**What is an overdose?**

**Overdose (OD) happens when a toxic amount of a drug, or combination of drugs overwhelms the body.**

People can overdose on lots of things, including alcohol, Tylenol, opioids or a mixture of drugs. *Opioid* overdoses happen when there are so many opioids or a combination of opioids and other drugs in the body that the victim is not responsive to stimulation and/or breathing is inadequate. This happens because opioids fit into specific receptors that also affect the drive to breathe. If someone cannot breathe or is not breathing enough, the oxygen levels in the blood decrease and the lips and fingers turn blue- this is called cyanosis. This oxygen starvation eventually stops other vital organs like the heart, then the brain. This leads to unconsciousness, coma, and then death. Within 3-5 minutes without oxygen, brain damage starts to occur, soon followed by death. **With opioid overdoses, surviving or dying wholly depends on breathing and oxygen.** Fortunately, this process is rarely instantaneous; people slowly stop breathing which usually happens *minutes to hours after* the drug was used. While people have been “found dead with a needle in their arm,” more often there is time to intervene between when an overdose starts and before a victim dies.

Heroin, prescription opioids (like Oxycontin, Fentanyl, Morphine, Vicodin, Percocet, etc.) and other *downers* such as alcohol and benzodiazepines (like Xanax, Klonopin, Valium, Ativan, etc.) are a particularly dangerous combo, since they all affect the body’s central nervous system, which slows breathing, blood pressure, and heart rate, and in turn reduces body temperature.

In a *stimulant* overdose drugs like *speed, cocaine,* and *ecstasy* raise the heart rate, blood pressure, and body temperature, and speed up breathing.  This can lead to a seizure, stroke, heart attack or death.

Graphics: Maya Doe-Simkins

**Understanding Naloxone**

**Naloxone (also known as Narcan®) is a medication called an “opioid antagonist” used to counter the effects of opioid overdose, for example morphine and heroin overdose.** Specifically, naloxone is used in opioid overdoses to counteract life-threatening depression of the central nervous system and respiratory system, allowing an overdose victim to breathe normally. Naloxone is a nonscheduled (i.e., non-addictive), prescription medication. Naloxone only works if a person has opioids in their system; the medication has no effect if opioids are absent. Although traditionally administered by emergency response personnel, naloxone can be administered by minimally trained laypeople, which makes it ideal for treating overdose in people who have been prescribed opioid pain medication and in people who use heroin and other opioids. Naloxone has no potential for abuse. Naloxone may be injected in the muscle, vein or under the skin or sprayed into the nose. Naloxone that is injected comes in a lower concentration (0.4mg/1mL) than Naloxone that is sprayed up the nose (2mg/2mL).  It is a temporary drug that wears off in 20-90 minutes.



Graphics: Maya Doe-Simkins



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**Mixing Drugs**

**Risks**

Drugs taken together can interact in ways that increase their overall effect. Many overdoses occur when people mix heroin or prescription opioids and/or alcohol with benzodiazepines such as Klonopin, Valium, and Xanax.  **Most fatal overdoses are the result of poly-drug use.**

All sedating medications carry overdose risks on their own, however, when drugs are combined, the risk is substantially increased because the drugs typically use different mechanisms in the body to create sedation. These mechanisms represent overlapping protection from the brain and respiration shutting down. This overlapping protection is diminished when multiple substances are combined. For example, the more alcohol and/or downers in someone’s system, the less heroin needed to cause an overdose.

Speedballing (mixing heroin and cocaine) is another common drug combination. **While it seems intuitive that combining a stimulant and a depressant would counterbalance the different effects, the combination *does not* cancel out overdose risk.** Actually, people who speedball are at higher risk for overdosing than people who use heroin or cocaine alone. This is likely because:

1. the body has to process more drugs;
2. the stimulant causes the body to use more oxygen while the depressant reduces the breathing rate, and
3. people who speedball usually inject more frequently with less time between shots than people who are using only heroin.

**Prevention Tips:**

* Use one drug at a time, or use less of each drug.
* Reduce the amount of every drug being taken
* Try to avoid mixing alcohol with heroin/pills—this is an incredibly dangerous combination
* If drinking or taking pills with heroin, do the heroin first to better gauge how high you are. Alcohol and especially benzos impair judgment so you may not remember or care how much you’ve used.
* Have a friend with you who knows what drugs you’ve taken and can respond in case of an emergency

**Tolerance**

**Risks**

**Tolerance is your body’s ability to process a certain amount of a drug.** Low tolerance means that your body can only process a small amount of a drug (i.e., it takes less drugs to feel the effects) and increased tolerance means your body has learned how to process increased amounts of the drug (i.e., it takes more drugs to feel the effects). Tolerance develops over time, so the amount of a drug a long-time user needs to feel the drug’s effects is a lot greater than a newer user.  Tolerance also wavers depending on several factors including, weight, size, illness, stress, compromised immune system, and age.  **Most importantly, tolerance can decrease rapidly when someone has taken a break from using a drug whether intentionally  – for example, while in drug treatment or on methadone detox – or unintentionally – for example, while in jail or the hospital.**  Research has also shown that tolerance is effected when a person uses drugs in a new or unfamiliar environment, and therefore at a higher risk for overdose.

**Prevention Tips:**

* Use less when you are sick or you haven’t used—even a few days of abstinence or decreased use can lower your tolerance.
* If you are using after a period of abstinence, be careful and go slow
* Do a tester shot, or go slow
* Use different method, i.e. snort instead of inject

**Quality**

**Risks**

**Quality refers to how pure, or strong, a drug is**. The content and purity of street drugs is always unpredictable.  They are often “cut” with other drugs or materials that can be dangerous.  You can’t tell how pure your drugs are from looking at it, and purity levels are always changing, which means you can do a shot that’s a lot stronger than what you are used to and put yourself at risk of an overdose. Same goes for prescription drugs—while we may know the contents of the pill and the dosage, we may not know how strong one type of pill is compared to another of a similar type. For example an Oxycontin is not the same as a Vicodin, even though both are in the opioid family. **Knowing the strength and understanding dosage when taking pills is as important as knowing the strength and purity of street drugs like heroin.**

**Prevention Tips:**

* Test the strength of the drug before you do the whole amount.
* Try to buy from the same dealer so you have a better idea of what you’re getting,
* Talk to others who have copped from the same dealer.
* Know the pills you’re taking
* Be careful when switching from one type of opioid pill to another

**Using Alone**

**Risks**

While using alone isn’t necessarily a cause of overdose, it **increases the chance of fatally overdosing** because there is no one there to call for help or take care of you if you go out.  Many fatal overdoses have occurred behind closed or locked doors where the victims could not be found and no one was there to intervene.

**Prevention Tips:**

* **Fix with a friend!**
* Develop an overdose plan with your friends or partners.
* Leave the door unlocked or slightly ajar.
* Call someone you trust and have them check on you.
* Some people can sense when they are about to go out. This is rare, but if you are one of the people that can do this, have a loaded syringe or nasal naloxone ready. People have actually naloxone’d themselves before!

**Age & Physical Health**

**Risks**

**Your age and physical health are going to impact your body’s ability to manage drugs.** Older people and/or those with longer drug using careers are at increased risk for *fatal* overdose. While more experience with substances in and of itself is probably protective, the cumulative effects of long term substance use, which could include illnesses, like viral hepatitis or HIV or infections, like endocarditis or cellulitis, may hinder resiliency. Older people who overdose are less likely than younger people to survive their overdose. If you have a compromised immune system, you’ve been sick, or if you have a current infection, like an abscess, this also puts you more at risk for overdose because your body is weakened. Dehydration, not eating or sleeping also puts you more at risk for overdose.  If you are a stimulant user, you are more at risk for a seizure, stroke, or heart attack if you also have other health issues like high blood pressure, heart disease, diabetes, high cholesterol or if you smoke cigarettes.

**Liver and Lung Health**

Liver and lung health, negatively impacted by hepatitis and smoking respectively, play an important role in overdose. The liver filters substances in the body and is involved in their metabolism, so a poorly functioning liver means less capacity to do that in a timely manner. In other words, when your liver is not working so great it can’t process drugs and alcohol as easily, leading to “build-up” of drugs in your system, which can be toxic and make the effects of certain drugs last longer than they should.

Also, since downers cause your breathing to slow down, if you have asthma or other breathing problems, you could be at higher risk for overdose. Poor lung function decreases the body’s capacity to replenish the oxygen supply, which is essential for a person to survive an overdose. Someone should use less when they are sick or recovering from an illness.

**Everybody is Different**

Drug using partners should rely more on what they know about their own body, tolerance and experience, then rely on what their partners are using, as there is substantial variability in how different substances are processed by different people.

**Anyone who uses opioids, *including people who take opioids for pain*, should be aware of increased overdose risk if they have any of the following health characteristics:**

* Smoke or have COPD, emphysema, asthma, sleep apnea, respiratory infection, or other respiratory illness
* Have kidney or liver disease or dysfunction, cardiac illness or HIV/AIDS
* Drink alcohol heavily
* Currently taking benzodiazepines or other sedative prescription or antidepressant medication

**Prevention Tips:**

* Drink lots of water or other fluids, try to eat
* Pharmaceuticals, like opioids and benzos, especially with Tylenol (acetaminophen) in them, are harder for your liver to break down because of a lot of the stuff that’s in them.  If you have liver damage, stay away from pharmaceuticals with a lot of acetaminophen in them, like Vicodin and Percocet.
* Carry your inhaler if you have asthma, tell your friends where it is, and that you have trouble breathing
* Go slow if you’ve been sick, lost weight, or have been feeling under the weather or weak—this can affect your tolerance.
* Try to find a good, nonjudgmental doctor and get checked out for other health factors that increase your risk of stimulant overdose, like high blood pressure, high cholesterol, heart disease or other physical issues that could increase your risk for a stroke or heart attack

**Modes of Administration**

**Risks**

There are many ways to use drugs, including:

* Swallowing
* Snorting
* Intramuscular injection
* Intravenous injection
* Skin-popping (injecting just under the skin, not in a vein, and not in the muscle)
* Plugging (drug-water solution introduced rectally with a needleless syringe – aka “booty bumping”)

**Regardless of mode of administration, if someone uses enough drug in a short enough period of time, overdose is possible.** Modes of administration that deliver the drug more quickly to the brain and are more likely to create a rush, such as intravenous injection and smoking also place people at higher risk for overdose. Transition periods can be dangerous, too. When someone switches the mode of administration that they are used to, it is harder to anticipate effect. Similarly, when someone migrates to a new drug of choice, or temporarily substitutes a different primary drug, there can be a period of heightened risk. For example, if a person migrates from swallowing methadone to injecting methadone, from swallowing oxycodone (OxyContin, Roxicodone, Percocet) to swallowing oxymorphone (Opana), or from injecting heroin to injecting Dilaudid – these are all periods when a person should employ heightened overdose prevention techniques.

**Prevention Tips:**

* Be mindful that injecting and smoking can mean increased risk
* Consider snorting, especially in cases when you’re using alone or may have decreased tolerance
* If you inject, try and remove tie after registering (flash of blood back in the syringe) and before injecting – this will allow you to better taste your shot and inject less if it feels too strong
* Be careful when changing modes of administration since you may not be able to handle the same amount

**Previous Non-Fatal Overdose**

**Risks**

**If a person has ever had a nonfatal overdose in the past, this increases the risk of a fatal overdose in the future.** This is because people who have overdosed before may have drug use patterns that put them at risk for an overdose in the future. In addition, experiencing a nonfatal overdose may cause damage to the body even if the person survives the overdose. One study found that people who had experienced a non-fatal overdose experienced other harms, including: physical injury sustained when falling at overdose, burns, assault while unconscious, peripheral neuropathy (nerve damage, numbness/tingling), vomiting, temporary paralysis of limbs, chest infections and seizure.[[1]](http://harmreduction.org/issues/overdose-prevention/overview/overdose-basics/opioid-od-risks-prevention/previous-non-fatal-overdose/#_ftn1)

**Prevention Tips:**

* Always use with a friend or around other people
* Use less at first, especially if you are using a new product
* Make an overdose plan with friends or drug partners