PHARMACOTHERAPY FOR SUBSTANCE USE DISORDERS
Medication-Assisted Treatment (MAT) is a form of pharmacotherapy and refers to any treatment for a substance use disorder that includes a pharmacologic intervention as part of a comprehensive substance abuse treatment plan with an ultimate goal of patient recovery with full social function.
In the US, MAT has been demonstrated to be effective in the treatment of alcohol dependence with Food and Drug Administration approved drugs such as disulfiram, naltrexone and acamprosate; and opioid dependence with methadone, naltrexone and buprenorphine.
As part of a comprehensive treatment program, MAT has been shown to:

- Improve survival
- Increase retention in treatment
- Decrease illicit opiate use
- Decrease hepatitis and HIV seroconversion
- Decrease criminal activities
- Increase employment
- Improve birth outcomes with perinatal addicts
MEDICATIONS FOR ALCOHOL DEPENDENCE

- **Naltrexone** (ReVia®, Vivitrol®, Depade®)
- **Disulfiram** (Antabuse®)
- **Acamprosate Calcium** (Campral®)
NALTREXONE

In 1994, naltrexone was approved by the FDA to treat alcohol dependence after the medication was shown to reduce the frequency of drinking and likelihood of relapse to heavy drinking (Garbutt et al., 2005). The drug is considered an opioid antagonist and acts by blocking the effects of opiate drugs. It is also thought to reduce the behavioral response to alcohol. Several components of the alcohol drinking sequence are affected, including lowered cravings, decreased reinforcement of drinking, and increased headache and nausea that further reduces the quantity of intake (Keltner & Folks, 2005).
NALTREXONE

Numerous studies have shown the effectiveness of this medication in reducing drinking and preventing relapse (Kranzler & Van Kirk, 2001). This medication has also successfully been used to reduce opiate cravings and use.
NALTREXONE

One problem with the use of naltrexone, as well as other medications, is compliance (Doweiko, 2002). Low motivation, avoidance of unpleasant side effects, cognitive impairments, and willful neglect are cited as primary reasons for noncompliance. To combat the problem of medication noncompliance, a new long-acting injectable form of naltrexone called Vivitrol has been developed.
NALTREXONE

Clients receive a once-per-month injection of the medication rather than taking daily oral doses. Jacob reports that he is seeing good results with this form of the medication, and clinical trials have supported his observations. He cautions that it is still too early to determine the long-term effectiveness of this medication.
One of the oldest medications used in the treatment of alcohol abuse/addiction is disulfiram. It was designed to provide users with aversive and unpleasant effects when they drink alcohol. The medication works by preventing the breakdown of alcohol in the body, creating numerous unpleasant reactions ranging from flushing and nausea to, in some cases, death. The goal is alcohol avoidance based on the fear of experiencing these unpleasant effects. Unfortunately, there is no evidence that the use of disulfiram results in higher abstinence rates or longer periods of abstinence (Doweiko, 2002).
ANTABUSE

Because of the potentially dangerous results and complications, this medication is not used with everyone attempting to stop drinking alcohol. Users must be educated about how to use the medication safely and must also be motivated to use it regularly. This medication can act as an additional support tool for those who are able to use it. Fear of the unpleasant side effects can help to give users time to “think before they drink.” For many, this extra time may help the user to avoid impulsive drinking.
ANTABUSE

Unfortunately, research shows that many users stop the medication a few days before they plan to drink, suggesting that there is less of an impulsive reaction and more of a planned one. This relapse process is triggered by or will trigger intense cravings for alcohol.
Another medication used for treating alcohol dependence is acamprosate. Like naltrexone, it is used to reduce alcohol cravings and prevent relapse. It is chemically different than naltrexone and has agonist effects at gamma-aminobutyric acid receptors and inhibitory effects at N-methyl-D-aspartate receptors (Keltner & Folks, 2005). It can be used separately or in combination with naltrexone.
CAMPRAL

In a meta-analysis of all placebo-controlled trials of naltrexone or acamprosate for alcoholism treatment, there were significant effects on treatment retention and/or drinking outcomes. There did not seem to be any statistically significant difference between the two drugs in these areas (Kranzler & Van Kirk, 2001). However, the authors state that there has been an absence of studies comparing the effects of these medications.
CAMPRAL

One recent randomized controlled trial, the COMBINE Study, examined the efficacy of acamprosate, naltrexone, and combined behavioral interventions (CBI) (Anton et al., 2006). The researchers looked at each medication individually with or without CBI and combined with or without CBI. They reported that medical management with naltrexone, CBI, or both produced better outcomes, but acamprosate showed no evidence of efficacy with or without CBI.
MEDICATIONS FOR OPIOID DEPENDENCE

- Methadone
- Buprenorphine (Suboxone® and Subutex®)
- Naltrexone
- Levo-alpha Acetyl Methadol (LAAM)
METHADONE

Used extensively for the treatment of opiate withdrawal and replacement since the mid-1960s, methadone has helped thousands of opiate addicts stop using opiates altogether or replace their illicit drug use and corresponding lifestyle and behavior with a return to more normal functioning.

While methadone can be used to ameliorate withdrawal symptoms in early detoxification, it is most known for its use in long-term maintenance. It is estimated that approximately 179,000 individuals are in a methadone maintenance program in the United States (Doweiko, 2002).
METHADONE

The usual treatment course involves daily visits to a licensed clinic to receive a single dose of methadone to offset cravings and withdrawal symptoms. Theoretically, clients also will receive psychosocial support services, including drug testing, to verify abstinence from other drugs. While this is the desired approach, it has not been the practice in many programs that offer little more than a steady supply of oral methadone (Doweiko, 2002).

One positive effect of methadone maintenance vs. the continued use of heroin or other opiates is that by receiving a regular dose of medication, the client is not forced to engage in illegal or undesirable behaviors to secure the drug. Unfortunately, if clients are not monitored or receiving psychosocial support, they may continue to engage in drug abuse and the associated lifestyle.
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Levo-alpha Acetyl Methadol (LAAM)

An alternative to methadone is a medication known as LAAM that is also primarily used as a replacement therapy for opiate drugs. LAAM is sometimes preferred to methadone because it requires less frequent dosing, allowing for fewer clinic visits and expanded integration into work and other rehabilitative activities (Keltner & Folks, 2005). LAAM treatment outcomes are comparable to methadone with respect to reduction of opioid use, although retention rates are higher for clients treated with methadone (Keltner & Folks, 2005). Longer LAAM treatments are associated with better outcomes.
BUPRENORPHINE

Relatively new medications—two forms of buprenorphine—were approved in 2002 for office-based treatment of opioid abuse and addiction. Suboxone and Subutex are used for detoxification and maintenance treatment. These medications come as sublingual tablets and can be self-administered.
Buprenorphine

Outcomes appear to be similar to methadone, and some studies have produced promising results on the effectiveness (Amass, Bickel, Higgins, & Hughes, 1994). One advantage is that the client does not need to visit a registered clinic several times per week, increasing access and convenience.
BUPRENORPHINE

A disadvantage is that it makes it easier for the client to avoid or discount the importance of psychosocial rehabilitation or support. Physicians wishing to prescribe this medication must meet special training criteria and agree to treat no more than 30 patients at any time in their individual practice.
**Buprenorphine**

Subjectively, many clients being treated with buprenorphine report better results and compliance even with previous failures on methadone or other treatments. Koo adds, “Buprenorphine eases the fall and for some, it seems to stop the fall altogether.”
OTHER TREATMENTS FOR ABUSE AND DEPENDENCE – 12 STEP PROGRAMS

Addiction treatment has evolved extensively during the last several years. The primary psychosocial treatment method involves a 12-step-based program structured around the principles of Alcoholics Anonymous (AA). Clients are taught the basic “steps” and principles of recovery and learn to live clean and sober. Participation in 12-step-based support groups is usually mandatory or highly encouraged.
COGNITIVE BEHAVIOR THERAPY

The use of cognitive behavioral therapy, including skills training; motivational enhancement techniques, a stages of change model; and integrated treatment for clients with co-occurring disorders have been shown to increase positive outcomes in addiction treatment. While there is no “magic bullet” or cure for addiction, substance abuse treatment has been shown effective in reducing drug use and its associated health and social costs. Treatment is less expensive than alternatives such as no treatment or incarceration (NIDA, 2001).