Methadone: An Old Medication with Untapped Potential



April 2022

K. Michelle Peavy, PhD; Caleb J. Banta-Green, PhD, MPH, MSW

What is Methadone?

Methadone is an opioid medication that is used to treat opioid use disorder¹. Treating opioid use disorder with other opioids might seem unusual, but methadone is different from the opioids people may be trying to stop, like heroin and fentanyl. How is methadone different from these opioids?

What is Opioid Use Disorder?

Also called "opioid addiction," opioid use disorder is a diagnosis for people who show signs of having problems with opioid use. Symptoms include: needing more opioids to achieve the same effect; having withdrawal symptoms when opioid use stops; cravings; opioid use becomes more important than most anything else (obligations, relationships, and other activities).

Methadone is "Long-Acting"

"Long-acting" means that methadone takes effect slowly and lasts longer compared to "short acting" opioids (e.g., heroin, fentanyl). Whereas methadone is like driving a car steadily down a highway, an opioid like fentanyl would be like being in a roller coaster car. As shown in Figure 1, people can take methadone once per day to take care of opioid use disorder symptoms like cravings and withdrawal. People using fentanyl or heroin typically dose themselves multiple times per day. When properly adjusted, the dose of methadone prevents withdrawal without interfering with the person's ability to work, parent, study or engage in other important activities.



Figure 1. Comparison of methadone, heroin, and fentanyl use and effects in a day.

¹Methadone can be prescribed to treat pain outside of federally-certified Opioid Treatment Programs. However, this brief focuses solely on methadone's use in treating opioid use disorder.

People Take Methadone in a Treatment Setting

In the United States, methadone is dispensed in federally-certified Opioid Treatm ent Programs (OTPs). In fact, by law methadone cannot be prescribed to treat opioid use disorder outside of OTPs. OTPs are full treatment centers with counselors, medical providers, and other treatment staff on site. In an OTP, nurses or pharmacists give the methadone directly to patients and watch them take the medication. This is called "supervised dosing." Some OTP patients come daily for medication dosing; other patients come in much less often. Dosing frequency depends on how long a person has been in treatment among other factors with the default that a person doses 6 days a week in person for at least the first 90 days of care. Many OTPs are closed one day a week, and patients are sent home with "take home" medication. "Take homes" are also provided to patients when they become eligible to come to the OTP less frequently (determined by length of treatment, stability and other factors).

Research on Methadone

Since the 1960s, researchers have studied how well methadone helps people stop or reduce problematic opioid use. Results show that methadone is among the best medicines for people who want to cut down or quit using drugs like heroin (Dole & Nyswander, 1965; Mattick, et al., 2009). In addition to suppressing harmful opioid use, research shows other benefits of methadone for people who use opioids:

- People enrolled in methadone treatment are less likely to die than people not enrolled (Fugelstad et al., 2007; Pierce et al, 2016; Sardo et al., 2017).
- Rates of committing crime are lower for people enrolled in methadone treatment than when they are not in treatment (Lind et al., 2005).
- Methadone treatment reduces the risk of HIV infection (Ball et al., 1988; Gibson, Flynn & McCarthy, 1999).

If Methadone Works So Well, Why Do I Only Hear About Buprenorphine?

Buprenorphine is another medication used to treat opioid use disorder. It is also known by its trade names Suboxone, Subutex, Zubsolv, and Sublocade (extended release). The main differences between methadone and buprenorphine are:

- 1. The more methadone a person takes, the more they feel it. Whereas, buprenorphine's effects level off at a certain dosage. This is called a "ceiling effect."
- 2. People can obtain buprenorphine from a variety of settings besides OTPs. OTPs may dispense buprenorphine; alternatively, people wanting buprenorphine can get a prescription from some medical prescribers and it is available at many pharmacies.

Starting treatment looks different for buprenorphine versus methadone. Starting methadone needs to be managed more carefully than buprenorphine, as methadone stays in the body longer and can build up in the liver and other tissues. It takes the body some time to eliminate methadone, and because people in methadone treatment dose daily, the ingestion/elimination balance can get off track. When initiating methadone treatment, careful attention needs to be paid to *slowly* increasing dosage to avoid too much

accumulation of methadone in the system. Without oversight, the buildup of methadone can result in methadone-related poisoning in the first few weeks of starting the medication.

In the US, methadone is only available in OTPs. People can access buprenorphine, however, in a number of settings, including medical providers' offices and sometimes pharmacies. Buprenorphine became available to treat opioid use disorder in primary care settings in 2002, and in the past 20 years access to buprenorphine has expanded to low-barriers sites (e.g. syringe services programs) with same day access to the medication (Hood et al., 2020); tele-buprenorphine (i.e., initiation of medication and re-fills via telemedicine visits) is another way that people with opioid use disorder have more easily accessed this evidence-based medication (Harris et al., 2020). Again, methadone is only available inside the walls of an OTP and cannot be initiated via telehealth. Why are these medications handled differently? The answer to this question is not straightforward. Examining the history of methadone and OTPs provides the context that explains why we have the current methadone system in place.



History of Methadone and OTPs in the US

Figure 2. Historical timeline of methadone and OTPs.

1914. The federal government passed the Harrison Anti-Narcotic Act to restrict the use of opioids and cocaine to medical practice. This legislation was the country's first attempt at drug control. Under the Harrison Act opioids could not be used as medications to treat opioid use disorder.

1960s. The 1960s were arguably the first wave of the "opioid epidemic." Heroin use was on the rise, and people were looking to contain the problem. Researchers Drs. Marie Nyswander and Vincent Dole tested a number of compounds to look for a pharmacological solution to the 1960s heroin problem. As far as compounds go, methadone stuck out as the superior option because: 1) it is long acting and only required dosing once per day; 2) people did not need higher doses over time; and 3) methadone produced a blockade effect, or "blocked" other opioids like heroin from taking effect. Importantly, the researchers

initially thought of medication maintenance as "palliative," that is medication maintenance as a strategy of pacification. In Dole's words:

Our objective at the onset was simply to find a medication that would keep addicts content without causing medical harm and that would be safe and effective for use over long periods in relatively stable doses. The goal of social rehabilitation of addicts was not part of the original plan. Merely satisfying addicts, although not an ideal result, seemed better than the existing policy that forced incurable addicts into criminal activity. (Dole, 1988, p. 3026)²

Based on their experiences with patients, the researchers quickly changed their views on methadone and began to see it as a means to restore quality of life. Reports of these early studies indicate that patients treated with methadone talked about the future, ventured out of the hospital setting, and became interested in activities. They weren't just *not using heroin*; they made plans and engaged in the world. It was a time of hope. With hope came the next challenge: scaling up.

1970s. Growing pains accompanied the scaling up of methadone treatment. There were shortages of treatment (i.e., waiting lists of multiple years), as well as under experienced but "overly enthusiastic or opportunistic people [who] jumped into the field" (Courtwright, Joseph, & Des Jarlais, 2012). The combination of quick expansion, lack of medical competence in administering the treatment, and high public visibility led to closer scrutiny by government regulators. Subsequent "righting" of the system followed in the form of intensive regulations and restrictions on methadone's use to treat addiction. Many of the restrictions and regulations are still in place today. As examples, federal regulations confine methadone's use to OTPs, a relatively strict environment with requirements (e.g., mandatory counseling) that are not present in any other medical setting. Federal regulations also limit the amount of methadone people can take home. While these limits are intended to reduce diversion, theft, and methadone-related poisonings to and by those in the household and community, they also mean frequent on-site supervised dosing for most patients.

1980s. President Reagan's presidency emphasized fiscal austerity, which meant cutbacks on publicly funded social programs like methadone treatment. As funding dried up, fee-for-service methadone treatment spread more widely (Rosenbaum, 1995). Shifting the financial burden of treatment away from government and onto the person receiving treatment resulted in "financial detoxifications" (i.e., patients being tapered off their medication because of inability to pay; Knight et al., 1996). Scaling back funding for treatment not only turned many people away from medications that could have helped them, but it also reinforced the general spirit of the time: methadone treatment was begrudgingly accepted as simple containment of people with opioid use disorder. By the mid-1980s, and in the face of the HIV/AIDS epidemic, researchers demonstrated that methadone treatment helps reduce syringe use and the spread of HIV/AIDS (Ball et al., 1988; Gibson, Flynn & McCarthy, 1999).

1990s. Important research on methadone dose levels began to challenge a strongly held bias that lower methadone doses were better. During the 1970s and 1980s it was believed that the best daily dose level for methadone was between 40 and 60 mg. This belief was backed by federal regulations that required physicians to provide written justification for daily dosages greater than 100 mg and get approval from the

² Note that the 1988 quote labeled people as "addicts," which was the parlance of the time. We encourage person-first wording, which would relabel "addicts" as "people with substance/opioid use disorders."

Food and Drug Administration and state agencies. Patients were denied take-home privileges if their daily dose was greater than 100 mg. **The strict federal restriction around "high" doses is another example of the regulatory environment unique to OTPs. In no other area of medicine has the federal government weighed in on, and interfered with, medication dosage.** Research in the 1990s showed that daily doses closer to 100 mg led to longer treatment duration and less opioid use (Strain et al., 1993; Strain et al., 1999). According to one provider: "When I started doing this work in 1985, it was a major upheaval to get anyone on a dose above 60 mg per day because people just didn't believe that higher doses were needed until Strain's work came out." (A. Saxon, personal communication, February 25, 2022). Strain et al.'s work, along with an Institute of Medicine report (IOM, 1995), appeared to influence the 2001 federal guidelines, which eliminated the hefty requirements around methadone doses above 100mg.

2000s. Early millennium policy changes indicated a shift in thinking about medications for opioid use disorder. These were the early days of the prescription opioid problem, a time marked by mass increases in opioid prescribing for pain, with some of it being sold or diverted. Prescription opioids lowered the hurdles to using opioids compared to heroin, resulting in exposing entirely new communities to opioids and, for some, opioid use disorder. Buprenorphine was approved as a medication to treat OUD, and legislation (the Drug Addiction Treatment Act of 2000; "DATA 2000") permitted physicians to prescribe buprenorphine in settings outside of OTPs. Buprenorphine became available in primary care settings in 2002. Methadone continued with the same restrictions. In fact, OTPs were brought under new scrutiny, as there were growing concerns that methadone provided at OTPs was responsible for increases in methadone-related poisonings (Belluck, 2003). These concerns were "taken seriously" by SAMHSA, resulting in assessment of national and state-level data on methadone use and mortality (Center for Substance Abuse Treatment [CSAT], 2003). In the resulting report, CSAT reached the conclusion that "the perception that OTPs are contributing to the problem of overdose deaths appears to be highly exaggerated" (CSAT, 2003, p. 28). Other scientific inquiries in the ensuing years also showed that methadone coming from OTPs was not to blame for increases in methadone-associated mortality (Lev et al., 2015; Paulouzzi et al., 2009; Weimer et al., 2011). Despite these data, the damage was likely already done in cementing the belief that OTP methadone and patients were

responsible for the spike in methadone deaths in the early 2000s.

2010s. Medicaid expansion under the Affordable Care Act was supposed to increase access to substance use disorder treatment availability, OTPs being a part of that. How effective Medicaid expansion has been at increasing access to medications for opioid use disorder is unclear (Gertner et al., 2020). However, the sheer number of OTPs rose from 1,239 in 2009 to 1,691 in 2019 (Substance Abuse and Mental Health Services Administration, 2020). As Figure 3 (right) indicates, methadone prescribed for pain decreased as methadone for the treatment of opioid use disorder increased. The figure's timeline and intersecting lines coincide with recent historical events.



Figure 3. Methadone distribution in Washington State; <u>ADAI Interactive Drug Data</u>.

Data sources: US Drug Enforcement Agency (ARCOS methadone sales to hospitals and pharmacies in Washington state), Washington State Department of Health Prescription Monitoring Program (prescribed methadone), Washington State Office of Financial Management (population). Reductions in prescribing opioids like methadone are depicted in the downward sloped line; the expansion of methadone treatment in the wake of the prescription-type opioid epidemic is represented by the upward sloped line. As the opioid epidemic roiled on during these years, methadone restrictions and OTP federal guidelines remained unchanged. However, questioning of the status quo and contemplating alternatives were expressed by clinicians and researchers (Calcaterra et al., 2019; Samet, Botticelli, & Bharel, 2018). Individual OTPs began to take actions locally to lower barriers for prospective patients and change punitive policies to enhance retention (Peavy, Grekin & Carney, 2016; 2018).

2020. The COVID-19 pandemic brought about quick changes to OTP operations. On-site dosing restrictions were relaxed to enable people to take home more methadone doses and avoid coming into clinics as frequently (Amram et al., 2022; Peavy et al., 2020). These pandemic-related flexibilities are in effect until at least one year after the end of the federally declared public health emergency. The loosening of federal regulations has kick started a discussion about permanent rule changes.

Systemic Racism and OTPs

It's impossible to talk about U.S. history and drug treatment policies without talking about systemic racism. A comprehensive discussion about systemic racism and drug control policy can be found elsewhere. Here, we touch on but a small part of this important discussion.

The 1970s saw OTPs being laid down for the very first time, both philosophically and geographically. **Philosophically**, these institutions were set up with rigid rules and have been compared to correctional settings in the way they exert social control over patients (Harris & McElrath, 2012). The philosophy came from above, with strict federal regulations that assumed people would "misuse" or divert their medication. Such a philosophy also mirrors the fear, mistrust, and disgust larger society tends to have about people who have substance use disorders. This view is tightly intertwined with how media has incorrectly portrayed people who use drugs: people of color; criminally involved. **Geographically**, OTPs sprung up in urban areas with high concentrations of poor Black and Brown people. Vincent Dole commented on clinic siting in a 1981 interview:

Even when a clinic is very orderly and successful, but brings in black, Puerto Rican, or otherwise identifiably nonneighborhood types into a nice little cloistered neighborhood, there will be a tremendous amount of opposition to it. People would just like to have some big jail set up in some place remote, lock up the addicts, and get them out of sight. (Courtwright, Joseph, & Des Jarlais, 1989, p. 342).

From the beginning, OTPs were placed in poor neighborhoods of color, places depicted as dangerous and drug infested (Netherland & Hansen, 2016). In turn, OTPs' typical locations associated methadone and its clinics with the reputation of the neighborhoods in which they emerged. The characterization of OTPs, along with the restrictive and punitive treatment model, presented a challenge to federal drug policy makers of the 1990s, who wondered how to treat a new cohort affected by opioids: White suburbanites (Hansen & Roberts, 2012). As former Director of the National Institutes on Drug Abuse indicated in his 1999 testimony for DATA 2000: "The current [OTP] system, which tends to concentrate in urban areas, is a poor fit for the suburban spread of narcotic addiction" (quoted in Netherland, 2011, p. 61).

Buprenorphine carved out a different reputation, and a different market. Soon after buprenorphine was approved, 91% of the people taking it in the U.S. were White. Many were college educated, employed and were being treated for taking prescription type opioids (as opposed to heroin; Hansen & Netherland, 2016). Early on, tech-savvy consumers could privately search for and locate treatment via the internet (see https://www.naabt.org). To effectively commercialize buprenorphine, it needed to be differentiated and distanced from methadone. Doing so would avoid both the stigma and regulatory burdens already attached to methadone (Campbell & Lovell, 2012). As the "face" of opioid use changed from urban people of color to white suburbanites, media depictions shaped the public's view of opioid use disorder as a medical problem and not a criminal one (Netherland & Hansen, 2016). Makers and marketers of buprenorphine were well positioned to occupy the new treatment space that medicalized the disorder.

Methadone and buprenorphine are more similar than not in their biological effects and effectiveness in treating opioid use disorder. Yet we've constructed different stories about when, how, and who gets which treatment medication. Studies show differences between people of color and Whites in terms of which medications they take to treat opioid use disorder (Goedel et al., 2020; Manharpa, Quinones, & Rosenheck, 2016; Hansen et al., 2013;). Results indicate that poor people and people of color tend to take methadone, in part because OTPs were set up in places where poor Black and Brown people lived and live. White people tend to go to medical offices for a buprenorphine prescription. People will access the treatment that's most convenient for them, and marginalized people will access methadone because OTPs are most accessible to marginalized people. Nationally, buprenorphine treatment is concentrated among White people paying with private insurance or self-pay (Lagisetty et al., 2019). The data may also tell the story of provider bias. That is, providers may route people to alternate treatment pathways based on their race and social status. The routing process may be overt or due to implicit bias.

Racism and associated OTP stigma seem to have kept people of color segregated in this type of treatment. Another effect of this stigma is that it has kept OTPs from being available in more places, further limiting access to all people with opioid use disorder. According to a long-time OTP Executive Director unable to open an OTP in rural Washington State in the 2010s: "Negative perception of OTPs makes the siting of clinics in more geographically dispersed areas a great challenge to improving access to this medication and style of treatment." (T.R. Jackson, personal communication, February 21, 2022).

Systemic racism has shaped the "correctional" OTP environment, slowed down access to buprenorphine by people of color, and prevented OTPs from opening due to NIMBYism (i.e., difficulties siting and opening OTPs). Going forward, efforts should be made to continue moving OTPs from a rule-bound frame into a more medical and patient-centered one. An overhaul of the current federal regulations may help this process. Increased provider education around OTPs, as well as implicit bias, may also move us in the right direction.

Nationally, American Indian and Alaska Native people have experienced larger increases in opioid-related mortality than other racial/ethnic groups (Scholl et al., 2019; Tipps et al., 2018). This is also the case in Washington State (Joshi et al., 2018). Some American Indian and Alaska Native stakeholders (e.g., tribal community members, treatment staff, researchers) and non-Native researchers/clinicians contemplated how and why the Western system of medication treatment for opioid use disorder fits and does not fit in their communities (Venner et al., 2018).

Resulting themes from this discussion include:

- A challenge to implementing Western medicine in Tribal communities is its secular/unidimensional nature. This framework cannot be simply applied to American Indian and Alaska Native healthcare, which emphasizes spirituality, culture, and a comprehensive picture of health and wellness.
- Medications for opioid use disorder must be integrated with American Indian and Alaska Native *healing* and healing traditions. Start with American Indian and Alaska Native healing, then add medications, not the other way around.
- *Long-term* maintenance of medications for opioid use disorder may be misaligned with American Indian and Alaska Native healers. Western medical providers typically encourage long-term use of medications to manage opioid use disorder. Time in treatment is not necessarily the same as "success" in treatment for American Indian and Alaska Native communities.
- People in American Indian and Alaska Native communities experience systemic barriers to medication treatment for opioid use disorder.

Tribal and Urban Indian leaders in Washington State, observing the disparities in opioid use and deaths in their communities, have taken on the problem of inequitable access for Indigenous people. Their efforts have resulted in a network of innovative centers in which OTPs are integrated with comprehensive wellness centers. These organizations are service hubs that emphasize culturally grounded whole person care and provide high-quality services to Indigenous people as well as non-Native people.

Methadone and OTPs: New Opportunities

OTPs make up a substantial part of the opioid treatment landscape in Washington State. Currently, 14,220 Washington State residents receive treatment from 31 OTPs (S. Multanen-Kerr and J. Blose, personal communication, March 30, 2022). According to Washington State Health Care Authority, further OTP expansion is on the horizon. That said, there are still regions whose residents have almost no access to methadone, a life-saving and recovery supporting medication. How can this important part of the continuum of care be expanded? The COVID-19 pandemic forced a rethinking of OTPs and methadone treatment that may ultimately change the face of OTPs in a substantial way. With the OTP federal regulations on hold due to the public health emergency, OTP patients, providers, researchers, and government officials can consider what's next.

The range of possible changes to OTPs is wide. At the very least, federal regulations will be reconsidered, with an eye towards improving patients' experiences. Rules changes may include:

- Continuing to loosen the restrictions on take-home medication timing and frequency.
- Remove reasons for discharging patients from treatment due to "non-compliance" with treatment (e.g., positive drug screens, missing appointments).
- Make counseling optional.
- Increase options to use telehealth in OTPs. Currently, federal law requires a complete, in-person physical evaluation before admission to an OTP, restricting telehealth options for imitating methadone treatment and delaying when a person can start medications (SAMHSA, 2020).

Above and beyond rule changes, some are calling for a broader overhaul to the OTP system and asking "big picture" questions such as:

- How can OTPs be integrated into, or formally connected to, other settings (e.g., other medical settings, syringe service settings)?
- Does methadone need to be confined to OTPs? If not, what will "methadone treatment" look like?
- How can methadone get into the hands of more people who need it? **Mobile medication units** are one strategy clinics can implement.
- How can telehealth be employed in a more robust way? For example, can the full, in-person physical evaluation for admission be waived such that telehealth can be better leveraged?
- What other opioid medications can OTPs use to treat methadone/buprenorphine-resistant opioid use disorder? For example, hydromorphone or diacetylmorphine could be candidates for alternative opioid medications. In Canada, a research study randomized people with opioid use disorder into two treatment groups: 1) oral methadone; and 2) injectable diacetylmorphine (i.e., heroin; Oviedo-Joekes et al., 2009). Almost 90% (87.8%) of the diacetylmorphine group stayed in treatment versus 54.1% of oral methadone group. The diacetylmorphine group also had a higher rate of reduced illicit drug use compared to the methadone group. Participants who received the injectable diacetylmorphine reported a higher level of satisfaction with treatment (Oviedo-Joekes et al., 2010).
- How can the OTP infrastructure be used to support other types of care (e.g., hepatitis C, mental health, primary care)?

Mobile Medication Units: Taking an Evidence-Based Practice Show on the Road

Mobile medication units are vans that can travel from a home OTP to other communities, bringing medication and services directly to the people that need them. These units have the potential to increase access to OTP services (e.g., medications, medical assessments, counseling) by people who have transportation difficulties or live far away from an OTP site. Mobile methadone vans have been tried in the past, and have been shown to provide access to people who wouldn't otherwise receive treatment (Chen et al., 2021).

According to the Washington State Opioid Treatment Authority, there's one mobile OTP up and running, with several others in the pipeline for licensing and certification. Washington State has included funding for 5 mobile OTPs in the budget beginning July 2022. OTPs represent an important part of a strategy to address the opioid epidemic, and mobile units can take OTP services to literally meet people where they are at.

As changes to OTPs and methadone treatment are considered and implemented, policy makers and OTP clinical leadership will benefit by keeping the following in mind:

- At the federal, state, and clinic levels, **individuals with lived experience should inform changes.** It will be vital to include people with opioid use disorder, as well as those with OTP experience to weigh in and help shape policies.
- A **data collection system and strategy will be needed** to understand outcomes of policy changes. WA State closed its centralized drug treatment data system (TARGET) in 2015 and has yet to replace it with a fully functional system that provides similar data statewide. Drug treatment data systems need to track the use of fentanyl to assess the relationship between different types of opioids and care utilization and outcomes.
- Moving away from a punitive framework towards a patient centered one will benefit patients, and may help reduce stigma around opioid use disorder and methadone treatment. In the Washington State legislature, Senate Bill 5476 (State vs. Blake) is designed to address criminal justice responses to drug possession/use and expand behavioral health prevention, treatment, and services. This bill could potentially provide the framework to catalyze this work.
- We might not need to re-create the wheel. OTPs are already important service organizations in mostly marginalized communities. Resourcing and revitalizing these existing infrastructures could increase the quality of care and services in these communities and begin to reduce health disparities.
- Dismantling the current OTP system comes with risks. Stricter regulations on methadone have a few potential upsides:
 - Stricter rules on take-home medication are supposed to reduce diversion and methadonerelated poisoning deaths. There's always been a tension between increasing access to methadone without compromising the health and safety of patients and their communities. Recent studies indicate that relaxation of take-home policies has not increased methadonerelated poisonings (Brothers, Viera, & Heimer, 2021); however, the tension remains.
 - Regulations that apply the same rules to all patients may limit providers' implicit biases. Clinical judgement can introduce favoritism and discrimination.
 - Lifting regulations could weaken patient care in some situations. Stricter regulations make more work for individual clinics. For example, staff have to interact with patients more frequently to dispense methadone and meet for mandatory medical and counseling appointments. Lifting restrictions could financially incentivize clinics to provide suboptimal care (i.e., providing less care, and/or pay fewer staff). As an unintended consequence, more patients may slip through the cracks.
- The time to act is now. Fentanyl is a very strong opioid that is flooding the illicit opioid market. Fentanyl is contributing to massive increases in opioid poisoning deaths in Washington State (Banta-Green & Williams, 2021). To address this crisis we need to ramp up all available treatment options. Methadone will be a critical part of the fentanyl treatment picture, and we need to enhance access to this medication as quickly as possible.

Resources

Washington State treatment locator, including OTPs: http://www.warecoveryhelpline.org/moud-locator/

COVID and **OTPs**

Initial guidance for OTPs from the Substance Abuse and Mental Health Services Administration (SAMHSA): <u>https://www.samhsa.gov/sites/default/files/otp-guidance-20200316.pdf</u>

SAMHSA's methadone take-home flexibilities extension guidance: <u>https://www.samhsa.gov/medication-assisted-treatment/statutes-regulations-guidelines/methadone-guidance</u>

Washington State Opioid Treatment Authority specific COVID guidance for OTPs: <u>https://www.hca.wa.gov/assets/program/opioid-treatment-program-faq.pdf</u>

Shared Decision-Making Tools for Treating Opioid Use Disorder

Treatment-decision making tool: https://www.learnabouttreatment.org/for-professionals/client-engagement/

SAMHSA's tool: Decisions in Recovery: Treatment for Opioid Use Disorders

Mobile Medication Units

Washington State Department of Health information on mobile OTPs: <u>https://doh.wa.gov/licenses-permits-and-certificates/facilities-z/behavioral-health-agencies-bha/opioid-treatment-program/opioid-treatment-program-otp-mobile-units</u>

SAMHSA's letter regarding adding a "mobile component" to OTPs: <u>https://doh.wa.gov/licenses-permits-and-certificates/facilities-z/behavioral-health-agencies-bha/opioid-treatment-program/opioid-treatment-program-otp-mobile-units</u>

Racism and Opioid Use

Substance Abuse and Mental Health Services Administration: The Opioid Crisis and the Black/African American Population: An Urgent Issue: https://store.samhsa.gov/sites/default/files/SAMHSA_Digital_Download/PEP20-05-02-001_508%20Final.pdf

Other Information About Methadone and OTPs

SAMHSA's Treatment Improvement Protocol (TIP) 63: Medications for Opioid Use Disorder

SAMHSA's Federal Guidelines for Opioid Treatment Programs (2015): <u>https://store.samhsa.gov/sites/default/files/d7/priv/pep15-fedguideotp.pdf</u>

The National Academies of Sciences, Engineering, and Medicine March 3 & 4, 2022 workshop *Methadone Treatment for Opioid Use Disorder: Examining Federal Regulations and Laws - A Workshop:* <u>https://www.nationalacademies.org/event/03-03-2022/methadone-treatment-for-opioid-use-disorder-</u> <u>examining-federal-regulations-and-laws-a-workshop</u>

References

- 1. Amram, O., Amiri, S., Panwala, V., Lutz, R., Joudrey, P. J., & Socias, E. (2021). The impact of relaxation of methadone takehome protocols on treatment outcomes in the COVID-19 era. *The American journal of drug and alcohol abuse*, *47*(6), 722-729.
- 2. Ball, J. C., Lange, W. R., Myers, C. P., & Friedman, S. R. (1988). Reducing the risk of AIDS through methadone maintenance treatment. *Journal Of Health and social behavior*, 214-226.
- 3. Banta-Green, C.J. & Williams, J. (2021). Dramatic increases in opioid overdose deaths due to fentanyl among young people in Washington State. Seattle, WA: Addictions, Drug & Alcohol Institute, University of Washington.
- 4. Belluck, P. (2003). Methadone, once the way out, suddenly grows as a killer drug. New York Times, 9.
- 5. Brothers, S., Viera, A., & Heimer, R. (2021). Changes in methadone program practices and fatal methadone overdose rates in Connecticut during COVID-19. *Journal of substance abuse treatment*, *131*, 108449.
- 6. Calcaterra, S. L., Bach, P., Chadi, A., Chadi, N., Kimmel, S. D., Morford, K. L., ... & Samet, J. H. (2019). Methadone matters: what the United States can learn from the global effort to treat opioid addiction. *Journal of general internal medicine*, *34*(6), 1039-1042.
- 7. Campbell, N. D., & Lovell, A. M. (2012). The history of the development of buprenorphine as an addiction therapeutic. *Annals of the New York Academy of Sciences*, *1248*(1), 124-139.
- 8. Chan, B., Hoffman, K. A., Bougatsos, C., Grusing, S., Chou, R., & McCarty, D. (2021). Mobile methadone medication units: A brief history, scoping review and research opportunity. *Journal of Substance Abuse Treatment*, *129*, 108483.
- 9. Courtwright, D. T., Joseph, H., & Des Jarlais, D. (1989). Addicts who survived: An oral history of Narcotic use in America before 1965. Univ. of Tennessee Press.
- 10. Dole, V. P. (1988). Implications of methadone maintenance for theories of narcotic addiction. Jama, 260(20), 3025-3029.
- 11. Dole, V. P., & Nyswander, M. (1965). A medical treatment for diacetylmorphine (heroin) addiction: a clinical trial with methadone hydrochloride. *Jama*, *193*(8), 646-650.
- 12. Fugelstad, A., Stenbacka, M., Leifman, A., Nylander, M., & Thiblin, I. (2007). Methadone maintenance treatment: the balance between life-saving treatment and fatal poisonings. *Addiction*, *102*(3), 406-412.
- 13. Gertner, A. K., Robertson, A. G., Jones, H., Powell, B. J., Silberman, P., & Domino, M. E. (2020). The effect of Medicaid expansion on use of opioid agonist treatment and the role of provider capacity constraints. *Health services research*, *55*(3), 383-392.
- 14. Gibson, D. R., Flynn, N. M., & McCarthy, J. J. (1999). Effectiveness of methadone treatment in reducing HIV risk behavior and HIV seroconversion among injecting drug users. *Aids*, *13*(14), 1807-1818.
- 15. Goedel, W. C., Shapiro, A., Cerdá, M., Tsai, J. W., Hadland, S. E., & Marshall, B. D. (2020). Association of racial/ethnic segregation with treatment capacity for opioid use disorder in counties in the United States. *JAMA network open*, *3*(4), e203711-e203711.
- 16. Hansen, H., & Roberts, S. K. (2012). Two tiers of biomedicalization: Methadone, buprenorphine, and the racial politics of addiction treatment. In *Critical perspectives on addiction*. Emerald Group Publishing Limited.
- 17. Hansen, H. B., Siegel, C. E., Case, B. G., Bertollo, D. N., DiRocco, D., & Galanter, M. (2013). Variation in use of buprenorphine and methadone treatment by racial, ethnic, and income characteristics of residential social areas in New York City. *The journal of behavioral health services & research*, *40*(3), 367-377.
- 18. Hansen, H., & Netherland, J. (2016). Is the prescription opioid epidemic a white problem?. *American journal of public health*, *106*(12), 2127-2129.
- 19. Harris, J., & McElrath, K. (2012). Methadone as social control: Institutionalized stigma and the prospect of recovery. *Qualitative health research*, *22*(6), 810-824.
- 20. Harris, M., Johnson, S., Mackin, S., Saitz, R., Walley, A. Y., & Taylor, J. L. (2020). Low barrier tele-buprenorphine in the time of COVID-19: a case report. *Journal of Addiction Medicine*.
- 21. Hood, J. E., Banta-Green, C. J., Duchin, J. S., Breuner, J., Dell, W., Finegood, B., ... & Shim, M. H. M. (2020). Engaging an unstably housed population with low-barrier buprenorphine treatment at a syringe services program: Lessons learned from Seattle, Washington. *Substance abuse*, *41*(3), 356-364.

- 22. Institute of Medicine. (1995). Federal Regulation of Methadone Treatment. Washington, DC: The National Academies Press. https://doi.org/10.17226/4899.
- 23. Joshi, S., Weiser, T., & Warren-Mears, V. (2018). Drug, opioid-involved, and heroin-involved overdose deaths among American Indians and Alaska Natives—Washington, 1999–2015. *Morbidity and Mortality Weekly Report*, 67(50), 1384.
- 24. Knight, K. R., Rosenbaum, M., Irwin, J., Kelley, M. S., Wenger, L., & Washburn, A. (1996). Involuntary versus voluntary detoxification from methadone maintenance treatment: The importance of choice. *Addiction Research*, *3*(4), 351-362.
- 25. Lagisetty, P. A., Ross, R., Bohnert, A., Clay, M., & Maust, D. T. (2019). Buprenorphine treatment divide by race/ethnicity and payment. *JAMA psychiatry*, *76*(9), 979-981.
- 26. Lev, R., Petro, S., Lee, A., Lee, O., Lucas, J., Castillo, E. M., ... & Vilke, G. M. (2015). Methadone related deaths compared to all prescription related deaths. *Forensic science international*, *257*, 347-352.
- 27. Lind, B., Chen, S., Weatherburn, D., & Mattick, R. (2005). The effectiveness of methadone maintenance treatment in controlling crime: an Australian aggregate-level analysis. *British Journal of Criminology*, *45*(2), 201-211.
- 28. Manhapra, A., Quinones, L., & Rosenheck, R. (2016). Characteristics of veterans receiving buprenorphine vs. methadone for opioid use disorder nationally in the Veterans Health Administration. *Drug and alcohol dependence*, *160*, 82-89.
- 29. Marchand, K. I., Oviedo-Joekes, E., Guh, D., Brissette, S., Marsh, D. C., & Schechter, M. T. (2011). Client satisfaction among participants in a randomized trial comparing oral methadone and injectable diacetylmorphine for long-term opioid-dependency. *BMC health services research*, *11*(1), 1-10.
- 30. Mattick, R. P., Breen, C., Kimber, J., & Davoli, M. (2009). Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence. *Cochrane Database Syst Rev*, *3*(3).
- 31. Netherland, J. C. (2011). *Becoming normal: The social construction of buprenorphine & new attempts to medicalize addiction*. City University of New York.
- 32. Netherland, J., & Hansen, H. B. (2016). The war on drugs that wasn't: Wasted whiteness, "dirty doctors," and race in media coverage of prescription opioid misuse. *Culture, Medicine, and Psychiatry*, 40(4), 664-686.
- 33. Oviedo-Joekes, E., Brissette, S., Marsh, D. C., Lauzon, P., Guh, D., Anis, A., & Schechter, M. T. (2009). Diacetylmorphine versus methadone for the treatment of opioid addiction. *New England Journal of Medicine*, *361*(8), 777-786.
- 34. Oviedo-Joekes, E., Guh, D., Brissette, S., Marchand, K., Marsh, D., Chettiar, J., ... & Schechter, M. T. (2010). Effectiveness of diacetylmorphine versus methadone for the treatment of opioid dependence in women. *Drug and alcohol dependence*, *111*(1-2), 50-57.
- 35. Payte, J. T. (1991). A brief history of methadone in the treatment of opioid dependence: a personal perspective. *Journal of psychoactive drugs*, *23*(2), 103-107.
- 36. Paulozzi, L. J., Logan, J. E., Hall, A. J., McKinstry, E., Kaplan, J. A., & Crosby, A. E. (2009). A comparison of drug overdose deaths involving methadone and other opioid analgesics in West Virginia. *Addiction*, *104*(9), 1541-1548.
- 37. Peavy, K.M., Grekin, P., & Carney, M. (March, 2018). A Patient-Centered Policy to Enhance Retention in OTPs. Workshop at the American Association for the Treatment of Opioid Dependence (AATOD) Conference, New York, NY.
- 38. Peavy, K.M., Grekin, P., & Carney, M. (November, 2016). Retaining patients while they contemplate change: A model for curbing discharge among individuals struggling with ongoing drug use. Workshop at the American Association for the Treatment oOpioid Dependence (AATOD) Conference, Baltimore, MD.
- Peavy, K. M., Darnton, J., Grekin, P., Russo, M., Green, C. J. B., Merrill, J. O., ... & Tsui, J. I. (2020). Rapid implementation of service delivery changes to mitigate COVID-19 and maintain access to methadone among persons with and at high-risk for HIV in an opioid treatment program. *AIDS and Behavior*, 24(9), 2469-2472.
- 40. Pierce, M., Bird, S. M., Hickman, M., Marsden, J., Dunn, G., Jones, A., & Millar, T. (2016). Impact of treatment for opioid dependence on fatal drug-related poisoning: a national cohort study in England. *Addiction*, *111*(2), 298-308.
- 41. Rosenbaum, M. (1995). The demedicalization of methadone maintenance. Journal of Psychoactive Drugs, 27(2), 145-149.
- 42. Samet, J. H., Botticelli, M., & Bharel, M. (2018). Methadone in primary care—one small step for Congress, one giant leap for addiction treatment. *New England Journal of Medicine*, 379(1), 7-8.
- 43. Scholl, L., Seth, P., Kariisa, M., Wilson, N., & Baldwin, G. (2019). Drug and opioid-involved overdose deaths—United States, 2013–2017. *Morbidity and Mortality Weekly Report*, 67(51-52), 1419.

- 44. Sordo, L., Barrio, G., Bravo, M. J., Indave, B. I., Degenhardt, L., Wiessing, L., ... & Pastor-Barriuso, R. (2017). Mortality risk during and after opioid substitution treatment: systematic review and meta-analysis of cohort studies. *bmj*, 357, j1550.
- 45. Strain, E. C., Stitzer, M. L., Liebson, I. A., & Bigelow, G. E. (1993). Dose-response effects of methadone in the treatment of opioid dependence. *Annals of internal medicine*, *119*(1), 23-27.
- 46. Strain, E. C., Bigelow, G. E., Liebson, I. A., & Stitzer, M. L. (1999). Moderate-vs high-dose methadone in the treatment of opioid dependence: a randomized trial. *Jama*, *281*(11), 1000-1005.
- 47. Substance Abuse and Mental Health Services Administration. (2020). National Survey of Substance Abuse Treatment Services (N-SSATS): 2019. Data on Substance Abuse Treatment Facilities. Rockville, MD: Substance Abuse and Mental Health Services Administration.
- 48. Substance Abuse and Mental Health Services Administration. (2020). FAQs: Provision of methadone and buprenorphine for the treatment of opioid use disorder in the COVID-19 emergency. <u>https://www.samhsa.gov/sites/default/files/faqs-for-oud-prescribing-and-dispensing.pdf</u> Accessed 3/28/2022.
- 49. Tipps, R. T., Buzzard, G. T., & McDougall, J. A. (2018). The opioid epidemic in Indian Country. *Journal of Law, Medicine & Ethics*, *46*(2), 422-436.
- 50. Venner, K. L., Donovan, D. M., Campbell, A. N., Wendt, D. C., Rieckmann, T., Radin, S. M., ... & Rosa, C. L. (2018). Future directions for medication assisted treatment for opioid use disorder with American Indian/Alaska Natives. *Addictive behaviors*, *86*, 111-117.
- 51. Weimer, M. B., Korthuis, P. T., Behonick, G. S., & Wunsch, M. J. (2011). The source of methadone in overdose deaths in Western Virginia in 2004. *Journal of addiction medicine*, *5*(3), 188.

We would like to thank the following people for their insights in shaping this infobrief:

Andy Saxon, MD; Eric Strain, MD; Jessica Blose, LMHC, SUDP; Paul Grekin, MD; Ron Jackson, MSW; and Sara Multanen-Karr, SUDP

Citation: Peavy K M, Banta-Green C. Methadone: An Old Medication with Untapped Potential. Seattle, WA: Addictions, Drug & Alcohol Institute, Department of Psychiatry & Behavioral Sciences, University of Washington, April 2022. <u>https://adai.uw.edu/methadone-2022</u>.

This report was produced under contract for the Washington State Division of Behavioral Health and Recovery; the findings and opinions are those of the authors and not WA DBHR.