Defining Opioid Addiction

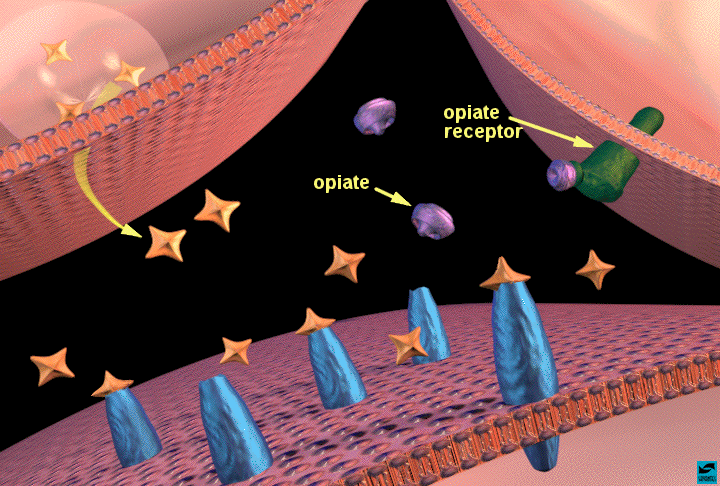
What Are Opiates?

Opioid drugs act by binding to specific receptors in neurons in the brain and other parts of the body. Opioid receptors are normally responsible for many different processes in the body. These receptors can regulate the body’s response to stress and pain, breathing, temperature regulation, mood, motivation, and digestive activity.

**Table 1. Classes of Opioids**

|  |  |
| --- | --- |
| **Types of Opioids** | |
| Naturally Occurring Opiates | Opium, Morphine, Codeine, Heroin |
| Opiate Derivatives | Vicodin (Hydrocodone), Percocet (Oxycodone), Oxycontin (Long-acting Oxycodone) |
| Synthetic (Man-made) Opioids | Methadone, Duragesic Patch (Fentanyl) |

Different types of opioid drugs can act as **agonists** (receptor activators) or **antagonists** (receptor blockers). For example, heroin is a strong opioid-receptor agonist. By activating opioid receptors, heroin can cause feelings of euphoria and relaxation while also causing slowed breathing, decreased gastrointestinal movement, and many other opioid effects.[[1]](#footnote-1)



(2007). *Opiates binding to opiate receptors in the nucleus accumbens: increased dopamine release*. Retrieved from: National Institute on Drug Abuse, http://www.drugabuse.gov/publications/teaching-packets/brain-actions-cocaine-opiates-marijuana/section-iii-introduction-to-drugs-abuse-cocaine-opiat-7

Uses of Opioid Medication

* Medical Uses:
  + Pain relief
  + Cough suppression
  + Opioid addiction treatment
* Non-Medical Uses:
  + Euphoria, getting “high”
  + Preventing withdrawal in those already addicted to opioids
* Treatment of addiction to illicit (illegal) opioids like heroin or prescription pain medications

**How are opioids used to treat addiction?**

Opiate drugs are not only illicit drugs of addiction. Opiate medications have many legitimate uses, including for the *treatment* of addiction.

Sometimes patients and their family members or friends wonder why doctors use drugs like buprenorphine or methadone to treat opiate addiction, since these medications are in the same family as heroin and other prescription opioids. However, physician-prescribed buprenorphine and methadone are **not** just “substituting” one addiction for another. Medication-Assisted Treatment (MAT) uses longer-acting and safer medications to help overcome dangerous opiate addictions. Researchers have found that maintenance treatment with long-acting opioids like methadone or buprenorphine helps keep patients healthier, reduces criminal activity, and helps prevent drug-related diseases like HIV/AIDs and hepatitis.[[2]](#footnote-2) These treatments also have the flexibility of allowing patients to go back to work and school, and to participate in family obligations.

Opioid Use Disorder:

What is Opioid Addiction?

“Addiction” does not have a simple meaning. Addictions to different drugs, or “substances,” are called **substance abuse disorders**. When addictive substances like opioids are taken in excess, they can activate the brain’s reward system to produce feelings of pleasure, or a “high.” The body’s reward system is normally used to reinforce behaviors and produce memories. Opiate abuse activates this normal reward system so intensely that normal activities may be neglected and forgotten about in favor of the “high” of drug use. Over time, excessive opiate use can even change the brain’s reward system so that an addicted person becomes **physically dependent** on the drug.

Opioid addiction involves using an opioid drug **compulsively**, and to be overwhelmingly involved in finding, getting, and using that drug. When reducing or stopping drug use, addicted persons often experience pain and other uncomfortable symptoms (called **withdrawal**). Addiction also usually involves some drug **tolerance**, or the need to take higher doses of a drug to feel the same effects. [[3]](#footnote-3)

All addictions, including opioid addiction, are brain disorders. Some people, based on their heredity and environment, are more vulnerable or more likely to become addicted. Addiction is not due to lack of will power, is not a moral failing, and is not done on purpose. Often an opioid addicted person resists treatment, but treatment options should be continuously encouraged. Relapse is also common, and indicates that more or different treatments are necessary.

The DSM-5 (the Diagnostic and Statistical Manual of Mental Disorders, used by psychiatrists nation-wide) organizes these problems with opioid use under the heading “Opioid Use Disorder.”[[4]](#footnote-4)

**Table 2. Opioid Use Disorder: Symptoms and Severity**

|  |  |  |
| --- | --- | --- |
| **Opioid Use Disorder:**  **Symptoms** | | |
| An **opioid use disorder** is defined as a problematic pattern of opioid use that leads to serious impairment or distress. | | |
| Doctors use a specific set of criteria to determine if a person has a substance use problem. To be diagnosed with an **opioid use disorder**, a person must have **2 or more** of the following symptoms within a 12-month period of time. | | |
| An opioid use disorder may be **mild, moderate, or severe**:  **Mild**: 2-3 symptoms **Moderate**: 4-5 symptoms **Severe**: 6+ symptoms | | |
| **Loss of Control** | | |
| **1** | Substance taken in larger amounts or for a longer time than intended | “I didn’t mean to start using so much.” |
| **2** | Persistent desire or unsuccessful effort to cut down or control use of a substance | “I’ve tried to stop a few times before, but I start using this drug again every time.” |
| **3** | Great deal of time spent obtaining, using, or recovering from substance use | “Everything I do revolves around using this drug.” (In severe cases, most/all of a person’s daily activities may revolve around substance use.) |
| **4** | Craving (a strong desire or urge) to use opioids | “I wanted to use so badly, I couldn’t think of anything thing else.” |
| **Social Problems** | | |
| **5** | Continued opioid use that causes failures to fulfill major obligations at work, school, or home | “I keep having trouble at work/ have lost the trust of friends and family because of using this drug.” |
| **6** | Continued opioid use despite causing recurrent social or personal problems | “I can’t stop using, even though it’s causing problems with my friends/family/boss/landlord.” |
| **7** | Important social, occupational, or recreational activities are reduced because of opioid use | “I’ve stopped seeing my friends and family, and have given up my favorite hobby because of drugs.” |
| **Risky Use** | | |
| **8** | Recurrent opioid use in dangerous situations | “I keep doing things that I know are risky and dangerous to buy or use this drug.” |
| **9** | Continued opioid use despite related physical or psychological problems | “I know that using this drug causes me to feel badly/ messes with my mind, but I still use anyway.” |
| **Pharmacological Problems** | | |
| **10** | **Tolerance** (the need to take higher doses of a drug to feel the same effects, or a reduced effect from the same amount) | “I have to take more and more of the drug to feel the same high.” |
| **11** | **Withdrawal** (the experience of pain or other uncomfortable symptoms in the absence of a drug) | “When I stop using the drug for a while, I’m in a lot of pain.” |
| **Source**: American Psychiatric Association. (2013). Substance Use Disorders. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing. | | |

**[Link to Trifold: Defining Opioid Use Disorder]**

Physical Dependence on Opioids

**What is Physical Dependence?**

**Opioid Dependence** can occur when a person uses an opiate drug on a daily basis over time. When a person becomes physically dependent on the drug, changes occur in the brain and nervous system. These physical changes become more obvious when a dependent person stops or reduces his or her use of the drug. A physically dependent person may feel fine when using an opioid, but will experience pain and other uncomfortable symptoms without the drug (withdrawal).

Physical dependence on an opioid is not necessarily the same thing as opioid addiction or an opioid substance use disorder. For example, patients with a prescription for methadone or buprenorphine may be physically dependent on these medications, but they are not “addicted” if they are using these medications to help with the process of recovery.

**How long does a person need to use an opioid drug before they are physically dependent?**

Most people experience physical dependence after about two weeks of daily use of an opioid drug. However, people who were previously physically dependent on opioids and begin to use them again may become dependent more quickly.

Opioid Tolerance

When an opioid drug is used on a regular basis, the effects of the same amount of the drug on the body become less over time. A person developing tolerance to opioid drugs may:

1. Need larger amounts of the drug to get the same effect or “high”
2. Experience reduced effects when taking the same amount of a drug

Tolerance levels can vary greatly between different people.

**How does the body develop tolerance?**

Tolerance can occur when parts of the body affected by the drug begin to respond less to repeated stimulation over time. The body may also get better and faster at breaking down a specific drug over time.

**Can tolerance be lost?**

Patients may lose their tolerance to an opioid if the drug is not taken for a period of time, such as during rehab, incarceration, or a period of successful abstinence in the recovery process. Because of this loss of tolerance, patients are more vulnerable to opioid overdose and death if they later return to the same doses of opioids to which they had previously been tolerant. Caution must be taken during these vulnerable periods of time.

**How do doctors test for tolerance?**

Sometimes a person’s opioid tolerance is difficult to assess based on listening to a patient’s story. Laboratory tests, like blood tests to determine the level of opioids in the body, can be helpful when used along with a physical exam and signs of intoxication.

Opioid Withdrawal

**What is withdrawal?**

When a person decides to stop or reduce his or her use of an opioid drug that he/she has been using in large amounts over a long period of time, the person will experience withdrawal. Withdrawal consists of many different painful symptoms that occur as opioid levels in the body decrease. A physically dependent or addicted person may be tempted to begin using opioids again to relieve the pain of withdrawal.

**What does withdrawal feel like?** **How long does it last?**

Withdrawal may last for different lengths of time, and be more or less intense, for different people and with different types of opioids. For example, heroin withdrawal is often very intense but short-lived, while methadone withdrawal may be less intense but longer lasting. Generally, a person physically dependent on a bigger dose of an opioid will experience more intense withdrawal than a person who used smaller amounts. Many other factors, such as a person’s general health and state of mind, can also affect how he or she experiences withdrawal.

**Table 3. Opioid Withdrawal Signs and Symptoms**

|  |  |  |
| --- | --- | --- |
| **Signs and Symptoms of Opioid Withdrawal** | | |
| **Early** | **Late** | **6-8 months** |
| * Cravings for opioid drugs * Loss of Appetite * Anxiety * Unease * Sleepiness * Yawning * Restlessness * Headache * Fast Breathing * Irritability * Tears * Large pupils * Sweating * Goosebumps * Runny Nose | * Stomach Cramps * Broken Sleep * Hot/Cold Flashes * Increased Blood Pressure and Pulse * Low Fever * Muscle/ Bone Pain * Muscle Spasm * Larger Pupils * Nausea and Vomiting * Sensitivity to Touch | * Difficulty sleeping * Mood changes * Cravings * “Drug dreams” * “Not feeling right” |
| **Sources**:  Kreek, M. J. (2008). Neurobiology of Opiates and Opioids. In M Galanter & H Kleber (Ed.), *Textbook of Substance Abuse and Treatment* (4th ed.) Arlington, VA: American Psychiatric Publishing.  American Psychiatric Association. (2013). Opioid Withdrawal. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing. | | |

**Cravings for Opioids**

A “craving” is an intense desire or urge for a drug. Cravings often involve such a strong urge to use the drug that a person cannot think of anything else. Cravings can occur at any time, but they are more likely to happen in a place where a person has used or bought a drug, around people that are involved in their drug use, or around drug-related items. Emotions such as stress, anger, and depression also may trigger cravings.[[5]](#footnote-5)

Cravings activate the reward system in the brain. Any use of an opioid by a person previously addicted to opioid drugs can also cause an increase in cravings for the drug, leading to relapse.

Medical professionals may ask their patients about their cravings throughout treatment. The presence of cravings may help measure how treatment is going, and can help predict a person’s risk for relapse.[[6]](#footnote-6)

Dangers of Opioid Addiction

**Risk of Overdose Death**

When a person becomes addicted to an opioid, he or she develops increased tolerance to the drug over time. Tolerance may lead an addicted person to take larger amounts of the opioid to get the same effect, or “high.” These larger doses can cause breathing to slow so much that breathing stops, causing a fatal accidental overdose.[[7]](#footnote-7)

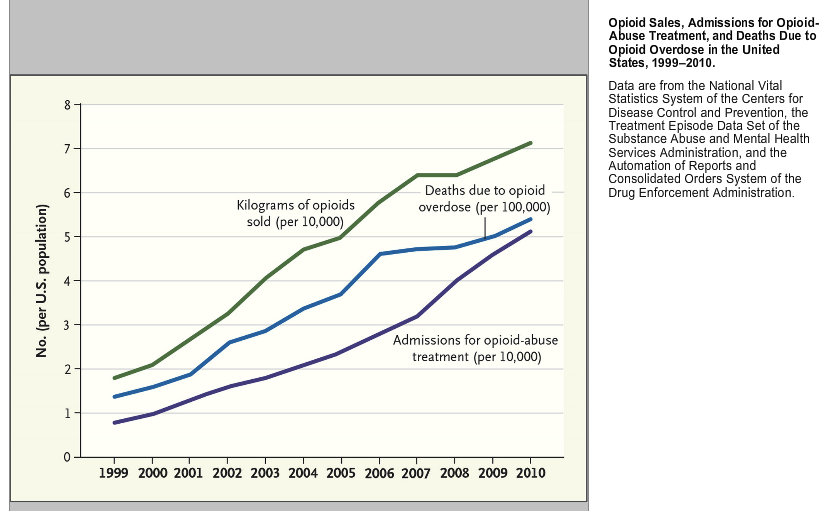
* Opioid overdose may cause stupor, coma, decreased breathing, and pulmonary edema (fluid buildup in the lungs), all of which can be fatal. Use of illicit, injected opioids such as heroin has also been associated with brain problems and muscle damage.[[8]](#footnote-8)

**Besides the risk of overdose death, opioid abuse can significantly disrupt a person’s life.**

* Opioid abuse is often associated with drug-related crimes (possession or distribution of drugs, forgery, burglary, robbery, larceny, and/ or receiving stolen goods). (DSM-5).
* People who abuse opioids also commonly develop relationship problems with family, friends, and significant others.
* Chronic use of opioids can cause a depressed mood and loss of interest in usual activities and relationships.
* Unemployment and difficulty holding a steady job are also common problems with opioid addiction.[[9]](#footnote-9)

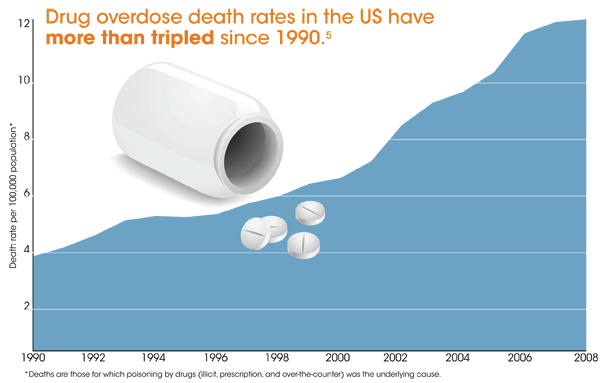
Opioid Addiction in the U.S.

Opioid misuse is a significant public health problem in the US. The sale of opioids, the number of people being treated for opioid abuse, and deaths due to opioid overdose have all significantly risen over the past decade.[[10]](#footnote-10) Besides the use of “street” opioids like heroin, the U.S. has also seen in increase in the abuse of prescription painkillers, a type of opioid medication.

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(2011). **Opioid Sales, Admissions for Opioid-Abuse Treatment, and Deaths Due to Opioid Overdose in the United States, 1999–2010**. Data from the National Vital Statistics System of the CDCP, the Treatment Episode Data Set of the SAMSHA, and the Automation of Reports and Consolidated Orders System of the DEA. Obtained from http://www.nejm.org/action/showImage?doi= 10.1056%2FNEJMp1402780&iid=f01.

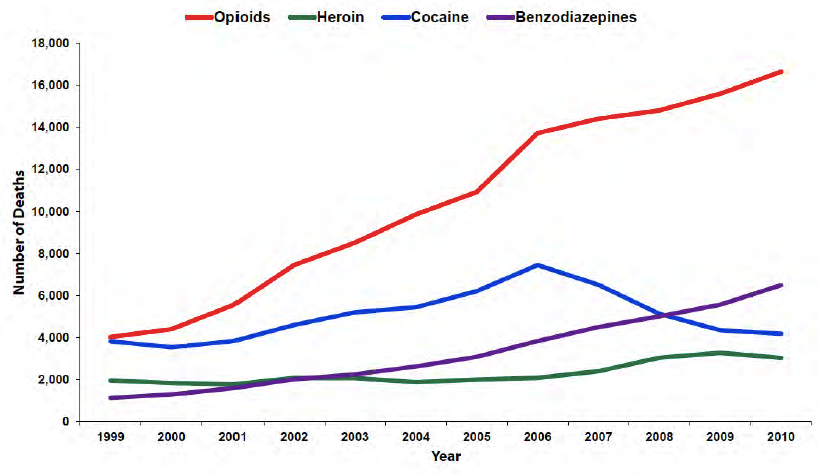
**Deaths from opioid overdose in the US are rapidly increasing.** U.S. deaths from overdose of prescription painkillers, a type of opioid medication, have more than **tripled** over the last decade, and **have never been higher**.[[11]](#footnote-11)



(2011). **Drug Overdose Rates in the US Since 1990**. Deaths are those for which poisoning by drugs (illicit, prescription, and over-the-counter) was the underlying cause. Source: http://www.cdc.gov/ homeandrecreationalsafety/rxbrief/

Drug overdose deaths involving opioids have rapidly increased over the past decade, and there are currently **more US overdose deaths due to opioids than due to any other type of drug**.

* In 2010, prescription opioids were involved in almost **17,000** overdose deaths. In the same year, heroin overdose caused about **3000** overdose deaths.[[12]](#footnote-12)
* 80% of the deaths due to prescription opioids and 90% of those due to heroin were **unintentional overdoses**.[[13]](#footnote-13)



(2012). **US Drug Overdose Deaths by Major Drug Type, 1999-2010**. Source: National Vital Statistics System 2012. Obtained from http://www.pdmpexcellence.org/content/overdose-deaths

**More Americans are abusing prescription opioids.**

* Nearly **3 out of 4 prescription drug overdoses** are caused by **prescription painkillers**, also called opioid pain relievers.[[14]](#footnote-14) Since 2003, opioid analgesics account for more deaths by overdose than cocaine and heroin combined.[[15]](#footnote-15)
* In 2010, nearly 12 million people used prescription pain medication for a **non-medical reason** (using the medications without a prescription or for the feeling that they cause).[[16]](#footnote-16)
* In 2010, almost **2 million people** reported using prescription painkillers nonmedically for the first time within the last year. This is nearly **5,500 people a day** at risk of a new opioid addiction.[[17]](#footnote-17)
* Prescription opioids are gateway drug: 17.1% of substance abusers cite pain medication as being the first substance they abused.[[18]](#footnote-18)
* 5.2 million Americans (2.1% of U.S. pop.) used prescription opioids non-medically in past month.[[19]](#footnote-19)
* Long-time drug users are not the only people who abuse prescription opioids. Increasing numbers of people abuse prescription opioids **first**, before using any other illicit drug. In 2012, **14%** of substance abusers in SAMSHA’s survey reported that **prescription pain medication was the first substance they abused**. Nonmedical use of prescription opioid pain relievers was second only to marijuana as the first “gateway” drug used by new illicit dug users.
* In 2012, the average age of the first abuse of prescription opioids was **22 years old**.

**More Americans are abusing heroin.**

* In 2006, **90,000** Americans over the age of 12 used heroin for the **first time**. In 2012, this number rose to **156,000.**
* Heroin use is no longer only an urban problem, but is also increasing among suburban and rural communities, with the largest increases among non-Hispanic whites. [[20]](#footnote-20)
* The numbers of Americans reporting **heroin dependence** or abuse in 2012 has nearly **doubled** over the past decade.[[21]](#footnote-21)

**Most people with opioid dependence are not receiving treatment.[[22]](#footnote-22)**

* Opioid Addiction is a serious problem for the affected individual, their significant others, and the general community. The good news is that there are a variety of successful treatments available. These include medications like methadone, buprenorphine, and naltrexone, as well as psychosocial treatments like mutual help groups (NA and AA), rehabilitation treatments, outpatient counseling, and many more.
* It is important to seek treatment as early as possible to avoid serious consequences. Treatment guides and locations can be found in the Community Resources section of PCSSMAT.org or http://findtreatment.samhsa.gov.

Medication Assisted Treatment (MAT)

for Opioid Addiction

What happens when an opioid-dependent person seeks treatment for the first time?

Different opioid addiction treatments work best for different people. When a patient with an opioid use problem seeks help in an outpatient office, the physician will ask questions to find out more about his or her unique needs. He or she may ask confidential questions about:

* Why a patient is seeking treatment
* What substance(s) a patient is using
* How often they use
* The good and bad effects of the substance in their life
* How their day-to-day life is affected by the substance
* If any other emotional symptoms are present (depression, anxiety, etc.)
* If there is a present crisis
* The patient’s past drug or alcohol use
* Any past treatments or periods of abstinence
* The patient’s past medical history, current medications, and family and social history

Labs such as urine toxicology may also be done to test for the presence of opioids in the patient’s body.

With these facts, a physician can help the patient to sort out the pros and cons of seeking treatment and stopping use of opioid drug(s). The patient and their doctor may then decide on a treatment that would work best for them, based on the patient’s needs, safety, and local resources. The patient’s finances, insurance, criminal justice status, past responses to treatments, and any co-occurring psychiatric disorders may also be considered.[[23]](#footnote-23)

**Adolescents and Young Adults: CRAFFT Screening**

When an adolescent or young adult visits his or her doctor, the CRAFFT questions can help evaluate the risk for substance abuse problems.[[24]](#footnote-24) These questions are used all over the world, and are very effective at evaluating a young person’s risk of problems with substance abuse.[[25]](#footnote-25)

The CRAFFT questions can also be used at home by a young person or the family to help evaluate risk or to decide if medical help is needed.

**PART 1**

During the past year, did you:

1. Drink any **alcohol** (more than a few sips)?
2. Smoke any **marijuana** or **hashish**?
3. Use **anything else** to get **high**? (“Anything else” includes illegal drugs, over-the-counter or prescription medicines, or anything that you sniff or “huff.”)

**PART 2**

If the answer is “yes” to any of the first 3 questions, the following questions are used:

(If the answer is “no” to all of the first 3 questions, only the first CAR question will apply.)

**Yes/No C** Have you ever ridden in a **CAR** driven by someone (including yourself) who was “high,” or had been using alcohol or other drugs?

**Yes/No R** Do you ever use alcohol or other drugs to **RELAX**, feel better about yourself, or fit in?

**Yes/No A** Do you ever use alcohol or other drugs while you are **ALONE**?

**Yes/No F** Do you ever **FORGET** things you did while using alcohol or drugs?

**Yes/No F** Do your **FAMILY or FRIENDS** ever tell you that you should cut down on drinking or drug use?

**Yes/No T** Have you ever gotten into **TROUBLE** while you were using alcohol or drugs?

**What does my CRAFFT score mean?**

2 or more "yes" answers to the CRAFFT questions suggest that a young person is at high risk for substance abuse problems and/ or dangerous behavior. A young person who can answer “yes” to 2 or more CRAFFT questions should seek medical help as soon as possible. If the young person is already at a doctor’s office, further questions should be asked to see if treatment is necessary. These questions cannot diagnose a substance abuse disorder, but can help patients and doctors decide if further steps should be taken.

**Adults: CAGE Questions**

The CAGE questions are often used to screen for alcohol abuse in adults. However, they can also help identify other substance abuse problems.[[26]](#footnote-26) These questions include:

**C** Have you ever felt you needed to CUT DOWN on substance use?

**A** Have people ANNOYED you by criticizing your substance use?

**G** Have you ever felt GUILTY about substance use?

**E** Have you ever felt that you needed a drug first thing in the morning (EYE-OPENER)?

**Other “red flags” that primary care doctor look for to detect substance abuse problems in adults include**:[[27]](#footnote-27)

* Frequent absences from school or work
* Frequent accidental injuries
* Depression
* Anxiety
* Sleep problems
* Sexual dysfunction
* Digestive problems, like stomach pain, diarrhea, constipation, or weight changes

**Urine Drug Tests**

There are many different ways to test for the presence of opioid drugs in the body. Urine, blood, hair, saliva, sweat, and nails (toenails and fingernails) can all be used in different types of laboratory drug testing. However, urine samples are used most often, because they are easier to obtain. Opioid drugs and their metabolites, or breakdown products, are often concentrated in the urine after making their way through the body.

A general “screening” test can test for the presence of opioid drugs or their metabolites (the substances into which some drugs are broken down in the body). More specific tests can also be done to test for the presence of specific drugs or to confirm the results of earlier tests.

**What can doctors tell from a urine drug test?**

A urine sample can be tested for the presence of many different substances in the body, from opioid drugs to marijuana, cocaine, PCP, amphetamines, and/or benzodiazepines. Drugs can usually be detected in a urine sample within 1-2 days of use. However, detection times vary widely among different substances. For example, evidence of heroin use can be found in the urine up to 48 hours after last use, and evidence of methadone can be found for 3 days. Long-term marijuana use can be detected for up to 30 days. **[[28]](#footnote-28)**

Urine drug tests **can** tell doctors that a person has used a substance within a certain time period.

Urine drug tests **cannot** tell doctors how much of a substance a person has used, or how they used it (inhaled, injected, or taken by mouth.)

False positive tests can occur. Since some opioids are either derived from or similar to naturally occurring substances in the opium poppy seed, eating poppy-seed cookies or bagels prior to testing has caused false-positive results only in very sensitive tests. The use of prescription opioid pain relievers or certain antibiotics like rifampin, rifampicin, or quinolones can also cause false-positive urine tests for opioids. These possibilities should be discussed with a physician prior to testing.

**Benefits of Frequent Urine Drug Testing**

During an initial assessment and periodically throughout treatment, patients may be asked to provide a urine sample in the clinic. Patients are always encouraged to truthfully relate any drug use or relapse to their doctors before this sample is tested.

Clinics require urine testing to provide accountability to patients. Frequent testing has been shown to improve a patient’s chances of sticking with treatment.[[29]](#footnote-29) Drug testing is also helpful to keep patients safe: some addiction treatments like methadone and buprenorphine can be very dangerous when taken along with other drugs. If patients have relapsed to additional illicit drug use while using MAT, physicians need to know.

Detoxification from Opioids

Detoxification is the process of taking a person off an opioid on which he or she is physically dependent. The detoxification process can be fast or slow. “Detox” works differently in different people and in different treatment plans. When supervised by a physician, medications are available to help make detoxification both safer and more comfortable.

**What Are the Goals of Detoxification?**

Detoxification can be a difficult first step in overcoming opioid addiction. However, a good detoxification program accomplishes many important goals in a person’s recovery:[[30]](#footnote-30)

1. Rid the body of its daily, physical dependence on opioid drugs
2. Lessen or relieve the pain of withdrawal
3. Address any other medical problems
4. Prevent relapse by:
   * Providing help during the most difficult parts of withdrawal
   * Connecting patients with continued treatments
   * Educating patients about their risk of relapse and ways to stay healthy, to help prevent relapse

**What is Successful Detoxification?**

* Detoxification is only the **first stage** of opioid addiction treatment!
* Few patients can continue to stay completely away from opioids without continued treatment immediately after detox.
* **Continued treatment after detox can help a person regain mental and physical health and well-being.** Besides helping patients to avoid returning to drug use, continued treatment can assist patients with larger goals of **improving employment**, **healing relationships**, and possibly **addressing past criminal behavior**.
* Because of the high risk for relapse within opioid addiction, detoxification may be needed more than once in a person’s course of treatment.[[31]](#footnote-31)

**What are the Different Kinds of Detoxification programs?**

There are many different kinds of detoxification programs. Detox programs can occur in inpatient, residential, day, or outpatient settings. Treatment can and should look different for people with different needs, preferences, and personalities.

Opioid withdrawal is generally less medically dangerous than withdrawal form other substances, like sedative-hypnotics or alcohol. However, detoxification can still be very difficult and uncomfortable, and attempting detoxification without medical help often results in relapse. Some patients who can’t complete detoxification on an outpatient basis may be admitted to a medical facility as inpatients to complete withdrawal. Inpatient detoxification is also recommended for patients physically dependent on more than one kind of drug, or for patients with complicated medical issues.[[32]](#footnote-32)

Detoxification in a medical setting is often accompanied by starting patients on medication to lessen withdrawal symptoms and prevent relapse. See later section: “**Detoxification and Agonist Maintenance**.”

|  |  |  |  |
| --- | --- | --- | --- |
| **Outpatient vs. Inpatient Detoxification Programs**[[33]](#footnote-33) | | | |
|  | **What is it?** | **Pros** | **Cons** |
| **Outpatient** | Patients come to a treatment center for medications, counseling, and medical treatment during detoxification, but still live at home. | * **Less Expensive** * Patients can continue working and carry on with life * Patients are forced to avoid/ find alternatives to drug use in their everyday life during the treatment process, helping prevent relapse after treatment ends * Daily treatment, often group based, is sometimes available, along with drug testing | * **Slower** process * It can be harder to stay away from drugs in an outpatient setting. Patients have immediate access to drugs at the time of their worst cravings/ during withdrawal. * Physicians aren’t able to address a patient’s medical needs as quickly when patients are at home |
| **Inpatient** | Patients live in a treatment center during the entire detoxification process, where they receive medical care and counseling.  Some inpatient programs do not end after detoxification. In longer-term inpatient programs, patients spend extra time in a medical facility learning about substance abuse disorders, to confront and address the negative effects of addiction in their lives, ways to make lifestyle changes, and coping strategies to prevent relapse. | * **Faster** detoxification process * Safe environment: No access to drugs/ situations that led to past drug use * Medical issues can be quickly addressed * More intensive counseling is often available. | * **Higher Cost**:Finances/ Insurance may limit length of stay. * **Inconvenient**. Patients are taken away from work and home for a time. * **High dropout rates** after detoxification. * Discharge from controlled environment without help from continued medication has a larger risk for overdose and death.[[34]](#footnote-34) |
| **Combination Programs/ Partial Hospitalizations** are also available in some areas. | | | |

**After Detoxification: What’s next?**

The best addiction treatments include continued treatment after detoxification. A patient should work with his/her doctor to find the kind continuing treatment that is best based on the patient’s needs, safety concerns, and local resources. The patient’s finances, insurance, criminal justice status, past responses to treatments, and any co-occurring psychiatric disorders may also be considered.

Treatment options include both inpatient and outpatient treatment, individual or group therapy, and/or medications. Patients should check with their insurers to find out which treatments are covered, and to locate doctors in their area that provide covered addiction services.

Some inpatient programs do not end after detoxification. In longer-term inpatient programs, patients spend extra time in a medical facility learning about substance abuse disorders, to confront and address the negative effects of addiction in their lives, ways to make lifestyle changes, and coping strategies to prevent relapse.

What are the best treatments for opioid addiction?

When scientists try to find new ways to help patients recover from physical dependence on opioids, they look for treatments that are both safe and effective.

There are two main ways of treating opioid addiction:

1. **Detoxification followed by complete abstinence**: After completing the detoxification and withdrawal process, a person may remain abstinent (going completely without) any kind of opioid drug. This treatment plan usually involves a long and difficult recovery process, with a high risk of relapse.

12-step groups such as Narcotics Anonymous (NA), which often encourage this abstinence-approach to recovery, can be helpful. This treatment plan does not involve the help of any type of opioid medication.

Medication-free recovery can be possible for a small number of stable patients with high motivation. The small number of patients who are able to recover without help from medication report relying on personal motivation, past treatment experiences, religion/spirituality, and support from family and close friends. [[35]](#footnote-35)

However, as many as **90%** of those detoxified from opioid use will relapse within first 1-2 months unless treated with medications.[[36]](#footnote-36)

1. **Detoxification + Induction onto Agonist Maintenance: Medication Assisted Treatment (MAT)**

MAT can help make opioid detoxification safer and more manageable. After detox, MAT involves continued treatment with one of three main types of medications: **methadone**, **buprenorphine**, or **naloxone**. MAT with these medications can help make the difficult process of recovery for opioid addiction less risky and more manageable. There is still a risk of relapse in this treatment plan, but it is less likely than among patients receiving no help from medication. When compared to recovery treatment without medication, MAT has been proven to:

* Increase treatment retention
* Reduce risk of relapse
* Improve social functioning
* Reduce the risks of infectious-disease transmission
* Reduce criminal activity[[37]](#footnote-37)

**Any reduction in relapse risk can be life saving.**

One of the most important benefits of MAT is that it can reduce the risk of relapse compared to abstinence without medication support. People dealing with physical dependence on opioids typically experience multiple relapses over the course of their treatment. During each period of abstinence, a person’s tolerance for opioids decreases. If a patient relapses after a period of time without the drug, and begins to take the same amount of drug that he or she used before detoxification, they are at a high risk of fatal overdose because the body is no longer used to such a large amount of opioids. By reducing a patient’s risk of relapse, MAT has been shown to reduce this risk of death from overdose during recovery.

|  |  |  |  |
| --- | --- | --- | --- |
| **Summary of Medications**  **for Opioid Addiction Treatment** | | | |
|  | **Methadone** | **Buprenorphine** | **Naltrexone** |
| **Brand Name** | Dolophine  Methadose | Subutex  Suboxone  Zubsolv | Depade  ReVia  Vivitrol |
| **Class** | **Full Agonist:**  Fully activates opioid receptors | **Partial Agonist:**  Activates opioid receptors, but with a smaller effect | **Antagonist:**  Blocks opioid receptors |
| **Dosing** | Taken once per day by mouth | Usually taken once per day, by mouth or under the tongue | Vivitrol is taken by injection about once per month; older formulations are taken orally once per |
| **Effects** | Reduces opioid cravings and withdrawal symptoms | | Blocks the effects of opioids in the brain |
| **Advantages** | High strength, very effective when taken by mouth. | More availability: Can be prescribed by certified physicians in a “regular” medical office- no need to visit special drug clinics.  Suboxone has a smaller risk of abuse by including naloxone, which causes withdrawal if the drug is injected rather than taken by mouth as prescribed. | Not addictive or sedating. Does not result in physical dependence. Vivitrol can be taken once a month instead of daily. |
| **Disadvantages** | Patients must visit special methadone clinics daily to receive doses. |  | Difficult to take daily medication- new form of Vivitrol, taken only once a month, addresses this issue. Beginning this drug is more difficult, and requires about 7 days of opioid abstinence before the first dose. |
| **Adapted from “**Characteristics of Medications for Opioid-Addiction Treatment” in Volkow, N. D., et al. (2014). "Medication-Assisted Therapies - Tackling the Opioid-Overdose Epidemic." N Engl J Med. | | | |

Methadone and Buprenorphine:

Opioid Agonist Substitution Tapers

Patients who choose to use Medication Assisted Treatment for opioid addiction have a choice of medications.[[38]](#footnote-38) Most kinds of MAT involve the use of an “opioid agonist.” An opioid agonist binds to the same receptors in the brain that were activated by the drug of abuse, but in a safer and more controlled manner. These medications can reduce the symptoms of withdrawal and reduce cravings, allowing for a more gradual, controlled recovery process and reducing the risk of relapse. The two opioid agonists used in MAT are **methadone** and **buprenorphine**.

**How are opioids used to treat addiction?**

Opioid drugs are not only illicit drugs of addiction. Opioid medications have many legitimate uses, including for the *treatment* of addiction.

There are many different types of opioids, from prescription pain medications to heroin to drugs used to treat addiction. However, all opioid drugs act in similar ways in the body. These similarities allow for the possibility of “cross-tolerance.” Treatment with methadone or buprenorphine takes advantage of these similarities among opioids to use safer, more controlled doses of a prescription opioid to “replace” the opioid on which a person was physically dependent. This helps to block withdrawal symptoms and reduce cravings for illicit drugs, which both help reduce the risk for relapse.

Sometimes patients and their families or friends wonder why doctors use drugs like buprenorphine or methadone to treat opioid addiction, since these medications are in the same family as heroin and other prescription narcotics. However, physician-prescribed buprenorphine and methadone are **not** just “substituting” one addiction for another. Addiction treatment uses longer-acting and safer medications to help overcome more dangerous opioid addictions.

Many studies have shown that maintenance treatment with long-acting opioids like methadone or buprenorphine helps keep patients healthier, reduces criminal activity, and helps prevent drug-related diseases like HIV/AIDs and Hepatitis.[[39]](#footnote-39)

**Methadone**

Methadone is one of the most common medicines used to treat opioid physical dependence. Like Buprenorphine, methadone is an opioid agonist. It strongly activates opioid receptors in the brain preventing withdrawal symptoms and cravings for illicit drugs.

Methadone can only be prescribed and distributed in special methadone clinics. To help prevent abuse, doses can only by received through daily visits to these specific clinics, which can also provide drug testing.

**Methadone treatment has several advantages**:

* Methadone is the most common MAT for opioid addiction, and has been around much longer than other treatments.
* Methadone treatment has the highest treatment retention rates of any other MAT (80% of opioid-dependent patients remain in methadone treatment after 6 months).[[40]](#footnote-40)
* Methadone helps make withdrawal milder and more manageable.
* Methadone can be taken by mouth in a pill, avoiding continued use of needles. It can be taken only once a day.
* When carefully overseen by a doctor, methadone is safe to use.

**Because methadone is a relatively strong opioid, methadone use also has several risks.** Methadone use may cause cardiac arrhythmias (changes in heart rhythm). Fatal methadone overdoses are also possible. Combination of methadone with benzodiazepine abuse increases risk of unintentional overdose

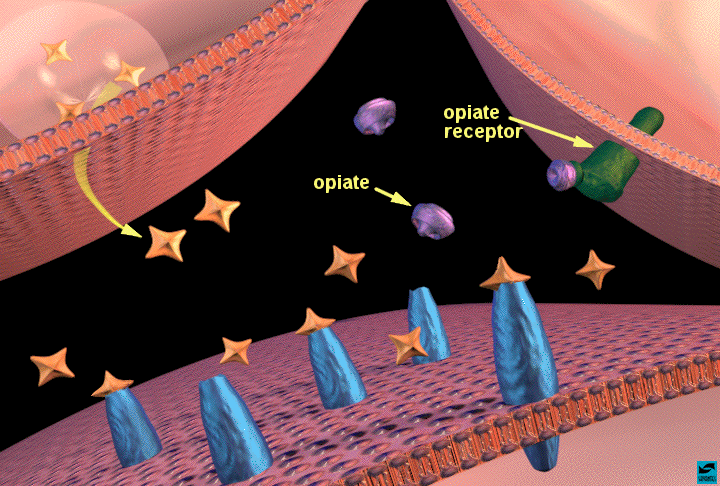
**Buprenorphine**

Buprenorphine is a relatively new medication, approved in 2002 for the treatment of opioid addiction both during and after detoxification. It is also sometimes used in the hospital for pain relief after surgery.

**How does Buprenorphine work?**

Like other opioid drugs, buprenorphine binds to “*mu*” opioid receptors in the brain. However, buprenorphine is only a “partial agonist” for these opioid receptors, and cannot stimulate the brain as strongly as other opioids. This allows buprenorphine to have a “ceiling effect.” When taken by mouth, it is rare for buprenorphine to stimulate opioid receptors strongly enough to cause fatal overdose.

Buprenorphine is also a long-acting medication, providing stable, low-level activation of opioid receptors in the brain, preventing withdrawal symptoms and cravings.



**Buprenorphine binds to opiate receptors in the brain**. Source: National Institute on Drug Abuse. Obtained from http://www.drugabuse.gov/ sites/ default/files/ imagecache/content\_image\_landscape/slide-18.gif

**What is Buprenorphine treatment like?**

**Buprenorphine is given as a sublingual tablet, and dissolves under the tongue. It comes in two forms**:

* **Subutex:** Buprenorphine alone
* **Suboxone:** Buprenorphine + Naloxone

**How do patients start taking buprenorphine?**

Doses of buprenorphine work best when they are given after symptoms of withdrawal have already started. Patients must wait 12-18 hours after their last use of a shorter-acting opioid drug, such as heroin or prescription painkiller. Buprenorphine can cause withdrawal if taken after a stronger dose of another opioid, as it can “kick out” and replace other opioids in the brain. However, after withdrawal has already started, beginning buprenorphine doses can then help to relieve withdrawal symptoms and prevent relapse.[[41]](#footnote-41)

Low-dose buprenorphine treatment has less patient retention than methadone treatment. However, higher doses of buprenorphine have similar levels of patient retention as methadone. High-dose buprenorphine and methadone patients also have similar rates of relapse and self-reported heroin use during treatment.[[42]](#footnote-42) Buprenorphine’s other advantages make it preferable for some patients.

**Convenience and Flexibility of Buprenorphine**

While methadone must be prescribed and distributed daily in special clinics, patients with prescriptions for buprenorphine do not need to visit special drug clinics to pick up their medication. Because buprenorphine is generally safer to use than methadone, certified physicians in a “regular” medical office can prescribe it.

**Continuing Treatment with Buprenorphine**

After their treatment plan is stable, patients will be required to see their physician for continued treatment at least every two to four weeks. If patients miss an appointment, they may not be able to refill their medication on time and experience uncomfortable withdrawal symptoms.

Opioid-dependent patients maintained with buprenorphine treatment may remain physically dependent on this opioid medication, but are not “addicted” if these medications are used only as help with the process of recovery. Withdrawal symptoms can still occur if more than one dose is missed.

**What happens in buprenorphine patients’ regular visits to the doctor?**

* The patient will be asked to bring the medication container to each visit.
* The patient may also be asked to give urine, blood, or breath samples at the time of the visit.
* The patient may also sometimes be called in randomly to have his or her pills counted and/or to give a urine sample to test for the presence of other drugs and alcohol. This is a regular part of drug treatment, and helps keeps patients safe by preventing drug abuse.

**Safety of Buprenorphine**

Because of its “**ceiling effect**,” buprenorphine is much safer in the case of an overdose than other opioids. Buprenorphine is only a partial agonist of opioid receptors in the brain, and is less likely to suppress breathing to the point of death than opioids like heroin or methadone. Buprenorphine also has less risk of causing problems in heart rhythm. When treatment is stopped, buprenorphine causes milder withdrawal than methadone. Because buprenorphine is safer to use than methadone, it is easier to prescribe and doesn’t require visits to special methadone clinics.

**Risks of Buprenorphine**

However, Buprenorphine can still be dangerous when mixed with other drugs, and life-threatening overdose and death have occurred when it is not taken as recommended by a physician. Patients interested in buprenorphine should be aware of how to use this medication safely.

* It is important for anyone taking buprenorphine to make their entire medical team aware of their use of buprenorphine, even doctors not directly involved in their addiction treatment. Sharing this knowledge can help prevent dangerous prescription interactions.
* It is important not to use street drugs or excess alcohol with buprenorphine. These combinations can make life-threatening overdoses more likely. Patients need to tell their doctors about any other illicit drug use. Overdose deaths may occur when buprenorphine is injected against medical instructions in combination with benzodiazepines (Klonopin, Ativan, Halcion, Valium, Xanax, Serax, Librium, etc.).
* Buprenorphine should also be kept away from children, as life-threatening overdoses have occurred when children take this medicine.

**What is the right dose of Buprenorphine?**

After patients and their family members have dealt with opioid addiction, they may be concerned about buprenorphine’s potential for abuse, potentially substituting one “high” for another. The “right” dose of buprenorphine is one that allows the patient to feel and act normally. It may take anywhere from a few days to a few weeks to find the right dose. Every opioid can have stimulating or sedating effects, especially in the first weeks of treatment. Patients new to Suboxone may seem drowsy, stimulated, or restless. While their dose is being adjusted, patients may experience withdrawal, daytime sleepiness, or trouble sleeping at night. However, once a patient is stabilized on the correct dose of buprenorphine, the patient should not feel “high,” and there should be no excessive sleepiness or intoxication.

Family members can help keep track of these symptoms to help the doctor find the best dose for the patient. Once the right dose is found, it’s important to take the dose on time, daily.

**What are the benefits of Suboxone (Buprenorphine + Naloxone)?**

Suboxone, a new formulation of buprenorphine that includes naloxone, is safer to use than buprenorphine alone. Suboxone has less risk of abuse through injection because of its extra ingredient, naloxone. Naloxone is not active when Suboxone is taken as directed, as a table that dissolves under the tongue. When taken as directed, Suboxone can actively stimulate opioid receptors and prevent withdrawal symptoms. However, if Suboxone is abused and injected to attempt a bigger “high,” naloxone becomes active and blocks the body’s opioid receptors, causing withdrawal symptoms. This helps prevent Suboxone from being abused.

These unique safety features make Suboxone safer to prescribe and to use outside of strict inpatient or intensive clinic regulations. After stabilization, most patients are able to take home one to four weeks of Suboxone at a time.

Despite these safety features, Suboxone can be still be dangerous when it is mixed with other drugs (street drugs or certain prescription medications) or excess alcohol.[[43]](#footnote-43)

**Buprenorphine Taper: Maintenance vs. Detoxification**

**How long do patients need to take buprenorphine?**

The optimum time for buprenorphine treatment isn’t yet clear. Buprenorphine has been shown to be very effective in helping patients with detoxification, but detoxification is only the first step in what can be a long and difficult road to recovery. Patients who choose to stop buprenorphine after detoxification should be aware that they are still at a very high risk for relapse over the next few months to years. Many patients relapse shortly after stopping buprenorphine maintenance of less than 6 months.[[44]](#footnote-44)

**Buprenorphine Taper**

Many patients attempt to transition away from use of methadone or buprenorphine through a “tapering” process. A “taper” is a series of reductions in dose over a few weeks to months. However, relapse rates are very high for patients who taper off buprenorphine/naloxone.[[45]](#footnote-45)

Many studies have followed patients before and after being tapered off of buprenorphine/naloxone maintenance. A 2011 study found that patients that have been stabilized with buprenorphine/naloxone treatment often relapse after tapering off MAT, even when therapies like counseling are continued. This study found that more than 90% of patients relapsed after an initial 3-week taper. After re-stabilization with MAT for 12 weeks, over 90% of these patients relapsed again when tapered off buprenorphine/naloxone, even when they received additional counseling.[[46]](#footnote-46) Another study in 2009 followed patients who tapered off buprenorphine/naloxone after 4 weeks of maintenance treatment. At the end of a 7-day taper, less than half (44%) of patients were still opioid-free. When the tapering process was extended to 28 days, only 30% of patients were opioid-free at the end of the taper. Only 18% of patients were still completely abstinent from opioids 30 days after the taper ended.[[47]](#footnote-47) Thus, tapering from buprenorphine is associated with high rates of relapse. The optimum duration of buprenorphine treatment has not yet been determined, but tapering very slowly over 4 weeks is more successful than shorter tapers.

**How can the tapering process be more effective?**

Researchers are still working on ways to reduce the risk of relapse after tapering off of buprenorphine. When patients and their doctors decide to gradually reduce their dose of buprenorphine, studies have shown that a slow tapering process is a safer option in preventing relapse.[[48]](#footnote-48) There has been little research on the outcome of patients tapered off buprenorphine after longer periods of stabilization with MAT. Some patients may choose to transition to injection naltrexone (Vivitrol) after tapering off buprenorphine, since this opioid blocker can prevent relapse to any opioid.

**Is Suboxone (Buprenorphine+ Naloxone) Useful for Methadone Patients?**

Because Suboxone treatment is safer and easier to use than methadone and does not require daily visits to methadone clinics, methadone patients may be interested in switching to buprenorphine. However, because buprenorphine is a partial agonist, a patient maintained on methadone may find buprenorphine to be a “weaker” medication. Methadone patients may go into major withdrawal if they switch from a full dose of methadone to buprenorphine. **[[49]](#footnote-49)** To avoid withdrawal, a methadone patient would first have to reduce the methadone dose to **40 mg or less** daily, often a difficult process with a high risk of relapse.[[50]](#footnote-50)

In some cases, buprenorphine may not be strong enough for patients used to high doses of methadone, and may lead to increased cravings and increased risk of relapse. Patients interesting in switching from methadone to buprenorphine should be aware of these risks and remain open to resuming methadone if necessary.

Persons currently addicted to prescriptions pain medications or heroin, as well as patients maintained with methadone, should not accept buprenorphine or Suboxone from a “friend,” as this medication will cause uncomfortable withdrawal symptoms. Always ask a physician before switching medications.

**Naltrexone: Opioid Antagonist Therapy**

Naltrexone is an alternative treatment for opioid addiction. Unlike methadone or buprenorphine, which are both opioid agonists (with opioid-like effects), naltrexone is an opioid **antagonist**- meaning that it blocks opioid receptors in the brain instead of activating them. By blocking opioid receptors in the brain, naltrexone can prevent all effects of any opioid drugs taken while naloxone remains in a person’s system. This treatment blocks everything from a “high” to an overdose.[[51]](#footnote-51) Besides the obvious safety benefits of naltrexone, this “blocking “ effect can also give an addicted person time to “unlearn” patterns that lead to cravings and habits related to opioid abuse.

Patients who successfully transition to naltrexone use have much lower rates of relapse than patients who receive counseling alone.[[52]](#footnote-52)

**Who is a candidate for Naltrexone treatment?**

While agonist maintenance with buprenorphine or methadone remains the treatment of choice for opioid addiction, it does not work for everyone. Some patients do not like the idea of long-term use of opioid drugs. Long-term treatment with buprenorphine or methadone also remains controversial for the treatment of young people or for those with only a brief history of opioid addiction.[[53]](#footnote-53) Patients may also prefer naltrexone to agonist maintenance (buprenorphine or methadone) if they are highly motivated or are working in a profession in which agonist use is controversial. Patients who are interested in abstinence after trying agonist therapy may be good candidates for naltrexone. Abstinent patients that are at a high risk of relapse, such as those with acute or worsening psychiatric illness, may also benefit from naltrexone therapy.[[54]](#footnote-54)

**Beginning Naltrexone Therapy**

However, naltrexone treatment is more difficult to begin than other MAT drugs. It can be difficult to transition from active opioid use to a first dose of naltrexone. Because naltrexone is a strong opioid receptor antagonist, it can “kick out” other opioids from the brain and cause withdrawal symptoms. A person who is physically dependent on opioids needs to be abstinent from heroin for 5-7 days, or abstinent from methadone for 7-10 days, in order to begin naltrexone treatment. When naltrexone is begun under physician supervision, other medicines can be used make withdrawal less painful in the beginning stages of naltrexone treatment. Certain non-opioid “comfort” medicines to relieve withdrawal symptoms like muscle cramping, nausea, and insomnia.[[55]](#footnote-55) Some patients may need a higher level of support, such as an inpatient stay to begin naltrexone, if they have a more severe pattern of opioid use or a co-existing medical or psychiatric illness.

**Risks of Naltrexone**

Some dangers are associated with naltrexone use. Patients taking naltrexone have lost their tolerance to opioids, and will be at risk of accidental overdose if they drop out of treatment and stop taking naltrexone. One advantage of the long-acting injectable naltrexone (Vivitrol) is that is wears off slowly, so that there is no sudden loss of opioid blockade, thus reducing the risk of overdose. It is expected that about half of naltrexone patients will “test” the effects of the drug by taking an opioid,[[56]](#footnote-56) but patients should not continue to use opioids during naltrexone treatment because of a greater risk of dropping out of therapy after treatment.

**Vivitrol: Long-Acting Naltrexone**

Naltrexone treatment has been difficult to use in the past. Before 2010, naltrexone was only available in the form of a once-daily pill, and it was often hard for patients to remember to take and keep up with their medication. The recent approval of a long-acting form of injectable naltrexone (Vivitrol) that only needs to be taken about once every month is much easier to maintain than the older oral form of naltrexone.

**Naltrexone + Behavioral Therapy**

Naltrexone therapy is more effective when combined with behavioral therapy that encourages lifestyle changes to support abstinence from opioids. Network Therapy (see later section), incentives for abstinence, and relapse prevention therapies may all benefit patients on naltrexone.[[57]](#footnote-57)

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