

# Medication Assisted Treatment (MAT) for Opioid Addiction

# Why MAT?

## Studies examining the effectiveness of opioid substitution treatment have found these results:

- \* Superior retention rates in comparison to abstinence only treatment
- \* Reduction in illicit opioid use/drug seeking
- \* Reduction in criminal activity
- \* Reduction in the transmission of HIV among drug users and the occurrence of high-risk injection practices

*(Mattick, Breen, Kimber, Davoli, 2009 ); (Dole, Nyswander, 1965); (Marsh, 1998);  
(National Institutes of Health, 1997)*

# Medications Used in Opioid Treatment

- \* Methadone
- \* Buprenorphine
- \* Naltrexone

# Medications Used in Opioid Treatment

## **Methadone and Buprenorphine(Suboxone/Subutex)**

- \* Act on the same receptors in the brain as heroin and morphine (but in different ways)
- \* Suppress withdrawal symptoms and relieve cravings
- \* Block the euphoric effects of other, illicit opioids for at least 24 hours (depending on half-life)

# Medications Used in Opioid Treatment

## Methadone and Buprenorphine (Suboxone/Subutex)

### Methadone

- \* Pill, wafer or liquid form
- \* Dispensed only in state-licensed clinics
- \* Has potential for abuse

### Buprenorphine

- \* Film or pill, both of which dissolve under the tongue
- \* Suboxone and Subutex are forms of Buprenorphine
  - \* Subutex isn't manufactured any longer
  - \* (mono product, combination product, Bunavail, Zubsolv)
- \* Dispensed by prescription, "waivered" physician or clinic
  - \* Special DEA license, SAMHSA provides the waiver
- \* Less potential for abuse

# Medications Used in Opioid Treatment

## Suboxone and Subutex

Both medicines contain buprenorphine hydrochloride, which works to reduce the symptoms of opiate dependence.

### Suboxone

- \* buprenorphine (partial opioid agonist: activates opioid receptors) plus naloxone (opioid antagonist: blocks opioid receptors)
- \* naloxone guards against misuse: causes withdrawal symptoms if taken by a route other than oral

### Subutex

- \* contains only buprenorphine
- \* Not sold as Subutex in US any longer – only generic form
- \* Subutex reserved for pregnant women, or those who have allergy to naloxone

# Medications Used in Opioid Treatment

## Naltrexone

- \* Works by **blocking the euphoric effects** of heroin or other opioids at their receptor sites
- \* Should only be used in patients who have already been detoxified for 10 – 14 days– it precipitates withdrawal
- \* Does not have addictive/reward properties; therefore, many patients are not motivated enough to take it on a regular basis.
- \* Not as widely used as the other medications because it does not suppress withdrawal. Also, once patients have started on naltrexone the risk of overdose death is increased if relapse does occur – tolerance has dropped.

<http://www.dpt.samhsa.gov/medications/naltrexone.aspx>

# Medications Used in Opioid Treatment

## **Naltrexone**

- \* Oral daily form (ReVia®, Depade®)
- \* Injectable monthly extended-release form (Vivitrol®)
- \* Used in treatment of alcoholism as well (alcohol and opioids bind to the same receptors) – Vivitrol can be pricey, however also may be covered by insurance
- \* In alcohol treatment, prevents the euphoria and rewarding properties of alcohol consumption, so the patient drinks less or not at all

<http://www.dpt.samhsa.gov/medications/naltrexone.aspx>



# Methadone vs. Buprenorphine

- \* Participants choosing methadone had more severe substance abuse and psychiatric and physical problems coming in to treatment, but were more likely to remain in treatment. Analysis shows those prescribed methadone were over twice as likely to be retained in treatment
- \* However, those retained on buprenorphine were more likely to suppress illicit opiate use and achieve detoxification
- \* Buprenorphine may also recruit more individuals to treatment, because 28% of those choosing buprenorphine stated they would not have accessed treatment with methadone.

# How Does Methadone Work?

- \* Has a long half life – effects last at least 24 hours after induction phase (heroin: 4-6 hours)
- \* As the dose is increased over time (induction phase), excess methadone is stored in body tissue and blood stream – this causes it to act like “time release”
- \* A stabilization is reached, and patient is in a “steady state”
- \* Then “Narcotic Blockade” is achieved - opiate receptors seated with methadone, no room for other narcotics to “sit”
- \* Slowly passed to the brain when need to fill opiate receptors
- \* Methadone has a higher affinity for opiate receptors than other opiates
- \* It’s a full agonist, meaning, a perfect fit for the opiate receptor

Basic Pharmacology Series

[http://methadone.org/library/index\\_education\\_series.html](http://methadone.org/library/index_education_series.html)

# How Does Buprenorphine Work?

- \* It's a partial agonist: It binds to the opioid receptors, but without a complete effect
- \* The receptor is occupied with an opiate, but there is no euphoria, because of the ceiling effect
- \* There is limited respiratory depression
- \* Because buprenorphine occupies the receptor with stronger affinity, other opioids (like heroin) have limited to no effect
- \* If the patient uses heroin or painkillers, they are unlikely to experience additional (or euphoric) effects
- \* Buprenorphine tends to “stick” to the receptors much longer than opioids like heroin do. This stickiness, is what makes Buprenorphine last so long, up to 2 days

# Is Methadone Tx Effective?

**"For more than 45 years, research has confirmed that opioid agonist therapy (methadone) is a highly effective treatment for opioid addiction provided outside primary care. "**

*Alford, Daniel P., et al (2011)*  
<http://archinte.jamanetwork.com/article.aspx?articleid=226781>

**"The safety and efficacy of narcotic agonist (methadone) maintenance treatment has been unequivocally established."**

*National Institutes of Health (1997)*  
<http://consensus.nih.gov/1997/1998TreatOpiateAddiction108PDF.pdf>

**"Prolonged oral treatment with this medicine (methadone) diminishes and often eliminates opiate use, reduces transmission of many infections, including HIV and hepatitis B and C, and reduces criminal activity."**

*National Institutes of Health (1997)*  
<http://consensus.nih.gov/1997/1998TreatOpiateAddiction108PDF.pdf>

# Is Buprenorphine Tx Effective?

- \* Buprenorphine is similar to methadone in efficacy for opiate detoxification and maintenance
- \* Safer than methadone when it comes to risk of overdose
- \* Pharmacotherapy from physicians' offices makes buprenorphine treatment acceptable to some opiate-dependent patients who would not accept treatment in traditional opiate-maintenance clinics

Wesson, et al (2010)

<http://www.ncbi.nlm.nih.gov/pubmed/20648912>

# Is MAT Just Trading One Drug for Another?

**In successful MAT, the compulsive behavior, the loss of control of drug use, the constant cravings, and all of the other hallmarks of addiction vanish.**

**When all signs and symptoms of the disease of addiction vanish, we call that remission, not switching addictions.**

[https://www.naabt.org/faq\\_answers.cfm?ID=1](https://www.naabt.org/faq_answers.cfm?ID=1)

# Is MAT Just Trading One Drug for Another?

- \* The key to this is knowing the difference between **physical dependence/tolerance and addiction**.
- \* MAT patients will maintain some of the preexisting physical dependence
- \* Physical dependence, unlike addiction, is not a dangerous medical condition that requires treatment
- \* Addiction is damaging and life-threatening, while physical dependence is an inconvenience
- \* Physical dependence is normal physiology for anyone taking opioids (and many other drugs, including blood pressure medicines and anti-depressants) for an extended period of time.

# Why Not Taper Off As Soon As Stability is Achieved?

- \* Studies show that patients in long-term **methadone** maintenance, even those who taper gradually, frequently fail during the taper process, or relapse within 6 months of becoming abstinent
- \* SAMHSA consensus group recommends that detox be optional and patients never coerced into tapering.
- \* Patients which have been discontinued from **buprenorphine** also show high rates of relapse.



# Why Not Taper Off As Soon As Stability is Achieved?

## Why the high relapse rate when MAT is discontinued?

- \* The brain has been fundamentally altered, physically, by long-term use of opiates
- \* Neurotransmitters are not at normal levels
- \* They may never return to normal levels

[https://www.whitehouse.gov/sites/default/files/ondcp/recovery/medication\\_assisted\\_treatment\\_9-21-20121.pdf](https://www.whitehouse.gov/sites/default/files/ondcp/recovery/medication_assisted_treatment_9-21-20121.pdf)

*Consider:* When a clinically depressed person who has been suicidal for several years, finally stabilizes on an antidepressant, becomes functional and stops trying to kill/hurt him or herself, we do not encourage them to **“hurry up and get off that drug”**...

# More on how the Brain Changes...

For an excellent, understandable read on the changes in the brain resulting from chronic opioid abuse, please see:

- \* **The Neurobiology of Opioid Dependence: Implications for Treatment**, by Thomas Kosten, M.D., and Tony George, M.D.
- \* <http://archives.drugabuse.gov/pdf/Perspectives/vol1no1/03Perspectives-Neurobio.pdf>

***It's written for non-scientists.***