JULY 18, 2017

AN OVERVIEW OF MEDICATION-ASSISTED TREATMENT FOR OPIOID USE DISORDERS FOR CRIMINAL JUSTICE-INVOLVED INDIVIDUALS

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Abstract: There is a national opioid epidemic and one intervention to help those suffering from an opioid use disorder (OUD) is medication-assisted treatment (MAT). MAT is the use of medications in conjunction with behavioral therapy as part of a long-term treatment regimen. There are three main MAT medications used today—methadone, buprenorphine, and naltrexone. Research has shown MAT, in particular the use of methadone or buprenorphine, is considered an evidence-based practice to treat OUD. Studies indicate those in MAT have better outcomes than those who engage in therapy alone. This article provides an overview of MAT with a focus on use with criminal justice populations.

Many states across the country are experiencing an opioid crisis. In 2014, an estimated 1.9 million individuals had an opioid use disorder (OUD) related to prescription drugs and another 586,000 had an OUD related to heroin use.[1] Illinois had a 76 percent increase in opioid overdose deaths from 2013 to 2016, from 1,072 to 1,888 deaths.[2] While it is rare for individuals who misuse prescription drugs to transition to heroin, prescription drug misuse is a strong risk factor for later heroin use.[3] Despite the existence of effective OUD treatment methods, only about 10 percent of U.S. citizens in need receive any treatment.[4]

As it relates to opioid use, medications can be used in two different ways. They can be used as part of "medically managed detoxification," where the goal is to reduce the discomfort of physical symptoms and intense cravings during detoxification. In most settings, opioid detoxification lasts approximately 3-7 days. Studies show that people who only engage in medical detoxification but do not continue to engage in treatment are not likely to abstain from drug use. [5] However, the use of medications in conjunction with behavioral intervention as part of a long-term treatment regimen is referred to as medication-assisted treatment (MAT). MAT, in particular the use of medications methadone or buprenorphine, is considered an evidence-based practice to treat OUD. Studies show that individuals who use medications in addition to therapy have better outcomes than those who engage in therapy alone. This article provides an overview of community- and corrections-based MAT, and describes the three main MAT medications used today—methadone (Methadose®, Diskets®, Dolophine®), buprenorphine (Subutex®, Suboxone®, Zubsolv®, Bunavail®, Butrans®, Buprenex®, Probuphine®), and naltrexone (Vivitrol®), and implications for treating criminal justice populations.

Overview of OUD and Use of Medication-Assisted Treatment

While opioids can effectively treat and relieve acute pain, risks associated with use and misuse can be serious. There is currently no long-term evidence to support the use of opioids for chronic pain (pain lasting longer than 3 months) and this practice has been under increasing scrutiny in recent years.[6] Opioid use can result in drowsiness/sedation, mental confusion, euphoria, nausea, and constipation, and higher doses can cause respiratory depression, which can lead to death.[7] Doctors can legally prescribe opioid pain relievers, such as oxycodone, hydrocodone, morphine, fentanyl, and codeine.[8] However, individuals can obtain these medications illegally from friends, family members, and/or through "doctor shopping." There are also reports of people stealing opioids from hospitals, pharmacies, or hospices; ordering opioids on the internet; and forging prescriptions. Heroin is also an opioid, producing physical and psychological effects similar to prescription opioids.[9] In recent years, there has been increasing awareness of the availability of illicitly produced fentanyl, sold illegally in the same heroin markets. Available studies have suggested that most deaths due to fentanyl originate from illicitly produced fentanyl, not prescribed fentanyl.[10]

Some individuals who use opioids go on to develop an OUD. A clinical diagnosis of an OUD is based on the presence of symptoms within a 12-month period on a repeated or recurring basis as outlined in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5).[11] Trained, professional clinicians, with the use of clinical assessment instruments, engage individuals to diagnose OUDs, which may range from mild to severe.[12]

OUDs can be difficult to treat. The disorder is similar to other chronic relapsing conditions, such as diabetes, as it can be difficult to completely control symptoms and fully adhere to treatment.[13] MAT is one of the most effective treatment methods, involving the use of FDA-approved medication in conjunction with behavioral or psychosocial therapy.[14]

Table 1 provides an overview of the three FDA-approved medications most commonly used in MAT for OUD—methadone, buprenorphine, and naltrexone.

Table 1
MAT Medication Types

Full Agonist[15]	**Partial Agonist**[16]	**Antagoinst**[17]
• Methadone (Methadose®, Diskets®, Dolophine®) • Attaches to opioid receptor in order to mimic the effect of heroin or other opioids • Works as a long-acting opioid replacement for shorter-acting opioids that are typically misused (e.g. heroin, fentanyl), preventing withdrawal without resulting in a high. • Helps stabilize individuals who are opioid dependent • Medication is taken daily	• Buprenorphine (Subutex®, Suboxone®, Zubsolv®, Bunavail®, Butrans®, Buprenex®, Probuphine®) • Attaches to the opioid receptors, but only activates enough to suppress withdrawal and cravings • Once all opioid receptors are occupied, no additional effect occurs if individuals take more; feels "normal" not "high" ("ceiling effect") • It expels, replaces, and blocks other opioids from opioid receptor sites • Medication is taken daily	• Naltrexone (Vivitrol®) • Completely binds to and blocks opioid receptors • Purely blocks any opioids from opioid receptors, so individuals cannot get "high" from any opioids • Does little to reduce cravings • Requires 7 to 10 days without opioid use prior to naltrexone injection to prevent precipitating withdrawal • Can also treat those with alcohol use disorders • Two formulations: oral pill has not been shown to provide any benefit for OUD • Injectable formulation lasts 28 days, then the medication has no effect
Administration		
Pill, liquid, wafer	Pill, injection, implant, patch, film in mouth	Injection, pill

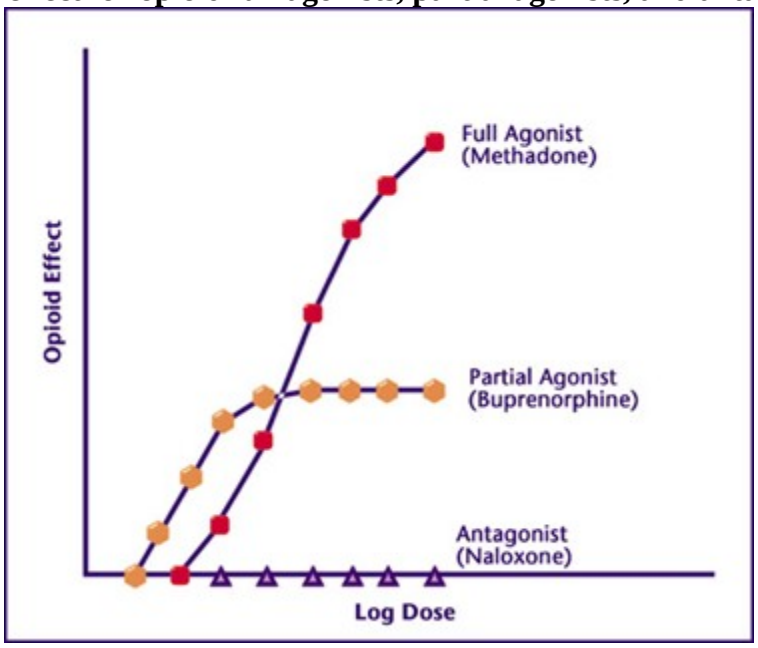
Medications fall into three categories based on how they affect opioid receptors in the brain—full agonist, partial agonist, and antagonist (*Figure 1*).

Full agonist opioids, which include methadone as well as other opioids—oxycodone, hydrocodone, and codeine—activate the opioid receptors in the brain and with high enough doses can lead to respiratory depression and death.

Buprenorphine is a partial agonist, so it partially activates opioid receptors in the brain, which means that even with increasing doses, there is a "ceiling effect" making it a safer medication in terms of risk of respiratory depression and death.[18]

Antagonists like naltrexone fully block opioids, meaning that even if someone uses opioids while on naltrexone, they will not have any effects. Naloxone (Narcan®) is a different opioid antagonist that can be used to reverse an overdose. Naloxone is very short-acting, so its main use is to displace any opioids that are attached to receptors in the brain in the case that someone stops breathing because of opioid overdose. Naloxone is not a form of MAT. Naloxone is added to many buprenorphine formulations as an "abuse deterrent"—it is not active unless someone attempts to inject the buprenorphine/naloxone, and was added only to prevent intravenous misuse. When an individual uses the buprenorphine/naloxone combination as prescribed (under the tongue or along the side of the mouth), the naloxone is inactive.

Figure 1
Opioid effect for opioid full agonists, partial agonists, and antagonists

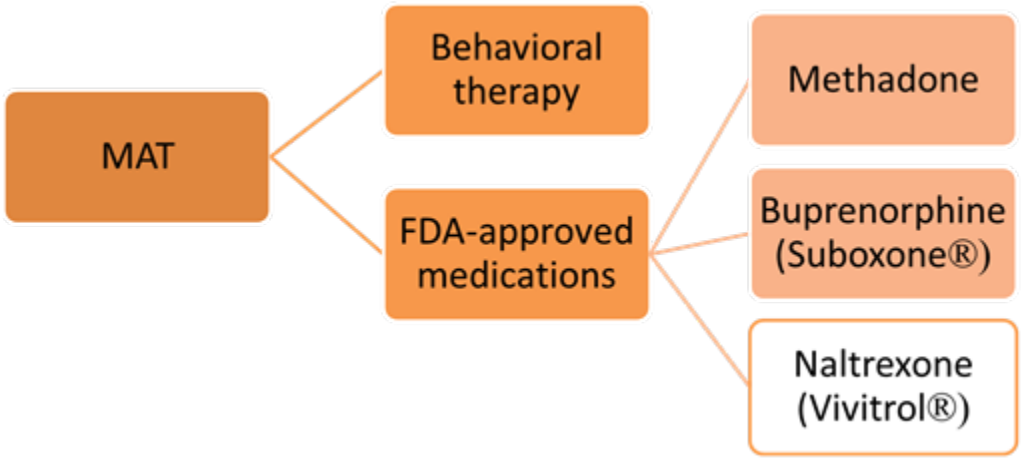


Source: SAMHSA TIP 40, 2004

The first component of MAT is the use of medication. In the case of methadone and buprenorphine, these medications can be started without someone going through detoxification, and are used to help relieve withdrawal symptoms and cravings due to chemical imbalances within the body.[19] Buprenorphine and methadone, when prescribed and monitored properly, are effective in reducing physiological cravings, normalizing brain chemistry and body functions, and blocking the euphoric effects of additional opioids if ingested in addition to buprenorphine or methadone.[20] The naltrexone injection is the newest medication for the treatment of OUD. It was FDA-approved in 2010 and it is marketed to suggest that it can help reduce cravings-possibly due to the knowledge opioids will not work with the medication rather than an actual pharmaceutical effect; however, more research is needed.[21] Individuals using injectable naltrexone cannot have opioids in their system for at least 7-10 days as an individual would immediately go through withdrawal, so in most cases, medically managed detoxification is

appropriate. If someone uses opioids while the naltrexone injection is active in the body (28 days after time of injection), they will not experience any effects from the opioids. However, after the 28 days, the medication is no longer active and the individual is at risk for overdose and death. The second component of MAT is behavioral therapy. Behavioral therapy is required by federal law whenever medication is used to relieve withdrawal symptoms and cravings.[22] The medication helps stabilize individuals to engage clients and sustain a recovery lifestyle, which is further supported by behavioral therapy. Behavioral therapy involves one-on-one or group counseling facilitated by professionals to identify thinking patterns and behavior that help support relapse prevention and behavioral change.

Figure 2
Medication-Assisted Treatment



In addition, Substance Abuse and Mental Health Services Administration (SAMHSA) requires MAT programs to offer medical, vocational, educational, and other assessment and treatment services (e.g., housing, mental health).[23] For MAT to be most effective, individuals must consistently adhere to the prescribed medication regimen and attend therapy. Fewer than 90 days in treatment is not associated with positive outcomes.[24] Although medication and behavioral therapy produces the best outcomes, new research suggests that use of medications alone by those on a waiting list to enter OUD treatment resulted in dramatically less illicit opioid use than by those with no access to the medications.[25]

RESEARCH INDICATES THAT MAT WITH **METHADONE** OR **BUPRENORPHINE** CAN:

- Improve client survival/decrease mortality related to opioid use.[26]
- Improve treatment retention.[27]
- Decrease opioid use and related criminal activity.[28]
- Improve client's ability to obtain and maintain employment.[29]
- Improve birth outcomes for pregnant women with substance use disorders.[30]
- Decrease risk to contract HIV or hepatitis B or C.[31]
- Reduce potential for relapse.[32]
- Enhance social functioning.[33]

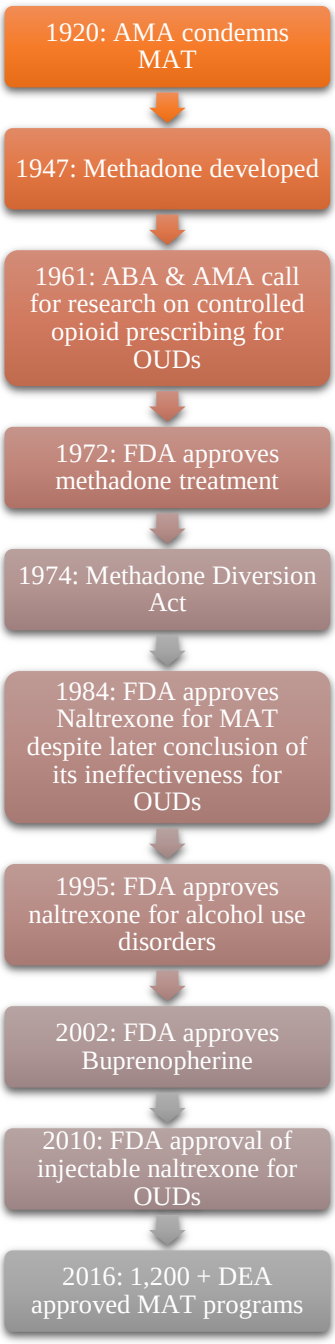
RESEARCH INDICATES THAT MAT WITH **INJECTABLE NALTREXONE** MAY BE ABLE TO:

- Decrease rate of relapse (over 24-weeks).
- Longer median time to relapse.[34]

Note: Studies, particularly long-term studies, providing sufficient evidence for naltrexone are limited.

Figure 3 depicts on overview of the use of MAT in the U.S. since the early 1900s.

Figure 3
U.S. timeline of Medication-Assisted Treatment



Medically Managed Opioid Detoxification/Withdrawal

Methadone and buprenorphine, along with alpha$_2$-adrenergic agonists,[35] can be used to help manage opioid withdrawal, or detoxification.[36] Medically managed detoxification or withdrawal from opioids is often necessary for individuals who do not want to engage in medication-assisted treatment with buprenorphine or methadone. [37] Withdrawal includes uncomfortable physical symptoms, such as diarrhea, chills, muscular and abdominal pain, insomnia, and intense cravings, making withdrawal or detoxification difficult to complete, resulting in high rates of relapse.[38] Symptoms of opioid withdrawal may peak within two to four days of opioid abstinence, depending on the opioid last used, and may last between seven and 14 days.[39] Individuals who are interested in engaging in medication-assisted treatment with methadone or buprenorphine maintenance do not need to undergo medically managed detoxification.

Methadone

Methadone is a long-lasting synthetic opioid agonist that activates the opioid receptors in the brain to reduce cravings, block euphoric effects, and decrease withdrawal symptoms.[40] Opioid treatment programs (OTPs) are highly regulated and licensed programs certified and accredited by SAMHSA, which offer individuals with OUDs methadone maintenance treatment (MMT).[41] Methadone is administered by a SAMHSA-certified OTP in a pill, liquid, or wafer form.[42] Methadone doses are highly monitored and take-home doses are limited by law and only prescribed to patients who are considered stable.[43]

Participants must visit a clinic regularly or at least six days a week in the early phases of treatment to receive ongoing evaluation and assessment and must be part of a larger, more comprehensive treatment program that includes participation in counseling and other appropriate programming.[44] To receive methadone, users must exhibit a chronic history of opioid use; new users are ineligible for treatment.[45] Per the National Institute on Drug Abuse, the recommended minimum length of MMT is 12 months, though length of time varies based on the individual. Long-term treatment is often necessary as relapse rates for short-term treatment are high.[46] Methadone is most effective as maintenance treatment, particularly for those who are motivated to adhere to a MAT program and do not have any medical reason that may conflict with use of methadone.[47] Methadone can be started approximately 24 hours after the last use of opioids and does not require detoxification.

RESEARCH INDICATES METHADONE MAINTENANCE TREATMENT:

- Decreases or eliminates illicit opioid and heroin use.
- Reduces the potential to contract HIV, hepatitis B, and hepatitis C.
- Decreases criminal activity.
- Improves maternal and fetal outcomes for women who are pregnant or breastfeeding.
- Increases treatment retention.[48]

A 2007 systematic review of 31 studies and 27 randomized controlled trials of methadone maintenance treatment and buprenorphine treatment, indicated greater levels of retention in treatment and decreased opiate use for methadone maintenance treatment patients compared to individuals who did not use medication therapy (relative risk 3.91 compared to 13.2).[49] Regarding opioid use, a randomized control trial evaluating methadone dosage indicated a 90 percent reduction in opiate use compared to pretreatment rate of use.[50] Further, individuals in the high-dose condition (80-100mg) had a significantly lower rate of opioid positive urine samples (53 percent) compared to those in the moderate-dose condition (40-60mg) (62 percent).[51] This implies that dosing should be adjusted as needed and higher doses may be appropriate for certain individuals.

Research in Justice-Involved Populations

The World Health Organization lists methadone as an essential medication for OUD. Methadone as part of MAT has shown to be effective for justice-involved individuals. When looking at a cohort study for individuals with OUDs entering Opioid Substitution Therapy (OST) during incarceration and after incarceration, participants at follow-up—compared to individuals without OST who had an OUD, had:

- a significantly lower likelihood of opioid- or cocaine-positive urine tests;
- a higher mean number of days in community-based substance use disorder treatment upon release from prison;
- an increased rate of retention in treatment programming;
- a decrease in crime and illicit drug use;
- a decrease in infectious disease (i.e. HIV, hepatitis B, hepatitis C); and
- a decrease in mortality rate upon release from prison.[52]

The 30-year-running Key Extended Entry Program (KEEP) at New York City's Rikers Island Correctional Facility is one of the largest jail-based methadone maintenance programs. Detained individuals at Rikers Island are assessed for any substance use disorder—including an OUD—and individuals assessed with an OUD are offered the option to engage in methadone maintenance treatment. Upon release, they are linked to community-based OTPs. Between 78 and 80 percent of inmates reported to the aftercare program each year for four years, with equivalent percentages for those reporting to community-based treatment for follow-up. This suggests motivation to engage in treatment post-release is important, as is reentry assistance for continuity of care.[53] KEEP inmate data showed 79 percent of program graduates were incarcerated only once or twice over an 11-year period (1988-1999).[54] Further, data suggested and was supported by previous studies that a 30mg dose of methadone may not be sufficient to achieve the "blocking effect." KEEP patients receiving a $\geq$ 60mg dose of methadone were significantly less likely to be reincarcerated.[55]

Methadone Safety Concerns

It is important that individuals receiving methadone are educated about the risk of overdose during the induction phase of methadone and are aware of harmful drug interactions in order to

prevent or minimize these adverse effects.[56] Opioid treatment programs follow specific dosing guidelines to ensure that risk is minimized during this early induction phase.

Buprenorphine

Buprenorphine is similar to methadone, but unlike methadone, it offers a "ceiling effect" after which an additional dose provides no additive effect. This makes it less likely for someone to overdose on buprenorphine because even at extremely high doses, there is no additional effect.[57] Most buprenorphine formulations include naloxone that is not active unless the drug is melted down and injected. The naloxone was added to buprenorphine formulations to decrease risk for diversion or misuse.[58] If a person injects a buprenorphine/naloxone formulation, the naloxone becomes active and blocks the opioid effect.[59] Another important difference between buprenorphine and methadone is that any medical provider who completes additional training and earns a waiver to prescribe the medication can prescribe buprenorphine.[60]

Research indicates buprenorphine maintenance treatment (BMT) is more effective than a placebo or behavioral therapy alone.[61] In a review of studies, low dose buprenorphine was statistically more effective than a placebo at retaining patients in treatment; medium and high doses of buprenorphine significantly decreased heroin use.[62] Medication for BMT is prescribed and administered by a physician, nurse practitioner, or physician assistant in an office, hospital, health department, or correctional facility, who must be trained by the Drug Enforcement Agency (DEA) and given a special license and waiver by SAMHSA.[63] A certified prescriber of buprenorphine is limited to 30 active patients during the first year of prescribing and up to 100 active patients after one year. Board-certified physicians in certain specialties (i.e. addiction medicine) can request a final limit increase to 275 active patients a year.[64] Similar to methadone, patients who are starting BMT do not need to go through detoxification prior to starting the medication. Medication can begin 12-24 hours after the last opioid use.

Buprenorphine Research in Justice-Involved Populations

Overall, BMT is a promising practice for OUDs and is feasible to facilitate in correctional settings. The research based on randomized control trials with a follow-up of at least three months indicate buprenorphine is as effective as methadone regarding self-reported opioid use and rearrest; it also is effective at increasing treatment retention.[65] Further, individuals on buprenorphine were more likely to accept continued community treatment post-release.[66]

RESEARCH INDICATES THAT BUPRENORPHINE-MAINTENANCE TREATMENT CAN:

- Decrease or eliminate opioid use (including heroin).
- Increase overall well-being and social functioning.
- Reduce cravings.
- Reduce withdrawal symptoms.
- Increase treatment retention.
- Reduce potential to contract HIV or hepatitis B or C.
- Decrease mortality.[67]

Buprenorphine Safety Concerns

Since buprenorphine is a partial agonist, even with higher than prescribed doses, the risk for respiratory depression is low. It is important for prescribers to educate their patients on adverse effects, particularly as they relate to potential overdoses, generally attributed to the co-occurring use of buprenorphine and benzodiazepines or alcohol.

Naltrexone

Naltrexone is an opioid antagonist that blocks the opioid receptors triggered by heroin and other opioids, preventing patients who use opioids from experiencing the feeling of pleasure associated with opioids.[68] Naltrexone comes in a daily pill or a monthly extended-release injection; however, the injectable form is identified as the most appropriate form to treat OUDs.[69] When taken or administered, individuals with physiologic opioid dependence who have any opioids in their system (i.e. those who have not fully undergone detoxification/withdrawal) experience an immediate withdrawal effect.[70] Unlike initiating methadone or buprenorphine, when using naltrexone, a patient must detox from opioids for seven to 10 days prior to initiation of naltrexone. Like methadone and buprenorphine maintenance treatments, naltrexone is one component within a more comprehensive treatment approach that includes counseling and participation in additional psychosocial support services.[71]

Naltrexone research is the most limited of the three medications, particularly with regard to rigorous and generalizable studies (i.e. randomized control trial, use of comparison groups, sample sizes large enough to make generalizations to a broader population, low retention rates, use of comparison to buprenorphine or methadone). Several clinical and randomized control trials of extended-release naltrexone for pre-release prisoners and jail inmates are underway as a measure to reduce risk of overdose post-release from a correctional facility; however, less is known regarding naltrexone for more long-term treatment purposes.[72] Because inmates with OUDs are at extremely high risk for overdose upon release, there has been increasing interest in the use of injectable naltrexone shortly before an inmate's time of release. Several pilot programs are underway in which incarcerated individuals with OUDs are offered an extended-release naltrexone injection shortly before release and then referred to a community-based clinic to continue their care. The injection lasts for 28 days and during that time, the individual's risk for overdose death is significantly reduced.

Naltrexone Research in Justice-Involved Populations

The largest barrier to naltrexone is retention, as a high rate of treatment dropout and missed injections was common in available research studies. Research on oral naltrexone at a six-month follow-up reports no statistically significant differences in treatment completion, attendance, or drug use between participants randomly selected to oral naltrexone and those receiving "treatment as usual" in a sample of individuals with OUDs who were on probation or parole. This study also did not report a statistically significant difference in the rates of opioid positive urine tests between those receiving oral naltrexone compared to "treatment as usual." [73] For this reason, oral naltrexone is generally not recommended as an appropriate treatment for OUD. In a multi-site feasibility study of extended-release naltrexone (injection), 61 study participants were

enrolled in the study and 40 percent of participants received all six injections. Individuals who completed all six injections were less likely to be incarcerated and less likely to have an opioid-positive urine test at a six-month follow-up as compared to those who did not complete six injections. There was no placebo/control group.[74] In a 78-week study comparing individuals assigned to extended-release naltrexone or treatment as usual, individuals assigned to extended-release naltrexone had longer median time to relapse, lower rate of relapse, and higher rate of opioid-negative urine tests at 24 weeks. At 78 weeks, rates for opioid-negatives tests were equal to those in the treatment as usual group and there were no statistically significant differences in self-reported cocaine, alcohol, and intravenous drug use; risky sexual behavior; and reincarceration.[75] Further, after treatment discontinuation, opioid use prevention effects diminished.[76] More research is needed as to naltrexone's efficacy, particularly as it relates to long-term follow-up, potential mortality upon discontinuation or missing an injection, treatment retention, and drug use. Further, many of the studies regarding naltrexone for OUDs indicate a significant dropout or retention rate, making it difficult for substantial and meaningful interpretation of study results.

RESEARCH INDICATES THAT NALTREXONE CAN:

- Help maintain abstinence.
- Increase retention in treatment.
- Prevent relapse.[77]

Note: Much of this research is related to short-term outcomes to reduce overdose and overdose-related deaths.

Naltrexone Safety Concerns

Unlike methadone and buprenorphine, naltrexone does not create physical dependence,[78] and therefore individuals will not withdraw from naltrexone post-treatment. However, individuals are at high risk for overdose if they relapse after a period of abstinence as it leads to reduced tolerance. In addition, naltrexone is such a strong antagonist, so it may reduce tolerance even further than individuals who are abstinent without naltrexone.[79] Patients report that cravings tend to increase slightly prior to subsequent injections (particularly within the first three months of use). Time from the first injection increased the likelihood of using opioids or dropping out of treatment. However, after 28 days, if participants miss an injection or stop treatment, there are no long lasting benefits with regard to cravings or overdose.[80] There is lower retention in treatment with extended-release injectable naltrexone than with methadone or buprenorphine.[81] Education around the increased risk of overdose after a period of abstinence is highly important.

Barriers to Medication-Assisted Treatment

Lack of Knowledge

In a survey of criminal justice agencies including jails, prisons, parole/probation, and drug courts around the use of MAT, respondents reported that pregnant women and individuals experiencing withdrawal were most likely to receive MAT for opiate dependence in jail or prison, whereas

those reentering the community from jail or prison were the least likely to receive MAT. The study was unclear whether the respondents were reporting that they were using medications solely for medically assisted withdrawal, as compared to ongoing maintenance programs.[82] The limited use of MAT in criminal justice may be due in part to officials' lack of understanding of OUDs, how opioids affect the receptors in the brain, or how MAT medications work or their proven effectiveness. In most settings, implementation of MAT in correctional facilities has primarily been limited to naltrexone and is not available to all who have a diagnosis of OUD. Some jails and prisons may prohibit the use of any controlled substances, lack qualified medical staff, and/or prefer treatment that does not use medications.[83]

Opponents of MAT programs, including those in the criminal justice system, report concerns about offering a long-acting opioid to an individual with an OUD.[84] They report concerns that it replaces one addiction for another. However, by definition addiction is about the behaviors one has that revolve around their use of a drug(s). When an individual with an OUD is stable in an MAT program, he or she will experience a reduction or elimination of the symptoms that qualify them as having OUD (for example, continued intense cravings, continuing to use substances despite negative consequences, persistent desire but inability to stop substance of misuse, etc). Individuals who are engaged in agonist-based MAT (buprenorphine and methadone) report significant reduction in the aforementioned symptoms, feeling "normal" or "clear-headed," and having an increased ability to focus on other areas of their lives. In addition, many physicians and pharmacists are hesitant to prescribe or dispense agonist medications that are used to treat OUDs. However, MAT is evidence-based and effective; the drugs used are FDA-approved and provided in the course of treatment to achieve better health outcomes.

Insurance and Cost

The costs of and legal regulations around methadone and buprenorphine also limit MAT in the country.[85] Medications and behavioral therapies within clinically recommended guidelines may not be included in insurance benefits or may only be covered for a short period of time.[86] Medicaid coverage for medications varies by state. In Illinois, Medicaid covers buprenorphine and injectable naltrexone, but does not cover methadone.[87] Methadone treatment is supported through services funded by the Illinois Department of Human Services, Division of Alcohol and Substance Abuse.

Treatment Capacity

Another obstacle to obtaining effective treatment is lack of certified OTPs and certified buprenorphine prescribers. Despite being the most effective medication used for treatment of OUDs, significant gaps exist in MAT need and capacity. In 2012, the rate of opioid dependence or misuse was just under 892 individuals per 100,000 people aged 12 years and older.[88] However, the maximum potential buprenorphine treatment capacity was 420 per 100,000 individuals aged 12 years and older; methadone recipients in OTPs had a maximum capacity of just under 120 individuals per 100,000 people aged 12-years and older.[89] In addition, of publicly funded treatment programs, only 23 percent offered FDA-approved medications. Just 47 percent of private-sector treatment programs identify physicians prescribing FDA-approved medications.[90] Geographic area also limits patient access to medication for opioid use treatment,

and in 2015, Illinois reported that 59 counties did not have a buprenorphine provider and 16 counties had only one prescriber who was eligible to prescribe buprenorphine.[91]

Individual Barriers

Stigma attached to individuals who choose recovery with the assistance of medication—embarrassment, shame, failure—increases individuals' reluctance to use medications as part of their treatment and in some cases may prevent individuals from engaging in potentially life-saving treatment.[92] Social stigma attached to medication-assisted treatment generally comes from beliefs that medications to treat OUDs act as a "crutch" or that use of medication is simply replacing one drug for another.[93] In a survey of clients at one OTP, clients cited the high price of services and beliefs that clinic staff did not care and did not include clients in decision-making processes as common barriers.[94] Another study found that many individuals with OUDs were reluctant to enter clinics because they feared addiction to methadone. Many also pointed to a perceived stigma associated with entrance into a methadone clinic. Researchers found that most respondents lacked comprehensive information about OTPs that provide MMT.[95] Little research was available on the stigma surrounding naltrexone and buprenorphine, specifically.

Conclusion and Implications

Substance use disorders are chronic, relapsing conditions. As is the case with many chronic health conditions, individuals with OUDs have a higher chance of success (retention in treatment and avoidance of continued opioid use) when they receive medication in addition to counseling. Available evidence suggests that individuals with OUD are more likely to stay in treatment, less likely to continue to use opioids, and less likely to die of overdose when they receive agonist therapies (methadone and buprenorphine) as compared to antagonist therapy (injectable extended release naltrexone) in addition to counseling, though no head-to-head trials are available at this time. As with many chronic health conditions, there is no single treatment that works for everyone and relapse is common during the course of treatment and recovery.

Some prisons and jails are beginning to implement MAT pre-release (primarily using naltrexone) to help inmates engage in treatment and recovery before reentry into the community, setting them up for more positive outcomes. It is important for MAT—all three drug options—as well as behavioral therapy to be offered when appropriate upon incarceration jail or prison. Discontinuing MAT upon incarceration may result in withdrawal, discomfort, and heightened vulnerability to relapse and overdose.[96] It is recommended that MAT be offered early, at the beginning stages of physical withdrawal. More research is needed on the efficacy of delayed onset of use for each medication, but in particular, methadone and buprenorphine.

According to the World Health Organization, those in correctional facilities should be afforded the same care that is available outside of prison. As correctional systems implement MAT programs, sufficient access to treatment upon return to the community is extremely important.[97] Continued treatment at the community level will help reduce recidivism, reduce relapse and overdose, and increase individuals' quality of life.[98]

Dawn Ruzich, Executive Director of Business Development for Gateway Foundation's Corrections Division, contributed to this article.

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