

Naloxone treatment of opioid overdose

Opioids

- Chemicals that act in the brain to relieve pain, often use to suppress cough, treat addiction, and provide comfort
- After prolonged use of opioids, increasing amounts are needed for the same effects. Opioids are often misused resulting in danger
- Common opioids include:

• Heroin (Smack, Junk)	• Codeine (combo meds eg. Tylenol No. 3)	• Fentanyl (Duragesic Patch)
• Oxymorphone (Opana)	• Oxycodone (Percocet, Roxicodone)	• Meperidine (Demerol)
• Hydromorphone (Dilaudid)	• Methadone, Morphine (MS Contin, Kadian)	• Hydrocodone (Norco, Vicodin)

Signs and symptoms of opioid overdose

- Respiratory depression (≤ 12 breaths/min) or failure
- Small pupils
- Unresponsive when shaken
- Seizures
- Possibly having a bluish color of the skin, nails or lips (lack of oxygen)
- Cold clammy skin
- Irregular or stopped / faint pulse

Who's at high risk for overdose

- Individuals using care from multiple doctors who are not following instructions about prescription use
- Have prescription for methadone (1 in 3 opioid related overdose deaths), buprenorphine, or high dose (≥ 100 mg/day morphine) opioids
- Mixing Drugs: Alcohol, antidepressants, sedative / hypnotics (benzodiazepines, non-benzodiazepines hypnotics), stimulants
- Elderly clients using opioids for pain
- Patients using pain relieving patches incorrectly
- Acetaminophen containing opioids – potential for liver damage taking more than maximum daily dose

Naloxone indication

- Complete or partial reversal of opioid induced depression (including respiratory depression)
- Emergency treatment of suspected opioid overdose as manifested by respiratory and/or CNS depression

How does naloxone work

- Pure opioid antagonist that competes and displaces opioids at opioid receptor sites
- No pharmacologic activity in the absence of opioids or other agonists
 - **NOT** effective against respiratory depression due to non-opioid drugs (or other causes)
 - The following common street drugs are not opioids: cocaine, LSD, ecstasy (Molly), sedatives/tranquilizers, and marijuana
 - Important to recognize the signs and symptoms of an opioid overdose and use naloxone appropriately
- Antagonizes opioid effects including respiratory depression, analgesia, and miosis

Pharmacokinetics

	IN Naloxone	IM Naloxone
Onset of Action	8 min (n=84) 12.9 min (n=50) ~ 5 min inhalation via nebulization (Mycyk, 2003)	6 min (n=71) Kelly, et al. 8.1 min (n=104) Robertson, et al.
Duration	30 – 120 min depending on route of administration (much shorter than most opioids) <ul style="list-style-type: none"> • IV has a shorter duration of action than IM • Since naloxone's action is shorter than that of many opioids, repeated doses are often needed 	
Metabolism	Primarily hepatic	
Time to peak	15 min (IM)	
Half-life elimination	0.5 to 1.5 hours	
Excretion	Urine	

Why Intranasal Naloxone

- Works quickly since nose has a large area for absorbing drugs directly into the blood stream (highly vascularized nasal mucosa)
 - Onset of action is slightly delayed compared to IM or IV routes
- “Off label” use
 - Standard practice in many large cities in the U.S
 - As effective as parenteral route
- Very low risk of exposure to blood (no needle)
- May be administered rapidly and painlessly
- Require minimal training
- Naloxone use with an atomizer: Administering the drug as a fine mist covering more of the surface, increases entry into the bloodstream

Dosage and administration

- **Intranasal Naloxone 2mg/2ml prefilled syringe (with atomizer)**
 - Assess the patient to ensure their nasal cavity is free of blood or mucous
 - Spray one-half of syringe (naloxone 1.0 mg) into each nostril upon signs of opioid overdose. May repeat x 1
 - Call 911
 - If you know how, you may continue supporting the breathing of the person
 - Consider contacting poison control or local medical control if poly-substance use is suspected
- **Intramuscular Naloxone 0.4 mg/ml - 1 mL single dose vial**
 - Inject 0.4 mg (1 mL) intramuscularly upon signs of opioid overdose. May repeat x 1
- **Post-Naloxone Administration**
 - Give a second dose of naloxone, if no response (respiratory depression continues) in 2-5 minutes
 - Naloxone has less direct effect on consciousness, patient may remain drowsy for many hours
 - Ensure respiration is well maintained
 - **The effects of naloxone may not last as long as the effects of the opioid**
 - Be prepared for a return of overdose signs & symptoms
 - Repeated doses of naloxone should be administered, as necessary

Legal and Liability Considerations

- California Civil Code §1714.22(c) and (a)(2) protects the lay person who administers naloxone in an emergency or who possess an opioid antagonist, as long as the following criteria is met:
 - Believes in good faith that the other person is experiencing a drug overdose; and
 - Received specified training information
 - The causes of an opiate overdose
 - Mouth to mouth resuscitation
 - How to contact appropriate emergency medical services
 - How to administer an opioid antagonist
- California Civil Code §11376.5 protects those seeking medical assistance for someone or themselves overdosing
 - Not a crime to be under the influence /possess for personal use a controlled substance or drug paraphernalia
 - Person cannot obstruct medical or law enforcement personnel

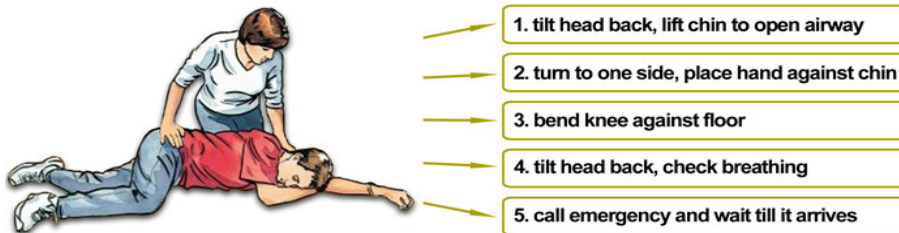
OPIOID OVERDOSE RESPONSE

A. Is victim responding to you?

- Give them a gentle shake, yell their name
- Do a sternal rub: Make a fist and rub the breastbone with your knuckles
- Any response? Are they breathing?

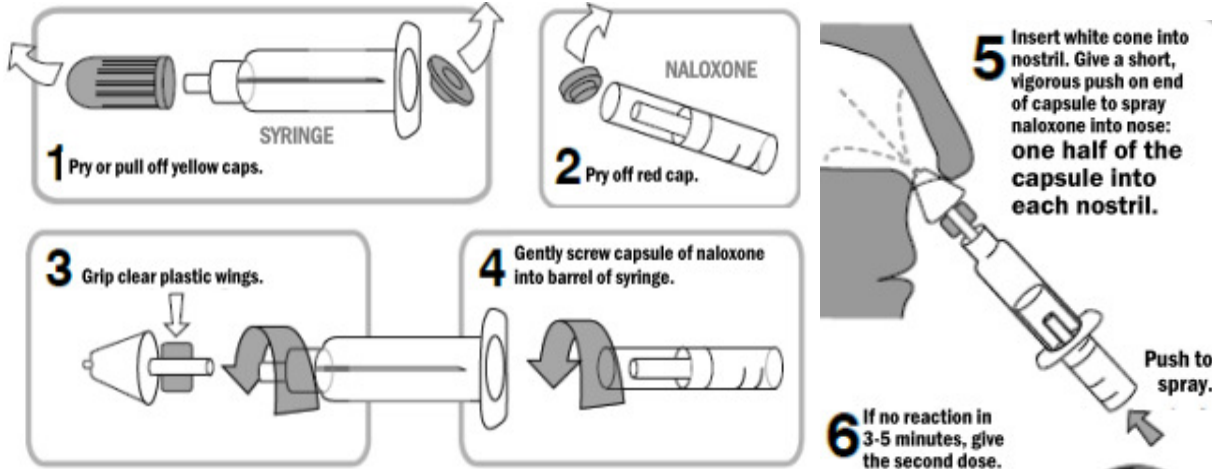
B. Call 911 for help

- Say “someone is unresponsive and not breathing”
- Give clear address and location
- If you need to leave them alone, place them in recovery position



C. Give Naloxone

You will need one needle free syringe, one syringe of naloxone (also called capsule), and one atomizer

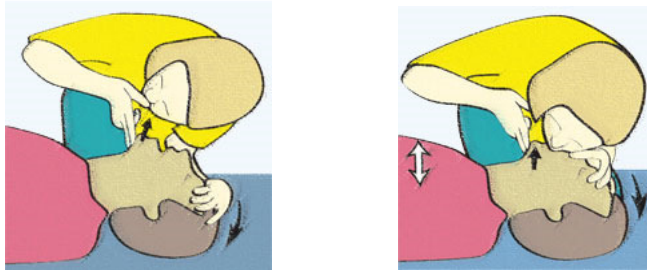


1. Remove the yellow caps from both ends of the needle free syringe
2. Remove the purple cap from the naloxone syringe / capsule
3. Attach the nasal atomizer to the needle free syringe as shown above
4. Screw the open end of the naloxone capsule into the needle free syringe. It will become difficult to turn when it is threaded enough
5. Gently but firmly place atomizer within one nostril, carefully close the opposite nostril. Aim slightly upwards and toward ear on same side as the nostril. Push syringe to give ½ of total medication. Repeat in other nostril

6. Start rescue breathing as shown below. Give a second dose of naloxone, if no response in 3 minutes.

D. Rescue breathing

- Roll the person onto their back
- Make sure their mouth is clear (no chewing gum, food or vomit)
- Tilt head back, lift chin, pinch nose
- Give 2 breaths to start and then 1 breath every 5 seconds. Chest should rise



What to expect after administering Naloxone

- Each victim will react differently. Most will wake up simply confused and disoriented
- Abrupt reversal of opioids may result in rapid heart rate, nausea / vomiting (keep airway clear), sweating, blurred vision, increased blood pressure, and tremulousness
- May experience an acute return of pain, if taking opioids for pain control
- Rapid opiate withdrawal may cause agitation, irritability, restlessness, nervousness, and violent behavior
 - Be prepared to deal with agitated patient. Use extreme caution with combative victims