


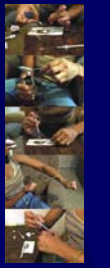
# **Module II**

## **Opioids 101**



## Module II: Opioids 101

Module II is designed to introduce trainees to basic facts about opioids, including information on pharmacology, acute and long-term effects, and basic information about treatments for opioid addiction. This module contains background information necessary to understand the role of buprenorphine in the opioid treatment system. If the audience is already highly knowledgeable about opioid treatment, this module should be abbreviated or omitted.

<p><b>BUPRENORPHINE TREATMENT: A TRAINING FOR MULTIDISCIPLINARY ADDICTION PROFESSIONALS</b></p> <p>Module II – Opioids 101</p> 	<p><b>Slide 1: Title Slide</b></p> <p>The next module provides an overview of opioids and opioid treatment, setting the stage to see the role of buprenorphine in the treatment system.</p>
<p><b>Ritual of a Heroin User</b></p> <p><i>"A Fort Myers woman in her 30s prepares a heroin fix at the home of a friend on a recent day. The woman uses a hypodermic needle to inject heroin, which she had heated in a spoonful of water, into a vein in her hand. However, the increased purity of the drug and a fear of contracting HIV from contaminated needles, along with the social stigma associated with needle use, has caused an upsurge in users snorting and smoking heroin. "You first get an adrenaline rush, then a sensation of mellow. You lose sense of time and forget everything," the woman said. "Heroin is easy to find... You can get a bag for \$10."</i></p>  <p><small>SOURCE: Naples Daily News, 2007.</small></p>	<p><b>Slide 2: Ritual of a Heroin User</b></p> <p><i>Read quote aloud OR have a trainee read the quote. Then, invite a few trainees to share their reactions to the quote.</i></p>
<p><b>Module II – Goals of the Module</b></p> <p>This module reviews the following:</p> <ul style="list-style-type: none"> <li>■ Opioid addiction and the brain</li> <li>■ Descriptions and definitions of opioid agonists, partial agonists, and antagonists</li> <li>■ Receptor pharmacology</li> <li>■ Opioid treatment options</li> </ul>	<p><b>Slide 3: Module II – Goals of the Module</b></p> <p>We are now going to turn a little more directly to the issue of opioid addiction. In this module, we will discuss the impact of opioids on the brain, make sure that everyone is aware of and able to define all of the classes of opioids, look at how opioids work, and finally look at treatment options for opioid users.</p>

### Opiate/Opioid : What's the Difference?

#### Opiate

■ A term that refers to drugs or medications that are derived from the opium poppy, such as heroin, morphine, codeine, and buprenorphine.

#### Opioid

■ A more general term that includes opiates as well as the synthetic drugs or medications, such as buprenorphine, methadone, meperidine (Demerol®), fentanyl—that produce analgesia and other effects similar to morphine.

### Slide 4: Opiate/Opioid: What's the Difference?

Throughout this training we are using the term opioid to define the class of drug with which we are dealing. It is important to understand what this term means.

- **Opiate** refers only to drugs or medications that are derived directly from the opium poppy. Examples include heroin, morphine, and codeine.
- **Opioid** is a broader term referring to opiates and other synthetically-derived drugs or medications that operate on the opioid receptor system and produce effects similar to morphine. Examples include buprenorphine and methadone.

### Basic Opioid Facts

Description: Opium-derived, or synthetics which relieve pain, produce morphine-like addiction, and relieve withdrawal from opioids

Medical Uses: Pain relief, cough suppression, diarrhea

Methods of Use: Intravenously injected, smoked, snorted, or orally administered

### Slide 5: Basic Opioid Facts

Description: All opioids work basically the same way, regardless of their derivation.

Medical Uses: There are benefits to using opioids; they are not just used recreationally.

Methods: Bottom line – you can get opioids into your body in many ways.

**What's What?  
Agonists, Partial Agonists,  
and Antagonists**

Agonist Morphine-like effect (e.g., heroin)

Partial Agonist Maximum effect is less than a full agonist (e.g., buprenorphine)

Antagonist No effect in absence of an opiate or opiate dependence (e.g., naloxone)

**Slide 6: What's What? Agonists, Partial Agonists, and Antagonists**

Increasing the dose of a full agonist produces increasing effects until the receptor is fully activated and a maximum effect is reached.

Partial Agonists share some characteristics of full agonists. At low doses, full and partial agonists produce effects that are essentially indistinguishable. However, increasing the dose of a partial agonist DOES NOT produce as great an effect as occurs with a full agonist. There is a CEILING to the agonist (intoxicating/euphoric/respiratory depression) effects.

In individuals who are not physically dependent on opioids, buprenorphine produces typical opioid agonist effects, such as analgesia, sedation, nausea, and dizziness, but these reach a "ceiling" in most individuals with sublingual doses of 24 to 32 mg.

Antagonists also bind to receptors, but rather than activating them, they block the receptors by preventing them from being activated by an agonist.

**Key and Lock Analogy:**

One can consider an antagonist to be a key that fits snugly into a lock, but does not open it. It also prevents another key from opening the lock. When people take an antagonist and an agonist in combination, they do not feel the agonist effects. Patients who take naltrexone (an antagonist), for example, do not feel the effects of heroin or other agonists.



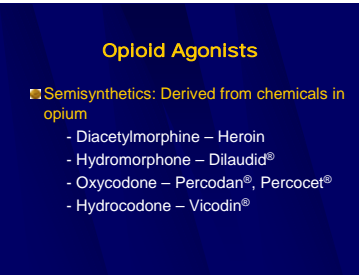


**Opioid Agonists**

- Natural derivatives of opium poppy
  - Opium
  - Morphine
  - Codeine

**Slide 7: Opioid Agonists**

Natural Derivatives

These substances are derived directly from the opium poppy. They are the drugs that we can also call opiates.

	<p><b>Slide 8: Opium</b></p> <p>Show picture for a few seconds and then move on.</p>
	<p><b>Slide 9: Morphine</b></p> <p>Show picture for a few seconds and then move on.</p>
	<p><b>Slide 10: Opioid Agonists</b></p> <p><u>Semisynthetics</u>  These substances are derived from chemicals extracted from the opium poppy. They also fall into both the opiate and opioid categories.</p>
	<p><b>Slide 11: Heroin</b></p> <p>Left-hand side picture – Mexican black tar heroin (mostly used in the Western U.S.)</p> <p>Right-hand side top picture – South American white heroin (dominates the heroin market east of the Mississippi River)</p> <p>Right-hand side bottom picture – Mexican brown heroin</p>
	<p><b>Slide 12: Bayer Graphic</b></p> <p>Heroin has been around for a long time and was originally marketed under the Bayer Label as a cough suppressant. This advertisement is from 1897. It is no longer considered to have any medical uses.</p> <p><i>Note: In larger rooms the text of this slide is difficult to read and should therefore be read aloud.</i></p>



**Slide 13: Opioid Agonists**

*Show picture for a few seconds and then move on.*



**Slide 14: Opioid Agonists**

Synthetics

These substances are synthetically manufactured. They are considered opioids, but are NOT opiates.



**Slide 15: Methadone/Darvocet**

*Show picture for a few seconds and then move on.*






**Slide 16: Opioid Partial Agonists**

Buprenex® is the injectable formulation of buprenorphine approved and marketed for the treatment of pain; it **IS NOT** approved for the treatment of opioid addiction.

Suboxone® is the buprenorphine/naloxone combination tablet and Subutex® is the buprenorphine-only tablet. Only these two tablet formulations are approved for the treatment of opioid addiction.

Pentazocine (Talwin®) is marketed for pain; it **IS NOT** approved for the treatment of opioid addiction.

<p><b>Buprenorphine/Naloxone combination and Buprenorphine Alone</b></p> 	<p><b>Slide 17: Buprenorphine/Naloxone Combination and Buprenorphine Alone</b>  This is what the two sublingual buprenorphine tablets look like.</p>
<p><b>Opioid Antagonists</b></p> <ul style="list-style-type: none"> <li>■ Naloxone – Narcan®</li> <li>■ Naltrexone – ReVia®, Trexan®</li> </ul> 	<p><b>Slide 18: Opioid Antagonists</b></p> <p>As was previously stated, antagonists are those substances that block the affects of opioid agonists. Two examples are naloxone (the same medication in the buprenorphine/naloxone combination tablet) and naltrexone.</p>
<p><b>Opioids and the Brain: Pharmacology and Half-Life</b></p>	<p style="text-align: center;"><b>Transition</b></p> <p><b>Slide 19: Opioids and the Brain: Pharmacology and Half-Life</b>  So now that you know which drugs and medications are included in the class known as opioids, let's look at how they work.</p>
<p><b>Opiates Act on Many Places in the Brain and Nervous System</b></p>  <p><small>SOURCE: National Institute on Drug Abuse, <a href="http://www.nida.nih.gov">www.nida.nih.gov</a></small></p>	<p><b>Slide 20: NIDA Brain Graphic</b>  Opioids affect the brain globally, including areas that control:</p> <ul style="list-style-type: none"> <li>• Automatic bodily functions such as breathing, blood pressure, pulse;</li> <li>• Emotions, especially the areas of the brain responsible for feeling pleasure;</li> <li>• Pain – opioids block the transmission of pain messages from the body to the brain thereby diminishing or stopping the experience of the pain.</li> </ul>
<p><b>Terminology</b></p> <p><u>Receptor:</u>  specific cell binding site or molecule: a molecule, group, or site that is in a cell or on a cell surface and binds with a specific molecule, antigen, hormone, or antibody</p>	<p><b>Slide 21: Receptor Pharmacology: Terminology</b>  Let's take the next few minutes to review some receptor pharmacology-related terms.</p> <p><u>Receptor</u>  A specific cell or place on a cell to which a specific molecule binds. There are unique receptors for many different molecules, including specific opioid receptors.</p>

<p>Small Group Exercise:</p> <p>Dependence vs. Addiction: What's the Difference?</p> <p>In your small groups, discuss this question.</p>	<p><b>**SMALL GROUP EXERCISE**</b></p> <p><b>Slide 22: Dependence vs. Addiction: What's the Difference?</b></p> <p><i>Break the audience into small groups (3-4 people), and ask them to discuss the difference between dependence and addiction. After approximately 10 minutes, have the group reconvene and ask for a few volunteers to describe their discussions.</i></p>
<p><b>Terminology</b> <b>Dependence versus Addiction</b></p> <ul style="list-style-type: none"> <li>■ The DSM-IV defines problematic substance use with the term <b>substance dependence</b>. It does not use the term addiction. This has been the source of much confusion.</li> <li>■ According to the DSM-IV definition, substance dependence is defined as <b>continued use despite the development of negative outcomes</b> including physical, psychological or interpersonal problems resulting from use.</li> <li>■ Most providers refer to this as addiction and <b>ADDICTION</b> is the term we will use throughout the rest of the training.</li> </ul>	<p><b>Slide 23: Dependence versus Addiction</b></p> <p>The standard for understanding all mental health disorders (including substance abuse) is the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). However, because the DSM uses the term “dependence” to mean two different things, a great deal of confusion has arisen.</p> <p>The DSM defines “substance dependence” as continued use in spite of a pattern of negative physical, psychological and interpersonal outcomes resulting from use.</p> <p>Most providers use the term “addiction” to describe this pattern of problems. In order to keep this term distinct, we will use the term <b>addiction</b> (<i>rather than dependence</i>) throughout this training to refer to this pattern of problems resulting from use.</p>
<p><b>Terminology</b> <b>Dependence versus Addiction</b></p> <ul style="list-style-type: none"> <li>■ Addiction may occur with or without the presence of <b>physical dependence</b>.</li> <li>■ Physical dependence results from the <b>body's adaptation</b> to a drug or medication and is defined by the presence of <ul style="list-style-type: none"> <li>● Tolerance and/or</li> <li>● Withdrawal</li> </ul> </li> </ul>	<p><b>Slide 24: Dependence versus Addiction</b></p> <p>The other use of the term “dependence” is to describe the body’s reaction to the presence of an addictive substance—that is physical dependence on the substance.</p> <p>Physical dependence is one symptom of addiction, but it is important to remember that addiction can occur with or without physical dependence.</p> <p>Physical dependence is defined by the presents of tolerance and/or withdrawal.</p> <p>Let’s look at the specific definitions of these terms.</p>

<p style="text-align: center;"><b>Terminology</b> <b>Dependence versus Addiction</b></p> <p><u>Tolerance:</u> the loss of or reduction in the normal response to a drug or other agent, following use or exposure over a prolonged period</p>	<p><b>Slide 25: Dependence versus Addiction</b> <u>Tolerance</u> Tolerance deals with the body’s adaptation to a drug or medication. With repeated exposure, the response to the substance lessens. It therefore requires a higher dose to get the same effect.</p>
<p style="text-align: center;"><b>Terminology</b> <b>Dependence versus Addiction</b></p> <p><u>Withdrawal:</u> a period during which somebody addicted to a drug or other addictive substance stops taking it, causing the person to experience <b>painful or uncomfortable symptoms</b></p> <p style="text-align: center;">OR</p> <p>a person <b>takes a similar substance</b> in order to avoid experiencing the effects described above.</p>	<p><b>Slide 26: Dependence versus Addiction</b> <u>Withdrawal</u> This is another indicator of the body’s adaptation to the drug. This process occurs when the normal dose is reduced or stopped and the person experiences painful or uncomfortable symptoms OR the person uses a similar substance in order to avoid these painful feelings.</p> <p>Let’s look at the problems that the DSM-IV identifies:</p>
<p style="text-align: center;"><b>DSM IV Criteria for Substance Dependence</b></p> <p>■ Three or more of the following occurring at any time during the same 12 month period:</p> <ul style="list-style-type: none"> <li>• Tolerance</li> <li>• Withdrawal</li> <li>• Substance taken in larger amounts over time</li> <li>• Persistent desire and unsuccessful efforts to cut down or stop</li> <li>• A lot of time and activities spent trying to get the drug</li> <li>• Disturbance in social, occupational or recreational functioning</li> <li>• Continued use in spite of knowledge of the damage it is doing to the self</li> </ul> <p><small>SOURCE: DSM-IV-TR, American Psychiatric Association, 2000.</small></p>	<p><b>Slide 27: DSM-IV Criteria for Substance Dependence</b> According to the DSM-IV, substance use disorders occur on a continuum. The less severe form of the problem is called abuse and is defined as having repeated problems associated with use, but generally the individual is still at least somewhat functional in their lives. As the problem worsens, the person moves on to addiction (or what the DSM-IV calls substance dependence) in which functioning is markedly impaired.</p> <p>Addiction is based on clusters of behaviors and physical effects. It is defined as a “maladaptive pattern of substance use leading to clinically significant impairment or distress as manifested by three (or more) of seven symptoms occurring at any time during a 12-month period.”</p> <p><i>Read the bullets aloud.</i></p> <p><i>Additional points to mention:</i></p> <p>Bullet #3: “<i>taking larger amounts</i>” – indicates a loss of control over moderating your drug use. “<i>Over time</i>” can also be stated as “<i>longer periods than intended.</i>”</p>

**Terminology**  
**Dependence versus Addiction**  
Summary

- To avoid confusion, in this training, "Addiction" will be the term used to refer to the pattern of continued use of opioids despite pathological behaviors and other negative outcomes.
- "Dependence" will only be used to refer to physical dependence on the substance as indicated by tolerance and withdrawal as described above.

**Slide 28: Dependence versus Addiction (summary)**

For clarity, let's review the terms again:

*Read slide aloud.*

**Opioid Agonists: Pharmacology**

- Stimulate opioid receptors in central nervous system & gastrointestinal tract
- Analgesia – pain relief (somatic & psychological)
- Antitussive action – cough suppression
- Euphoria, stuporousness, "nodding"
- Respiratory depression



**Slide 29: Opioid Agonists: Pharmacology**

So how do opioids work?

Opioids work by stimulating the opioid receptors in the brain and GI tract. When they bind to the receptor, users experience relief from pain, cough suppression, feelings of euphoria, and they may become stuporous. If the dose is high enough, they may experience a slowing of respiration. This final symptom can lead to death.

### Opioid Agonists: Pharmacology

- Pupillary constriction (miosis)
- Constipation
- Histamine release (itching, bronchial constriction)
- Reduced gonadotropin secretion
- Tolerance, cross-tolerance
- Withdrawal: acute & protracted





### Slide 30: Opioid Agonists: Pharmacology


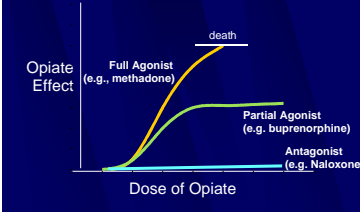

Other side effects of opioids include:

- Constriction of the pupils so that they become very small (sometimes referred to as pinpoint pupils);
- Constipation;
- An allergic type reaction accompanied by itching and/or difficulty breathing; and
- Lower libido due to decreases in sex hormones.

We have already discussed the definition of tolerance. With opioids, you also see cross-tolerance. This means that once tolerance develops for one substance (e.g., heroin) you will see tolerance for other opioids, as well (e.g., codeine or Demerol). If the person is receiving treatment with an opioid medication (either as a treatment for opioid addiction or for other medical indications), the dose will need to be adjusted depending upon the level of tolerance.

In a person who is otherwise generally healthy, withdrawal from an opioid agonist is not life threatening. However, it is characterized by drug cravings and marked distress, including flu-like symptoms, joint pain, and anxiety. It is also frequently associated with relapse to drug use. Once the immediate withdrawal from the drug is over (usually after a few days), there are residual emotional and physical symptoms that place the patient at significant risk for relapse.

<p><b>What Is the Definition of "Half-Life?"</b></p> <p><i>The time it takes for <b>half</b> a given amount of a substance such as a drug to be removed from living tissue through natural biological activity</i></p>	<p><b>Slide 31: What is the Definition of "Half-Life?"</b></p> <p><i>Read the definition aloud.</i></p>
<p><b>Duration of Action</b></p> <p><i>Two factors determine the duration of action of the medication:</i></p> <ul style="list-style-type: none"> <li>■ Half-life - time it takes to metabolize half the drug. In general, the longer the half-life, the longer the duration of action.</li> <li>■ Receptor affinity or strength of the bond between the substance and the receptor - medications that bind strongly to the receptor may have very long action even though the half-life may be quite short.</li> </ul>	<p><b>Slide 32: Duration of Action</b></p> <p>Duration of action is the length of time that a person experiences the effects of the drug. Two factors determine the duration of action:</p> <ul style="list-style-type: none"> <li>• <b>Half-life:</b> The slower the medication is removed from the body, the longer the experience lasts. Usually the next dose of a medication is taken at about one half-life.</li> <li>• <b>Affinity:</b> The strength with which a drug binds to a receptor. A medication that has high receptor affinity stays on the receptor for a longer period of time, and therefore continues to activate the receptor. This results in a longer duration of action than medications or drugs with lower affinity.</li> </ul> <p>A faster route of administration (such as smoking or injection), a shorter half-life, and a faster onset of action are all associated with a higher abuse potential for a drug.</p>
<p><b>Opioid Antagonist Half-Lives</b></p> <ul style="list-style-type: none"> <li>■ Naloxone – 15-30 minutes</li> <li>■ Naltrexone – 24-72 hours</li> </ul> 	<p><b>Slide 33: Opioid Antagonist Half-Lives</b></p> <p>Naloxone is a very fast-acting drug that is metabolized very quickly. This makes the medication very appropriate for treating emergency conditions (e.g., overdose).</p> <p>Naltrexone, however, is much longer acting, making it a better choice for antagonist maintenance therapy.</p>
<p><b>Opioid Agonist Half-Lives</b></p> <ul style="list-style-type: none"> <li>■ Heroin, codeine, morphine – 2-4 hours</li> <li>■ Methadone – 24 hours</li> <li>■ LAAM – 48-72 hours</li> </ul> 	<p><b>Slide 34: Opioid Agonist Half-Lives</b></p> <p>One reason people feel more stable on methadone than on heroin is because the medication has a very long half-life. The person feels stable taking the medication only once per day, as opposed to needing to dose every few hours on heroin.</p>

<p><b>Opioid Partial Agonist Half-Lives</b></p> <ul style="list-style-type: none"> <li>■ Buprenorphine – 4-6 hours (however, duration of action very long due to high receptor affinity)</li> <li>■ Pentazocine – 2-4 hours</li> </ul> 	<p><b>Slide 35: Opioid Partial Agonist Half-Lives</b></p> <p>Unlike methadone, buprenorphine has a fairly short half-life. However, it still has a very long duration of action. In this case, the duration of action results from high receptor affinity.</p>
<p><b>Partial vs. Full Opioid Agonist</b></p> 	<p><b>Slide 36: Partial vs. Full Opioid Agonist</b></p> <p>The partial agonist effects of buprenorphine make it much safer at higher doses than full agonists. This is due primarily to the ceiling effect preventing the respiratory suppression seen at higher doses of agonists.</p>
<p><b>Opioid Addiction and the Brain</b></p>  <p>Opioids attach to receptors in brain → <b>Pleasure</b></p> <p>Repeated opioid use → <b>Tolerance</b></p> <p>Absence of opioids after prolonged use → <b>Withdrawal</b></p>	<p><b>Slide 37: Opioid Addiction and the Brain</b></p> <p>At first, using opioids results in <u>PLEASURE</u>. But repeated exposure to opioids causes long-lasting changes in brain functioning, resulting in <u>TOLERANCE</u> (a need to keep using more and more in an attempt to feel the pleasure that was once felt).</p> <p>If you stop using opioids after you've used them for a prolonged period of time, you go through <u>WITHDRAWAL</u>.</p> <p>Environmental cues associated with drug use activate the brain and cause craving, which often leads back to drug use (<u>RELAPSE</u>).</p> <p><i>Mention that craving/triggers will be discussed in greater detail in Module VI.</i></p>

### What Happens When You Use Opioids?

- **Acute Effects:** Sedation, euphoria, pupil constriction, constipation, itching, and lowered pulse, respiration and blood pressure
- **Results of Chronic Use:** Tolerance, addiction, medical complications
- **Withdrawal Symptoms:** Sweating, gooseflesh, yawning, chills, runny nose, tearing, nausea, vomiting, diarrhea, and muscle and joint aches

### Slide 38: What Happens When You Use Opioids?

People report that the experience of taking opioids is intensely pleasurable. However, even early in the use cycle, people report negative side effects from use.

Acute effects include the euphoria and sedative effects; people also report constipation, itching, nausea and decreased pulse and respiration.

With chronic use, tolerance and withdrawal symptoms develop and the above symptoms may become more significant.

Withdrawal symptoms from opioids are quite unpleasant and include sweating, runny nose, diarrhea, nausea, and muscle and joint pain.

### Possible Acute Effects of Opioid Use

- Surge of pleasurable sensation = "rush"
- Warm flushing of skin
- Dry mouth
- Heavy feeling in extremities
- Drowsiness
- Clouding of mental function
- Slowing of heart rate and breathing
- Nausea, vomiting, and severe itching

### Slide 39: Possible Acute Effects of Opioid Use

*Summarize the symptoms associated with acute effects, chronic use, and withdrawal.*

Bullet #1: Rush is generally reported with administration by injection or smoking. It is not commonly associated with oral administration.

Bullet #5: Drowsiness is commonly referred to as "nodding out."

### Consequences of Opioid Use

- Addiction
- Overdose
- Death
- Use related (e.g., HIV infection, malnutrition)
- Negative consequences from injection:
  - Infectious diseases (e.g., HIV/AIDS, Hepatitis B and C)
  - Collapsed veins
  - Bacterial infections
  - Abscesses
  - Infection of heart lining and valves
  - Arthritis and other rheumatologic problems

### Slide 40: Consequences of Opioid Use

The first three consequences (addiction, overdose, and death) refer to opioid use in general. There are also consequences from behaviors that may be associated with substance use such as infections resulting from unprotected sexual behaviors, malnutrition, etc.

Many of the consequences refer specifically to injection drug use:

- Collapsed veins resulting from repeated injections.  
*Ask trainees: What do people do if their veins collapse? (Answer: find another place).*

*Ask trainees: Where besides the bend in the arm might people inject?*

*(Answer: other possible places include between toes/fingers, in the neck, in the thigh, under the tongue, in the groin or genital area).*

- Viral Infections such as HIV or Hepatitis C, resulting from sharing injection equipment with people.
- Bacterial infections may be caused by not cleaning the injection site properly or by using needles that have been exposed to bacteria. This can introduce bacteria to the blood stream.
  - An abscess is a subcutaneous infection. If untreated, an abscess can rupture and lead to sepsis or even death.
  - Blood infections can be contracted from bacteria transferred into the bloodstream via dirty needles/ syringes. The bacteria settles in the heart, causing an infection of the heart lining (endocarditis) or a breakdown of the heart's valves (which causes them to become less effective at bringing blood to and from the heart).
- Arthritis and other rheumatologic problems may develop as a result of chronic infections and muscle/tissue inflammation.

### Heroin Withdrawal Syndrome

- Intensity varies with level & chronicity of use
- Cessation of opioids causes a rebound in function altered by chronic use
- First signs occur shortly before next scheduled dose
- Duration of withdrawal is dependent upon the half-life of the drug used:
  - Peak of withdrawal occurs 36 to 72 hours after last dose
  - Acute symptoms subside over 3 to 7 days
  - Protracted symptoms may linger for weeks or months

### Slide 41: Heroin Withdrawal Syndrome

Once the body becomes accustomed to the drug being on board, it may react if the drug is removed. The intensity of the withdrawal symptoms will depend on the level of use (dose and type of opioid) and the frequency and duration of use (chronicity).

Withdrawal symptoms are basically a rebound effect; those functions that have been depressed or altered by the opioid suddenly emerge again. Withdrawal symptoms are often the opposite of symptoms seen when actively using the opioid (e.g., people get constipated when taking opioids and have diarrhea when withdrawing).

First signs of withdrawal occur shortly after the next scheduled dose.

Length of the withdrawal depends upon the half-life. Opioids with short half-lives (e.g., heroin) have acute withdrawal symptoms that peak at 3-4 days and then subside by days 3-7. Opioids with longer half-lives have longer acute withdrawal periods.

Regardless of the length of the acute withdrawal, there are protracted withdrawal symptoms (e.g., aches and pains, general malaise) that persist for weeks or months after use ceases.

### Opioid Withdrawal Syndrome Acute Symptoms

- Pupillary dilation
- Lacrimation (watery eyes)
- Rhinorrhea (runny nose)
- Muscle spasms ("kicking")
- Yawning, sweating, chills, gooseflesh
- Stomach cramps, diarrhea, vomiting
- Restlessness, anxiety, irritability

### Slide 42: Opioid Withdrawal Syndrome: Acute Symptoms

Acute withdrawal symptoms are the opposite of acute intoxication symptoms.

*Summarize the acute withdrawal symptoms.*

### Opioid Withdrawal Syndrome Protracted Symptoms

- Deep muscle aches and pains
- Insomnia, disturbed sleep
- Poor appetite
- Reduced libido, impotence, anorgasmia
- Depressed mood, anhedonia
- Drug craving and obsession

### Slide 43: Opioid Withdrawal Syndrome: Protracted Symptoms

Protracted withdrawal symptoms are less severe than the acute symptoms, but are still experienced as extremely disruptive and uncomfortable.

*Summarize the acute withdrawal symptoms.*

Anorgasmia = inability to have an orgasm

Anhedonia = overall lack of pleasure (everything is gray)

 <p>Treatment of Opioid Addiction</p>	<p style="text-align: center;"><b>Transition</b></p> <p><b>Slide 44: Treatment of Opioid Addiction</b>          Anyone who takes opioids for a period of time will develop physical dependence on them. For instance, a patient who is taking vicodin over a period of time for pain will experience withdrawal symptoms if they stop taking in suddenly. This does not mean that they are addicted. It just means that their body has adapted to the medication. Generally, the prescribing physician will help the patient gradually taper down on the dose once the medication is no longer needed.</p> <p>However, if a person has an addiction to opioids—that is lost control over his/her use, and/or developed the problems associated with addiction (whether or not physical dependence is present)—it is unlikely that he/she is going to stop using without some sort of treatment. The next section of the training will look at the treatment options available for opioid addiction.</p>
 <p>Treatment Options for Opioid-Addicted Individuals</p> <ul style="list-style-type: none"> <li>■ Behavioral treatments educate patients about the conditioning process and teach relapse prevention strategies.</li> <li>■ Medications such as methadone and buprenorphine operate on the opioid receptors to relieve craving.</li> <li>■ <b>Combining the two types of treatment enables patients to stop using opioids and return to more stable and productive lives.</b></li> </ul>	<p><b>Slide 45: Treatment Options for Opioid-Addicted Individuals</b>          The successful treatment for opioid addiction requires both management of physical withdrawal symptoms and behavioral and cognitive changes that encourage the patient to abstain from using the drug of abuse in the future. Providing psychosocial and counseling services along with pharmaceutical treatment increases the likelihood of achieving long-term, comprehensive lifestyle changes and preventing relapse. You want to help the patient restore a degree of normalcy to brain function and behavior, thereby leading to increased employment rates, reduced criminal behavior, and lowered risk of HIV, hepatitis C, and other diseases.</p> <p><i>Stress the importance of combining both treatment approaches (Bullet #3).</i></p> <p>The bottom line is that you need to tailor the treatment to meet the particular needs of the patient (e.g., deciding between inpatient and outpatient, behavioral and pharmacological, etc.).</p>

**How Can You Treat Opioid Addicts?  
Medically-Assisted Withdrawal**

- Relieves withdrawal symptoms while patients adjust to a drug-free state
- Can occur in an inpatient or outpatient setting
- Typically occurs under the care of a physician or medical provider
- Serves as a precursor to behavioral treatment, because it is designed to treat the acute physiological effects of stopping drug use

SOURCE: Principles of Drug Addiction Treatment: A Research-Based Guide, NIDA, 2000.

**Slide 46: How Can You Treat Opioid Addiction?  
Medically-Assisted Withdrawal**

The individual is systematically withdrawn from addicting drugs. Medications (e.g., methadone, buprenorphine, clonidine) are used to alleviate withdrawal symptoms while the person gradually returns to an opioid-free state.

It can be done successfully in inpatient or outpatient settings, but the treatment plan should be carefully developed to ensure adequate structure and support.

Generally, a medical provider supervises the withdrawal to monitor medical safety and administer medications to relieve discomfort.

Generally, this approach is not sufficient by itself to transition someone to maintaining an ongoing opioid-free life. Longer-term treatment that helps the person to develop new behaviors and strategies for coping is critical.

Patients who are not successful in withdrawing or who choose not to withdraw from opioids should be considered for treatment with medications as part of the treatment plan (either short- or long-term).

**How Can You Treat Opioid Addicts?  
Long-Term Residential Treatment**

- Provides care 24 hours per day
- Planned lengths of stay of 6 to 12 months
- Highly structured
- Models of treatment include Therapeutic Community (TC), cognitive behavioral treatment, etc.
- Many TCs are quite comprehensive and can include employment training and other supportive services on site.

SOURCE: Principles of Drug Addiction Treatment: A Research-Based Guide, NIDA, 2000.

**Slide 47: How Can You Treat Opioid Addiction?  
Long-Term Residential Treatment**

Provides a highly structured environment (away from the person's usual environment) in which treatment occurs.

Residential treatment may employ a variety of models, including Therapeutic Communities and cognitive behavioral therapy.

TCs focus on the resocialization of the individual and use the program's entire community, including other residents, staff, and the social context, as active components of treatment.

**How Can You Treat Opioid Addicts?  
Outpatient Psychosocial Treatment**

- Varies in types and intensity of services offered
- Costs less than residential or inpatient treatment
- Often more suitable for individuals who are employed or who have extensive social supports

SOURCE: Principles of Drug Addiction Treatment: A Research-Based Guide, NIDA, 2000.

**Slide 48: How Can You Treat Opioid Addiction?  
Outpatient Psychosocial Treatment**

People involved in outpatient psychosocial treatment continue to live in the community while receiving their treatment.

The exact structure and elements of treatment vary greatly from program to program.

Generally, outpatient treatment is less costly than residential treatment.

Outpatient programs also offer increased flexibility, allowing people to continue to hold down jobs and make use of social supports in the community.

**How Can You Treat Opioid Addicts?  
Outpatient Psychosocial Treatment**

- Group counseling is emphasized
- Detox often done with clonidine
  - Ancillary medications used to help with withdrawal symptoms
  - People often report being uncomfortable
  - Often people cannot tolerate withdrawal symptoms and discontinue treatment

SOURCE: Principles of Drug Addiction Treatment: A Research-Based Guide, NIDA, 2000.

**Slide 49: How Can You Treat Opioid Addiction?  
Outpatient Psychosocial Treatment**

Group counseling is generally the primary treatment in these programs.

Medically assisted withdrawal is generally done using clonidine and other non-narcotic medications.

People often report being very uncomfortable during the withdrawal process.

For this reason, many people leave treatment prematurely because they cannot tolerate the symptoms.

How Can You Treat Opioid Addicts?  
*Behavioral Therapies*

- **Contingency management**
  - Based on principles of operant conditioning
  - Uses reinforcement (e.g., vouchers) of positive behaviors in order to facilitate change
- **Cognitive-behavioral interventions**
  - Modify patient's thinking, expectancies, and behaviors
  - Increase skills in coping with various life stressors

SOURCE: Principles of Drug Addiction Treatment: A Research-Based Guide, NIDA, 2000.

**Slide 50: How Can You Treat Opioid Addiction?  
*Behavioral Therapies***

Behavioral therapies are designed to help individuals change their thought patterns around drug use and learn new behaviors to help them stop using and avoid relapse.

Two general strategies have shown a great deal of promise:  
Contingency management:

- Helps the patient to adopt new behaviors by reinforcing behaviors that move them toward their treatment goals

Cognitive-behavioral interventions:

- Help the patient to change the way they think and behave with regards to drug use
- Increase positive coping strategies

Many different types of behavioral therapies have been used successfully for substance abuse disorders. These include:

- Motivational Enhancement Therapy
- The Matrix Model
- Cognitive and Cognitive-Behavioral Therapy
- Community Reinforcement Approach
- Self-Help Programs

**MENTION THE FOLLOWING *FREE RESOURCES:***

SAMHSA's *Treatment Improvement Protocol (TIP)* series includes a number of documents that contain best-practice guidelines for the provision of interventions and therapies for individuals with substance abuse disorders.

The *Principles of Drug Addiction Treatment: A Research-Based Guide* (a.k.a., the NIDA Blue Book) reviews treatment approaches that have empirical support for their efficacy.

How Can You Treat Opioid Addicts?  
*Agonist Maintenance Treatment*

- Patients stabilized on adequate, sustained dosages of these medications can function normally.
- They can hold jobs, avoid crime and violence of the street culture, and reduce their exposure to HIV by stopping or decreasing IV drug use and drug-related sexual behavior.
- Can engage more readily in counseling and other behavioral interventions essential to recovery and rehabilitation

SOURCE: Principles of Drug Addiction Treatment: A Research-Based Guide, NIDA, 2000.

**Slide 51: How Can You Treat Opioid Addiction?  
*Agonist Maintenance Treatment***

Agonist maintenance helps to stabilize people so that they don't constantly experience the cycles of use and withdrawal. This allows them to function more normally.

The negative behaviors associated with use are diminished.

The person can immediately engage in the treatment experience while interested and motivated to receive treatment, rather than feeling sick (withdrawal) for a week or more and then beginning the treatment process.

<p><b>How Can You Treat Opioid Addicts? Agonist Maintenance Treatment</b></p> <ul style="list-style-type: none"> <li>■ Usually conducted in outpatient settings</li> <li>■ Treatment provided in opioid treatment programs or, with buprenorphine, in office-based settings</li> <li>■ Use a long-acting synthetic opioid medication, usually methadone</li> <li>■ Administer the drug orally for a sustained period at a dosage sufficient to prevent opioid withdrawal, block the effect of illicit opiate use, and decrease opioid craving</li> </ul> <p><small>SOURCE: Principles of Drug Addiction Treatment: A Research-Based Guide, NIDA, 2000.</small></p>	<p><b>Slide 52: How Can You Treat Opioid Addiction? Agonist Maintenance Treatment</b></p> <p>These treatments have been conducted primarily on an outpatient basis in specific opioid treatment programs. With the addition of buprenorphine to the treatment system, patients can also receive treatment through physicians in the offices.</p> <p>Generally, a long-acting opioid (traditionally methadone, now also buprenorphine) is used. These medications prevent the occurrence of withdrawal symptoms and block the effects of illicit opioids if they are used. They also help to decrease craving for the drug.</p>
<p><b>How Can You Treat Opioid Addicts? Agonist Maintenance Treatment</b></p> <ul style="list-style-type: none"> <li>■ The best, most effective opioid agonist maintenance programs include individual and/or group counseling, as well as provision of, or referral to other needed medical, psychological, and social services.</li> </ul> <p><small>SOURCE: Principles of Drug Addiction Treatment: A Research-Based Guide, NIDA, 2000.</small></p>	<p><b>Slide 53: How Can You Treat Opioid Addiction? Agonist Maintenance Treatment</b></p> <p>Maintenance programs are most effective if they are combined with an effective behavioral treatment program.</p> <p>Additionally, patients may need treatment for other medical or psychological conditions. They may also need a variety of social support services. Social services include:</p> <ul style="list-style-type: none"> <li>• Vocational rehabilitation</li> <li>• Employment</li> <li>• Education</li> <li>• Housing</li> <li>• Case management</li> <li>• Parenting</li> <li>• Socialization skills</li> <li>• Anger management</li> </ul>
<p><b>Benefits of Methadone Maintenance Therapy</b></p> <ul style="list-style-type: none"> <li>■ Used effectively and safely for over 30 years</li> <li>■ Not intoxicating or sedating, if prescribed properly</li> <li>■ Effects do not interfere with ordinary activities</li> <li>■ Suppresses opioid withdrawal for 24-36 hours</li> </ul>	<p><b>Slide 54: Benefits of Methadone Maintenance Therapy</b></p> <p><i>Review and summarize bullet points.</i></p>

**How Can You Treat Opioid Addicts?  
Antagonist Maintenance Treatment**

- Usually conducted in outpatient setting
- Initiation of naltrexone often begins after medical detoxification in a residential setting
- Individuals must be medically detoxified and opioid-free for several days before naltrexone is taken (to prevent precipitating an opioid withdrawal syndrome).

SOURCE: Principles of Drug Addiction Treatment: A Research-Based Guide, NIDA, 2000.

**Slide 55: How Can You Treat Opioid Addiction?  
Antagonist Maintenance Treatment**

Use of opioid antagonists can also be effective. As with agonist treatment, antagonist treatment is generally conducted through an outpatient setting.

The antagonist is prescribed after medical withdrawal from opioids is complete.

If antagonists are administered before complete withdrawal, the person may experience immediate and intense withdrawal.

**How Can You Treat Opioid Addicts?  
Antagonist Maintenance Treatment**

- Repeated lack of desired opioid effects, as well as the perceived futility of using the opiate, will gradually over time result in breaking the habit of opiate addiction.
- Patient noncompliance is a common problem. A favorable treatment outcome requires that there also be a positive therapeutic relationship, effective counseling or therapy, and careful monitoring of medication compliance.

SOURCE: Principles of Drug Addiction Treatment: A Research-Based Guide, NIDA, 2000.

**Slide 56: How Can You Treat Opioid Addiction?  
Antagonist Maintenance Treatment**

Antagonists block the effects of any illicit opioid. Over time, this helps the person to break the pattern and desire of use.

One problem with antagonist treatment is that patients stop taking them because they want to get the experience of taking an agonist.

Effective antagonist maintenance therefore requires:

- A positive therapeutic relationship with the treatment provider;
- Ongoing counseling; and
- Monitoring of medication to determine level of compliance.

**Module II – Summary**

- Opioids attach to receptors in the brain, causing pleasure. After repeated opioid use, the brain becomes altered, leading to tolerance and withdrawal.
- Medications operating through the opioid receptors, such as buprenorphine, prevent withdrawal symptoms and help the person function normally.
- Behavioral treatment can also address cravings that arise from environmental cues.

**Slide 57: Module II – Summary**

*Review and summarize bullet points.*