

Opioid Withdrawal

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THE STORY IN ONE SENTENCE

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“Opioid withdrawal is the brain's alarm center screaming because the drug that was holding down the panic button is suddenly gone.”

Normal anatomy — the body's job

A healthy brain keeps its alarm level steady through a balance between 'go' signals (like norepinephrine from the locus coeruleus in the brainstem) and 'stop' signals (from endorphins, the body's own opioids, and receptors that calm nerve firing).

BODY'S JOB

The locus coeruleus (a small cluster of nerve cells deep in the brainstem) releases norepinephrine to wake you up, focus your attention, speed your heart, and get you ready to respond to stress. Opioid receptors scattered throughout the brain and spinal cord act like dimmer switches — when the body's natural endorphins or an outside opioid drug binds to them, they turn DOWN the alarm, slow the norepinephrine release, ease pain, and create a sense of calm and reward. This system normally keeps you alert when you need to be and calm when you don't.

1. The locus coeruleus in the brainstem makes norepinephrine, the body's main 'wake up and respond' chemical.
2. Opioid receptors on those nerve cells act as brakes — when endorphins or opioid drugs bind, they tell the locus coeruleus to quiet down.

3. The result is a steady, balanced state: enough alertness to function, enough calm to rest, and pain signals kept in check.
4. Other brain regions — the amygdala (alarm center), prefrontal cortex (judgment and control), and ventral tegmental area (reward and motivation) — also have opioid receptors and work together to regulate mood, craving, and stress response.

What breaks

When someone takes opioids every day, those drugs flood the opioid receptors and push the brake pedal down hard on the locus coeruleus. To fight back, the brain makes MORE norepinephrine-releasing nerve cells and turns UP their sensitivity, trying to restore normal alertness. Now the system is in a new balance — but only as long as the drug keeps coming. The moment the opioid is gone, the brake lifts and the supercharged alarm system fires at full blast with nothing to stop it.

CLINICAL TERM

Chronic opioid exposure causes adaptive upregulation of the locus coeruleus-norepinephrine system and downregulation or desensitization of μ -opioid receptors. Abrupt cessation removes tonic inhibition, resulting in unopposed sympathetic and central noradrenergic hyperactivity — the biological substrate of withdrawal.

How the body compensates

The body tries to restore calm by sweating out stress chemicals, crying to release tension, clenching and relaxing muscles, and speeding the heart to move blood faster — but none of these quick fixes can replace the missing opioid brake, so the person feels trapped in a state of miserable, exhausting arousal until the brain rebalances (which takes days to weeks) or until medication replaces the missing signal.

1. The autonomic nervous system (the part that runs automatically) tries to burn off the flood of norepinephrine by sweating, crying, yawning, and making the gut move faster (diarrhea).
2. Muscles ache and twitch because the nerves that control them are firing too often; the person can't sit still (restlessness) because the brain is stuck in 'fight or flight' mode.
3. The pupils dilate wide because the sympathetic nerves to the eyes are overactive, and the person feels cold and gets goosebumps (piloerection) as the body tries to generate heat in response to perceived threat.
4. The brain's reward system (ventral tegmental area and nucleus accumbens) screams for the drug because it has learned that opioids are the fastest way to shut off the alarm — this is craving, and it can be as strong as the drive for food or water.

5. ****Dangerous compensation****: The person may use again to stop the misery, but because tolerance drops within days of stopping, the old dose can now cause overdose and death. This is why medically supervised withdrawal or maintenance treatment (methadone, buprenorphine) is safer than quitting alone.
6. ****Another risk****: Many people leave treatment in the first 72 hours (the peak of withdrawal) before medication has taken full effect, then relapse in an unsafe setting without naloxone or support nearby.

Domino effect

1. Opioid stopped → locus coeruleus loses its brake — The daily opioid was holding down the brain's main alarm center (locus coeruleus). When the drug is suddenly gone, that cluster of nerve cells — now extra-sensitive from weeks or months of trying to overcome the drug — fires wildly and floods the body with norepinephrine, the chemical that says 'danger, wake up, move NOW.'
2. Norepinephrine flood → sympathetic storm — Norepinephrine activates the sympathetic nervous system (the 'fight or flight' branch). Heart rate and blood pressure climb, pupils dilate, the gut speeds up (cramps and diarrhea), sweat glands open, and muscles tense. The person feels like they are in constant danger even though there is no outside threat.
3. Sympathetic storm → physical withdrawal symptoms — The body tries to cope: sweating and tears try to wash out stress chemicals, yawning tries to reset breathing and alertness, goosebumps (piloerection) try to generate heat, diarrhea tries to empty the gut quickly, and restlessness (akathisia) is the brain's inability to settle because the 'calm down' signal is missing.
4. Missing opioid signal → reward system in crisis → intense craving — The ventral tegmental area and nucleus accumbens (the brain's reward and motivation centers) have learned that opioids are the solution to distress. Without the drug, these areas send overwhelming 'seek the drug NOW' signals — this is craving, and it feels as urgent as hunger or thirst, making it nearly impossible to think about anything else.
5. Craving + misery → high risk of relapse in an unsafe setting — The person feels desperate to stop the suffering, and the brain is screaming that opioids are the answer. Many people use again without telling anyone, often alone, and because their tolerance has dropped, the dose that used to be safe can now stop their breathing (overdose). This is why supervised withdrawal or medication treatment (buprenorphine, methadone) is critical — it gives the brain a safer way to rebalance.

6. Without treatment → slow rebalancing over weeks, or cycle of use and withdrawal — If the person rides out withdrawal without medication, the locus coeruleus will eventually calm down and the opioid receptors will slowly return toward normal sensitivity — but this takes weeks, and during that time the person is miserable, exhausted, and at high risk of giving up. Many end up in a repeating cycle of use, withdrawal, and use again. Medication (buprenorphine or methadone) breaks the cycle by giving the brain a steady, controlled opioid signal so the person can stabilize, rebuild their life, and address the reasons they started using in the first place.

Symptoms · what the patient feels, and why

- Muscle aches and bone pain: Opioids normally block pain signals by attaching to receptors in the spinal cord and brain. When the drug leaves, those receptors wake up all at once and fire pain signals even when there is no injury, so the body feels sore all over.
- Goose bumps and sweating: Opioids quiet the autonomic nervous system (the autopilot that runs heart rate, sweating, and temperature). Without the drug, that system revs into overdrive and the skin breaks out in cold sweat and goose bumps, like a thermostat swinging wildly.
- Nausea, vomiting, and diarrhea: Opioids slow the gut by blocking receptors in the stomach and intestines. When they leave, the gut speeds up too fast—food rushes through, triggering cramps, nausea, vomiting, and watery diarrhea.
- Dilated pupils (big, wide pupils): Opioids shrink the pupils by calming the muscle in the iris. When the drug stops, that muscle relaxes and the pupils open wide, often staying large even in bright light.
- Fast heart rate and high blood pressure: Opioids dampen the sympathetic nervous system (the body's gas pedal for fight-or-flight). Without the brake, norepinephrine (a stress chemical) floods out, making the heart race and blood pressure climb.
- Restlessness and trouble sleeping: Opioids boost dopamine (a feel-good messenger) and calm the brain's arousal centers. When the drug leaves, dopamine drops and the locus coeruleus (a wakefulness hub in the brainstem) fires non-stop, so the person cannot sit still or fall asleep.
- Yawning and runny nose: The autonomic nervous system goes into overdrive during withdrawal. Yawning comes from the brain trying to wake itself up, and the nose runs because glands that were shut down by opioids start pouring out mucus again.
- Strong drug cravings: Opioids hijack the brain's reward circuit—the ventral tegmental area and nucleus accumbens—by flooding them with dopamine. When the drug stops, dopamine crashes and the circuit screams for more, driving intense cravings.

Focused exam

- Pupil size (mydriasis — pupils that look wide and dark): Opioids normally tell the pupils to shrink. Without the drug, the locus coeruleus (a tiny alarm center deep in the brainstem) fires hard and floods the body with norepinephrine (a wake-up chemical). The pupils go wide because the brake is off. Big pupils are one of the earliest clues that opioid withdrawal has started.
- Skin texture (piloerection — goosebumps all over, like the person is cold even when the room is warm): Opioids usually quiet the sympathetic nervous system (the body's alarm wiring). When the drug leaves, that alarm system cranks up and makes the tiny muscles under each hair follicle squeeze tight. This creates the classic 'gooseflesh' or 'cold turkey' look. It is a direct sign that the brainstem is in overdrive without the opioid calming it down.
- Yawning and watery eyes (lacrimation — tears running down the face without sadness): The locus coeruleus controls wakefulness and also the tiny glands that make tears and trigger yawns. Opioids press pause on this center. When the opioid is gone, the center floods the body with norepinephrine, causing unstoppable yawning and streaming tears. Both happen together because they share the same broken brake.
- Stomach and gut sounds (hyperactive bowel sounds heard through the stethoscope, cramping pain, loose watery diarrhea): Opioids bind to mu receptors (the main opioid docking spots) in the gut wall and freeze the intestines in slow motion. When the opioid leaves, the gut speeds back up fast — often too fast. The cramping and diarrhea mean the gut has lost its brake and is moving food and water through before the body can absorb them.
- Restlessness and inability to sit still (the person paces, shifts, taps feet, feels driven to move): The ventral tegmental area and nucleus accumbens (the brain's reward and motivation centers) expect dopamine (the brain's 'go get it' chemical) from the opioid. Without it, the circuits misfire and create a feeling of itchy, agitated discomfort. The person cannot rest because the brain's reward system is screaming for the missing drug.
- Anxiety, worry, or irritability (the person feels on edge, snaps easily, or says everything feels wrong): Opioids normally dampen the amygdala (the brain's fear alarm) and boost GABA (the main calming signal in the brain). Without the drug, fear and stress signals flood back unchecked. This mood shift is not weakness — it is the brain's emotion circuit working without its usual cushion. Severe anxiety can push someone toward unsafe decisions or relapse.

- Runny nose (rhinorrhea — clear fluid dripping from the nose) and sneezing: The parasympathetic nervous system (the body's 'rest and digest' wiring) controls mucus glands in the nose. Opioids dial that system down. When the drug stops, the parasympathetic side rebounds and mucus flows freely. A runny nose in someone with other withdrawal signs is a clue that the brainstem's balance is tipped.

Diagnostics · every test answers a question

- Urine drug screen (immunoassay for opioids, then confirmatory GC-MS if positive) → Is there opioid in the body right now, and which kind?
- Serum beta-hCG (pregnancy test) in anyone with a uterus and childbearing age → Is the person pregnant?
- Complete blood count (CBC with differential) → Is there infection, anemia, or a blood disorder hiding behind the symptoms?
- Basic metabolic panel (sodium, potassium, chloride, bicarbonate, BUN, creatinine, glucose) → Is dehydration or an electrolyte problem making things worse?
- 12-lead electrocardiogram (ECG) → Is the heart rhythm safe, and is the QTc interval normal?
- Hepatitis C antibody and HIV screening (with patient permission) → Does the person have a chronic infection from injection drug use?

Treatment logic

- Buprenorphine 8–16 mg sublingual (under the tongue) once COWS score ≥ 8 (moderate withdrawal) → Buprenorphine is a partial agonist at mu opioid receptors (the main docking spots opioids use). It sticks tightly to those receptors and sends a weak 'calm down' signal, just strong enough to shut off the locus coeruleus alarm and stop the flood of norepinephrine. Within 30–60 minutes, pupils shrink, goosebumps fade, cramping eases, and the person feels the panic lift. It blocks other opioids from attaching, so cravings drop.
- Clonidine 0.1–0.3 mg by mouth every 6–8 hours for 7–10 days → Clonidine is an alpha-2 agonist. It acts on the locus coeruleus (the brainstem alarm center) and tells it to quiet down, cutting the release of norepinephrine (the chemical that drives sweating, fast heart, high blood pressure, and muscle aches). Heart rate and blood pressure drop, sweating stops, and the jittery feeling fades. Clonidine does NOT touch opioid receptors, so it works alongside buprenorphine.

- Loperamide 2–4 mg by mouth up to three times daily, PLUS ondansetron 4–8 mg by mouth or IV every 8 hours → Loperamide binds to opioid receptors in the gut wall (not the brain, because it cannot cross the blood-brain barrier) and slows intestinal movement, stopping diarrhea within hours. Ondansetron blocks 5-HT₃ receptors in the brainstem's vomiting center (the area postrema) and in the gut, cutting nausea and vomiting. Together they let the person eat, drink, and sleep without racing to the bathroom.
- Connect to long-term buprenorphine or methadone maintenance, PLUS same-day linkage to housing support, case management, and weekly counseling (motivational interviewing or cognitive-behavioral therapy) → Long-term opioid agonist therapy keeps opioid receptors steadily occupied, so the brain stops screaming for the drug and the person can think clearly. The reward circuit (ventral tegmental area and nucleus accumbens) slowly rewires to expect safety and dopamine from stable routines, relationships, and small wins — not from using. Housing and therapy rebuild the scaffolding of life (a safe place to sleep, people who care, reasons to stay sober) so the brain learns that survival does not depend on opioids.
- Screen for and treat co-occurring depression, anxiety, or PTSD (start with therapy first; consider SSRI or SNRI only after withdrawal stabilizes, usually week 2–4) → Many people start using opioids to numb sadness, flashbacks, or panic. Treating the hidden mood disorder removes the invisible gas pedal on craving. An SSRI (like sertraline) or SNRI (like venlafaxine) boosts serotonin and norepinephrine in the prefrontal cortex and amygdala, steadying mood and fear over 4–6 weeks. Therapy (especially cognitive-behavioral therapy or trauma-focused work) gives the person new tools to handle the feelings opioids were silencing.

Medications

Buprenorphine (Suboxone, Subutex) · Partial opioid agonist (it holds on to the brain's opioid receptors just enough to calm withdrawal without giving a high)

Buprenorphine sticks tightly to the brain's mu-opioid receptors (the docking spots where opioids like heroin or oxycodone usually attach) but only turns them on partway. This tricks the brain into thinking it's still getting opioids, which stops the withdrawal panic without causing a dangerous high or deep sedation. It acts like a dimmer switch instead of an on-off switch.

1. Buprenorphine locks onto mu-opioid receptors throughout the central nervous system and holds on very tightly for 24 to 72 hours.
2. It activates those receptors just enough (about 40 to 50 percent of full power) to quiet the withdrawal storm—stopping muscle aches, sweating, nausea, anxiety, and racing heart.
3. Because it sits so firmly on the receptor, it blocks other opioids from attaching, which reduces cravings and makes it harder to get high from heroin or pills even if someone tries.

4. It does NOT flood the brain with dopamine the way full opioids do, so the reward circuit stays calm and the person can think clearly and function normally.
5. The effect lasts a full day or longer, so one dose per day is usually enough to keep withdrawal away.

SAFETY WATCH

Start ONLY when clear withdrawal signs are present (COWS score 8 or more for short-acting opioids like heroin or oxycodone, 12 or more for long-acting ones like methadone) to avoid precipitated withdrawal. · Watch for slow breathing, extreme drowsiness, or confusion, especially in the first few days or if the person also takes benzodiazepines, alcohol, or other sedatives—combining them can dangerously slow breathing. · Many formulations include naloxone (Suboxone) to prevent misuse by injection; naloxone is not active when swallowed but blocks opioid effects if injected. · Buprenorphine can cause mild constipation, headache, or sweating, but these are much gentler than full opioid side effects. · Long-term use is safe and recommended—staying on buprenorphine maintenance dramatically lowers overdose death risk (by 50 percent or more) compared to stopping treatment. · Pregnant individuals can safely use buprenorphine; it protects the baby from withdrawal and reduces risk of miscarriage, preterm birth, and relapse far more than stopping opioids cold.

Methadone · Full opioid agonist (it fully turns on the brain's opioid receptors, steadily and without spikes)

Methadone activates the same mu-opioid receptors that heroin or prescription opioids hit, but it does so smoothly and slowly over 24 to 36 hours. This steady signal stops withdrawal, kills cravings, and prevents the highs and crashes that drive compulsive use. Think of it as replacing a roller coaster with a flat, safe road.

1. Methadone is swallowed once a day and absorbed slowly from the stomach and intestines into the bloodstream.
2. It travels to the brain and locks onto mu-opioid receptors, fully activating them at a steady, controlled level.
3. This steady activation prevents the locus coeruleus from firing in panic mode (which causes sweating, racing heart, anxiety, and muscle pain during withdrawal).
4. It also keeps the nucleus accumbens satisfied, which stops the desperate craving for opioids.
5. Because the blood level stays flat all day, there is no euphoric spike (high) and no crash, so the brain's reward circuit gradually calms down and relearns normal function.
6. Methadone stays in the body long enough that one daily dose holds withdrawal away for 24 hours or more.

SAFETY WATCH

Methadone **MUST** be started at a low dose (20 to 30 mg) and increased slowly (5 to 10 mg every few days) because it builds up in the body and can cause fatal overdose if raised too fast. · Watch closely for slow or shallow breathing, extreme sleepiness, or confusion, especially in the first two weeks or if the person also uses benzodiazepines, alcohol, or other sedatives. · Methadone can stretch out the heart's electrical rhythm (prolong the QT interval on an EKG), which very rarely can trigger a dangerous irregular heartbeat; get an EKG before starting and periodically during treatment, especially at doses above 100 mg per day. · Methadone is dispensed daily at specialized opioid treatment programs (methadone clinics) under federal regulation; take-home doses are earned over time as stability improves. · Long-term methadone maintenance is safe, effective, and strongly recommended—it cuts overdose death risk in half and helps people rebuild their lives. · Methadone is safe during pregnancy and is the first-choice treatment (along with buprenorphine) to protect both the pregnant person and the baby from withdrawal and other complications.

Clonidine · Alpha-2 adrenergic agonist (it turns down the body's alarm system by calming overactive nerve signals)

Clonidine quiets the locus coeruleus (a tiny alarm center deep in the brainstem that floods the body with norepinephrine during stress or withdrawal). When opioids are suddenly removed, the locus coeruleus fires wildly, releasing norepinephrine that causes sweating, shaking, fast heart rate, high blood pressure, anxiety, and muscle aches. Clonidine acts like a gentle brake pedal on this center, dialing down those physical panic symptoms.

1. Clonidine is usually given as a pill or skin patch and travels through the bloodstream to the brain.
2. It attaches to alpha-2 adrenergic receptors in the locus coeruleus and tells those neurons to slow down their firing.
3. This reduces the flood of norepinephrine (the body's fight-or-flight chemical) that normally surges during opioid withdrawal.
4. As norepinephrine levels drop, the body's alarm bells quiet: sweating eases, heart rate slows, blood pressure comes down, muscles relax, and the jittery, restless feeling improves.
5. Clonidine does NOT touch the opioid receptors themselves, so it does NOT stop cravings or the deep emotional pain of withdrawal—it only calms the physical storm.

SAFETY WATCH

Clonidine lowers blood pressure and can cause dizziness, lightheadedness, or fainting, especially when standing up quickly; check blood pressure and heart rate before each dose. · Do NOT stop clonidine suddenly after several days of use—blood pressure can rebound dangerously high; taper the dose down slowly. · Watch for extreme tiredness or sedation, especially if combined with other sedatives like benzodiazepines or alcohol. · Dry mouth and constipation are common but usually mild. · The skin patch can cause local irritation or rash; rotate the placement site. · Clonidine is safe to use alongside buprenorphine or methadone and can ease early withdrawal discomfort while those medications take effect.

Loperamide (Imodium) · Opioid receptor agonist that does NOT cross into the brain (it works only in the gut)

Loperamide attaches to opioid receptors in the wall of the intestines and slows down the wave-like muscle squeezes (peristalsis) that push food and waste through. During opioid withdrawal, the gut speeds up dramatically and causes severe cramping and diarrhea. Loperamide puts the brakes back on, firming up stool and easing cramps. Because it cannot cross the blood-brain barrier, it does NOT affect withdrawal cravings or other brain symptoms and does NOT cause a high.

1. Loperamide is swallowed as a pill or liquid and stays almost entirely in the gut.
2. It binds to opioid receptors on the nerves and muscles lining the intestines.
3. This slows the rhythmic squeezing of the intestinal muscles, giving the gut more time to absorb water from stool and reducing cramping.
4. Stool becomes firmer and bowel movements become less frequent and less urgent.
5. Because loperamide does NOT enter the brain in meaningful amounts, it does NOT reduce anxiety, cravings, or other withdrawal symptoms that come from the central nervous system.

SAFETY WATCH

Use only at the recommended dose (usually 4 mg after the first loose stool, then 2 mg after each additional one, up to 16 mg per day) unless a doctor directs otherwise. · NEVER take mega-doses (some people have tried 50 to 100 pills in a day)—this can cause life-threatening irregular heartbeats, fainting, or sudden death. · Stop if diarrhea resolves or if severe constipation, bloating, or abdominal pain develops. · Loperamide is safe to use alongside buprenorphine, methadone, or other withdrawal treatments. · It does NOT treat infections; if diarrhea includes fever, blood, or severe pain, see a doctor to rule out a gut infection.

Ondansetron (Zofran) · 5-HT₃ receptor antagonist (it blocks the brain and gut signals that trigger nausea and vomiting)

Ondansetron blocks serotonin (a chemical messenger) from attaching to 5-HT₃ receptors in two key places: the chemoreceptor trigger zone (the brain's vomit command center, located in the brainstem) and the vagus nerve endings in the gut. During opioid withdrawal, the gut releases extra serotonin and sends panic signals up the vagus nerve, which the brain reads as 'poison—get it out,' triggering nausea and vomiting. Ondansetron stops those signals, calming the stomach.

1. Ondansetron is usually given as a dissolving tablet under the tongue, a swallowed pill, or an IV injection.
2. It travels through the bloodstream to the brainstem and the gut.
3. It plugs into 5-HT₃ receptors and blocks serotonin from landing there.
4. Without serotonin turning on those receptors, the chemoreceptor trigger zone does NOT send the vomit command to the stomach.
5. The vagus nerve also stops sending distress signals from the gut to the brain, and the nausea and urge to vomit fade.

SAFETY WATCH

The most common side effect is constipation, which can be a relief during withdrawal but may become uncomfortable if diarrhea was also being treated with loperamide; balance the two carefully. · Ondansetron can very rarely stretch the heart's electrical cycle (prolong the QT interval), especially at high IV doses; this is almost never a problem at standard withdrawal doses, but mention it if the person has a known heart rhythm disorder. · Headache and dizziness can occur but are usually mild. · It is safe to use with buprenorphine, methadone, clonidine, and other withdrawal treatments. · If vomiting is so severe that the person cannot keep down pills or liquids, ondansetron can be given as a dissolving tablet or IV in an urgent care or hospital setting.

Hydroxyzine (Vistaril, Atarax) · First-generation antihistamine with anti-anxiety effects (it blocks histamine and calms overactive brain circuits)

Hydroxyzine blocks histamine (a chemical that normally keeps you alert and ready to react) from attaching to H₁ receptors in the brain. This has a mild sedating effect and also quiets some of the overactive circuits that drive anxiety, restlessness, and insomnia during withdrawal. It does NOT work on opioid receptors or GABA receptors (like benzodiazepines do), so it is much safer and non-addictive, but also gentler.

1. Hydroxyzine is swallowed as a pill or liquid and absorbed into the bloodstream.

2. It crosses into the brain and attaches to H1 histamine receptors, blocking histamine from turning them on.
3. This reduces the wake-promoting and alertness signals in the brain, making it easier to relax and fall asleep.
4. It also calms the amygdala slightly, which reduces the jittery, on-edge feeling that often comes with withdrawal.
5. The mild sedation and anti-nausea effects usually start within 30 to 60 minutes and last 4 to 6 hours.

SAFETY WATCH

Drowsiness and dry mouth are the most common side effects; do not drive or operate machinery until you know how it affects you. · Hydroxyzine is non-addictive and safe for short-term or intermittent use during withdrawal. · Very high doses or combination with other sedatives (alcohol, benzodiazepines, opioids) can increase drowsiness or slow breathing—use caution. · Rarely, hydroxyzine can prolong the heart's QT interval slightly; this is almost never a problem at standard doses, but mention it if the person has a known heart rhythm disorder. · It can be used safely alongside buprenorphine, methadone, clonidine, ondansetron, and loperamide. · Hydroxyzine is often preferred over benzodiazepines during opioid withdrawal because it does NOT add another layer of dependence or overdose risk.

Red flags

- Severe dehydration from vomiting and diarrhea (dry mouth, no urine, dizziness when standing)
- Chest pain or very fast heart rate over 120 that does not slow down
- Confusion, seizure, or passing out (rare in pure opioid withdrawal but may mean another drug or medical problem)
- Suicidal thoughts or plan to harm self
- Using alone with no one nearby in case of accidental overdose if the person relapses

Nursing priorities

1. Check vital signs every 2–4 hours and watch for heart rate over 120, systolic blood pressure over 160, or oxygen saturation below 92 percent. — Opioid withdrawal activates the sympathetic nervous system (the body's fight-or-flight alarm), raising heart rate and blood pressure; very high numbers can cause stroke or heart attack, and low oxygen may mean the person is using other drugs or has pneumonia (lung infection).

2. Use the COWS score every 4 hours and give buprenorphine only when the score is 8 or higher. — Buprenorphine is a partial agonist (a drug that partly turns on opioid receptors in the brain) and kicks full opioids off the receptors; if given too early while full opioids are still attached, it causes precipitated withdrawal with sudden severe symptoms, so we must wait until moderate withdrawal starts.
3. Start IV normal saline at 125–150 mL per hour if the patient has vomited more than three times, has diarrhea more than five times, or has not urinated in six hours. — Vomiting and diarrhea lose water and electrolytes fast, dropping blood volume and blood pressure, which cuts blood flow to the kidneys and can cause acute kidney injury (sudden kidney failure); IV fluids restore volume and prevent organ damage.
4. Give clonidine 0.1–0.2 mg by mouth and recheck blood pressure 60 minutes later; hold the dose if systolic pressure is below 90 or heart rate is below 60. — Clonidine is an alpha-2 agonist (a drug that calms the brain's alarm center) and lowers the sympathetic surge, easing sweating, restlessness, and high blood pressure; but it can drop pressure too low, causing fainting and falls, so we must measure before every dose.
5. Offer ondansetron 4–8 mg by mouth or IV every 8 hours for nausea and loperamide 4 mg by mouth after each loose stool, up to 16 mg per day. — Opioids normally slow the gut; when they are gone, the intestines speed up and the stomach empties backward, causing nausea, vomiting, and diarrhea; ondansetron (an anti-nausea medicine) blocks serotonin receptors in the vomit center, and loperamide (an anti-diarrhea pill that acts only in the gut) slows bowel movement without entering the brain.
6. Place the patient on fall precautions with the bed alarm on and the bed in the lowest position. — Restlessness, muscle aches, poor sleep, and clonidine-induced low blood pressure all raise fall risk; withdrawal also causes severe anxiety that makes people pace and get out of bed suddenly, so a low bed and alarm catch movement before injury.
7. Connect the patient to an addiction counselor, case manager, and outpatient buprenorphine or methadone clinic before discharge, and give a same-day appointment. — Withdrawal treatment alone does not stop relapse; without long-term medication for opioid use disorder (medicine like buprenorphine or methadone taken daily to block cravings), 80–90 percent of people return to opioid use within weeks, and post-detox overdose death rates are very high because tolerance drops during withdrawal.
8. Ask about suicidal thoughts every shift and create a safety plan with the patient if thoughts are present; remove sharp objects and ensure one-to-one observation if there is a plan or intent. — Opioid withdrawal causes deep emotional pain, hopelessness, and despair by unmasking the brain's low dopamine (a chemical that controls pleasure and motivation) state; suicide risk peaks in the first week, so close watching and psychiatric support prevent self-harm during the most vulnerable time.

Sources

- ASAM National Practice Guideline 2020
- SAMHSA TIP 63: Medications for Opioid Use Disorder
- World Health Organization Guidelines for Management of Opioid Dependence
- American Academy of Addiction Psychiatry

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