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Assessing the needs of front-line providers in addressing the opioid crisis in South Carolina

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Abstract

Opioid use disorder (OUD) has been declared a national crisis, as prevalence of OUD has increased remarkably over the past decade (Jones, 2017). While Medication Assisted Treatment (MAT) is the standard of care for OUDs, several key barriers to implementation have been noted throughout the clinical and research literature (DeFlavio et al., 2015). As a first step toward enhancing implementation and dissemination of MAT across the state of South Carolina, a needs assessment was conducted with key persons from 33 agencies to inform our efforts. Results provided descriptive information regarding medical providers and patients seen within agencies. Of the 33 agencies, 6 agencies (18%) reported having buprenorphine-waivered providers on staff (total of 11 medical providers across the 6 agencies). Agencies reported that they referred a mean of 4.63 patients to other facilities for MAT in the past month. Barriers to providing MAT were identified, with the most significant barrier including the lack of medical staff to prescribe buprenorphine (47%). Overall, the current study reiterates the gap between treatment need and capacity for OUD patients, and highlights factors associated with barriers to MAT adoption in state-funded county drug and alcohol agencies across a southern, predominantly rural state.

1. Introduction

The US Department of Health and Human Services has declared opioid use disorder (OUD) - involving misuse of prescription opioids and/or use of illicit opioids - a national crisis that accounts for more than \$78 billion in annual economic burden (Macrae & Hyde, 2015; Florence et al., 2016). The prevalence of OUD has increased remarkably over the past decade (Jones, 2017; Kolodny et al., 2015). In 2016, the overall prevalence of OUD among individuals aged 12 and older was 0.8% (affecting more than 2.4 million individuals), with prevalence of OUD reaching as high as 1.1% among individuals aged 18 to 25 (CBSQ,

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2017). OUD is a key driver of opioid-related deaths, which have also increased precipitously over the past decade (Hedegaard, Warner, & Minino, 2017; Rudd et al., 2016). In 2016, drug overdose caused more than 64,000 deaths; opioids were involved in more than 50,000 of those deaths (NIDA, 2017).

Medication assisted treatment (MAT) is the standard of care for OUDs (Moore et al., 2016; Tai et al., 2013; Volkow et al., 2014), with evidence showing significant reductions in illicit drug use including opioid use, relapse, opioid-related overdose, criminality, and infectious disease rates, as well as improvements in overall health (Mattick et al., 2009; Schwartz et al., 2013; Mattick et al., 2014; Mohlman et al., 2016). MAT for OUD includes administration of a full agonist (methadone), partial opioid agonist (daily and extended release buprenorphine, buprenorphine/naloxone), or opioid antagonists (oral and extended-release naltrexone), which block the euphoric and sedating effects of opioids to reduce craving and mitigate withdrawal symptoms (Korthuis et al., 2017). MAT models include four key components: (1) pharmacological therapy; (2) psychosocial intervention; (3) integration of care; and (4) education and outreach; although models vary in emphasis on each component (Chou et al., 2016).

Patients prescribed methadone for treatment of OUD must attend an opiate treatment program daily to receive their prescribed dose until they qualify for take-home doses, which can range from one day to two weeks at a time (SAMHSA, 2015). Buprenorphine was first approved by the FDA in 2002 and offered a more convenient and sustainable alternative to methadone (Nielsen et al., 2016; SAMHSA, 2016) largely as result of increased accessibility through office-based treatment. After stabilization on a maintenance dose of buprenorphine, patients may receive prescriptions (i.e. weekly, bi-monthly, monthly) based on their progress in recovery. Buprenorphine must be prescribed and monitored by a Medical Doctor (MD)/ Doctor of Osteopathic Medicine (DO), Advanced Practice Registered Nurse (APRN) with prescriptive authority or Physician Assistant (PA) who have completed additional training and obtained a waiver to prescribe buprenorphine from the Drug Enforcement Agency (DEA). Naltrexone, an opioid antagonist FDA approved for opioid use disorder (oral 1984, injection 2010), can be given in a monthly shot or orally, though compliance issues exist with oral administration (Minozzi, Amato, Vecchi, Davoli, Kirchmayer, & Verster, 2011). Patients receiving naltrexone must be opioid-free for up to 10 days, but there are no restrictions on prescribing for providers.

Data from the 2015 National Survey of Substance Abuse Treatment Services (N-SSATS) was recently used to examine trends in the use of MAT in substance abuse treatment facilities between 2003 and 2015 (Alderks, 2017). Key findings included: (1) an increase in the number of clients receiving methadone and stability in the proportion of clients receiving this treatment indicating an overall increase in the availability of methadone treatment over time; (2) the number of opioid treatment programs (OTPs) offering buprenorphine increased from 11 to 58 percent; and (3) the number of non-OTP substance use disorder (SUD) treatment facilities offering buprenorphine increased from 5 to 21 percent. Despite indications that SUD treatment facilities (OTP and non-OTP) have increased their adoption of MAT, it is estimated that only one-quarter (26%) of individuals with OUD access any form of alcohol or drug use treatment and less than one-fifth access OUD specific treatment

in a given year (Wu, Zhu, & Swartz, 2016). Nearly all states in the US have insufficient treatment capacity to provide MAT to OUD patients (Jones et al., 2015). Lack of access to MAT is a main driver of low MAT utilization rates - particularly in rural areas of the country - more than half of which (60%) lack access to a physician waived to prescribe buprenorphine (Andrilla et al., 2017; Andrilla, Coulthard, & Patterson, 2018; Andrilla Patterson, Moore, Coulthard, & Larson, 2018). Thus, it is likely that the expansion of MAT in many states has been focused on urban or higher populated areas, thus creating more of a disparity and lack of access to treatment for those in rural or more disadvantaged areas, as they are typically more likely to be underserved.

In 2017, SAMSHA awarded funding to each state under the auspices of their State Targeted Response to the Opioid Crisis Grant (Opioid STR) mechanism. Funds were awarded to US states and territories via a formula based on unmet need for OUD treatment and drug poisoning deaths, with the overarching aims of increasing access to treatment, reducing unmet treatment need, and reducing opioid overdose-related deaths via provision of prevention, treatment, and recovery activities for OUD (SAMHSA, 2016).

Several key barriers to MAT implementation in primary care settings have been noted, including: (1) lack of training; (2) time commitment; (3) cumbersome regulations; (4) lack of access to addiction treatment professionals for consultation and support; (5) lack of cross-coverage; (6) lack of institutional support; (7) lack of psychosocial resources for patients; and, (8) concerns about costs given current third-party reimbursement (SAMHSA-CSAT, 2014; DeFlavio et al., 2015). As a first step toward enhancing implementation and dissemination of MAT across the state of South Carolina, a needs assessment was conducted to inform our efforts. This study extends prior work beyond primary care-based delivery of MAT to assess factors associated with barriers to MAT adoption in state-funded county drug and alcohol agencies across a southern, predominantly rural state.

2. Methods

The community needs assessment (CNA) survey instrument was developed based upon a review of the literature on barriers to MAT access (e.g., Francis et al., 2004), with input from the state's Opioid STR team and other experts in OUD treatment. The CNA consists of 3 major components: (1) prevalence of OUD and access to MAT; (2) referral of patients for MAT treatment; and (3) factors influencing ability to provide MAT. Prevalence of OUD and access to MAT was assessed via a series of 32 questions that obtained descriptive information about these variables. Some example questions included, "Total number of credentialed drug and alcohol counselors," "Number of patients presenting with OUD," and "Number of patients receiving MAT." Referral of patients for MAT treatment was obtained via two questions, "Number of patients with OUD referred elsewhere for MAT," and "What is your reason for referring outside of your agency for MAT," which was an open-ended question. Finally, factors influencing ability to provide MAT was assessed using one open-ended question, "What factors or circumstances would make it difficult or impossible for your agency to provide MAT to patients with OUD?" Answers from the open-ended questions were compiled and totaled to obtain the responses. The CNA survey was sent to

the Director of state-funded county drug and alcohol agencies in South Carolina ($n = 33$) via email with a survey link. One hundred percent of the agencies completed the survey.

2.1 Participants

Key persons from 33 agencies completed the survey. Participants included the Director or designated individual who was familiar with agency descriptives, providers, MAT practices, and key information about the agency. The Directors or their designees represented a side variety of programs from very small, rural agencies to large agencies located in metropolitan areas. In general, the participants had a bachelor's or master's level education in a human services area and significant experience in administration within a substance abuse treatment agency.

3. Results

3.1 Agency Descriptives

A total of 26 medical providers were reported across the 33 agencies. Agencies had a mean number of 35.2 staff (range = 8–155), with mean number of 12.8 credentialed or licensed alcohol or drug counselors (range = 2–60). Of the 33 agencies, 6 agencies (18%) reported having buprenorphine-waivered providers on staff (total of 11 medical providers across the 6 agencies). Agencies served a mean of 307.3 patients per month, with an average of 25.66 patients per month per provider ($SD = 21.71$, range = 1–92 patients per month, per provider).

3.2 Prevalence of OUD and access to MAT

Within the 33 agencies, data indicated that between 2% and 85% of patients seen in the agency were being treated for a diagnosis of OUD (Mean = 23.0 % of patients in the agency were being treated for OUD). Of patients diagnosed with OUD, 61% reported using prescription opioids and 29% reported using heroin as their primary drug of use. Sixteen agencies reported that they were currently seeing patients that were receiving MAT (total number of patients = 897, range of 1–390 patients per agency), either within the agency or through collaboration with another agency or organization outside the public system. Within the 16 agencies that saw patients on MAT, 50% of patients were receiving buprenorphine, 42% were receiving methadone, and 8% were receiving naltrexone. Fifty-two percent of patients receiving MAT were publically funded (i.e., federal grants, Medicaid, state and local funds), 47% were privately funded (i.e., self-pay or private insurance), and 1% received other funding. Thirty percent of the 16 agencies reported that they were at or near capacity for the ability to prescribe MAT to patients, meaning that they do not have enough medical providers within the agency that can prescribe MAT to new patients presenting with OUD, due to limits of number of people each provider is able to legally prescribe to. Agencies reported that 99% of patients on MAT for OUD were receiving psychosocial counseling in addition to medication.

Of the 26 medical providers reported to work within 8 treatment agencies, there were 11 buprenorphine-waivered providers (38%) within 6 agencies. Three of the 11 buprenorphine-waivered providers were currently at their capacity for buprenorphine patients, meaning that

they have reached the maximum allowable caseload per federal regulations. Twenty-seven agencies (82%) did not have a buprenorphine provider.

3.3 Referral of patients for MAT treatment

Agencies reported that they have referred a mean of 4.63 patients out to other facilities for MAT in the past month ($SD = 9.39$, range = 0–50), for a total of 139 patients. Although participants were asked about referrals in an open-ended question, each participant only answered one reason that their agency refers out to other facilities. Of agencies who referred patients out to other facilities for MAT, 65% were referred because the agency did not have a MAT provider on staff or the medical providers were at capacity for prescribing MAT (per federal regulations and/or agency policy). Other reasons for referral included, 7% because a higher level of care was needed, 7% because services for pregnant women were not available, 7% because the patient was not willing to engage in the required psychosocial component, 7% because the agency did not prescribe the medication of choice, and 7% because the patient sought a provider closer to home.

3.4 Factors influencing ability to provide MAT

Agency barriers to providing MAT included: 47% lack of medical staff to prescribe buprenorphine; 29% lack of funding or financial concerns to providing MAT; 12% lack of infrastructure; 6% lack of transportation for patients; and 6% resistance from the local community. When asked about factors or circumstances that would enable the agency to provide MAT, the range of factors included: 47% reported needing a willing and credentialed provider on-site to prescribe MAT; 26% reported need for collaboration, including need for additional resources and support from the community, and access to medical staff; 18% reported need for additional funding and the ability to bill insurance for MAT; 3% reported need for more case managers; 3% reported need for expansion into rural areas; and 3% reported need for telehealth services. Finally, all agencies reported that they have tried to form relationships with other community agencies and/or providers to refer patients for MAT. When describing partnership attempts, 19% of agencies reported that collaborations with buprenorphine-waivered providers in the community have begun, and 21% have resulted in conversations around collaboration. However, 39% of attempts have been met with resistance (i.e., difficult patients, concern for loss of money on MAT clients, no time, attitudinal barriers, and no available medical staff) and 21% of agencies have found no interest in collaboration.

4. Discussion

The opioid crisis has presented many challenges to SUD treatment programs, many of which were founded at a time when few effective medical treatments for SUDs existed and counseling was the only treatment option. Across the United States, increases in opioid-related overdose has prompted states to develop strategies for early detection and treatment of OUDs, as well as national response via the Opioid STR mechanism. As evidence demonstrating the morbidity and mortality benefit of MAT in the treatment of OUDs, Opioid STR funding has provided states with the ability to assess the needs and capacity for treating OUD with MAT within state SUD treatment agencies. However, the impact of the increased

number of OUD patients entering treatment on resources and services delivered is not known. A 2015 report indicated SUD treatment programs in the US continued to have a gap between treatment need and capacity for OUD patients (Jones et al., 2015). The current survey reiterates that gap and highlights barriers to MAT adoption in state-funded county drug and alcohol agencies across a southern, predominantly rural state.

Although state agencies employed a total of 26 medical providers overall, buprenorphine-waivered providers were clustered in only 6 of the 33 agencies and the majority of agencies did not have a buprenorphine-waivered provider on site. This is consistent with national findings indicating that only about one-fifth of patients have access to OUD-specific treatment (Wu et al., 2016). It is also important to note that approximately 25% of buprenorphine-waivered medical providers were at capacity for the number of patients per federal regulations, further highlighting the need for an increased number of buprenorphine-waivered clinicians or alternative strategies for improving access to MAT in this rural state. While some programs reported success partnering with community providers for MAT access, 40% of the programs reported resistance from community providers related to a host of issues including the stigma of addictions and financial concerns. Thus, it is extremely important for future research to examine partnership more fully, as well as strategies to overcome attitudinal barriers to providing MAT among providers.

Several factors influenced an agency's ability to provide MAT. The most significant barrier was the lack of medical staff to prescribe MAT, which is consistent with previous literature on barriers to providing MAT treatment (SAMHSA-CSAT, 2014; DeFlavio et al., 2015). This barrier has been reported in other areas of the country, particularly in rural communities. Future studies should gather additional information on where patients are being referred for MAT, when the agency does not have a buprenorphine-waivered provider. In addition, providing buprenorphine training workshops in areas that are lacking providers can increase the supply of medical providers able to prescribe MAT. A related barrier is the fact that medical providers are limited in the number of patients they can treat. This has partially been addressed by the US Department of Health and Human Services by increasing the limit on number of patients a provider can treat after one and two years (SAMHSA, 2016). Alternatively, some medical providers who are waived to prescribe buprenorphine do not prescribe buprenorphine for various reasons. A survey of physician members of American Medical Association (AMA) and American Society of Addiction Medicine (ASAM) found that 55% of waived physicians were not prescribing to capacity (Huhn & Dunn, 2016). A Nationally representative sample of physicians' (N = 1124) were surveyed on decision-making practices in treating OUD patients with buprenorphine using a series of case vignettes. Risky substance use, payment, and spouse involvement in treatment were the most important factors in the physicians' willingness to prescribe buprenorphine across various treatment settings (Lin et al., 2018). Medical providers may not feel that this is a population that they can adequately manage. In these situations, establishing collaborative relationships with community SUD treatment programs to provide case management services and psychosocial treatment may support their decision to treat these patients. Other resources that can support management of buprenorphine treated patients include office staff training and education, regular web based clinical mentoring and supervision to the community providers.

Additional barriers reported by agencies included the ability to bill insurance for MAT and need for more case managers. This is understandable given that many providers do not accept Medicaid. A recent study found that in states with the least restrictive Medicaid benefits, SUD treatment programs were more likely to accept OUD patients (Andrews et al., 2018). These findings suggest the need for examination of payment structures and/or additional options for providing financial support for such programs, as well as focus and attention to Medicaid expansion (Center on Budget and Policy Priorities, 2018).

One potential solution to address the various barriers described throughout the study includes the use of telemedicine. Telemedicine has become a common method for delivering medical services in urban and rural areas (Liddy, 2013), demonstrating significant clinical benefit as well as time and cost savings for patients (Dullet, 2017). Patients with OUD report that the delivery of MAT via telemedicine is an acceptable modality of treatment (Rakita, 2016), and patients receiving MAT via telemedicine have similar rates of abstinence and retention at treatment at 90 days and 1 year, compared to those receiving MAT in-person (Zheng, 2017). In one large study conducted in Canada, patients receiving MAT via telemedicine had higher treatment retention rates at one year, compared to those receiving in-person care, 50% vs. 39% respectively (Eibl, 2017). These studies suggest that the delivery of MAT via telemedicine may be an effective alternative and has the potential to expand treatment in rural areas where physician access is limited and OUDs are a critical health problem. Tele-health would be particularly well-suited for the rural state agencies in this study that have lower patient volumes and therefore cannot financially justify hiring a dedicated MAT provider.

Although there are many advances in helping patients gain access to MAT services, there are still barriers to overcome. This community needs assessment survey was helpful in identifying key areas of need in community substance use treatment programs that may allow for more patients with OUD to be treated. Further, innovative approaches such as treatment providers contracting with community medical providers with buprenorphine waivers or providing telemedicine MAT can address the treatment need.

References

- Alderks CE (2013). Trends in the Use of Methadone, Buprenorphine, and Extended-Release Naltrexone at Substance Abuse Treatment Facilities: 2003–2015 (Update) The CBHSQ Report (pp. 1–8). Rockville (MD): Substance Abuse and Mental Health Services Administration (US).
- Andrilla CHA, Coulthard C, Larson EH (2017). Changes in the supply of physicians with DEA DATA Waiver to prescribe buprenorphine for opioid-use disorder. Data Brief #162. Seattle, WA: WAMI Rural Health Research Center http://depts.washington.edu/fammed/rhrc/wp-content/uploads/sites/4/2017/05/RHRC_DB162_Andrilla.pdf. Accessed 8 March 2018.
- Andrilla CHA, Coulthard C, & Patterson DG (2018). Prescribing practices of rural physicians waived to prescribe buprenorphine. *American journal of preventive medicine*, 54(6), S208–S214. [PubMed: 29779544]
- Andrilla CHA, Patterson DG, Moore TE, Coulthard C, & Larson EH (2018). Projected Contributions of Nurse Practitioners and Physicians Assistants to Buprenorphine Treatment Services for Opioid Use Disorder in Rural Areas. *Medical Care Research and Review*, 1077558718793070.
- Center for Behavioral Health Statistics and Quality (CBHSQ). (2017). Results from the 2016 National Survey on Drug Use and Health: detailed tables. <https://www.samhsa.gov/data/sites/default/files/NSDUH-DetTabs-2016/NSDUH-DetTabs-2016.pdf>. Accessed 8 March 2018.

- Center on Budget and Policy Priorities. (2018). Medicaid expansion dramatically increased coverage for people with opioid-use disorders, latest data show. Accessed 05 May 2018 at <https://www.cbpp.org/research/health/medicaid-expansion-dramatically-increased-coverage-for-people-with-opioid-use>.
- Chou R, Korthuis PT, Weimer M, Bougatsos C, Blazina I, Zakher B, ... McCarty D (2016). AHRQ Comparative Effectiveness Technical Briefs Medication-Assisted Treatment Models of Care for Opioid Use Disorder in Primary Care Settings. Rockville (MD): Agency for Healthcare Research and Quality (US).
- DeFlavio JR, Rolin SA, Nordstrom BR, & Kazal LA Jr. (2015). Analysis of barriers to adoption of buprenorphine maintenance therapy by family physicians. *Rural Remote Health*, 15, 3019. [PubMed: 25651434]
- Dullet NW, Geraghty EM, Kaufman T, Kisse J, King J, Dharmar M, Smith AC, Marcin JP (2017). Impact of a University-Based Outpatient Telemedicine Program on Time Savings, Travel Costs, and Environmental Pollutants. *Value in Health*, 20, 542–546. [PubMed: 28407995]
- Eibl JK, Gauthier G, Pellegrini D, Daiter J, Varenbut M, Hogenbirk JC, & Marsh DC (2017). The effectiveness of telemedicine-delivered opioid agonist therapy in a supervised clinical setting. *Drug Alcohol Depend*, 176, 133–138. doi:10.1016/j.drugalcdep.2017.01.048 [PubMed: 28535455]
- Florence CS, Zhou C, Luo F, & Xu L (2016). The Economic Burden of Prescription Opioid Overdose, Abuse, and Dependence in the United States, 2013. *Med Care*, 54(10), 901–906. [PubMed: 27623005]
- Francis JJ, et al. (2004). *Constructing Questionnaires Based on the Theory of Planned Behaviour: A Manual for Health Services Researchers*. Newcastle upon Tyne: University of Newcastle.
- Hedegaard H, Warner M, & Minino AM (2017). Drug Overdose Deaths in the United States, 1999–2016. *NCHS Data Brief* (294), 1–8.
- Jones CM (2017). The paradox of decreasing nonmedical opioid analgesic use and increasing abuse or dependence - An assessment of demographic and substance use trends, United States, 2003–2014. *Addictive Behaviors*, 65, 229–235. doi:10.1016/j.addbeh.2016.08.027 [PubMed: 27561431]
- Jones CM, Campopiano M, Baldwin G, & McCance-Katz E (2015). National and State Treatment Need and Capacity for Opioid Agonist Medication-Assisted Treatment. *American Journal of Public Health*, 105(8), e55–63. doi:10.2105/AJPH.2015.302664
- Kolodny A, Courtwright DT, Hwang CS, Kreiner P, Eadie JL, Clark TW, & Alexander GC (2015). The prescription opioid and heroin crisis: a public health approach to an epidemic of addiction. *Annu Rev Public Health*, 36, 559–574. doi:10.1146/annurevpublhealth-031914-122957 [PubMed: 25581144]
- Komaromy M, Duhigg D, Metcalf A, Carlson C, Kalishman S, Hayes L, ... Arora S (2016). Project ECHO (Extension for Community Healthcare Outcomes): A new model for educating primary care providers about treatment of substance use disorders. *Substance Abuse*, 37(1), 20–24. doi: 10.1080/08897077.2015.1129388 [PubMed: 26848803]
- Korthuis PT, McCarty D, Weimer M, Bougatsos C, Blazina I, Zakher B, ... Chou R (2017). Primary Care-Based Models for the Treatment of Opioid Use Disorder: A Scoping Review. *Ann Intern Med*, 166(4), 268–278. doi:10.7326/M16-2149 [PubMed: 27919103]
- Liddy C, Rowan MS, Afkham A, Maranger J, Keely E, 2013 Building access to specialist care through e-consultation. *Open Med*, 7, e1–8. [PubMed: 23687533]
- Lin LA, Lofwall MR, Walsh SL, Gordon AJ, & Knudsen HK (2018). Perceptions and practices addressing diversion among US buprenorphine prescribers. *Drug & Alcohol Dependence*.
- Macrae J, Hyde P. HHS Launches Multi-Pronged Effort to Combat Opioid Abuse. Washington DC: U.S. Department of Health & Human Services; 7 27, 2015 <https://wayback.archive-it.org/8315/20170119115542/https://www.hhs.gov/blog/2015/07/27/hhs-launches-multi-pronged-effort-combat-opioid-abuse.html>. Accessed 16 May 2017.
- Mattick RP, Breen C, Kimber J, & Davoli M (2009). Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence. *Cochrane Database Syst Rev*(3), CD002209. [PubMed: 19588333]

- Mattick RP, Breen C, Kimber J, & Davoli M (2014). Buprenorphine maintenance versus placebo or methadone maintenance for opioid dependence. *Cochrane Database Syst Rev*(2), CD002207. [PubMed: 24500948]
- Minozzi S, Amato L, Vecchi S, Davoli M, Kirchmayer U, & Verster A (2011). Oral naltrexone maintenance treatment for opioid dependence. *Cochrane Database of Systematic Reviews*, 4, Article No: CD001333.
- Mohlman MK, Tanzman B, Finison K, Pinette M, & Jones C (2016). Impact of Medication-Assisted Treatment for Opioid Addiction on Medicaid Expenditures and Health Services Utilization Rates in Vermont. *Journal of Substance Abuse Treatment*, 67, 9–14. [PubMed: 27296656]
- Moore BA, Fiellin DA, Cutter CJ, Buono FD, Barry DT, Fiellin LE, ... Schottenfeld RS (2016). Cognitive Behavioral Therapy Improves Treatment Outcomes for Prescription Opioid Users in Primary Care Buprenorphine Treatment. *Journal of Substance Abuse Treatment*, 71, 54–57. doi: 10.1016/j.jsat.2016.08.016 [PubMed: 27776678]
- National Institute on Drug Abuse/NIDA. (2017). Overdose death rates. Website (9, 2017). <https://www.drugabuse.gov/related-topics/trends-statistics/overdose-death-rates>. Accessed 8 March 2018.
- Nielsen S, Larance B, Degenhardt L, Gowing L, Kehler C, & Lintzeris N (2016). Opioid agonist treatment for pharmaceutical opioid dependent people. *Cochrane Database of Systematic Reviews* 2016, Issue 5 Art. No.: CD011117. DOI: 10.1002/14651858.CD011117.pub2.
- Project ECHO. ECHO Access Opioid Use Disorder Treatment Guideline Opioid Abuse and Addiction Management Protocol. 2014 <http://echo.unm.edu/wp-content/uploads/2014/10/Opioid-Abuse-and-Addiction-Management-Protocol.pdf>. Accessed 8 March 2018.
- Rakita U, Giacobbe P, Cavacuiti C (2016). Opioid use disorder patients' perceptions of healthcare delivery platforms. *SAGE Open Medicine*, Volume 4, 1–7.
- Rudd RA, Seth P, David F, Scholl L. (2016). Increases in Drug and Opioid-Involved Overdose Deaths — United States, 2010–2015. *MMWR Morb Mortal Wkly Rep*; 65:1445–1452. [PubMed: 28033313]
- SAMHSA Center for Substance Abuse Treatment (SAMHSA CSAT). (2014). Buprenorphine Summit: Report of Proceedings 9 22–23, 2014. Rockville, MD.
- Substance Abuse and Mental Health Services Administration. (2015). Federal guidelines for opioid treatment programs. Accessed 06 May 2018 at <https://store.samhsa.gov/shin/content/PEP15-FEDGUIDEOTP/PEP15-FEDGUIDEOTP.pdf>.
- Substance Abuse and Mental Health Services Administration. (2016). Buprenorphine. Accessed 24 March 2018 at <https://www.samhsa.gov/medication-assisted-treatment/treatment/buprenorphine>.
- Schwartz RP, Gryczynski J, O'Grady KE, Sharfstein JM, Warren G, Olsen Y, ... Jaffe JH (2013). Opioid agonist treatments and heroin overdose deaths in Baltimore, Maryland, 1995–2009. *Am J Public Health*, 103(5), 917–922. doi:10.2105/AJPH.2012.301049 [PubMed: 23488511]
- Substance Abuse and Mental Health Services Administration/SAMHSA. (2016). State targeted response to the opioid crisis grants. Grant Announcements. <https://www.samhsa.gov/grants/grant-announcements/ti-17-014>. Accessed 8 March 2018.
- Tai B, Saxon AJ, & Ling W (2013). Medication-assisted therapy for opioid addiction. *J Food Drug Anal*, 21(4), S13–S15. doi:10.1016/j.jfda.2013.09.023 [PubMed: 25264415]
- Volkow ND, Frieden TR, Hyde PS, & Cha SS (2014). Medication-assisted therapies--tackling the opioid-overdose epidemic. *N Engl J Med*, 370(22), 2063–2066. doi:10.1056/NEJMp1402780 [PubMed: 24758595]
- Wu LT, Zhu H, & Swartz MS (2016). Treatment utilization among persons with opioid use disorder in the United States. *Drug Alcohol Depend*, 169, 117–127. [PubMed: 27810654]
- Zheng W, Nickasch M, Lander L, Wen S, Xiao M, Marshalek P, ... Sullivan C (2017). Treatment Outcome Comparison Between Telepsychiatry and Face-to-face Buprenorphine Medication-assisted Treatment for Opioid Use Disorder: A 2-Year Retrospective Data Analysis. *J Addict Med*, 11(2), 138–144. doi:10.1097/adm.0000000000000287 [PubMed: 28107210]

Highlights

- Several key barriers to implementation of medication assisted treatment (MAT) identified
- Needs assessment was conducted across state-funded substance use treatment programs
- Very small number of buprenorphine-waivered providers across the state
- Significant barriers include lack of providers and lack of funding