

Federally Qualified Health Centers Can Expand Rural Access to Buprenorphine for Opioid Use Disorder in Arizona

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ABSTRACT: Medication for Opioid Use Disorder (MOUD) is recommended, but not always accessible to those who desire treatment. This study assessed the impact of expanding access to buprenorphine through federally qualified health centers (FQHCs) in Arizona. We calculated mean drive-times to Arizona opioid treatment (OTP) locations, office-based opioid treatment (OBOT) locations, and FQHCs clinics using January 2020 location data. FQHCs were designated as OBOT or non-OBOT clinics to explore opportunities to expand treatment access to non-OBOT clinics (potential OBOTs) to further reduce drive-times for rural and underserved populations. We found that OTPs had the largest mean drive times (16.4 minutes), followed by OBOTs (7.1 minutes) and potential OBOTs (6.1 minutes). Drive times were shortest in urban block groups for all treatment types and the largest differences existed between OTPs and OBOTs (50.6 minutes) in small rural and in isolated rural areas. OBOTs are essential points of care for opioid use disorder treatment. They reduce drive times by over 50% across all urban and rural areas. Expanding buprenorphine through rural potential OBOT sites may further reduce drive times to treatment and address a critical need among underserved populations.

KEYWORDS: Opioid substitution treatment, health services accessibility, geographic information systems, opioid-related disorders

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Background

Since the 1990s, the US has experienced alarming increases in opioid, heroin, and fentanyl use and addiction.¹ In 2017, the US Department of Health and Human Services declared the crisis a public health emergency.² Almost 70% of the estimated 67 000 drug-related overdose deaths each year involve an opioid.³ Accidental injury is the leading cause of death among 1 to 44 year-old individuals, with drug overdose as the leading contributing factor.⁴ An estimated 2.1 million Americans have an opioid use disorder (OUD).⁵

For those with an OUD, medication for opioid use disorder (MOUD) is recommended.⁶ Medication treatment can be delivered in conjunction with or independent of behavioral health counseling.⁷ A medication-first approach allows but does not require behavioral health.⁸ This reduces challenges in coordinating care, especially in limited resource areas. However, adequate access to MOUD often requires affordable health insurance coverage, available and timely service, and a well-trained and geographically distributed workforce.⁹ MOUD are controlled substances regulated by the Drug Enforcement Agency and a minority of clinics and healthcare providers are licensed to prescribe them. These restrictions limit the availability of the prescribing workforce and create a potential barrier to access OUD treatment, particularly in rural areas.

Two medications, methadone and buprenorphine, act as opioid receptor agonists. A third, naltrexone, acts as an opioid antagonist. Methadone has been in use since the 1960s, and in 1974, the Narcotic Addiction Treatment Act allowed methadone to be prescribed and dispensed for OUD treatment in registered opioid treatment programs (OTPs).¹⁰ Currently, there are over 1700 OTPs in the US¹¹; most are located in metropolitan population centers.^{12,13} Rural residents have to drive over 6 times longer to reach an OTP than individuals living in urban areas.¹⁴ In addition to longer drive times, methadone treatment also requires frequent clinic visits as methadone is usually administered through daily, directly observed doses.

The number of OTPs and drug-free treatment services has remained flat over the last 2 decades while OUD prevalence has steadily increased.^{12,15} In 2000, the Drug and Addiction Treatment Act (DATA) was enacted to improve access to buprenorphine. Its goal was to extend access to MOUD outside of OTP settings. In 1984, the FDA had already approved naltrexone as a non-restricted medication. By blocking the rewarding effects of opioids, naltrexone is a useful tool to prevent opioid use and eventually reduce cravings, especially with extended-release injection formulations.⁷ DATA allowed providers who complete specified training to receive a waiver to prescribe buprenorphine in traditional primary care settings



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outside of an OTP. Unlike naltrexone, buprenorphine activates opioid receptors, providing a more immediate reduction in withdrawal symptoms. This reduces opioid cravings and improves retention in treatment. Both medications are effective in preventing relapse, however naltrexone is more difficult to initiate.¹⁶ Adding buprenorphine as an office-based opioid treatment (OBOT) was intended to increase access and broaden geographic access to additional types of MOUD.¹⁷

Between 2002 and 2011, US counties with available opioid agonist therapy services increased from 27% to 76%—due almost exclusively to increases in DATA-waived providers.¹² By 2012, treatment capacity with buprenorphine was 3.5 times greater than with methadone.¹⁸ From 2013 to 2016, the ratio of waived physicians increased further, from 7.7 per 100 000 residents to 9.9.¹⁹ Despite these increases, large variations remain in the distribution of waived providers within and across states.^{13,20} Though initial increases in DATA-waived providers improved access to buprenorphine in some rural areas, large gaps remain between treatment need and capacity.^{18,21}

To increase access to MOUD in rural areas, more DATA-waived providers are needed to establish additional OBOT practices. Currently, around 4% of rural physicians hold a waiver.²² Of these, 89% have prescribed buprenorphine and 56% report accepting new patients.²³ In 2016, the Comprehensive Addiction and Recovery Act allowed nurse practitioners (NP) and physician assistants (PA) to train and obtain buprenorphine prescribing waivers, a change the 2018 SUPPORT for Patients and Communities Act made permanent, including temporarily expanding eligibility to registered nurse anesthetists, nurse midwives, and qualifying clinical nurse specialists.²⁴ NPs and PAs are essential components of rural primary care capacity²⁵; about half of NPs practice in primary care.²⁶ Recent increases in rural MOUD are largely driven by DATA-waived NPs and PAs. By March 2019, 12 700 NPs and PAs held buprenorphine waivers, expanding coverage to an additional 358 counties, 286 of which were rural. In rural counties, from 2016 to 2019, this represented a 90% increase in total buprenorphine treatment capacity.²⁷

At community health centers (CHCs), DATA-waived providers have the potential to further expand access to MOUD for rural and underserved populations. Established in 1965, CHCs are required to provide health care services to all individuals regardless of their ability to pay, and be located in areas with fewer health providers.²⁸ Authorized under Section 330 of the Public Health Service Act, there are 4 types of health centers: community health centers, health centers for the homeless, migrant health centers, and health centers for public housing residents. These are eligible for designation as Federally Qualified Health Centers (FQHCs) but must enroll as Medicaid and/or Medicare providers to receive cost-based reimbursement for services to those enrolled in these programs.²⁹ FQHCs serve 1 in 11 people in the US,³⁰ 1 in 5 rural residents, 1 in 5 people on Medicaid, and 1 in 3 people living in

poverty.³¹ Their patient populations represent a larger proportion of uninsured, Hispanic/Latino, African American, and Native American/Alaska Natives compared to the general population.^{32,33} In 2019, CHCs screened and identified almost 1.4 million individuals with a substance use disorder (SUD), and between 2017 and 2019, they doubled the number of patients who received MOUD.³¹ Integrating buprenorphine treatment into FQHCs has shown promising results, with positive retention rates and health outcomes.^{34,35} Because underserved populations who experience SUD and OUDs are less likely to receive^{36,37} or complete treatment due to socioeconomic factors,³⁸ CHCs are well positioned to provide this access.

To explore the availability of methadone and buprenorphine for rural and underserved populations, we compared drive time differences to OTPs and OBOTs across 4 rural-urban commuting area (RUCA) categories in Arizona. Rural-urban categorization at the county level can obscure important differences between more urban and more remote locations, especially in western states like Arizona where each of its 15 counties encompasses a large geographic area. Census tract-level RUCA codes make it possible to examine within-county disparities in access. For this analysis, Arizona provides a valuable case study; it is the sixth largest US state by area but ranks 42nd in terms of number of counties. For example, Arizona's Coconino County has a population density of 7.2 people per square mile while New Jersey, less than half its geographic size, has a population density of 1195 per square mile.

In addition to OTPs and OBOTs, we identified the concentration of DATA-waived providers in Arizona's FQHCs to explore the potential to expand buprenorphine access to underserved populations. We did this by identifying FQHC sites where DATA-waived providers are located (OBOTs) and where they are not (potential OBOTs). This made it possible to assess whether expanding MOUD to all FQHC sites could further reduce treatment drive times in each RUCA.

Methods

Study population and data sources

The study population included all populated Arizona census blocks. Census blocks provided the basis for grouping populations by rurality and identifying population centers for estimating mean driving times to MOUD treatment.

Opioid treatment programs. We downloaded Arizona OTP locations from the Substance Abuse and Mental Health Services Administration (SAMHSA) public access directory in January 2020. Arizona's Director for the American Association for the Treatment of Opioid Dependence reviewed the list for accuracy. Five locations inside of jails and 1 without outpatient methadone services were removed; 2 recently opened medication units were added. Medication units are geographically separate extensions of OTPs which can dispense methadone and may increase access in rural areas.

Table 1. Rural-urban commuting area categorizations.

CATEGORY	RUCA CODES
Urban	1.0, 1.1, 2.0, 2.1, 3.0, 4.1, 5.1, 7.1, 8.1, 10.1
Large rural city or town	4.0, 4.2, 5.0, 5.2, 6.0, 6.1
Small rural town	7.0, 7.2, 7.3, 7.4, 8.0, 8.2, 8.3, 8.4, 9.0, 9.1, 9.2
Isolated rural small town	10.0, 10.2, 10.3, 10.4, 10.5, 10.6

DATA-waived providers. We downloaded waived-provider locations from SAMHSA's public access buprenorphine practitioner locator in January 2020. This list includes all provider types that have a DATA waiver, including NPs and PAs, who work in any healthcare setting. We recognize that more providers hold waiver licenses than are publicly listed, and not all DATA-waived providers actively prescribe buprenorphine; we used SAMHSA's dataset to account for provider visibility, an important element of healthcare access.⁹ Self-referral is the most common source of referral to substance use disorder (SUD) treatment.³⁹

Federally qualified health centers. We downloaded FQHC locations from the Arizona Department of Health Services (ADHS) provider and facility database in December 2019. Eighteen sites in this list did not have an ADHS license number. After reviewing FQHC organization websites and the National Plan and Provider Enumeration System (NPPES) database for these 18 sites, 5 sites were removed; they were administrative sites, closed, or had no web-based listing and were not listed in the NPPES. The remaining 13 were confirmed to be FQHC locations actively providing community health services for a total of 149 FQHCs included in the analysis. The University of Arizona Institutional Review Board determined that this was not human subjects research.

Measures

Population groupings. RUCA codes are a sub-county classification system developed by the US Department of Agriculture, Economic Research Services with assistance from the Office of Rural Health Policy in the Department of Health and Human Services and the WWAMI Rural Health Research Center. RUCA codes rely on US census tract data and account for population density, urbanization, and daily commuting patterns.⁴⁰ There are 10 primary and 21 secondary RUCA codes.⁴¹ Similar to other MOUD drive-time research,⁴² we grouped census tracts into 4 categories based on their primary and secondary RUCA codes in Table 1. Using 4 categories allowed us to delineate and explore potential differences across multiple rural strata. We downloaded block group population centers based on 2010 US Census data from the National Historical Geographic

Information System and used them for the average driving starting point for each block group. Block groups were classified into RUCAs based on census tract designations.

Treatment locations. The analysis used 3 treatment location types: OTPs, OBOTs, and potential OBOTs. We defined OTP locations as publicly available SAMHSA-certified opioid treatment clinics. We defined OBOT locations as any non-OTP provider site that included at least 1 DATA-waived provider. Because OBOTs are based on buprenorphine providers' practice locations, OBOTs represent diverse practice settings, including private practices, community health centers, rural health clinics, and other clinic types. Potential OBOTs are defined as FQHC clinics without a DATA-waived provider. For this study, FQHC sites without a DATA-waived provider represent strategic opportunities to expand access to OBOT in rural settings. FQHCs are able to integrate SUD treatment with primary care services at locations focused on reaching underserved and remote populations.⁴³ Congruent with current colocation research,⁴⁴ we overlaid geographic locations to match FQHCs and DATA-waived providers. FQHCs that did not have a DATA-waived provider within a 0.5-mile radius were classified as potential OBOT locations.

Outcome variable. The primary outcome was mean drive times from block group population centers to the nearest OTP, OBOT, and potential OBOT locations. Mean drive times to potential OBOTs include the combination of OBOT and potential OBOT locations to represent the possible landscape of buprenorphine availability that includes current OBOTs and all FQHCs.

Analysis strategy

We batch geocoded OTP, DATA-waived provider, and FQHC addresses using Google Maps to obtain degrees of latitude and longitude for mapping. All locations were successfully matched to degrees latitude and longitude. Two DATA-waived providers with registered locations outside of Arizona were excluded. We used ESRI ArcGIS® Online software (ESRI, Redlands, CA) to conduct a near facility drive time analysis to simulate car travel from a designated starting point to a nearest facility using a comprehensive street network with speed limit information. The analysis used fixed speed data based on historical and live traffic averages with the understanding that residents will travel to treatment locations at different times of day. We computed drive times in minutes from each block group population center to the nearest OTP, OBOT, and potential OBOT. For each location type, we used Kruskal-Wallis *H* tests with post-hoc Mann-Whitney *U* tests to compare drive time mean ranks across the 4 RUCA classifications. This assessed whether drive times within each treatment group were statistically different based on RUCA classification using an alpha of .05.

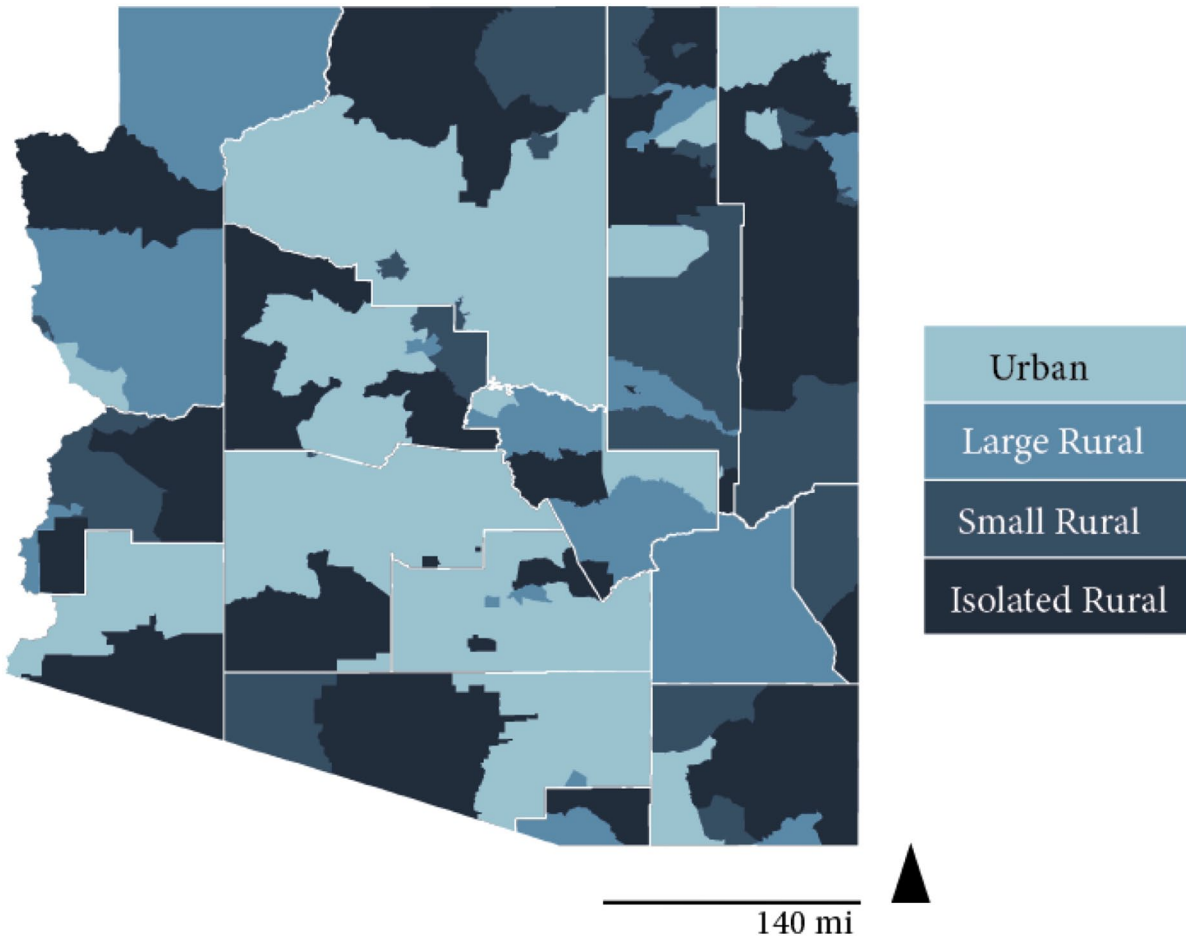


Figure 1. Arizona rural-urban commuting area (RUCA) distribution map.

To compare mean differences in driving time between location types for each RUCA category, we used Mann-Whitney U tests. These tests compared mean drives times to the nearest OTP with those to the nearest OBOT location, and OBOT to potential OBOT location. Non-parametric tests were chosen based on the right-skew of the distribution and many outliers. We explored median drive times and found that they had similar distributions as mean drive times, so only mean results are reported below. We also examined the proportion of census blocks located within a 30-minute drive to treatment sites. A 30 minute drive window represents a standard of healthcare proximity^{45,46} and reflects the distance patients report being willing to drive for routine and urgent care.⁴⁷ We used StataSE 16 to conduct the analyses (StataCorp, College Station, TX).

Results

A total of 1104 DATA-waived providers, 58 OTP locations, and 941 OBOT locations were included in the analysis. Of Arizona's 149 FQHC clinics, 71 included a DATA-waived provider and 78 did not. In Arizona, there are 4178 block group population centers; 10 were excluded due to having no population (eg, protected wilderness areas, unpopulated military land). Among the included 4168 block groups, 88% were urban, 6% large rural, 4% small rural, and 2% isolated rural (Figure 1). In

2018, Arizona's population was 92% urban, 5% large rural, 2% small rural, and 1% isolated rural.

In Arizona, the mean driving time for all block group population centers was 16.4 minutes to the nearest OTP, 7.1 minutes to the nearest OBOT, and 6.1 minutes to the nearest potential OBOT. When examined by RUCA classification, differences in drive times were observed. Kruskal-Wallis H tests and Mann-Whitney U tests were all statistically significant, suggesting that mean drive times are significantly different based on both residents' RUCA classification and the provider type to which they are traveling ($P < .05$). Urban block groups had the lowest mean drive times for OTPs, OBOTs, and potential OBOTs. For each treatment group, drive times increased by rurality, as shown in Table 2. Mean differences between OTPs and OBOTs, and between OBOTs and potential OBOTs are also included in Table 2. The largest drive-time difference existed between OTPs and OBOTs in small rural and isolated block groups. For both, it was 50.6 minutes. The smallest difference was 0.7 minutes between urban OBOTs and potential OBOTs.

Examining access to OUD treatment facilities within a 30-minute drive window, Figure 2 shows how OBOTs and potential OBOTs expand on OTPs as geographically proximal treatment sites. In Arizona, 3733 (91%) block groups are

Table 2. Drive time from block group population centers to the nearest medication for opioid use disorder treatment location by rural-urban commuting area.

BLOCK GROUP CLASSIFICATION	MEAN DRIVE TIME, MINUTES (95% CI)					DIFFERENCE IN MEAN DRIVE TIME MINUTES (95% CI)	
	TO OTP	TO OBOT	P-VALUE ^a	TO POTENTIAL OBOT ^b	P-VALUE ^c	TO OTP VS OBOT	TO OBOT VS POTENTIAL OBOT
All (n=4168)	16.4 (15.6, 17.2)	7.1 (6.7, 7.4)	<.001	6.1 (5.8, 6.3)	<.001	9.4 (8.7, 10.0)	1.0 (0.9, 1.1)
Urban (n=3683)	11.3 (10.9, 11.8)	5.5 (5.3, 5.7)	<.001	4.8 (4.6, 4.9)	<.001	5.9 (5.5, 6.2)	0.7 (0.6, 0.8)
Large rural (n=239)	31.7 (26.8, 36.6)	11.2 (8.8, 13.5)	<.001	10.3 (8.0, 12.7)	.037	20.6 (16.7, 24.4)	0.8 (0.5, 1.1)
Small rural (n=146)	70.7 (64.0, 77.5)	20.1 (17.3, 23.0)	<.001	15.3 (12.9, 17.6)	.025	50.6 (43.9, 57.3)	4.8 (2.9, 6.8)
Isolated (n=100)	87.5 (76.7, 98.4)	36.9 (33.2, 40.6)	<.001	29.7 (26.0, 33.3)	.006	50.6 (39.6, 61.7)	7.2 (4.6, 9.8)

Abbreviations: OBOT, office-based opioid treatment; OTP, opioid treatment program.
^aMann-Whitney *U*-tests compared OTPs to OBOTs.
^bPotential OBOT mean drive times include the combination of OBOT and potential OBOT locations.
^cMann-Whitney *U*-tests compared OBOTs and Potential OBOTs.

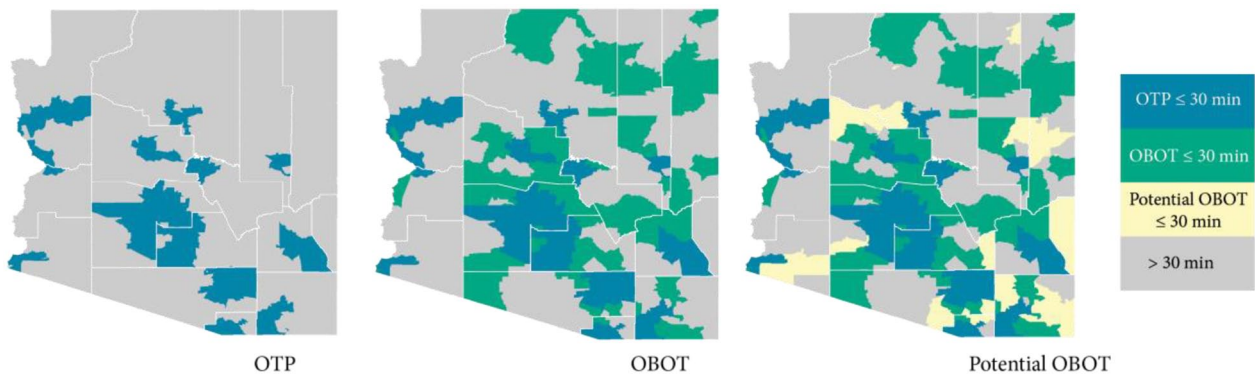


Figure 2. Block group proximity (30-minute drive time) to opioid use disorder treatment locations.

located within a 30-minute drive to an OTP. Outside of these areas, an additional 276 block groups (4009, 96%) are located within a 30-minute drive to an OBOT. Finally, 52 additional block groups are located within a 30-minute drive of potential OBOTs (4060, 97%). Increased geographic access from potential OBOT sites disproportionately affected the most rural areas—33 of the 52 additional block groups (63%) were in small rural and isolated rural areas.

Discussion

In Arizona, DATA-waived providers at OBOT locations increase the availability and decrease drive times to MOUD treatment involving buprenorphine. If OBOTs were expanded to include all FQHC clinics in Arizona (potential OBOTs), we found that drive times would further decrease. Improved access was greater in rural and isolated areas, even though drive times to rural MOUD services remained substantially greater than in urban areas. This is consistent with findings from other states that examined drive times to MOUD services in non-OTP settings.^{14,42} Compared to OTPs, OBOT sites reduced drive times by more than 50% in all RUCAs, with the largest effect

in small rural and isolated rural areas. Potential OBOTs at FQHCs further reduced mean drive times, with the most meaningful reductions occurring again in the small rural and isolated rural areas. Expanding OBOTs to all FQHC clinics would disproportionately benefit non-urban areas, including increasing treatment access to minority and underserved populations who disproportionately receive care at these sites.

While just 71 of 941 (7.5%) OBOT sites were in FQHC clinics, these constituted a meaningful point of access in rural and isolated areas of the state. Just under half (71 of 149) of Arizona’s FQHC clinic locations have a DATA-waived provider. If every Arizona FQHC had a buprenorphine waived provider and became an OBOT, MOUD drive times would decrease to less than 30 minutes in many rural and isolated areas. Notwithstanding these improvements, rural versus urban drive time differentials would persist. This is consistent with findings from a study on FQHC drive times in rural counties in 5 other US states.¹⁴

Arizona’s 149 FQHC clinics are affiliated with 39 organizations. FQHC organizations commonly operate multiple clinics. Thirteen of these 39 organizations (33%) employ a

DATA-waived provider at each of their clinic locations, and 33 (85%) have a DATA-waived provider at 1 of their clinics. Of the 72 FQHC clinic sites without a DATA-waived provider, 20 were in rural areas. This is congruent with national findings. In a study of all US community health centers, 48% reported providing buprenorphine, and similar to Arizona, not all clinics within an organization provided medications to treat OUD and 63% did not having the capacity to treat all patients with OUD.⁴⁸ These sites could be targeted for future MOUD training and OBOT expansion. Beyond Arizona, these implications are important for other states with geographically separated populations. Half of all FQHCs, FQHC look-alikes, and Rural Health Clinics are in rural areas, and are often the main access to healthcare services.⁴⁹

OBOT expansion would improve access to underserved populations. In primary care settings, Black and Hispanic patients are less likely to receive buprenorphine⁵⁰ and People of Color with OUD are less likely than White people to receive any MOUD.⁵¹ Black individuals who experience non-fatal overdoses are also half as likely as White patients to receive MOUD as follow-up care.⁵² In Arizona, 57.7% of FQHC patients belong to a racial or ethnic minority group. At FQHCs, 42% of patients identify as Hispanic/Latino, 11% as American Indian/Alaska Native, and 7% as African American. Within the state, these groups represent 31.7%, 5%, and 5% of the overall population, respectively.³³ FQHCs in Arizona also disproportionately serve economically disadvantaged groups. Almost 20% of FQHC patients are uninsured compared to 11.3% of the under-65 Arizona population,⁵³ and 45% have Medicaid or CHIP compared to 20.8% of the state covered by Medicaid.⁵⁴

Buprenorphine-based MOUD treatment capacity can be increased by training more primary care clinicians to receive a DATA waiver. In 2012, just 3.6% of family medicine physicians were DATA-waived, and 38% of all waived physicians worked in primary care settings.⁵⁵ Only 2% of nurse practitioners and less than 2% of physician assistants are DATA waived, though these percentages were higher in states with less restrictive scope of practice laws, such as Arizona.⁵⁶

Despite DATA's success in increasing provider supply and access to OUD treatment, the waiver and associated patient limits have historically presented barriers to treatment. This may be changing. In April 2021, The US Department of Health and Human Services⁵⁷ issued practice guideline changes for buprenorphine administration. Under the new guidance, state licensed and DEA registered providers may receive a waiver to treat up to 30 patients without meeting prior ancillary service, counseling, or training requirements. However, prior requirements remain in effect for providers seeking to extend their limit to 100 or 275 patients. It is expected that this change will create opportunities for additional providers to treat patients with OUD. However, new educational outreach, payment, and system change strategies

are likely needed to support this change. Emergency department bridge programs and OTP-OBOT hub and spoke models provide compelling blueprints.⁵⁸ Additional access opportunities include the continued use of telehealth for buprenorphine induction and maintenance, as implemented during COVID-19.⁵⁹ Telehealth offers unique opportunities for creative solutions, including connecting individuals to MOUD via navigators at harm reduction services.⁶⁰

Beyond changing or removing the DATA waiver requirement, other policy options include deregulating methadone and reducing dispensing restrictions. One option would be to allow office-based prescriptions and community pharmacy dispensing as occurs in Canada.⁶¹ MOUDs differ pharmacologically and should be individualized to patients based on their needs and interests. Ensuring equal access to all types of medications in all treatment settings would improve OUD patients' rights to healthcare.

Limitations

There are a few limitations to our study. First, this analysis uses the location of the general population within census block groups to represent the location of MOUD treatment need, whereas true MOUD need may differ from this average. Second, these findings represent an undercount of accessible DATA waived providers. SAMHA's publicly available, waived provider list is not comprehensive; not all providers opt to publicly list their contact and practice location information. Individuals may also seek MOUD services in other states, but only Arizona-based facilities were included in this analysis. Third, MOUD treatment expansion through OBOTs increases access to buprenorphine but not methadone; as mentioned above, access to all MOUD types should be improved. Fourth, a designated OBOT location does not always mean that individuals with treatment needs can obtain services there. The ability to pay for services may also restrict access. One study found that Medicaid callers reporting active heroin use were offered an appointment only 54% of the time they contacted a publicly listed buprenorphine provider, and only 27% were offered an appointment with the possibility of a buprenorphine prescription at the first visit.⁶² Nationally, self-pay is the most common payment method for clinical buprenorphine visits, followed by private insurance.³⁷ In Ohio, only half of OBOTs accept insurance.⁶³ These insurance restrictions create treatment disparities for non-White racial and ethnic groups.³⁷ Finally, shorter drive times alone do not ensure access to services. Based on 2010 American Community Survey data, approximately 25% of households in Arizona have 1 or fewer vehicles in rural and urban areas.⁶⁴ This disproportionately affects residents in rural areas where public transportation is rare and distances to MOUD services are outside of walking distance. It also may unduly affect individuals who drive more frequently to an OTP, as methadone often requires daily,

observed dosing. Likewise, basing the analysis on a 30-minute drive-time threshold may underestimate geographic barriers for OTP access. A lower travel threshold of 15-minutes for methadone may be warranted.⁶⁵

Future research

In Arizona, numerous efforts to increase access to MOUD have been coordinated through the state's Opioid Action Plan.⁶⁶ These include establishing 6 OTPs as 24/7 treatment centers, creating a 24-hour opioid assistance and referral (OAR) line for providers and the public, and implementing a pain and addiction curriculum for undergraduate health professional training programs. The second phase of the action plan includes expanding peer support, further increasing the number and distribution of DATA-waivered providers, enhancing the pain and addiction curriculum and continuing education (CE and CME), providing mentoring support for newly waived buprenorphine providers, and establishing loan repayment for behavioral health providers in rural and underserved areas.⁶⁶ Research is needed to evaluate the effectiveness of these activities in increasing access to and use of buprenorphine.

Future research should assess whether DATA-waived providers are engaged in prescribing buprenorphine, and to what degree. Up to half of waived buprenorphine providers are not treating OUD patients⁶² and many prescribe to only a small number of patients, well below their patient limit.^{13,67} Lack of institutional support, psychosocial support, time restraints, and low reimbursement rates are known barriers that constrain waived providers from treating patients with an OUD.^{68,69} Future research needs to explore whether additional resources, training, or system changes would facilitate DATA-waived clinicians' ability to initiate and maintain patients on buprenorphine. This is particularly relevant given policy efforts to decrease waiver process-related barriers, including HHS' elimination of the waiver for physicians.⁷⁰ While reducing barriers to obtaining a DATA waiver will expand the number of providers, it will also expand their range of experience and interest in practicing addiction medicine. Thus, it will be important to identify methods to encourage and support them to actively treat patients with OUD.

Additionally, this analysis only considers the potential to expand buprenorphine access at FQHC sites. Other policy recommendations suggest integrating methadone into community health center facilities.^{14,71} This may involve FQHC's seeking an OTP designation, establishing a partnership with an existing OTP where the FQHC functions as a medication unit for remote dosing site,⁷² or changing how methadone is regulated. The latter could involve approving it for OUD treatment in primary care settings similar to Australia, Great Britain, and Canada.⁷¹ For this, additional research would be needed to explore how the expansion of methadone prescribing and dispensing would require new training and support needs for primary care providers.


Conclusions

Increasing access to MOUD is an important response to the current opioid crisis. OBOTs provide an opportunity to expand MOUD via buprenorphine access in the US, especially in difficult-to-reach, underserved, and rural communities. In Arizona, OBOTs decrease drive times to OUD treatment by over 50%, with the largest improvements in rural cities and towns. About half of Arizona's FQHC clinics are current OBOTs. Encouraging waiver training among providers in the remaining clinics would further expand buprenorphine access and reduce drive times by 5 minutes in small rural cities and 7 minutes in isolated rural towns. Providing ongoing support and resources to buprenorphine prescribers will be important to maintain their activity levels and patients' access to care.

Author Contributions

All authors substantially contributed to the manuscript, agree to be accountable to its accuracy, and approve the manuscript for publication. Benjamin Brady and Bryna Koch defined the research question and coordinated manuscript writing. Rachel Gildersleeve directed the analysis plan and completed the analysis. Doug Campos-Outcalt and Daniel Derksen consulted in the analysis plan and assisted in identifying literature for framing the background and discussion. All co-authors contributed to writing and editing the manuscript.

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