

# The Current Opioid Crisis and Medication Assisted Treatment

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## A Misunderstanding of Biology: Stigma Surrounding MAT & OUD

**Abstract** The aim of this practice brief is to provide a current, comprehensive, and scientific overview of national and state level opioid use trends and the role of medication assisted treatment (MAT) in treating Opioid Use Disorders (OUD). Additionally, this brief was developed to support health and behavioral health professionals, including those practicing in primary care clinics, hospitals, or in any other health or behavioral health care setting to better understand MAT use in addressing the current opioid crisis.

### Opioids Defined

Opioids include both prescribed medications used to treat pain (i.e. morphine, codeine, methadone, oxycodone, hydrocodone, fentanyl, hydromorphone, and buprenorphine) and illegal drugs (i.e. heroin and fentanyl analogs).<sup>1</sup> Opioids diminish the body's perception of pain by binding to specific receptors in the brain, spinal cord, and gastrointestinal tract.<sup>1</sup> This process of binding to opioid receptors can lead to tolerance, as the brain becomes desensitized to the naturally occurring "opioid system" (i.e. endorphins) and reduces its own response over time, which significantly increases risk of overdose during relapse after a period of abstinence.<sup>2</sup> Furthermore, non-oral routes of use, such as inhaling, snorting, smoking, or injecting, induce faster drug delivery and onset compared to oral use, thus intensifying the reinforcing, euphoric effects of opioids and increasing vulnerability to addiction.<sup>3</sup> Additional side effects include altered mood, slowed breathing, sedation and euphoric effects, among others.<sup>1</sup>

treatment for Opioid Use Disorder (OUD) is expanding rapidly due to heightened national attention and funding, and the number of facilities offering MAT has increased from around 1,100 in 2003 to almost 1,500 by the end of 2016, potentially encouraged by the introduction of new, FDA-approved medications.<sup>8</sup> Yet, stigma towards individuals diagnosed with OUD and misperceptions regarding the validity of MAT continue to persist, from both the general public, those diagnosed with OUD, and health care professionals, which can limit access for those who may need this important evidence-based treatment.<sup>9,10,11</sup>

### Opioid Use Disorder (OUD)

As with most substance use disorders defined in the *Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> edition (DSM-5)*, the criteria for a diagnosis of OUD can be clustered into four categories: impaired control, social impairments, risky use, and pharmacological principles (tolerance and withdrawal).<sup>13</sup> Common intoxication and withdrawal signs can be measured using various scales, including the clinical opioid withdrawal scale (COWS) and the subjective opioid withdrawal scale (SOWS).<sup>14</sup> There are also several tools to assess a patient's risk of misuse before starting treatment with prescription opioids for chronic pain.<sup>14</sup> In assessing a patient with suspected OUD, the American Society of Addiction Medicine (ASAM) guidelines recommends considering the patient's medical history, physical assessment, laboratory tests (e.g. urine drug testing), mental health status, and social and environmental factors.<sup>15</sup> An individual can be diagnosed with an OUD if at least two of the following 11 symptoms are present within a 12-month period.<sup>13</sup>

In 2016, 66% of deaths resulting from drug overdose in the U.S. involved opioids – 5x times higher than opioid-related deaths in 1999.<sup>6</sup>

### Background

In 2015, the Center for Disease Control and Prevention (CDC) reported over 33,000 deaths from opioid overdose, an 11.4% increase from 2014.<sup>4</sup> In 2016, 11.8 million people (aged 12 or older) reported misusing opioids in the past year, of which 11.5 million people reported misusing prescription pain relievers and 948,000 people reported using heroin.<sup>5</sup> In the same year, 66% (42,249) of the 63,600 total deaths resulting from drug overdose in the United States involved opioids, which is five times higher than the number of opioid-related deaths in 1999.<sup>6</sup> In 2017, the Health and Human Services Department (HHS) declared the opioid crisis a nationwide public health emergency with a new, five-point opioid strategy that listed improving access to prevention, treatment, and recovery support services as the top priority.<sup>7</sup> The evidence supporting MAT as an effective and safe

## South Carolina Spotlight: Opioid Overdose

Many South Carolina counties experienced an increase in deaths due to opioid overdose between 2015 and 2016, especially in: Horry County (78 to 101), Georgetown County (11 to 27), Berkeley County (7 to 26), and York County (28 to 42).<sup>12</sup>

\*Data on opioid overdose retrieved from South Carolina Department of Health and Environmental Control.<sup>12</sup>

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**Diagnostic Criteria for Opioid Use Disorder**

1. Opioids are often taken in larger amounts or over a longer period than was intended.
2. There is a persistent desire or unsuccessful efforts to cut down or control opioid use.
3. A great deal of time is spent in activities necessary to obtain the opioid, use the opioid, or recover from its effects.
4. Craving, or a strong desire or urge to use opioids.
5. Recurrent opioid use resulting in a failure to fulfill major role obligations at work, school, or home.
6. Continued opioid use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of opioids.
7. Important social, occupational, or recreational activities are given up or reduced because of opioid use.
8. Recurrent opioid use in situations in which it is physically hazardous.
9. Continued opioid use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.
10. Tolerance, including need for increased amounts of opioids or diminished effect with continued use at the same amount – as long as the patient is not taking opioids under medical supervision.
11. Withdrawal manifested by characteristic opioid withdrawal syndrome or taking opioids to relieve or avoid withdrawal symptoms – as long as the patient is not taking opioids under medical supervision.

\*For full diagnostic criteria, please refer to the Diagnostic and Statistical Manual, 5<sup>th</sup> edition.<sup>13</sup>

Populations at risk of opioid misuse include patients with a history of personal and family substance use patterns, young patients, and patients with a history of mental illnesses.<sup>14</sup> Individuals who are treated for chronic pain using prescription opioids for long-term management are also highly vulnerable to developing OUD. In fact, people who misuse prescription opioid painkillers are 40 times more likely to become susceptible for developing an addiction to heroin and 80% of new heroin users report previously misusing prescription opioids, possibly due to the similarities of the two opioids and the affordability and accessibility of heroin.<sup>16</sup>

There are substantial health consequences related to misusing opioids, especially when using non-oral routes, as these routes have been associated with greater severity of drug use, as well as a significantly increased risk of overdose. Furthermore, people who inject opioids experience the highest risk of injection-related endocarditis, infectious disease transmission (i.e. HIV, hepatitis C, tuberculosis), emergency department visits, and mortality.<sup>11</sup> A diagnosis of OUD is also associated with increased costs related to health care, crime, law enforcement, family distress, and loss of productivity.<sup>14</sup> Therefore, the management of OUD is essential in improving the overall well-being of the patients and families affected and to reduce the cost of healthcare.

**Medication Assisted Treatment (MAT)**

MAT is an evidence-based approach to treating individuals diagnosed with OUD that combines pharmacotherapy using FDA-approved medications and other psychosocial and/or behavioral therapies in a comprehensive, individualized treatment plan, as recommended by federal health organizations and associated guidelines.<sup>1,17,18,19,20</sup> In fact, one of the major priorities emphasized in

the HHS action plan is to improve access to evidence-based treatment and recovery services, such as MAT.<sup>17</sup>

There are many settings in which treatment of opioid-related disorders may occur, including inpatient hospitals, outpatient clinics, opioid treatment centers, self-help programs, therapeutic communities, and physicians' offices. Usually, the patient's clinical characteristics, treatment needs, and treatment preferences determines the type of setting for treatment to occur. It is generally recommended that opioid overdose or initial detoxification should be managed in a supervised medical setting to mitigate potentially severe opioid withdrawal symptoms that may require hospitalization, while maintenance therapy and psychosocial treatments may be carried out in outpatient clinics, centers, and physicians' offices.<sup>22</sup> The primary medications endorsed for MAT, discussed in subsequent sections, are US FDA-approved for opioid dependence as defined in the previous editions of DSM-III and DSM-IV. Due to the fact that "opioid abuse" and "opioid dependence" were combined in the DSM-5 to create "opioid use disorder," pharmacotherapy may not be appropriate for every patient presenting on the OUD continuum, but it has been found that optimal concordance between the diagnostic criteria in the DSM-IV and DSM-5 occurred when the DSM-5 threshold for moderate OUD was reached (four or more criteria met).<sup>13</sup>

Medications to treat OUD fall under two opposite mechanisms of action: opioid agonist or antagonist. An opioid agonist, which would include methadone (full agonist) and buprenorphine (partial agonist), activates the same opioid receptors in the brain as other opioids, such as heroin or opioid pain medications. Even though these medications may induce euphoria in people who are not dependent on opioids, they do not produce the same effect in people who are dependent on opioids because these medications act on the receptor sites differently and last longer in the body, as compared to other opioids.<sup>18,20</sup> Additionally, people who are dependent on opioids generally develop a tolerance as their opioid receptor sites become desensitized and downregulated, thereby preventing the opioid agonist from inducing euphoria while also minimizing withdrawal symptoms and cravings.<sup>18,20</sup> The ultimate goal of opioid agonist therapy is to prevent or reduce withdrawal symptoms, prevent or reduce drug craving, prevent relapse to addictive drug use, and restore normalcy of physiological function disrupted by drug abuse.<sup>19</sup> Antagonists, such as naltrexone and naloxone, block the opioid receptors in the brain from activation, which prevents any opioid drug from producing euphoria or any other rewarding effects.<sup>18,20</sup> Even though naltrexone and naloxone are both antagonists, their treatment uses are very different. Naltrexone is used only after a patient who is dependent on opioids has been opioid-free for at least 7-10 days, to avoid precipitating acute withdrawal symptoms, while naloxone is considered an "antidote" in counteracting opioid overdose, since the medication only works if a person has opioids in their system.<sup>14,15,20</sup> A diagram of all medications and intended uses is included on the next page.

**Methadone** has been used to treat OUD since the early 1960's and is strictly regulated, such that it may only be dispensed in federally-approved Opioid Treatment Programs (OTPs) where patients must go to an OTP to receive the medication while under supervision.<sup>5</sup> Methadone is an effective tool for medically supervised withdrawal, by managing withdrawal symptoms and cravings, and in long-term maintenance therapy when integrated into a comprehensive

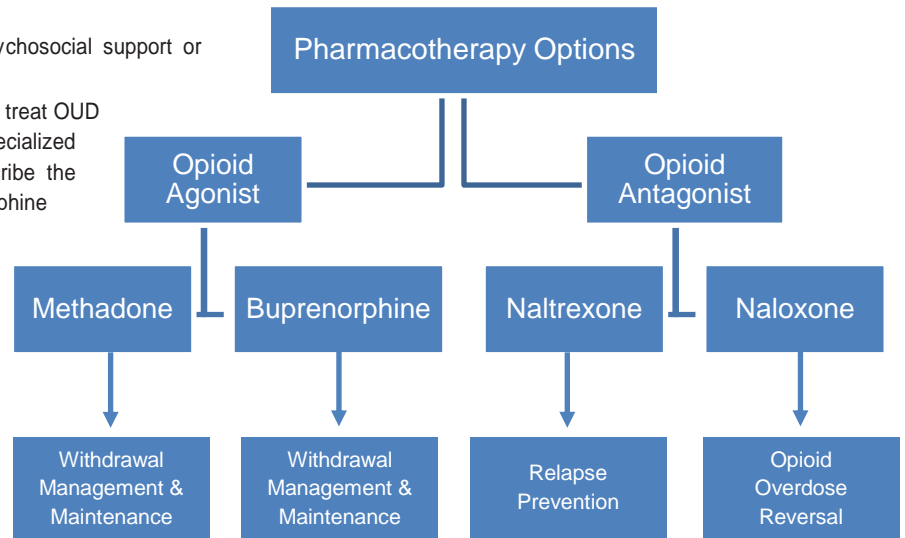
management program that also includes psychosocial support or behavioral therapy.<sup>19,20</sup>

**Buprenorphine** was approved by the FDA to treat OUD in 2002, but only physicians who obtain specialized training and receive a certificate may prescribe the medication. Physicians prescribing buprenorphine may be based in a private, office-based practice, a substance use treatment facility or program, or an OTP.<sup>8</sup> Similar to methadone, buprenorphine is effective in withdrawal management and maintenance therapy, but federal practice guidelines highly recommend integrating the use of buprenorphine with a comprehensive maintenance approach that also includes psychosocial support or behavioral therapy.<sup>19,20</sup>

**Naltrexone**, in the form of an extended-release injectable (XR-NTX), was approved by the FDA in 2010 to treat and prevent relapse in patients with OUD following medical withdrawal management from opioids. The injectable may be prescribed and administered by any professional who is licensed to prescribe medication (i.e. physician, physician assistant, nurse practitioner).<sup>8</sup> Naltrexone has been used to effectively prevent relapse to opioid dependence, as it blocks the effects of illicit opioids, but can precipitate severe and acute withdrawal symptoms if patients still have opioids in their system, including opioid agonists used in medically supervised withdrawal (i.e. methadone and buprenorphine). Due to antagonist properties, naltrexone will reduce patients' tolerance to opioids; therefore, patients' risk of opioid overdose significantly increases if experiencing relapse and exposed to previously tolerated, and in some cases smaller, doses of opioids.<sup>19,20</sup>

**Naloxone** was approved by the FDA in 1971 to treat opioid overdoses via intravenous or intramuscular injection. These formulations are primarily used by qualified and trained health professionals, such as physicians or paramedics. In 2015, in response to the sharp rise in opioid overdoses, the FDA approved an intranasal naloxone applicator (commonly known as Narcan) that supplied the appropriate dose of naloxone but was also easy to use for non-health professionals.<sup>21</sup> Legislation regarding prescription regulations and access to naloxone has moved towards allowing third party entities not at-risk for overdose (i.e. family members, police officers, other first responders, professionals in addiction field) to receive prescriptions for naloxone from either a physician or a pharmacist as a preventative measure.<sup>22</sup> Additionally, naloxone (short-acting opioid antagonist) is often included in the buprenorphine formulation to help prevent diversion to injection misuse because it blunts the immediate opioid agonist effects of buprenorphine while it also induces opioid withdrawal in people who are physically dependent on opioids.<sup>20</sup>

**Effectiveness of MAT.** There is considerable evidence supporting the effectiveness of MAT in treating OUD.<sup>1,14,15,18, & 20</sup> Methadone, XRNTX, and buprenorphine were each found to be more effective in reducing illicit opioid use than no medication or a placebo in randomized clinical trials.<sup>18 & 20</sup> Furthermore, methadone and buprenorphine treatment have been associated with reduced risk of overdose death.<sup>20</sup> However, it is important to remember that treatment needs and benefits vary among individuals with OUD, such that some people may need lifelong treatment and others may benefit



from a short-term approach.<sup>20</sup> While ongoing outpatient medication treatment in conjunction with individualized psychosocial supports is strongly correlated to better retention and outcomes in treatment than no medication, there are individuals who may stop using opioids on their own or respond better to support groups or other specialty treatment in their recovery.<sup>20</sup> Some pharmacotherapies recommended to treat OUD have also been included in treatments for other substance use disorders, including alcohol use disorder, and in smoking cessation treatments.<sup>23,24,25,26,27,28</sup>

**Attitudes, Stigma, and Barriers**

Even with the major public health response backed by credentialed groups, such as HHS, Substance Abuse and Mental Health Service Administration (SAMHSA), National Institute on Drug Abuse (NIDA), and Health Resources and Services Administration (HRSA), there is still widespread misinformation and negative perceptions regarding MAT and OUD from both the public, the medical field, and behavioral health care providers. A common thread in many studies looking at attitudes and stigma regarding the use or prescription of MAT, is that many people continue to view OUD through the lens of abstinence-based treatment where recovery is defined by strict sobriety and, as a consequence, MAT is frequently perceived as simply a “substitution” for illicit opioids.<sup>29,30,31,32,33,34</sup> Unfortunately, these perceptions have proven to be significant barriers in reaching as many individuals as possible who misuse opioids and may be at a high risk of opioid overdose, although there is considerable work occurring throughout the addiction field to improve evidence-based trainings for relevant health care professionals, first responders, and community members.

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Additional barriers to MAT for individuals diagnosed with OUD fall under the umbrella of access and availability of opioid treatment. This may include location, such that an individual may have no transportation to get to a health care provider or there are no health care providers in their area that can prescribe these medications. Seemingly ubiquitous across health care is also the significant financial cost of treatment, especially specialty medical treatment involving chronic disease management. Recent estimates from NIDA for the cost of treatment in a certified OTP found that methadone treatment, including medication and integrated psychosocial and medical support services (assumes daily visits) is around \$126.00 per week (\$6,552.00 per year), buprenorphine, including medication and twice-weekly visits is around \$115.00 per week (\$5,980.00 per year), and naltrexone, including drug, drug administration, and related services is around \$1,176.50 per month (\$14,112.00 per year).<sup>35</sup> Even though there has been a steady increase in the number of physicians certified to prescribe medications and an increase in the number of OTPs and facilities that provide substance use treatment services, there is still a long way to go in terms of effectively addressing the barriers to recruiting and retaining individuals with an OUD into MAT.<sup>5,35</sup>

### National and State Policy Changes

The Drug Addiction Treatment Act of 2000 (DATA) expanded the clinical context for MAT by enabling physicians outside of traditional OTPs to prescribe buprenorphine for a limited number of patients per month (30 or 100 patients), first requiring physicians to complete approved training to expand the availability to MAT.<sup>35</sup> Recent changes were made in 2016 to increase the cap of patients prescribed buprenorphine from 100 to 275 in the hope that physicians will be able administer MAT to a wider patient pool and help diminish the number of individuals at risk for an opioid overdose.<sup>35</sup> The Comprehensive Addiction and Recovery Act (CARA) was passed by the Obama Administration in 2016 to develop a coordinated response that included strategies to address prevention, treatment, recovery, law enforcement, criminal justice reform, and overdose reversal. One piece of this legislation expanded access to naloxone with the intention of targeting non-medical individuals, including law enforcement and other first responders in the hope that more lives will be saved as a result of naloxone possession saturation in the general population.<sup>37</sup>

**South Carolina** has recently passed several laws that attempt to ameliorate the effect of the opioid epidemic, such as limiting initial opioid prescriptions so that initial opioid prescriptions for acute pain management or postoperative pain management must not exceed a seven-day supply, except in certain circumstances described in the law (S.918).<sup>38</sup> In 2018, South Carolina also extended prescription authority for controlled medications used in MAT, to advanced practice registered nurses and physician assistants in order to increase availability of prescribing practitioners (S.345).<sup>38</sup>

### Conclusion

There has been a targeted response in the United States, at all levels, as the number of deaths by opioid overdose steadily climb in the rankings for the most common cause of death. As of 2016, death by opioid overdose is the number one cause of death in the category of unintentional poisoning among those aged 25 to 64.<sup>39</sup>

## South Carolina Spotlight: Prevention

**Between 2015 and 2016, law enforcement officers trained to administer naloxone by the South Carolina Law Enforcement Officer Narcan (LEON) program reported 6,427 administrations total, which is a 39% increase from the year before.<sup>12</sup>**

\*Data on opioid overdose retrieved from South Carolina Department of Health and Environmental Control.<sup>12</sup>

This increase in use of opioids and increase in death by overdose have led to a resurgence in national attention and funding to build MAT into an effective, safe, and easily accessible treatment for individuals diagnosed with OUD and/or at risk of opioid overdose. Furthermore, as much of the legislation and attention is directed towards the health care sector, it is vitally important for the health care community to be in the forefront of MAT research and utilization efforts to better inform the public and policy makers on evidence-based treatments that may result in the best possible outcomes for those affected by opioid use or misuse.

### Article Information

Published Online: June 29, 2018

This project was supported by contract number USC-MED-18 with the South Carolina Department of Alcohol and Other Drug Abuse Services (DAODAS) and SAMHSA Grant number H79TI026428 called Health Occupations Providing Excellence in SBIRT. Points of view in this document are those of the authors and do not necessarily represent the official position or policies of SCDHHS or SAMHSA.

### Full Webinar Can Be Accessed:

<https://webconnect.sc.edu/opioidsandmat/>

### Conflict of Interest:

The authors declare that they have no conflict of interest.

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