism, tremor, sudden or involuntary jerks or movement, and delirium.[15] Refer to the Resources section for more information on withdrawal symptoms.

- How to manage medetomidine effects and withdrawal:
    - Clonidine has been noted as the primary treatment (with close monitoring of blood pressure), often administered along with benzodiazepines, antipsychotics or both. In severe cases when clonidine is ineffective (e.g., severe nausea and vomiting make it difficult to ingest clonidine orally, or the person is extremely unwell), dexmedetomidine may need to be administered, requiring admission to an ICU.
    - Supportive care remains important (e.g., providing fluids).
    - Clinicians have reported concerns about myocardial infarctions due to the elevated heart rates associated with withdrawal. Clinicians may measure troponin levels for monitoring and management.
    - Another challenge for clinicians is determining **when** individuals should be transferred to hospital or admitted to an ICU. Treatment approaches in outpatient settings differ from those used in hospitals, and thresholds for escalating care vary.
    - Clinicians have suggested the following criteria to help determine the need for transfer to these settings. In a clinic setting, transfer to the emergency department if any of the following are present:
        - Blood pressure is greater than 180 systolic;
        - Heart rate is greater than or equal to 120;
        - Chest pain is reported; or
        - Intractable nausea or vomiting is present, and the person cannot tolerate oral medications or fluids.
    - Clinic management may include counselling, optimizing opioid agonist therapy (OAT), offering clonidine, providing guidance on clonidine use and scheduling follow-up monitoring.
    - In an emergency department setting, consider hospital admission (likely ICU) if any of the following criteria are met:
        - Blood pressure greater than 200 systolic;
        - Heart rate greater than 150;
        - Persistent vomiting;
        - Delirium or severe agitation; or
        - Concerns related to metabolic acidosis or lactic acidosis, or evidence of cardiac impact such as type 2 myocardial infarction with troponin elevation.

[15] META:PHI. (2026). *Combined fentanyl/medetomidine withdrawal in the ambulatory setting*.

- Emergency department management may include a mix of clonidine, benzodiazepines, antipsychotics for nausea and agitation, and hydromorphone (short-acting opioids) to manage opioid withdrawal.

People with Lived and Living Experience of Substance Use

- Continue to use test strips and other drug checking services, if available in your community.
- If possible, avoid mixing substances from the unregulated drug supply with each other (e.g., opioids, which may also contain medetomidine, benzodiazepines, and other substances) and with other depressants such as alcohol, due to the high risk of sedation, withdrawal and other severe harms.
- Medetomidine changes what an overdose looks like. Keep carrying and using naloxone, since medetomidine is almost always found in combination with opioids such as fentanyl and its analogues.
- People who use substances are observing new or worsening signs and symptoms. They note that it is difficult to distinguish the specific effects of medetomidine from those of benzodiazepines and other adulterants. They are noticing the following:
  - Mood and cognitive impacts: confusion, irritation, paranoia, blackouts; and
  - Physical impacts: vomiting, reduced bladder and bowel control, and shallow breathing.
- If you are regularly exposed to medetomidine in the opioid supply and it then disappears from the supply (whether you are aware of it or not), you may experience severe withdrawal that requires additional medical support.

Public Health and Public Safety Decision Makers

Several system-level gaps and challenges can make it difficult to accurately estimate the prevalence of medetomidine and respond effectively:

- Public safety agencies may require updated operational guidance and training to recognize signs of suspected medetomidine detection, related harms, and the limitations of naloxone in reversing non-opioid sedation. This guidance and training may be particularly important because certain presentations may be mistaken for non-compliance or behavioural disturbance during police interactions.
- Severe withdrawal symptoms associated with suspected medetomidine exposure may increase police interactions with people experiencing medical distress. These presentations may be difficult to distinguish from mental health crises or other substance-related emergencies and may require coordinated responses involving police, paramedics and emergency departments.
- During police transport and in custodial settings, prolonged sedation and severe withdrawal symptoms associated with suspected medetomidine exposure may

increase the need for ongoing medical assessment, wellness checks and transfer to emergency care when clinically indicated.

- Fourier-transform infrared spectroscopy (FTIR) is not sensitive enough to detect medetomidine in concentrations below 5% in a drug sample. Results for samples sent for secondary testing can take about one week to be returned, although this timing likely varies between regions.
- Medetomidine test strips cost more than $2 per strip, which may limit their distribution for take-home use. As a result, fewer people may be able to use them to detect and avoid medetomidine.
- Clinical specimen testing for medetomidine is not yet available.
- Analytical confirmation of the substance or substances causing toxicity in a specific drug toxicity event is rarely available. This lack of confirmation is a significant gap that prevents objective identification of the specific agent or agents involved.
- While analysis of drugs seized by law enforcement provides valuable information about the unregulated drug supply, delays associated with both the submission of samples and reporting of results mean that this is a lagging indicator and may not accurately reflect what is currently present in the drug supply.
- Continued investment in the collection and monitoring of data on the unregulated drug supply (e.g., purity, composition) is needed to help guide public health and public safety responses.

Summary

- According to the data sources included in this report, medetomidine detection increased in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario and Quebec between January 2024 to March 2026.
- While patterns of medetomidine detection in the Atlantic provinces fluctuated between 2024 and 2026, detection remained at 2% or less of seized drug samples. From January to March 2026, medetomidine was detected most frequently in New Brunswick.
- Drug checking data from British Columbia, Alberta and Ontario show that as co-detection of medetomidine with opioids increased, xylazine co-detection decreased. This shift appears to be associated with fewer xylazine-related harms (e.g., new wounds) and more medetomidine-related harms (e.g., cardiac events and severe withdrawal).
- The use of test strips and other drug checking services, where available, can help identify medetomidine and other adulterants that may pose increased risks to health and safety.
- Education on responding to complex and severe drug toxicity events is increasingly important. For example, in cases of profound sedation, breathing may return to normal after one dose of naloxone, but additional doses may not restore

consciousness. Continued monitoring remains important, and transport to hospital may still be required.
- It is difficult to develop guidance on bradycardia that is appropriate for non-regulated professionals, given that many people decline transport to hospital.
- Confirmation of medetomidine's presence is crucial for clinical management. Currently, medetomidine withdrawal is diagnosed clinically based on symptoms because rapid testing is not available in healthcare settings.
- Approaches to managing medetomidine withdrawal in healthcare settings continue to evolve as evidence on effective management emerges.
- Emergency departments and other emergency response teams in many communities are under substantial strain and report managing increasingly complex overdose events, likely related to medetomidine, that require more intensive interventions (e.g., intubation and dexmedetomidine administration in the ICU).
- In hospitals where dexmedetomidine must be administered in the ICU, contingency plans should be developed to address reduced ICU capacity.
- Staff across harm reduction and healthcare settings may need additional support to address burnout associated with managing a greater volume of increasingly complex cases.

Resources

Clinical Guidance and Treatment

- Medetomidine in the Unregulated Opioid Supply: A Clinical Brief for Ontario Health Care Providers
- Health Update: Responding to Overdose and Withdrawal Involving Medetomidine
- Combined Fentanyl/Medetomidine Withdrawal in the ED/Acute Care Setting
- Combined Fentanyl/Medetomidine Withdrawal in the Ambulatory Setting
- Combined Fentanyl/Medetomidine Withdrawal in Withdrawal Management Units
- Clinical Management of Medetomidine-Related Presentations (webinar)

Overdose Response

- Responding to Prolonged Sedation
- Responding to Low Heart Rate (Bradycardia)

Harm Reduction and Public Education

- Substance Information Sheet: Medetomidine
- Medetomidine: "New" Veterinary Tranquilizer Circulating in Toronto's Unregulated Fentanyl Supply
- Medetomidine Poster
- Substance Use Philly: Medetomidine

Drug Checking and Surveillance

- Performance Assessment: Medetomidine Test Strips
- Toronto's Drug Checking Service (TDCS) Drug Market Monitoring Dashboard and Reports
- Piloting medetomidine immunoassay test strips in community drug checking services

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CCENDU RCCET
Canadian Community Epidemiology Network on Drug Use
Réseau communautaire canadien d'épidémiologie des toxicomanies

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We thank all our partners for their contributions to this report. Your contributions allow us to share valuable insights with subscribers across the country.

This report reflects information and perspectives gathered from multiple contributors and sources across Canada. Given the evolving nature of this topic, contributors and reviewers may have differing perspectives on some of the information and approaches described in the report.

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