

**The Barriers to Access of Medication-Assisted Treatment for those with an Opioid Use  
Disorder in Rural Areas in the United States: A Literature Review**

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## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

**Research Question:** What are the barriers to medication-assisted treatment for those with an opioid use disorder in rural areas in the United States?

### **Abstract**

Medication-assisted treatment (MAT) is an important and effective treatment option for those with an opioid use disorder (OUD). Although access to this treatment has increased over recent years, those in rural communities in the U.S. continue to face barriers in accessing this treatment. This literature review examines the barriers to medication-assisted treatment for those with an opioid use disorder in rural areas in the United States. Eleven research articles were selected from PubMed, APA PsycInfo, and Web of Science for review. The results yielded three overarching barriers to medication-assisted treatment in this population: geographical isolation of rural areas, a lack of providers for this treatment, and the stigma surrounding opioid use disorder and addiction. These findings highlight the multifaceted obstacles those in rural areas face when it comes to accessing medical care, especially MAT. The observations made in this literature review can be used for further research into the barriers to OUD treatment programs in rural areas and the possible interventions to alleviate these barriers for this population. The implications of this type of research can be used for policies and initiatives that aim to address these barriers and increase awareness and access to MAT in these rural areas.

# BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

## Table of Contents

<b>Introduction</b> .....	4
<b>Methods</b> .....	7
Inclusion and exclusion criteria .....	8
<i>Figure 1: Article Selection Process</i> .....	10
<b>Results</b> .....	11
Geographic Isolation.....	11
Lack of Providers.....	12
Stigma .....	12
<i>Table 1. Detailed Summary of Article Reviewed</i> .....	14
<b>Discussion</b> .....	21
Limitations .....	23
Further Research .....	23
Further Policy.....	24
Conclusion .....	24
<b>References</b> .....	25

# BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

## Introduction

The opioid epidemic has emerged as a significant public health issue, especially in the United States. Between 1990 and 2017, opioid use resulted in over 400,000 fatal overdoses in the US (Patterson Silver Wolf & Gold, 2020). In 2022 alone, there were approximately 108,000 drug-involved overdose deaths, with 81,806 overdose deaths involving opioids (National Institute on Drug Abuse, 2024). This crisis has been widespread due to the increased availability of opioids for pain management, overprescription, and increased availability of illicit opioids. In 2020, approximately 9.49 million Americans 12 years of age and older reported opioid misuse at least once in a year, with approximately 2.702 million individuals having an opioid use disorder (National Center for Drug Abuse Statistics, 2023). Opioid use disorder (OUD) is a chronic condition characterized by the compulsive use of opioids despite any harmful consequences (Strang et al., 2020). In 2021, about 2.5 million people experienced OUD in the United States with 52.5% being men, 47.5% women, and 67.4% 35 years or older (Jones et al., 2023).

The use of opioids can result in both short and long-term health effects. Common side effects of opioid use include nausea, dizziness, fatigue, and respiratory issues. Long-term side effects from opioid use include sleep-disordered breathing (SBD), hypothalamic-pituitary-adrenal dysregulation, chronic constipation, and an increased risk for bone fractures (Cleveland Clinic, 2022). Additionally, comorbid mental disorders are common among those with substance use disorders (SUDs). The prevalence of comorbid mental disorders is increased in those who seek treatment for substance use, and mental disorders are associated with poor treatment outcomes among those with SUDs (Santo et al., 2022). More specifically, those with co-occurring OUD and comorbid mental disorders are more likely to experience physical and psycho-social health issues, as well as more severe OUD (Santo et al., 2022). Depression is the

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

most prevalent mental disorder among those with OUD, followed by anxiety, ADHD, and PTSD. Furthermore, the economic burden in the U.S. from OUD and fatal opioid overdose is notable, with the costs in 2017 accounting to \$1.02 trillion dollars (Florence et al., 2021). The largest component of this cost comes from the value of reduced life quality from opioid use disorder, approximately \$390.0 billion, and the overall life lost due to opioid overdose, \$480.7 billion (Florence et al., 2021). Other components of this cost include health care/treatment costs, criminal justice spending, and loss of productivity (Florence et al., 2021).

Treatment for OUD is typically multi-pronged, combining therapy with medications. Medication-assisted treatment (MAT) is a treatment that involves combining behavioral therapies with medications (Deyo-Svendsen et al., 2020). The current FDA approve medications for treatment of OUD are buprenorphine, methadone, and naltrexone (Food and Drug Administration, 2024). Methadone and buprenorphine have been proven to reduce opioid use and opioid-related symptoms. Those on methadone had 33% fewer positive opioid drug tests and were 4.4 times more likely to adhere to treatment compared with controls (National Institute on Drug Abuse, 2021). Those on buprenorphine had 14.2% fewer positive opioid drug tests and were 1.82 times more likely to stay on treatment plan (National Institute on Drug Abuse, 2021). Compared to those not receiving MAT, opioid overdose decreased by 59% for those using methadone and 38% for buprenorphine (National Institutes of Health, 2018).

However, despite evidence for effectiveness of medication-assisted treatment in reducing mortality and improving well-being for those with OUD, there are still barriers that prevent access to MAT. According to a 2022 study, among adults needing treatment for OUD, only 25% received medication and 30% received non-MAT treatments (Centers for Disease Control and Prevention, 2024).

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

When looking at rural populations, these barriers to MAT become even more pronounced. Rural areas present a unique set of challenges when it comes to receiving healthcare access, including longer distances of travel to health care, lower socioeconomic status, lack of health insurance, shortage of health providers, and lower health literacy rates (American Institutes for Research, 2021). Between 1999 and 2015, opioid-related deaths quadrupled in rural areas (Qudah et al., 2022). Additionally, nonfatal overdoses are concentrated in states with larger rural populations (Keyes et al., 2014). Counties outside metropolitan areas experience higher rates of drug poisoning, with opioid poisonings having increased greater than three times the increase in metropolitan areas (Keyes et al., 2014). While OUD and opioid-related deaths have increased in rural areas, access to MAT has not. Compared to urban contexts, rural areas continue to be disadvantaged due to a lack of services and underutilization of available resources (Pullen & Oser, 2014). In addition, urban areas are more likely to provide secondary services that are beneficial for successful outcomes, such as mental health services. Rural areas also often lack specialty substance abuse treatment programs designed for certain audiences, such as those made for women or minorities (Pullen & Oser, 2014). This lack of specialty programs could discourage treatment utilization among this population. Seeking substance-abuse treatment in rural areas may also mean a higher chance of recognition in group-based meetings, which could discourage those seeking potential treatment.

Although existing research does address general barriers to MAT, little research has examined the specific challenges faced by rural populations. Most of the current research focuses on general barriers to healthcare for those with OUD while the specific challenges in access to MAT faced by rural populations remain unexplored. Examining healthcare inequality from this perspective allows for identification of key obstacles needing further research, policy, and

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

intervention strategies tailored to this community. The aim of this study is to identify the barriers to medication-assisted treatment for those with opioid use disorders in rural areas in the United States.

### Methods

For this literature review, the databases utilized included PubMed, APA PsycInfo, and Web of Science. PubMed is a standard database for health, biomedical, and life science literature and provides data from approximately 37 million citations and abstracts. PubMed is broad enough to cover articles that explore MAT access specifically in rural areas. APA PsycInfo is a comprehensive resource for behavioral and social science literature with over 12,500 journals and over 13,200 publications. Although it focuses on psychology, it nonetheless offers relevant articles related to MAT and OUD. Web of Science is the world's leading citation database and provides a wide variety of scientific data. Web of Science offered numerous articles relating to OUD, MAT, and information on barriers in rural areas. The process for selecting the articles in this literature review is detailed in *Figure 1*.

For PubMed, a search for “barrier\* AND medication-assisted treatment” yielded 218 articles. The asterisk was used to include all terms related to barriers. This search provided articles related to medications that were outside the scope of the research question. To further narrow the results, a second search for “barrier\* AND medication-assisted treatment AND opioid use disorder” yielded 170 results. The third search included “barrier\* AND rural AND medication-assisted treatment AND opioid use disorder” which yielded 37 results. This terminology was used to find articles that focused on barriers to MAT specifically in rural areas.

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

The inclusion of only articles published in the last ten years also found the 37 results. Six of the eleven articles in this literature review came from PubMed.

For the APA PsycINFO database, a similar search process was used. The search “barrier\* AND medication-assisted treatment” yielded 151 results. A second search of “barrier\* AND medication-assisted treatment AND opioid use disorder” resulted in 102 articles. A third search of “barrier\* AND rural AND medication-assisted treatment AND opioid use disorder” yielded 26 articles. The inclusion of the years 2014 to 2024 also produced the 26 articles. Two of the eleven articles in this literature review came from APA PsycINFO.

For the Web of Science database, a similar search process was also used. The search “barrier\* AND medication-assisted treatment” gave 334 results. The subsequent search “barrier\* AND medication-assisted treatment AND opioid use disorder” yielded 247 results. To narrow down the articles to specifically rural populations, a third search of “barrier\* AND rural AND medication-assisted treatment AND opioid use disorder” yielded 49 results. The inclusion years of 2014 to 2024 also produced 49 articles. Three of the eleven articles in this literature review came from Web of Science.

### *Inclusion and exclusion criteria*

Similar inclusion and exclusion criteria were used between the databases. As substance use disorders and substance use treatment are frequently research topics, the search terms “medication-assisted treatment” and “opioid use disorder” were included to ensure that only articles relating to OUD and MAT would be listed. The search term “rural” was included to ensure that the articles were primarily related to rural populations. The search term “barrier\*” was included to ensure that only articles related to barriers to MAT for this population were



## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

listed. All databases were limited to the years 2014 to 2024 to select only the most accurate and recent articles for the review. Only original research was selected, and any systemic or literature reviews were excluded from being considered. Articles primarily related to high-income or urban areas were excluded due to the research question's focus on rural areas. Furthermore, articles focusing on implementation of interventions were excluded due to this review's focus on barriers. Articles discussing a co-occurring disorder along with OUD were excluded due to the focus on OUD specifically.

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

Figure 1: Article Selection Process



### Results

Barriers to accessing medication-assisted treatment for opioid use disorder present significant challenges that hinder effective recovery efforts. The eleven articles reviewed provide insight to the barriers to medication-assisted treatment for those with an opioid use disorder in rural areas in the United States. The literature review yielded three overarching findings. The first being the geographic isolation of rural areas, the second finding the lack of providers in rural areas, and the third the stigma surrounding opioid use disorder and addiction in rural communities. A detailed summary of the articles used for this literature review can be found in *Table 1*.

#### *Geographic Isolation*

The geographical isolation of rural areas is a significant barrier to MAT. Rural counties in the U.S. are less likely to have methadone clinics than urban areas (Lister et al., 2020). Many rural residents were driving longer distances to nearest opioid treatment program (OTP) and office-based buprenorphine treatment (OBBT) (Amiri et al., 2021). The median travel time to nearest OTP and OBBT was 9.82 and 4.10 minutes for metropolitan areas, respectively, and 56.50 and 25.59 minutes for rural areas (Amiri et al., 2021). This distance poses logistical issues as participants in MAT programs have difficulty getting to their treatments due to the lack of transportation in their rural communities (Clark et al., 2021). Patients and providers agreed that lack of transportation was a main barrier to MAT and that access to transportation was positively correlated with stable recovery from OUD (Bridges et al., 2023). Majority of participants agreed that adherence to treatment was strongly associated with having transportation and 30.6% agreed that lack of reliable transportation was a factor for leaving treatment (Boyd et al., 2024).

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

### *Lack of Providers*

Most of the studies reviewed found that lack of providers was a barrier to accessing MAT in rural areas. Approximately 56.3% of all rural counties in the United States lack a healthcare provider with a waiver to provider office-based MAT. Compared to 2.2% of urban Americans, 29.8% of rural Americans lived in a county without a buprenorphine provider (Andrilla, Moore, Patterson, et al., 2019). Long waitlists for MAT programs due to minimal number of providers and restrictions on the number of patients that could be treated by one provider further prevents access to MAT (Scorsone et al., 2020). Furthermore, only approximately half of physicians waived to prescribe buprenorphine for OUD were accepting new patients (Andrilla et al., 2018). Even with rural providers attempting to integrate buprenorphine-based MAT into their practice, misuse of medication is a central obstacle for them, frequently resulting in the decision to not include this treatment (Scorsone et al., 2020). With the lack of providers and the resulting increased drive times to nearest provider, one additional mile results in 1.2% decrease in the odds of receiving MAT (Cole et al., 2019).

### *Stigma*

Stigma associated with opioid use disorder and addiction presents another barrier to accessing MAT in rural communities. MAT patients reported that stigma was a barrier to seeking treatment (Bridges et al., 2023). Stigma surrounding those who use opioids can create negative views among rural providers, viewing those individuals as harder to treat (Sorrell et al., 2020). Physicians attempting to add MAT to their practices were met with significant resistance from staff in their practices (Andrilla, Moore, & Patterson, 2019). Resistance was associated with disapproval of using medications as OUD treatment and fear of attracting drug users (Andrilla, Moore, & Patterson, 2019). Pharmacies in these rural areas also reported refusing to carry the

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

medications and negatively interacting with patients, further affecting access to MAT (Andrilla, Moore, & Patterson, 2019). Providers recognized that unacknowledged stigma among colleagues may be a barrier to access of treatment for these rural communities (Sorrell et al., 2020). Stigma towards patients of OUD was associated with lack of formal and quality training in addiction treatment (Andrilla, Moore, & Patterson, 2019).

# BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

Table 1. Detailed Summary of Article Reviewed

	Authors	Year	Article Title and Journal	Purpose of Article	Sample Info	Type of Research	Research Findings	Limitations
1	Amiri, S. Hirschak, K. McDonell, M.G. Denney, J.T. Buchwald, D. Amram, O.	2021	Access to medication-assisted treatment in the United States: Comparison of travel time to opioid treatment programs and office-based buprenorphine treatment  <i>Drug and Alcohol Dependence</i>	To compare drive time differences to the nearest office-based buprenorphine treatment to nearest opioid treatment program across the U.S.	Study included 215,245 block ground in the contiguous U.S. Data on 1,643 OTPs and 38,014 OBBTs were acquired using OTP and buprenorphine practitioner directories by the Substance Abuse and Mental Health Services Administration .	Cross-sectional study	The mean travel times to nearest OBBT compared to OTP was 7.18 min in metropolitan cores and 40.16 min in rural areas.	Lack of data on specialty non-OTPs, mental health centers, and detention centers. Drive time was calculated assuming that people have access to vehicles.
2	Andrilla, C.H.A, Moore, T.E. Patterson, D.G. Larson, E.H.	2018	Geographic Distribution of Providers with a DEA Waiver to Prescribe Buprenorphine for the Treatment of Opioid Use	To summarize the geographic distribution of waived physicians at the end of 2017 and compared it	Used the DEA list of providers with a waiver to prescribe buprenorphine and assigned waived providers in 1 of 4	Cross-sectional study	56.3% of rural counties lack a provider. 29.8% of rural Americans live in a county without a provider.	Results indicate counties where at least 1 provider with a DEA waiver is located, but they do not adjust for patient need or availability of treatment slots.

# BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

			Disorder: A 5-Year Update <i>The Journal of Rural Health</i>	to the distribution of waived physicians 5 years earlier.	geographic categories.			
3	Andrilla, C.H.A., Moore, T.E. Patterson, D.G.	2019	Overcoming Barriers to Prescribing Buprenorphine for the Treatment of Opioid Use Disorder: Recommendations from Rural Physicians <i>The Journal of Rural Health</i>	Identify physicians providing MAT to assess strategies for providing MAT in rural areas.	Candidates were randomly selected from all rural-located physicians with a DEA waiver to prescribe buprenorphine.	Cross-sectional study.	Recommendation included minimize DEA instruction, address lack of mental health providers and stigma, and maintain treatment.	A greater proportion of physicians who were in addition medicine specialist participated.
4	Andrilla, C.H.A. Coulthard, C. Patterson, D.G.	2018	Prescribing Practices of Rural Physicians Waivered to Prescribe Buprenorphine <i>American Journal of Preventive Medicine</i>	To describe the prescribing practices of physicians with a waiver across the rural United States.	Physicians were surveyed who were in rural areas with a waiver from the Drug Enforcement Administration to prescribe buprenorphine. Of the 2,577 rural physicians who were	Cross-sectional study	89.4% of rural waived physicians reported having prescribed buprenorphine to treat OUD, but only 56.2% reported currently accepting new patients. 53% of physicians reported not	The physicians in the West Census Region responded at a higher rate than other regions. In addition, another limitation of this study is that more physicians waived to treat up to 100 patients

# BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

					surveyed, with 433 were determined to be excluded due to being out of scope and 77 excluded due to practicing in an urban location.		treating any patients. Physicians with 100-patient waivers were treating 59.6 patient on average with 27.4% at or approaching their 100-patient limit.	responded than those waived to treat 30 patients.
5	Boyd, J. Carter, M. Baus, A.	2024	Access to MAT: Participant's Experience with Transportation, Non-Emergency Transportation, and Telehealth  <i>Journal of Primary Care &amp; Community Health</i>	To comprehend the influence that transportation, Medicaid-funded no-emergency transportation, and telehealth play in access to MAT in West Virginia.	1700 surveys were distributed to individuals who participated in one of the selected 21 MAT programs in West Virginia. 225 surveys returned. Participants were 18 years or older. This survey was conducted from February 2021 – August 2021.	Sequential mixed methods study	The findings revealed that 81.1% of respondents agreed or strongly agreed that having transportation helped them remain in treatment. 30.6% agreed or strongly agreed that lack of reliable transportation was a reason they had left treatment.	The survey was distributed primarily through MAT treatment centers with buprenorphine or naloxone treatments. Results do not fully reflect methadone programs.



# BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

6	Bridges, N.C. Taber, R. Foulds, A.L. Bear, T.M. Cloutier, R.M.	2023	Medications for opioid use disorder in rural primary care practices: Patient and provider experiences  <i>Journal of Substance use and Addiction Treatment</i>	To gain a better understanding of the barriers and facilitators operating at multiple levels to access or provide MOUD in rural Pennsylvania.	35 interviews with both MOUD patients and providers participating in RAMP.	Cross-sectional study	Patients and providers agreed on multiple barriers: lack of providers, lack of transportation, insufficient trust, and cost.	The sample was smaller than hoped for. The experiences captured from rural communities may not be applicable for all rural areas in the U.S.
7	Clark, A. Rangeley, A. Stem, J.	2021	“If You Could Wave a Magic Wand”: Treatment Barriers in the Rural Midwest  <i>Substance Abuse: Research and Treatment</i>	To assess opioid use disorder treatment barriers to increase access to treatments. <sup>2</sup>	20 participants, 14 males, and 6 females, with a diagnosed OUD were recruited from detention centers and treatment settings.	Qualitative mixed-methods study	Three major themes emerged from the data: epigenetics and exposure, management of disease including re-integration into society, and disease process.	There is a risk for selection bias among participants, given the protections of the study population, the research could not determine population characteristics.
8	Cole, E. S. DiDomenico, E. Cochran, G. Gordon, A. J. Gellad, W.	2019	The Role of Primary Care in Improving Access to Medication-Assisted Treatment for	To describe the role of rural primary care providers (PCPs) in MAT delivery	Medicaid-enrolled adults diagnosed with OUD in 23 rural Pennsylvania counties.	Retrospective cohort study	Of 7930 Medicaid enrollees with an OUD, 18.6% received their diagnosis during a PCP visit. 62%	Definition of PCPs based on provider type and specialty codes, which may have led to

# BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

	F. Pringle, J. Warwick, J. Chang, C.H. Kim, J. Y. Kmiec, J. Kelley, D. Donohue, J. M.		Rural Medicaid Enrollees with Opioid Use Disorder  <i>Journal of General Internal Medicine</i>	and to examine the degree in which rural residents with OUD are engaged with PCPs.			of rural enrollees with OUD had at least 1 primary care visit. Rural Medicaid enrollees with OUD traveled distances 4 times longer to their actual MAT prescribers than distance to all enrollees with OUD.	misclassification .
9	Lister, J.J. Weaver, A. Ellis, J.D. Molfenter, T. Ledgerwood, D.M. Himle, J.A.	2020	Shortages of Medication-Assisted Treatment for Opioid Use Disorder in Underserved Michigan Counties: Examining the Influence of Urbanicity and Income Level  <i>Journal of Health Care for the Poor and Undeserved</i>	To examine rural-urban and county-level income differences in the availability of MAT across all Michigan counties.	In 2016, median Michigan county has 37,724 residents, with medians of 25,327 residents in rural counties and 159,024 residents in urban counties. The median county-level household incomes were	Cross-sectional study	Rural and low-income Michigan counties are at increased risk for MAT shortages. Rural counties were more likely to lack any available methadone clinics and buprenorphine practitioners compared with urban counties	SAMHSA tool did not provide information for waived practitioners listed privately.

# BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

					\$40,885 in low-income counties and \$49,300 in high-income.			
10	Scorsone, K.L. Haozous, E.A. Cox, K.J.		Overcoming barriers: Individual Experiences Obtaining Medication-Assisted Treatment for Opioid Use Disorder  <i>Qualitative Health Research</i>	To explore the knowledge and perspectives of individuals in rural NM with OUD regarding MAT and to describe their experiences seeking MAT.	Recruited 20 participants who had experience with OUD and MAT (10 female, 10 male).	Qualitative descriptive study	Five descriptive themes emerged: It is Hard to Have to Wait, Suboxone Is Better, But You're Still Hooked, Able to Live a Normal Life, Staying Clean, and No Matter What, You're Labeled.	Findings are within the specific context of rural northern New Mexico and people who live with OUD, a population with a unique and diverse cultural and racial context.
11	Sorrell, T.R. Weber, M. Alvarez, A. Beste, N. Hollins, U. Amura, C.R. C	2020	From policy to practice: Pilot program increases access to medication for opioid use disorder in rural Colorado.  <i>Journal of Substance Abuse and Treatment</i>	To analyze the effectiveness of a pilot MOUD program.	Two targeted rural counties were specified in the legislation for the development of NP/PA-led MOUD services.	Quasi-experimental study	Increased availability of services and increases access to treatment for patients with OUD.	Limitations of this study are directly tied to barriers encountered in delivering MOUD in rural areas. Program sites identified stigma as a key barrier that inhibits patient enrollment in and uptake of

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

								MOUD in rural areas.
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### **Discussion**

Although MAT is an effective treatment option for those with OUD, barriers to accessing MAT remains present in rural areas in the United States. The aim of this literature review was to examine the barriers to medication-assisted treatment for those with an opioid use disorder in rural areas in the United States. The overarching findings indicate that geographic isolation, lack of providers, and stigma are three of the most prominent barriers to MAT access in this population.

Individuals in rural areas experience longer drive times to MAT clinics due to the geographic isolation of rural communities and the lack of reliable transportation (Clark et al., 2021). This distance to treatment poses issues for these areas, as there is an association between drive times and adherence to treatment. The longer an individual is required to drive to their MAT clinic, the less likely they are to adhere to treatment, which impacts a stable recovery (Bridges et al., 2023).

A lack of providers waived to provide MAT poses an obstacle to individuals with OUD seeking this treatment. Rural areas experience less available MAT providers than urban areas. Majority of rural counties in the United States lack a provider with a waiver to provider office-based MAT and are less likely than urban areas to have a buprenorphine provider (Andrilla, Moore, Patterson, et al., 2019). Without the availability of MAT providers for individuals in these rural populations, continued dangerous opioid use and abuse may still occur or possibly worsen in these individuals, potentially causing their recovery process to become increasingly complicated.

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

Individuals in rural areas also experience stigma surrounding OUD and treatment for OUD (Bridges et al., 2023). Negative beliefs surrounding opioid use in these rural communities affects medical providers and pharmacist's willingness to treat those with OUD, affecting these individual's ability to receive proper MAT medications for their recovery (Scorsone et al., 2020).

The existing research on OUD emphasizes the multifaceted barriers that individuals face when attempting to access treatment. Individuals, across all levels of the urban-rural continuum, face multiple social determinants of health at the individual, interpersonal, organizational, community, and policy level that provide barriers to access MAT in their communities (Stopka et al., 2024). The findings in this literature review relate to existing research on barriers to MAT for other populations. Throughout the opioid epidemic, Black and Hispanic individuals have been disproportionately affected, with drug overdose deaths rates higher for Black and Hispanic individuals than White individuals (DiNardi et al., 2022). One explanation for this disparity is that the barriers to treatment for OUD, such as MAT, differentiate across racial/ethnic lines. Non-Hispanic White individuals are more likely to initiate OUD treatment than other racial/ethnic groups (DiNardi et al., 2022). Additionally, non-Hispanic White individuals were more likely to receive follow up treatment after a nonfatal overdose than non-Hispanic Black and Hispanic individuals. MAT is offered less in counties with higher Black or Hispanic communities (DiNardi et al., 2022). The main factor thought to cause these racial/ethnic disparities is due to residential segregation. Residential segregation is association with racial and ethnic disparities by creating differences in socioeconomic status or environmental conditions (DiNardi et al., 2022). It is important to address these barriers that contribute to racial and ethnic disparities in access to MAT to focus targeted interventions on increasing access in this population. Furthermore, it is also important to study the barriers and interventions tailored for increasing access to MAT in

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

specific racial/ethnic groups in terms of rural populations. Future research should explore innovative strategies to improve MAT access and adherence in rural communities while also considering the unique challenges faced by diverse populations within these areas.

### *Limitations*

The primary limitations of this review stem from the fact that only 11 articles were included. There is an extensive amount of research about treatment options for opioid use disorder, and this literature review was only able to cover a limited amount of the available research. This limited amount of research examined may contribute to skewed results of the depth of the barriers. Additionally, some of the articles reviewed examine select states and rural populations while others examined the entire U.S., so the findings of this literature review may not be generalized to all the U.S.

### *Further Research*

Further research done on this topic should continue to explore the factors that contribute to barriers to accessing MAT for OUD in rural areas. Studies that explore the lived experiences of individuals with OUD in rural areas could provide valuable insight to the specific barriers that these individuals face. Studying OUD and MAT access through lived experiences allows for comprehensive data directly from patient and provider experiences (Techau et al., 2023). Recent advances in options for OUD treatment have shown potential, including office-based methadone maintenance, implantable injection buprenorphine, and extended-release injectable naltrexone (Kuppalli et al., 2021). Continuing such research on new treatment options for OUD can provide more resources for individuals to utilize. (Eibl et al., 2017).

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

### *Further Policy*

Policy implications emerging from this review suggest that comprehensive strategies are needed to improve access to MAT in rural populations. An expansion of telemedicine to treat rural patients with OUD may be an effective option (Eibl et al., 2017). MAT for OUD delivered via telemedicine is as effective as in-person delivery (Hser & Mooney, 2021), highlighting the benefits that expanding telemedicine could bring. A possible strategy to expand MAT access in rural communities is to create efficient partnerships between primary care providers and telemedicine providers (Hser & Mooney, 2021). This would allow patients receiving MAT to receive in-person delivery as well as virtual delivery, allowing for decreased drives to in-person providers, possibly resulting in stronger adherence to treatment plan. In addition, a possible intervention for transportation constraints is to improve rural transportation through subsidizing transportation costs, setting up ride share programs, and non-emergency medical transportation (Oluyede et al., 2022).

### *Conclusion*

The opioid epidemic poses a significant public health crisis, particular for rural populations in the United States. This literature review examined eleven articles from the PubMed, APA PsycINFO, and Web of Science databases to identify the barriers to medication-assisted treatment for OUD in these communities. The study reveals that geographic isolation, a shortage of providers, and stigma significantly impede access to MAT. Understanding these barriers is essential for developing effective public health strategies aimed at improving access to MAT. Further research and policy are needed to explore additional factors influencing MAT access, ultimately guiding comprehensive strategies to reduce the impacts of OUD in rural populations.



## References

- American Institutes for Research. (2021). *Exploring Urban-Rural Disparities in Accessing Treatment for Opioid Use Disorder*. Retrieved September 12, 2024 from <https://www.air.org/resource/equity-focus/exploring-urban-rural-disparities-accessing-treatment-opioid-use-disorder>
- Amiri, S., Hirchak, K., McDonell, M. G., Denney, J. T., Buchwald, D., & Amram, O. (2021). Access to medication-assisted treatment in the United States: Comparison of travel time to opioid treatment programs and office-based buprenorphine treatment. *Drug and Alcohol Dependence*, 224, 108727. <https://doi.org/https://doi.org/10.1016/j.drugalcdep.2021.108727>
- Andrilla, C. H. A., Coulthard, C., & Patterson, D. G. (2018). Prescribing Practices of Rural Physicians Waivered to Prescribe Buprenorphine. *American Journal of Preventive Medicine*, 54(6), S208-S214. <https://doi.org/10.1016/j.amepre.2018.02.006>
- Andrilla, C. H. A., Moore, T. E., & Patterson, D. G. (2019). Overcoming barriers to prescribing buprenorphine for the treatment of opioid use disorder: Recommendations from rural physicians. *The Journal of Rural Health*, 35(1), 113-121. <https://doi.org/10.1111/jrh.12328>
- Andrilla, C. H. A., Moore, T. E., Patterson, D. G., & Larson, E. H. (2019). Geographic Distribution of Providers With a DEA Waiver to Prescribe Buprenorphine for the Treatment of Opioid Use Disorder: A 5-Year Update. *The Journal of Rural Health*, 35(1), 108-112. <https://doi.org/https://doi.org/10.1111/jrh.12307>

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

- Boyd, J., Carter, M., & Baus, A. (2024). Access to MAT: Participants' Experiences With Transportation, Non-Emergency Transportation, and Telehealth. *J Prim Care Community Health*, 15, 21501319241233198. <https://doi.org/10.1177/21501319241233198>
- Bridges, N. C., Taber, R., Foulds, A. L., Bear, T. M., Cloutier, R. M., McDonough, B. L., Gordon, A. J., Cochran, G. T., Donohue, J. M., Adair, D., DiDomenico, E., Pringle, J. L., Gellad, W. F., Kelley, D., & Cole, E. S. (2023). Medications for opioid use disorder in rural primary care practices: Patient and provider experiences. *Journal of Substance Use and Addiction Treatment*, 154, 209133. <https://doi.org/https://doi.org/10.1016/j.josat.2023.209133>
- Centers for Disease Control and Prevention. (2024). *Treatment for Opioid Use Disorder: Population Estimate - United States, 2022*. Retrieved September 12, 2024 from <https://www.cdc.gov/mmwr/volumes/73/wr/mm7325a1.htm#suggestedcitation>
- Clark, A., Lanzillotta-Rangeley, J., & Stem, J. (2021). "If You Could Wave a Magic Wand": Treatment Barriers in the Rural Midwest. *Subst Abuse*, 15, 11782218211053343. <https://doi.org/10.1177/11782218211053343>
- Cleveland Clinic. (2022). *Opioids*. <https://my.clevelandclinic.org/health/drugs/21127-opioids>
- Cole, E. S., DiDomenico, E., Cochran, G., Gordon, A. J., Gellad, W. F., Pringle, J., Warwick, J., Chang, C. H., Kim, J. Y., Kmiec, J., Kelley, D., & Donohue, J. M. (2019). The Role of Primary Care in Improving Access to Medication-Assisted Treatment for Rural Medicaid Enrollees with Opioid Use Disorder. *J Gen Intern Med*, 34(6), 936-943. <https://doi.org/10.1007/s11606-019-04943-6>
- Deyo-Svendsen, M., Cabrera Svendsen, M., Walker, J., Hodges, A., Oldfather, R., & Mansukhani, M. P. (2020). Medication-Assisted Treatment for Opioid Use Disorder in a

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

- Rural Family Medicine Practice. *J Prim Care Community Health*, 11, 2150132720931720. <https://doi.org/10.1177/2150132720931720>
- DiNardi, M., Swann, W. L., & Kim, S. Y. (2022). Racial/ethnic residential segregation and the availability of opioid and substance use treatment facilities in US counties, 2009-2019. *SSM Popul Health*, 20, 101289. <https://doi.org/10.1016/j.ssmph.2022.101289>
- Eibl, J. K., Gauthier, G., Pellegrini, D., Daiter, J., Varenbut, M., Hogenbirk, J. C., & Marsh, D. C. (2017). The effectiveness of telemedicine-delivered opioid agonist therapy in a supervised clinical setting. *Drug and Alcohol Dependence*, 176, 133-138. <https://doi.org/https://doi.org/10.1016/j.drugalcdep.2017.01.048>
- Florence, C., Luo, F., & Rice, K. (2021). The economic burden of opioid use disorder and fatal opioid overdose in the United States, 2017. *Drug Alcohol Depend*, 218, 108350. <https://doi.org/10.1016/j.drugalcdep.2020.108350>
- Food and Drug Administration. (2024). *Information about Medications for Opioid Use Disorder (MOUD)*. Retrieved September 12 from <https://www.fda.gov/drugs/information-drug-class/information-about-medications-opioid-use-disorder-moud>
- Hser, Y. I., & Mooney, L. J. (2021). Integrating Telemedicine for Medication Treatment for Opioid Use Disorder in Rural Primary Care: Beyond the COVID Pandemic. *J Rural Health*, 37(1), 246-248. <https://doi.org/10.1111/jrh.12489>
- Jones, C. M., Han, B., Baldwin, G. T., Einstein, E. B., & Compton, W. M. (2023). Use of Medication for Opioid Use Disorder Among Adults With Past-Year Opioid Use Disorder in the US, 2021. *JAMA Network Open*, 6(8), e2327488-e2327488. <https://doi.org/10.1001/jamanetworkopen.2023.27488>

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

- Keyes, K. M., Cerdá, M., Brady, J. E., Havens, J. R., & Galea, S. (2014). Understanding the rural-urban differences in nonmedical prescription opioid use and abuse in the United States. *Am J Public Health, 104*(2), e52-59. <https://doi.org/10.2105/ajph.2013.301709>
- Kuppalli, S., Seth, R., Orhurhu, V., Urits, I., Kaye, A. D., Hunter, C., Gulati, A., Adekoya, P., Kaye, A. M., & Jones, M. R. (2021). Recent Advances in the Treatment of Opioid Use Disorder. *Curr Pain Headache Rep, 25*(4), 23. <https://doi.org/10.1007/s11916-021-00941-8>
- Lister, J. J., Weaver, A., Ellis, J. D., Molfenter, T., Ledgerwood, D. M., & Himle, J. A. (2020). Shortages of Medication-Assisted Treatment for Opioid Use Disorder in Underserved Michigan Counties: Examining the Influence of Urbanicity and Income Level. *JOURNAL OF HEALTH CARE FOR THE POOR AND UNDERSERVED, 31*(3), 1291-1307.
- National Center for Drug Abuse Statistics. (2023). *Drug Abuse Statistics*. <https://drugabusestatistics.org/#:~:text=Opioid%20Abuse&text=9.49%20million%20or%203.4%25%20of,have%20an%20opioid%20use%20disorder>.
- National Institute on Drug Abuse. (2021). *How effective are medications to treat opioid use disorder?* Retrieved September 12, 2024 from <https://nida.nih.gov/publications/research-reports/medications-to-treat-opioid-addiction/efficacy-medications-opioid-use-disorder>
- National Institute on Drug Abuse. (2024). *Drug Overdose Deaths: Facts and Figures*. Retrieved September 12th from <https://nida.nih.gov/research-topics/trends-statistics/overdose-death-rates>
- National Institutes of Health. (2018). *Methadone and buprenorphine reduce risk of death after opioid overdose*. Retrieved September 12, 2024 from <https://www.nih.gov/news-events/news-releases/methadone-buprenorphine-reduce-risk-death-after-opioid-overdose>

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

Oluyede, L., Cochran, A. L., Prunkl, L., Wang, J., Wolfe, M., & McDonald, N. C. (2022).

Unpacking transportation barriers and facilitators to accessing health care: Interviews with care coordinators. *Transportation Research Interdisciplinary Perspectives*, 13, 100565. <https://doi.org/https://doi.org/10.1016/j.trip.2022.100565>

Patterson Silver Wolf, D. A., & Gold, M. (2020). Treatment resistant opioid use disorder (TROUD): Definition, rationale, and recommendations. *Journal of the Neurological Sciences*, 411, 116718. <https://doi.org/https://doi.org/10.1016/j.jns.2020.116718>

Pullen, E., & Oser, C. (2014). Barriers to substance abuse treatment in rural and urban communities: counselor perspectives. *Subst Use Misuse*, 49(7), 891-901. <https://doi.org/10.3109/10826084.2014.891615>

Qudah, B., Maurer, M. A., Mott, D. A., & Chui, M. A. (2022). Discordance in Addressing Opioid Crisis in Rural Communities: Patient and Provider Perspectives. *Pharmacy (Basel)*, 10(4). <https://doi.org/10.3390/pharmacy10040091>

Santo, T., Campbell, G., Gisev, N., Martino-Burke, D., Wilson, J., Colledge-Frisby, S., Clark, B., Tran, L. T., & Degenhardt, L. (2022). Prevalence of mental disorders among people with opioid use disorder: A systematic review and meta-analysis. *Drug and Alcohol Dependence*, 238, 109551. <https://doi.org/https://doi.org/10.1016/j.drugalcdep.2022.109551>

Scorsone, K. L., Haozous, E. A., Hayes, L., & Cox, K. J. (2020). Overcoming Barriers: Individual Experiences Obtaining Medication-Assisted Treatment for Opioid Use Disorder. *Qualitative Health Research*, 30(13), 2103-2117. <https://doi.org/10.1177/1049732320938689>

## BARRIERS TO MEDICATION-ASSISTED TREATMENT IN RURAL AREAS

Sorrell, T. R., Weber, M., Alvarez, A., Beste, N., Hollins, U., Amura, C. R., & Cook, P. F. (2020).

From policy to practice: Pilot program increases access to medication for opioid use disorder in rural Colorado. *Journal of Substance Abuse Treatment*, 114, 108027.

<https://doi.org/https://doi.org/10.1016/j.jsat.2020.108027>

Stopka, T. J., Estadt, A. T., Leichtling, G., Schleicher, J. C., Mixson, L. S., Bresett, J., Romo, E.,

Dowd, P., Walters, S. M., Young, A. M., Zule, W., Friedmann, P. D., Go, V. F., Baker, R.,

& Fredericksen, R. J. (2024). Barriers to opioid use disorder treatment among people who use drugs in the rural United States: A qualitative, multi-site study. *Social Science &*

*Medicine*, 346, 116660. <https://doi.org/https://doi.org/10.1016/j.socscimed.2024.116660>

Strang, J., Volkow, N. D., Degenhardt, L., Hickman, M., Johnson, K., Koob, G. F., Marshall, B.

D. L., Tyndall, M., & Walsh, S. L. (2020). Opioid use disorder. *Nat Rev Dis Primers*,

6(1), 3. <https://doi.org/10.1038/s41572-019-0137-5>

Techau, A., Gamm, E., Roberts, M., & Garcia, L. (2023). The Lived Experience of Medication

for Opioid Use Disorder: Qualitative Metasynthesis. *J Addict Nurs*, 34(3), E119-e134.

<https://doi.org/10.1097/jan.0000000000000475>