



National Institute
on Drug Abuse

DrugFacts

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Naloxone

What is naloxone?

Naloxone is a medicine that rapidly reverses an opioid overdose. It is an opioid antagonist. This means that it attaches to opioid receptors and reverses and blocks the effects of other opioids. Naloxone can quickly restore normal breathing to a person if their breathing has slowed or stopped because of an opioid overdose. But, naloxone has no effect on someone who does not have opioids in their system, and it is not a treatment for opioid use disorder. Examples of opioids include heroin, fentanyl, oxycodone (OxyContin®), hydrocodone (Vicodin®), codeine, and morphine.

How is naloxone given?

Naloxone should be given to any person who shows signs of an opioid overdose or when an overdose is suspected. Naloxone can be given as a nasal spray or it can be injected into the muscle, under the skin, or into the veins. Steps for responding to an opioid overdose can be found in the [Substance Abuse and Mental Health Administration's \(SAMHSA\) Opioid Overdose Prevention Toolkit](#).

What are the different naloxone dosage forms?

Naloxone comes in three FDA-approved forms: injectable, auto-injectable, and prepackaged nasal spray. These FDA-approved naloxone devices have been shown to produce substantially higher blood levels of naloxone than the [improvised nasal spray](#). These outcomes suggest that the approved nasal spray technology and auto-injector are preferable over non FDA-approved forms. No matter what dosage form you use, it's important to receive training on how and when to use naloxone. You should also read the product instructions and check the expiration date.

Most of these dosage forms are easy to use. They can be used in a person's home or in the community in an emergency.

- **Injectable** brands of naloxone are offered by different companies listed in the [FDA Orange Book under "naloxone"](#) (look for "injectable"). The proper dose must be drawn up from a

What are some signs of an opioid overdose?

- unconsciousness
- very small pupils
- slow or shallow breathing
- vomiting
- an inability to speak
- faint heartbeat
- limp arms and legs
- pale skin
- purple lips and fingernails

vial. Usually, it is injected with a needle into muscle, although healthcare providers might inject the medicine into the vein or under the skin.

- *Note: Some people use an unapproved emergency kit that combines injectable naloxone with an attachment designed to deliver naloxone through the nose. However, this improvised intranasal device is not easy to assemble, especially when under pressure in an emergency, and requires training beforehand. Additionally, this unapproved device might not deliver naloxone at levels equivalent to FDA-approved products.*
- **Auto-injectable (Evzio®)** is a prefilled auto-injection device that makes it easy for non-medical personnel like family members to inject naloxone into the thigh muscle. Once it's turned on, a recording in the device starts to give instructions to the user on how to work the device, similar to automated defibrillators.
- **Prepackaged Nasal Spray (Narcan®)**, developed through NIDA-funded research, is an FDA-approved prefilled, needle-free device that requires no assembly and is sprayed into one nostril while the person lays on their back. This device can also be easier for family members to use.

Is Narcan® the same as naloxone?

When naloxone was first approved to reverse opioid overdoses, its brand name was “Narcan.” There are now many more other formulations and brand names for naloxone, but many people continue to call all of these products “Narcan.” However, the proper generic name is “naloxone.”

Can I give naloxone to someone who has overdosed?

Yes. Families with loved ones who struggle with opioid addiction should have naloxone nearby; ask their family member to carry it; and let friends know where it is. People should still call 911 immediately in the event of an overdose.

Naloxone is being used more by police officers, emergency medical technicians, and non-emergency first responders than before. In most states, people who are at risk or who know someone at risk for an opioid overdose can be trained on how to give naloxone. Families can ask their pharmacists or health care provider how to use the devices.

What precautions are needed when giving naloxone?

Naloxone works to reverse opioid overdose in the body for only 30 to 90 minutes. But many opioids remain in the body longer than that. Because of this, it is possible for a person to still experience the effects of an overdose after a dose of naloxone wears off. Also, some opioids are stronger and might require multiple doses of naloxone. Therefore, one of the most important steps to take is to call 911 so the individual can receive immediate medical attention. NIDA is supporting research for stronger formulations for use with potent opioids like fentanyl.

People who are given naloxone should be observed constantly until emergency care arrives. They should be monitored for another 2 hours after the last dose of naloxone is given to make sure breathing does not slow or stop.

People with physical dependence on opioids may have withdrawal symptoms within minutes after they are given naloxone. Withdrawal symptoms might include headaches, changes in blood pressure, rapid heart rate, sweating, nausea, vomiting, and tremors. While this is uncomfortable, it is usually not life threatening. The risk of death for someone overdosing on opioids is worse than the risk of having a bad reaction to naloxone.

Side effects from naloxone are rare, but people might have allergic reactions to the medicine. Overall, naloxone is a safe medicine. But it only reverses an overdose in people with opioids in their systems and will not reverse overdoses from other drugs like cocaine or methamphetamine.

How much does naloxone cost?

The cost varies depending on where you get the naloxone, how you get it, and what type you get. Patients with insurance should check with their insurance company to see if this medicine is covered. Patients without insurance can check the retail costs at their local pharmacies. Some drug companies have cost assistance programs for patients unable to pay for it.

Where can I get naloxone?

Many pharmacies carry naloxone. In some states, you can get naloxone from a pharmacist even if your doctor did not write you a prescription for it. It is also possible to get naloxone from community-based distribution programs, local public health groups, or local health departments, free of charge.

Visit the [Naloxone finder website](#) to see resources in your area. Check with your local pharmacy.

Tolerance vs. Dependence vs. Addiction

Long-term use of prescription opioids, even as prescribed by a doctor, can cause some people to develop a **tolerance**, which means that they need higher and/or more frequent doses of the drug to get the desired effects.

Drug **dependence** occurs with repeated use, causing the neurons to adapt so they only function normally in the presence of the drug. The absence of the drug causes several physiological reactions, ranging from mild in the case of caffeine, to potentially life-threatening, such as with heroin. Some chronic pain patients are dependent on opioids and require medical support to stop taking the drug.

Drug **addiction** is a chronic disease characterized by compulsive, or uncontrollable, drug seeking and use despite harmful consequences and long-lasting changes in the brain. The changes can result in harmful behaviors by those who misuse drugs, whether prescription or illicit drugs.

Points to remember

- Naloxone is a medicine that rapidly reverses an opioid overdose. It attaches to opioid receptors and reverses and blocks the effects of other opioids.
- Naloxone is a safe medicine. It only reverses overdoses in people with opioids in their systems.
- There are three FDA-approved formulations of naloxone: injectable, auto-injectable, and prepackaged nasal spray.
- Police officers, emergency medical technicians, and first responders are trained on how to give naloxone.
- In some states, friends and family members can be trained on how to give naloxone. It is safer for people without medical training to use the auto-injectable or nasal devices.
- Naloxone only works in the body for 30 to 90 minutes. It is possible for a person to still experience the effects of an overdose after naloxone wears off or need multiple doses if a potent opioid is in a person's system.
- You can get naloxone from pharmacies with or without a personal prescription, from community-based distribution programs, or local health departments. The cost varies depending on where and how you get it as well as what type you get.

Learn more

For more information about naloxone and opioid use disorder, visit:

- NIDA's [Opioids webpage](#)
- NIDA's [Naloxone for Opioid Overdose: Life-Saving Science Policy Brief](#)

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