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### Publication Date

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UNIVERSITY OF CALIFORNIA,  
IRVINE

Opioid Addiction: A Crime or a Health Issue? An Examination of the Diffusion of Fatal  
Overdose Prevention Laws and Medicalized Drug Treatment Services

DISSERTATION

submitted in partial satisfaction of the requirements  
for the degree of

DOCTOR OF PHILOSOPHY

in Sociology

by

Alexandra Glenna Olsen

Dissertation Committee:  
Professor David John Frank, Chair  
Professor Kristin Turney  
Assistant Professor Rachel Goldberg

2021



## **DEDICATION**

This dissertation is dedicated to people who use drugs, people who are struggling or have struggled with addiction, and the people who love folks who use drugs – whether their use is problematic or recreational.

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## ACKNOWLEDGEMENTS

I would like to express the deepest appreciation to my committee chair, Professor David John Frank, who has never failed to inspire or encourage me. Without his guidance and persistent help, this dissertation would not have been possible. I appreciate all of the conversations, feedback, and support that led up to this completed dissertation more than I can put into words.

I would like to thank my committee members, Professor Kristin Turney and Assistant Professor Rachel Goldberg, who always were open to listening to my ideas, answering methodological questions, and helping me progress through the PhD program.

In addition, a special thank you to Dr. Deana Rohlinger of Florida State University, who first introduced me to the joys of research. From working on my undergraduate honors thesis with me to helping me get into graduate school, you are so much of the reason why I am where I am today. I'm forever thankful for your guidance, mentorship, and support throughout the last decade. I would also like to thank Dr. Kathryn Tillman of Florida State University, whose Honors Seminar in Race & Ethnicity was the start of my academic journey in sociology. Those foundational ideas that you instilled through that course helped shape me into the scholar.

Finally, I thank my family and friends - without your support I could not have accomplished this feat. Mom, thank you for always believing I could accomplish whatever I set my mind to. Dad, your deep concern that sociology and other left-wing ideologies are destroying society motivated me to work even harder to support my ideas with empirical evidence, spread my knowledge, and work to create the social change I wish to see in the world. To my siblings, I love you and forever appreciate your support. Katt, your consistent support through this crazy journey is unlike anyone else's - you are forever my comrade, sister, and friend. You've seen all the tears, love, and effort I've put into this dissertation firsthand. Alex, thank you for copy-editing the final draft of this manuscript - I would never trust anyone else. You've not only supported me in that way, but are also one of the few people who truly understands the tumultuous journey to the PhD. Eric, you came into my life as I was finishing up this dissertation, but still were one of my biggest cheerleaders. I love you so much and am forever thankful for your love, support, and excitement for me as I finish this journey.

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## **ABSTRACT OF THE DISSERTATION**

Opioid Addiction: A Crime or a Health Issue? An Examination of the Diffusion of Fatal Overdose Prevention Laws and Medicalized Drug Treatment Services

by

Alexandra Glenna Olsen

Doctor of Philosophy in Sociology

University of California, Irvine, 2021

Professor David John Frank, Chair

This dissertation takes a multi-level approach to understanding the extent to which the relationship between drugs and society has evolved over the past twenty years by looking at macro, state-level changes in the policy environment along with changes in the services provided by drug treatment organizations. I begin by examining the diffusion of Good Samaritan and Naloxone Access laws: two state-level policy reforms, which reflect an overall shift towards the medicalization (rather than criminalization) of opioid addiction. With this changing policy landscape as a background, I investigate whether this increased concern with treating opioid addiction as a health issue is also reflected in the availability of three kinds of drug treatment services relevant to people who are dealing with opioid addiction: methadone, buprenorphine, and treatment for co-occurring mental health issues. Consequently, this dissertation seeks to answer three separate (yet interrelated) questions that address the extent to which the US is shifting to addressing drug addiction as a health problem and the reasons for these changes: 1) Why have Good Samaritan and Naloxone Access laws diffused, and why are their diffusion patterns different?; 2) How have medicalized opioid addiction treatment services diffused in the

last 20 years?; and 3) Do factors predicting the availability of medical-based treatment services vary over time or by type of treatment? While medicalized drug policies and practices have all diffused widely, this diffusion has not been uniform – with Naloxone laws diffusing more than Good Samaritan laws, Buprenorphine diffusing more than Methadone, and treatment for co-occurring mental health issues diffusing more than medication-assisted treatment. In total, my dissertation makes three key arguments. First, understanding how policies and practices alter definitional and institutional loci of social problems is integral to understanding the diffusion of policy and practices. Second, policies or practices that expand institutional domains diffuse wider than those that challenge institutional logics. Finally, institutions and their responses to social problems are racialized – possible solutions to a social problem and the institutional context of these solutions depends on whether whites or non-whites are seen as the affected population.

# **Chapter 1 - Introduction and Background**

## ***Introduction***

This dissertation takes a multi-level approach to understanding the extent to which the relationship between drugs and society has evolved over the past twenty years by looking at macro, state-level changes in the policy environment along with changes in the services provided by drug treatment organizations. I begin by examining the diffusion of Good Samaritan and Naloxone Access laws: two state-level policy reforms, which reflect an overall shift towards the medicalization (rather than criminalization) of opioid addiction. With this changing policy landscape as a background, I investigate whether this increased concern with treating opioid addiction as a health issue is also reflected in the availability of three kinds of drug treatment services relevant to people who are dealing with opioid addiction: methadone, buprenorphine, and treatment for co-occurring mental health issues. All three of these treatments have a medical or behavioral health basis, have been evaluated by peer-reviewed research, and are associated with high rates of long-term success in managing opioid addiction. These treatments uniquely approach addiction as a biological and psychological issue, unlike treatment such as Narcotics Anonymous, which places greater focus on addiction as a social or moral issue. In total, this dissertation describes and explains significant shifts in US policy and drug treatment practices towards treating drug addiction as a health problem.

There are two societal approaches to addressing addiction and its associated social problems: drug addiction as a criminal problem and drug addiction as a health problem. For the greater part of US history, drug addiction has been treated as a criminal issue. I identify three key elements present in the paradigm defining drug addiction as a crime: the passage and

enforcement of punitive drug laws, high levels of surveillance and control present in drug treatment modalities, and a view of problematic drug users as morally corrupt individuals who are abnormally susceptible to addictive behaviors due to their racial/ethnic background or class status.

This approach was consecrated into US law with the passage of the Harrison Act, which regulated opioids and cocaine. This law was also interpreted by law enforcement officials as giving them the authority to prevent physicians from prescribing opioids as maintenance, similar to the ways in which methadone and buprenorphine are prescribed today. Institutional structures to address drug addiction as a criminal issue grew during this period, culminating with the establishment of the Federal Bureau of Narcotics in 1930. During this era, drug treatment programs looked more like prisons than medical facilities. Prominent government drug treatment facilities, such as the Lexington Hospital, were primarily accessed by those who had been convicted of breaking narcotics laws and more closely resembled prisons in their appearance than hospitals (Musto 1973). Punitive drug laws only increased in the decades after the 1960s due to the War on Drugs, even as scholarly evidence increasingly recommended addressing drug use as a health issue.

The idea that drug addiction needed to be dealt with by police and the court system has been closely tied to the idea that non-white and poor individuals were the population associated with drugs. In the late 1800s, morphine was used by housewives and civil war veterans without significant outrage. While there was discussion about the regulation of patent medicines, the source of these discussions related more to physicians wanting to establish themselves as a profession rather than from fears of addiction (Musto 1973). Once the population widely associated with morphine changed to that of criminals and the poor, morphine use began to be

seen as a serious social problem warranting policy changes; as historian David Musto notes, “when opiates began to be feared for their addictive properties, morphine was most closely attached to the ‘lower classes’ or the ‘underworld,’ but without greater specificity” (1973). Even physicians were part of the anti-narcotic crusades in the early 1900s. For instance, Dr. Lawrence Kohl, one of the US Public Health service’s most prominent researchers, claimed that “the ‘normal’ person did not choose to become addicted; therefore the addict by choice was a ‘psychopath’” (Musto 1973). Not all law enforcement agreed with this approach; for instance, August Vollmer, former police chief in Berkeley and prominent professor of Police Administration at the University of Chicago, claimed that “drug addiction, like prostitution and like liquor, is not a police problem; it never has been and never can be solved by policemen. It is first and last a medical problem” (1936). Still, it was nonetheless the dominant frame for addressing opioid addiction.

Even once methadone became available to treat heroin addiction, surveillance, punitive punishment, and control were at the heart of this approach. The government’s official perspective on addiction began to shift in 1962 when the Supreme Court declared that addiction is a disease and not a crime (Musto 1973). It was only under this new legal regime that treatments like methadone became seen as legal and potential avenues for addressing heroin addiction. In the 1960s, Methadone began to be used as a maintenance medication for heroin addiction, following successful clinical trials among African Americans in Harlem (Dole and Nyswander 1966). In response to soldiers returning from the Vietnam War addicted to heroin, methadone became the first federal program to treat opiate addiction in 1971 (White 1998). Yet just as quickly, methadone became the focus of tight surveillance and regulation by the DEA. This was primarily based on reports of methadone abuse and diversion, and its symbolic

association with Black and Brown inner-city drug use (Hansen and Roberts 2012). Even as opioid addiction began to be addressed as a medical issue, these approaches were substantially overshadowed by the prohibitive regime and an active war on drugs, especially in the Black and Latino neighborhoods that were the epicenters of addiction during this time period.

The alternative frame for addressing addiction is treating it as a health problem. I identify three key elements present in the paradigm defining drug addiction as a health issue: the replacement of punitive drug laws with those that increase access to medical based, non-coercive interventions, drug treatment modalities that promote the agency of the patient, and a view of problematic drug users as suffering from a bio-psycho-social disorder.

Historically, the health issue paradigm has not been the primary means of addressing drug addiction. This paradigm has only gained traction more recently in response to the opioid epidemic. The health based approach to addressing addiction has its roots in early National Institute of Mental Health research that began in the 1960s, where leaders of the mental health establishment argued “addiction was a psychological or physical disease and that the medical profession should therefore treat addicts” (Musto 1973). Even as policies such as mandatory minimums began to be passed, the American Psychological Association and other professional mental health organizations spoke out against these kinds of approaches – to little avail. Until the late 2000s, there was little concern or movement in removing criminal penalties relating to drug addiction or increasing access to addiction treatment. It was only during the 2010s that we began to see significant policy shifts, including the state-level legalization of marijuana, the passage of state and local level drug decriminalization laws, the passage of Good Samaritan and Naloxone laws, the expansion of insurance coverage of drug treatment under the Affordable Care Act, and the state-level diffusion of other effective harm reduction measures, such as needle exchanges.



When looking at the wide range of drug-related laws that have changed, it is clear that criminal penalties are being removed and access to medical treatment is expanding.

Similarly, prominent drug treatment modalities are increasingly recognizing the agency of patients. Harm reduction policies and services have diffused significantly over the last decade, including Good Samaritan Laws, Naloxone access laws and programs, needle exchange programs, and supervised consumption sites. Harm reduction interventions are predicated on the idea that individuals are capable of making decisions about their drug use and taking measures to reduce harm when using drugs. They also assert that people who use drugs are the sole individuals who can decide they want to decrease their drug use or seek drug treatment. Moreover, we know from a large collection of literature in neuroscience and public health that individuals struggling with addiction are still capable of taking measures to avoid adverse health consequences, preventing fatal overdoses, planning when/where they use, and having rational frameworks for when they will accept money in lieu of a dosage of a drug in lab experiments (Hart et al. 2001; Vadhan et al. 2009; Hart 2014). Clearly, even people who are abusing drugs are not irrationally using wherever, whenever, and in whatever quantities.

Alongside this focus on agency, drug treatment has also become increasingly individualized; there is an idea that treatment is not “one size fits all.” This concept highlights how individuals must find what treatment or combinations of treatment will be most effective for them. In this sense, drug treatment has increasingly resembled psychological treatment rather than carceral treatment. For instance, there are many effective treatments and medications for depression, yet most individuals dealing with depression try multiple interventions before finding what works for them. This approach has become even more prevalent with the increasing attention to the large population of individuals who are diagnosed simultaneously with a

substance use disorder and a psychological disorder, also known as individuals with co-occurring disorders.

Finally, problematic drug users are increasingly seen as suffering from a bio-psycho-social disorder due to academic research across disciplines. There has been a substantial amount of neuroscience research (often funded by the National Institute of Drug Abuse) done on addiction since the 1990s, grappling with the role of neural pathways and brain development in the development of substance use disorders. Medical studies have shown that people become physically dependent on opioids (and other substances) and they may even need maintenance of these chemicals (primarily in the case of opioids) to maintain long-term, positive outcomes. While this approach may not have always been reflected in policy, psychologists and medical professionals have viewed addiction as a psychological issue at many times throughout US history. This approach has only intensified in popularity since the 1960s and as the scholarly evidence for this conception of addiction has increased. Additionally, the growing emphasis on treating co-occurring mental health (most often depression and anxiety) and drug addiction issues highlights how psychological issues, like trauma or maladaptive coping mechanisms, are seen as the core of both problems (Sacks et al. 2005). Drug addiction also has a significant sociological root; drug use is related to individuals' circumstances, geography, and social networks. Research on the homeless shows that many individuals did not start using drugs until after they lost their homes or experienced other negative life circumstances like job loss, death of a loved one, etc. (Johnson & Chamberlain 2008; Henkel 2011; Johnson et al. 1997). The breadth and depth of research across fields has helped to more broadly cement the idea of addiction as a bio-psycho-social phenomenon in society.

It is clear that treating drug addiction as a health problem is a recent phenomenon and is significantly different from past, criminal approaches. Yet, there has been little scholarly work that assesses both the extent of this shift and the factors precipitating this new paradigm. Consequently, this dissertation seeks to answer three separate (yet interrelated) questions that address the extent to which the US is shifting to addressing drug addiction as a health problem and the reasons for these changes: 1) Why have Good Samaritan and Naloxone Access laws diffused, and why are their diffusion patterns different?; 2) How have medicalized opioid addiction treatment services diffused in the last 20 years?; and 3) Do factors predicting the availability of medical-based treatment services vary over time or by type of treatment?

As a result of looking at macro- and meso-level changes to responses to opioid addiction, this dissertation addresses the larger question of the extent to which changes in policy are reflective of larger societal shifts, as evidenced by changes in organizations. Are policy reforms a sign of radical transformations in how we approach a social problem at the organizational level, or are these reforms primarily symbolic? Moreover, does the shift towards the medicalization of addiction truly give doctors and drug treatment professionals more autonomy in addressing opioid addiction, while also giving people struggling with addiction greater access to treatment options? Or, is medicalization co-occurring with continued heavy criminalization, where doctors face legal barriers in addressing opioid addiction and medicalized drug treatment are embedded into the criminal justice system?

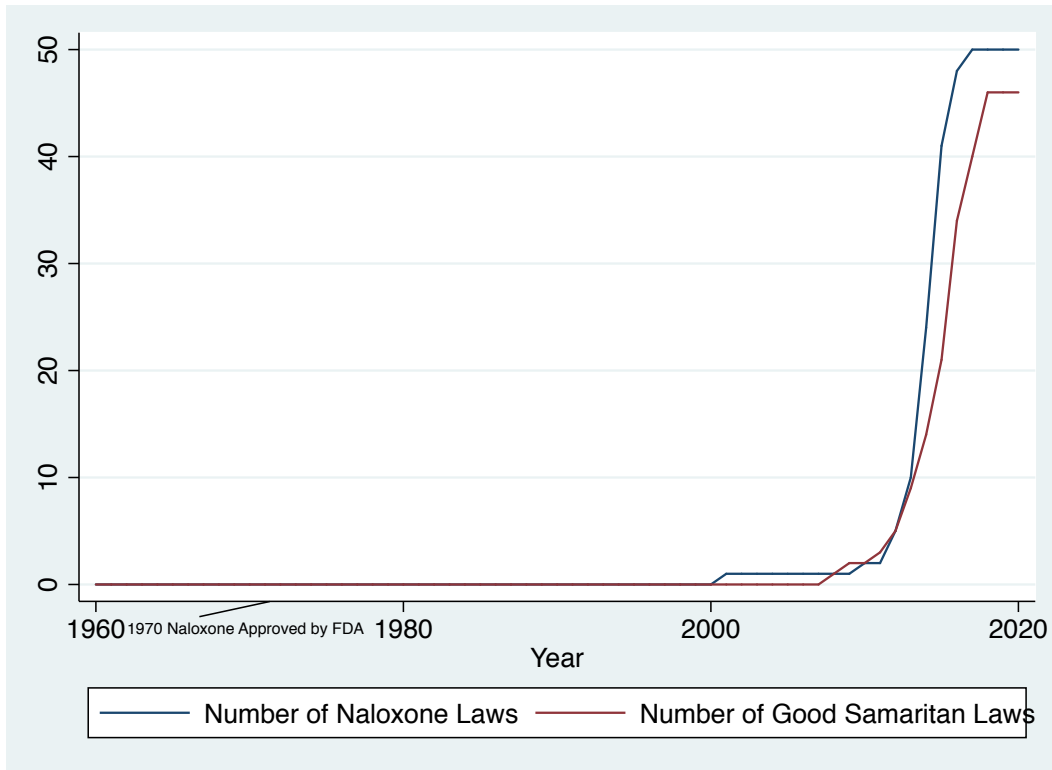
## ***Background***

Research has found that the rate of heroin overdose deaths quadrupled from 2000 to 2013, with an average increase of 6% each year; this was followed by an average increase of 37% each year from 2010 to 2013 (Hedegaard, Chen & Warner 2015). More recent data from the

Center for Disease Control (CDC) shows heroin deaths surpassing gun homicides for the first time in recorded history (Ingraham 2016). Unlike previous periods, the individuals using opioids, and in particular heroin, are whiter and wealthier than ever before (Martins, Sarvet and Santaella-Tenorio 2017). These trends have not gone unnoticed. Media outlets, the Center for Disease Control, and politicians have frequently highlighted these changes in use, often referring to these trends as an “epidemic.”

Accompanying these increases in overdoses and attention from the public are changes to laws made in hopes of preventing overdoses. There have been two, often concurrent, types of laws enacted – Good Samaritan and Naloxone access laws. These laws are frequently discussed together, as they both aim to prevent opioid overdoses. Good Samaritan laws aim to encourage individuals to call 911 if they witness an overdose. They accomplish this by allowing witnesses to call 911 without fear of criminal prosecution for any controlled substances or paraphernalia on them or the person who overdosed. Naloxone laws aim to provide increased access to Naloxone, a cost-effective easily administered non-narcotic drug that is able to reverse opioid overdoses (Coffin & Sullivan 2013). As Figure 1 shows below, while Naloxone was approved for use by the FDA in 1971, it was not until 2001 that Naloxone was only available once an overdose victim reached the hospital – by which time it was often too late for the drug to reverse the overdose. These efforts aim to get Naloxone into the hands of first responders, family members, and other drug users so that it can be administered as soon as possible, increasing the likelihood an individual will survive an overdose. These policies are radical departures from how the illicit use of opioids was treated in previous eras. The key difference here is that, while old drug laws criminalize people who use drugs, these new laws medicalize people who use drugs. As a result

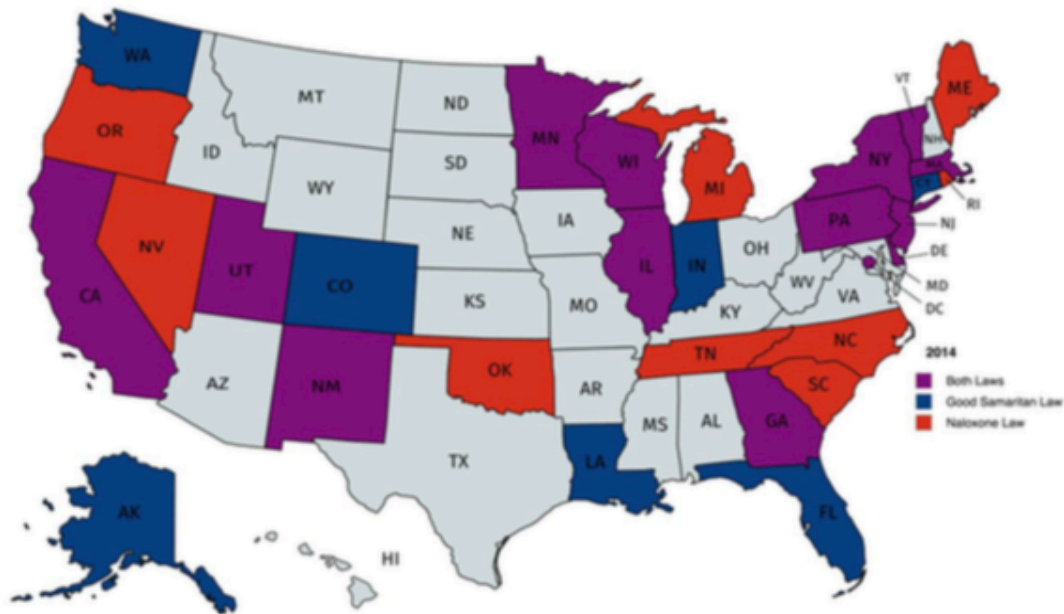
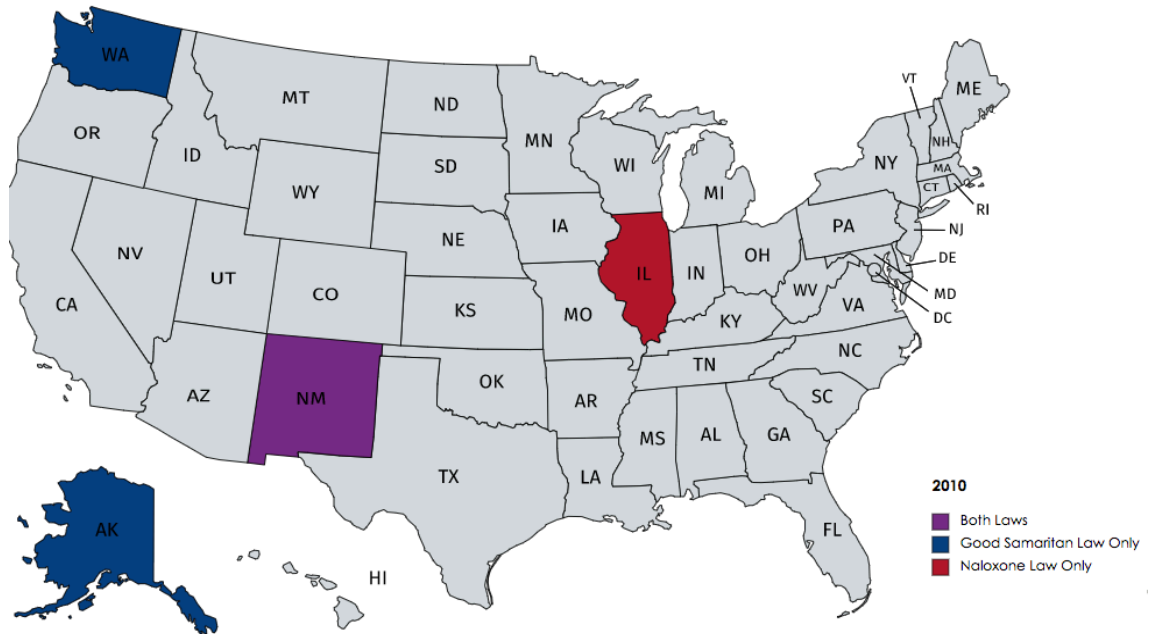
of this process, these new laws also undercut the long-term dominance of the criminalizing institutional structures.

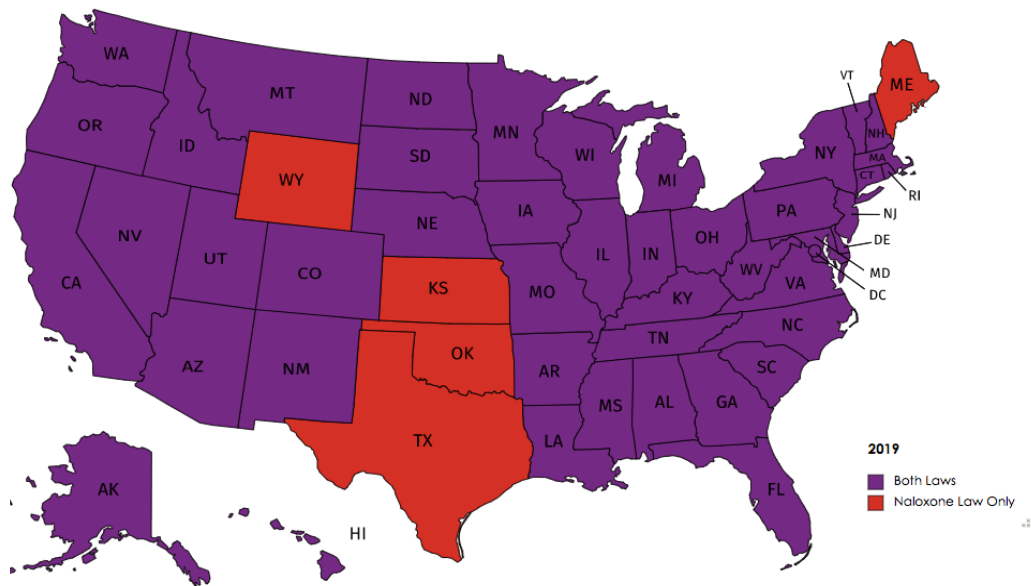


**Figure 1. Graph of Fatal Overdose Prevention Laws Over Time**

While Naloxone and Good Samaritan laws are discussed and packaged together, their individual diffusion among states has followed somewhat different paths. This can be seen in Figure 2. The first Naloxone access law was passed in New Mexico in 2001, with few states following suit until 2013, when the number of states with laws more than doubled from 7 to 17. By 2020, all states had a Naloxone law. The first Good Samaritan law was passed in 2007, also by New Mexico, with the majority of states adopting this measure between 2013 and 2015. While some states have passed both laws at the same time, most states have passed these interventions at different times. Most importantly, while all states that have passed a Good Samaritan law have adopted a Naloxone law, not all states that have passed a Naloxone law have

passed a Good Samaritan law. As of 2020, there were still 5 states without a Good Samaritan law: Wyoming, Kansas, Oklahoma, Texas, and Maine.





**Figure 2. Maps of Diffusion of Naloxone and Good Samaritan Laws Among States 2010, 2014, 2019**

The passage of these laws is particularly puzzling given the history of U.S. federal drug policy. Criminalization has always been at the heart of US drug policy, with the majority of funding going towards criminalization measures as opposed to drug treatment – even during the heroin epidemic in the 60s and 70s, which mostly affected Black men in the inner city. Table 1 shows the rise and expansion of prohibitive criminal institutions. It is against this backdrop that the appearance of ameliorative medical institutions is so surprising.

**Table 1. Major Federal Laws Governing Opiate Use**

| Law                        | Year Passed | Major Provisions  |
|----------------------------|-------------|---|
| The Opium Act              | 1909        | Made the importation, possession, and use of ‘smoking’ opium’ illegal; First federal law banning use of a substance |
| The Harrison Narcotics Act | 1914        | Taxed all parties involved in opium and cocaine   |

|                             |      |   |
|-----------------------------|------|---|
|                             |      | trade, sales, and manufacturing   |
| Heroin Act                  | 1924 | Made the manufacture, importation, and the possession of heroin illegal                     |
| Boggs Act                   | 1951 | Established mandatory minimum prison sentences for crimes related to import/export of drugs |
| Uniform State Narcotic Act  | 1932 | Encouraged states to pass their own acts prohibiting drugs                                  |
| Narcotics Control Act       | 1956 | Increased penalties and mandatory minimums for violators of drug laws                       |
| Controlled Substance Act    | 1970 | Consolidated previous drug laws and developed the 5 tiered scheduling of drugs              |
| Anti Drug Abuse Act of 1986 | 1986 | Strengthened Federal enforcement of drug laws, increased funding for drug eradication       |

In the U.S., there are federal, state, and local laws to regulate drugs and drug use. The federal laws tend to be used to penalize drug trafficking, while state laws tend to be used to penalize mid- to small-level sales and possession. Thus, states have primarily been the locus of grappling with how to approach increasing overdoses. Consequently, in the first part of my dissertation, I answer the question: Why do Naloxone and Good Samaritan laws diffuse, and why do they diffuse differently? And more generally, what motivates state-level drug policy changes?

Within this context of changing policy, in the second and third part of this dissertation, I examine how the availability of medicalized drug treatment has changed over the past 20 years. I



answer three key questions: 1) How has the availability of opioid addiction treatment services changed since 2000?; 2) What factors are associated with a drug treatment facility offering have medicalized opioid addiction treatment services?; and 3) Do factors predicting the availability of medical-based treatment services vary over time or by type of treatment? To do this, I examine three forms of medicalized drug treatment: methadone treatment, buprenorphine treatment, and treatment for co-occurring mental health and substance use disorders. These three forms of treatment are significant because they are associated with lower rates of substance misuse post-treatment, arose from medical and psychological approaches to addressing addiction, and are consistently cited as forms of treatment that should be made more accessible in tackling the current opioid epidemic. Below I provide background on the context of drug treatment and the development of these forms of treatment, as well as a brief review of both the demand for and effectiveness of each modality. Next, I show how they have geographically diffused over time. Finally, I note barriers to the availability of each treatment.

### *Drug Treatment Options*

While it would be unreasonable to discuss the full range of drug treatment programs available in the US, it is worth noting a few relevant differences between public and private facilities, and inpatient and outpatient facilities. Previous research has found that public and non-profit facilities were more likely to offer ancillary services, such as trauma-centered treatment, than for-profit programs (McBride et al. 2012). This is often due to the fact that clients accessing treatment from public programs have more needs, as they are more likely to be homeless or socially marginalized. We also know that qualitatively public and private institutions often take very different perspectives on how to treat drug addiction. McKim's (2017) ethnography, comparing a private rehabilitation center for women to one in the criminal justice system,

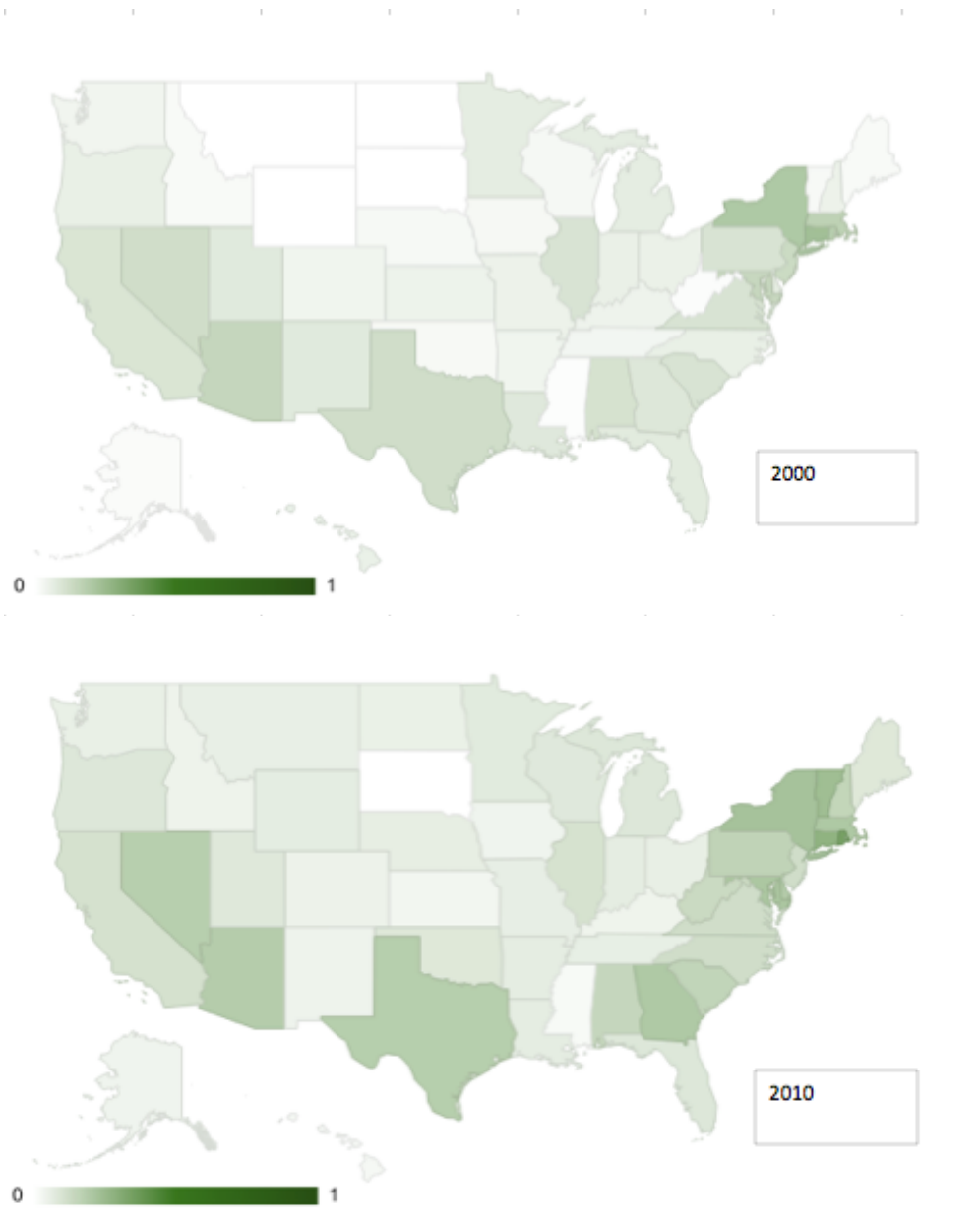
highlights this contrast. Public clinics tend to deal with people who may have more comorbidities, while private clinics are dealing with “healthy and wealthy” people (Wheeler & Nahra 2000); still, the former focus on building individuals’ self esteem, while the latter see individuals as chemically dependent (McKim 2017). Outpatient treatment services are significantly more accessible than inpatient services – with only 2% of all drug treatment facilities offering inpatient treatment in 2019.

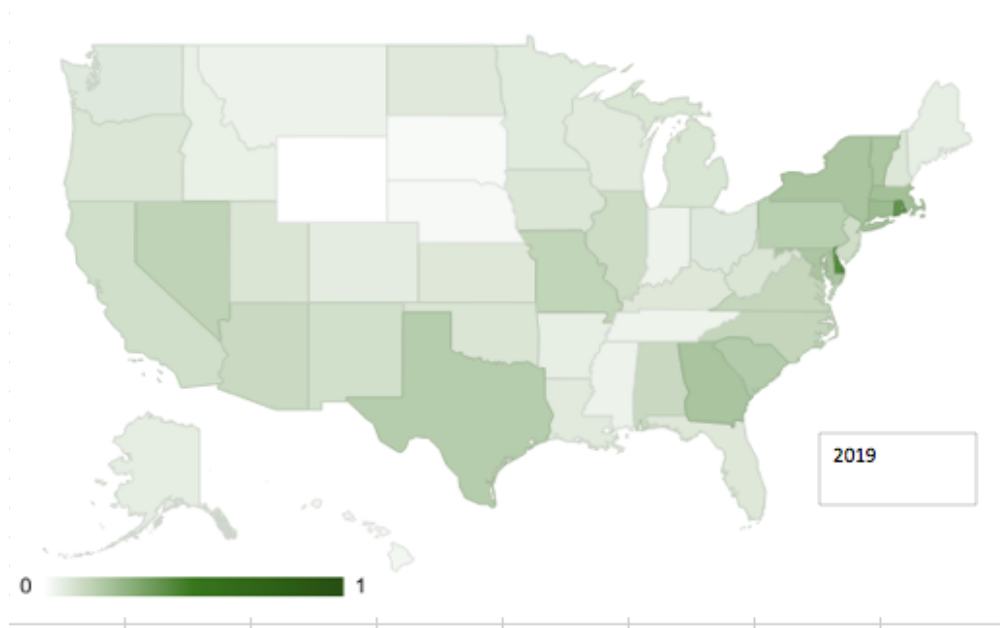
In the context of the treatments examined in this dissertation, all forms of treatment are likely to be offered in all contexts. Patients can be initiated into methadone or buprenorphine treatment in both inpatient and outpatient facilities. Similarly, while methadone and buprenorphine are more likely to be offered at private facilities – this reflects a general trend in drug treatment where non-profit facilities are closing and private facilities are opening. In contrast, treatment for co-occurring mental health issues continues to be available at a greater proportion of non-profit facilities than would be expected because of the comorbidities associated with individuals who cannot afford drug treatment. Finally, it is worth noting that the cost and type (private vs. non-profit) of drug treatment facility do little to predict the effectiveness of treatment. When researchers assess which treatment modalities work, the type of modality (i.e. methadone vs. buprenorphine) is more closely associated with long-term positive outcomes than the kind of treatment center.

### *Methadone*

Introduced in the 1960s, methadone is the oldest and best-researched of all forms of medication-assisted treatment. Over 900 studies have shown its ability to reduce cravings, decrease opioid use, increase retention in drug treatment, and reduce mortality rates among people struggling with opioid addiction (Ali 2017). Touted as an effective drug treatment during

the wave of heroin addiction among the urban (mostly Black) poor, methadone maintenance therapy received increased public funding during the 60s and 70s. Still, most urban poor did not have sufficient access. Additionally, there was great skepticism of methadone within nonwhite communities. Black communities saw methadone as not addressing the real cause of addiction: poverty (Musto 1973). Today, methadone is still more accessible in Black and Latino communities than other forms of medication-assisted treatment (Krawczyk et al. 2017).





**Figure 3. Percentage of Treatment Centers Offering Methadone by State, 2000-2019**

**Table 2. States with the Greatest Access to Methadone Treatment in the US 2000, 2010, and 2019**

| <i>Top 10 States with the Greatest Access to Methadone in 2000</i> | <i>N</i> | <i>% of Facilities with Treatment</i> |
|--|----------|---------------------------------------|
| Connecticut  | 58       | 23.29%                                |
| District of Columbia   | 13       | 22.41%                                |
| New York   | 247      | 20.00%                                |
| Rhode Island   | 10       | 17.54%                                |
| Massachusetts  | 59       | 16.30%                                |
| Maryland   | 47       | 14.16%                                |
| New Jersey   | 38       | 12.97%                                |
| Texas  | 90       | 12.05%                                |
| Nevada   | 10       | 11.90%                                |
| Alabama  | 12       | 10.34%                                |

| <i>Top 10 States with the Greatest Access to Methadone in 2010</i> | <i>N</i> | <i>% of Facilities with Treatment</i> |
|--|----------|---------------------------------------|
| Rhode Island   | 18       | 33.96%                                |
| Connecticut  | 54       | 27.84%                                |
| Vermont  | 10       | 23.81%                                |
| Maryland   | 71       | 20.94%                                |

|                      |    |        |
|----------------------|----|--------|
| Georgia              | 48 | 19.83% |
| Delaware             | 7  | 18.92% |
| Arizona              | 40 | 18.69% |
| District of Columbia | 6  | 18.18% |
| Texas                | 82 | 18.06% |
| Nevada               | 15 | 17.86% |

| <i>Top 10 States with the Greatest Access to Methadone in 2019</i> | <i>N</i> | <i>% of Facilities with Treatment</i> |
|--|----------|---------------------------------------|
| Delaware   | 19       | 43.18%                                |
| Rhode Island   | 23       | 38.98%                                |
| Connecticut  | 54       | 24.55%                                |
| Massachusetts  | 101      | 23.06%                                |
| Georgia  | 77       | 21.51%                                |
| New York   | 198      | 21.41%                                |
| Vermont  | 10       | 20.83%                                |
| Maryland   | 89       | 20.65%                                |
| South Carolina   | 23       | 19.01%                                |
| Texas  | 93       | 18.16%                                |

Figure 3 and Table 2 highlight which states have the greatest accessibility to methadone treatment; both show which states have the greatest percentage of treatment facilities offering methadone. The more facilities offer a given treatment, the more likely it is that an individual seeking treatment will have that kind of treatment as an option. Figure 3 shows that, over time, methadone is offered at a greater percentage of drug treatment facilities in almost all states. In 2000 and 2010, the northeast had the highest percentages of drug treatment facilities offering methadone. However, by 2019, southern and midwestern states had similar percentages of these facilities.

Table 2 reflects many of these same trends. Over half of the states with the greatest access to methadone are located in the northeast, including Connecticut, New York, Rhode Island, Massachusetts, Maryland, New Jersey, the District of Columbia, and Vermont. States

with the greatest access to methadone treatment have also increased this level of access over time. For example, Connecticut was the state with the most access to methadone in 2000, with 23.29% of all of its treatment facilities offering it. Meanwhile, by 2019, Delaware was the state with the greatest access to methadone, with 43.18% of all facilities offering it. Additionally, states with the greatest access to methadone are not always the states with the greatest proportion of treatment facilities or facilities offering methadone. While New York, Texas, Massachusetts, Maryland, and Georgia are examples of states that have both a high proportion of treatment and facilities offering methadone, most states do not have a high proportion of these facilities.

Though the expansion of methadone seems promising, there are some significant barriers to this form of medication-assisted treatment. Unlike other forms of medication-assisted treatment, methadone can only be obtained from opioid treatment programs that are regulated by federal agencies including Substance Abuse and Mental Health Services Administration and the Drug Enforcement Agency. Patients receiving methadone undergo supervised medication dosing on a daily basis at the drug treatment facility. In addition to federal rules, many states have supplementary regulations on establishing methadone programs and the services these programs must provide. As such, this form of treatment is associated with high levels of surveillance – both of facilities and of patients.

### *Buprenorphine*

Buprenorphine was approved for the treatment of opioid use disorders in 2002. There are two forms of buprenorphine: subutex and suboxone, with the latter being mixed with naloxone. The difference between the two is mainly that the naloxone in suboxone further decreases the likelihood that an individual would get high if they began using street opioids again. Similar to methadone, buprenorphine increases retention in drug treatment, leads to decreases in opioid use,

reduced cravings, reduces mortality rates, and is associated with reduced rates of recidivism (Potter et al. 2013; Connock et al. 2013; Whelan and Remski 2012). Additionally, compared to methadone, buprenorphine has a slightly lower risk of overdose if an individual relapses (Whelan and Remski 2012).

There are a few things that make buprenorphine more attractive than methadone as a treatment option. Buprenorphine can be obtained from any physician who has taken the 8-hour training to be authorized to prescribe the drug; oftentimes, these are primary care doctors. Buprenorphine is less-often available at public and free clinics, as compared to methadone (Hansen et al. 2016). As such, buprenorphine is more accessible to white communities that have access to health care. Individuals can also get up to a 30-day supply to take home, as compared to methadone where most clinics require individuals to go in daily or multiple times a week to receive the medication. Consequently, this can be extremely inconvenient for Black and Latino communities and make it harder for these groups to find a medication-assisted treatment option that works for their lives long-term. Still, while buprenorphine has become significantly more available over time, some research has indicated that there are still not enough providers to meet the demand for services (Dick et al. 2015).

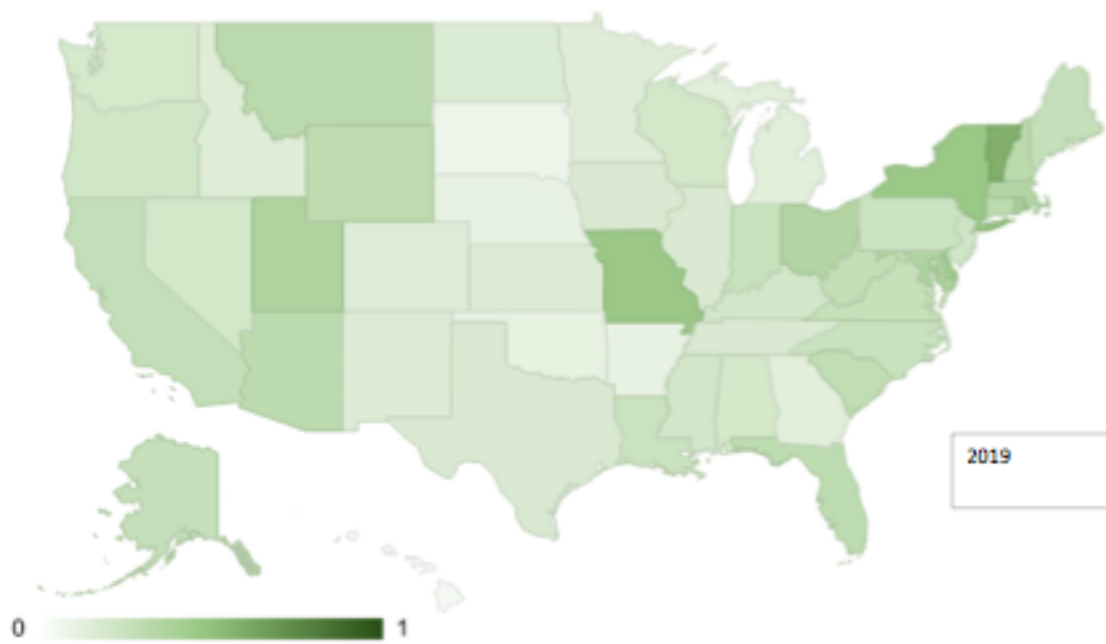
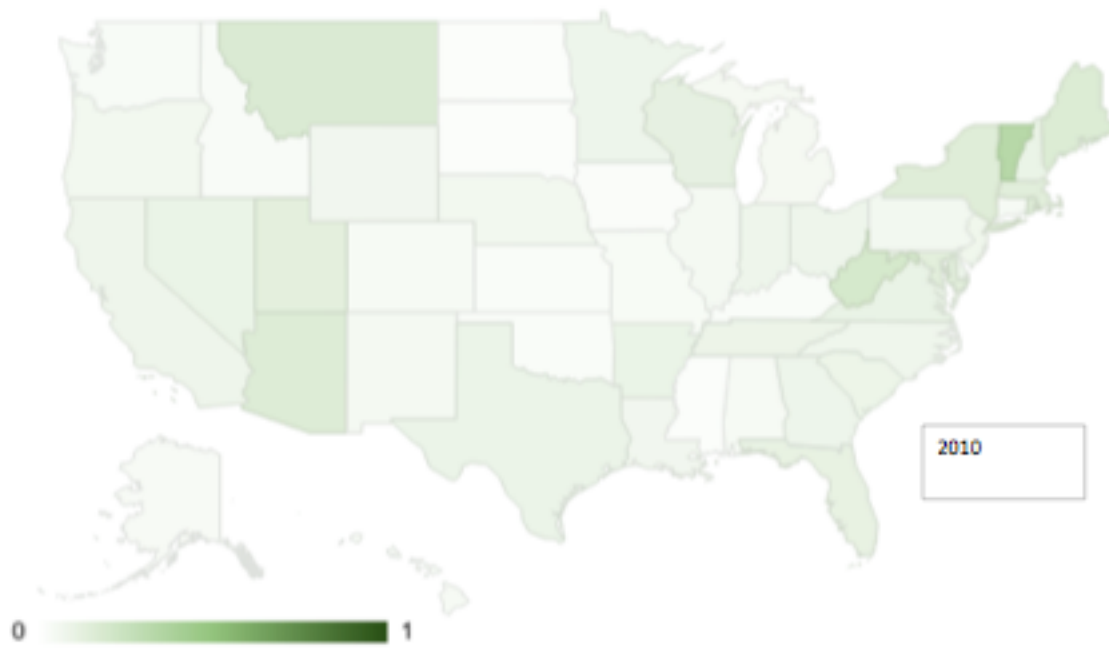


Figure 4. Percentage of Treatment Centers Offering Buprenorphine by State, 2010-2019



**Table 3. States with the Greatest Access to Buprenorphine in the US 2010 and 2019**

| <i>Top 10 States with the Greatest Access to Buprenorphine in 2010</i> | <i>N</i> | <i>% of Facilities with Treatment</i> |
|--|----------|---------------------------------------|
| Vermont  | 14       | 33.33%                                |
| West Virginia  | 16       | 19.51%                                |
| Montana  | 9        | 16.98%                                |
| Maine  | 29       | 16.20%                                |
| Arizona  | 34       | 15.96%                                |
| Rhode Island   | 8        | 15.09%                                |
| New York   | 149      | 14.90%                                |
| Massachusetts  | 43       | 14.01%                                |
| Utah   | 19       | 13.01%                                |
| Florida  | 63       | 10.64%                                |

| <i>Top 10 States with the Greatest Access to Buprenorphine in 2019</i> | <i>N</i> | <i>% of Facilities with Treatment</i> |
|--|----------|---------------------------------------|
| Vermont  | 28       | 58.33%                                |
| New York   | 432      | 46.70%                                |
| Missouri   | 130      | 46.26%                                |
| Delaware   | 19       | 43.18%                                |
| Rhode Island   | 23       | 38.98%                                |
| Utah   | 115      | 37.10%                                |
| Maryland   | 158      | 36.66%                                |
| Ohio   | 195      | 35.20%                                |
| Massachusetts  | 154      | 35.16%                                |
| Montana  | 28       | 31.82%                                |

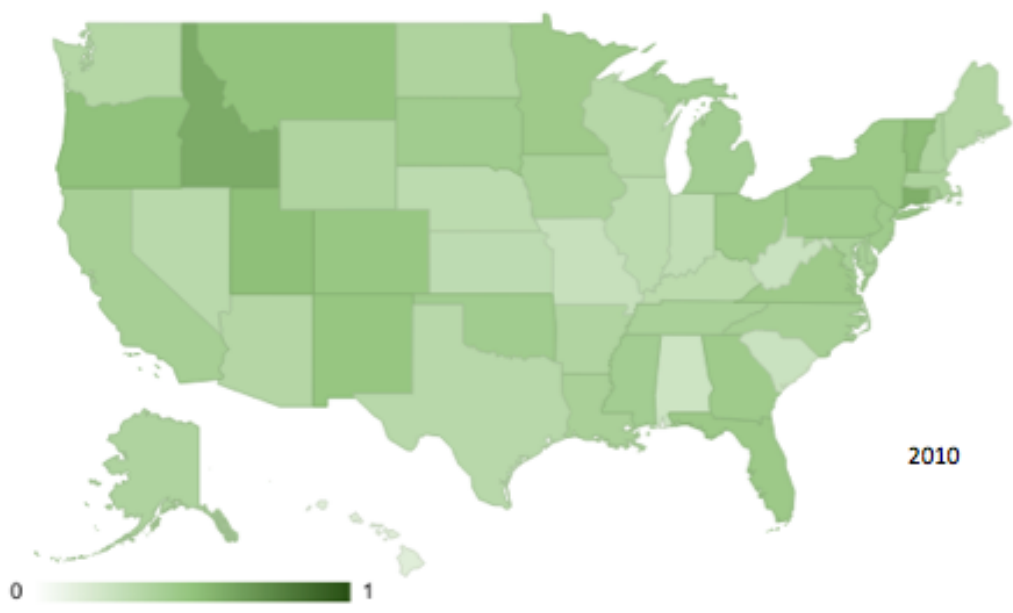
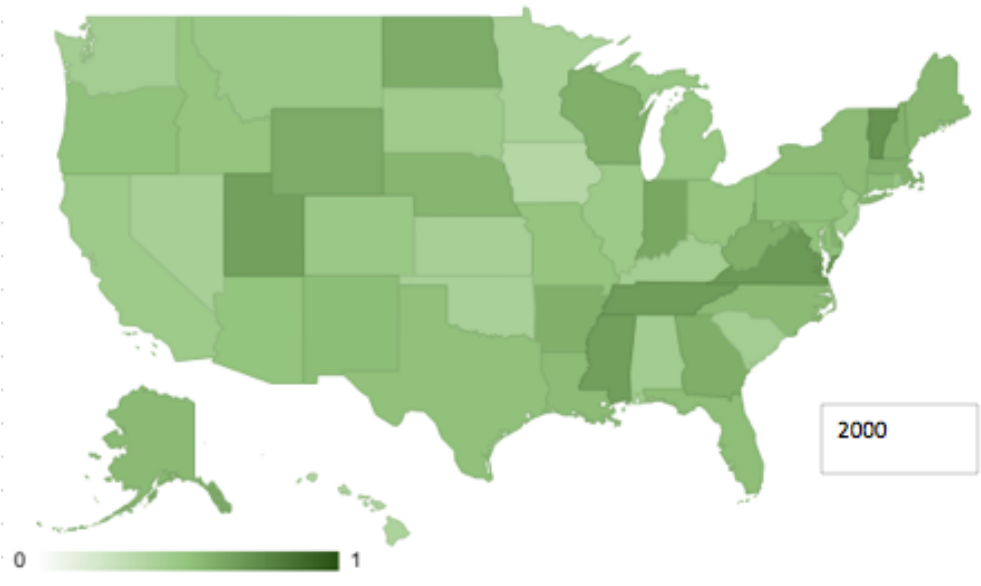
Figure 4 and Table 3 highlight which states have the greatest accessibility to buprenorphine treatment; both show which states have the greatest percentage of treatment facilities offering buprenorphine. The more facilities offer a given treatment, the more likely it is that an individual seeking treatment will have that kind of treatment as an option. Figure 4 shows that, over time, buprenorphine is offered at a greater percentage of drug treatment facilities in almost all states. While in 2010 the northeast had the highest percentages of drug treatment

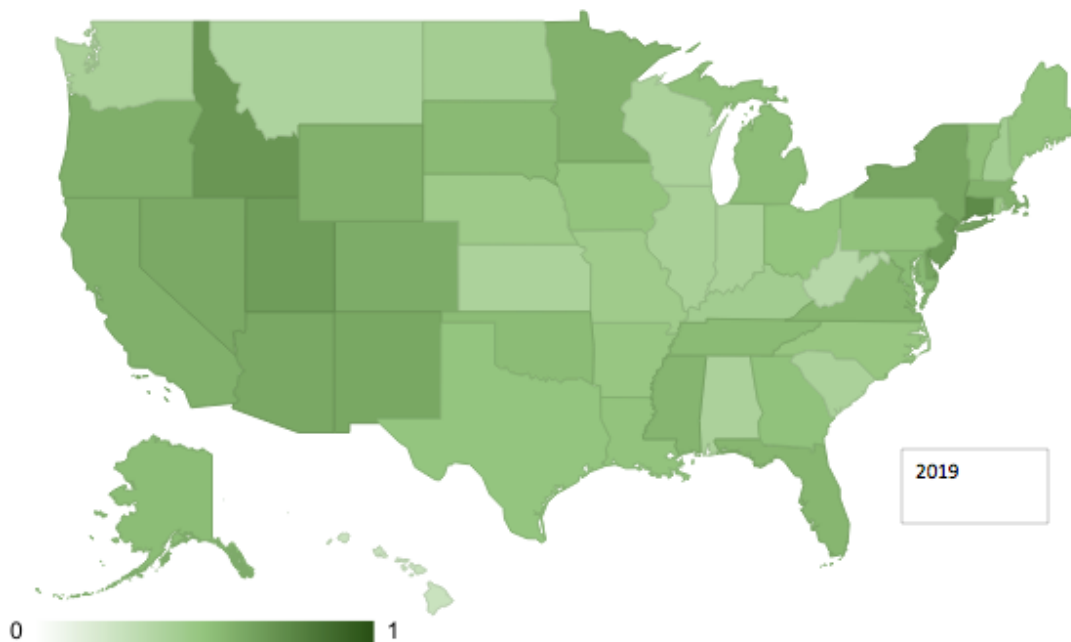
facilities offering buprenorphine, by 2019 most other states had similar or only slightly lower percentages of these facilities.

Table 3 reflects many of these same trends. Half of the states with the greatest access to buprenorphine are located in the northeast, including Vermont, Maine, Rhode Island, New York, Maryland, and Massachusetts. States with the greatest access to buprenorphine treatment have also increased this level of access over time. For example, Vermont was the state with the most access to buprenorphine in 2010, with 33.33% of all of its treatment facilities offering it. Meanwhile, by 2019, Vermont had 58.33% of all facilities offering the medication. Additionally, states with the greatest access to methadone are not always the states with the greatest proportion of treatment facilities or facilities offering methadone. While New York, Massachusetts and Maryland are examples of states that have both a high proportion of treatment and facilities offering buprenorphine, most states do not have a high proportion of these facilities.

#### *Treatment for Co-Occurring Substance Use and Mental Health Disorders*

While treatment for co-occurring substance use and mental health disorders dates back to the 1970s, it wasn't until the early 2000s that practitioners began to take a targeted, therapeutic approach to addressing these issues. Early studies within both substance abuse and mental health communities found that there were not only associations between depression and substance abuse, but also many other mental illnesses. This was estimated to impact somewhere around 50% of all clients in either kind of facility (Sacks et al. 2005; Compton et al. 2000). Researchers also found that co-occurring disorders often complicate the treatment for mental illness and put individuals at higher risk for other adverse health events such as HIV, psychiatric hospitalization, and relapse (Sacks et al 2005; Office of the Surgeon General 1999).





**Figure 5. Percentage of Treatment Centers Offering Treatment for Co-Occurring Mental Health Issues by State, 2000-2019**

**Table 4. States with the Greatest Access to Treatment for Co-Occurring Mental Health Issues in the US 2000, 2010, and 2019**

| <i>Top 10 States with the Greatest Access to Treatment for Co-Occurring Mental Health Issues in 2000</i> | <i>N</i> | <i>% of Facilities with Treatment</i> |
|--|----------|---------------------------------------|
| Vermont  | 34       | 70.83%                                |
| Virginia   | 147      | 68.37%                                |
| Tennessee  | 126      | 66.67%                                |
| Mississippi  | 93       | 65.49%                                |
| Utah   | 85       | 64.89%                                |
| Indiana  | 134      | 62.04%                                |
| Wyoming  | 33       | 60.00%                                |
| North Dakota   | 24       | 60.00%                                |
| Georgia  | 144      | 59.02%                                |
| Wisconsin  | 187      | 58.62%                                |
| <i>Top 10 States with the Greatest Access to Treatment for Co-Occurring Mental Health Issues in 2010</i> | <i>N</i> | <i>% of Facilities with Treatment</i> |
| Idaho  | 55       | 60.44%                                |

|  |          |                                       |
|--|----------|---------------------------------------|
| Connecticut  | 111      | 58.73%                                |
| Vermont  | 21       | 52.50%                                |
| Utah   | 73       | 51.77%                                |
| Montana  | 26       | 50.00%                                |
| District of Columbia   | 16       | 50.00%                                |
| New Mexico   | 63       | 48.46%                                |
| Colorado   | 188      | 47.59%                                |
| New York   | 431      | 45.80%                                |
| Florida  | 254      | 45.36%                                |
| <i>Top 10 States with the Greatest Access to Treatment for Co-Occurring Mental Health Issues in 2019</i> |          |                                       |
|  | <i>N</i> | <i>% of Facilities with Treatment</i> |
| Connecticut  | 164      | 74.55%                                |
| Idaho  | 86       | 69.35%                                |
| New Jersey   | 250      | 67.57%                                |
| Utah   | 206      | 66.45%                                |
| Delaware   | 28       | 63.34%                                |
| New York   | 577      | 62.58%                                |
| New Mexico   | 103      | 62.05%                                |
| Arizona  | 275      | 61.66%                                |
| District of Columbia   | 16       | 61.54%                                |
| Nevada   | 65       | 61.32%                                |

Figure 5 and Table 4 highlight which states have the greatest accessibility to treatment for co-occurring mental health issues; both show which states have the greatest percentage of treatment facilities offering this form of treatment. The more facilities offer a given treatment, the more likely it is that an individual seeking treatment will have that kind of treatment as an option. Figure 5 shows that, over time, co-occurring mental health treatment is offered at a greater percentage of drug treatment facilities in almost all states. There was an interesting dip in the % of the facilities in 2010, which can likely be attributed to the role of the recession; during this period, private businesses suffered economically, and state and local governments cut budgets for social services, reducing availability of mental health and addiction services. Unlike methadone and buprenorphine, treatment for co-occurring mental health issues is much more

diffuse in all areas of the US. As such, there is not an obvious geographic region where this form of treatment is more accessible. Table 4 reflects this as well, with states with the greatest access to this form of treatment hailing from all regions of the US. Notably, states that consistently have the greatest access to co-occurring mental health treatment include: Utah, Vermont, Connecticut, Idaho, New Mexico, and the District of Columbia.

Given that this group is more vulnerable and has more complications, personal characteristics are a significant barrier to this group receiving treatment, even if it is available (Priester et al. 2016). Still, structural barriers are more significant in understanding disparities in who gets treatment for co-occurring disorders. Recent studies have found a lack of service availability, issues in identifying disorders, gaps in provider training, lack of service provisions at facilities, racial/ethnic disparities in access, and insurance related barriers to care (Priester et al. 2016).

## **Chapter 2 - Literature Review**

A central question that sociologists studying institutions have attempted to answer is: Why do laws and practices diffuse? Drawing from this body of literature, I answer the question: What explains recent changes in drug policies and treatment? Below, I review two existing theories for the diffusion of laws and practices – realist theories and institutional theories. Finally, I propose a third theory; expanding on institutional theories, I hypothesize that the racialization of institutions accounts for diffusion that cannot be sufficiently explained by existing theories.

### ***Realist Theories of Diffusion***

The majority of the research on the diffusion of policy and practices highlights the rationalities involved in their rapid spread across countries, states, and organizations. The rationalities of diffusion begin with the identification of a discrete problem or a social phenomenon that needs to change in a measurable way. From here, a logical, quick, and seemingly effective solution is developed to address this problem, with a strong emphasis on the rational relationship between the problem and its solution. Consequently, much of this research highlights how when new policies are consistent with prior policies or elucidate the simplicity of a novel practice – they diffuse, often rapidly (Fliegel and Kilvin 1966; Banerjee 1982).

Evidence for this has been found in studies of firms, but also in research examining changes of criminal justice policies. Classical research from the 1960s and 70s makes the argument that increases in drug offenses and/or drug use increases the likelihood legislation will be passed to address these trends (Mayer 1992; Niemi, Mueller, and Smith 1989; Wilson 1975). On the most

basic level this suggests that if there is an increasing problem, that states will pass public policy to address it.

Broadly, this research emphasizes direct, rational relationships between problems and their solutions. In the case of fatal overdose prevention laws, the problem is an increasing rate of fatal overdoses. Both Naloxone and Good Samaritan laws present a solution to the increasing number of fatal overdoses that is simple, free (in that they don't require any form of state funding), and whose logic is directly connected to saving lives. Allowing lay-persons to have access to a non-lethal drug that reverses overdoses seems like a reasonable, direct way to lower the rate that people die of overdoses at no cost to taxpayers. Similarly, not arresting people for drug possession if someone is suffering an overdose does not cost the state anything, and seems to be a direct way to make sure that people get medical attention rather than dying. Given this underlying rationality, fatal overdose laws arise as a functional response to a rise in overdoses. A similar logic would apply in the case of medicalized drug treatment. Rising rates of overdoses indicate that more people in the US are struggling with opioid use disorders. While fatal overdose prevention laws are one way to address this, increasing access to drug treatment is the long-term functional solution to this problem. Thus, it logically follows that all forms of treatment to address this illness would increase in availability.

HYPOTHESIS 1: Fatal overdose prevention laws and medicalized drug treatment diffuse because more people are overdosing

Realist theories also provide hypotheses about how knowledge of a problem and knowledge of its solution relate to the rate of diffusion. Theoretically, they claim that as problems and their solutions become more well known (i.e. many actors sharing this knowledge with each other or marketing efforts), the more rapidly they diffuse (Coleman, Katz, and Menzel



1966; Knoke 1982; Van den Bulte and Lilien 2001). This is found in a wide variety of diffusion studies from research looking at diffusion of practices among organizations and to research on the diffusion of criminal justice based policies.

Research on the diffusion of criminal law has challenged the classical literature connecting arrests or drug use trends to changes in legislation. Instead, a new body of literature developed looking at the ways that issues get on a legislative agenda, rather than assuming that there is a direct link between problems and policy solutions. They find that size of drug abuse problems is inconsequential to the adoption of new policy, but instead the perception of the problem truly matters. Studies have shown that passage of new drug laws is not always a function of actual drug use trends, but rather the perception of trends matters– with the media being key to this (Beckett 1994). Multiple accounts have shown that even as drug use declined, drug issues in politics persisted to be relevant (Jensen, Gerber, and Babcock 1991; Reinerman and Levine 1989).

HYPOTHESIS 2: Fatal overdose prevention laws and medicalized drug treatment diffuse because the public is more aware of the problem (and the possible solutions)

### ***Institutional Theories of Diffusion***

While realist arguments account for some of the diffusion of laws, the disparate patterns of diffusion between Good Samaritan and Naloxone laws cannot be explained by these theories. While both laws have rapidly proliferated, they have done so in different states. Realist theories would predict that if overdoses are increasing, states would be willing to pass both laws. This argument is even more salient given that they are often discussed together and have the same stated intent to reduce fatal overdoses. Realist arguments would also predict the expansion of

criminal restrictions to drug addiction more generally, as this has been the historic response to this problem. What these explanations fail to address is the integral role that institutions play in policymaking. This is important because these policies impact institutions in unique ways. While Naloxone laws expand the availability of medical solutions to deal with addiction issues, Good Samaritan laws reduce the extent that law enforcement agencies can use drug laws against users as a form of social control. The effect of the unique ways each policy impacts medical and criminal justice institutions is not insignificant. Work has shown that state actor's testimony of how and in what ways policy changes will affect their institutions are more integral than the seriousness of the problem itself (Beckett 1994).

Realist arguments also cannot account for the disparate patterns of diffusion between medication-assisted treatment and co-occurring mental health treatments. Realist theories would predict that if the problem of opioid abuse is increasing, then all forms of treatment that could address this would also increase. Instead, co-occurring mental health treatment diffuses more widely and a few years earlier than medication-assisted treatment diffuses. Similar to the disparate impact of Naloxone and Good Samaritan laws, medication-assisted treatment and co-occurring mental health treatment impact medical institutions in different ways. Co-occurring mental health treatment adds an additional level of professionalization and medicalization into drug treatment – requiring facilities to hire psychiatrists, psychologists, therapists and approach drug addiction as a complex mental health issue rather than simply a maladaptive behavior pattern or personal failing. This is a significant shift because, both historically and contemporarily, many staff members at drug treatment facilities only have addiction treatment certifications, rather than also or alternatively being credentialed as doctors, social workers, psychologists, or other medical professionals. Generally, this represents a further expansion of

medical based services into drug treatment. In contrast, medication-assisted treatment is heavily regulated by the state. If prescribers want to offer methadone and/or buprenorphine, they must obtain a waiver from the DEA on a yearly basis. Oversight of treatment medications used in medication-assisted treatment is a multilateral system involving states, SAMHSA, the Department of Health and Human Services (HHS), the Department of Justice (DOJ), and Drug Enforcement Administration (DEA). These organizations limit the amount of medication that can be dispensed at any one time (especially in the case of methadone), how many patients providers can prescribe buprenorphine (only 100 in the first year, 275 after that), and the contexts in which medication can be prescribed and dispensed.

As is the case with fatal overdose prevention laws and medicalized drug treatment, policies and practices that affect multiple institutions pose bureaucratic and ideological questions of whether or not and in what ways an institution should be involved in a policy solution. The question arises then of what determines the ways and extent to which a state is willing to alter institutional arrangements: here, is where institutional theory can help explain diffusion. Institutional theories have been deeply concerned with how and why diffusion of policies and practices occurs. Theorists in this tradition emphasize the influence of institutional conditions on diffusion, particularly highlighting how diffusion is “shaped and accelerated by culturally analyzed similarities among actors, and by theorized accounts of actors and practices” (Strang & Meyer 1993). These cultural categories of similarities are not rational choices actors make about how to see others, but rather “institutionalized at levels above that of actors’ perceptions, producing structural conditions that accelerate diffusion” (Strang & Meyer 1993). The role of the state in particular in producing these structural conditions was hypothesized in DiMaggio and Powell’s (1983) article where they predict that, “the greater the extent to which the organizations

in a field transact with agencies of the state, the greater the extent of isomorphism in the field as a whole.”

The institutional perspective on diffusion begins to explain why change may occur in laws and treatment practices. Foremost, general studies on diffusion have shown how shifts in problem definition can trigger policy change (Baumgartner and Jones 1993; Kingdon 1984). Institutional scholars have shown how changes in problem definition can have a significant impact on abstract institutional logics. Chiarello’s (2015) study of pharmacists highlights how passage of new policies (in this case, prescription drug monitoring program laws) represent a redefinition of who is a drug user and who is defined as an actor preventing drug abuse, making medical institutions responsible for monitoring a problem traditionally dealt with by criminal justice institutions. An institutional perspective would predict that when these changes in definition and institutional logics are formalized by state agencies, there would be even greater potential for diffusion (DiMaggio and Powell 1983). Finally, employing Strang & Meyer’s (1993) ideas about culturally analyzed similarities among actors, if these shifts in problem definitions highlight cultural similarities among actors, then diffusion should be even more rapid.

Fatal overdose prevention laws provide an ideal opportunity to test these hypotheses. Abstract institutional logics arising from the gradual legitimization of the medicalization of drug use and abuse among white populations changed definitions of who is a drug user and which institutions and actors address drug use and abuse issues. This is very much related to the source of the new opiate ‘epidemic’ – prescription opiates that whiter and wealthier individuals were prescribed by doctors and obtained at pharmacies. As a result, those struggling with addiction are now more likely to be associated with doctors or medical malfeasance than street dealers or

crime. Given the fact that now people struggling with drug addiction are seen as falling into the same category as others with medical issues, this should accelerate diffusion.

Additionally, these new definitions and abstract institutional logics in turn create structures [as evidenced by policy passed] dictating which policy solutions are acceptable for dealing with expanding drug addiction. The role of laws that advance medicalization and decriminalization in developing abstract logics can be seen in two previous drug policies: Prescription Drug Monitoring Programs (PDMPs) and medical marijuana laws. Both policies redefine who is a user, what is a drug, and consequently, which institutions manage drug abuse. Chiarello's (2015) study of pharmacists highlights how PDMPs represent a redefinition of who is a drug user and who is defined as an actor preventing drug abuse, making medical institutions responsible for monitoring a problem they are accused of creating through the over prescription of opiate painkillers. Medical marijuana laws redefine marijuana users as medical patients and challenge federal authority over drug legality and usage (Mikos 2009). Consequently, as states continue to formally legitimate the medical field as the purveyors of drug use and abuse – it would not be surprising that we begin to see isomorphism of overdose prevention policies across the United States. In this case, we should see further medicalization of overdoses and decriminalization of overdoses in states that have more readily embraced these changes in the institutional locus of control over drug abuse.

At the same time, medicalized drug treatment provides a further opportunity to test institutional hypotheses on diffusion. By looking at the diffusion of fatal overdose prevention laws we can see the extent to which states have formally legitimated the medical field as key actors and institutions responsible for addressing drug addiction. Naloxone and Good Samaritan laws alter the abstract institutional logics, further pushing drug addiction into the domain of

medical professionals. As such, in states that have more quickly and thoroughly enacted these changes should have earlier and greater access to medicalized drug treatment including methadone, buprenorphine, and treatment for co-occurring mental health issues.

HYPOTHESIS 3: Fatal overdose prevention laws and medicalized drug treatment diffuse because the definitional locus of the problem is shifting from drug use as crime to drug use as medicine

HYPOTHESIS 4: Fatal overdose prevention laws and medicalized drug treatment diffuse because the institutional locus of the problem is shifting from the criminal to the medical

### ***New Perspectives: The Racialization of Institutions and Diffusion***

While both realist and institutional theories can explain some of why overdose prevention laws and medicalized drug treatment diffuse, neither theory completely can make sense of this phenomenon. Foremost, while overdoses are increasing, overdoses and opioid use have increased at other points in time (Mold 2007; Jalal et al. 2018) and states have not enacted these policies or practices to the same extent. While realist explanations work in this specific case, they cannot explain more generally what motivates these changes to drug policy. In contrast, institutional theories help explain things more generally; this is the first time in contemporary history that we've seen medical institutions have substantial formalized power to address drug use and addiction. Yet, it is still inadequate. While institutional logics can explain some of the move to medicalize our approaches to drugs, it cannot explain why now medical institutions have substantially more power. In the past, such as when there were high rates of heroin addiction in the late 1960s and early 1970s, medical approaches were only given limited power – namely, allowing physicians to prescribe methadone or giving small groups of people drug treatment (for

example, the military's programs for Vietnam Veterans) (Courtwright 1982; Stanton 1976). Instead, the primary response was to enforce drug laws, imprisoning people struggling with addiction and encouraging them to seek help from a higher power. Neither theory can both explain these changes more generally and explain why these policies are currently diffusing – especially given that both options were available at previous times.

Similarly, institutional theory cannot explain disparate patterns of diffusion when comparing medication-assisted treatment and treatment for co-occurring mental health issues. Nor can institutional theory explain why buprenorphine becomes more diffuse than methadone as time progresses. DiMaggio and Powell (1991) predict “the more uncertain the relationship between means and ends, the greater the extent to which an organization will model itself after organizations it perceives as successful.” The question of how to address drug addiction does not have any clear cut and easy answers. As such, this is a great context under which to test this hypothesis. Medicalized drug treatment is touted within the drug treatment literature as the gold-standard for drug treatment, with many reviews and meta-analyses further emphasizing its promise of being the most successful treatment intervention long-term (Ali 2017; Potter et al. 2013; Connock et al. 2013; Whelan and Remski 2012). Yet, despite this evidence, co-occurring mental health treatment is more diffuse and accessible. Methadone has more scientific evidence for its long term effectiveness in addressing opioid addiction, but yet buprenorphine has become more diffuse.

The only way these other two explanations can completely make sense is by proposing a new explanation for diffusion: laws and practices diffuse in response to the needs of those who are whiter and more affluent. Asking the question of “who benefits from these laws and practices?” helps explain not only why laws are being passed now, but also helps explain

institutional shifts that must precede changes in policy and practice. The research on target populations and policy begins to elucidate the question: “Why pass these laws now and not before?” Sociologists have traced how law is constructed with a target population in mind (Schneider & Ingram 1993; Schneider & Ingram 2005) and how the diffusion of policy is influenced by information connecting targets to goals (Mossberger 2000). The central theme of all of this work is that governments adopt innovations that extend benefits to strong, powerful, and popular target populations – these diffuse easier than ones that challenge who is deserving (Boushey 2016). Who a law is seen to benefit matters for whether it will be passed or not.

This is even more significant in the case of overdose prevention laws because of the deeply racialized history of drug laws in the United States. Race played a major role in the criminalization of drugs over time (Rowe 2006). The first anti-drug law in the United States was the Harrison Narcotics act, which was passed in response to opium use by Chinese immigrants (Rowe 2006). This was not the end of the government criminalizing opiate use, but in following years would pass more laws to restrict and more heavily criminalize the use and sale of opiates. Opiates have not been the only drug that has been racialized over time. This trend can also be seen with moral panics over marijuana (Goode and Ben-Yehuda 1994) and crack cocaine (Provine 2007). These studies have mostly been qualitative, providing evidence but unable to capture general trends in how criminalizing drugs has been tied to controlling racial and ethnic minorities. The basic idea is that new kinds of laws arise with new kinds of users. In the case of the current opioid epidemic, the new users are wealthier and whiter people (Phillips, Ford, and Bonnie 2017). Connecting this to the idea that policymakers construct laws with target populations sufficiently helps explain the consideration of “why now.”



The other question that is not sufficiently answered is “why has the institutional locus shifted to that of a medical rather than a criminal phenomenon?” Both drugs and health have been racialized, having significant institutional consequences. For example, “crack” cocaine is seen as a “Black” drug while powder cocaine is seen as a “white” drug. In this case, opioids are also “white” drugs; this is not solely because many whites are using opioids, but also because of their origin – prescription pills from doctors. Drawing on Netherland and Hansen’s (2017) article examining the relationship between whiteness and opioids, I expand upon their argument that “addiction treatment itself is being selectively pharmaceuticalized in ways that preserve a protected space for White opioid users.” While they argue that institutional spaces are carved out to protect Whites, I take this argument a step further to argue that race is not only coded into our biomedical technologies, but also directly into our institutions. Health and healthcare are racialized: healthcare is a “white” institution. This means that whites are the most likely to not only have healthcare, but to have quality healthcare where their health needs are taken seriously and addressed sufficiently by practitioners who are socially similar to them (Fiscella and Sanders 2006). In contrast, courts, jails, and prisons are similarly racialized: these are institutions for people of color- mainly people who are Black. This means that black and brown people are most likely to have their problems “addressed” within criminal justice institutions. These ideas can be extended to social class as well, especially given that being Black or Latino is significantly associated with being poor. Similarly, the majority of White individuals in prison come from poor backgrounds. While I focus primarily on race based motivations (given the history of institutionalized racism and drug laws in the country), associations between drug use and the poor work in tandem to define which institutions serve which individuals.

Racialized institutions also help explain why co-occurring mental health treatment has diffused more widely than medication-assisted treatment. When social problems impact white Americans they're seen in a much more sympathetic light than when they impact non-white Americans; this can be seen in a wide range of issues from poverty to gun violence (Quadagno 1995). Rather than seeing these issues as cultural, social problems are much more likely to be seen as systemic or due to a lack of resources when they impact white populations. Media coverage of school shootings is a fantastic example of this phenomenon. Mental health issues are often cited as the cause when white men are mass shooters, while non-white men who engage in mass violence are painted as dangerous political or religious radicals. This same logic may also explain why the first and most rapid response to rising rates of addiction is treatment for co-occurring mental health issues. Under this frame, when white people are afflicted with addiction issues they are seen as mentally unwell rather than pathologically steeped in a culture of addiction. In contrast, medication-assisted treatment addresses the biological cravings for opioids, lending itself as a less obviously connected (though still viable) solution given this framework of addiction.

Finally, the racialization of institutions also explains why methadone and buprenorphine have different patterns of diffusion. Methadone has historically been associated with addressing opioid addiction in poor, non-white neighborhoods. Even today, methadone is more readily accessible in poor and non-white areas than in white, suburban contexts (Hansen et al. 2016). Methadone is heavily surveilled, requiring the majority of patients to visit the clinic on a daily (or near daily basis) to receive their dose of medication. While over time patients may be approved for a "take home" dose of a few days worth of medication, this form of access is limited and uncommon. In the same way that prison populations are not rapidly increasing to

address opioid addiction, there is also not a rapid increase in access to methadone. Instead, buprenorphine rapidly and widely diffuses as time goes on. It does not require the same intense, daily surveillance that methadone requires. Unlike methadone, which is usually dispensed out of specialized clinics, primary care doctors can take an 8-hour training and are then able to prescribe buprenorphine to up to 100 patients in their first year. In fact, once stabilized on the medication, federal guidelines allow for patients to progressively increase the number of “take home” doses over time, up to one month of medication at a time after 2 years. This progression moves significantly quicker than with methadone, with patients able to get 3 days of medication at a time even after just 90 days on it and a week of medication after 6 months. The stark differences in the history of these two treatments and their level of patient surveillance build an argument that when opioid addiction is facing whiter, wealthier populations institutions employ qualitatively different practices than when these populations are non-white or poorer. As Netherland and Hansen (2017) note in their examination of the racialization of drug policy, “The ‘White drug war’ has carved out a less punitive, clinical realm for Whites where their drug use is decriminalized, treated primarily as a biomedical disease, and where their whiteness is preserved, leaving intact more punitive systems that govern the drug use of people of color.”

As such, the argument that I am making here is not solely a racial one, but also one that refines institutional theories of diffusion. Institutions are racialized – one cannot understand institutional logics without acknowledging the disparate ways that different social groups are served by these institutions. Racial and class based inequalities exist within institutions, but these inequalities can also help us understand the conditions under which institutional domains will expand or contract. Generally, this theory predicts that institutional domains will expand or contract to benefit whites because of the racialization of institutions.

HYPOTHESIS 5: Fatal overdose prevention laws and medicalized drug treatment diffuse because the drug using population is growing whiter and more affluent

## **Chapter 3 - The Diffusion of Fatal Overdose Prevention Laws**

### ***Introduction***

Scholars of law and society have long debated causal explanations for legislative changes. This chapter engages with this literature to examine new species of drug laws (medical, restorative) that are hostile to the existing institutional structures (legal, punitive) – fatal overdose prevention laws. Employing an event history analysis, the causal mechanisms motivating the passage of Naloxone and Good Samaritan laws are examined. In turn, this chapter argues that race and class based explanations account for two important questions that realist and institutional arguments cannot answer: “why is policy change occurring now?” and “why is the institutional locus of control over a social problem changing?” Additionally, this chapter seeks to refine ideas about the ways in which policy change is rationally motivated and motivated by race and class based concerns – highlighting the ways that institutions shape policy responses. Consequently, this analysis elucidates how the institutional basis of a problem colors the passage of policies, in conjunction with and in relation to realist motivations and race and class based motivations.

In the case of fatal overdose prevention laws, state policymakers are not simply responding to increased rates of fatal overdoses. Similarly, while drug laws have historically been used as a means of social control of nonwhites and the poor, different motivations seem to arise with overdose prevention laws. Instead, the passage of these laws relates to social protection; this derives from widespread imagery of a growing number of white opioid users. This changing image of who is an opioid user helps explain both why these laws are being passed now and why the institutional locus of control is changing. When white and wealthier

individuals are seen as the impacted population, policymakers ground solutions in care-based institutions that have historically served them (i.e. health institutions) rather than punitive institutions of social control (i.e. criminal justice institutions) that have historically served to marginalize individuals (primarily those who are Black and/or poor). Finally, while these laws affect criminal justice and health institutions differently, they serve the same function of shifting the conceptualization of addiction from a legal/criminal justice issue to that of a medical issue. While conventional realist and race arguments have a hard time making sense of this change, the social institutional argument is able to account for the differing diffusion patterns of Naloxone and Good Samaritan laws.

### ***Methodology and Data***

The basic aim of this analysis is to examine the extent to which realist explanations, race and class based explanations, and institutional explanations influence the probability of a state passing an overdose prevention law in a given year. To understand the factors motivating changes in law a discrete time logit event history analysis is appropriate (Griffin & Isaac 1992; Isaac & Griffin 1989; Grattet, Jenness & Curry 1998; Kane 2007). In this case, I am modeling rates of diffusion. Cluster-robust standard errors were used in all models to account for the clustered nature of the data.

The time span of this analysis spans from 2000 (the year before the first opioid overdose prevention law was passed) to 2016, with the unit of analysis being state year. The data from this project comes from the Comprehensive Drug Policy (CDP) dataset, which I compiled to investigate questions related to the passage and implementation of drug policy. This dataset captures state and national level health, legal, political, and economic factors relating to drug use, abuse, and policy. Data has been conglomerated from the National Institute of Health, the Center

for Disease Control, the Census Bureau, Uniform Crime Reports, and a number of other Federal agencies and reputable non-profits. The only missing data was for State Overdose Rates (where there were 3 years in North Dakota where there was insufficient information) and Control of State Legislature (Nebraska does not have party affiliations in their legislature).

While there are limitations to this study, namely that some states are still considering this legislation, this is the first study to attempt to quantitatively analyze the causal factors explaining the passage of legislation. Additionally, unlike some of the more crude measures that have been used to measure the impact of institutional arrangements such as budgets or organization counts (Kane 2007; Grattet, Jenness & Curry 1998), this chapter tests variables that account for institutional conflict that can arise with the passage of new laws. Drawing from qualitative literatures on ground level institutional conflicts (Chiarello 2015), variables were chosen to test whether the passage of policy is related to the nature of how policies impact multiple (often strangely overlapping) institutional domains.

### *Dependent Variables*

There are two dependent variables in this analysis: the rate at which a state has passed a Good Samaritan law and the rate at which a state has passed a Naloxone law. Both variables are dichotomous, with 0 = no law 1 = passage of a law. These policies are separated into two dependent variables, rather than running them as an ordinal or categorical variable, because the majority of states do not pass both at the same time or only have one law on the books. Coupled with differing diffusion patterns, this suggests that these laws function in different manners from one another.

### *Independent Variables*

As similar studies on political institutions have noted, it takes time for institutions to make changes in response to social forces (Oakley 2009). Thus, all independent variables are lagged by a year with the exception of the control of state legislature variable.

**Realist Variables:** To test the hypothesis that the problem of overdoses has become more pressing two variables are operationalized: the state fatal overdose rate and national media attention. State overdose rate data comes from the Centers for Disease Control and Prevention, National Center for Health Statistics Multiple Cause of Death Files, 1999- 2014, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. National media attention is operationalized similar to the procedure employed by Kane (2007). A search was performed in Lexis Nexus for ‘Naloxone’ and ‘Good Samaritan law’ and limited to only U.S. sources. The conglomeration of news was then exported into a PDF and each article was reviewed. In the counts for the number of articles mentioning opioid overdose prevention laws it is important to note the types of references to these drugs that were not included. Counts only included articles that discussed the development of Naloxone or use in the context of overdoses. It did not include 2002 articles referencing how Russians used Naloxone as part of torture or articles talking about Naloxone’s potential for cancer treatment. Counts did not include mentions of Good Samaritan laws that were not related to drug overdose. Regional articles were only included if they were from a major city in a state i.e. Los Angeles Times and the Philadelphia Inquirer.

**Race and Class Variables:** I include two measures to assess the extent to which these policy changes maintain racial and class hierarchies through operationalizing two variables: the number of news articles on Good Samaritan/Naloxone (depending on the dependent variable of



the regression) laws in a year that characterize users as white and the number of news articles on Good Samaritan/Naloxone in a year that characterize users as middle or upper class. The same data retrieved from the search procedure used for the National Media Attention variable was used for coding this variable. An article was only coded as 'white' or 'middle/upper class' if those phrases were specifically mentioned, in the context of these groups being the largest groups of addicts. Most articles either classified heroin users as some variation of white or middle/upper class, no articles classified users as black or part of the urban poor. Other articles either did not discuss the specifics of the heroin/opioid using population (most of these were talking about scientific advances in addiction treatment) or claimed that this was affecting all groups. Regional articles were only included if they were from a major city in a state i.e. Los Angeles Times, Denver Post, Philadelphia Inquirer. Articles that were not included were ones talking about films/art exhibits on heroin addiction or letters to the editor. These variables aim to test the extent to which prominent narratives of heroin addiction (i.e. who is an addict) could influence the passage of laws.

Institutional Variables: To test the extent to which changes in definitional and institutional locus of the problem has changed I test two variables: whether a state has passed legislation for a Prescription Drug Monitoring Program (PDMP) and the legal status of medical marijuana. Data on the legal status of medical marijuana comes primarily from the National Council on State Legislatures (NCSL), but was crosschecked and information on decriminalization was also verified through the Marijuana Policy Project (MPP) and the National Organization for the Reform of Marijuana Laws (NORML). This variable is a dichotomous variable coded 0=no medical marijuana, 1=any form of medical marijuana, including states that only allow CBD products. This variable aims to measure the extent to which states have shifted

their orientation from drug as crime to drugs as medicine– capturing the extent to which there has been a change in the definitional locus of the problem.

Data on whether a state has a PDMP comes from the Prescription Drug Monitoring Program Training and Technical Assistance Center, which constructs informational profiles for each state on the status of their PDMP. This variable is a dichotomous variable coded 0=no PDMP, 1=passed legislation for a PDMP. As was detailed in Chiarello’s (2015) piece, PDMPs challenge the traditional role of the pharmacist, adding new regulations forcing pharmacists to serve as enforcers of laws. This variable aims to measure the extent to which the institutional locus of the problem has shifted greater responsibilities to medical institutions in managing opioid misuse in a given state.

#### *Control Variables*

One control variable was included in this analysis: party control of the State Legislature. This variable is included to control for the impact of political climate. Data for the party control of the State Legislature was gathered from Ballotopedia and was coded as follows:

0=Republicans control senate and house 1=Democrats control senate or house (or split)

2=Democrats control both senate and house.

#### *Findings*

Model 1 and Model 2 highlight why Good Samaritan and Naloxone laws diffuse, while Model 3 and Model 4 address the question of why their diffusion patterns are different.

**Table 5. Event-History Analysis of Naloxone and Good Samaritan Laws with Realist and Race & Class Variables, 2000-2016 for the 50 United States and the District of Columbia**

|                                   | Model 1                 |                       | Model 2                 |                       |
|-----------------------------------|-------------------------|-----------------------|-------------------------|-----------------------|
|                                   | b – Good Samaritan (SE) | b - Naloxone (SE)     | b – Good Samaritan (SE) | b- Naloxone (SE)      |
| <b>Independent Variables</b>      |                         |                       |                         |                       |
| <i>Realist Variables</i>          |                         |                       |                         |                       |
| State Fatal Overdose Rate         | 0.136 ***<br>(-0.048)   | 0.168 ***<br>(-0.023) | 0.152 ***<br>(-0.045)   | 0.173 ***<br>(-0.029) |
| Media Attention                   | 0.06 ***<br>(-0.008)    | 0.087 ***<br>(-0.007) | -                       | -                     |
| <i>Race &amp; Class Variables</i> |                         |                       |                         |                       |
| White                             | -                       | -                     | 0.623 ***<br>(-0.086)   | 0.51 ***<br>(-0.122)  |
| Middle Class                      | -                       | -                     | 0.706 ***<br>(-0.163)   | 0.885 ***<br>(-0.146) |
| Pseudo R <sup>2</sup>             | 0.3813                  | 0.5285                | 0.3397                  | 0.5488                |
| N                                 | 864                     | 864                   | 864                     | 864                   |

\*p < .05, \*\* p < .01, \*\*\* p < .001

Model 1 tests hypotheses 1 and 2, looking at whether realist factors predict the passage of Naloxone and Good Samaritan laws. State fatal overdose rates and national media attention are used to test whether fatal overdose prevention laws are passed in response to an actual or perceived increased in fatal opioid overdoses. In this model, increased state fatal overdose rates significantly increase the probability of passing a Naloxone or a Good Samaritan law (but this effect lessens to some extent in all of the following models). Consequently, we fail to reject (p<.001) hypothesis 1, which stated that fatal overdose prevention laws diffuse because more people are overdosing. Model 1 also demonstrates that increased national media attention

increases the probability of a state enacting either law. As a result, we also fail to reject hypothesis 2 ( $p < .001$ ), which stated that fatal overdose prevention laws diffuse because the public is more aware of the problem (and the possible solutions). Additionally, even in Model 1 there are key differences between Naloxone and Good Samaritan laws. While variables are significant for both laws, state fatal overdose rates and national media attention are stronger predictors of the passage of a Naloxone law than a Good Samaritan law. This model also fits the Naloxone law (Pseudo  $R^2 = .5285$ ) better than the Good Samaritan law (Pseudo  $R^2 = .3813$ ).

Model 2 adds race and class based variables to Model 1, testing hypothesis 5. This model removes the national media attention variable, instead focusing on the specific racial and class-based characterizations of these laws in the national media. In this model, the number of news articles on Good Samaritan/Naloxone (depending on the dependent variable of the regression) laws in a year that characterize users as white or not poor were used to test whether fatal overdose laws diffused because these laws are seen as protecting whiter and more affluent populations from fatal overdoses. For both Naloxone laws and Good Samaritan laws, imagery of opioid users as whiter and more affluent was significant in predicting the passage of these laws. As a result, we fail to reject hypothesis 5 ( $p < .001$ ), which stated that fatal overdose prevention laws diffuse because the drug using population is growing whiter and more affluent. This trend holds in the full model, Model 4. While there are no significant differences here between the models for Good Samaritan and Naloxone laws, once again this model fits Naloxone laws (Pseudo  $R^2 = .5488$ ) better than Good Samaritan laws (Pseudo  $R^2 = .3397$ ). Similarly, this model does not fit Good Samaritan laws as well as Model 1 (Pseudo  $R^2 = .3397$  in Model 2 vs. Pseudo  $R^2 = .3813$  in Model 1), suggesting that race motivations may not explain the passage of Good

Samaritan laws as well as they do for Naloxone laws (Pseudo R2=.5488 in Model 2 vs. Pseudo R2=.5285 in Model 1).

**Table 6. Event-History Analysis of Naloxone and Good Samaritan Laws with All Variables, 2000-2016 for the 50 United States and the District of Columbia**

|  | Model 3                          |                             | Model 4                       |                            |
|--|----------------------------------|-----------------------------|-------------------------------|----------------------------|
|  | b –<br>Good<br>Samaritan<br>(SE) | b -<br>Naloxon<br>e<br>(SE) | b – Good<br>Samaritan<br>(SE) | b-<br>Naloxon<br>e<br>(SE) |
| <b>Independent Variables</b>                                 |                                  |                             |                               |                            |
| <i>Realist Variables</i>                                     |                                  |                             |                               |                            |
| State Fatal Overdose Rate                                    | 0.107 ***<br>(-0.037)            | 0.154 *<br>(-0.064)         | 0.102 ***<br>(-0.038)         | 0.152 *<br>(-0.066)        |
| <i>Race &amp; Class Variables</i>                            |                                  |                             |                               |                            |
| White  | 0.534 ***<br>(-0.098)            | 0.756 ***<br>(-0.148)       | 0.576 ***<br>(-0.102)         | 0.854 ***<br>(-0.139)      |
| Middle Class   | 0.512 ***<br>(-0.172)            | 1.93 ***<br>(-0.666)        | 0.594 ***<br>(-0.18)          | 2.165 ***<br>(-0.751)      |
| <i>Institutional Variables</i>                               |                                  |                             |                               |                            |
| Medical Marijuana State Prescription Drug Monitoring Program | 1.617 ***<br>(-0.399)            | 0.815 *<br>(-0.815)         | 1.393 ***<br>(-0.456)         | 0.497<br>(-0.519)          |
|  | 2.285 ***<br>(-0.774)            | 0.895<br>(-0.782)           | 2.259 ***<br>(-0.737)         | 0.899<br>(-0.698)          |
| <b>Control Variables</b>                                     |                                  |                             |                               |                            |
| Control of the State Legislature                             | -                                | -                           | 0.297<br>(-0.282)             | 0.535<br>(-0.349)          |
| Pseudo R <sup>2</sup>  | 0.4289                           | 0.5385                      | 0.4313                        | 0.5467                     |
| N  | 864                              | 864                         | 847                           | 847                        |

\* $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Model 3 and Model 4 test hypotheses 3 and 4 by adding social institutional variables into the model. The one difference between these two models is that Model 3 does not control for any variables, while Model 4 controls for both the state legislature composition. The legal status of medical marijuana is used to test hypothesis 4, which states that fatal overdose laws diffuse because the definitional locus of the problem (as evidenced by policy precedents) is shifting from drug use as crime to drug use as medicine. The presence of a state Prescription Drug Monitoring Program is used to test hypothesis 4, which states that fatal overdose prevention laws diffuse because the institutional locus of the problem (as evidenced by policy precedents) is shifting from the criminal to the medical. Both the legal status of medical marijuana and the presence of a state Prescription Drug Monitoring Program are significant ( $p < .001$ ) in predicting the diffusion of Good Samaritan laws. In contrast, the legal status of medical marijuana is barely significant ( $p < .05$ ) for Naloxone laws in Model 3, and not significant at all in model 4. The presence of a state Prescription Drug Monitoring Program is not significant in either Model 3 or Model 4 for Naloxone laws. Similarly, Model 3 and Model 4 do not fit Naloxone laws as well as the previous models with a pseudo  $R^2$  of .5385 and .5467 compared to an  $R^2$  of .5488 in Model 2; this also suggests that adding institutional variables does not significantly help explain the passage of Naloxone laws.

The differences in these models for Good Samaritan and Naloxone laws help explain why the diffusion patterns of Good Samaritan and Naloxone laws differ. Good Samaritan laws work to shift the definitional and institutional loci of the problem, thus the significance of institutional variables and the more limited diffusion. In contrast, Naloxone laws are already within the purview of medical institutions, thus the more widespread diffusion. Consequently, we can fail to

reject hypotheses 3 and 4 ( $p < .001$ ) for Good Samaritan laws, while rejecting hypotheses 3 and 4 ( $p > .001$ ) for Naloxone laws.

### ***Discussion and Conclusion***

#### *Why Do Fatal Overdose Prevention Laws Diffuse?*

Generally, realist and race variables explain why both Good Samaritan and Naloxone laws diffuse. While realist variables explain more of the diffusion of Naloxone laws rather than Good Samaritan laws, it holds that overdose rates are integral in understanding the rise of these interventions. Increases in rates of fatal overdoses is a discrete problem that needs to change in a measurable way. Naloxone and Good Samaritan laws appear to be a logical, quick, and seemingly effective solution to address this problem – a rational response to the problem at hand. Clearly, realist theories of diffusion help explain the passage of fatal overdose prevention laws – following the logic of many other kinds of laws tested by this theory. Similarly, the race variables used provide an opportunity to explain why both Naloxone and Good Samaritan laws have diffused. Race variables account for unexplained variation and insufficient explanations from the other theoretical frameworks for why fatal overdose laws diffuse. The race variables answer two crucial questions to which realist and institutional theories cannot provide a satisfying answer: “why pass these laws now and not before?” and “why has the institutional locus shifted to that of a medical rather than a criminal?” The significance of the race variables supports evidence found by other scholars that lawmakers pass laws with a target population in mind and that the diffusion of policy is influenced by information connecting targets to goals (Schneider & Ingram 1993; Schneider & Ingram 2005; Mossberger 2000).

More importantly, race and class based explanations address questions that institutional arguments cannot sufficiently answer – namely, why the institutional locus has shifted. Institutions are racialized, as evidenced by the disparate ways that different social groups are served by these institutions. In this case, race and class based inequalities help us understand the conditions under which institutional domains will expand or contract. When there is a perception that institutions are failing whiter and wealthier individuals, then they are more likely to alter existing institutional arrangements. Consequently, this analysis provides evidence that institutional domains will expand or contract to benefit whites because of the racialization of institutions. In this case, the perception that individuals struggling with opioid use are whiter or more affluent is significantly related to the diffusion of Good Samaritan laws, which significantly change existing institutional arrangements.

This also provides an opportunity to quantitatively test claims that have been made by race scholars in relation to the War on Drugs since the 1970s. The increase in probability of the passage of overdose prevention laws suggests a similar, yet different, phenomenon is occurring as opposed to previous drug policies that criminalized users. While scholars previously made the argument that drug policy is used as a tool of racialization, this analysis adds nuance. Instead of tools of racialization, opioid overdose prevention laws are tools of social protection. When whites are dying from overdoses and affected by addiction, there is an increased interest in changing drug policies.

#### *Why do Fatal Overdose Prevention Laws Diffuse Differently?*

The main difference in the diffusion of Good Samaritan and Naloxone laws can be explained by the institutional variables. Foremost, institutional variables are only significant for the Good Samaritan model. These results show that while realist explanations and race and class



based explanations do explain some of the variability of adoption, institutional explanations are just as significant in understanding policy changes. Realist explanations and race and class based explanations, while they definitely play a role, are unable to account for differences in the diffusion of Naloxone and Good Samaritan laws. While Naloxone and Good Samaritan laws are frequently placed together in popular media, political discussions, and informational materials, they change institutions in unique ways. While Naloxone laws increase access to a health intervention, Good Samaritan laws limit the range of options that law enforcement has to deal with opioid users. Similar to the case of pharmacists, they force law enforcement into roles traditionally occupied by medical professionals. These very different ways that overdose prevention laws affect institutions are directly related to the willingness of policymakers to adopt one or both of these interventions.

Institutional strength does not matter that much if you are expanding a health intervention to address a health problem. For at least the past 100 years, health institutions have primarily had the responsibility and intention of keeping people alive. But institutional strength does matter if you're challenging institutional arrangements and trying to expand the institutional locus of control into another domain. The fact that medical marijuana was only significant for Good Samaritan laws shows that changes in the definitional locus on the problem and institutional locus of the problem do not necessarily occur together. Because this variable is not significant, it shows that Good Samaritan laws are not merely another iteration of decriminalization and a changing understanding of how we should deal with drug use. Instead, it suggests these laws are more so related to the institutional basis of the problem. These laws do not represent an overall definitional locus shift in how we are approaching drug policy in the United States, but rather that the definitional changes occurring are related to their institutional basis. Good Samaritan

laws are policies governing drug misuse, not just policies that decriminalize use. So if you're going to redefine drug crime as drug misuse, there has to be some institutional basis for this regardless of who is being affected or how bad the epidemic is.

Referring back to the history of opioid use as detailed in Table 1, it makes sense that the solution to the problem is grounded in the same institution. When initiation into opioid use was on the street and associated with criminals, criminal justice institutions responded. The abstract logics of what is an opioid, who is an opioid user, and where opioids are obtained shifted well before increases in overdoses or the passage of these laws. Today's opioid involved in the initiation of drug addiction is prescription opioids, the users are whites that have access to healthcare, and these opioids are obtained from a pharmacy as opposed to on the street (Cicero, Ellis, and Surratt 2014). This argument is strengthened by findings that even when nonwhites have access to doctors, they are significantly less likely to be prescribed opioids (Green et al. 2007). In contrast, whites and more affluent individuals are significantly more likely to be prescribed opioids in the long term (Kuo et al. 2016). This means that even once users begin to switch to heroin and move to the street, the institutional initiation into opioid use was medical. The existence of a Prescription Drug Monitoring Program (PDMP) in a state is an acknowledgement of the role of medical institutions in this new wave of opioid use, and this is what gives medical institutions power to pass Good Samaritan laws. The changing nature and logic of the law follows from the changing nature and definition of the problem. The medicalization of the drug and the purveyors happens before the medicalization of the laws.

While these laws affect institutions differently, they serve the same function of shifting the conceptualization of addiction from a legal/criminal justice issue to that of a medical issue. Naloxone laws expand the locus of responsibilities and acceptable interventions by the medical

professions. These laws do not only encourage medical professions to treat overdoses, but also expand the treatment of drug use as a medical issue by providing a health intervention on the community and individual level. Consequently, it is not surprising that institutional variables do not explain the passage of Naloxone laws. Naloxone laws do not create more institutional conflict, but rather expand the domain of medicine in the treatment of addiction. Good Samaritan laws serve a similar function, but accomplish the primacy of medical institutions by scaling back criminal intervention in addiction issues. This directly conflicts with the previous approaches taken to deal with opioid use and addiction.

### ***Conclusion***

There are three key implications arising from this work. The first is that while realist explanations and institutional explanations can account for much of why policy change occurs, race and class based explanations can answer key questions these perspectives cannot sufficiently address. This study addresses frequent critiques of institutional theory through answering “why is policy change occurring now, rather than at a previous time?” and “why is the institutional locus of control over a social problem changing?” The second is that while traditional explanations for social change commonly highlight social movement, racial, and political factors more attention must be paid to institutional conflicts and the ways in which they direct/affect change. The final is that more attention must also be paid to the relationship between the definition of a problem, a problem’s institutional bases, and the proposed solutions.

Through looking at the specific case of overdose prevention laws and why Naloxone and Good Samaritan laws diffuse differently this chapter generally considers the question of why laws diffuse and why laws that serve different functions (i.e. criminalize vs. medicalize vs. decriminalize) diffuse differently. This chapter tests realist explanations, race and class based

explanations, and institutional explanations for the proliferation and differential diffusion of overdose prevention laws. The results of this event history analysis expand upon the diffusion literature to highlight how race and class based explanations and institutional explanations can be improved to better explain diffusion dynamics. Future research could expand upon the theoretical ideas developed here by testing other policies, taking into account the ways in which policies create institutional conflicts and change institutions.

## **Chapter 4 - The Diffusion of Methadone and Buprenorphine Treatment**

### ***Introduction***

Chapter 3 elucidates the legal context of medicalization – highlighting the ways in which Naloxone and Good Samaritan laws shift the conceptualization of addiction from a legal/criminal justice issue to that of a medical issue. Naloxone and Good Samaritan laws alter the abstract institutional logics, further pushing drug addiction into the domain of medical professionals and removing some power from law enforcement. It is under this burgeoning medicalized legal regime in which medicalized drug treatment diffuses, including methadone, buprenorphine, and treatment for co-occurring disorders. Chapter 4 examines the diffusion of medication-assisted treatment, specifically methadone and buprenorphine. I address three questions: 1) How has the availability of methadone and buprenorphine treatment changed since 2000? 2) What factors are associated with a drug treatment facility offering methadone and buprenorphine? 3) Do factors predicting the availability of methadone and buprenorphine vary over time or by type of treatment? This chapter elucidates how medication-assisted treatment has diffused among all regions and among all treatment types. Still, even as accessibility to methadone and buprenorphine has improved, this form of treatment is still more accessible in urban areas than in rural contexts. Finally, there is more diffusion of buprenorphine than there is of methadone treatment, a trend that is best explained theoretically by the racialization of institutions.

The diffusion of methadone and buprenorphine treatment highlights the broader trend of the medicalization of drug addiction. Both methadone and buprenorphine are distinctly medicalized drug treatments. Facilities that offer these treatments are ones that rely heavily on evidence based interventions in their treatment protocols. Other facilities that are likely to offer

methadone and buprenorphine are those in large, urban cities where the effectiveness of these drugs was first researched and there is substantial organizational support for these services; examples of these cities include Los Angeles, New York City, Seattle, and Chicago. Still, in some ways, these are controversial treatments. For instance, “old-timers” who got sober cold-turkey through Narcotics Anonymous often criticize medication-assisted treatment as “not really being clean”, since methadone and buprenorphine are opioid agonists. It is important to note that medication-assisted treatment is not inherently at odds with the values or practices of 12 step programs and many individuals use both forms of support. Still, these dynamics highlight how medication-assisted treatment may not match with every single organization’s addiction treatment ideology. In treatment centers with a heavy religious or 12 step focus, it is significantly less likely that methadone or buprenorphine are used as treatment modalities. Instead, the focus at these facilities is more on the role of social support, spirituality, and personal growth as the means of treating addiction.

While both methadone and buprenorphine are opioid based forms of medication-assisted treatment, there are a few key differences to note related to the institutional context of each treatment. Methadone treatment has to be dispensed through an opioid treatment program, mainly methadone clinics. Methadone clinics are places of intense surveillance. Patients are provided methadone from behind plexiglass shields and methadone is kept in locked containers, with machines that precisely dole out doses. Patients are watched as they take their dose, ensuring that they do not save it for later to sell on the black market. There is then some short period (20 minutes maximum) of monitoring the patient post-dosing. The majority of patients have to visit clinics daily to take their medication, as it is at the discretion of the methadone clinic to determine when the benefits of a patient receiving take home doses exceeds the risks.

Even the federal guidelines on methadone take-home doses are much more stringent than buprenorphine, with patients not being able to obtain two weeks worth of take home doses until they have been on methadone for over a year.

In contrast, while buprenorphine is offered at some opioid treatment programs, it can also be prescribed or dispensed in physician offices. Unlike methadone, any doctor or physicians assistant can dispense buprenorphine as long as they take an 8 hour DEA training course. Patients are able to get take home doses of buprenorphine much quicker, with patients being able to obtain two weeks worth of take home doses after 30 days of treatment. As such, buprenorphine is not associated with the same levels of surveillance and social control as methadone is.

These institutional contexts are important because institutions are both racialized and approach problems in different ways depending on the group that is impacted. When institutions are approaching a problem associated with minority groups, solutions involve high levels of monitoring, evaluation, and control – whether that is in the setting of a prison or a methadone clinic. In contrast, when these same issues are impacting white and wealthy populations, there is a much different approach. Both drugs and health have been racialized, having significant institutional consequences. Health and healthcare are racialized, as healthcare is a “white” institution. This means that whites are the most likely to not only have healthcare, but to have quality healthcare where their health needs are taken seriously and addressed sufficiently by practitioners who are socially similar to them (Fiscella and Sanders 2006). This is especially true in the case of privately owned facilities that are more accessible to white and wealthy individuals. This racialization can also help explain why having a program for clients involved with criminal justice becomes less negatively associated with medication-assisted treatment over

time. Similar to Good Samaritan laws, which undercut the long-term dominance of the criminalizing institutional structures because more white individuals are experiencing substance use issues, medicalized drug treatment becomes more accessible for individuals involved in the criminal justice system for the same reason.

## ***Methodology***

### *Data and Sample*

The data for this project comes from the National Survey of Substance Abuse Treatment Services, which is administered by the United States Department of Health and Human Services Substance Abuse and Mental Health Services Administration. The time range of this analysis spans from 2000 to 2019, with yearly facility-level, cross-sectional data for each year other than 2002, when the survey was not administered. In any given year, the response rate to this survey is >93% and consequently covers nearly all reputable, licensed drug treatment centers in the United States. Facilities that only use medication-assisted treatment for detoxification will be removed from the sample, as these facilities do not use medication-assisted treatment as a long-term sobriety tool. There are a few limitations to my data. Given the fact that the data is pooled cross-sectional data, I cannot make any statements about causality.

For the purposes of this analysis, I will use data from the years 2000, 2010, and 2019. This allows for a comparison in how drug treatment changes in relation to more macro-changes. For example, 2000 was before any Naloxone Access or Good Samaritan laws were passed, and before significant increases in overdose rates. According to the CDC, the more recent opioid epidemic began in 2010, and this was also the year that the Affordable Care Act was passed – both factors that could be expected to increase the demand for drug treatment. Finally, as of



2019, all states have Naloxone Access laws and >80% of US states have Good Samaritan laws. Consequently, much can be gained by comparing descriptive and inferential statistics between these three periods.

### *Dependent Variables*

There are two dependent variables in this analysis, both of which capture medication-assisted treatment approaches to addressing opioid addiction: whether a treatment center has a methadone program and whether a treatment center has a buprenorphine program. Each variable is dichotomous, coded 0 when this form of treatment is not available at a facility and 1 when it is available.

### *Independent Variables*

**Realist Variables:** To test the hypothesis that the problem of drug addiction is becoming a more pressing issue, I operationalize one variable: the state-level overdose rate. State overdose rate data comes from the Centers for Disease Control and Prevention, National Center for Health Statistics Multiple Cause of Death Files, 1999- 2019, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program.

**Institutional Variables:** I operationalize two variables from the NS-SATS survey to test the extent to which the definitional and institutional locus of the problem of drug addiction has shifted to that of a medical issue rather than a criminal issue: whether a facility accepts medicaid and whether public funds are received by a facility. Both variables capture the extent to which institutional support from the state is associated with increased access to medicalized treatment. Additionally, these variables examine the extent to which medicalized drug treatment is diffusing

among and associated with individuals who are in poverty. Each variable is dichotomous, coded 0 when the characteristics are absent from facilities and 1 when it is available.

**Racialization of Institutions Variables:** I operationalize two variables from the NS-SATS survey to test the extent to which medicalized drug treatment diffused because the drug-using population is growing whiter and more affluent: whether a facility is privately owned and whether there is a program for criminal justice-involved clients. Privately owned facilities are significantly more likely to serve whiter and wealthier clients (McBride et al. 2012; McKim 2017; Wheeler and Nahra 2000). In contrast, criminal justice-involved clients are significantly more likely to be Black, Latino, or poor (McKim 2017; Wheeler and Nahra 2000). These two variables reflect the racialization of institutions: when whiter and wealthier clients struggle with drug addiction they go to private drug treatment facilities, while when non-white and poorer clients struggle with drug addiction they get arrested. Each variable is dichotomous, coded 0 when the characteristics are absent from facilities and 1 when it is available.

### *Statistical Analysis*

**Descriptive Statistics:** I examine a wide range of descriptive statistics, including frequency, means, and chi-square tests (by treatment type) for all variables. I used chi-square tests to see whether there were statistically significant differences between treatment centers with medicalized treatment and those without. Comparisons between years (2000, 2010, 2019) show how these organizational characteristics have changed or remained associated with medicalized drug treatment over time.

Given that drug treatment is not equally distributed by population or among states in the US, I also looked at how treatment is distributed geographically over time. This is incredibly

important, especially given work that has highlighted how many rural areas lack access to drug treatment (Borders and Booth 2007; Oser et al. 2011). Similarly, many people travel to other states to attend drug treatment, which means that resources only within their communities may not always be the most relevant in understanding how access has changed.

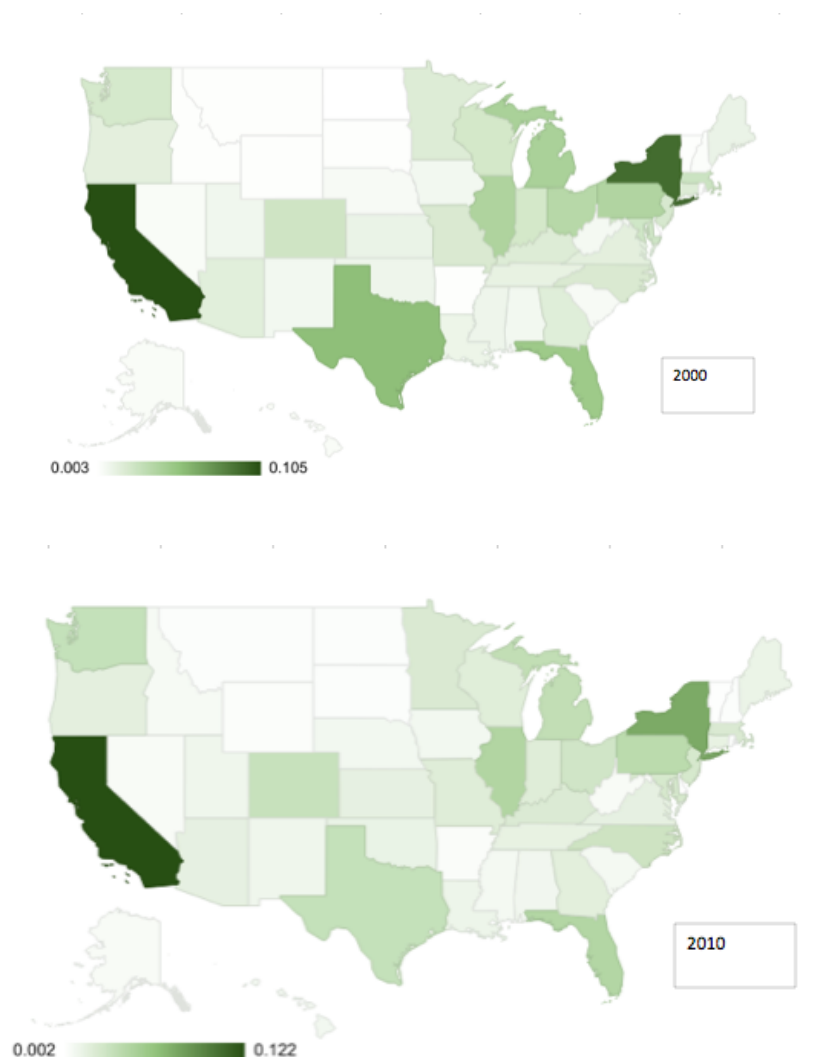
Through looking at trends in the places with the most and least amount of drug treatment, it becomes clearer the extent to which medicalized treatment has diffused in the places where the greatest number of individuals will access drug treatment. At the same time, even among states with limited access, this provides more data about the ways in which services change in these contexts – helping answer whether they also become increasingly isomorphic towards medicalized drug treatment or rather if they just expand non-medicalized options. More simply, looking at these various state contexts allows a more nuanced answer to the extent to which medicalized drug treatment has become more common.

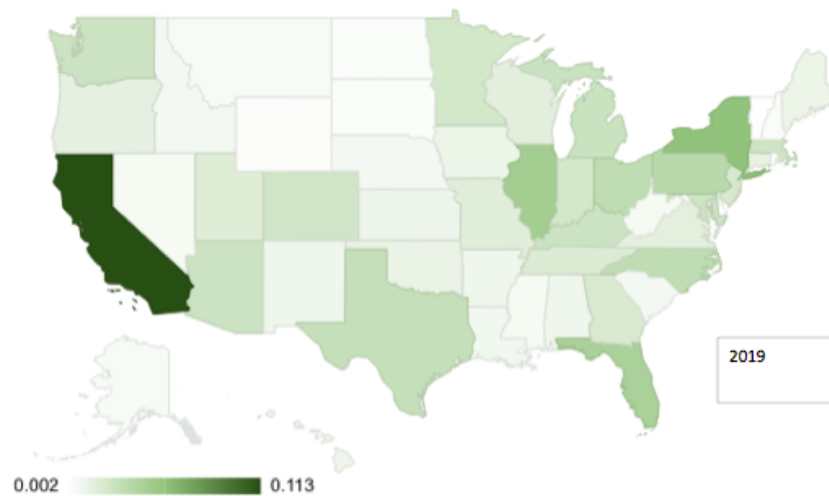
Models: For each kind of treatment – methadone and buprenorphine – I run four logistic regression models: a model for the year 2000, 2010, 2019, as well as a full model merging data from all 3 years, with the year as an independent variable. For the years 2000, 2010, and 2019, I also ran these models in states with a high proportion of all drug treatment, and models in states with a high overdose rate and a high proportion of drug treatment. The purpose of this was to get a better sense of how well models can explain trends in drug treatment within different contexts. This also allows for a better sense of how well these models fit, as the models in states with a high proportion of drug treatment can estimate the availability of drug treatment in areas where people are most likely to travel to attend treatment and/or where there is sufficient state- and community-level support for drug treatment.

West Virginia, for example, would not be an interesting place to quantitatively assess because, despite high rates of fatal overdoses, it has had little change or expansion of the already few services available in the state. I am not interested in studying these trends, but rather estimating more generally trends in drug treatment. These models also allow for natural comparisons. Are there similar trends in drug treatment in states with a high proportion of drug treatment or in states with high overdose rates? Or, are these things more loosely coupled?

**Results**

*Geographic Distribution of Drug Treatment*





**Figure 6. Geographic Distribution of Drug Treatment Centers, 2000-2019**

**Table 7. States with the Greatest Proportion of Drug Treatment in the US 2000, 2010, and 2019**

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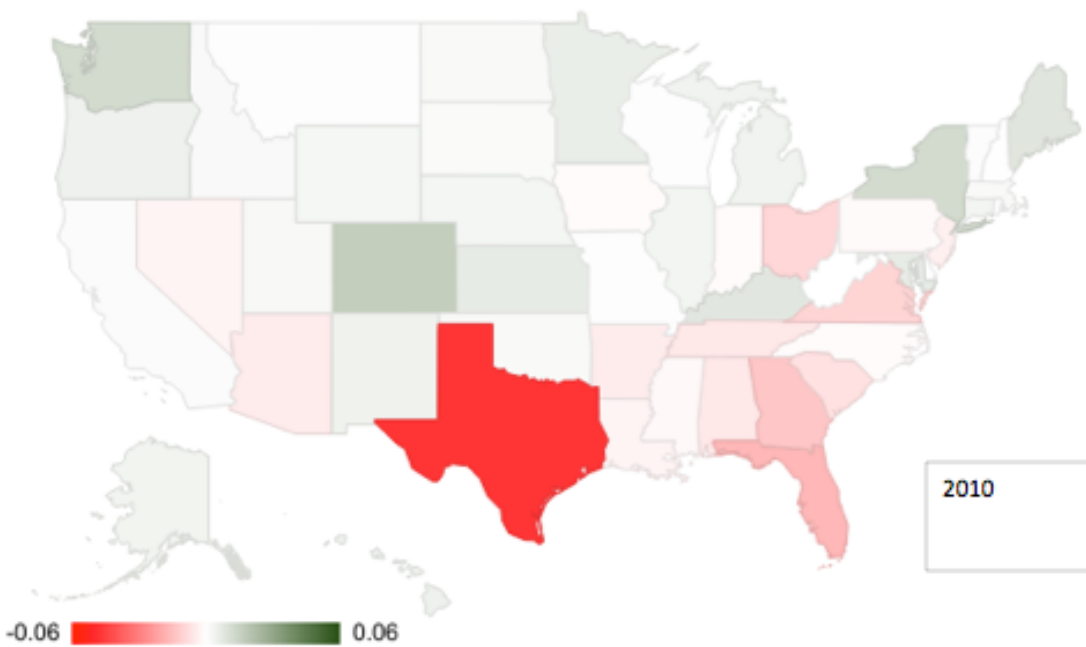
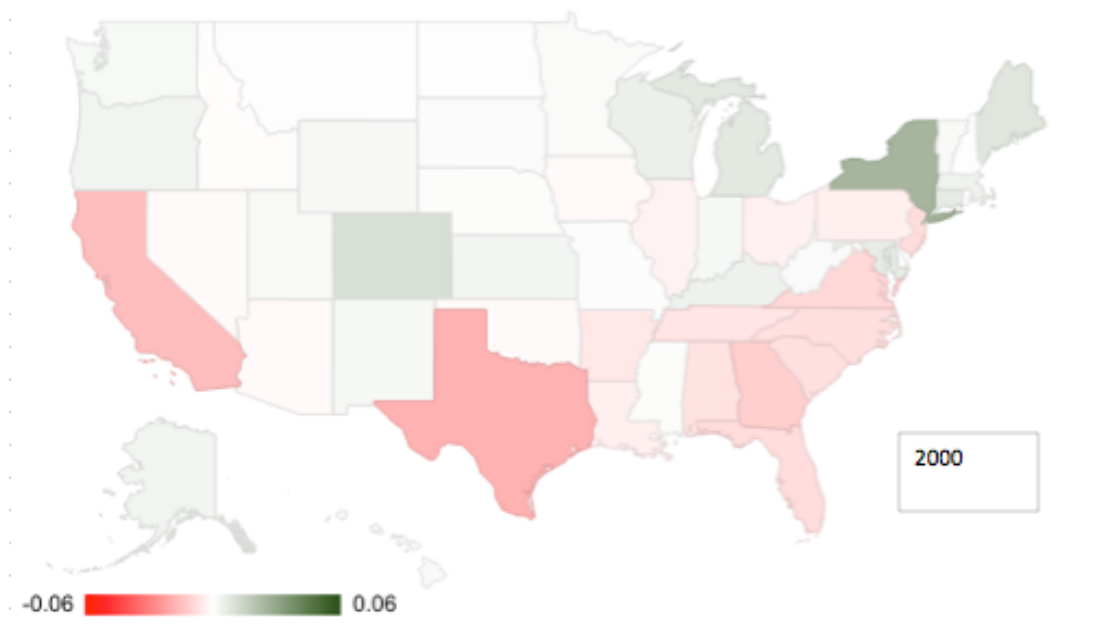
| <i>Top 10 States by % of Total Drug Treatment Facilities in 2000</i> | <i>N</i> | <i>% of Total Facilities</i> |
|--|----------|------------------------------|
| California   | 1,413    | 10.50%                       |
| New York   | 1,236    | 9.20%                        |
| Texas  | 747      | 5.60%                        |
| Florida  | 652      | 4.90%                        |
| Michigan   | 573      | 4.30%                        |
| Illinois   | 551      | 4.10%                        |
| Pennsylvania   | 532      | 4.00%                        |
| Ohio   | 500      | 3.70%                        |
| Massachusetts  | 362      | 2.70%                        |
| Colorado   | 350      | 2.60%                        |

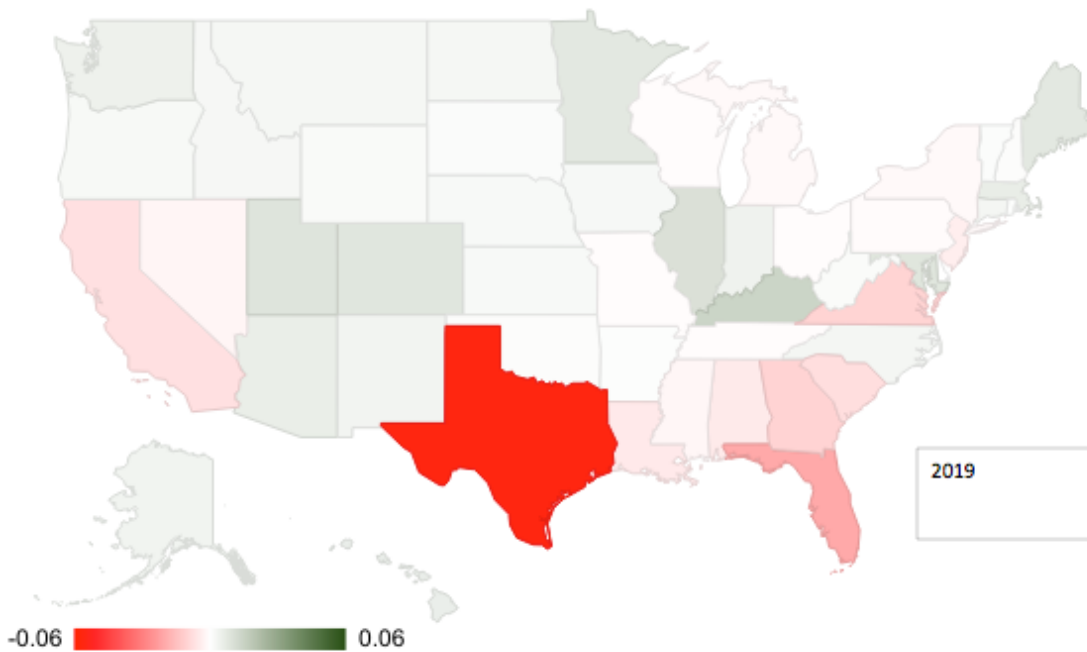
| <i>Top 10 States by % of Total Drug Treatment Facilities in 2010</i> | <i>N</i> | <i>% of Total Facilities</i> |
|--|----------|------------------------------|
| California   | 1,626    | 12.20%                       |
| New York   | 1,000    | 7.50%                        |
| Illinois   | 606      | 4.50%                        |
| Florida  | 593      | 4.40%                        |

|                |     |       |
|----------------|-----|-------|
| Pennsylvania   | 533 | 4.00% |
| Michigan       | 475 | 3.60% |
| Washington     | 455 | 3.40% |
| Texas          | 454 | 3.40% |
| Colorado       | 437 | 3.30% |
| North Carolina | 400 | 3.00% |

| <i>Top 10 States by % of Total Drug Treatment Facilities in 2019</i> | <i>N</i> | <i>% of Total Facilities</i> |
|--|----------|------------------------------|
| California   | 1,797    | 11.30%                       |
| New York   | 925      | 5.80%                        |
| Illinois   | 775      | 4.90%                        |
| Florida  | 725      | 4.50%                        |
| Pennsylvania   | 600      | 3.80%                        |
| Ohio   | 554      | 3.50%                        |
| North Carolina   | 552      | 3.50%                        |
| Texas  | 512      | 3.20%                        |
| Michigan   | 467      | 2.90%                        |
| Washington   | 452      | 2.80%                        |

Figure 6 and Table 7 show how drug treatment is not equally distributed among states. A few states have the majority of drug treatment facilities during all three periods: California (> 10%), New York (> 5%), Illinois (> 4%), Florida (> 4%), and Pennsylvania (>4%). The other states consistently falling in the top 10 states by percentage of total drug treatment facilities include: Texas, Michigan, Pennsylvania, Ohio, Massachusetts, Colorado, Washington, and North Carolina. While, predictably, states with the largest populations have the largest proportion of all drug treatment. This, though, does not always mean that they have drug treatment facilities proportional to their state population. This becomes even more important to examine given that many high proportion treatment center states – such as California, New York, and Florida – are popular treatment destinations (Gross 2007).





**Figure 7. Percentage Difference Between Proportion of Treatment and Proportion of Population, 2000-2019**

Figure 7 highlights the percent difference between the percentage of treatment centers within a state and the percentage of the total population of the US. During all years examined, treatment availability is most proportional to state population size in the Northeast, while there are the biggest gaps in availability versus population in the South. The flagrant difference between the Northeast and the South becomes starker over time; gaps in treatment access increase among many Southern states between 2000 and 2019, while gaps in treatment access decrease among many states in the Northeast. Figure 7 also shows how many states with a low number of drug treatment facilities, such as Wyoming or North Dakota, often have facilities proportional to their populations despite limited access to some of the three treatment options examined below.



*Drug Treatment Characteristics*

**Table 8. Frequency of Medication-Assisted Treatment Outcome Variables 2000, 2010, and 2019**

| <b>2000</b>                |          |          |                                      |
|----------------------------|----------|----------|--------------------------------------|
| <b>Dependent Variables</b> | <b>%</b> | <b>N</b> | <i>Range of Facilities per State</i> |
| Methadone                  | 9.04%    | 1,215    | 0 - 247 Facilities                   |
| Buprenorphine              | -        | -        | -                                    |
| Full Sample                | 13,425   |          |                                      |
| <b>2010</b>                |          |          |                                      |
| <b>Dependent Variables</b> | <b>%</b> | <b>N</b> | <i>Range of Facilities per State</i> |
| Methadone                  | 11.81%   | 1,522    | 0 - 222 Facilities                   |
| Buprenorphine              | 8.42%    | 1,083    | 1 - 149 Facilities                   |
| Full Sample                | 13,339   |          |                                      |
| <b>2019</b>                |          |          |                                      |
| <b>Dependent Variables</b> | <b>%</b> | <b>N</b> | <i>Range of Facilities per State</i> |
| Methadone                  | 12.28%   | 1,959    | 0 - 210 Facilities                   |
| Buprenorphine              | 25.28%   | 4,034    | 5 - 488 Facilities                   |
| Full Sample                | 15,961   |          |                                      |

Table 8 provides an overview of how the availability of methadone and buprenorphine has changed between 2000, 2010, and 2019. Both forms of treatment have increased in the proportion of facilities offering them and in terms of total number of facilities offering them. The total number of drug treatment facilities increased from 13,425 in 2000 to 15,961 in 2019, with a small dip in the number of facilities (13,339) in 2010.

Still, we do not see the same rate of diffusion among both treatments. Despite being the newest form of medication-assisted treatment, buprenorphine is the most accessible form of

treatment. Every state has at least one treatment center offering buprenorphine. States with the greatest number of treatment centers offering buprenorphine have continued to increase the number of facilities in their states. Buprenorphine has more than tripled in availability since 2010, from only 8.42% of all facilities offering it in 2010 to 25.28% of all facilities offering it in 2019.

In contrast, we do not see the same kind of expansion among methadone. In all years, at least one state did not have access to any treatment centers offering methadone. Similarly, the states with the greatest number of treatment centers offering methadone decreased their number of facilities providing it from 2000 to 2010, and from 2010 to 2019. While 4,034 facilities offered buprenorphine in 2019, only about half as many (1,959) offered methadone. By 2019, the proportion of facilities offering methadone only increased by 3% and by 744 facilities compared to 2000, with up to 12.28% of all facilities and 1,959 facilities offering the treatment.

*Methadone Treatment Over Time*

**Table 9. Frequency and Means of Independent Variables By Treatment Centers Offering Methadone 2000, 2010, and 2019**

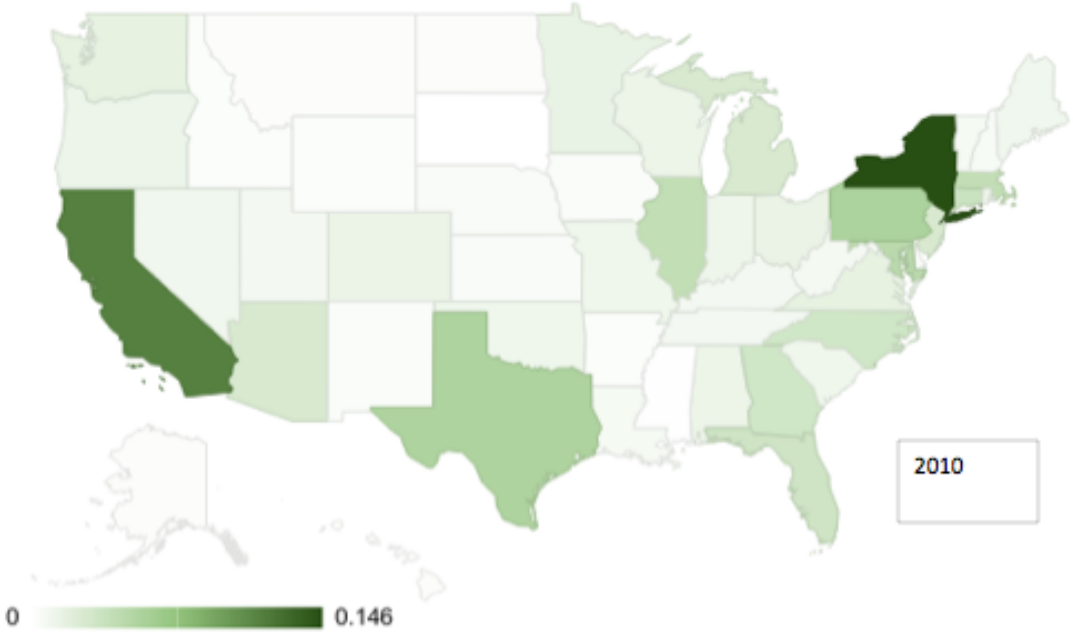
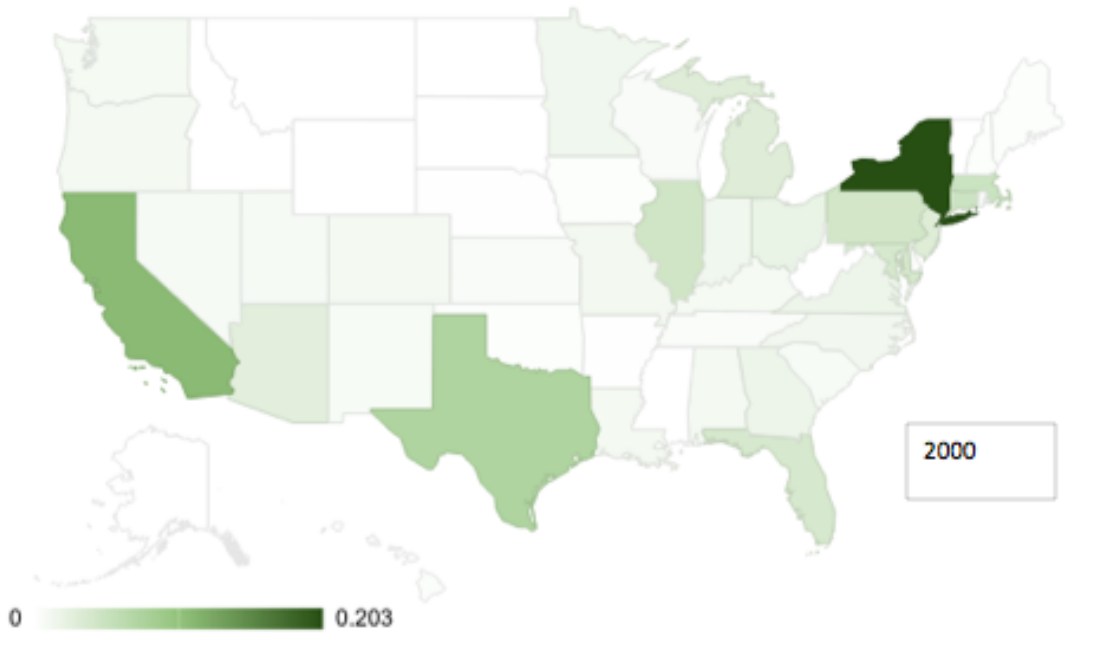
| <b>Independent Variables</b>                  | By Treatment Centers Offering Methadone |           |     |
|---|---|-----------|-----|
|   | <i>Yes</i>                              | <i>No</i> |     |
|   | <b>2000</b>                             |           |     |
| State Level Overdose Rate                     | 6.50                                    | 6.10      | *** |
| Medicaid Accepted                             | 68.06%                                  | 53.76%    | *** |
| Public Funds Received by Facility             | 53.57%                                  | 66.57%    | *** |
| Private Facility                              | 38.68%                                  | 24.64%    | *** |
| Program for Criminal Justice Involved Clients | 22.72%                                  | 39.07%    | *** |
| N   | 1,215                                   | 12,210    |     |
|   | <b>2010</b>                             |           |     |
| <b>Independent Variables</b>                  | <i>Yes</i>                              | <i>No</i> |     |
| State Level Overdose Rate                     | 11.54                                   | 12.09     | *** |

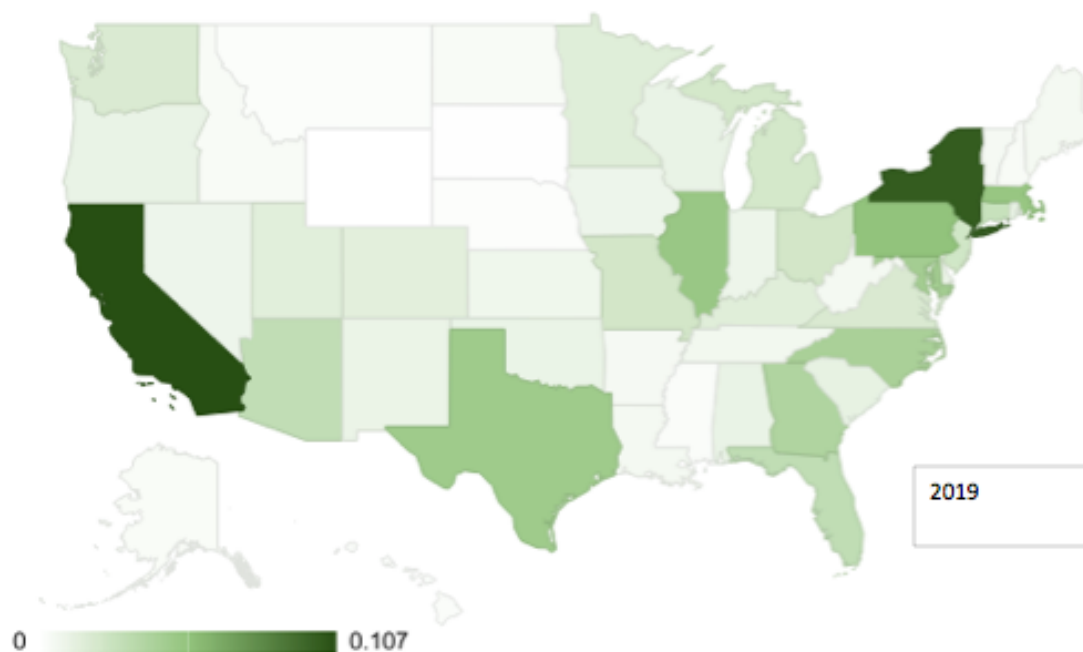
|   |            |           |     |
|---|------------|-----------|-----|
| Medicaid Accepted                             | 66.73%     | 54.71%    | *** |
| Public Funds Received by Facility             | 46.13%     | 63.55%    | *** |
| Private Facility                              | 45.66%     | 27.83%    | *** |
| Program for Criminal Justice Involved Clients | 21.28%     | 30.56%    | *** |
| N   | 1,522      | 11,809    |     |
| <b>2019</b>                                   |            |           |     |
| <b>Independent Variables</b>                  | <i>Yes</i> | <i>No</i> |     |
| State Level Overdose Rate                     | 22.49      | 21.41     | *** |
| Medicaid Accepted                             | 76.88%     | 67.41%    | *** |
| Public Funds Received by Facility             | 49.33%     | 54.42%    | *** |
| Private Facility                              | 55.74%     | 37.39%    | *** |
| Program for Criminal Justice Involved Clients | 28.14%     | 37.16%    |     |
| N   | 1,959      | 14,002    |     |

**Note: Asterisks compare facilities with each treatment type to facilities without each treatment type. \* p < .05, \*\* p < .01, \*\*\* p < .001**

Table 9 demonstrates how the characteristics of methadone treatment facilities have changed over time. It also presents results of chi-square tests examining whether there are significant differences between facilities with methadone treatment versus facilities without methadone treatment. Notably, treatment facilities offering methadone have significantly different characteristics from those not offering methadone. During all years examined, facilities that offer methadone were more likely to be private facilities and accept medicaid compared to facilities without methadone. While this was no longer true in 2019, facilities that offer methadone were less likely to have a program for criminal justice-involved clients compared to facilities without methadone in 2000 and 2010. Finally, there does not seem to be a clear relationship between whether a facility offers methadone and the state-level overdose rate; while facilities that offer methadone are in states that have, on average, slightly higher overdose rates in 2000 and 2019, the opposite is true in 2010.

*Geographic Distribution of Methadone*





**Figure 8. Geographic Distribution of Methadone Treatment, 2000-2019**

**Table 10. States with the Highest Proportion of Methadone Facilities in the US 2000,2010, and 2019**

| <i>Top 10 States by % of Total Methadone Facilities in 2000</i> | <i>N</i> | <i>% of Total Facilities</i> |
|---|----------|------------------------------|
| New York  | 247      | 20.33%                       |
| California  | 134      | 11.03%                       |
| Texas   | 90       | 7.41%                        |
| Massachusetts   | 59       | 4.86%                        |
| Connecticut   | 58       | 4.77%                        |
| Illinois  | 54       | 4.44%                        |
| Pennsylvania  | 52       | 4.28%                        |
| Florida/Maryland  | 47       | 3.87%                        |
| New Jersey  | 38       | 3.13%                        |
| Michigan  | 37       | 3.05%                        |

| <i>Top 10 States by % of Total Methadone Facilities in 2010</i> | <i>N</i> | <i>% of Total Facilities</i> |
|---|----------|------------------------------|
| New York  | 222      | 14.59%                       |
| California  | 175      | 11.50%                       |
| Pennsylvania  | 85       | 5.58%                        |
| Texas   | 82       | 5.39%                        |
| Maryland  | 71       | 4.66%                        |

|   |          |                              |
|---|----------|------------------------------|
| Illinois  | 63       | 4.14%                        |
| Massachusetts   | 62       | 4.07%                        |
| Connecticut   | 54       | 3.55%                        |
| Florida   | 50       | 3.29%                        |
| Ohio  | 48       | 3.15%                        |
| <hr/>   |          |                              |
| <i>Top 10 States by % of Total Methadone Facilities in 2019</i> | <i>N</i> | <i>% of Total Facilities</i> |
| California  | 210      | 10.72%                       |
| New York  | 198      | 10.11%                       |
| Pennsylvania  | 106      | 5.41%                        |
| Illinois  | 99       | 5.05%                        |
| Texas   | 93       | 4.75%                        |
| Maryland  | 89       | 4.54%                        |
| North Carolina  | 83       | 4.24%                        |
| Georgia   | 77       | 3.93%                        |
| Florida   | 61       | 3.11%                        |
| Arizona   | 60       | 3.06%                        |

Figure 8 and Table 10 present the geographic distribution of drug treatment facilities that offer methadone in the US. Figure 8 demonstrates how methadone has become less concentrated in states like California and Florida over time. Instead, by 2019, the percentage of methadone facilities in many of the southern states had increased significantly compared to 2000 and 2010. Table 10 reflects similar trends in the distribution of methadone in the US. Notably, while New York had 20.33% of all facilities offering methadone in 2000, by 2019 they only had 10.11% of these same facilities. In contrast, California, the other state with the greatest proportion of methadone treatment, has around 11% of all methadone facilities in all three years. Other states with a sizable proportion of all methadone facilities over time include Texas (> 4%), Illinois (> 4%), Maryland (> 4%), and Florida (> 3%). This shows that states with a high proportion of treatment facilities also have a high proportion of methadone facilities. The one exception to this is Maryland. Other states that rank in the top ten in terms of the proportion of treatment facilities offering methadone include many states in the Northeast (Massachusetts, Connecticut,

Pennsylvania, New Jersey), Michigan, Ohio, Illinois, Georgia, North Carolina, and Arizona.

**Table 11. States with the Least Access to Methadone in the US in 2000, 2010, and 2019**

| Top 10 States with the Least Access to Methadone in 2000 | N  | % of Facilities with Treatment |
|--|----|--------------------------------|
| Montana/North Dakota/South Dakota/Wyoming                | 0  | 0                              |
| Mississippi  | 1  | 0.70%                          |
| West Virginia  | 1  | 0.94%                          |
| Alaska   | 1  | 1.35%                          |
| Maine  | 3  | 1.69%                          |
| Idaho  | 1  | 1.82%                          |
| Vermont  | 1  | 2.08%                          |
| Oklahoma   | 3  | 2.13%                          |
| Nebraska   | 2  | 2.15%                          |
| Iowa   | 3  | 2.38%                          |
| Top 10 States with the Least Access to Methadone in 2010 | N  | % of Facilities with Treatment |
| South Dakota   | 0  | 0                              |
| Mississippi  | 2  | 2.00%                          |
| Hawaii   | 3  | 2.52%                          |
| Kansas   | 7  | 3.32%                          |
| Alaska   | 3  | 3.90%                          |
| Iowa   | 5  | 4.00%                          |
| Kentucky   | 12 | 4.10%                          |
| New Mexico   | 6  | 4.26%                          |
| Colorado   | 21 | 4.81%                          |
| Washington   | 25 | 5.49%                          |
| Top 10 States with the Least Access to Methadone in 2019 | N  | % of Facilities with Treatment |
| Wyoming  | 0  | 0                              |
| South Dakota   | 1  | 1.69%                          |
| Nebraska   | 3  | 2.29%                          |
| Hawaii   | 5  | 2.99%                          |
| Tennessee  | 13 | 4.15%                          |
| Montana  | 4  | 4.55%                          |
| Mississippi  | 5  | 4.55%                          |
| Indiana  | 18 | 4.58%                          |
| Idaho  | 7  | 5.65%                          |
| Maine  | 11 | 5.91%                          |

Table 11 shows how methadone access has increased even among states with the least access to methadone treatment. For example, in 2000, there were 5 states without even one facility that offered methadone: Montana, North Dakota, South Dakota, and Wyoming. By 2019, Wyoming was the only state without a facility offering methadone. Similarly, while in 2000, all of the states with a low percentage of facilities with methadone only had between one and three facilities with this treatment, by 2019 this number spanned from 1 to 18 facilities in the state. The threshold for the percentage that put a state in the bottom ten states for access to methadone also significantly changed during this period. While all of these states in 2000 had < 2.38% of their facilities offering methadone treatment, by 2019 these same bottom ten states had < 5.91% of their facilities offering methadone. States that consistently appeared on the bottom 10 for access to methadone list included states that are geographically isolated, such as Alaska and Hawaii; states in the mountain division, such as Wyoming and Idaho; and states in the Midwest, such as Nebraska and Kansas.

*Methadone Models*

**Table 12. Estimating Availability of Methadone Treatment in 2000, 2010, and 2019**

|   | 2000     |     | 2010     |     | 2019     |     | Full Model |     |
|---|----------|-----|----------|-----|----------|-----|------------|-----|
|   | <i>b</i> |     | <i>b</i> |     | <i>b</i> |     | <i>b</i>   |     |
| <b>Independent Variables</b>                        |          |     |          |     |          |     |            |     |
| <i>Rational Variables</i>                           |          |     |          |     |          |     |            |     |
| State Level Overdose Rate                           | 0.101    | *** | -0.045   | *** | 0.006    | *   | 0.004      |     |
| Year  | -        |     | -        |     |          |     | 0.001      |     |
| <i>Institutional Variables</i>                      |          |     |          |     |          |     |            |     |
| Medicaid Accepted Public Funds Received by Facility | 0.901    | *** | 0.796    | *** | 0.741    | *** | 0.801      | *** |
|   | -0.304   | *** | -0.430   | *** | 0.270    | *** | -0.114     | **  |



| <i>Racialization of Institutions Variables</i>                |        |     |        |     |        |     |        |     |
|---|--------|-----|--------|-----|--------|-----|--------|-----|
| Privately Owned Program for Criminal Justice Involved Clients | 0.727  | *** | 0.881  | *** | 1.104  | *** | 0.909  | *** |
|   | -0.799 | *** | -0.530 | *** | -0.464 | *** | -0.571 | *** |
| N   | 12,966 |     | 11,487 |     | 15,264 |     | 39,717 |     |
| Pseudo R2   | 0.0590 |     | 0.0551 |     | 0.0447 |     | 0.0477 |     |

Table 12 presents four models to estimate the availability of methadone treatment: models for the years 2000, 2010, and 2019, and a full model with the year as an independent variable. There are a few key trends to note here. First, over time, this model is able to explain less of the variability in availability of methadone (pseudo R2=.0590 in 2000 vs. pseudo R2=.0447 in 2019). This initially indicates that this model doesn't explain much of the national variability in access to methadone. Similarly, when looking at the full model, time does not help explain the diffusion of methadone. In many ways, this is not surprising, because the medication diffuses less over time and is less available compared to treatments such as buprenorphine. The availability of methadone is decoupled from realist variables, especially over time. State-level overdose rates are associated with a decrease in the odds, over time, that a facility offers methadone; this is despite overdose rates rising during this same period. Additionally, in the full model, neither realist variables are significantly associated with realist variables.

When examining the institutional variables, there are two major findings. First, a facility accepting medicaid is associated, over time, with a decrease in the odds that a facility offers methadone. In contrast, the relationship between a facility offering methadone and receiving public funds changes over time. In 2000, there was a negative association between methadone and a facility receiving public funds ( $b = -.304, p < .001$ ). By 2019, this relationship shifted.

Instead, receiving public funds became significantly positively associated with a facility offering methadone ( $b = .270, p < .001$ ).

Finally, when looking at the racialization of institutions variables, a facility being privately owned and offering a program for criminal justice-involved clients becomes more positively associated with a facility offering methadone over time. The one difference seen between these two variables is that offering a program for criminal justice-involved clients remains negatively associated with a facility offering methadone while a facility being privately owned remains positively associated.

**Table 13. Estimating Availability of Methadone Treatment in States with a High Proportion of Treatment Centers 2000, 2010, and 2019**

| <b>California</b>                              |             |     |             |     |             |     |
|--|-------------|-----|-------------|-----|-------------|-----|
|  | <b>2000</b> |     | <b>2010</b> |     | <b>2019</b> |     |
|  | <i>b</i>    |     | <i>b</i>    |     | <i>b</i>    |     |
| <b>Independent Variables</b>                   |             |     |             |     |             |     |
| <i>Institutional Variables</i>                 |             |     |             |     |             |     |
| Medicaid Accepted                              | 2.455       | *** | 2.095       | *** | 2.528       | *** |
| Public Funds Received by Facility              | -0.545      | *   | -0.507      | *   | -0.275      |     |
| <i>Racialization of Institutions Variables</i> |             |     |             |     |             |     |
| Privately Owned                                | 1.753       | *** | 1.845       | *** | 2.219       | *** |
| Program for Criminal Justice Involved Clients  | -1.086      | *** | -0.002      |     | -0.549      | **  |
| N  | 1,355       |     | 1,302       |     | 1,703       |     |
| Pseudo R2                                      | 0.2704      |     | 0.2215      |     | 0.1927      |     |
| <b>New York</b>                                |             |     |             |     |             |     |
|  | <b>2000</b> |     | <b>2010</b> |     | <b>2019</b> |     |
|  | <i>b</i>    |     | <i>b</i>    |     | <i>b</i>    |     |
| <b>Independent Variables</b>                   |             |     |             |     |             |     |
| <i>Institutional Variables</i>                 |             |     |             |     |             |     |
| Medicaid Accepted                              | 1.655       | *** | 1.476       | *** | 2.282       | *** |
| Public Funds Received by Facility              | -0.399      | *   | -0.537      | **  | -0.692      |     |
| <i>Racialization of Institutions Variables</i> |             |     |             |     |             |     |
| Privately Owned                                | -0.655      | *** | -0.461      |     | 0.08        |     |

|  |           |            |           |
|--|-----------|------------|-----------|
| Program for Criminal Justice<br>Involved Clients | -0.665 ** | -0.743 *** | -0.964 ** |
| N  | 1,219     | 909        | 854       |
| Pseudo R2  | 0.0605    | 0.0480     | 0.0758    |

### Illinois

|  | 2000<br><i>b</i> | 2010<br><i>b</i> | 2019<br><i>b</i> |
|--|------------------|------------------|------------------|
| <b>Independent Variables</b>                       |                  |                  |                  |
| <i>Institutional Variables</i>                     |                  |                  |                  |
| Medicaid Accepted                                  | 1.459 **         | 1.735 ***        | 0.96 **          |
| Public Funds Received by Facility                  | 0.126            | -0.255           | -0.245           |
| <i>Racialization of Institutions<br/>Variables</i> |                  |                  |                  |
| Privately Owned                                    | 1.102 *          | 1.277 **         | 0.724 *          |
| Program for Criminal Justice<br>Involved Clients   | -0.097           | 0.411            | 0.139            |
| N  | 535              | 551              | 756              |
| Pseudo R2  | 0.0398           | 0.054            | 0.0209           |

### Florida

|  | 2000<br><i>b</i> | 2010<br><i>b</i> | 2019<br><i>b</i> |
|--|------------------|------------------|------------------|
| <b>Independent Variables</b>                       |                  |                  |                  |
| <i>Institutional Variables</i>                     |                  |                  |                  |
| Medicaid Accepted                                  | 0.232            | 1.295 **         | 2.124 ***        |
| Public Funds Received by Facility                  | 0.029            | -0.212           | 0.023            |
| <i>Racialization of Institutions<br/>Variables</i> |                  |                  |                  |
| Privately Owned                                    | 1.379 **         | 1.791 **         | 1.403 **         |
| Program for Criminal Justice<br>Involved Clients   | -1.256 **        | -1.248 **        | -0.803 **        |
| N  | 632              | 497              | 705              |
| Pseudo R2  | 0.0937           | 0.1123           | 0.1210           |

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 13 presents models for four states with a high proportion of treatment centers in 2000, 2010, and 2019: California, New York, Illinois, and Florida. In many ways, these models

reflect similar trends seen in the overall models in Table 12. But, in many cases, they can also explain more of the variability in whether a facility offers methadone. California is an excellent example of this trend, especially because it is one of the states with the greatest access to methadone. This model can explain variability in whether a treatment center offers methadone better than it can on a national level. Still, over time, this model decreases in the extent to which it can explain variability (pseudo R2 = .2704 in 2000 vs. pseudo R2 = .1927 in 2019). In contrast, Florida is a state where the model also fits well, but it increases in the extent to which it can explain variability over time (pseudo R2 = .0937 vs. pseudo R2 = .1210). In both the models for California and Florida, whether a facility accepts Medicaid and is privately owned are significantly positively associated with offering methadone. Similarly, in both models, offering a program for criminal justice-involved clients is negatively associated with offering methadone, though the odds that they will offer both treatments increases over time. In contrast, the model does not do as good of a job predicting the availability of methadone in New York or Illinois. In both cases, the pseudo R2 values show how these predictors fail to explain a lot of the variability in methadone availability within these states. Still, even in these cases, there is a consistent trend of methadone being positively associated with a facility accepting Medicaid.

**Table 14. Estimating Availability of Methadone Treatment in States with High Overdose Rates 2000, 2010, and 2019**

| <b>Ohio</b>                                    | <b>2000</b> | <b>2010</b> | <b>2019</b> |
|--|-------------|-------------|-------------|
|  | <i>b</i>    | <i>b</i>    | <i>b</i>    |
| <b>Independent Variables</b>                   |             |             |             |
| <i>Institutional Variables</i>                 |             |             |             |
| Medicaid Accepted                              | -0.329      | -1.132 *    | -0.618      |
| Public Funds Received by Facility              | -0.863      | 0.803       | 0.854       |
| <i>Racialization of Institutions Variables</i> |             |             |             |
| Privately Owned                                | -1.330      | -0.423      | -0.046      |

|  |        |        |          |
|--|--------|--------|----------|
| Program for Criminal Justice<br>Involved Clients | -0.185 | -1.050 | -0.779 * |
| N  | 491    | 348    | 539      |
| Pseudo R2  | 0.0268 | 0.0509 | 0.0310   |

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**Pennsylvania**

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|  | 2000      | 2010      | 2019      |
|--|-----------|-----------|-----------|
|  | <i>b</i>  | <i>b</i>  | <i>b</i>  |
| <b>Independent Variables</b>                       |           |           |           |
| <i>Institutional Variables</i>                     |           |           |           |
| Medicaid Accepted                                  | 1.742 *** | 1.697 *** | 1.59 ***  |
| Public Funds Received by<br>Facility               | -0.852 *  | -0.564 *  | -0.598 *  |
| <i>Racialization of Institutions<br/>Variables</i> |           |           |           |
| Privately Owned                                    | 0.809 *   | 0.730 **  | 0.980 *** |
| Program for Criminal Justice<br>Involved Clients   | -0.847 *  | -0.058    | 0.155     |
| N  | 523       | 473       | 564       |
| Pseudo R2  | 0.0988    | 0.0671    | 0.0664    |

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Finally, Table 14 presents models for two states with high overdose rates in 2000, 2010, and 2019: Ohio and Pennsylvania. Foremost, the model fits Pennsylvania significantly better than it fits Ohio, yet in both cases it does not do a sufficient job of accounting for variability in treatment centers offering methadone. This reflects previous trends in the full national model (see Table 12) where overdose rates are decoupled, especially over time, from whether facilities offer methadone. This being said, it is not surprising that the model does a poor job of explaining variability in methadone availability in states with high rates of overdose.

*Buprenorphine Treatment Over Time*

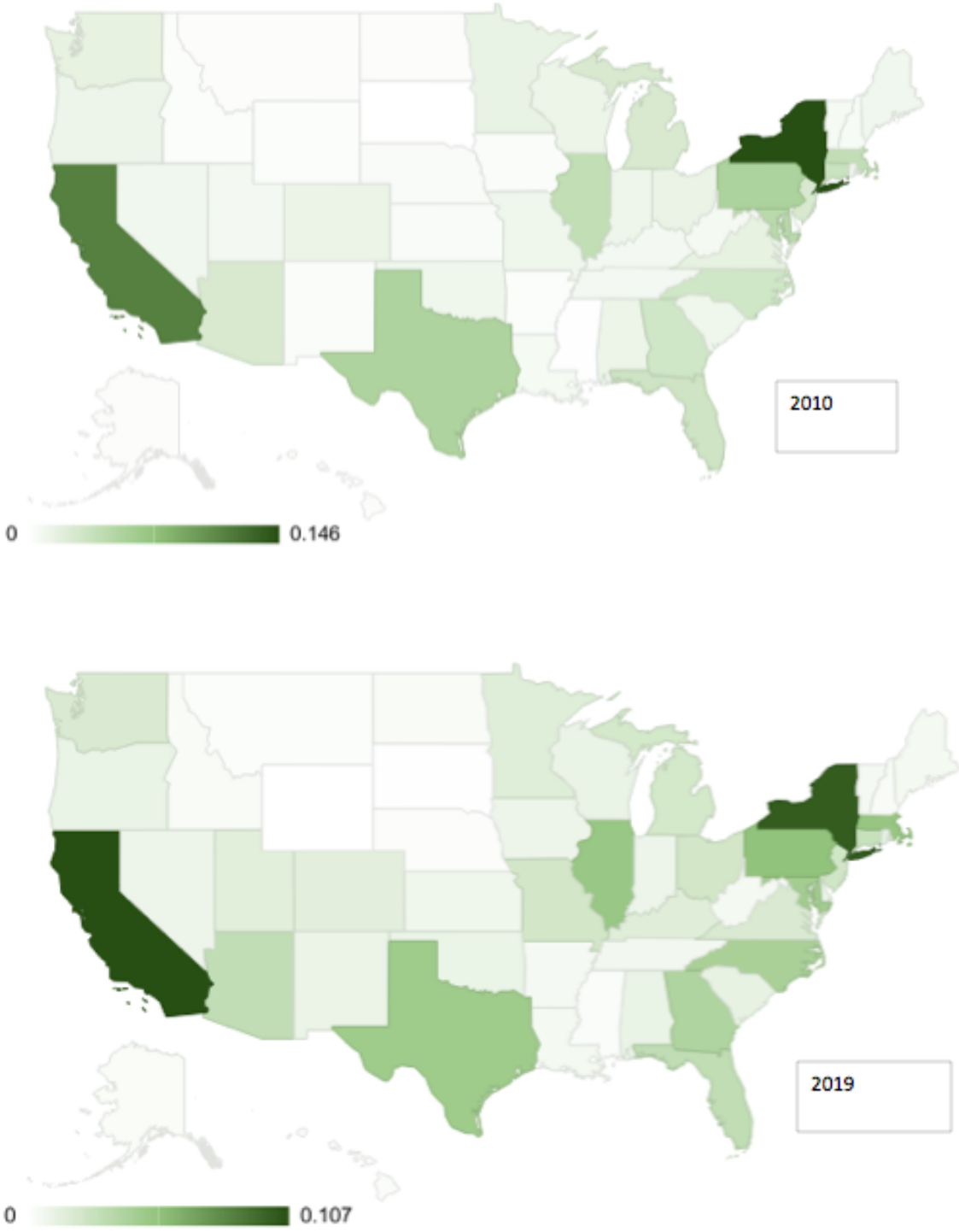
**Table 15. Frequency and Means of Independent Variables by Treatment Centers Offering Buprenorphine in 2000, 2010, and 2019**

| <b>Independent Variables</b>                     | <b>By Treatment Centers Offering Buprenorphine</b> |           |     |             |           |     |
|--|--|-----------|-----|-------------|-----------|-----|
|  | <b>2010</b>  |           |     | <b>2019</b> |           |     |
|  | <i>Yes</i>   | <i>No</i> |     | <i>Yes</i>  | <i>No</i> |     |
| State Level Overdose Rate                        | 11.72  | 12.05     | *** | 22.70       | 21.15     |     |
| Medicaid Accepted                                | 63.95%   | 55.40%    | *** | 72.20%      | 67.35%    | *** |
| Public Funds Received by Facility                | 44.70%   | 63.07%    | *** | 47.87%      | 55.82%    | *** |
| Private Facility                                 | 36.47%   | 29.30%    | *** | 48.34%      | 36.70%    | *** |
| Program for Criminal Justice<br>Involved Clients | 28.29%   | 29.65%    |     | 33.32%      | 36.97%    | *** |
| N  | 1,083  | 12,256    |     | 4,034       | 15,961    |     |

Note: Asterisks compare facilities with each treatment type to facilities without each treatment type. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Table 15 demonstrates how the characteristics of buprenorphine treatment facilities have changed over time. It also presents results of chi-square tests examining whether there are significant differences between facilities with buprenorphine treatment versus facilities without buprenorphine treatment. Notably, treatment facilities offering buprenorphine have significantly different characteristics from those not offering buprenorphine. In both years studied, treatment centers that offer buprenorphine are more likely to be private facilities and accept medicaid. In contrast, in both years studied, treatment centers that offer buprenorphine are less likely to receive public funds. While in 2010 there were no differences between facilities that offered buprenorphine and those that did not in terms of whether they were government-owned or offered a program for criminal justice-involved clients, this changes for both variables in 2019. At this point, facilities that offered buprenorphine treatment were less likely to be government facilities and less likely to have a program for criminal justice-involved clients. In contrast, while in 2010 buprenorphine was associated with lower state levels of overdoses, this association disappeared in 2019 – with no significant differences between facilities with and without buprenorphine.

*Geographic Distribution of Buprenorphine*



**Figure 9. Geographic Distribution of Buprenorphine Treatment, 2010-2019**

**Table 16. States with the Highest Proportion of Buprenorphine Facilities in the US in 2010 and 2019**

| <i>Top 10 States by % of Total Buprenorphine Facilities in 2010</i> | <i>N</i> | <i>% of Total Facilities</i> |
|---|----------|------------------------------|
| New York  | 149      | 13.76%                       |
| California  | 131      | 12.10%                       |
| Florida   | 63       | 5.82%                        |
| Maryland  | 45       | 4.16%                        |
| Massachusetts   | 43       | 3.97%                        |
| Texas   | 41       | 3.79%                        |
| Arizona   | 34       | 3.14%                        |
| Pennsylvania  | 31       | 2.86%                        |
| Ohio/Washington/Wisconsin/Maine                                     | 29       | 2.68%                        |
| Minnesota   | 25       | 2.31%                        |

| <i>Top 10 States by % of Total Buprenorphine Facilities in 2019</i> | <i>N</i> | <i>% of Total Facilities</i> |
|---|----------|------------------------------|
| California  | 488      | 12.10%                       |
| New York  | 432      | 10.71%                       |
| Florida   | 217      | 5.38%                        |
| Ohio  | 195      | 4.83%                        |
| Maryland  | 158      | 3.92%                        |
| Massachusetts   | 154      | 3.82%                        |
| Pennsylvania  | 144      | 3.57%                        |
| Illinois  | 138      | 3.42%                        |
| North Carolina  | 137      | 3.40%                        |
| Arizona   | 136      | 3.37%                        |

Figure 9 and Table 16 present the geographic distribution of drug treatment facilities that offer methadone in the US. Figure 9 demonstrates how buprenorphine has become less concentrated in states like New York over time. Instead, by 2019, the percentage of methadone facilities in many other states increased significantly compared to 2010. Table 16 reflects similar trends in the distribution of buprenorphine in the US. Notably, while New York had 13.76% of all facilities offering buprenorphine in 2010, by 2019 they only had 10.71% of these same facilities. In contrast, Florida and California, the other states with the greatest proportion of



buprenorphine treatment, had 12.10% and 5.38%, respectively, of all buprenorphine facilities in both years. This shows again that many of the states with the greatest proportion of all treatment facilities also have the greatest proportion of all buprenorphine facilities. Other states with a sizable proportion of all buprenorphine facilities over time include Maryland (> 3.5%), Massachusetts (> 3%), and Pennsylvania (> 2.5%), suggesting that buprenorphine treatment may be concentrated to some extent in the northeast. Still, other states that rank in the top ten in terms of the proportion of treatment facilities offering buprenorphine include many unexpected states such as Arizona (> 3%) and Ohio (> 2.5%). While these are states that have seen notable rises in overdose rates, they are not historical destinations for drug treatment in the same way that New York and California have been. They are also not states with a significant proportion of all drug treatment or methadone treatment. Other states that rank in the top 10 for proportion of buprenorphine treatment include Washington, Wisconsin, Maine, Minnesota, Illinois, and North Carolina.

**Table 17. States with the Least Access to Buprenorphine in the US in 2010 and 2019**

| <i>Top 10 States with the Least Access to Buprenorphine in 2010</i> | <i>N</i> | <i>% of Facilities with Treatment</i> |
|---|----------|---------------------------------------|
| North Dakota  | 1        | 1.79%                                 |
| South Dakota  | 1        | 1.82%                                 |
| Mississippi   | 2        | 2.00%                                 |
| Iowa  | 3        | 2.40%                                 |
| Oklahoma  | 5        | 2.63%                                 |
| Kentucky  | 8        | 2.73%                                 |
| Kansas  | 6        | 2.84%                                 |
| Idaho   | 3        | 3.26%                                 |
| Washington  | 16       | 3.52%                                 |
| Missouri  | 10       | 3.79%                                 |

| <i>Top 10 States with the Least Access</i> | <i>N</i> | <i>% of Facilities</i> |
|--|----------|------------------------|
|--|----------|------------------------|

| <i>to Buprenorphine in 2019</i> |    | <i>with Treatment</i> |
|---------------------------------|----|-----------------------|
| Hawaii                          | 8  | 4.79%                 |
| South Dakota                    | 5  | 8.47%                 |
| Nebraska                        | 14 | 10.69%                |
| Arkansas                        | 18 | 10.78%                |
| Oklahoma                        | 23 | 11.06%                |
| Michigan                        | 65 | 13.92%                |
| Georgia                         | 50 | 13.97%                |
| Minnesota                       | 60 | 14.89%                |
| Idaho                           | 19 | 15.32%                |
| Colorado                        | 64 | 15.69%                |

Table 17 shows how buprenorphine access has increased among even among states with the least access to methadone treatment. For example, South Dakota, which has one of the lowest percentages of facilities with buprenorphine treatment in both years, increased its access to buprenorphine from only 1.82% of all facilities in the state offering the treatment in 2010 up to 8.47% of all facilities offering the same in 2019. Similarly, many states which ranked in the bottom 10 in terms of access to buprenorphine are in 2010 were no longer in the bottom 10 by 2019. This means that they increased their percentage of facilities offering buprenorphine from less than 4% in 2010 to greater than 15.7% in 2019. These states include Mississippi, Iowa, Kentucky, Kansas, Washington, and Missouri. Missouri is a notable example of this trend: going from only have 3.79% of its facilities offering buprenorphine and being one of the states where patients would be least likely to get this treatment, to having 46.26% of its facilities offering buprenorphine and being one of the top 10 states with greatest access. Similarly, while in 2010 all of the states with a low percentage of facilities with methadone only had around between one and ten facilities with this treatment, by 2019 this number spanned from 8 to 65 facilities in the state. States that consistently appeared on the bottom 10 for access to methadone list were all in the midwest: South Dakota, Oklahoma, and Idaho.

*Buprenorphine Models*

**Table 18. Estimating Availability of Buprenorphine Treatment in 2010 and 2019**

|  | 2010     |     | 2019     |     | Full Model |     |
|--|----------|-----|----------|-----|------------|-----|
|  | <i>b</i> |     | <i>b</i> |     | <i>b</i>   |     |
| <b>Independent Variables</b>                   |          |     |          |     |            |     |
| <i>Rational Variables</i>                      |          |     |          |     |            |     |
| State Level Overdose Rate                      | -0.035   | *** | 0.016    | *** | 0.011      | *** |
| Year   | -        |     |          |     | 0.179      | *** |
| <i>Institutional Variables</i>                 |          |     |          |     |            |     |
| Medicaid Accepted                              | 0.607    | *** | 0.41     | *** | 0.466      | *** |
| Public Funds Received by Facility              | -0.744   | *** | -0.143   | **  | -0.282     | *** |
| <i>Racialization of Institutions Variables</i> |          |     |          |     |            |     |
| Privately Owned                                | 0.108    |     | 0.487    | *** | 0.389      | *** |
| Program for Criminal Justice Involved Clients  | -0.014   |     | -0.154   | *** | -0.151     | *** |
| N  | 11,480   |     | 15,264   |     | 39,712     |     |
| Pseudo R2                                      | 0.0264   |     | 0.0195   |     | 0.1969     |     |

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 18 presents three models to estimate the availability of buprenorphine treatment: models for the years 2010 and 2019, and a full model with the year as an independent variable. There are a few key trends to note here. Foremost, the full model (pseudo R2= .1969) does a significantly better job of predicting the diffusion of buprenorphine than the models for individual years (2010 model pseudo R2 = .0264, 2019 pseudo R2 = .0195). Clearly, time has played a significant factor in the diffusion of buprenorphine. State-level overdose rates also are coupled with the diffusion of buprenorphine, becoming positively associated with a facility offering methadone by 2019 and in the full model. Similarly, institutional variables and racialization of institution variables also play a significant role in predicting availability of buprenorphine. There are significant positive associations with accepting medicaid and facilities

being privately owned, while there are significant negative associations between institutions accepting public funds and having a program for criminal justice-involved clients.

**Table 19. Estimating Availability of Buprenorphine Treatment in States with a High Proportion of Treatment Centers in 2010 and 2019**

| <b>California</b>                              |             |             |
|--|-------------|-------------|
|  | <b>2010</b> | <b>2019</b> |
|  | <i>b</i>    | <i>b</i>    |
| <b>Independent Variables</b>                   |             |             |
| <i>Institutional Variables</i>                 |             |             |
| Medicaid Accepted                              | -0.139      | 0.075       |
| Public Funds Received by Facility              | -1.210 ***  | -0.411 *    |
| <i>Racialization of Institutions Variables</i> |             |             |
| Privately Owned                                | 0.686 **    | 1.560 ***   |
| Program for Criminal Justice Involved Clients  | -0.151      | 0.119       |
| N  | 1,301       |             |
| Pseudo R2                                      | 0.0872      | 0.1223      |
| <b>New York</b>                                |             |             |
|  | <b>2010</b> | <b>2019</b> |
|  | <i>b</i>    | <i>b</i>    |
| <b>Independent Variables</b>                   |             |             |
| <i>Institutional Variables</i>                 |             |             |
| Medicaid Accepted                              | 0.460       | 0.872 ***   |
| Public Funds Received by Facility              | -0.544 **   | -0.298      |
| <i>Racialization of Institutions Variables</i> |             |             |
| Privately Owned                                | -0.019      | 0.180       |
| Program for Criminal Justice Involved Clients  | 0.265       | 0.128       |
| N  | 909         | 854         |
| Pseudo R2                                      | 0.0175      | 0.0194      |
| <b>Illinois</b>                                |             |             |

|  | <b>2010</b> |   | <b>2019</b> |     |
|--|-------------|---|-------------|-----|
|  | <i>b</i>    |   | <i>b</i>    |     |
| <b>Independent Variables</b>                   |             |   |             |     |
| <i>Institutional Variables</i>                 |             |   |             |     |
| Medicaid Accepted                              | 1.422       | * | 0.845       | **  |
| Public Funds Received by Facility              | -1.551      | * | -1.149      | *** |
| <i>Racialization of Institutions Variables</i> |             |   |             |     |
| Privately Owned                                | 0.237       |   | -0.497      |     |
| Program for Criminal Justice Involved Clients  | 0.535       |   | -0.443      |     |
| N  | 551         |   | 756         |     |
| Pseudo R2                                      | 0.0507      |   | 0.0393      |     |

| <b>Florida</b>                                 |             |     |             |     |
|--|-------------|-----|-------------|-----|
|  | <b>2010</b> |     | <b>2019</b> |     |
|  | <i>b</i>    |     | <i>b</i>    |     |
| <b>Independent Variables</b>                   |             |     |             |     |
| <i>Institutional Variables</i>                 |             |     |             |     |
| Medicaid Accepted                              | 1.569       | *** | 0.739       | *** |
| Public Funds Received by Facility              | -0.708      |     | -0.096      |     |
| <i>Racialization of Institutions Variables</i> |             |     |             |     |
| Privately Owned                                | 1.131       | *   | 0.591       | *   |
| Program for Criminal Justice Involved Clients  | -0.486      |     | -0.164      |     |
| N  | 496         |     | 705         |     |
| Pseudo R2                                      | 0.0850      |     | 0.0213      |     |

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 19 presents models for four states with a high proportion of treatment centers in 2010 and 2019: California, New York, Illinois, and Florida. Similar to the models for methadone in states with a high proportion of treatment centers, this model fits California best. Over time, the fit of the model increases in California (2010 pseudo R2 = .0872 vs. 2019 pseudo R2 = .1223). Similar to the national model, a facility being privately owned is positively associated

with a facility offering buprenorphine and a facility receiving funds is negatively associated with this treatment. Also similar to the methadone models, these models are not as effective at explaining variability in availability of buprenorphine in New York, Illinois, and Florida. This reflects similar trends in the national models, where models for individual years cannot explain as much variability as the full model that accounts for time.

**Table 20. Estimating Availability of Buprenorphine Treatment in States with a High Overdose Rate in 2010 and 2019**

| <b>Ohio</b>                                    |             |             |
|--|-------------|-------------|
|  | <b>2010</b> | <b>2019</b> |
|  | <i>b</i>    | <i>b</i>    |
| <b>Independent Variables</b>                   |             |             |
| <i>Institutional Variables</i>                 |             |             |
| Medicaid Accepted                              | -0.362      | -0.150      |
| Public Funds Received by Facility              | 0.033       | 0.206       |
| <i>Racialization of Institutions Variables</i> |             |             |
| Privately Owned                                | 1.815 *     | 0.679 *     |
| Program for Criminal Justice Involved Clients  | -1.529 ***  | -0.072      |
| N  | 348         | 539         |
| Pseudo R2                                      | 0.1017      | 0.0122      |

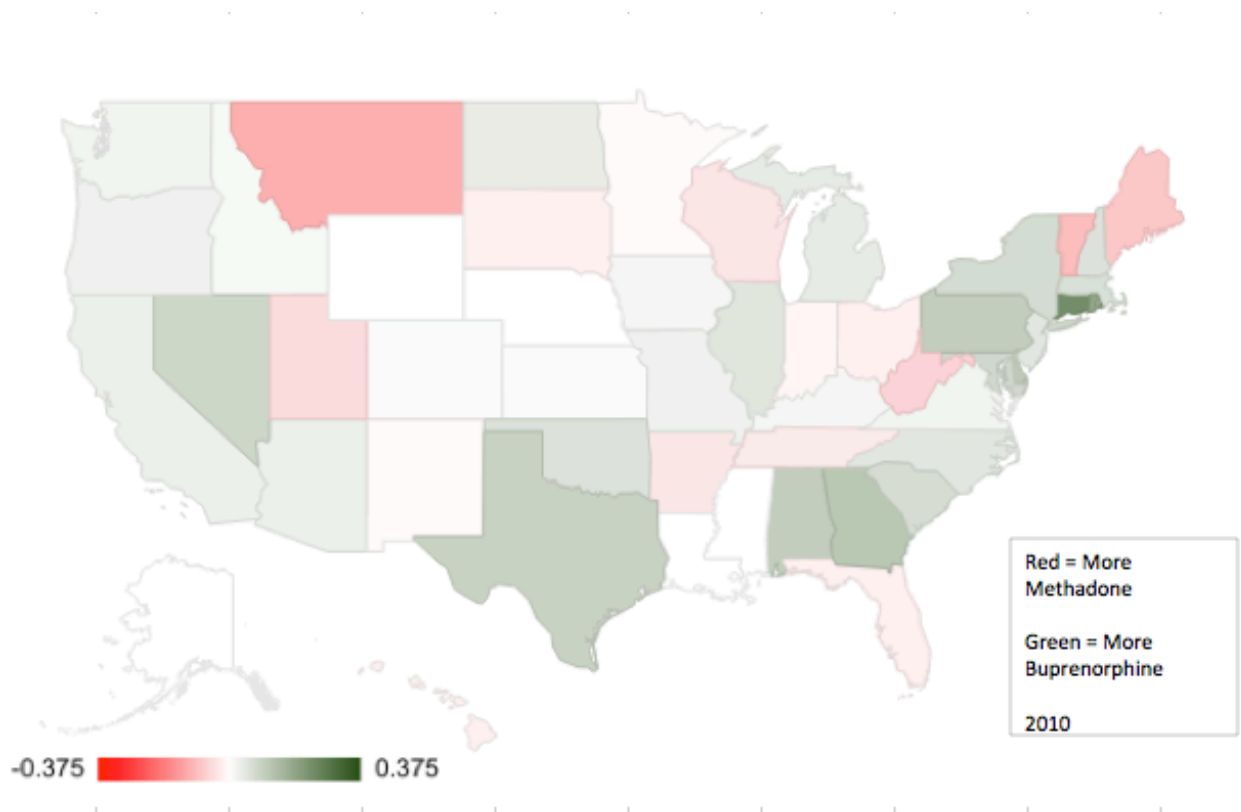
| <b>Pennsylvania</b>                            |             |             |
|--|-------------|-------------|
|  | <b>2010</b> | <b>2019</b> |
|  | <i>b</i>    | <i>b</i>    |
| <b>Independent Variables</b>                   |             |             |
| <i>Institutional Variables</i>                 |             |             |
| Medicaid Accepted                              | -0.305      | 0.323       |
| Public Funds Received by Facility              | -0.379      | -0.165      |
| <i>Racialization of Institutions Variables</i> |             |             |
| Privately Owned                                | -0.393      | 0.379       |
| Program for Criminal Justice Involved Clients  | 0.406       | 0.421       |

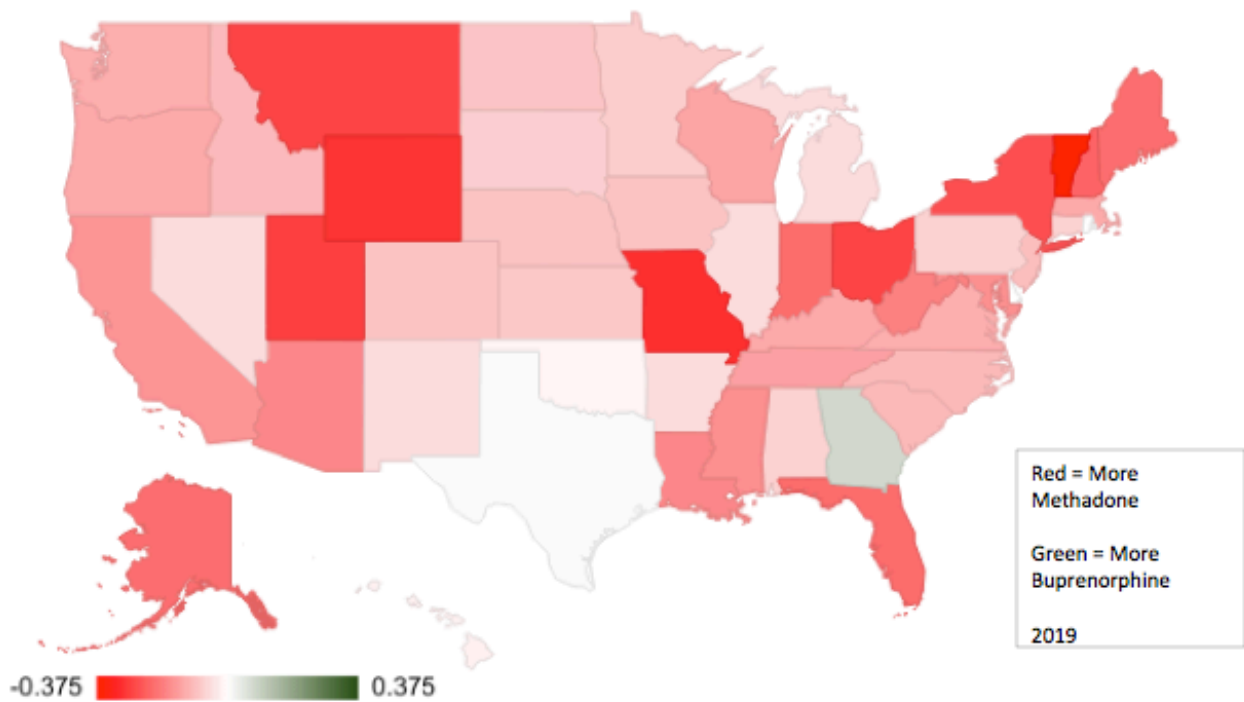
|           |        |       |
|-----------|--------|-------|
| N         | 473    | 564   |
| Pseudo R2 | 0.0108 | 0.012 |

Note: \* p < .05, \*\* p < .01, \*\*\* p < .001

Finally, Table 20 presents Model 1 for two states with high overdose rates in 2010 and 2019: Ohio and Pennsylvania. Similar to the methadone models, the yearly models do not do a sufficient job of accounting for variability in treatment centers offering buprenorphine in states with a high overdose rate. The one exception to this is the 2010 model for Ohio, which has a pseudo R2 value of .1017.

*Geographical Access Over Time - Methadone vs. Buprenorphine*





**Figure 10. Methadone vs. Buprenorphine State Level Availability in 2010 and 2019**

Figure 10 helps understand the diffusion and availability of methadone and buprenorphine over time by showing the form of medication-assisted treatment that is most common in each state. States that are green have a higher % of facilities offering methadone, and states that are red have a higher % of facilities offering buprenorphine; the darker the color, the greater the percentage gap between the two treatments. This figure shows the dramatic shift that occurs between 2010 and 2019. While methadone was more available, by a small margin, in most states in 2010, this radically shifted in 2019. In the same year, Georgia was the only state to have greater methadone availability than buprenorphine availability. Similarly, states were more likely to have much greater access to buprenorphine (up to 37% more) than methadone when it was the most available form of medication-assisted treatment.



## **Discussion and Conclusion**

There are a few key trends that emerge from the data, which are interesting both theoretically and practically. Foremost, medicalized drug treatment has diffused among all regions and among all treatment types. Still, even as accessibility to medicalized drug treatment has improved, this form of treatment is still more accessible in more densely populated areas than in rural contexts. Finally, there is more diffusion of buprenorphine than there is of methadone treatment, a trend that is best explained theoretically by the racialization of institutions.

### *General Trends in Drug Treatment*

While the results clearly indicate that the trajectory of medicalized drug treatment is not homogenous, there are a few general trends that hold when looking at both descriptive analyses and models looking at associations between independent variables and the availability of treatments. Over time, both forms of medicalized treatment can be predicted by institutional variables and racialization of institutional variables. Accepting medicaid is positively associated with an organization offering medication-assisted treatment over time. Despite the fact that all forms of treatment were negatively associated with receiving public funds in 2000, these associations also became more positive over time, in conjunction with the diffusion of all of these treatments. Some of these trends may be related to the Affordable Care Act, where a significant portion of Americans gained access to private health insurance during the last decade, which now includes substance abuse treatment. Even so, this provides strong support for institutional theories of diffusion.

The role of the state in particular in producing these structural conditions was hypothesized in DiMaggio and Powell's (1983) article where they predict that, "the greater the extent to which the organizations in a field transact with agencies of the state, the greater the extent of isomorphism in the field as a whole." As medicalized drug treatment becomes more associated with healthcare coverage, which is mandated by the state, the greater the extent to which medication-assisted treatment can diffuse. Here, we clearly see a gradual change in the institutional locus of the problem – especially after 2010 – to medical treatment for drug addiction being more widely supported by the government and thus reflecting changes in organizations.

It is equally important to discuss what the natural comparison between the models from 2000, 2010, and 2019 can theoretically illuminate. As mentioned earlier, these years represent different contexts of drug policy within states. Here, institutional theories fail to provide sufficient evidence for the patterns of diffusion of methadone and buprenorphine. Institutional theory would predict that as time progresses and fatal overdose prevention laws become more diffuse that both methadone and buprenorphine would become more diffuse. Instead, we see disparate patterns of diffusion when comparing the two treatments. The fit of the model improves for buprenorphine over time, while the fit of the model decreases for methadone over time. Similarly, buprenorphine becomes much more diffuse than methadone. If there is widespread support for treating drug addiction as a health issue – why wouldn't both treatments diffuse to the same extent and be explained by the same variables?

Finally, both of the racialization of institutions variables are similarly predictive of whether a facility offers methadone or buprenorphine. Over time, being a privately owned facility becomes more positively associated with offering either form of medication-assisted

treatment. The same is true for having a program for criminal justice-involved clients, even though this variable remains negatively associated with offering buprenorphine or methadone. This suggests that, due to the changing demographics of opioid addiction, medicalized drug treatment is more likely to be associated with programs for criminal justice-involved clients than in the past. Theoretically, all of this evidence suggests that treatment availability has changed along the same lines that clients seeking treatment have changed. The population that is impacted by the opioid epidemic is whiter and wealthier than ever (Case and Deaton 2015; Alexander, Kiang, and Barbieri 2018). Both drugs and health have been racialized, having significant institutional consequences. Health and healthcare are racialized: healthcare is a “white” institution. This means that whites are the most likely to not only have healthcare, but to have quality healthcare where their health needs are taken seriously and addressed sufficiently by practitioners who are socially similar to them (Fiscella and Sanders 2006). This is especially true in the case of privately owned facilities that are more accessible to white and wealthy individuals. This racialization can also help explain why having a program for criminal justice-involved clients becomes less negatively associated with medication-assisted treatment over time. Similar to Good Samaritan laws, which undercut the long-term dominance of the criminalizing institutional structures because more white individuals are experiencing substance use issues, medicalized drug treatment becomes more accessible for individuals involved in the criminal justice system for the same reason.

#### *Diffusion of Scientific-Based Drug Treatment - Geographic Trends*

All of this taken into account, the strength of the associations and the extent to which the full model can predict whether a treatment is offered over time varies by geographic context. It is also worth noting geographic trends in the diffusion of medicalized drug treatment; as drug

treatment more generally and these forms of treatment are not distributed proportionally among the US. Notably, all regions have seen expansions in access to drug treatment over time. This is apparent from both descriptive statistics (such as in Table 8) and visual representations of the data (such as Figures 3 and 4). Still, as Figure 7 shows very clearly, the gap between the proportion of treatment and the proportion of the population within each state only continues to grow over time. These trends are even more concerning in places such as California and Florida, which are popular treatment destinations given the wide range of facilities within the state. While there are exceptions to this, with states such as North Carolina and Indiana increasing access to drug treatment between 2010 and 2019 compared to their population, these cases seem to be outliers.

Not surprisingly, states where drug treatment is generally concentrated align with the states with the greatest concentrations of medicalized drug treatment. Given this, it was important to look at the full model specifically in states with a high proportion of treatment centers. Notably, the full model fits states with a high proportion of treatment better than for all states. This suggests that, among states with a high proportion of treatment, medicalized drug treatment has become more institutionalized. Interestingly, when looking at variables that are significant for all high proportion states, there is a trend where medicaid is more positively associated with methadone compared to all states and where private insurance is more positively associated with buprenorphine.

It is important to note that the states with the greatest proportion of medicalized drug treatment are not necessarily the states with the greatest access to medicalized drug treatment. While some states can be found in both lists, such as New York and Maryland, the greatest access to medicalized drug treatment can be found in the Northeast. Both the greatest proportion

of treatment and greatest access to drug treatment within a state were surprisingly decoupled from states with the highest rates of overdose.

Finally, models looking at Ohio and Pennsylvania, two states with a high overdose rate and a sufficient number of treatment facilities to be able to run a model, reflect how medication-assisted treatment is not necessarily more institutionalized over time in states with a higher rates of problematic opioid use. This poses a significant challenge to realist theories of diffusion. These theories would predict that medication-assisted treatment would diffuse more rapidly and widely in states where there is a bigger problem. These models challenge this assertion for both forms of medication-assisted treatment.

#### *Methadone vs. Buprenorphine*

Finally, the strength of the associations and the extent to which the full model can predict whether a treatment is offered over time varies by form of medication-assisted treatment. While there are general trends for medicalized drug treatment, differences between these forms of treatment illuminate key insights into how organizational practices diffuse. As mentioned previously, institutional theories do a poor job of explaining why these forms of medication-assisted treatment diffuse.

First, there is a key difference in how well the state-level overdose rate is associated with methadone and buprenorphine in the full model that accounts for time. Methadone is not associated at all with the state-level overdose rate or the year. In contrast, buprenorphine has a significantly positive association with the state-level overdose rate and the year. This suggests that organizations are increasingly turning to buprenorphine as a tool to address opioid addiction, as compared to methadone. Figure 10 provides more evidence for this trend, showing how the

US goes from the majority of states having slightly greater access to methadone in 2010 to all states, other than Georgia, having significantly greater access to buprenorphine in 2019.

By looking more in depth at both the methadone and buprenorphine models, there are clear differences in the factors that drive the adoption of each treatment by facilities. Methadone becomes less negatively associated with programs for criminal justice-involved clients over time, but these associations are still more negative than those of buprenorphine. This also suggests that methadone is not diffusing as widely, despite becoming more positively associated with this variable over time. While this suggests that methadone may be diffusing in response to whiter and wealthier opioid users, it's clear that this diffusion isn't as great as buprenorphine.

Theoretically, the differences between the diffusion of methadone and buprenorphine provide significant evidence for the racialization of institutions hypotheses. This also makes sense given the historical context of both treatments. Understanding this allows us to more clearly see the connection between each form of treatment, the institutional history of that treatment, and its association with different populations over time. Methadone has, historically, been a treatment offered to black, poor populations in urban areas. Even as a medical approach was taken to address this population's issues with opioid use, this group was subject to high levels of surveillance to obtain this treatment. This is still true today for methadone treatment, where it is difficult and a significant period of time before patients can even get an extra day's dose rather than having to go to the methadone clinic every day. When institutions are approaching a problem associated with minority groups, solutions involve high levels of monitoring, evaluation, and control – whether that is in the setting of a prison or a methadone clinic. This population is seen as morally corrupt, entrenched in a culture of poverty that must be addressed through social control if individuals are to be productive members of society. In

contrast, when these same issues are impacting white and wealthy populations, there is a much different approach. This approach is typified with buprenorphine. Buprenorphine can be obtained through a primary care doctor, unlike methadone, which must be obtained through an opioid treatment program (usually located in low income, urban neighborhoods). Pretty quickly, patients can obtain take-home doses and take their medication at home rather than having to go to a location every day to be surveilled as they take their dose. Similarly, if these individuals end up in the criminal justice system, these individuals are significantly more likely to get access to a drug rehabilitation program. This approach, by the same institutions that have spent the last few decades destroying black and low income communities through the war on drugs, is one that is associated with significantly more sympathy, trust, and understanding. This population is seen as mentally unwell, but not fundamentally or culturally flawed, which helps to explain why institutions address the same problem in such different manners.

### ***Conclusion***

There are three key implications arising from this chapter. The first is that while realist explanations and institutional explanations can account for much of the diffusion of these forms of medication-assisted treatment, racialization of institutions explanations can address key questions that these perspectives cannot sufficiently address: namely, why do methadone and buprenorphine diffuse to different extents? The second is that while research has paid much attention to the legal and institutional context of the diffusion of practices, just as much attention should be paid to historical and contemporary associations of practices to race and social control. The final is that more attention should be paid to the relationship between the definition of a problem (i.e. drug addiction as a medical vs. criminal issue), the institutional context of the solution to a social problem, and the groups most impacted by the social problem. Through

looking at methadone and buprenorphine treatments, this chapter considers the question of why medicalized drug treatment diffuses. This chapter tests realist, institutional, and racialization of institutions explanations for diffusion of methadone and buprenorphine. The results of this analysis expand upon the diffusion literature to highlight the power of racialization of institutions explanations to better explain diffusion dynamics that cannot sufficiently be explained by realist or institutional theories. Future research could expand upon the theoretical ideas developed here by testing other forms of medication-assisted treatment, such as Vivitrol, taking into account the ways in which the institutional context of other forms of medication-assisted treatment to understand the contours of their diffusion.



## **Chapter 5 - The Diffusion of Co-Occurring Mental Health Treatment**

### ***Introduction***

Chapter 4 examined the diffusion of methadone and buprenorphine, two forms of medication-assisted treatment. This analysis showed how methadone and buprenorphine have diffused substantially since 2000. It noted two limits to this diffusion. First, even as accessibility to medicalized drug treatment has improved, this form of treatment is still more accessible in urban areas than in rural contexts. Second, there is more diffusion of buprenorphine than there is of methadone treatment, a trend that is best explained theoretically by the racialization of institutions. These findings highlight how the power of racialization of institutions explanations to better explain diffusion dynamics that cannot sufficiently be explained by realist or institutional theories. Drawing from these results, I turn to co-occurring mental health treatment – another form of medicalized drug treatment. While both co-occurring mental health treatment and medication-assisted treatment are medicalized forms of drug treatment, there are two key differences that differentiate the treatments. Foremost, co-occurring mental health treatment is even more medicalized than medication-assisted treatment. It not only addresses physical health (especially in cases where psychiatric drugs are prescribed), but also psychological health – which medication-assisted treatment does not directly address. Additionally, it fits more easily into existing treatments, such as 12-step approaches, by looking holistically at the well being and context of an individual struggling with substance use. Given the significant differences between these two forms of medicalized drug treatment, are there the same racialized trends that are directly connected to the institutional context of treatment or are institutional or realist explanations more effective at explaining the diffusion of co-occurring mental health treatment? Consequently, Chapter 5 addresses three questions: 1) How has the availability of co-occurring

mental health treatment changed since 2000? 2) What factors are associated with a drug treatment facility offering co-occurring mental health treatment services? and 3) Do factors predicting the availability of co-occurring mental health treatment vary over time or from medication-assisted treatment?

Treatment for co-occurring mental health issues has diffused widely among all regions of the US, significantly more than either form of medication-assisted treatment has spread. As such, there are significant differences in the factors associated with the diffusion of treatment for co-occurring mental health issues compared to medication-assisted treatment. Institutional explanations are best able to explain the diffusion of co-occurring mental health treatment – suggesting that this form of treatment is highly institutionalized. One of the reasons for this institutionalization is that co-occurring mental health treatment is much more closely aligned with traditional drug treatment approaches, such as Narcotics Anonymous. In many ways, treatment for co-occurring mental health issues is aligned with ideas that “you have to fix your interior” found in traditional socio-behavioral based treatments. Unlike methadone and buprenorphine, two medicalized treatments that challenge cultural ideas about how to get and be sober, treatment for co-occurring mental health issues fits within and naturally expands the existing repertoire of solutions to addressing drug addiction.

Yet, while the institutional variables primarily show how the medical approach to drug addiction continues to grow, the negative association between a facility offering methadone and a facility offering treatment for co-occurring mental health issues is something that institutional theory cannot explain. Here, is where the racialization of institutions variables can further help explain the diffusion and availability of treatment for co-occurring mental health issues. Drawing on the results of chapter 4, methadone is associated with high levels of surveillance. Because of

its historical association with black and poor populations, we do not see the same level of diffusion of this form of medication-assisted treatment during this period. Given that treatment for co-occurring mental health issues is significantly institutionalized, it is not surprising that methadone is not a significant predictor of treatment for co-occurring mental health issues.

## ***Methodology***

### *Data and Sample*

The data for this project comes from the National Survey of Substance Abuse Treatment Services, which is administered by the United States Department of Health and Human Services Substance Abuse and Mental Health Services Administration. The time span of this analysis spans from 2000 to 2019, with yearly facility-level cross-sectional data for each year other than 2002 when the survey was not administered. In any given year, the response rate to this survey is >93% and consequently covers nearly all reputable, licensed drug treatment centers in the United States. Facilities that only use medication-assisted treatment for detoxification will be removed from the sample, as these facilities do not use medication-assisted treatment as a long-term sobriety tool. There are a few limitations to my data. Given the fact that the data is pooled cross-sectional data, I cannot make any statements about causality.

For the purposes of this analysis, I will use data from the years 2000, 2010, and 2019. This allows for a comparison in how drug treatment changes in relation to more macro-changes. For example, the year 2000 is before any Naloxone Access or Good Samaritan laws were passed, and before significant increases in overdose rates. According to the CDC, the more recent opioid epidemic began in 2010, and this was also the year that the Affordable Care Act was passed – both factors that could be expected to increase the demand for drug treatment. Finally, as of

2019, all states have Naloxone Access laws and > 80% of US states have Good Samaritan laws. Consequently, much can be gained by comparing descriptive and inferential statistics between these three periods.

### *Dependent Variables*

There is one dependent variable in this analysis, which captures a non-pharmaceutical medical approach to addressing opioid addiction: whether a treatment center offer treatment for co-occurring mental health issues. This variable is dichotomous, coded 0 when this form of treatment is not available at a facility and 1 when it is available. Treatment for co-occurring mental health issues not only addresses physical health (especially in cases where psychiatric drugs are prescribed), but also psychological health. This variable differs from other forms of medicalized drug treatment, as it more closely aligned with traditional drug treatment approaches, such as Narcotics Anonymous.

### *Independent Variables*

**Realist Variables:** To test the hypothesis that the problem of drug addiction is becoming a more pressing issue, I operationalize one variable: the state-level overdose rate. State overdose rate data comes from the Centers for Disease Control and Prevention, National Center for Health Statistics Multiple Cause of Death Files, 1999- 2019, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program.

**Institutional Variables:** I operationalize four variables from the NS-SATS survey to test the extent to which the definitional and institutional locus of the problem of drug addiction has shifted to that of a medical issue rather than a criminal issue: whether a facility accepts medicaid, whether public funds are received by a facility, whether a facility offers methadone, and whether

a facility offers buprenorphine. Whether a facility accepts medicaid or recieved public funds capture the extent to which institutional support from the state is associated with increased access to medicalized treatment. Additionally, these variables examine the extent to which medicalized drug treatment is diffusing among and associated with individuals who are in poverty. Whether a facility offers methadone or buprenorphine captures the extent to which broader organizational level support exists for medicalized drug treatment. Each variable is dichotomous, coded 0 when the characteristics are absent from facilities and 1 when it is available.

Racialization of Institutions Variables: I operationalize two variables from the NS-SATS survey to test the extent to which medicalized drug treatment diffused because the drug-using population is growing whiter and more affluent: whether a facility is privately owned and whether there is a program for criminal justice-involved clients. Privately owned facilities are significantly more likely to serve whiter and wealthier clients (McBride et al. 2012; McKim 2017; Wheeler and Nahra 2000). In contrast, criminal justice-involved clients are significantly more likely to be Black, Latino, or poor (McKim 2017; Wheeler and Nahra 2000). These two variables reflect the racialization of institutions: when whiter and wealthier clients struggle with drug addiction they go to private drug treatment facilities, while when non-white and poorer clients struggle with drug addiction they get arrested. Each variable is dichotomous, coded 0 when the characteristics are absent from facilities and 1 when it is available.

### *Statistical Analysis*

Descriptive Statistics: I examine a wide range of descriptive statistics including frequency, means, and chi-square tests (by treatment type) for all variables. I used chi-square tests to see whether there were statistically significant differences between treatment centers with medicalized treatment and those without. Comparisons between the years 2000, 2010, and 2019

show how these organizational characteristics have changed or remained associated with medicalized drug treatment over time.

Given that drug treatment is not equally distributed by population or among states in the US, I also looked at how treatment is distributed geographically over time. This is incredibly important, especially given work that has highlighted how many rural areas lack access to drug treatment (Borders and Booth 2007; Oser et al. 2011). Similarly, many people travel to other states to attend drug treatment, which means that resources only within their communities may not always be the most relevant in understanding how access has changed.

Through looking at trends in the places with the most and least amount of drug treatment, it becomes clearer the extent to which medicalized treatment has diffused in the places where the greatest number of individuals will access drug treatment. At the same time, even among states with limited access, this provides more data about the ways in which services change in these contexts – helping answer whether they also become increasingly isomorphic towards medicalized drug treatment or rather if they just expand non-medicalized options. More simply, looking at these various state contexts allows a more nuanced answer to the extent to which medicalized drug treatment has become more common.

Models: I run four logistic regression models: a model for the year 2000, 2010, 2019, and a full model merging data from all 3 years, with the year as an independent variable. For the years 2000, 2010, and 2019, I also ran these models in states with a high proportion of all drug treatment, and models in states with a high overdose rate. The purpose of this was to get a better sense of how well models can explain trends in drug treatment within different contexts. This also allows for a better sense of how well these models fit, as the models in states with a high proportion of drug treatment can estimate the availability of drug treatment in areas where people

are most likely to travel to attend treatment and/or where there is sufficient state-level and community level support for drug treatment.

West Virginia, for example, would not be an interesting place to quantitatively assess because, despite high rates of fatal overdoses, it has had little change or expansion of the already few services available in the state. I am not interested in studying these trends, but estimating more generally trends in drug treatment. These models also allow for natural comparisons. Are there similar trends in drug treatment in states with a high proportion of drug treatment or in states with high overdose rates? Or, are these correlations more loosely coupled?

**Results**

**Table 21. Frequency of Treatment for Co-Occurring Mental Health Issues Outcome Variable in 2000, 2010, and 2019**

| <b>2000</b>                                     |          |          |                                      |
|---|----------|----------|--------------------------------------|
| <b>Dependent Variables</b>                      | <b>%</b> | <b>N</b> | <i>Range of Facilities per State</i> |
| Treatment for Co-Occurring Mental Health Issues | 49.90%   | 6,696    | 24 - 659 Facilities                  |
| Full Sample                                     | 13,425   |          |                                      |
| <b>2010</b>                                     |          |          |                                      |
| <b>Dependent Variables</b>                      | <b>%</b> | <b>N</b> | <i>Range of Facilities per State</i> |
| Treatment for Co-Occurring Mental Health Issues | 40.04%   | 4,975    | 14 - 606 Facilities                  |
| Full Sample                                     | 13,339   |          |                                      |
| <b>2019</b>                                     |          |          |                                      |
| <b>Dependent Variables</b>                      | <b>%</b> | <b>N</b> | <i>Range of Facilities per State</i> |
| Treatment for Co-Occurring Mental Health Issues | 52.58%   | 8,384    | 25 - 1,052 Facilities                |

Table 21 provides an overview of how the availability of treatment for co-occurring mental health issues has changed between 2000, 2010, and 2019. In all three years, over 40% of facilities offered programs for co-occurring mental health issues and drug addiction. Access to this form of treatment has increased among states with a high and low number of treatment facilities, with the number of facilities offering treatment for co-occurring mental health issues treatment almost doubling between 2010 (n = 4,975) and 2019 (n = 8,384). Similarly, states with the most facilities have more facilities over time, with the maximum number of facilities in a state increasing from 606 in 2010 to 1,052 in 2019.

*Treatment for Co-occurring Mental Health Issues Over Time*

**Table 22. Frequency and Means of Independent Variables by Treatment Centers Offering Co-Occurring Mental Health Treatment in 2000, 2010, and 2019**

| <b>Independent Variables</b>                     | By Treatment Centers<br>Offering Treatment for Co-<br>Occurring Mental Health<br>Issues |           |     |
|--|---|-----------|-----|
|  | <b>2000</b>   |           |     |
|  | <i>Yes</i>  | <i>No</i> |     |
| State Level Overdose Rate                        | 6.13  | 6.10      |     |
| Medicaid Accepted                                | 64.31%  | 45.93%    | *** |
| Public Funds Received by Facility                | 64.60%  | 66.22%    | *   |
| Offers Methadone Treatment                       | 9.39%   | 8.68%     |     |
| Offers Buprenorphine Treatment                   | -   | -         |     |
| Private Facility                                 | 25.27%  | 26.52%    |     |
| Program for Criminal Justice Involved<br>Clients | 41.86%  | 33.31%    | *** |
| N  | 6,696   | 6,723     |     |
| <b>Independent Variables</b>                     | <b>2010</b>   |           |     |
|  | <i>Yes</i>  | <i>No</i> |     |
|  | State Level Overdose Rate   | 12.05     |     |
| Medicaid Accepted                                | 65.44%  | 53.02%    | *** |
| Public Funds Received by Facility                | 64.25%  | 60.91%    | *** |



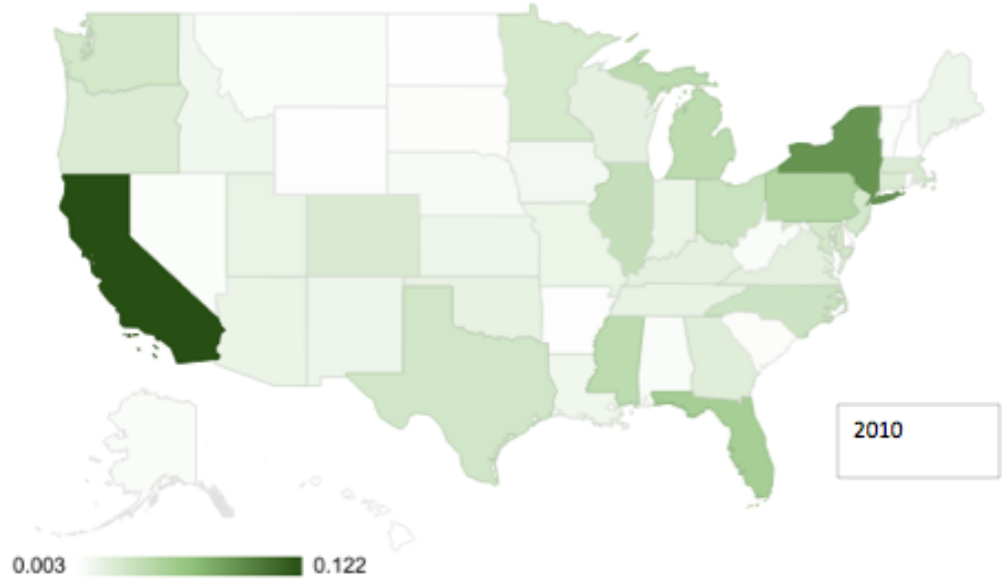
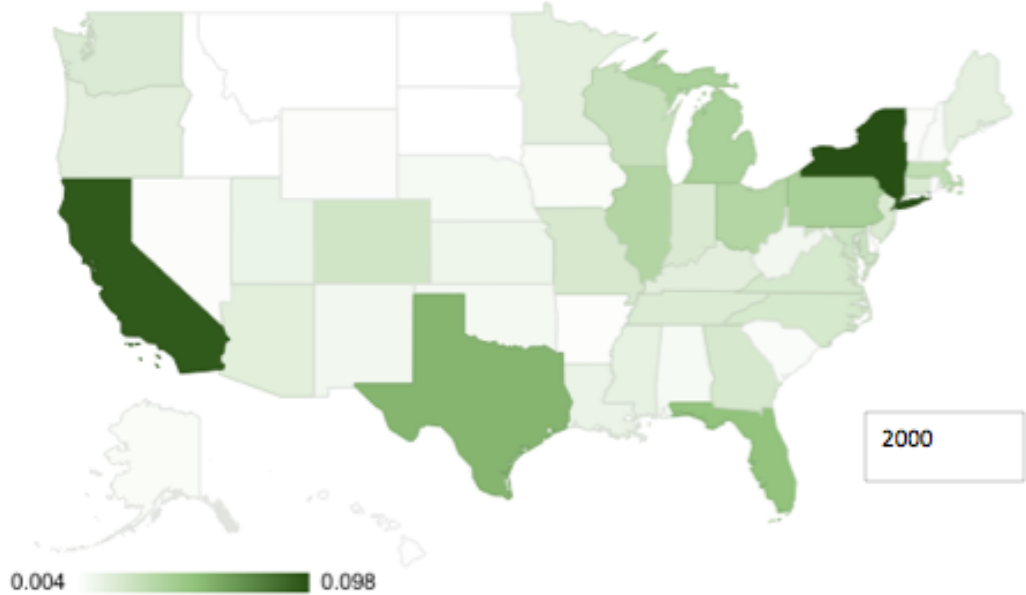
|   |             |           |     |
|---|-------------|-----------|-----|
| Offers Methadone Treatment                    | 11.41%      | 12.13%    |     |
| Offers Buprenorphine Treatment                | 11.71%      | 6.34%     | *** |
| Private Facility                              | 27.02%      | 31.59%    | *** |
| Program for Criminal Justice Involved Clients | 44.81%      | 19.29%    | *** |
| N   | 4,975       | 8,364     |     |
|   | <b>2019</b> |           |     |
| <b>Independent Variables</b>                  | <i>Yes</i>  | <i>No</i> |     |
| State Level Overdose Rate                     | 21.50       | 21.60     |     |
| Medicaid Accepted                             | 71.58%      | 65.30%    | *** |
| Public Funds Received by Facility             | 56.18%      | 51.15%    | *** |
| Offers Methadone Treatment                    | 11.31%      | 13.36%    | *** |
| Offers Buprenorphine Treatment                | 29.04%      | 21.11%    | *** |
| Private Facility                              | 37.88%      | 41.58%    | *** |
| Program for Criminal Justice Involved Clients | 55.22%      | 14.79%    | *** |
| N   | 8,384       | 7,561     |     |

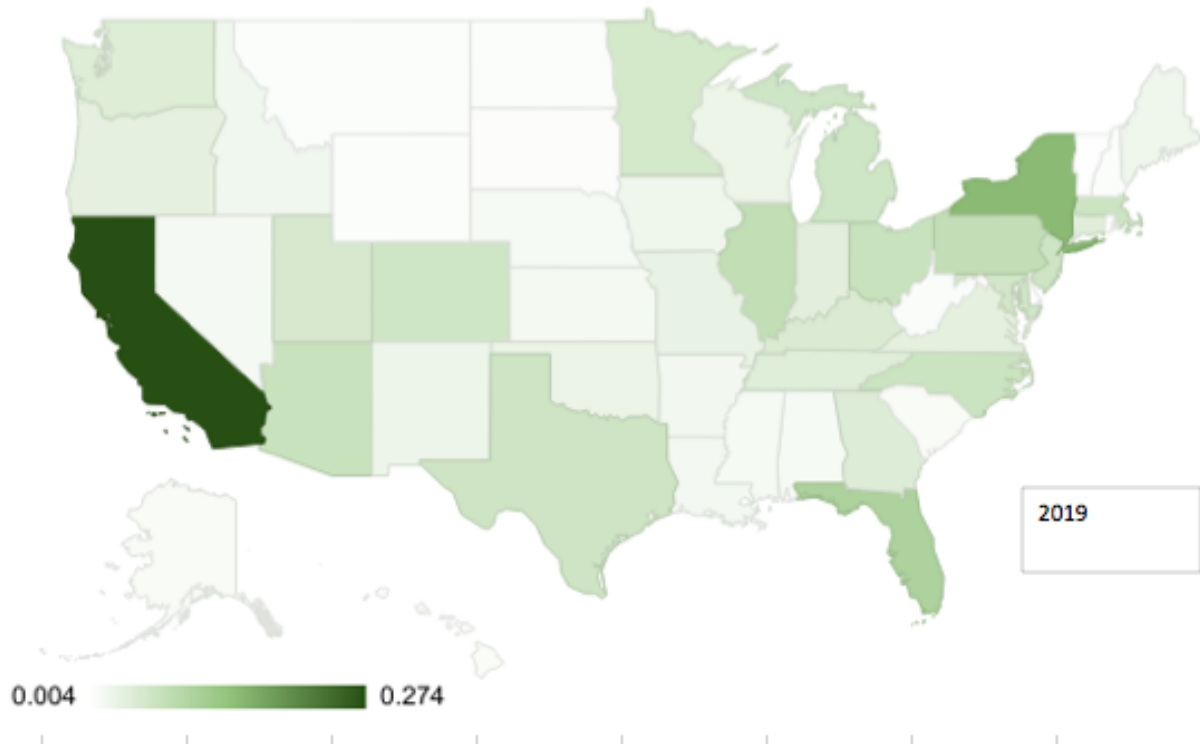
**Note: Asterisks compare facilities with each treatment type to facilities without each treatment type. \* p < .05, \*\* p < .01, \*\*\* p < .001**

Table 22 demonstrates how the characteristics of facilities offering treatment for co-occurring mental health issues treatment have changed over time. It also presents results of chi-square tests examining whether there are significant differences between facilities with treatment for co-occurring mental health issues treatment versus facilities without treatment for co-occurring mental health issues treatment. Notably, treatment facilities offering treatment for co-occurring mental health issues have significantly different characteristics from those not offering treatment for co-occurring mental health issues. During all years examined, facilities that offer treatment for co-occurring mental health issues were more likely to accept medicaid, receive public funds, offer buprenorphine, and have a program for criminal justice-involved clients. In contrast, these facilities were less likely to be privately owned and offer methadone treatment (only in 2019, in other years there was no association). Finally, at no point in time are there

significant associations between state-level overdose rates and facilities offering treatment for co-occurring mental health issues.

*Geographic Distribution of Treatment for Co-occurring Mental Health Issues*





**Figure 11. Geographic Distribution of Co-Occurring Mental Health Treatment, 2000-2019**

**Table 23. States with the Highest Proportion of Facilities Offering Treatment for Co-Occurring Mental Health Issues in the US in 2000, 2010, and 2019**

| Top 10 States by % of Total Facilities Offering Treatment for Co-Occurring Mental Health Issues in 2000 | N   | % of Total Facilities |
|---|-----|-----------------------|
| New York  | 659 | 9.84%                 |
| California  | 632 | 9.44%                 |
| Texas   | 382 | 5.70%                 |
| Florida   | 342 | 5.11%                 |
| Pennsylvania  | 276 | 4.12%                 |
| Michigan  | 274 | 4.09%                 |
| Illinois  | 248 | 3.70%                 |
| Ohio  | 145 | 3.66%                 |
| Massachusetts   | 209 | 3.12%                 |
| Wisconsin   | 187 | 2.79%                 |

| Top 10 States by % of Total Facilities Offering Treatment for Co-Occurring Mental Health Issues in 2010 |     |                       |
|---|-----|-----------------------|
|   | N   | % of Total Facilities |
| California  | 606 | 12.18%                |
| New York  | 431 | 8.66%                 |
| Florida   | 254 | 5.11%                 |
| Pennsylvania  | 221 | 4.44%                 |
| Michigan/Mississippi  |     | 3.90%                 |
| Illinois  | 172 | 3.46%                 |
| Ohio  | 159 | 3.20%                 |
| North Carolina  | 153 | 3.08%                 |
| Washington  | 137 | 2.75%                 |
| New Jersey  | 131 | 2.63%                 |

| Top 10 States by % of Total Facilities Offering Treatment for Co-Occurring Mental Health Issues in 2019 |       |                       |
|---|-------|-----------------------|
|   | N     | % of Total Facilities |
| California  | 1,052 | 27.44%                |
| New York  | 577   | 15.05%                |
| Florida   | 407   | 10.62%                |
| Illinois  | 309   | 8.06%                 |
| Pennsylvania  | 304   | 7.93%                 |
| Arizona   | 275   | 7.17%                 |
| Ohio  | 274   | 7.15%                 |
| North Carolina  | 266   | 6.94%                 |
| Massachusetts   | 254   | 6.62%                 |
| Texas   | 252   | 6.57%                 |

Figure 11 and Table 23 present the geographic distribution of drug treatment facilities that offer treatment for co-occurring mental health issues in the US. Figure 11 demonstrates how treatment for co-occurring mental health issues has become more concentrated in states like California over time. Table 23 reflects similar trends in the distribution of treatment for co-occurring mental health issues in the US. Notably, while California only had 9.44% of all facilities offering treatment for co-occurring mental health issues in 2000, by 2019 they had 27.44% of all facilities offering treatment for co-occurring mental health issues. Other states with

a sizable proportion of all facilities offering treatment for co-occurring mental health issues over time include New York (> 9.5%), Florida (> 5%), Pennsylvania (> 4%), Illinois (> 3%), and Ohio (> 3%). This shows that states with a high proportion of treatment facilities overall, also have a high proportion of facilities offering treatment for co-occurring mental health issues treatment overall. Other states that rank in the top ten in terms of the proportion of treatment facilities offering treatment for co-occurring mental health issues include Texas, Michigan, Massachusetts, Wisconsin, Mississippi, North Carolina, New Jersey, and Arizona.

*Treatment for Co-occurring Mental Health Issues Models*

**Table 24. Estimating Availability of Co-Occurring Mental Health Treatment in 2000, 2010, and 2019**

|   | 2000<br><i>b</i> | 2010<br><i>b</i> | 2019<br><i>b</i> | Full Model<br><i>b</i> |
|---|------------------|------------------|------------------|------------------------|
| <b>Independent Variables</b>                  |                  |                  |                  |                        |
| <i>Rational Variables</i>                     |                  |                  |                  |                        |
| State Level Overdose Rate                     | 0.018 *          | -0.013 *         | -0.006 **        | -0.005 **              |
| Year  | -                |                  |                  | 0.000                  |
| <i>Institutional Variables</i>                |                  |                  |                  |                        |
| Medicaid Accepted                             | 0.824 ***        | 0.560 ***        | 0.205 *          | 0.565 ***              |
| Public Funds Received by Facility             | -0.307 ***       | -0.088           | -0.08            | -0.214 ***             |
| Offers Methadone Treatment                    | -0.018           | -0.130           | -0.203 *         | -0.112 **              |
| Offers Buprenorphine Treatment                | -                | 0.798 ***        | 0.632 *          | 0.600 ***              |
| <i>Racialization of Institutions</i>          |                  |                  |                  |                        |
| Privately Owned                               | -0.019           | -0.243 ***       | -0.147 **        | -0.137 ***             |
| Program for Criminal Justice Involved Clients | 0.404 ***        | 1.312 ***        | 1.986 *          | 1.229 ***              |
| N   | 12,958           | 10,850           | 15,264           | 39,072                 |
| Pseudo R2                                     | 0.0341           | 0.0809           | 0.1468           | 0.0741                 |

Note: \* p < .05, \*\* p < .01, \*\*\* p < .001

Table 24 presents two models to estimate the availability of treatment for co-occurring mental health issues for the years 2000, 2010, and 2019. There are a few key trends to note here. First, over time, this model is able to explain more of the variability in availability of treatment for co-occurring mental health issues (pseudo R<sup>2</sup> = .0341 in 2000 vs. pseudo R<sup>2</sup> = .1468 in 2019). In contrast, when looking at the full model it does not do as good of a job explaining variability, namely because time is not a significant factor in the diffusion of treatment for co-occurring mental health issues. This is most likely because, while treatment for co-occurring mental health issues diffuses during this period, there is already a significant amount of availability of treatment for co-occurring mental health issues even in 2000. As such, even though state-level overdose rates are significantly associated with facilities offering treatment for co-occurring mental health issues – this relationship varies over time in direction ( $b = .018$  in 2000 vs.  $b = -.006$  in 2019) and is not as significantly associated as other variables. This suggests that there is not a strong or clear relationship between the two variables.

When examining the institutional variables, there are three main findings. First, there is a positive association between whether a facility offers treatment for co-occurring mental health issues and whether a facility accepts medicaid or offers buprenorphine. Over time, the strength of the associations between a facility offering treatment for co-occurring mental health issues and a facility accepting medicaid ( $b = .824$  in 2000 vs.  $b = .205$  in 2019) or offering buprenorphine ( $b = .798$  in 2010 vs.  $b = .632$  in 2019) decreases. Unlike the association between a facility offering buprenorphine and a facility offering treatment for co-occurring mental health issues, there is no significant association with a facility offering methadone until 2019. Even so, when there is a significant association between a facility offering treatment for co-occurring mental health issues and a facility offering methadone, this association is negative ( $b = .203$ ,  $p < .001$ ).

Finally, when looking at the racialization of institutions variables, a facility being privately owned is negatively significantly associated with a facility offering treatment for co-occurring mental health issues. In contrast, a facility offering a program for criminal justice-involved clients is positively associated with whether a facility offers treatment for co-occurring mental health issues. In contrast, the strength of the association between a facility offering treatment for co-occurring mental health issues and a facility having a program for criminal justice-involved clients increases (b = .404 in 2000 vs. b = 1.986 in 2019); The strength of the association increases over time (b = .404 in 2000 vs. b = 1.986 in 2019).

**Table 25. Estimating Availability of Treatment for Co-Occurring Mental Health Issues in States with a High Proportion of Treatment Centers in 2000, 2010, and 2019**

| <b>California</b>                             |             |     |             |     |             |
|---|-------------|-----|-------------|-----|-------------|
|   | <b>2000</b> |     | <b>2010</b> |     | <b>2019</b> |
|   | <i>b</i>    |     | <i>b</i>    |     | <i>b</i>    |
| <b>Independent Variables</b>                  |             |     |             |     |             |
| <i>Institutional Variables</i>                |             |     |             |     |             |
| Medicaid Accepted                             | 0.785       | *** | 0.509       | *** | -0.011      |
| Public Funds Received by Facility             | -0.092      |     | -0.019      |     | -0.151      |
| Offers Methadone Treatment                    | -0.110      |     | -0.814      | **  | -0.693      |
| Offers Buprenorphine Treatment                | -           |     | 0.69        | **  | 0.905       |
| <i>Racialization of Institutions</i>          |             |     |             |     |             |
| Privately Owned                               | 0.055       |     | 0.145       |     | 0.399       |
| Program for Criminal Justice Involved Clients | 0.341       | **  | 1.435       | *** | 2.056       |
| N   | 1,353       |     | 1,206       |     | 1,703       |
| Pseudo R2                                     | 0.0234      |     | 0.0909      |     | 0.1513      |
| <b>New York</b>                               |             |     |             |     |             |
|   | <b>2000</b> |     | <b>2010</b> |     | <b>2019</b> |
|   | <i>b</i>    |     | <i>b</i>    |     | <i>b</i>    |
| <b>Independent Variables</b>                  |             |     |             |     |             |
| <i>Institutional Variables</i>                |             |     |             |     |             |

|   |        |     |        |     |        |     |
|---|--------|-----|--------|-----|--------|-----|
| Medicaid Accepted                             | 1.123  | *** | 1.039  | *** | 0.548  | *   |
| Public Funds Received by Facility             | -0.486 | **  | -0.448 | **  | 0.030  |     |
| Offers Methadone Treatment                    | -0.245 |     | -0.619 | **  | -0.650 | **  |
| Offers Buprenorphine Treatment                | -      |     | 0.929  | *** | 0.755  | *** |
| <i>Racialization of Institutions</i>          |        |     |        |     |        |     |
| Privately Owned                               | 0.105  |     | 0.141  |     | 0.216  |     |
| Program for Criminal Justice Involved Clients | 0.512  | *** | 1.467  | *** | 2.332  | *** |
| N   | 1,219  |     | 865    |     | 854    |     |
| Pseudo R2                                     | 0.0601 |     | 0.1329 |     | 0.2134 |     |

### Illinois

|   | 2000     |    | 2010     |     | 2019     |     |
|---|----------|----|----------|-----|----------|-----|
|   | <i>b</i> |    | <i>b</i> |     | <i>b</i> |     |
| <b>Independent Variables</b>                  |          |    |          |     |          |     |
| <i>Institutional Variables</i>                |          |    |          |     |          |     |
| Medicaid Accepted                             | 0.744    | ** | 0.238    |     | 0.019    |     |
| Public Funds Received by Facility             | -0.705   | ** | -0.472   |     | 0.092    |     |
| Offers Methadone Treatment                    | 0.220    |    | 0.457    |     | 0.209    |     |
| Offers Buprenorphine Treatment                | -        |    | 1.197    | **  | 0.804    | *** |
| <i>Racialization of Institutions</i>          |          |    |          |     |          |     |
| Privately Owned                               | -0.633   | *  | -0.301   |     | -0.298   |     |
| Program for Criminal Justice Involved Clients | 0.285    |    | 1.557    | *** | 1.71     | *** |
| N   | 535      |    | 519      |     | 756      |     |
| Pseudo R2                                     | 0.0334   |    | 0.1091   |     | 0.1129   |     |

### Florida

|                                   | 2000     |     | 2010     |    | 2019     |     |
|-----------------------------------|----------|-----|----------|----|----------|-----|
|                                   | <i>b</i> |     | <i>b</i> |    | <i>b</i> |     |
| <b>Independent Variables</b>      |          |     |          |    |          |     |
| <i>Institutional Variables</i>    |          |     |          |    |          |     |
| Medicaid Accepted                 | 0.606    | **  | 0.100    |    | 0.396    |     |
| Public Funds Received by Facility | -0.959   | *** | 0.493    |    | -0.611   | **  |
| Offers Methadone Treatment        | -0.414   |     | -0.901   | *  | -1.112   | **  |
| Offers Buprenorphine              | -        |     | 0.954    | ** | 0.813    | *** |



|  |          |  |           |           |
|--|----------|--|-----------|-----------|
| Treatment  |          |  |           |           |
| <i>Racialization of Institutions</i>             |          |  |           |           |
| Privately Owned                                  | -0.070   |  | 0.236     | -0.481 *  |
| Program for Criminal Justice<br>Involved Clients | 0.552 ** |  | 1.253 *** | 1.920 *** |
| N  | 632      |  | 479       | 705       |
| Pseudo R2  | 0.0380   |  | 0.0847    | 0.1550    |

Note: \* p < .05, \*\* p < .01, \*\*\* p < .001

Table 25 presents models for four states with a high proportion of treatment centers in 2000, 2010, and 2019: California, New York, Illinois, and Florida. The results of these models suggest that treatment for co-occurring mental health issues is highly institutionalized. Unlike the models in the previous chapter that predicted whether a facility offers methadone or buprenorphine in states with a high proportion of treatment centers, this model explains a great deal of variability in availability of treatment for co-occurring mental health issues within all four states. Over time, these models do a much better job of explaining variability in the availability of treatment for co-occurring mental health issues – with the pseudo R2 values increasing for all states over time. While the variables associated with a facility offering treatment for co-occurring mental health issues vary by state, a facility having a program for criminal justice-involved clients is consistently and strongly associated with a facility offering treatment for co-occurring mental health issues. The other reliable and strong predictor of a facility offering treatment for co-occurring mental health issues among all states is whether a facility offers buprenorphine treatment. Among all states, a facility offering buprenorphine treatment is significantly positively associated with a facility offering treatment for co-occurring mental health issues.

**Table 26. Estimating Availability of Treatment for Co-Occurring Mental Health Issues in States with a High Overdose Rate 2000, 2010, and 2019**

| <b>Ohio</b>                                   |             |             |             |
|---|-------------|-------------|-------------|
|   | <b>2000</b> | <b>2010</b> | <b>2019</b> |
|   | <i>b</i>    | <i>b</i>    | <i>b</i>    |
| <b>Independent Variables</b>                  |             |             |             |
| <i>Institutional Variables</i>                |             |             |             |
| Medicaid Accepted                             | 0.380       | 0.256       | -0.297      |
| Public Funds Received by Facility             | 0.041       | 0.283       | 0.318       |
| Offers Methadone Treatment                    | -0.276      | -0.053      | -0.118      |
| Offers Buprenorphine Treatment                | -           | 1.021 *     | 0.364       |
| <i>Racialization of Institutions</i>          |             |             |             |
| Privately Owned                               | 1.300 **    | 0.238       | -0.079      |
| Program for Criminal Justice Involved Clients | 0.402 *     | 1.070 ***   | 1.661 ***   |
| N   | 491         | 335         | 539         |
| Pseudo R2                                     | 0.0254      | 0.0484      | 0.1239      |

| <b>Pennsylvania</b>                           |             |             |             |
|---|-------------|-------------|-------------|
|   | <b>2000</b> | <b>2010</b> | <b>2019</b> |
|   | <i>b</i>    | <i>b</i>    | <i>b</i>    |
| <b>Independent Variables</b>                  |             |             |             |
| <i>Institutional Variables</i>                |             |             |             |
| Medicaid Accepted                             | 0.817 ***   | -0.247      | -0.14       |
| Public Funds Received by Facility             | -0.555 *    | 0.363       | 0.408 *     |
| Offers Methadone Treatment                    | -0.125      | 0.595 *     | 0.744 **    |
| Offers Buprenorphine Treatment                | -           | 0.377       | 0.472 *     |
| <i>Racialization of Institutions</i>          |             |             |             |
| Privately Owned                               | 0.140       | -0.166      | -0.102      |
| Program for Criminal Justice Involved Clients | 0.569 **    | 1.371 ***   | 1.650 ***   |
| N   | 523         | 443         | 564         |
| Pseudo R2                                     | 0.0364      | 0.0715      | 0.1257      |

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Finally, Table 26 presents models for two states with high overdose rates in 2000, 2010, and 2019: Ohio and Pennsylvania. Similar to the models in Table 25, these models explain a great deal of variability in the availability of treatment for co-occurring mental health issues;

over time, their ability to explain variability increases. Similar to the models in states with a high proportion of treatment and the national models, having a program for criminal justice-involved clients is significantly positively associated with a facility offering treatment for co-occurring mental health issues. All of these trends are true for both Ohio and Pennsylvania.

### ***Discussion and Analysis***

There are a few key trends that emerge from the data, which are interesting both theoretically and practically. Foremost, treatment for co-occurring mental health issues has diffused widely among all regions of the US – significantly more than either forms of medication-assisted treatment have spread. As such, there are significant differences in the factors associated with the diffusion of treatment for co-occurring mental health issues compared to medication-assisted treatment.

#### *The Diffusion of Treatment for Co-occurring Mental Health Issues*

Foremost, realist variables do a poor job of explaining variability in access to treatment for co-occurring mental health issues. The association with the state-level overdose rate switches over time to being that of a positive to that of a negative one. Even in the full model, the state-level overdose rate is negatively associated ( $p < .01$ ) with a facility offering treatment for co-occurring mental health issues. Similarly, in the full model, year is not a significant predictor of whether a facility offers treatment for co-occurring mental health issues. This suggests that treatment for co-occurring mental health issues is decoupled from how big of an issue drug addiction may be. It also suggests that the diffusion of treatment for co-occurring mental health issues does not increase over time. Instead, there is only a slight percentage increase in access –

something that is also reflected in the total number of facilities over time (12,958 in 2000 vs. 15,264 in 2019).

These trends do not mean that treatment for co-occurring mental health issues is not highly institutionalized. In fact, one of the reasons that treatment for co-occurring mental health issues is not well explained by realist variables is reflected in the strength of the institutional level variables. In the full model, a facility accepting medicaid and offering buprenorphine treatment is significantly positively associated with a facility offering treatment for co-occurring mental health issues. Similar to methadone and buprenorphine, a facility receiving public funds is negatively significantly associated with a facility offering treatment for co-occurring mental health issues – yet, the strength of this association decreases over time. All of these trends reflect a high level of institutionalization of treatment for co-occurring mental health issues, suggesting that the institutional locus of drug use has shifted significantly to that of a medical issue rather than that of a criminal issue. Related to this, one of the reasons for this institutionalization is that co-occurring mental health treatment is much more closely aligned with traditional drug treatment approaches, such as Narcotics Anonymous. In many ways, treatment for co-occurring mental health issues is aligned with ideas that “you have to fix your interior” found in traditional, socio-behavioral based treatments. Unlike methadone and buprenorphine, two medicalized treatments that challenge cultural ideas about how to get and be sober, treatment for co-occurring mental health issues fits within and naturally expands the existing repertoire of solutions to addressing drug addiction.

Yet, while the institutional variables primarily show how the medical approach to drug addiction continues to grow, the negative association between a facility offering methadone and a facility offering treatment for co-occurring mental health issues is something that institutional

theory cannot explain. Institutional theory would predict that all medical approaches to addressing opioid addiction would become more institutionalized and strongly associated with one another over time. Instead, there is a significant negative association between a facility offering methadone and a facility offering treatment for co-occurring mental health issues. Here, is where the racialization of institutions variables can further help explain the diffusion and availability of treatment for co-occurring mental health issues. Drawing on the results of chapter 4, methadone is associated with high levels of surveillance. Because of its historical association with black and poor populations, we do not see the same level of diffusion of this form of medication-assisted treatment during this period. Given that treatment for co-occurring mental health issues is significantly institutionalized and connects to ideologies behind treatments such as buprenorphine, which see drug addiction as a mental or behavioral health issue, it is not surprising that methadone is not a significant predictor of treatment for co-occurring mental health issues. These same trends are reflected when looking at the associations between a facility having a program for criminal justice-involved clients. As would be predicted by this theory, the odds that a facility has a program for criminal justice-involved clients become more positively associated with whether a facility offers treatment for co-occurring mental health issues. This continues to reflect the shift in the institutional locus to a medical approach to addressing drug addiction.

#### *Medication-Assisted Treatment vs. Treatment for Co-occurring Mental Health Issues*

There are key differences between the diffusion of medication-assisted treatment and treatment for co-occurring mental health issues. Foremost, the model fits treatment for co-occurring mental health issues for individual years significantly better than medication-assisted treatment. Given that treatment for co-occurring mental health issues was more common, even in

2000, this may suggest that institutional explanations do a better job at predicting kinds of treatment that are sufficiently institutionalized. At that point, there's a clear sense of which kinds of facilities will offer a given treatment and what population is best served by this treatment. Another explanation for why this trend may occur is suggested by institutional theory. DiMaggio and Powell's (1991) hypothesis B-3, for instance, predicted that "the fewer the number of alternative organizational models, the faster the rate of isomorphism." In the case of treatment for co-occurring mental health issues, there are few alternatives if an individual is experiencing mental health and substance use disorder issues. In contrast, there are multiple options of how to address opioid addiction, as evidenced by the multiple forms of medication-assisted treatment.

One way that the racialization of institutions variables do not reflect trends in methadone and buprenorphine availability is when looking at the relationship between whether a facility is privately owned and whether it offers treatment for co-occurring mental health issues. As medication-assisted treatment becomes more diffuse, it becomes more strongly associated with private facilities. Unlike medication-assisted treatment, there is a significant negative association between these two variables. This contextualizes findings that have found that treatment for co-occurring mental health issues is more likely to be found in facilities that serve low-income or vulnerable populations, which is reflected in the treatment for co-occurring mental health issues results with significant positive associations between target population variables and treatment for co-occurring mental health issues.

Similarly, differences between medication-assisted treatment and treatment for co-occurring mental health issues vary in the extent to which they are associated with realist variables. While medication-assisted treatment is significantly associated with state level opioid overdose rates, these associations do not exist when looking at the treatment for co-occurring

mental health issues models. In fact, as time goes on, the state-level overdose rate is clearly associated with treatment for co-occurring mental health issues programs. This is not too surprising, given that medication-assisted treatment is particularly used for addressing opioid addiction, while treatment for co-occurring mental health issues can be of use for a variety of substance use disorders.

### ***Conclusion***

Co-occurring mental health treatment is highly institutionalized during the entire period of analysis. As a result, institutional variables have significant explanatory power in understanding the continued diffusion of treatment for co-occurring mental health issues. Consequently, one of the reasons that treatment for co-occurring mental health issues is not well explained by realist variables is reflected in the strength of the institutional level variables. Co-occurring mental health treatment is much more closely aligned with traditional drug treatment approaches, such as Narcotics Anonymous. In many ways, treatment for co-occurring mental health issues is aligned with ideas that “you have to fix your interior” found in traditional socio-behavioral based treatments. Unlike methadone and buprenorphine, two medicalized treatments that challenge cultural ideas about how to get and be sober, treatment for co-occurring mental health issues fits within and naturally expands the existing repertoire of solutions to addressing drug addiction. Yet, while the institutional variables primarily show how the medical approach to drug addiction continues to grow, the negative association between a facility offering methadone and a facility offering treatment for co-occurring mental health issues is something that institutional theory cannot explain. Here, is where the racialization of institutions variables can further help explain the diffusion and availability of treatment for co-occurring mental health issues. Drawing on the results of chapter 4, methadone is associated with high levels of

surveillance. Because of its historical association with black and poor populations, we do not see the same level of diffusion of this form of medication-assisted treatment during this period. Given that treatment for co-occurring mental health issues is significantly institutionalized, it is not surprising that methadone is not a significant predictor of treatment for co-occurring mental health issues.

There are two key implications arising from this work. The first is that institutional theory helps explain the ease of the diffusion of treatment for co-occurring mental health issues, as it directly connects with existing cultural notions of what drug treatment looks like within institutions. The other is that more attention must also be paid to the relationship between the definition of a problem, a problem's institutional bases, and the proposed solutions. Through looking at co-occurring mental health treatment this chapter generally considers the question of the extent to which medicalized drug treatment has diffused. This chapter tests realist, institutional, and racialization of institutions variables to understand the proliferation and diffusion of co-occurring mental health treatment. The results of this analysis expand upon the diffusion literature to highlight how institutional explanations can help explain the medicalization of drug addiction. Future research could expand upon the theoretical ideas developed here by testing other drug treatment interventions related to mental health, such as the prescription of psychiatric medications, taking into account the ways in which treatment options reinforce or alter notions of effective drug treatment.



## Chapter 6 - Conclusion

In total, my dissertation makes three key arguments. First, understanding how policies and practices alter definitional and institutional loci of social problems is integral to understanding the diffusion of policy and practices. Second, policies or practices that expand institutional domains diffuse wider than those that challenge institutional logics. Finally, institutions and their responses to social problems are racialized – possible solutions to a social problem and the institutional context of these solutions depends on whether whites or non-whites are seen as the affected population.

Chapter 3 looks at fatal overdose prevention laws. In this case, state policymakers are not simply responding to increased rates of fatal overdoses. Similarly, while drug laws have historically been used as a means of social control of non-whites and the poor, different motivations seem to arise with overdose prevention laws. Instead, the passage of these laws relates to social protection; this derives from widespread imagery of a growing number of white opioid users. This changing image of who is an opioid user helps explain both why these laws are being passed now and why the institutional locus of control is changing. When white and wealthier individuals are seen as the impacted population, policymakers ground solutions in care-based institutions that have historically served them (i.e., health institutions), rather than punitive institutions of social control (i.e., criminal justice institutions) that have historically served to marginalize individuals (primarily those who are Black and/or poor). Finally, while these laws affect criminal justice and health institutions differently, they serve the same function of shifting the conceptualization of addiction from a legal/criminal justice issue to that of a medical issue. While conventional realist and race arguments have a hard time making sense of

this change, the social institutional argument is able to account for the differing diffusion patterns of Naloxone and Good Samaritan laws.

Chapter 4 highlights the importance of understanding the institutional context when trying to explain the diffusion of medicalized drug treatments. Institutional contexts are important because institutions are both racialized and approach problems in different ways depending on the group that is impacted. When institutions are approaching a problem associated with minority groups, solutions involve high levels of monitoring, evaluation, and control – whether that is in the setting of a prison or a methadone clinic. In contrast, when these same issues are impacting white and wealthy populations, there is a much different approach. Both drugs and health have been racialized, having significant institutional consequences. Health and healthcare are racialized: healthcare is a “white” institution. This means that whites are the most likely to not only have healthcare, but to have quality healthcare where their health needs are taken seriously and addressed sufficiently by practitioners who are socially similar to them (Fiscella and Sanders 2006). This is especially true in the case of privately owned facilities that are more accessible to white and wealthy individuals. This racialization can also help explain why having a program for criminal justice-involved clients becomes less negatively associated with medication-assisted treatment over time. Similar to Good Samaritan laws, which undercut the long-term dominance of the criminalizing institutional structures, because more white individuals are experiencing substance use issues, medicalized drug treatment becomes more accessible for individuals involved in the criminal justice system for the same reason.

Finally, Chapter 5 highlights the role of institutional culture in the diffusion of medicalized drug treatment. Co-occurring mental health treatment is highly institutionalized during the entire period of analysis. As a result, institutional variables have significant

explanatory power in understanding the continued diffusion of treatment for co-occurring mental health issues. Consequently, one of the reasons that treatment for co-occurring mental health issues is not well explained by realist variables is reflected in the strength of the institutional level variables. Co-occurring mental health treatment is much more closely aligned with traditional drug treatment approaches, such as Narcotics Anonymous. In many ways, treatment for co-occurring mental health issues is aligned with ideas that “you have to fix your interior,” often found in traditional, socio-behavioral based treatments. Unlike methadone and buprenorphine, two medicalized treatments that challenge cultural ideas about how to get and be sober, treatment for co-occurring mental health issues fits within and naturally expands the existing repertoire of solutions to addressing drug addiction. Yet, while the institutional variables primarily show how the medical approach to drug addiction continues to grow, the negative association between a facility offering methadone and a facility offering treatment for co-occurring mental health issues is something that institutional theory cannot explain. Here is where the racialization of institutions variables can further help explain the diffusion and availability of treatment for co-occurring mental health issues. Drawing on the results of chapter 4, methadone is associated with high levels of surveillance. Because of its historical association with Black and poor populations, we do not see the same level of diffusion of this form of medication-assisted treatment during this period. Given that treatment for co-occurring mental health issues is significantly institutionalized, it is not surprising that methadone is not a significant predictor of treatment for co-occurring mental health issues.

Drawing from these results, I revisit each of the hypotheses posed in Chapter 2, discussing the extent to which each hypothesis can explain the diffusion of fatal overdose prevention laws and medicalized drug treatment.

### ***Rational Hypotheses***

HYPOTHESIS 1: Fatal overdose prevention laws and medicalized drug treatment diffuse because more people are overdosing.

HYPOTHESIS 2: Fatal overdose prevention laws and medicalized drug treatment diffuse because the public is more aware of the problem and the possible solutions.

Both hypotheses explain some of the variation in the diffusion of medicalized drug policies and treatment practices. Still, they are the most inadequate of all the hypotheses when it comes to explaining the diffusion of fatal overdose prevention laws and medicalized drug treatment. There is some evidence for Hypothesis 1. While fatal overdose rates are significant predictors of Naloxone laws, Good Samaritan laws, and buprenorphine treatment, they do not significantly predict whether a facility will offer methadone or treatment for co-occurring mental health issues. Even in models for Naloxone laws, Good Samaritan laws, and buprenorphine treatment, fatal overdose rates only explain a small proportion of variation. Hypothesis 2 encounters similar mixed evidence. For instance, media attention is positively significantly associated with the passage of both Naloxone and Good Samaritan laws. Yet, when looking at the full models for the different forms of medicalized drug treatment, only buprenorphine was significantly positively associated with the year, suggesting that as time went on (and people became more aware of the opioid epidemic) buprenorphine became more available. Both of these hypotheses leave two key questions unanswered: 1) Why do these laws and practices diffuse now? and 2) Why don't both fatal overdose laws and all forms of medicalized drug treatment diffuse to the same extent?

### *Institutional Hypotheses*

HYPOTHESIS 3: Fatal overdose prevention laws and medicalized drug treatment diffuse because the definitional locus of the problem is shifting from drug use as crime to drug use as medicine.

HYPOTHESIS 4: Fatal overdose prevention laws and medicalized drug treatment diffuse because the institutional locus of the problem is shifting from criminal to medical.

Hypotheses 3 and 4 test institutional theories of diffusion, which is one of the strongest explanations for the diffusion of fatal overdose laws and medicalized drug treatment. All three chapters provide some amount of support for Hypothesis 3. Chapter 3 captures the ways in which the passage of fatal overdose prevention laws is associated with broader societal shifts in the definitional locus of the problem – where drug use is being seen more as a medical issue rather than a criminal one. Similarly, the significant diffusion of methadone and buprenorphine, both drug-based solutions to addressing addiction, very literally does this: individuals struggling with opioid addiction go from taking street opioids (heroin, fentanyl, prescription pills) to taking opioids as medicine, as methadone and buprenorphine bind to the opioid receptors in a dosage that stops opioid cravings but does not get the patient high. All three chapters also provide some support for Hypothesis 4. Chapter 3 shows how Good Samaritan laws, which shift the institutional locus from that of the criminal to the medical, are significantly associated with other shifts of this kind such as Prescription Drug Monitoring Programs. It also highlights how medical approaches to drug addiction seem like the more “obvious” solution, given that the opioid epidemic began due to prescription opioids such as Oxycontin and Vicodin – if the problem came from medical institutions, the solution lies in the medical institutions, while if the problem came from the “streets,” the solution lies in criminal institutions. Similarly, the

significant association with all forms of medicalized drug treatment with medicaid also speaks to the broader institutional support for medical approaches to drug addiction that is partially driven by the government.

These hypotheses also help address the question of why Naloxone and Good Samaritan laws do not drug diffuse to the same extent, Naloxone and Good Samaritan laws have different patterns of diffusion, with Naloxone laws diffusing more widely. The reason for this lies in the ways in which they alter existing institutional arrangements. Naloxone expands the domain of medical institutions, while Good Samaritan laws challenge the authority of criminal institutions over drug use and addiction. As would logically follow from hypothesis 4, it is more difficult to shift the institutional domain rather than to expand an institution's authority. It is only once there's a broader shift in the institutional locus (in this case, in the later years of the analysis) that this hypothesis could explain the passage of fatal overdose prevention laws. The question, "Why does co-occurring mental health treatment diffuse more broadly than medication-assisted treatment?" has a similar answer. Co-occurring mental health treatment diffuses more broadly because it is simply expanding the domain of medical institutions, while medication-assisted treatment is, in some ways, challenging the idea of drug use as crime, where instead patients take non-intoxicating opioid replacements as medicine to treat addiction.

### ***Racialization of Institutions***

HYPOTHESIS 5: Fatal overdose prevention laws and medicalized drug treatment diffuse because the drug using population is growing whiter and more affluent.

Hypothesis 5 helps answer the question, “Why do these laws and practices diffuse now?” Chapter 3 highlights how race and class-based explanations address questions that institutional arguments cannot sufficiently answer – namely, why the institutional locus has shifted. Institutions are racialized, as evidenced by the disparate ways that different social groups are served by these institutions. In this case, race- and class-based inequalities help us understand the conditions under which institutional domains will expand or contract. When there is a perception that institutions are failing whiter and wealthier individuals, then they are more likely to alter existing institutional arrangements. Consequently, this analysis provides evidence that institutional domains will expand or contract to benefit whites because of the racialization of institutions.

Drawing from these findings, Chapters 4 further provides support this hypothesis of the racialization of institutions. Both methadone and buprenorphine become more positively associated with private treatment centers over time, which suggests that all forms of medication-assisted treatment are becoming more available to whiter and wealthier individuals. Similarly, both forms of treatment are negatively associated with facilities offering programs for criminal justice-involved clients – suggesting that criminal justice-involved individuals (who are more likely to be non-white and poor) are not getting the same level of access to these treatments.

Finally, it is here that the question “Why don’t all forms of medicalized drug treatment diffuse to the same extent?” is answered. Theoretically, the differences between the diffusion of methadone and buprenorphine provide significant evidence for the racialization of institutions hypotheses. Buprenorphine diffuses significantly wider than methadone, which is connected to the ways in which institutions are racialized. Methadone has, historically, been a treatment offered to black, poor populations in urban areas. Even as a medical approach was taken to

address this population's issues with opioid use, this group was subject to high levels of surveillance to obtain this treatment. This is still true today for methadone treatment. When institutions are approaching a problem associated with minority groups, solutions involve high levels of monitoring, evaluation, and control –whether that is in the setting of a prison or a methadone clinic. This population is seen as morally corrupt, entrenched in a culture of poverty that must be addressed through social control if individuals are to be productive members of society. In contrast, when these same issues are impacting white and wealthy populations – there is a much different approach. This approach is typified with buprenorphine. Buprenorphine can be obtained through a primary care doctor, unlike methadone, which must be obtained through an opioid treatment program (usually located in low income, urban neighborhoods). There is much less surveillance associated with buprenorphine, where patients can quickly build up enough time on the medication to get large take home doses. Even as medication-assisted treatment expands to benefit White patients, “whiter” forms of medication-assisted treatment are the ones that expand most broadly.

After considering the macro- and meso-level changes to responses to opioid addiction, I return to the larger question of the extent to which changes in policy are reflective of larger societal shifts, as evidenced by changes in organizations. Are policy reforms a sign of radical transformations in how we approach a social problem at the organizational level, or are these reforms primarily symbolic? In some ways, the reclassification of drug use and drug addiction as a non-criminal issue is a radical transformation considering the history of mass incarceration in the US. Drug policy has changed significantly and rapidly over the last decade towards decriminalization and support for addiction treatment. That is a large shift from mass criminalization driven by racist drug policies. Yet, my dissertation shows that it is hard to unpack



race and institutional approaches to addiction. In the same way that support for social safety nets shrunk when additon became associated with poor, Black people rather than White people (Quadagno 1995), I think that support for drug addiction as a medical issue is similarly associated with race. At the organizational level, I think that there is much more promise for the continued diffusion of medicalized drug treatment. Methadone and buprenorphine are highly effective treatment options. Opioid addiction is too complex and serious of a disorder to discount the empirical evidence when many other treatment options do not have the same level of documented long-term efficacy. This is especially true because it is a treatment that addresses a biological component of the issue, opioid cravings and long-term natural opioid deficiencies related to long-term use of street opioids.

Moreover, does the shift towards the medicalization of addiction truly give doctors and drug treatment professionals more autonomy in addressing opioid addiction, while also giving people struggling with addiction greater access to treatment options? In many ways, there are more options for people struggling with opioid addiction. This is something demonstrated even by the sheer increase in the number of medication-assisted treatments. At one point, methadone was the only option, while now there is buprenorphine (which comes in multiple different delivery methods) and Vivitrol. Because of the Affordable Care Act, both medicaid and private insurance have some form of coverage for these treatment options. All forms of medicalized drug treatment expanded over the last 20 years, which suggests that people do have more options, even if there still is not enough drug treatment to meet the demand (Pringle, Emptage, and Hubbard 2006; Dick et al. 2015).

Is medicalization co-occurring with continued heavy criminalization, where doctors face legal barriers in addressing opioid addiction and medicalized drug treatment is embedded into

the criminal justice system? In many ways, there is still heavy criminalization related to opioids. There are few jurisdictions where all drugs are decriminalized; Oregon is the biggest jurisdiction where this is the case. Medicalized drug treatment is not necessarily embedded into the criminal justice system. There was a relationship between treatment for co-occurring mental health issues and programs for criminal justice-involved clients – but this makes sense given the fact that a large population of individuals in jails or prisons are suffering from mental illness (Prins 2014). In contrast, methadone and buprenorphine were significantly negatively associated with a facility having programs for criminal justice-involved clients. This suggests that the medical and criminal systems exist alongside one another rather than challenging one another. While there has been some meaningful progress to address the ills of the War on Drugs, I would argue the same point that Netherland and Hansen (2017) make in their examination of the racialization of drug policy, “The ‘White drug war’ has carved out a less punitive, clinical realm for Whites where their drug use is decriminalized, treated primarily as a biomedical disease, and where their whiteness is preserved, leaving intact more punitive systems that govern the drug use of people of color.” While the opioid epidemic has been framed as a “white” epidemic, rates of overdose have also increased among Black Americans. These increases have not received the same amount of media attention.

There are a few important limitations to note. Foremost, all data used in Chapters 4 and 5 is cross-sectional. As such, these analyses can only capture how the field of drug treatment organizations has changed over time rather than being able to track changes in individual treatment organizations over time.

Future research will extend this research to look at the micro level to explain how individuals’ access to drug treatment has changed since 2000. Laws have changed and

organizations have changed, but how have these changes impacted individuals – especially as the demand for treatment for opioid use disorders has rapidly increased in the last decade? I plan to look at how individuals’ characteristics are associated with receiving medication-assisted treatment and treatment for co-occurring mental health issues. Specifically, I am interested in whether medicalized drug treatment has become more or less prevalent among racial and class groups, and whether the social determinants of treatment services changed over time.

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