

# Medetomidine Withdrawal

## *Medetomidine Objective Withdrawal Scale (MOWS)*

This pilot withdrawal management protocol has not been evaluated yet through clinical trials and will need validation to assess safety and efficacy.

## Summary

We are seeing cases of medetomidine withdrawal in hospitalized patients; medetomidine is an alpha-2 adrenergic agonist used as an adulterant in illicit fentanyl.<sup>1</sup>

This syndrome is driven by autonomic hyperactivity that persists despite treatment of opioid and/or benzodiazepine withdrawal.

Patients have been known to decompensate quickly, prompt intervention is imperative to prevent escalation of care to higher acuity areas.

A medetomidine withdrawal protocol has been developed to support recognition, scoring, and management using clonidine.

## Background

Over the past two years, medetomidine has emerged as a novel adulterant in the illicit fentanyl supply across multiple regions of North America.

As of December 2025, medetomidine has been detected on over 30% of unregulated opioid samples in the province of British Columbia. In Philadelphia approximately 25% of ICU beds are occupied by patients with complications from medetomidine withdrawal.

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## Key Clinical Features

Symptoms may begin within 4-6 hours of last use and can fluctuate over several days.

### Common findings

- Tachycardia
- Hypertension
- Whole-body shivers (distinct from benzo/EtOH tremor)
- Diaphoresis
- Agitation or delirium (including hallucinations)
- Nausea or vomiting <sup>2</sup>

## When to initiate MOWS

Patients may be started on this protocol if all the following are met:

- Toxicology evidence with a urine drug screen or point-of-care test strip confirmation

OR

- History of known or suspected medetomidine exposure in acute withdrawal.

OR

- Unregulated fentanyl exposure.
- Presence of autonomic instability (e.g., hypertension, tachycardia, tremor/shivers) with alternative causes ruled out.

*Causes may include but are not limited to stimulant intoxication, alcohol withdrawal, neuroleptic malignant syndrome, sepsis, acute coronary syndrome, pulmonary embolism.*

## Management approach

### Assess for opioid withdrawal

Follow institutional OW protocols utilizing full agonist opioids:

- Consider initiation and titration of Opioid Agonist Therapy if clinically indicated

### Assess for Benzo/Alcohol withdrawal

If patient meets any of the following criteria, initiate CIWA monitoring with PRN Lorazepam PO/SL/IV for scoring:

- Reported intentional benzodiazepine use separate from benzo-contaminated fentanyl ("benzo down")
- History of benzodiazepine or alcohol withdrawal seizures
- Active alcohol use disorder

If none of the above, but there is a suspicion for potential benzodiazepine withdrawal, use a scheduled benzodiazepine taper.

### Benzodiazepine taper

Day 1: 1 mg Lorazepam PO/SL/IV QID

Day 2: 1 mg Lorazepam PO/SL/IV TID

Day 3: 1 mg Lorazepam PO/SL/IV BID

Day 4: 1 mg Lorazepam PO/SL/IV once daily

Day 5: Discontinue Lorazepam

## Initiate Medetomidine withdrawal monitoring

Score the Medetomidine Withdrawal Severity Scale (MWSS) as per protocol.

Assign 1 point for each of the following observations:

- Heart rate > 110 bpm
- Systolic blood pressure > 160 mmHg
- Whole-body shiver
- Delirium/agitation
- Nausea or vomiting

At least one point from first two criteria met **and** total score  $\geq 3$  = clinically significant withdrawal

## Medetomidine withdrawal treatment

### First-line therapy: Clonidine

- Clonidine 0.2 mg PO/SL/IV q1h PRN, based on MWSS  $\geq 3$
- Maximum cumulative dose in 6 hours: 0.8 mg
- Assess MWSS Q1H until MWSS < 3 for three consecutive readings, reduce scoring frequency to Q3H
- If MWSS remains < 3 for three consecutive Q3H scores, assess Q8H for 72 hours then discontinue protocol
- For any score greater than 3, restart protocol at Q1H
- Holding parameters: RR below 8, SpO<sub>2</sub> less than 92%, HR below 60, BP below 95/65

### Criteria for Escalation of Care and Consideration for Dexmedetomidine

- Cumulative dose per 6 hours  $\geq 0.8$  mg
- Persistent delirium / severe agitation
- Severe autonomic instability (HR > 150 or BP > 200)
- Severe vomiting, with risk of compromised airway

## References

1. Durney, P., Paquin, E., Fitzpatrick, G., Lockstein, D., Warrick-Stone, T., Montesi, M., ... & London, K. S. (2025). Profound Opioid and Medetomidine Withdrawal: A Case Series and Narrative Review of Available Literature. *Psychoactives*, 4(4), 37.
2. Lynch, M. J., Pizon, A. F., & Yealy, D. M. (2026). Emergence of Medetomidine in the Illicit Drug Supply: Implications for Emergency Care and Withdrawal Management. *Annals of Emergency Medicine*.