Opioid Overdose

A plain-English guide for you and your family

WHAT IS HAPPENING

Normally, a part of your brain stem called the medulla oblongata (the breathing control center deep at the base of your brain) sends a steady rhythm of 'breathe in, breathe out' signals to your lungs—about twelve to twenty times every minute. This keeps oxygen flowing into your blood and carbon dioxide flowing out. Opioids—like heroin, fentanyl, morphine, or oxycodone—lock onto mu opioid receptors in the medulla and turn down that breathing signal. When you take too much, the signal stops almost completely. Your breathing slows to under twelve breaths per minute, then under eight, then maybe stops altogether. Without enough oxygen, your heart slows, your blood pressure drops, your skin turns blue or gray, and your brain starts to shut down. The pupils (the black circles in the middle of your eyes) shrink to tiny pinpoints because opioids also turn off the muscle that opens them. You become confused or completely unconscious. If no one gives you naloxone (a medicine that kicks the opioid off the receptor and turns the breathing signal back on) or rescue breathing, your heart will stop and you will die—usually within minutes. Even after naloxone wakes you up, the danger is not over: the naloxone wears off in thirty to ninety minutes, but fentanyl and other strong opioids can stay in your body longer, so the overdose can come back. Social factors—housing, mental health support, access to addiction treatment, and people who check on you—make the difference between one overdose and the next. Biology explains why your breathing stops; community support decides whether you survive long enough to recover.

What you might feel

- Pinpoint pupils (tiny dots for eyes)
- Slow, shallow breathing (often under 12 breaths per minute)
- Drowsiness or being completely unresponsive (won't wake up to voice or touch)
- Blue or gray lips, fingernails, or skin (cyanosis)
- Limp, floppy muscles (low muscle tone)
- Choking sounds, gurgling, or snoring (noisy breathing)
- Slow heart rate (bradycardia, often below 60 beats per minute)

- Needle marks or track marks on arms, legs, hands, or feet
- Fentanyl patches on the skin (small sticky squares, often on chest, back, or upper arm)

Call the doctor right away if...

- Breathing slower than 12 breaths per minute or stopping for more than 10 seconds at a time (apnea)
- Person will not wake up even when you rub their chest hard or shout their name
- Lips, fingernails, or face turning blue or gray
- Choking, gurgling, or gasping sounds — the airway may be blocked
- Heart rate below 50 or no pulse you can feel

What the care team will do

- Open the airway with head-tilt-chin-lift or jaw-thrust maneuver, suction any vomit or secretions, and start bag-valve-mask ventilation at 10 to 12 breaths per minute with 100% oxygen if respirations are under 12 per minute or pauses in breathing (apnea) is present.
- Give naloxone 0.4 to 2 mg IV push or 4 mg intranasal spray immediately, then repeat every 2 to 3 minutes until the patient breathes on their own at a rate above 12 per minute or until you have given a total of 10 mg.
- Monitor oxygen saturation continuously with pulse oximetry and keep SpO_2 above 94% with supplemental oxygen or bag-valve-mask support.
- Place the patient on continuous cardiac and respiratory monitoring, checking respiratory rate and pulse oximetry every 15 minutes for at least 4 hours after the last naloxone dose.
- Start a continuous naloxone infusion at two-thirds of the total wake-up dose per hour IV if the patient needed more than 4 mg to reverse or if a long-acting opioid like fentanyl, methadone, or sustained-release morphine was involved.
- Draw blood for creatine kinase (an enzyme released when muscles break down), basic metabolic panel (electrolytes and kidney function), and lactic acid if the patient was unresponsive for more than 30 minutes or has dark urine.
- Check all four limbs for compartment syndrome signs: pain out of proportion to exam, tense swelling, numbness, or inability to move fingers or toes, and call the surgeon immediately if present.
- Do not leave the patient alone; assign one-to-one observation and place the bed in the lowest position with side rails up, because many patients wake up agitated or try to leave against medical advice.

Medicines you may be given — and why

Naloxone (Narcan)

Naloxone kicks opioids off the mu-opioid receptors in the brain and spinal cord (the docking stations where opioids slow down breathing and cause sedation). By blocking these receptors, naloxone reverses the opioid's effects within 2 to 3 minutes, waking the person up and restarting normal breathing.

Buprenorphine (Suboxone, Subutex)

Buprenorphine is a partial agonist at mu-opioid receptors—it activates them gently (reducing cravings and withdrawal) but has a ceiling effect, meaning it cannot produce the dangerous respiratory depression of full opioids. It also blocks other opioids from binding, protecting against overdose if the person relapses. Starting buprenorphine in the emergency department after overdose reversal helps bridge the patient into long-term addiction treatment and lowers the risk of repeat overdose.

Where this information comes from

- ACEP Clinical Policy on Naloxone Administration 2023
- SAMHSA Opioid Overdose Prevention Toolkit
- CDC Guideline for Prescribing Opioids for Chronic Pain 2022
- AMA Opioid Task Force

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