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MODELS FOR MEDICATION-ASSISTED TREATMENT FOR OPIOID USE DISORDER, RETENTION, AND CONTINUITY OF CARE

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ACRONYMS

The following acronyms are mentioned in this report and/or appendices.

ACS	New York Administration for Children's Services
ADHD	Attention Deficit Hyperactivity Disorder
AHRQ	HHS Agency for Healthcare Research and Quality
APG	Ambulatory Patient Group
ASAM	American Society of Addiction Medicine
ASPE	HHS Office of the Assistant Secretary for Planning and Evaluation
AUD	Alcohol Use Disorder
BHIVES	Buprenorphine-HIV Evaluation and Support study
BHO	Behavioral Health Organization
CBT	Cognitive Behavioral Therapy
CCC	Oregon Central City Concern
CCO	Coordinated Care Organization
CDP	Chemical Dependency Professional
CEO	Chief Executive Officer
CEP	Community Engagement Program
CFS	Child and Family Services
CJS	Criminal Justice System
CM	Contingency Management
CMO	Chief Marketing Officer
CMS	HHS Centers for Medicare & Medicaid Services
COO	Chief Operating Officer
COR-12	Comprehensive Opioid Response with the Twelve Steps
COWS	Clinical Opiate Withdrawal Scale
CPT	Cognitive Processing Therapy
CRT	Cognitive Rehabilitation Treatment
CSI	Contracting with Staff Incentives
CVAM	Central Vermont Addiction Medicine
CVMC	Central Vermont Medical Center
DBT	Dialectical Behavior Therapy
DSM-V	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
ED	Emergency Department
ETS	Washington Evergreen Treatment Services
FDA	HHS Food and Drug Administration
FFS	Fee For Service
FQHC	Federally Qualified Health Center
FTE	Full-Time Equivalent
HHS	U.S. Department of Health and Human Services
HIV	Human Immunodeficiency Virus

ICER	Institute for Clinical and Economic Review
IOP	Intensive Outpatient
K2	Synthetic Marijuana
KEEP	Key Extended Entry Program
LADC	Licensed Alcohol and Drug Counselor
LGBT	Lesbian, Gay, Bisexual, and Transgender
MAT	Medication-Assisted Treatment
MDT	Multidisciplinary Team
mg	Milligram
MPR	Medication Possession Ratio
MSBI	New York Mount Sinai Beth Israel Gouverneur Clinic
MTC	Maryland Treatment Centers
NIATx	Network for the Improvement of Addiction Treatment
NQF	National Quality Forum
OAT	Opioid Addiction Treatment
OBOT	Office-Based Opioid Treatment
OBOT-B	Office-Based Opioid Treatment with Buprenorphine
OTC	Oregon Old Town Clinic
OTP	Opioid Treatment Program
OUD	Opioid Use Disorder
PCP	Primary Care Provider
PDMP	Prescription Drug Monitoring Program
POATS	Prescription Opioid Addiction Treatment Study
PTSD	Post-Traumatic Stress Disorder
QI	Quality Improvement
RAM	Rapid Access to Medication-Assisted Treatment
RCT	Randomized Controlled Trial
SAMHSA	HHS Substance Abuse and Mental Health Services Administration
SBIRT	Screening, Brief Intervention, and Referral to Treatment
SUD	Substance Use Disorder
UDS	Urine Drug Screen
VA	U.S. Department of Veterans Affairs
WCSARP	Washington County Substance Abuse Regional Partnership
XR-Bupe	Extended-Release Buprenorphine
XR-NTX	Extended-Release Naltrexone

EXECUTIVE SUMMARY

Background

Retention in medication-assisted treatment (MAT) for opioid use disorder (OUD) results in better outcomes, including reduced rates of mortality (Ma et al., 2018), reduced utilization of high-intensity treatment (Lo-Ciganic et al., 2016; Shcherbakova et al., 2018), and other benefits. This study sought to identify best practices for retaining individuals in treatment and for achieving continuity of care between settings.

This three-part study included a literature review of peer-reviewed and gray literature that addressed retention in substance use disorder (SUD) treatment, key informant interviews with six subject matter experts, and five case studies of sites or models that show promise for improving retention in treatment. The objectives of the case studies were: (1) to obtain an in-depth understanding of different models of specialty SUD treatment that are thought to be successful in retaining individuals in treatment; and (2) to determine the programmatic and financial structures required to support retention in treatment and sustained recovery.

The five settings for case studies were as follows:

1. Multiple providers in central Vermont that are part of the statewide hub-and-spoke system, including a pilot involving buprenorphine induction in the emergency department with guaranteed follow-up in a hub or a spoke, and a state initiative to require MAT in all Vermont jails.
2. A multifaceted service provider in Portland, Oregon, with a clientele that is 90 percent homeless or exiting homelessness, that offers a variety of services and supports that address physical and behavioral health treatment needs; the provider's SUD treatment spectrum includes withdrawal management and stabilization, intensive outpatient, and outpatient treatment, as well as housing and employment services that help address social determinants of health.
3. A large, well-resourced health system in New York City that includes ten opioid treatment programs (OTPs), including the oldest methadone clinic in the country; the health system collaborates closely with the criminal justice system (CJS) to ensure continuity of treatment and is using telehealth for Hepatitis C treatment.
4. An SUD treatment provider in Baltimore, Maryland, that, among other things, has piloted home-delivery of extended-release naltrexone (XR-NTX) for young adults and is about to pilot home-delivery for XR-buprenorphine.
5. An SUD treatment system in Washington State that includes a mobile methadone clinic to serve specific neighborhoods without a fixed clinic and that has used telehealth to facilitate buprenorphine prescribing.

Research Findings

Many variables affect retention in SUD treatment, including treatment for OUD. It is the interaction of those variables that is critical--whether they are client characteristics, provider or service delivery characteristics, setting-based factors, or external variables such as cross-system collaboration or payment policies. Retention depends on those interactions and the ability of domains such as providers, payers, or clients to adjust. One primary adjustment within the realm of OUD treatment has been gradual movement away from abstinence-based treatment toward MAT, reflecting the fact that “people were dying and it had to change,” as one interviewee said.

Client Characteristics

The literature provides us with excellent background regarding certain factors that may influence treatment retention. Relevant patient characteristics that often are found to impede retention include being younger (Saloner et al., 2017), having co-occurring mental disorders and SUDs (Kumar et al., 2016), using multiple substances (Franklyn et al., 2017), having less robust social determinants of health in areas such as employment and housing (Choi et al., 2015; Cui et al., 2016), and facing geographic impediments to care (Saloner et al., 2017).

The programs and key informants we interviewed confirmed much of what the literature indicates about client characteristics, including that younger adults are more difficult to retain in treatment, that polysubstance use and co-occurring mental illness are major factors reducing retention, and that lack of housing and geographic impediments can hinder retention. In addition, these interviews expanded prior research and identified diagnostic complexity such as pregnancy or benzodiazepine use, lack of client understanding of the treatment process, stigma and shame, CJS involvement, and lack of social supports, transportation, and childcare as other impediments.

Evidence or Practice-Based Approaches to Addressing Retention

MAT is the foremost evidence-based practice for OUD, including treatment with buprenorphine, methadone, or naltrexone (Substance Abuse and Mental Health Services Administration, 2018), and a proper dose is very important for retention (Institute for Clinical and Economic Review, 2015; Samples et al., 2018). Seldom, however, do providers offer a meaningful choice between these three medications, particularly methadone and buprenorphine. Yet qualitative research is starting to suggest that having access to and a choice between both methadone and buprenorphine or all three medications may enhance adherence to treatment and outcomes (Yarborough et al., 2016). Treatment system structure and approach also can positively influence retention. Some examples from the literature include the Massachusetts-originated Collaborative Care Model, which uses a nurse care manager for induction and other supports (LaBelle et al., 2016; Weinstein et al., 2017); efforts to streamline receipt of care (e.g., Gauthier et al., 2018); treatment in inpatient or emergency department settings (Bhatraju et al., 2017; D’Onofrio et al., 2017); home-delivery of XR-NTX (Vo et al., 2018); buprenorphine treatment in HIV clinics (Fiellin et al., 2011); and use of telehealth (Weintraub et al., 2018).

Our case studies revealed a wealth of information on evidence or practice-based approaches that facilitate retention (i.e., approaches supported either by research or by experience in settings with higher rates of retention). The primary evidence-based approach to treating OUD is use of one of the three approved medications. Steps taken to enhance the benefits of those

medications on retention include providing multiple OUD medication options at the same site and providing MAT at effective doses as quickly as is safely possible. Two critical clinical approaches are: (1) focusing on the need to develop a solid therapeutic relationship early in treatment; and (2) using team-based approaches, such as the multidisciplinary team used in a dual diagnosis program at one of the sites.

Among the practice-based approaches are ones based on the philosophy that patients should not be refused treatment because of certain missteps or complexities relating to their treatment. Two primary examples of how this philosophy translates into practice are policies not to discharge people simply because of relapse and policies not to refuse treatment to individuals with OUD who also use benzodiazepines.

Finally, we discovered a wide range of innovative approaches to facilitate patient engagement and monitoring, with evidence of flexibility at many stages of treatment. These approaches include service flexibility at intake to simplify and expedite access to treatment as well as to make the treatment process more transparent. Examples include providing treatment on demand with guaranteed follow-up and orienting new clients to treatment. Processes also are established to facilitate ongoing treatment engagement. For instance, embedding SUD treatment in physical health settings provides greater flexibility for intake, providing an open-door between physical and behavioral health providers where “warm hand-offs” can occur. It also allows individuals to receive behavioral health treatment in a setting where their receipt of such services can be more discreet than in a behavioral health-specific clinic. Other ongoing engagement and retention supports include flexible dosing times for methadone; client tracking and outreach; use of peer providers, particularly early in treatment; client “contracting” and motivational incentives; use of unobserved urine drug screens; and use of telehealth. Retention in treatment also can be enhanced at discharge by, for instance, the provision of flexible aftercare or follow-up services until the client is established with a new provider.

Among the many practice-based methods that address or otherwise influence retention, some are specific to OUD treatment, including being able to offer multiple OUD medications at the same site, timing the dispensing of methadone to improve access, and doing whatever it takes to get clients stabilized on an optimum dose of methadone or buprenorphine as quickly as it is safe to do. Reducing the threshold for medication receipt is critical, and flexibility throughout the process of treatment is very helpful in promoting retention. Approaches to treatment that recognize that people leave treatment for different reasons, such as incarceration or scheduling, also may help with care continuity. Aftercare or bridge services can promote continued medication adherence, as can providing a therapeutic environment and connection until the person can receive treatment elsewhere. Even if such services are not accepted, keeping the door open means that individuals who leave may return. Additionally, because a substantial number of discharges involve clients entering the CJS, approaches that avoid discharge, facilitate communication between the CJS and the treatment provider, and facilitate ongoing treatment while the person is incarcerated are very important.

Psychosocial Supports

Clinical guidelines recommend concurrent medication and psychosocial treatment or supports for those with OUD (e.g., American Society of Addiction Medicine, 2015). There is ongoing debate about the necessity of psychosocial treatment for everyone (Carroll & Weiss, 2017; Martin et al., 2018). However, our review of the recent literature did identify studies associating retention with receipt of such services (Manhapa et al., 2018) and highlighted psychosocial

treatments that seem promising, including trauma-focused treatment (Meshberg-Cohen et al., 2018).

The programs interviewed represented a cross-section of treatment approaches, all committed to supporting treatment that includes medication. Psychosocial supports identified included individual and group therapy (e.g., motivational interviewing, cognitive approaches, and trauma-informed treatments), strong case management, and other services such as financial counseling, acupuncture, and patient advocacy. Each program approaches psychosocial supports somewhat differently. At a broad level, they range from programs that identify as “strongly therapeutic-focused” to ones that have embraced a low-threshold approach to treatment. A low-threshold approach to treatment can include flexibility regarding the types and amount of psychosocial treatment required of clients. Some programs require individual and group counseling as a condition of receiving medication; others encourage counseling but do not consistently mandate it.

Many of the programs struggle with providing or connecting mental health treatment to everyone who needs it, and many also said that the number of people they serve with a serious mental illness is increasing. At least two of the large providers indicated that about 70 percent of their clients have a serious mental illness. The common inability to access sufficient mental health treatment may variously reflect a growing population with great need, a shortage of mental health providers in the community, and constraints in the number of mental health treatment providers, including specialty psychiatric hospitals, that treat individuals with SUDs. Some of the programs studied provide limited psychiatric care in house, whereas others rely on referrals, and some offer full mental health treatment internally.

The issue of the role that psychosocial services should play is contentious. Some providers feel very strongly that psychosocial treatment is a key component of MAT, whereas others feel that the most important thing is to get clients stabilized on medication, hoping that they will be receptive to psychosocial treatment as they move further into medication-supported recovery. The latter camp also often sees mandated psychosocial treatment as impeding retention for many people. However, every provider interviewed stressed the need to “meet people where they are at.” This means using client-specific approaches beginning at intake and providing what a person needs when the person needs it. Yet to know what clients need, providers must be able to establish some meaningful relationship with them. Whether that occurs via individual counseling, group therapy, intensive case management, high-quality medication management meetings, or participation in an OTP-supported choir, it involves some sort of psychosocial support and connection.

Reimbursement Approaches

Reimbursement approaches such as contractual incentives have shown mixed results in the recent literature (Acevedo et al., 2018; Acquavita et al., 2013; Lee et al., 2018; Stewart et al., 2013). In the programs studied, reimbursement approaches vary by treatment provider and state. Populations served by the sites visited are predominantly Medicaid beneficiaries. Medicaid payment approaches encountered include fee for service (FFS), bundled rates, per service under an ambulatory patient group (a patient classification system for payment of facility costs of care that originally was created for the Medicare program), and case rates. Some programs receive value-based payments, which may include monetary awards only or both monetary awards and penalties for performance, depending on the state. Vermont Medicaid uses a health home managed care model for payment. The Vermont hub interviewed has a bundled rate and also can refer out to other providers who are paid FFS, as necessary.

The general consensus is that FFS reimbursement can encourage overuse of certain services and impede the ability to provide collaborative, integrated, and holistic care that supports retention. On the other hand, reimbursement by case rates alone may incentivize shortened and less complex responses to a population that is quite complicated. What seems to be key is a thoughtfully bundled reimbursement system that encompasses necessary services, including case management and care coordination, yet recognizes the need for some flexibility regarding providers. Such a system could be stratified or risk adjusted to account for complex cases (e.g., dually diagnosed with serious mental illness, multiple SUDs) and recognize that there are times when extra support is required, such as when clients are newly initiated into treatment. Reimbursement should encourage and reward continuity of care as well as retention in treatment. Pharmaceutical coverage of SUD treatment medications also should be consistently treated just like coverage of medications for other chronic conditions, including with regard to prior authorization and quantity limits.

Conclusion

Factors that promote or impede retention and continuity of care are complex. Additional research may help us determine how to further shift the culture of substance use treatment away from a lingering abstinence-only approach and how to bridge the silos between methadone, buprenorphine, and naltrexone treatment for OUD. We need to understand how best to integrate mental health and substance use treatment and best practices for treating non-MAT-responsive SUDs. Those are two of the biggest hurdles to retention that the programs we interviewed face, along with loss of clients to the CJS, where treatment often is unavailable. Providers need practical guides for moving clients to an optimum dose of medication as rapidly as is safe, including guides to structural practices that support early engagement. Many practices identified in this report can facilitate retention, but adequate reimbursement for services such as outreach, tracking, case management, and care coordination is needed to enable implementation of best practices. Reimbursement that is risk adjusted to address complexity would help support delivery system reforms that enhance retention in treatment.

STUDY OBJECTIVES

Treatment providers, policymakers, and others are diligently seeking ways to reverse the tide of mortality and morbidity that has accompanied the opioid epidemic. Research shows that retention in medication-assisted treatment (MAT) treatment for opioid use disorder (OUD) results in better outcomes, including reduced rates of all-cause and overdose mortality (Ma et al., 2018; Stone et al., 2018). Further, studies have shown that mortality rates increase following discharge from treatment, and multiple transitions in and out of treatment expose people to repeated periods of high mortality risk (Ma et al., 2018). Treatment retention also has been associated with greater likelihood of abstinence from opioid use (Bhatraju et al., 2017; Jarvis et al., 2018; Monico et al., 2015; Stone et al., 2018; Weintraub, 2018) and reduced utilization of high-intensity treatment such as inpatient and emergency department services (Lo-Ciganic et al., 2016; Shcherbakova et al., 2018). Other studies have shown decreased rates of HIV transmission and criminal activity and improved social functioning (see, e.g., studies referenced in Manhapra et al., 2018) associated with retention.

In light of the known relationship between retention in MAT for OUD, this study sought to identify best practices for retaining individuals in treatment and, given the reality of movement in and out of treatment and between treatment settings, best practices for achieving continuity of care between settings. The research questions that this study answers are as follows:

- **Question 1:** What variables affect retention in substance use disorder (SUD) treatment across disorders? How have these variables changed with the evolution of drug use patterns?
- **Question 2:** What are evidence-based methods to address treatment retention in SUD treatment, and how do these apply to treatment of OUD?
- **Question 3:** Are there promising models of psychosocial support that assist in maintaining an individual in MAT for OUD? Do longer, more continuous durations of treatment result in better outcomes?
- **Question 4:** How have changes in reimbursement policy affected the provision of services? Have reimbursement policy changes expanded retention in treatment?
- **Question 5:** What types of settings have seen success in implementation of SUD treatment retention methods, and how do they structure their programs? Have these methods been specifically applied to MAT for OUD, and are these programs structured differently?

BACKGROUND

Retention and Continuity of Care Defined

Retention and continuity of care are two different concepts. Retention is continuous or near-continuous treatment for some period of time. It has been operationalized in ranges from 3 months to 7 years, with or without gaps. Allowed gaps range from 7 days to 18 weeks in recent publications (Bhatraju et al., 2017; National Quality Forum [NQF], 2018). Studies looking at retention often define it on the basis of the duration of data available, if the study is claims-based, or on a reasonable time frame within which data can be collected. Recent systematic studies that have addressed retention in MAT show widely disparate retention rates (Jarvis et al., 2018; Lagisetty et al., 2017; Timko et al., 2016; Wilder et al., 2015).

Observations From Key Informants

Gaps in treatment for buprenorphine MAT are difficult to categorize because need for treatment changes over time and by individual. There may be apparent gaps based on buprenorphine fills that actually represent reduced dosing by the individual, that may be increased subsequently when needed, or breaks from treatment that may end when treatment is needed again.

The term *continuity of care* is commonly used in one of three ways: (1) as synonymous with retention in treatment; (2) as continuous possession of MAT medication, with assorted gaps (e.g., Saloner et al., 2017); or (3) as continuity from one setting to another (e.g., Acevedo et al., 2018). The NQF uses the second approach in its measure of continuity of care, defining it as 180 days with no more than a 7-day gap in medication possession (NQF, 2018).

As indicated above, no standard definition of retention or of continuity of care exists, and although a standard definition would provide better context to study factors associated with retention, there are possible pitfalls to seeking that uniformity. One pitfall raised by the American Society of Addiction Medicine (ASAM) (2014) is that a potential consequence of defining sufficient retention or continuity of care, such as in a performance measure, is that payers may decline to make a payment after the defined time period. Other pitfalls of embracing a single definition of retention too intensely are reflected in some of the gaps in the literature on retention. For example, studies of retention seldom look at treatment re-entry after disengagement. However, those that do find repeated episodes to be relatively common (Shcherbakova et al., 2018; Weinstein et al., 2017). Reifying retention as a single episode of care ignores the reality of a chronic relapsing disorder. Additionally, studies of retention typically do not address the nature or extent of treatment participation or the quality of the treatment being offered. Measuring retention without attention to those factors does not capture an adequate picture of treatment.

Influences on Retention

Multiple factors can affect retention, including patient characteristics, treatment-related variables, reimbursement policies, and other factors.

Recovery--Thoughts From Key Informants

Patients may be abstinent and still have poor quality of life. Treatment should go beyond abstinence and consider how patients are functioning in society and in their lives. Social functioning and quality of life metrics are needed. Sustained recovery can span many different domains, including overdose, infectious disease, likelihood of being employed, and quality relationships with family.

Patient Characteristics

Patient characteristics can affect retention. Multiple studies show that retaining younger adults is more difficult than retaining older adults (Saloner et al., 2017; Samples et al., 2018; Schuman-Olivier et al., 2014). However, timely treatment of young adults newly diagnosed with OUD has been associated with improved retention (Hadland et al., 2018). Results regarding differential retention by sex vary, with studies finding variously that men (Samples et al., 2018) or women (Saloner et al., 2017) may be more difficult to retain. Nuanced analyses indicate that multiple factors may play an interactive role with sex, including ones discussed further below. Co-occurring mental health conditions can influence retention, some more negatively than others (Choi et al., 2015; Cui et al., 2016; Kumar et al., 2016). Co-occurring substance use also can negatively affect treatment, including cocaine, alcohol, and cannabis use, although evidence for the latter two substances varies (Choi et al., 2015; Franklyn et al., 2017; Samples et al., 2018; Schuman-Olivier et al., 2014; Socias et al., 2018; Springer et al., 2015). Patient acuity, as evidenced by inpatient service use in the period before buprenorphine induction, has been associated with decreased retention in treatment (Samples et al., 2018). Other patient characteristics found to influence retention include pregnancy status, whereby a longer prenatal connection may lower risk of postnatal discontinuation (Wilder et al., 2015); higher levels of education, which can be associated with better retention (Cui et al., 2016); less severe employment issues, which may support retention (Choi et al., 2015); and unstable housing status, which is associated with poorer retention (Cui et al., 2016). Patient geography also may affect retention. For example, studies suggest that patients who must travel significant distances, such as crossing county lines, may have lower rates of retention (Saloner et al., 2017).

Medication

Medication treatment is an evidence-based practice for OUD, including treatment with buprenorphine, methadone, or naltrexone (Substance Abuse and Mental Health Services Administration [SAMHSA], 2018). However, considerable evidence suggests that the dose of methadone or buprenorphine prescribed affects treatment outcomes, including treatment retention. A 2014 summary of the evidence on dose by the Institute for Clinical and Economic Review (ICER) indicates that doses that are too low can adversely affect retention. ICER's summary of the evidence references three case studies concluding that methadone doses of more than 60 mg/day, precisely 96 mg/day, or up to but not exceeding 100 mg/day of methadone enhance retention. The evidence on buprenorphine dosing referenced by ICER includes randomized controlled trials (RCTs) indicating that less than daily dosing can be as effective as daily dosing. In more recent analysis using Medicaid claims data, Samples et al. (2018) examined factors associated with discontinuation of buprenorphine treatment. Results indicated that discontinuation of buprenorphine treatment before 180 days was significantly associated with having an initial dose of buprenorphine less than or equal to 4 mg/day.

Psychosocial Support Models

Clinical guidelines recommend concurrent medication and psychosocial treatment or supports for those with OUD (e.g., ASAM, 2015; British Columbia Centre on Substance Use, 2017). The psychosocial treatment is intended to help patients control urges to use drugs and to assist patients in coping with the emotional strife that often accompanies addiction (Dutra, et al. 2018). However, some argue that the psychosocial supports are not a necessity for everyone (Martin et al., 2018), and Carroll and Weiss (2017) suggest that a stepped-care model might be preferable, whereby the level of treatment is matched to the patient. Yet we do know that the therapeutic alliance and patient motivation to participate in treatment both have been associated with improved treatment retention (Choi et al., 2015; Joe et al., 1998; Meier et al., 2005). This tension is a defining one at this point in the field of OUD treatment, as we seek ways to get and keep people in treatment to save lives.

One major reason for this debate is that, over the past decade and a half, studies do not consistently find that concurrent treatment results in improved retention in treatment or other outcomes (see, e.g., Carroll & Weiss, 2017; studies referenced in Meshberg-Cohen et al., 2018). A 2016 systematic review on the use of psychosocial interventions with medication for treatment of OUD examined three literature reviews and 27 more recent publications; contingency management (CM) and cognitive behavioral therapy (CBT) were the most widely studied, and the medication most often studied was methadone (Dugosh et al., 2016). Dugosh et al. agreed that results were inconsistent but concluded that there were benefits and that the evidence was strongest in the studies with methadone treatment. Studies examining methadone maintenance found significant effects of psychosocial treatment (i.e., CM and general supportive therapy) on treatment attendance and drop out, whereas a smaller number of studies showed significant effects on attendance and retention in buprenorphine treatment (i.e., Intensive Role Induction). Positive effects on retention and attendance also were found with oral naltrexone (i.e., behavioral therapy and CM) and extended-release naltrexone (XR-NTX) (i.e., CM).

It has been noted that many of the studies not finding benefits from concurrent psychosocial treatment were conducted in primary care settings; excluded patients with varieties of clinical severity such as alcohol or other drug disorders, trauma, mental illness, or poor physical health; and may not have addressed fidelity to treatment protocols. Klein (2017) suggests that studies focusing on patients with less clinical acuity may rule out those who might benefit most from psychosocial supports. Dugosh et al. (2016) noted that a RCT of treatment as usual that comprises receipt of medication with medication management may actually provide a level of medication management that goes beyond the clinical norm, perhaps obviating relative results of the comparison arm with psychosocial treatment. This also suggests, of course, that more intensive medication management services may be an effective counterpart to formal psychosocial services.

To provide an updated review of the literature on psychosocial treatment, we examined more recent studies and found several that find some support for those services. Thus, although claims analyses cannot identify types of psychotherapy received, a recent large-scale claims analysis indicated that receipt of psychotherapy in conjunction with buprenorphine among the privately insured was associated with increased retention in MAT (Manhapa et al., 2018). Other recent studies that focus on specific treatments identify promising models of psychosocial support. These include outpatient treatment involving individual CBT, relapse prevention groups, and medication education groups, with buprenorphine treatment, focused on patients with OUD and early childhood trauma (Kumar et al., 2016); trauma-specific treatments such as

Prolonged Exposure or Cognitive Processing Therapy (CPT), with buprenorphine treatment, for veterans with post-traumatic stress disorder (PTSD) (Meshberg-Cohen et al., 2018); and combined use of buprenorphine or naltrexone with CBT, motivational interviewing, and 12-step approaches (Klein, 2017). Another recent study did not find markedly improved retention from the use of Cognitive Rehabilitation Treatment (CRT) in a court-mandated methadone maintenance residential program in Tehran (Rezapour et al., 2017). Despite not showing improvement in retention, this study highlights a problem with chronic opioid use, specifically that it can lead to neurocognitive impairment, which can impede treatment. CRT as a potential treatment approach may merit more attention, perhaps in different settings.

Treatment System Structure or Approach

A number of studies have examined office-based opioid treatment (OBOT) with buprenorphine, including a study based on the Massachusetts-originated Collaborative Care or nurse care manager model. The model includes: (1) screening and assessment of appropriateness for office-based treatment; (2) medication induction under a nurse care manager's supervision; (3) stabilization; and (4) maintenance. This model has been the subject of at least two studies that indicate it can be associated with successful retention in treatment (LaBelle et al., 2016; Weinstein et al., 2017).

Initiatives that aim to streamline receipt of care also show some promise to increase retention. A Network for the Improvement of Addiction Treatment (NIATx) open-access model of rapid enrollment in methadone treatment was implemented at a community-based organization in New Haven, Connecticut. The model was associated with modest improvement in retention (Madden et al., 2018). Similarly, methadone delivery in clinics with onsite pharmacies had better rates of retention than did those with offsite pharmacies (Gauthier et al., 2018). These are two examples of efforts to make engagement and retention less burdensome.

In addition to standard office-based or specialty outpatient settings such as an opioid treatment program (OTP), other settings for medication treatment also are being studied to determine effects on retention. Some examples that have shown promise include induction into buprenorphine treatment in an inpatient setting (Bhatraju et al., 2017; Liebschutz et al., 2014); buprenorphine induction in the emergency department (D'Onofrio et al., 2017); home-delivery of XR-NTX combined with medication management services, assertive outreach, and case management, provided with decreased emphasis on psychosocial treatment or abstinence from non-opioid substances (Vo et al., 2018); buprenorphine treatment with comprehensive medical and social services integrated into HIV clinics (Fiellin et al., 2011; Weiss et al., 2011); and buprenorphine treatment in a suburban health department that involved physician-pharmacist collaboration (DiPaula & Menachery, 2015). Recent studies in some other settings have shown fewer positive effects on retention (e.g., induction into treatment with XR-NTX in a county correctional center (Lincoln et al., 2018).

Electronic approaches to treatment also show promise for retention. Weintraub et al. (2018) studied the use of telehealth for prescribing buprenorphine in a drug treatment center for adults in rural Maryland and found positive effects of telehealth on retention, as have other studies (Eibl et al., 2017; Franklyn et al., 2017). Although not telehealth, the use of electronic reminders significantly enhanced continuity of care for residential agencies that already were performing at a moderate or high level at baseline but were lower-performing agencies (Acevedo et al., 2018).

Reimbursement or Payer Policy

Reimbursement policy levers such as incentives or payment withholds for providers typically are implemented using a metric established or adopted for that purpose. The metrics and associated reimbursement policies are designed to encourage changes in provider behavior, with the ultimate intention of influencing outcomes such as retention in treatment. They may be regarded as the provider counterpart to the use of CM for patients.

The published literature on effects of reimbursement policy on retention in SUD treatment is limited. To improve quality of care in SUD treatment (not specific to MAT), Delaware implemented contract requirements for outpatient SUD treatment facilities, including monthly incentive payments and penalties (reduced base payments). Two of the measures used were active participation in treatment and program completion. The first measure resulted in an increase in active participation across all four phases of care (1-30, 31-90, 91-180, and 180+ days), particularly the last two phases (McLellan et al., 2008). Delaware subsequently added a quality improvement (QI) component to this initiative, with facilities participating in QI through NIATx and Advancing Recovery. Data from the QI component of the initiative showed that length of stay increased after the introduction of the contracting component and increased further with the QI intervention (Stewart et al., 2013).

In an initiative in Washington State that was designed to enhance care continuity, randomized residential and detoxification agencies received public funding into one of four trial arms: (1) weekly electronic reminders on recently discharged patients not receiving follow-up; (2) financial awards based on patient continuity of care relative to either a benchmark or improvement; (3) both of the continuity interventions; or (4) no intervention. Adjusted difference-in-difference results revealed that clients at residential agencies already performing at either a moderate or high level at baseline had improved continuity of care, although those at lower-performing agencies did not (Acevedo et al., 2018). A similar intervention in Washington State, involving performance-based contracting and reminders for specialty outpatient services, targeted engagement in treatment within 14 days of treatment initiation (Garnick et al., 2017). Most results were not significant, but analysis of the residential, detoxification, and outpatient data comparing clients with an SUD only to those with co-occurring psychiatric disorders found that the interventions had a positive effect on continuity of care from residential treatment for those with co-occurring disorders (Lee et al., 2018).

Although the Delaware and Washington State initiatives focused on agencies, a smaller scale initiative looked at rewards to individual staff. The “contracting with staff incentives” (CSI) model is a reimbursement-focused approach to improving continuity of care. A staff incentive to encourage client intake and attendance led to significantly higher rates of admission to outpatient care after residential treatment, with outpatient intake highest when it was at a clinic onsite with the residential facility (Acquavita et al., 2013). This indicates that at least two factors, staff incentives and reduced burden, combined to facilitate continuity.

METHODS

This three-part study included a literature review, key informant interviews, and five case studies of sites or models that show promise for improving retention in treatment.

Literature Review

We performed a literature review (Appendix 1) that addressed retention in SUD treatment with a primary focus on treatment for OUD. The literature review included both peer-reviewed and gray literature.

Peer-reviewed literature. The peer-reviewed literature included English-language publications from the years 2014-2018, supplemented with seminal literature prior to 2014, where appropriate. Our searches of the peer-reviewed literature used the PubMed and Google Scholar databases. We culled the recent literature to determine what is known about the components of SUD treatment that support retention and sustained recovery, including psychosocial supports, reimbursement structures or payment models that support retention and sustained recovery, and other factors that may support retention and sustained recovery and that may interact with or influence the development or application of treatment models. We first reviewed identified abstracts to determine whether they were relevant to the research questions. Next, for abstracts identified as relevant, we retrieved the full-text articles to determine whether they provided material related to retention in SUD treatment. We then abstracted those articles for further use in the literature review. Keywords were used to track pertinence to research questions, allowing sorting and filtering of literature as part of our synthesis. On the basis of the findings in the articles identified, we included additional literature referenced in the initial publications.

Gray literature review. The gray literature review included searches of websites of federal and state government agencies (e.g., state health department and Medicaid programs, SAMHSA, the Centers for Medicare & Medicaid Services [CMS], the Agency for Healthcare Research and Quality [AHRQ], the U.S. Department of Veterans Affairs [VA]), private payers and health systems, non-profit stakeholders, and research organizations. We searched for information on ongoing treatment models, programs, program evaluations, and reimbursement initiatives with an eye toward their influence on retention in treatment. We also reviewed reports and information supplied by key informants being interviewed as part of the larger study.

Approach to synthesis. The resources identified in the peer-reviewed and gray literature were reviewed with the objectives of: (1) describing the meaning of “retention” and “continuity” as used in the literature; (2) synthesizing the information collected to address each of the research questions for this study; (3) identifying gaps in the literature; and (4) beginning the process of developing criteria for selecting case study sites and starting to identify a subset of sites for further consideration. Our findings also informed the development of a case study protocol in advance of site visits.

Key Informant Interviews

We conducted six key informant interviews with subject matter experts who filled in gaps in the literature regarding our research questions and guided us as we considered sites for case studies. The key informant interviews were designed to:

- Identify program features that are essential to retention and sustained recovery.
- Identify reimbursement structures or payment models that support retention and sustained recovery.
- Develop a list of models or sites for potential inclusion in the case studies.
- Facilitate connections with sites selected for interview.

From an initial list of seven potential interviewees, we worked with the Office of the Assistant Secretary for Planning and Evaluation (ASPE) to determine which candidates to approach for interview. We developed a semistructured interview guide that could be modified to the key informants' areas of expertise. Interviews were approximately 45 minutes and were conducted via telephone. One IBM® Watson Health™ participant conducted the interview, and the other recorded (with participant permission) and took notes.

The six individuals ultimately interviewed, and the five organizations with which they are affiliated, are as follows:

- Colette Croze, MSW, Principal, Croze Consulting
- Rick Harwood, Deputy Executive Director, National Association of State Alcohol and Drug Abuse Directors
- Brendan Saloner, PhD, Assistant Professor in the Department of Health Policy and Management at the Johns Hopkins Bloomberg School of Public Health
- Peter Thomas, Quality Assurance Officer, National Association of Addiction Treatment Providers
- Melanie Whitter, Director of Research and Program Applications, National Association of State Alcohol and Drug Abuse Directors
- Arthur (Robin) Williams, MD, Assistant Professor/Addiction Psychiatrist at Columbia University

Scattered throughout this report are “Key Informant Thoughts” on different subjects. These are not attributed because they are paraphrases and, often, compiled from interviews with more than one key informant.

Case Studies

The objectives of conducting case studies were: (1) to obtain an in-depth understanding of different models of specialty SUD treatment that are thought to be successful in retaining individuals in treatment; and (2) to determine the programmatic and financial structures required to support retention in treatment and sustained recovery.

Site selection. In collaboration with ASPE, we established criteria for selecting sites that were designed to address the research questions and provide variety in the sites to be selected (see site selection criteria in Appendix 2). On the basis of those criteria, Watson Health recommended multiple sites with higher retention rates or practices that showed promise of improving retention and, in conjunction with ASPE, selected five organizations and three alternates to approach for site visits.

Case study protocol. We developed a case study protocol for use during the site visits. The protocol took the form of a semistructured interview guide, designed to attain ASPE’s overarching goal of understanding different models of specialty SUD treatment, particularly OUD treatment. We also focused on the models’ success in the provision of care to patients, patient retention, and patient outcomes. The components of the protocol were further influenced by our understanding of factors that may affect retention and outcomes, gleaned from the literature review and expert interviews. The protocols were configured to reflect different potential stakeholders being interviewed at each setting and were subject to adjustment as we moved through the site visits (see basic protocol in Appendix 3). Types of personnel identified for interview varied but often included administrators and executive personnel, the medical director, other clinical staff, case managers/care coordinators, QI experts, personnel familiar with payment and reimbursement issues, and peer support specialists/navigators. We also worked with the site to, as needed, arrange interviews with individuals outside the program, such as local or state government officials and other members of the SUD and mental health treatment system.

Recruitment. We recruited five organizations or treatment models for site visits. We used formal methods of program recruitment, along with contacts that the team has developed through other projects and input from key informants. Recruitment materials—including an introductory letter, project description, and site visit fact sheet—were developed and sent via email to identified contacts at the potential sites. As necessary, we followed up with additional emails and subsequent telephone calls to further explain the study and answer questions. Upon site agreement to participate, we worked with the program to develop the agenda, acceptable dates, working schedules, and locations for the interviews. Administrators helped identify appropriate personnel from their organizations and helped to link us to appropriate government or treatment systems interviews as appropriate.

Site visits. We conducted site visits at the locations shown in Table 1.

TABLE 1. Site Visit Dates and Locations	
Date(s)	Site(s)
May 13, 2019	<ul style="list-style-type: none"> Evergreen Treatment Services (ETS), Seattle, Washington
June 18, 2019	<ul style="list-style-type: none"> Central Vermont Medical Center (CVMC), Berlin, Vermont Central Vermont Addiction Medicine, Berlin, Vermont
Follow-up call: July 8, 2019	<ul style="list-style-type: none"> Washington County Substance Abuse Regional Partnership (WCSARP) Community Meeting, Montpelier, Vermont Treatment Associates, Montpelier, Vermont
June 20, 2019	<ul style="list-style-type: none"> Mount Sinai Beth Israel (MSBI) Gouverneur Clinic, New York, New York
July 9, 2019	<ul style="list-style-type: none"> Maryland Treatment Centers (MTC), Baltimore, Maryland
August 14, 2019	<ul style="list-style-type: none"> Central City Concern (CCC), Portland, Oregon (Old Town Recovery Center, Biltmore Housing, Hooper Detoxification Center, Old Town Clinic [OTC])

The Watson Health Project Director used the interview protocol to conduct the discussion with individual or small groups of respondents while a second staff member took notes. The two members of the interview team debriefed after the interviews, and interview notes were reviewed for quality purposes. In addition to the data from interviews, we collected relevant contextual information such as demographic characteristics, substance use patterns in the area, and other local and state context. We conducted follow-up calls as needed to clarify information from the site visit or to fill in crucial details. We conducted a phone interview with one key individual who was scheduled for an interview but was not available during the site visit.

Summary memos. We prepared a brief memo to summarize key findings for each site visit. The memos are attached as Appendix 4. All sites reviewed the memos and any needed clarifications were made to the final memos. In the next regularly scheduled meeting with ASPE following each visit, we provided a telephone debriefing to summarize key findings and describe any challenges encountered. We used feedback from ASPE and lessons learned from each visit to inform and improve subsequent site visits.

RESEARCH FINDINGS

It is tempting to divide factors influencing treatment retention into simple categories, such as client, provider, and larger systems and influences. Yet the truth is that each of these categories has subcategories and, more important, that there is considerable overlap and interaction among categories. Treatment is an interaction between the client and the provider and between each of them and external influences. However, for the sake of simplicity, our identification of factors affecting treatment retention are categorized, but with relevant interconnections noted.

Settings and Retention in Treatment

The settings for our five diverse case studies include the following:

1. Multiple providers in central Vermont that are part of the statewide hub-and-spoke system, including a pilot inducting buprenorphine in the emergency department.
2. A multifaceted service provider in Portland, Oregon, with a clientele that is 90 percent homeless or exiting homelessness, which offers a variety of services and supports that address physical and behavioral health treatment needs as well as housing and employment services that help address social determinants of health.
3. A large, well-resourced health system in New York City that includes the oldest methadone clinic in the country.
4. An SUD treatment provider in Baltimore, Maryland, that, among other things, as part of academic research has piloted home-delivery of XR-NTX for young adults and is about to pilot the same for XR-buprenorphine.
5. An SUD treatment system in Washington State that includes a mobile methadone clinic to serve specific neighborhoods without a fixed clinic and that has used telehealth to facilitate buprenorphine prescribing.

We describe components of these sites throughout this report. In this section, we identify some of the unique aspects of the settings that either are not addressed elsewhere or that provide context for other findings.

Vermont Hub-and-Spoke System, Rapid Access to MAT Pilot

Vermont has a mature statewide hub-and-spoke treatment system, organized into six service regions. The original design of the system called for patients to be inducted into MAT at a hub clinic (typically an OTP) and stepped down to a spoke clinic (often an outpatient general or specialty practitioner) after stabilization and for continued treatment. The hub remains available if restabilization is needed. The model in practice has evolved into a more fluid system. The case study included interviews with personnel from the Vermont Department of Health, Division of Alcohol and Drug Abuse Programs; the emergency department at the Central Vermont Medical Center (CVMC) in Berlin, Vermont; Central Vermont Addiction Medicine (CVAM), a hub-and-spoke located in Berlin; and Treatment Associates in Montpelier, Vermont, a specialty spoke. We also observed a Washington County Substance Abuse Regional Partnership

(WCSARP) Community Meeting. WCSARP is a partnership of providers, state and local agencies, local law enforcement, and others that meets regularly to coordinate services and solve access problems. In addition to the original hub-and-spoke model, Vermont is implementing rapid access to MAT (RAM) with the pilot at CVMC, although the model is spreading across the state. Depending on the setting, medications used for OUD may include buprenorphine or methadone. Some key aspects of this system, as they relate to retention, include the following:

- The RAM program has many intricacies (see Vermont Site Visit Memo, Appendix 4), but the model allows induction in an emergency department, by a waived prescriber, where the person can be observed with guaranteed follow-up within 72 hours at a hub or a spoke. A recovery coach bridges the transition. The emergency department may discharge a patient with one dose of buprenorphine, a buprenorphine pack, a prescription, some combination, or just a referral. They still are working to determine which approach best supports retention, but anecdotally it appears that the patients who receive more medication from the emergency department tend to move into further treatment better.
- Preliminary data from the RAM program show follow-up rates over the first 9 months (Table 2).
- The 90-day retention rate at CVAM for December 2018 was 74 percent.
- In 2017, the statewide initiation in OUD treatment rate was 60-65 percent (75-80 percent for Washington County) and the statewide engagement rate was 40-45 percent (55-60 percent for Washington County).
- The Vermont system is diligent about integrating lessons learned, one part of which has been the need for communication of critical information between the emergency department and receiving providers and preparation of the client for treatment by both settings.
- Two-way communication between the hubs and spokes is critical, including when a spoke needs to refer a client back to the hub for restabilization.
- The WCSARP community meeting clearly illustrated that the hub-and-spoke treatment system is a local community system that is deeply embedded in the community with strong cross-system relationships.

TABLE 2. RAM Preliminary Follow-up Data			
Outcome	3 Months	6 Months	9 Months
Follow-up rate			
Total referred	18	34	74
Followed up	14	28	60
Consistent	6	11	26
Inconsistent	6	5	0
Discharged	2	1	23
Expired	0	1	1
No attendance/No-show	4	6	12
Follow-up within 72 hours	13	24	49
Follow-up exceeded 72 hours	1	4	3

Central City Concern, Portland, Oregon

Central City Concern (CCC) is a multifaceted service provider in Portland, Oregon, with a clientele that is 90 percent homeless or exiting homelessness. It offers a variety of services and supports that address physical treatment needs (two Federally Qualified Health Centers [FQHCs]), SUD treatment (including withdrawal management and stabilization, intensive outpatient (IOP) and outpatient treatment, buprenorphine, and some naltrexone), mental health treatment, housing and employment services that help address social determinants of health, and an assortment of other services. The objective of this holistic system is to create a recovery environment (see CCC Site Visit Memo, Appendix 4). Several key factors are particularly relevant to retention in treatment:

- The varied services allow CCC to support a vulnerable population in multiple ways and, unique to the providers interviewed, include housing, which is critical to maintaining people in treatment.
- The CCC Hooper Detoxification Stabilization Center includes a bridge clinic designed to bridge needed medication or other services for individuals completing treatment at Hooper when some portion of follow-on services are not immediately available. People can stay in the bridge program until needed services are available, subject to insurance limitations. In addition, Hooper has moved from using buprenorphine for withdrawal, followed by taper and discharge. Instead, they now initiate the maintenance phase followed by a transition to outpatient treatment or bridge clinic services.
- Between January 2019 and July 2019, Hooper served 561 clients with a primary diagnosis of OUD. A total of 361 patients (64 percent) completed admission, and 188 (34 percent) had at least one completed bridge clinic visit. For a subset (179 patients) who discharged on buprenorphine maintenance with a scheduled follow-up appointment, 68 percent were engaged in treatment at 7 days and 56 percent at 30 days after discharge from Hooper. Of the subset, 93 percent were discharged to supportive housing and 7 percent were homeless.
- In mid-2019, CCC opened its new Blackburn Center, which incorporates all services in one location while still maintaining the original separate facilities elsewhere in the metropolitan area. It is anticipated that lessons learned there will inform services and retention throughout the system.

- As part of the Old Town Clinic (OTC), which is the original FQHC at CCC, SUD treatment providers are embedded in the clinic, maintain an open-door policy, and provide a mechanism for warm hand-offs from physical or mental health treatment providers.
- CCC maintains data related to medication possession ratio (MPR) as an indicator of MAT retention. For the period between February 2018 and January 2019, approximately two-thirds of clients in the OTC had an MPR greater than 0.75 with engagement longer than 30 days. For the same time period, in the Community Engagement Program (CEP), MAT initiation rates were 91 percent, while 55 percent had an MPR greater than 0.75 with engagement longer than 30 days. Also, in the CEP cohort, another 25 percent had engagement longer than 30 days with a moderate MPR of 0.5 to 0.74.

Mount Sinai Beth Israel Gouverneur Clinic, New York City

The Gouverneur Clinic is an OTP situated in Manhattan and is part of the larger Mount Sinai Beth Israel (MSBI) health system, which includes ten OTPs (the Gouverneur Clinic is referred to hereafter as MSBI). As an OTP, the clinic primarily uses methadone for OUD treatment medication, with much lighter use of buprenorphine. The following are factors particularly pertinent to retention:

- The resources and linkages of the larger health system provide supports that would not be accessible otherwise, including onsite financial counseling and participation in a study using telemedicine for Hepatitis C treatment in an SUD setting.
- MSBI has linkage with certain long-term residential programs, where the clinic provides methadone to the residents and the residential program pharmacy takes custody of the medication through a special exemption arrangement with the Center for Substance Abuse Treatment.
- The MSBI clinic works with the Key Extended Entry Program (KEEP) at Rikers Island to keep incarcerated individuals on MAT. When a patient is discharged from Rikers, the patient has 30 days to come back to the clinic for MAT. Individuals at Rikers are retained on the clinic rolls.
- MSBI is a program of long duration, and some patients have been in the clinic for decades. The treatment for longer-term patients is different than for more recent patients. They often are on a low dose of methadone, with reduced pick-up schedules. Some people taper; others may switch to buprenorphine. This reflects recognition that long-term retention requires flexibility.
- Annual retention rates for MSBI are shown in Table 3.

TABLE 3. MSBI Gouverneur Clinic Retention Rates (%) at 30, 90, 180, and 365 Days by Year								
Retention, Days	2012	2013	2014	2015	2016	2017	2018	2019
30	76	79	90	90	90	87	87	91
90	71	69	75	76	81	79	79	75
180	61	54	64	65	63	70	68	
365	46	42	49	52	49	60	64	

Maryland Treatment Centers, Baltimore, Maryland

Maryland Treatment Centers (MTC) is a Baltimore-based provider of SUD treatment that includes a research division. MTC uses buprenorphine drugs and XR-naltrexone for OUD medication treatment. MTC has completed a pilot study of a home-delivery program for XR-NTX for young adults and will be expanding the study to incorporate XR-buprenorphine (see MTC Site Visit Memo, Appendix 4). Key factors related to retention include the following:

- The home-delivery program makes it much more convenient for clients to receive medication treatment and removes the obstacle of travel to obtain treatment. The low-threshold approach that does not mandate attending counseling at a treatment facility further relieves client burden.
- Monetary incentives that increase over time help induce continued receipt of naltrexone.
- Having family locators identified helps ensure that clients can be more easily located.
- *Home-delivery* is loosely defined and has included a partner's hospital bedroom while visiting, fast food restaurants, and abandoned buildings (Fishman, 2019).
- Preliminary data presented at the April 2019 ASAM conference indicate that, in the MTC RCT, the mean number of outpatient XR-NTX doses received in the home-delivery program at 6 months was greater than four, and the mean number of such doses in treatment as usual was less than one. At 6 months, nearly 60 percent in the home-delivery program had received all scheduled doses, compared with less than 5 percent in the treatment as usual arm (Fishman, 2019).

Evergreen Treatment Services, Seattle, Washington

Mobile Vans--Thoughts From Key Informants

- Only a few mobile methadone vans remain because of regulatory or financial concerns.
- There also are mobile treatment facilities providing buprenorphine, such as one in Baltimore, where services are provided outside.

Evergreen Treatment Services (ETS) is a Seattle-based SUD treatment provider with several clinics (see ETS Site Visit Memo, Appendix 4). The clinic visited was a Seattle area OTP, which relies primarily on methadone for medication treatment but also prescribes buprenorphine. The following are some retention-related factors:

- ETS has revised intake procedures to maximize engagement in the first 90 days. It considers this approach critical to getting clients to an optimal dose of methadone as quickly and safely as possible, to encourage retention in treatment. Among the steps that they have taken are: (1) allowing broad dosing times rather than requiring appointments; (2) providing treatment on demand to the extent possible and head-of-the-line privileges the next day if treatment is not available upon walk-in; (3) using an engagement tracker for the first 90 days of treatment; (4) relying strongly on their peer engagement specialist to connect with clients at intake and to remain in close touch throughout the first 90 days; and (5) reaching out after two consecutive missed doses.

- ETS has a mobile methadone clinic to serve specific neighborhoods that lack a fixed clinic. This mobile clinic expands capacity and client access.
- The Grays Harbor clinic used telehealth as part of buprenorphine treatment, first using a prescriber in Portland and then in Seattle. As of early 2017, it was estimated that about 200 patients in rural coastal Washington State, who previously had no access to MAT for OUD, received buprenorphine (SAMHSA, 2018). However, that clinic closed in mid-2019.

Client-Related Factors Influencing Retention in Treatment

The providers we interviewed primarily treat adults, and several identified **age** as a prime indicator of retention, with younger adults less easily retained. MTC, which has a naltrexone home-delivery pilot focused on young adults but which also treats older adults, identified several possible reasons for poorer engagement in the younger group. These include less self-recognition of impairment, fewer social barriers and more positive reinforcement for drug use, a shorter history of suffering the consequences, available safety-nets, and greater tolerance within society for experimentation and deviant behavior in younger adults than is allowed for those who are older. Coupled with this are certain social determinants that may especially affect young adults, including sex trafficking and being a young parent.

Most providers interviewed indicated that a large segment of their clients have **mental health** issues and that the extent of serious mental illness in their clientele is growing. CCC identified these clients as the most difficult to retain in treatment. Although some substance use providers are equipped to treat many mental health issues in house, many cannot provide the time and resources that are required. It is at this point where client need intersects with the larger system, including instances where some psychiatric treatment providers, including psychiatric hospitals, will not treat individuals with SUDs. The inability to provide both types of care diminishes the ability to stabilize and maintain dually diagnosed individuals in SUD treatment.

Polysubstance use makes retention more difficult. Our interviews uncovered at least four contributors: (1) The clients are more complex and therefore require more resources and expertise. For example, the CCC detoxification facility noted that withdrawal management for opioids with benzodiazepines requires simultaneous use of two protocols. (2) For SUDs that are not treated with MAT, Treatment Associates noted that the medication “hook” does not exist and that those treated with medication are more likely to continue in treatment in order to obtain their medication. (3) Related to this is the fact that medication increases stability, making it easier for individuals to engage and remain in treatment, something not at play when treating anything other than OUD or alcohol use disorder (AUD). (4) Some treatment facilities will not accept individuals who are dependent on benzodiazepines, limiting the ability of those individuals to enter into or remain in treatment.

Other **diagnostic complexity** can complicate the ability to enter and remain in treatment. Examples include clients with pain, pregnancy, or serious physical conditions, including infectious disease. Each of these requires that a facility will accept individuals with these conditions, that they have the expertise to manage the patients’ care, and that they can effectively coordinate care across providers.

Clients' ability to **understand** the treatment process is critical to retention. Many have mild to moderate cognitive impairment, some of which precedes substance use and some of which can be substance-induced. This factor has two implications for treatment retention. First, the treatment facility needs the expertise to work effectively with individuals with cognitive disabilities. Second, the processes of intake, transitions, and ongoing treatment need to be designed for simplicity, for all clients. Even without a cognitive disability, trying to navigate a complicated treatment process can be daunting for someone with an SUD.

Stigma and shame can be powerful treatment inhibitors. Self-stigmatization and shame, along with stigma and shame fed by others, can induce withdrawal from treatment. Support and acceptance of the client as they are was identified across the board as important to helping them feel comfortable in treatment. Clinicians consistently stressed the importance of "meeting clients where they are at." The use of peer providers, particularly during the early stages of treatment, can help alleviate shame. ETS has introduced a peer engagement specialist who meets intakes on their first day and who approaches them as an equal. This work is ongoing, but the focus is on engaging with patients in the first 90 days of treatment to help remove some of the shame that new patients may feel. Many clients have been in treatment where relapse is met with ejection from treatment. Therefore, the feeling of shame associated with relapse can be pronounced, even if a provider does not discharge upon relapse. Meeting episodes of relapse in a way that does not exacerbate shame is important. Some providers also have begun relying less on observed urine screens, perhaps only requiring observation when child welfare agencies require it or relying on the possibility of random observation. The thinking behind this is that it can be demeaning to be observed and that a large segment of clientele have trauma histories.

Employment can be a barrier to treatment in at least two ways. First, it can interfere with someone's ability to attend regular treatment, particularly if daily dosing of methadone is required. Many OTPs begin dosing very early to assist people before they must go to work. Second, if someone who was reliant on Medicaid obtains employment with insurance in the midst of treatment, depending on the private insurance policy, the medication they are taking may not be covered.

Social supports can be critical to keeping people in treatment. This includes a support system that does not stigmatize treatment or induce shame. Social supports also can be a valuable means of remaining in contact with clients who may, for instance, have unreliable phone service. To improve retention, MTC identifies "locators" at the first touch of treatment. Locators are people who can be contacted to help MTC get back in touch with a patient if needed.

Just as clients may not have phones, they also may lack **transportation or childcare**. Although state Medicaid programs can facilitate transportation for many who do not have it, this does not always solve the problem. CVMC noted that, because so much of Vermont is rural and mountainous and can have treacherous weather, even people with cars may find it extremely difficult to get to treatment. This is most often a problem when someone is attending treatment at one of the hubs, of which there are fewer than there are spokes. Additionally, individuals who rely on Medicaid-funded treatment may not be allowed to bring their children using that transportation and, absent childcare, may not be able to attend treatment consistently (O'Brien et al., 2019). Only one of the providers interviewed include any childcare as part of their outpatient services, and most reported that clients often are forced to bring their child with them to treatment. MSBI noted that parents who are doing well and maintain abstinence and sobriety can have reduced visits and counseling schedules. Because the MSBI OTP is part of a large

health system, it also can transfer doses to the system's "late-day clinic," facilitating access for people with complicated schedules.

Housing is a social determinant of health. Lack of housing is a major impediment to treatment retention and was a consistent refrain across interviews. MSBI noted that they can link people to housing support services but that there is very little housing available. CCC is a social service agency with a clientele that is approximately 90 percent homeless or exiting homelessness. It explicitly addresses this issue with the housing and housing supports that it provides and integrates with the rest of its treatment system, including substance use treatment. Unfortunately, even with the housing resources that CCC can provide, lack of housing stock remains a substantial problem. Additionally, the traditional approach to housing for those with SUDs often ejects people from housing if they relapse, does not use a Housing First approach, and may even not accept people who are receiving MAT. MTC noted that it is considering opening its own recovery housing to overcome certain barriers, including a lack of housing supportive of MAT and that often is not developmentally specific or able to meet patients' age-appropriate needs (for example, recovery housing may not be supportive of young adults' romantic relationships).

One other factor that affects retention, that is client-specific but closely linked to the larger treatment system and environment, is **criminal justice system (CJS) involvement**. Interviewees noted that their clients often may be stable on medication but forced to go through painful withdrawal upon entry into jail or prison. Treatment Associates indicated that much of its non-retention has historically involved incarceration. Steps have been taken in recent years by certain jurisdictions to improve this situation. The State of Vermont is working to ensure that MAT is maintained in jail and that there is a plan in place when the person is released, with the Department of Corrections and the CJS working to improve care coordination with providers. Similarly, MSBI noted that it receives many referrals from Rikers Island, which has its own methadone program. The OTP and Rikers maintain communication to facilitate smooth transitions in each direction.

Evidence or Practice-Based Approaches to Addressing Retention

Our case studies revealed a wealth of information on evidence or practice-based approaches that facilitate retention (i.e., approaches supported either by research or by experience in settings with higher rates of retention).

One of our interviewees at MTC noted that **retention itself** may be one of the best facilitators of continued retention. Engagement and therapeutic alliance tend to be reinforcing of help-seeking. The more symptom relief patients experience, the more they are retained. Thus, getting someone into evidence-based treatment and onto an effective maintenance dose of medication, be it methadone, buprenorphine, or naltrexone, may be key to keeping them in treatment. Interviewees noted that clients who are being treated only for non-MAT-responsive SUDs are much harder to retain. This raises issues regarding clinical and pharmacological approaches, philosophical approaches, and innovative approaches to patient engagement and monitoring.

Clinical and Pharmacological Approaches

Clinical and pharmacological approaches to treatment play an important role in treatment retention. We discuss psychosocial approaches separately, yet there is some thought that even relationship-building as part of a medication management encounter may be as effective as specific psychosocial approaches to treatment. Every provider interviewed emphasized the need for a solid, trusting **therapeutic relationship**. However, this extends beyond having clinicians and counselors who can build an effective relationship. It also is affected by workforce shortages and inability to retain clinicians. Treatment Associates indicated that clients find it challenging to continually retell their story to new clinicians, and when a clinician leaves, the clients lose their connection and may disengage from treatment. With the exception of MSBI, which provides strong benefits and has a unionized workforce, every provider interviewed cited workforce turnover as an impediment to retaining clients in treatment.

Observations From Key Informants

The relationship between the counselor and patient is important and not easily measured.

Team-based approaches also are used to better retain clients in treatment. In addition to team meetings, such as those that CCC uses in its bridge and housing programs, providers may take extra steps when a client is having difficulty. For example, at CVAM, the management team meets to discuss difficult cases. The MSBI OTP uses a multidisciplinary approach and, when patients are having difficulty, they are asked to participate in a multidisciplinary team (MDT) meeting. This meeting brings multiple disciplines to the table and helps clients feel connected and better understood.

The primary evidence-based treatment for OUD is **MAT**. Methadone and buprenorphine are most commonly used but are seldom prescribed or administered at the same sites. Methadone may be administered only at an OTP, removing methadone treatment as a possibility absent appropriate licensure. Buprenorphine may be prescribed or administered by a waived prescriber at an OTP and elsewhere, but many OTPs use it infrequently. Only CVAM, which is a hub and a spoke, was both an OTP and a major prescriber of buprenorphine. It noted that this ability to use either medication allows flexibility in being able to medicate most appropriately. Research is starting to suggest that having access to and a choice between both methadone and buprenorphine or all three medications may enhance adherence and outcomes (Yarborough et al., 2016). The frequent splitting of the possible treatments into different settings may undermine possibilities for retention in treatment.

Another medication-related factor affecting retention is **dose**. The research literature is clear that inadequate dosing of either methadone or buprenorphine can reduce treatment retention. This finding was confirmed by our qualitative research. ETS indicated that individuals who miss 11 consecutive doses are its largest source of discharges. If clients miss appointments early in treatment where dose evaluation takes place, they tend to linger at 30 mg of methadone a day and their dose cannot be increased beyond the initial limit. The suboptimal dose results in greater likelihood of missed doses and discharge. To address this issue, ETS is focused on getting patients on a stabilized dose early and safely. Adequate dosing also has implications for continuity of care across settings. For example, CCC has found that the introduction of buprenorphine maintenance into its withdrawal management facility decreased the rate of those leaving against medical advice from 70 percent to 30 percent and greatly increased the rate of those leaving stabilized, including stabilized into housing.

Philosophical Approaches to OUD Treatment

A second group of practice-related factors affecting retention might be categorized as philosophical approaches that translate into treatment strategies. These include not discharging people simply because of relapse and treating individuals who also use benzodiazepines.

A traditional approach to OUD treatment is to **discharge** someone who relapses. This approach has been closely linked to the use of urine drug screens (UDSs) to identify relapse. However, because OUD is a chronic relapsing disease, providers increasingly understand that simple relapse should not automatically force someone out of treatment. None of the providers we interviewed eject a client from treatment simply because of relapse. They may discharge someone who comes to the clinic intoxicated, who is dealing or acting unsafely, who is showing no effort to engage in treatment, or who misses so many doses that there is concern about monitoring and tolerance. To these providers, relapse is considered a sign of the client's illness and addressing that with treatment, rather than discharging them, is seen as the appropriate step. If a client does continuously relapse, it is more likely that the provider will get them into a higher level of care. As an example, Treatment Associates will move people in steps, starting with a transfer to IOP treatment. If that is not sufficient, Treatment Associates moves them to the hub and then, if necessary, to inpatient treatment.

Clients may be abstinent from opioids but using another substance. This is most frequently a problem for a prescriber of methadone or buprenorphine when someone is using **benzodiazepines**. At the MSBI OTP, the clinic's concern is that the patient may appear fine but be sedated after dosing. In addition to counseling about polysubstance use, its approach to this issue is to check the prescription drug monitoring program (PDMP) and to ask the patient to show a prescription for the medication. However, even if the patient is using illicit benzodiazepines, the clinic will not restrict methadone unless the patient is sedated. Watching the patient after dosing is critical, and oversedation may result in a call to emergency medical services. At least one provider interviewed does not dispense methadone to clients taking Xanax because of its higher mortality rate when combined with opioids and preferred use as an illicit drug, but that provider will allow dispensing to clients taking other benzodiazepines.

Patient Engagement and Monitoring Approaches

We discovered a wide range of innovative approaches to facilitate patient engagement and monitoring, most of which involve flexibility in many aspects of treatment.

Service **flexibility** is an important consideration for improving retention and can be introduced at any point in the treatment process. **Intake** is often the first time that someone experiences a provider, and it frequently is a period of transition from one provider to another, whether from a hospital to outpatient treatment or, in Vermont, perhaps between a hub and a spoke. One of the biggest problems is ensuring that there is an opening when someone seeks treatment. One of the Vermont spokes, Treatment Associates, is working to smooth this process as part of the RAM program. Treatment Associates has hired additional staff for intake to facilitate movement between emergency department induction and spoke maintenance. Other providers, such as CCC, have walk-in physical or behavioral health appointments allowing prompt induction of buprenorphine, with a plan for follow-up within 48-72 hours. ETS also has implemented same-day treatment if there is an open medical slot. If clients have to come back because ETS does not have an opening, they are given head-of-the-line privileges on the day they return.

An important part of intake and of promoting effective continuity of care between settings involves helping patients **understand** the treatment process by setting the stage so that they know what to expect. One approach is to have an orientation group, such as the one MSBI requires. CVAM also has introduced spoke informational groups to assist in the transition. Similarly, as part of the RAM program in Vermont, the emergency department and recipient hubs or spokes are working together so that patients leaving the emergency department know what will be expected of them when they go to outpatient treatment. This was a lesson learned as part of the RAM pilot.

Practice-Based Approaches to Retention--Thoughts From Key Informants

- Case managers colocated with physicians as bundled services.
- Collaborative care rather than lone buprenorphine providers who lack the resources to provide care coordination, psychosocial supports, and urgent care to patients.
- Colocated physical health services.
- Programs that offer all 3 medications to treat OUD.
- Low or no-threshold treatment for new patients that resembles the approach with Housing First, with induction and treatment at levels that suit the patient.
- Rapid and appropriate early treatment that meets the needs of the newly diagnosed.
- Smartphones and apps to interface with patients in real time.

Flexibility also is important during ongoing treatment. CCC continues the idea of accessibility, for instance, with its SUD providers who are **embedded** in its FQHC and who maintain an open-door policy. Several providers also spoke of the inability of some clients to accept high-intensity treatment. MTC is emphasizing flexibility as a way to improve retention. Rather than trying to fit people into a preprescribed model of group therapy, MTC has made its counseling more flexible in order to “meet patients where they are at.” Another provider described a flexible approach as necessary for clients who cannot accept rigidity or structure.

Flexibility in methadone **dosing** also can be helpful. Many methadone clinics dose early in the day, with hours often beginning at 5:30 or 6:00 a.m., to allow people to receive their daily dose before work or school begins. ETS also has moved away from scheduled appointments for dosing to allowing clients to receive dosing at any point in the clinic’s dosing hours. Late visits also may be needed and often not available. Because the MSBI OTP is part of a very large health system, it can transfer doses to the system’s “late-day clinic,” facilitating access for people with complicated schedules.

Client **tracking and outreach** are approaches that providers take to improve retention and continuity in care. ETS routinely reaches out if a client misses two consecutive doses. It also uses an engagement tracker to closely monitor clients during the first 90 days of treatment. The engagement tracker is color coded and addresses risk factors for avoidable discharges, such as being homeless, being under 30 years old, being new to treatment, or having a co-occurring diagnosis. This lets ETS keep better track of the risk factors and allows the peer recovery specialist to step in before the patient leaves treatment. ETS can flag a patient’s dose so that peer recovery specialist is alerted if they need to check in with someone who is at higher risk. MSBI also has an outreach process when clients miss doses. At 7 days, they receive an outreach call, and at 14 days, they are sent a letter. MSBI and others noted that individuals who do not appear often are transient, with no fixed address and no reliable phone. MTC relies on patient locators, who are often family members. Tracking also can be helpful to facilitate

continuity of care. The CCC bridge clinic does client tracking through regular meetings, care coordination, and case management, which has allowed them to triple the rate of placements from the bridge program.

Peer providers also are increasingly seen as key to retention. Some programs use peer volunteers, and others employ peers as staff. Peer providers are used by most of the programs interviewed. CCC relies on both peers and certified recovery mentors with lived experience in the treatment and housing programs. Becoming a peer employed by CCC requires 2 years of abstinence, and many are former clients. Becoming a mentor requires 2 years of relevant experience or certification. CCC conducts internal training and funds part of the activities needed for certification. As part of its culturally specific programming at the Imani Center, CCC also offers Afrocentric approaches to peer support and case management. ETS hired a peer engagement specialist who works with clients on an ongoing basis but focuses on the first 90 days. The emergency department that piloted the RAM program in Vermont uses a recovery coach who works with patients in the emergency department, using a Recovery Coach Checklist, and then follows up with the patient by phone or text. The peer also may have a later physical meeting with the patient. MTC has a family advocacy group that focuses on peer supports for client family members.

As part of its naltrexone home-delivery pilot, MTC uses a “**contract**” with the patient and, with consent, the patient’s family. It is introduced at the first meeting and is a tool to sustain relationship-building and is an attempt to make everyone feel included and supported. It is flexible and tries to be responsive to the individual’s treatment needs. MTC also offers monetary **motivational incentives** for medication adherence specific to the naltrexone initiative, with increased amounts tied to longer retention.

Toxicology Screens--Thoughts From Key Informants

Urine toxicology has been over-reimbursed and, therefore, overused. It has a role for objective monitoring, but there are other services that can be more valuable.

Even though none of these providers discharge clients because of a positive toxicology screen, a **UDS** is still important as an indicator of treatment success and appropriate dosage and to ensure that clients are actually taking their medication. Some providers interviewed do still rely on observed UDSs, and some may do so only if it is a condition of parole or may maintain the possibility of an observed UDS to confirm that clients are taking their medication. The general rationale for this change is that pressure to produce a sample when observed is a barrier and that observed collection is demeaning. The MSBI OTP is one of the providers that never uses observed UDS. Instead, if there is a concern about adulteration, if an observed test is required by parole or child welfare services, or if it is needed for a reduction in schedule, MSBI uses an oral swab.

Providers also are increasingly using **telehealth** in different ways to improve access to care for prescribing, counseling, and other needs. ETS used telehealth to facilitate buprenorphine prescribing at its rural Grays Harbor Clinic in the township of Hoquiam, Washington, until the clinic closed in mid-2019. Treatment Associates is using telehealth to provide counseling services when that is necessary to allow client access. MSBI is participating in a study using telehealth to provide Hepatitis C services in its very urban OTP. These three different approaches to integrating telehealth into SUD treatment suggest that other uses of telehealth also might be viable ways to provide integrated treatment within a single location.

Structural flexibility also can be helpful if treatment is ending. ETS has found that some people, such as construction workers, simply have conflicting schedules that cannot accommodate its dosing times, which are from 5:30 a.m. to 1:00 p.m. Some elect to taper off MAT but wish to stay in treatment. If someone voluntarily tapers, ETS offers *aftercare* services during which the patient can see his or her counselor. Others such as CCC can provide buprenorphine continuity for up to 30 days if someone leaves for another provider. Additionally, if a client does not have a place to receive treatment upon discharge from withdrawal management and stabilization, CCC also can maintain continuity of medication via prescription or dispensing, including through its bridge clinic.

Psychosocial Supports

Philosophical Approaches

The programs interviewed represented a cross-section of treatment approaches, all committed to supporting treatment that includes medication. CCC changed a few years ago from a traditional 12-step approach to one that embraces MAT as fundamental to evidence-based treatment, while still offering 12-step options to those who wish to use them. The remainder have a longer history of focus on medication. All programs approach psychosocial supports somewhat differently. At a broad level, they range from programs that identify as “strongly therapeutic-focused” to ones that have embraced a low-threshold approach to treatment with pronounced flexibility.

Psychosocial Services--Thoughts From Key Informants

- There has been a shift in focus from MAT to medication-only, and we are seeing prolonged medication-only treatment. This may reduce use of opioids, and reduce mortality, but does not help patients with the psychosocial components of addiction.
- Being in treatment does not equate to quality care in treatment. Interviewees recommend enhancing the qualifications required for people who administer services and making sure that they are high-quality services. These services depend on the quality of the therapist and the relationship that they can develop with the patient. Being in recovery alone is not sufficient to be an effective service provider.

Some programs require individual and/or group counseling as a condition of receiving medication; others do not. Some, such as ETS, an OTP, are required by the state (Washington) to mandate counseling. Even then, the state has recently removed strict requirements related to frequency, leaving that to the individual treatment plan. The MSBI OTP in New York indicated that state requirements have now changed to “as needed.” Despite this, MSBI feels strongly that counseling is important and requires it at least once a week for the first 90 days in treatment. Vermont requires at least 60 minutes of counseling a month, but because it receives a bundled payment, CVAM can be flexible, requiring shorter, more frequent visits until a patient becomes more stable, with the frequency then reduced. Also in Vermont, Treatment Associates expects counseling but is flexible on the basis of individual need, no longer requiring it to obtain medication. The general expectation at Treatment Associates is between two sessions a month to five per week (group and/or individual). At CCC’s new Blackburn Center, it is encouraging but not mandating psychosocial treatment, while still requiring it at the Hooper withdrawal management site. As part of its home-delivery of naltrexone program for young adults, MTC

expects those receiving home-delivery to attend an outpatient group, but if they do not, they still receive the injection every 3-4 weeks, along with a counseling session in the home.

Every program emphasized the importance of meeting clients “where they are at.” In Vermont, Treatment Associates lets clients choose an approach to treatment that is the right fit for them rather than mandating a specific approach. This is tied to the need for relationship-building. MTC finds that helping the patient with something else in their life (e.g., a personal crisis, family issue) helps MTC build a connection. CVAM works hard to match patients to a good counselor for that patient during the intake interview. It noted that “engagement is both the impediment to successful treatment and the answer to successful treatment.”

Modalities of Treatment

Several of the programs noted that they routinely use the ASAM criteria for evaluating patient treatment needs. Based upon such assessments, treatment plans are developed. Psychosocial services then delivered may include individual or group therapy, case management, peer supports (discussed above), and other services.

Individual and Group Treatment

Treatment programs differ with regard to how heavily they rely on individual or group therapy as their primary modality of treatment, and many seem to have a well-defined identity that attaches strong preferences to one or the other. This may be a legacy of historical program structure, current program philosophy, or resource constraints that limit the workforce of trained individual or group counselors. One program spoke of having to limit patients to one group per day to ensure access for all patients.

The two most commonly mentioned therapeutic approaches were motivational interviewing and cognitive approaches. Motivational interviewing was used by all programs, most on an ongoing basis. This was seen as a method to motivate and reinforce change and to retain and encourage participation in treatment. In Vermont, Treatment Associates noted that it has incorporated motivational interviewing into all levels of treatment, including case management, individual counseling, and group counseling. Cognitive approaches were widely used, both individually and in groups. Related to that is Dialectical Behavior Therapy (DBT), which at least two of the programs have implemented with DBT-trained counselors. Several mentioned providing trauma-informed care. Psychoeducation, often in groups, also is widely used.

The variety of groups that are offered is quite diverse. MSBI begins treatment with an orientation group, which orients clients to everything about the program, including loitering and toxicology policies. Among the groups offered through different programs were ones that are more clinical and ones that focus more on life skills. Group topics mentioned included CBT, DBT, seeking safety, co-occurring or dual diagnosis, pharmaceutical treatment education, harm reduction, overdose prevention, tobacco cessation, life skills, job training, and budgeting. Groups for women, men, older clients, and lesbian, gay, bisexual, and transgender (LGBT) clients also are offered.

Case Management

Case management is a critical component of all programs interviewed. This may include onsite case managers, case managers in the community, and special programs for those requiring additional support. Special case management programs often include or are part of MDTs. The ETS REACH program includes case managers, along with other providers, to work with clients who are homeless. The CCC CEP uses a MDT that includes case managers to work with clients who have both mental disorders and SUDs. Case management is also a strength of CCC's housing programs; case managers help people find and sustain housing and help them engage and remain in treatment. MTC's naltrexone home-delivery program relies strongly on high-touch case management to sustain the connection to treatment. As part of the Vermont health home managed care model, to provide enhanced case management, treatment spokes have supplemental access to one licensed clinician case manager for every 100 patients across multiple providers and their offices. The CVMC emergency department that piloted the RAM program includes a robust obstetric case management system that is used to get pregnant people into medication treatment quickly. Many of the programs spoke of instituting tracking systems as part of case management to help identify where additional outreach or support is needed.

Mental Health Treatment

Many of the programs struggle with providing or connecting mental health treatment to everyone who needs it, and many also said that the numbers of those they serve with serious mental illness is increasing. At least two of the large providers indicated that approximately 70 percent of their clients have a serious mental illness. The common inability to access sufficient mental health treatment may reflect various issues, such as a growing population with great need, a shortage of mental health providers in the community, and mental health treatment providers, including specialty psychiatric hospitals, that do not treat individuals with SUDs or, in some cases, specifically anyone on benzodiazepines. Some programs such as ETS provide limited psychiatric care in house if a client cannot obtain it in the community. ETS also is exploring obtaining a community mental health license to offer services regularly. Vermont's Treatment Associates offers full mental health and substance use treatment in house. CCC has the embedded CEP, a multidisciplinary recovery model for the population of chronically homeless people with co-occurring mental disorders, SUDs, and/or physical concerns. The MSBI OTP routinely screens intakes for mental disorders to determine whether a referral is needed, and if so, a referral is made either to the hospital or to another specialty mental health program.

Other Services

The programs interviewed offer a wide array of other services that enhance SUD treatment. Some examples include the following:

- The MSBI OTP includes vocational rehabilitation counselors, financial counselors, a coordinator for child and family services (CFS), and a patient advocate. It also offers activities that are designed to provide recreational opportunities in a non-drug setting, including a client choir.
- MTC's low-threshold naloxone home-delivery pilot for young adults uses patient-family-provider contracts to leverage the family and also emails, group texts, calls, and Facebook messages.

- CCC takes a holistic approach to its largely homeless urban population and includes an array of services beyond SUD treatment. It encompasses mental health treatment, physical health treatment, acupuncture, housing, and employment services. It also offers culturally specific programming at the Puentes program for the Portland Latinx community and the Afrocentric Imani Center.
- ETS also provides acupuncture and, until recently, used telehealth to help bring sufficient buprenorphine treatment to rural Grays Harbor County, Washington.

Reimbursement Approaches

Current reimbursement approaches vary by treatment provider and state. Populations served by the sites visited are predominantly Medicaid beneficiaries, although commercial insurance and self-payment, usually on a sliding scale, also applies for small segments of the population.

Reimbursement--Thoughts From Key Informants

- Paying a bundled amount per member per month will allow for integrated care and facilitate access supports such as transportation. In addition, less money will be wasted on toxicology screens.
- Some component of the reimbursement model must give the practice group the flexibility to treat patients with collaborative and coordinated care (part capitation, part FFS).
- Insurers set arbitrary time limit caps on the length of MAT treatment, leading to relapse.
- Insurance should pay for MAT without a significant copayment from the patient. Copayments can shorten retention for patients.

Medicaid payment approaches encountered include fee for service (FFS) (MTC); a bundled rate as an OTP (ETS); a bundled rate as a hub, with FFS paid to outside providers (CVAM); per service under an ambulatory patient group (APG)¹ as an OTP (MSBI); and a case rate (CCC). Vermont Medicaid uses a health home managed care model for payment. This allows flexibility in terms of services provided, avoids quantity-based FFS payments, and allows for enhanced staffing.

Some providers, including the MSBI OTP and a spoke in Vermont, noted that they are not part of value-based purchasing in their states. However, as part of King County's HealthierHere initiative, ETS reports measures that are part of a **value-based payment** model that includes a retention measure.

In addition to insurance reimbursement, providers may rely on other sources for **funding** certain things. For example, the MSBI clinic received deficit funding from the state, and MTC relies on grant funding for supports not covered by insurance for its naltrexone pilot. For outreach and engagement, CCC uses overhead.

¹ An APG is a patient classification system for payment of facility costs of care that was originally created for the Medicare program.

Observations from Key Informants

Insurer quantity limits are not a real barrier to accessing treatment, but for those in treatment there is no reason to have quantity limits. There are not similar quantity limits for comparable medications, such as insulin.

Several providers noted areas where changes to **reimbursement** might enhance treatment and retention. The following are some of the ideas:

- Moving away from FFS payment, where that still is used, to more flexible approaches that support services such as high-touch case management, treatment supervision, and outcomes monitoring.
- Including case management within an OTP bundled rate, which some states do and others do not.
- A value-based payment model that pays for outcomes and quality.
- Reimbursement that recognizes periods or instances when more intensive services are needed, such as during the first month of treatment or for complex cases (e.g., polysubstance, dual diagnosis).
- Statewide removal of prior authorization for buprenorphine treatment so that Medicaid managed care organizations within the state do not apply different requirements.

At least one **perverse incentive** of the case rate was noted by CCC. As CCC has moved from detoxifying people with buprenorphine and tapering them off for release to maintaining them, its withdrawal management stays have increased in length. In addition, since buprenorphine maintenance was added, discharges against medical advice have decreased from 70 percent to 30 percent. These are positive signs for stabilization and recovery. Yet, the detoxification facility is paid a case rate if there is an intake and the person remains past midnight, with no additional payment regardless of the duration of the stay. For those who still opt not to use maintenance medication, the case rate could have the perverse incentive of encouraging rapid tapering and discharge, which may undermine recovery. For those who opt not to taper, the case rate could incentivize more rapid discharge that does not allow time for the process of connecting, for example, a homeless person who has OUD and psychosis to all needed supports. CCC was clear that it does not succumb to these incentives to reduce care but acknowledged that the longer stays affect its bottom line.

IMPLICATIONS

What variables affect retention in SUD treatment across disorders? How have these changed with the evolution of drug use patterns?

As our examination of the literature and our study findings indicate, many variables affect retention in SUD treatment, including treatment for OUD. The interaction of those variables is critical--whether client characteristics, provider or service delivery characteristics, setting-based factors, or external variables such as cross-system collaboration or payment policies. Influences on retention cannot easily be reduced to simple, quantifiable measures. Treatment is an interaction between the client and the provider and between each of them and external influences. Retention depends on those interactions and the ability of domains such as providers, payers, or clients to adjust.

Systemic adjustment helps answer part of the question of how variables influencing retention have changed with the evolution of drug use patterns. Traditionally, SUD treatment was abstinence-based, as were other systems on which people relied, such as housing and mental health treatment. These systems traditionally required abstinence to partake in services, and non-abstinence could be a reason for loss of SUD treatment, mental health treatment, and housing. This approach has not disappeared from the landscape, but there have been changes.

Among SUDs, only tobacco disorder, AUD, and OUDs are treated with medication that has been approved for that purpose. Despite its effectiveness in treating OUD, medication such as methadone or buprenorphine often has not been accepted in SUD treatment or in housing. As an interviewee at CCC noted, "MAT was not considered abstinence." The major force propelling changes that support retention is the fact that so many people in so many places are dying in the opioid epidemic. Two of our interviewees brought this basic fact to the fore. An MTC provider stated, "OUD is different from some other SUD treatment in the sense that it is more urgent. With OUD treatment, the provider doesn't have the luxury of learning from their mistakes and the patient doesn't hit rock bottom before they start getting better. If you let them hit rock bottom, they will die." Similarly, a person in the CCC housing division attributed their culture change from abstinence-based to a flexible mix of recovery and Housing First approaches, with MAT heavily involved for both, to the fact that "people were dying and it had to change."

To some extent, the question of change is moot because polysubstance use, both intended and unintended, is the reality for a large portion of those who should be served by the treatment system. The introduction of fentanyl into heroin, cocaine, and methamphetamine (National Institute on Drug Abuse, 2019), for instance, as well as the fact that most people using opioids illicitly also intentionally use other substances (Winkleman et al., 2018), means that the treatment system must address all substances in whatever way is best in terms of providing access to treatment, getting people into effective treatment, and keeping them there.

Certain factors influence retention. Below we discuss evidence or practice-based, psychosocial, reimbursement, and setting factors and, to the extent that there are factors specific to OUD (e.g., medication dosing), we highlight that fact. Client factors, however, clearly also play a role. Potential client factors are numerous but certain characteristics seemed most significant in the eyes of those we interviewed. Serious and untreated mental health conditions, polysubstance use, non-robust supports for social determinants of health such as housing and social supports,

CJS involvement, and age are all important influences on retention. Each of these, in turn, interact with providers, settings, and other external factors.

What are evidence-based methods to address treatment retention in SUD treatment, and how do these apply to treatment of OUD?

In addition to psychosocial supports or setting-specific practices, which we discuss below, this study uncovered many practice or evidence-based methods to address or otherwise influence retention. Practices related to delivery of medication are the ones most specific to treatment of OUD. These include: (1) offering 2-3 medications rather than just one; (2) for methadone, timing availability to maximize ability to receive the medication (e.g., late-day clinic); and (3) doing whatever it takes to get clients stabilized on an optimum dose of methadone or buprenorphine as quickly as it is safe to do so.

However, these medication-specific practices interact with other practices that seem applicable regardless of substance, and many relate to treatment flexibility. Preintake communication across settings is paramount, as is preparing the client for the next stage of treatment. When an individual is ready for treatment, it needs to be available, induction needs to be same-day, and follow-up must be guaranteed. Embedding substance use and mental health treatment into physical health settings, where warm hand-offs can be effectuated, provides greater ease in moving a person who is already physically present into an office where substance use treatment can be initiated. Increasingly low-threshold or no-threshold treatment is becoming accepted as necessary for initiation, engagement, and retention. This may mean many things, but at a minimum, it means reducing the burden of intake and increasing the availability of treatment when someone is ready to receive it. However, it also may mean, providing treatment that is client centered and not rigidly the same for everyone. Use of telehealth sometimes may be helpful to facilitate part of this process.

Individuals in SUD treatment often do not have reliable homes or telephones. Tracking systems and outreach are imperative, and payment that supports these activities is critical. Use of peer providers or others to connect with and provide persistent outreach can be a tool in this regard. Use of “locators,” such as the locators that MTC uses with young adults, may not always be feasible, but other creative approaches to outreach may be possible. Motivational incentives and “contracts” also can support retention.

Traditional SUD treatment involved discharge if a person relapsed, frequent observed UDSs, and, in OUD treatment, not allowing individuals taking benzodiazepines to receive MAT. None of the providers interviewed discharge individuals simply because of relapse, and observed UDSs are becoming increasingly less common. Although caution in treating individuals codependent on opioids and benzodiazepines is important, as is not prescribing benzodiazepines to individuals taking opioids, careful treatment of both is possible. Indeed, the Food and Drug Administration (FDA) has issued guidance that providers should not refuse OUD treatment to those taking benzodiazepines (FDA, 2016). Reimbursement for complexity might mitigate some of the concerns providers have about treating this population, which requires extra screening, assessment, treatment, and monitoring.

Approaches to treatment that recognize that people leave treatment for different reasons also may help with care continuity. Aftercare or bridge services, such as those offered by the CCC Hooper bridge program, can promote continued medication adherence, as can providing a therapeutic environment and connection until the person can receive treatment elsewhere. Even if such services are not accepted, keeping the door open means that individuals who leave may

return. Additionally, because many discharges involve clients entering the CJS, approaches that avoid discharge, facilitate communication between the CJS and treatment provider, and facilitate ongoing treatment while the person is incarcerated are very important. Vermont and New York City are making strides in dealing with this reality.

Are there promising models of psychosocial support that assist in maintaining an individual in MAT for OUD? Do longer, more continuous durations of treatment result in better outcomes?

We are at a point where the value of requiring psychosocial treatment for everyone receiving MAT is being debated, and steps slowly are being taken away from rigid requirements. Some providers feel very strongly that psychosocial treatment is a key component of MAT, and others feel that the most important thing is to get clients stabilized on medication, hoping that they will be receptive to psychosocial treatment as they move further into medication-supported recovery. The latter camp also often sees mandated psychosocial treatment as impeding retention for many people who are uncomfortable with structure and with being forced to participate in group or individual therapy in order to obtain needed medication for their illness.

This debate raises questions more than it answers. For instance, could high-quality, consistent medication management meetings and intensive case management suffice for some people? Is better preparation for and orientation into treatment necessary to help clients understand why counseling can be helpful and to accept it? Are a substantial portion of those with SUD who also have extensive trauma histories being treated in a trauma-informed fashion, and might they not benefit from some of the trauma-informed treatments being used at, for instance, VA facilities? Would consistent integration of high-quality mental health and substance use treatment for the dually diagnosed not better support those individuals than siloed and often unavailable separate treatment? Would conscious and intentional and well-trained use of motivational interviewing throughout treatment better maintain readiness for change and retention than would treatment that foregoes or provides motivational interviewing only at the inception of treatment?

Every provider interviewed stressed the need to “meet people where they are at.” This means using client-specific approaches beginning at intake and providing what the person needs when they need it. However, to know what clients need, providers must be able to establish a meaningful therapeutic relationship. Whether that means individual counseling, group therapy, intensive case management, high-quality medication management meetings, or supporting a choir, it involves some sort of psychosocial support and connection.

How have changes in reimbursement policy affected the provision of services? Have reimbursement policy changes expanded retention in treatment?

The general consensus is that FFS reimbursement can encourage overuse of certain services (e.g., UDS) and impede the ability to provide collaborative, integrated, and holistic care that supports retention. On the other hand, as one of our interviewees noted, case rates alone may incentivize shortened and less complex responses to a population that is quite complicated. What seems to be best received are thoughtfully bundled payments that address necessary services, including case management and care coordination. As a hub in the Vermont health home managed care reimbursement system, CVAM receives bundled payments. Yet, if a client prefers or needs to see an outside provider, CVAM can refer them out. That provider is paid via FFS, and CVAM still is paid the bundled rate for the services it provides, as long as it meets the requirements for its bundle.

What seems to be key is a thoughtfully bundled reimbursement system that encompasses necessary services, including case management and care coordination, yet recognizes the need for flexibility regarding providers. Such a system could be stratified or risk adjusted to account for complex cases (e.g., dually diagnosed with serious mental illness, multiple SUDs) and recognize that there are times when extra support is required, such as when clients are newly initiated into treatment. Reimbursement should encourage and reward continuity of care as well as retention in treatment. To this end, additional research is needed to determine, for instance, why low-performing agencies in Washington State did not respond to contract incentives in the same way that moderate to high-performing agencies did (Acevedo et al., 2018) and whether and how low-performing providers can improve retention, continuity of care, and high-quality treatment. This may mean a strengthened workforce, mandatory QI initiatives, or other steps that revise the status quo.

Finally, several interviewees and key informants commented on the way that medication used to treat OUD is not consistently treated like medications for other chronic diseases. Not all commercial insurers reimburse for methadone, buprenorphine, and naltrexone, nor do all state Medicaid programs. Of those states that do reimburse for some or all of those medications as part of their Medicaid benefits, some still impose prior authorization requirements or quantity limits, often with substantial disparities between how different Medicaid managed care plans within a state reimburse (SAMHSA, 2018). The opioid crisis has pushed many states away from this approach, but some persist in limiting access to life-saving medications.

What types of settings have seen success in implementation of SUD treatment retention methods, and how do they structure their programs? Have these methods been specifically applied to MAT for OUD, and are these programs structured differently?

The settings visited included two programs that are first and foremost OTPs, largely reliant on methadone for treatment with more limited use of buprenorphine. They differ in their relative focus on individual versus group therapy, but both have undertaken substantial steps to facilitate access to care and to improve retention, as well as to address polysubstance use and integrate care. Both programs have clients who have been in treatment for many years. MSBI is part of a large health system that can provide access to mental and physical health treatment and other services, can provide access to a late-day methadone clinic, has a strong base of long-time staff with deep connections to the clientele, and works closely with the CJS to facilitate ongoing treatment. ETS has worked very hard to maximize client engagement in the first 90 days of treatment, including by providing broader opportunities for methadone dosing, providing treatment on demand to the extent possible, and hiring and relying on a peer engagement specialist to connect with new clients as a person with lived experience, tracking their attendance and risk factors and following up promptly when signs appear of disconnection. The mobile methadone clinic expands ETS services to neighborhoods without a clinic, making client access easier. Until mid-2019, ETS also had an effective buprenorphine telehealth program at a rural location, providing access to MAT to people who often otherwise had to drive for hours to receive treatment.

In contrast to MSBI and ETS, MTC is not an OTP and uses buprenorphine and naltrexone for OUD medication treatment. Unlike an OTP, its mission is not so extensively focused on clients with OUD. MTC is fortunate to have a research division and grants that have supported its ability to implement and evaluate a RCT comparing treatment as usual for young adults to treatment in the form of home-delivery of XR-NTX. This program is supported by intensive case management, use of social media and electronic connections to retain contact with participants, client “contracts” and monetary incentives to remain in treatment, and, with client consent,

family involvement as “locators” and other supports. The preliminary data show positive effects on retention in treatment, and MTC is expanding the trial to compare the relative benefits of using XR-NTX and XR-buprenorphine via home-delivery. The low-threshold approach does not mandate that individuals attend counseling at a treatment facility but brings individual case management and counseling to them with delivery of medication that must be injected only once monthly.

Like MTC, CCC is not an OTP and relies primarily on buprenorphine and, to a lesser extent, naltrexone for medication treatment. As a non-OTP, it also is not exclusively focused on serving the OUD population. It can provide services and supports that include two Health Care for the Homeless FQHCs, mental health treatment, housing and employment services, and embedded substance use treatment that includes withdrawal management and stabilization, IOP, and outpatient treatment, as well as other services. These services let CCC serve and support a vulnerable population holistically. In addition to the wide range of services, CCC recently implemented an integrated version of much of its spectrum of care in a single location and, separately, created a bridge clinic at its detoxification facility that permits continued treatment of those stabilized on buprenorphine until other services are available.

Lastly, the State of Vermont’s hub-and-spoke system, including its RAM pilot of buprenorphine induction in the emergency department, includes a mixture of OTPs and non-OTPs, permitting some portions of its system to provide both methadone and buprenorphine and allowing the six service regions to consistently provide both at some place within that subsystem. The central Vermont sites that we interviewed are part of a fluid and responsive meta-system that is deeply embedded in the community served. Data from the pilot RAM program is being evaluated as the program evolves and it is being replicated in other parts of the state. Critically, the impetus for the RAM program was an earlier alcohol Screening, Brief Intervention, and Referral to Treatment (SBIRT) triage program at the same hospital. Key factors supporting retention and continuity of care within the Vermont State system include the ability to use different medications; the ability to provide different levels of support (hub or spoke) as needed with two-way communication across sites; organized efforts to build and improve the buprenorphine emergency department induction program, with guaranteed follow-up at hubs and spokes upon discharge from the emergency department; the state’s efforts to continue medication treatment within the jail system; and a health home managed care reimbursement model that is flexible enough to support the settings that are hubs and spokes but also to allow other treatment when needed.

CONCLUSION

Factors that promote or impede retention and continuity of care are complex. That complexity provides us with opportunities to better understand many things. Additional research and thought may help us determine how to further shift the culture of substance use treatment away from a lingering abstinence-only approach and how to bridge the silos between methadone, buprenorphine, and naltrexone treatment for OUD so that everyone has access to whichever treatment is best for them. We need to think hard about how best to integrate mental health and substance use treatment and best practices for treating non-MAT-responsive SUDs. Those are two of the biggest hurdles to retention that our interviewees face, along with loss of clients to the CJS, where treatment often is unavailable. Providers need practical guides to moving clients to an optimum dose of medication as rapidly as is safe, including guides to structural practices that support early engagement. Many practices identified in this report can facilitate retention, but adequate reimbursement for necessary services such as outreach, tracking, case management, and care coordination is needed to enable implementation of best practices. Reimbursement that is risk adjusted to address complexity and periods when greater resources are needed would help support services and delivery system reforms that enhance retention in treatment. We also need to better understand how to move providers who are not using best practices further along the quality spectrum.

REFERENCES

Acevedo A, Lee MT, Garnick DW, Horgan CM, Ritter GA, Panas L, Campbell K, Bean-Mortinson J. Agency-level financial incentives and electronic reminders to improve continuity of care after discharge from residential treatment and detoxification. *Drug & Alcohol Dependence*. 2018; 183: 192-200.

Acquavita SP, Stershic S, Sharma R, Stitzer M. Client incentives versus contracting and staff incentives: How care continuity interventions in substance abuse treatment can improve residential to outpatient transition. *Journal of Substance Abuse Treatment*. 2013; 45(1): 55-62.

American Society of Addiction Medicine (ASAM). *The ASAM Performance Measures for the Addiction Specialist Physician*. 2014. https://www.asam.org/docs/default-source/advocacy/performance-measures-for-the-addiction-specialist-physician.pdf?sfvrsn=5f986dc2_0. Accessed December 3, 2018.

American Society of Addiction Medicine (ASAM). *The ASAM National Practice Guideline for the Use of Medications in the Treatment of Addiction Involving Opioid Use*. 2015. <https://www.asam.org/docs/default-source/practice-support/guidelines-and-consensus-docs/asam-national-practice-guideline-supplement.pdf?sfvrsn=24>. Accessed December 3, 2018.

Bhatraju EP, Grossman E, Tofighi B, McNeely J, DiRocco D, Flannery M, Garment A, Goldfeld K, Gourevitch MN, Lee JD. Public sector low threshold office-based buprenorphine treatment: Outcomes at year 7. *Addiction Science & Clinical Practice*. 2017; 12(1): 7.

British Columbia Centre on Substance Use, British Columbia Ministry of Health. *A Guideline for the Clinical Management of Opioid Use Disorder*. 2017. http://www.bccsu.ca/wp-content/uploads/2017/06/BC-OUD-Guidelines_June2017.pdf. Accessed December 3, 2018.

Carroll KM, Weiss RD. The role of behavioral interventions in buprenorphine maintenance treatment: A review. *American Journal of Psychiatry*. 2017; 174(8): 738-747.

Choi S, Adams SM, Morse SA, MacMaster S. Gender differences in treatment retention among individuals with co-occurring substance abuse and mental health disorders. *Substance Use & Misuse*. 2015; 50(5): 653-663.

Cui R, Haller M, Skidmore JR, Goldsteinholm K, Norman S, Tate SR. Treatment attendance among veterans with depression, substance use disorder, and trauma. *Journal of Dual Diagnosis*. 2016; 12(1): 15-26.

DiPaula BA, Menachery E. Physician-pharmacist collaborative care model for buprenorphine-maintained opioid-dependent patients. *Journal of the American Pharmacists Association*. 2015; 55(2): 187-192.

D'Onofrio G, Chawarski MC, O'Connor PG, Pantaloni MV, Busch SH, Owens PH, Hawk K, Bernstein SL, Fiellin DA. Emergency department-initiated buprenorphine for opioid dependence with continuation in primary care: outcomes during and after intervention. *Journal of General Internal Medicine*. 2017; 32(6): 660-666.

Dugosh K, Abraham A, Seymour B, McLoyd K, Chalk M, Festinger D. A systematic review on the use of psychosocial interventions in conjunction with medications for the treatment of opioid addiction. *Journal of Addiction Medicine*. 2016; 10(2): 93-103.

Dutra L, Stathopoulou G, Basden SL, Leyro TM, Powers MB, Otto MW. A meta-analytic review of psychosocial interventions for substance use disorders. *American Journal of Psychiatry*. 2008; 165 2: 179-187.

Eibl JK, Gauthier G, Pellegrini D, Daiter J, Varenbut M, Hogenbirk JC, Marsh DC. The effectiveness of telemedicine-delivered opioid agonist therapy in a supervised clinical setting. *Drug & Alcohol Dependence*. 2017; 176: 133-138.

Fiellin DA, Weiss L, Botsko M, Egan JE, Altice FL, Bazerman LB, Chaudhry A, Cunningham CO, Gourevitch MN, Lum PJ, Sullivan LE, Schottenfeld RS, O'Connor PG, BHIVES Collaborative. Drug treatment outcomes among HIV-infected opioid-dependent patients receiving buprenorphine/naloxone. *Journal of Acquired Immune Deficiency Syndromes*. 2011; 56(suppl 1): S33-S38.

Fishman M. An assertive approach to the treatment of opioid addiction in young adults: Overcoming barriers. Presented at: the ASAM Annual Conference; April 5, 2019; Orlando, FL.

Food and Drug Administration (FDA). *FDA Urges Caution About Withholding Opioid Addiction Medications From Patients Taking Benzodiazepines or CNS Depressants: Careful Medication Management Can Reduce Risks*. Drug Safety Communications. 2016. <https://www.fda.gov/media/127688/download>. Accessed August 21, 2019.

Franklyn AM, Eibl JK, Gauthier GJ, Marsh DC. The impact of cannabis use on patients enrolled in opioid agonist therapy in Ontario, Canada. *PLoS One*. 2017; 12(11): e0187633.

Gauthier G, Eibl JK, Marsh DC. Improved treatment-retention for patients receiving methadone dosing within the clinic providing physician and other health services (onsite) versus dosing at community (offsite) pharmacies. *Drug & Alcohol Dependence*. 2018; 191: 1-5.

Hadland SE, Bagley SM, Rodean J, Silverstein M, Levy S, Laroche MR, Samet JH, Zima BT. Receipt of timely addiction treatment and association of early medication treatment with retention in care among youths with opioid use disorder. *JAMA Pediatrics*. 2018; 172(11): 1029-1037.

Institute for Clinical and Economic Review (ICER). *Management of Patients With Opioid Dependence: A Review of Clinical, Delivery System, and Policy Options*. Draft report. 2014. https://icer-review.org/wp-content/uploads/2016/01/CEPAC-Opioid-Dependence-Draft-Report_June-9-2014-FINAL_With-Corrections.pdf. Accessed December 3, 2018.

Jarvis BP, Holtyn AF, Subramaniam S, Tompkins DA, Oga EA, Bigelow GE, Silverman K. Extended-release injectable naltrexone for opioid use disorder: A systematic review. *Addiction*. 2018; 113(7): 1188-1209.

Joe GW, Simpson DD, Broome KM. Effects of readiness for drug abuse treatment on client retention and assessment of process. *Addiction*. 1998; 93(8): 1177-1190.

Klein A. *What Does It Really Mean To Be Providing Medication-Assisted Treatment for Opioid Addiction?* Hazelden Betty Ford Foundation; 2017.

<https://www.hazeldenbettyford.org/education/bcr/addiction-research/medication-assisted-treatment-opioid-addiction-wp-1017>. Accessed December 3, 2018.

Kumar N, Stowe ZN, Han X, Mancino MJ. Impact of early childhood trauma on retention and phase advancement in an outpatient buprenorphine treatment program. *American Journal on Addictions*. 2016; 25(7): 542-548.

LaBelle CT, Han SC, Bergeron A, Samet JH. Office-based opioid treatment with buprenorphine (OBOT-B): Statewide implementation of the Massachusetts Collaborative Care Model in community health centers. *Journal of Substance Abuse Treatment*. 2016; 60: 6-13.

Lagisetty P, Klasa K, Bush C, Heisler M, Chopra V, Bohnert A. Primary care models for treating opioid use disorders: What actually works? A systematic review. *PLoS One*. 2017; 12(10): e0186315.

Lee MT, Acevedo A, Garnick DW, Horgan CM, Panas L, Ritter GA, Campbell KM. Impact of agency receipt of incentives and reminders on engagement and continuity of care for clients with co-occurring disorders. *Psychiatric Services*. 2018; 69(7): 804-811.

Liebschutz JM, Crooks D, Herman D, Anderson B, Tsui J, Meshesha LZ, Dossabhov S, Stein M. Buprenorphine treatment for hospitalized, opioid-dependent patients: A randomized clinical trial. *JAMA Internal Medicine*. 2014; 174(8): 1369-1376.

Lincoln T, Johnson BD, McCarthy P, Alexander E. Extended-release naltrexone for opioid use disorder started during or following incarceration. *Journal of Substance Abuse Treatment*. 2018; 85: 97-100.

Lo-Ciganic WH, Gellad WF, Gordon AJ, Cochran G, Zemaitis MA, Cathers T, Donohue JM. Association between trajectories of buprenorphine treatment and emergency department and in-patient utilization. *Addiction*. 2016; 111(5): 892-902.

Ma J, Bao YP, Wang RJ, Su MF, Liu MX, Li JQ, Degenhardt L, Farrell M, Blow FC, Ilgen M, Shi J, Lu L. Effects of medication-assisted treatment on mortality among opioids users: A systematic review and meta-analysis. *Molecular Psychiatry*. 2018; doi.org/10.1038/s41380-018-0094-5.

Madden LM, Farnum SO, Eggert KF, Quanbeck AR, Freeman RM, Ball SA, Schottenfeld RS, Shi JM, Savage ME, Barry DT. An investigation of an open-access model for scaling up methadone maintenance treatment. *Addiction*. 2018; 113(8): 1450-1458.

Manhapa A, Agbese E, Leslie DL, Rosenheck RA. Three-year retention in buprenorphine treatment for opioid use disorder among privately insured adults. *Psychiatric Services*. 2018; 69(7): 768-776.

McLellan AT, Kemp J, Brooks A, Carise D. Improving public addiction treatment through performance contracting: the Delaware experiment. *Health Policy*. 2008; 87(3): 296-308.

Meier PS, Barrowclough C, Donmall MC. The role of the therapeutic alliance in the treatment of substance misuse: A critical review of the literature. *Addiction*. 2005; 100(3): 304-316.

Meshberg-Cohen S, Black AC, DeViva JC, Petrakis IL, Rosen MI. Trauma treatment for veterans in buprenorphine maintenance treatment for opioid use disorder. *Addictive Behaviors*. 2018; 89: 29-34.

National Institute on Drug Abuse; National Institutes of Health; U.S. Department of Health and Human Services. *DrugFacts: Fentanyl*. 2019. <https://d14rmgtrwzf5a.cloudfront.net/sites/default/files/drugfacts-fentanyl.pdf>. Accessed August 21, 2019.

National Quality Forum (NQF). *Measures, Reports and Tools. Continuity of Pharmacotherapy for Opioid Use Disorder (Measure 3175)*. https://www.qualityforum.org/Measures_Reports_Tools.aspx. Accessed December 3, 2018.

O'Brien P, Crable E, Fullerton C, Hughey L. *Best Practices and Barriers to Engaging People With Substance Use Disorders in Treatment*. 2019. <https://aspe.hhs.gov/report/best-practices-and-barriers-engaging-people-substance-use-disorders-treatment>. Accessed September 1, 2019.

Rezapour T, Hatami J, Farhoudian A, Sofuoglu M, Noroozi A, Daneshmand R, Samiei A, Ekhtiari H. Cognitive rehabilitation for individuals with opioid use disorder: A randomized controlled trial. *Neuropsychological Rehabilitation*. 2017; 29(8): 1-17.

Saloner B, Daubresse M, Caleb Alexander G. Patterns of buprenorphine-naloxone treatment for opioid use disorder in a multistate population. *Medical Care*. 2017; 55(7): 669-676.

Samples H, Williams AR, Olfson M, Crystal S. Risk factors for discontinuation of buprenorphine treatment for opioid use disorders in a multi-state sample of Medicaid enrollees. *Journal of Substance Abuse Treatment*. 2018; 95: 9-17.

Schuman-Olivier Z, Weiss RD, Hoepfner BB, Borodovsky J, Albanese MJ. Emerging adult age status predicts poor buprenorphine treatment retention. *Journal of Substance Abuse Treatment*. 2014; 47(3): 202-212.

Shcherbakova N, Tereso G, Spain J, Roose RJ. Treatment persistence among insured patients newly starting buprenorphine/naloxone for opioid use disorder. *Annals of Pharmacotherapy*. 2018; 52(5): 405-414.

Socias ME, Ahamad K, Le Foll B, Lim R, Bruneau J, Fischer B, Wild TC, Wood E, Jutras-Aswad D. The OPTIMA study, buprenorphine/naloxone and methadone models of care for the treatment of prescription opioid use disorder: Study design and rationale. *Contemporary Clinical Trials*. 2018; 69: 21-27.

Springer SA, Brown SE, Di Paola A, Altice FL. Correlates of retention on extended-release naltrexone among persons living with HIV infection transitioning to the community from the criminal justice system. *Drug & Alcohol Dependence*. 2015; 157: 158-65.

Stewart MT, Horgan CM, Garnick DW, Ritter G, McLellan AT. Performance contracting and quality improvement in outpatient treatment: Effects on waiting time and length of stay. *Journal of Substance Abuse Treatment*. 2013; 44(1): 27-33.

Stone AC, Carroll JJ, Rich JD, Green TC. Methadone maintenance treatment among patients exposed to illicit fentanyl in Rhode Island: Safety, dose, retention, and relapse at 6 months. *Drug & Alcohol Dependence*. 2018; 192: 94-97.

Substance Abuse and Mental Health Services Administration (SAMHSA). *Medicaid Coverage of Medication-Assisted Treatment for Alcohol and Opioid Use Disorders and of Medication for the Reversal of Opioid Overdose*. HHS Publication No. SMA-18-5093. Rockville, MD: SAMHSA; 2018.

Timko C, Schultz NR, Cucciare MA, Vittorio L, Garrison-Diehn C. Retention in medication-assisted treatment for opiate dependence: A systematic review. *Journal of Addictive Diseases*. 2016; 35(1): 22-35.

Vo HT, Burgower R, Rozenberg I, Fishman M. Home-based delivery of XR-NTX in youth with opioid addiction. *Journal of Substance Abuse Treatment*. 2018; 85: 84-89.

Weinstein ZM, Kim HW, Cheng DM, Quinn E, Hui D, Labelle CT, Drainoni ML, Bachman SS, Samet JH. Long-term retention in office based opioid treatment with buprenorphine. *Journal of Substance Abuse Treatment*. 2017; 74: 65-70.

Weintraub E, Greenblatt AD, Chang J, Himelhoch S, Welsh C. Expanding access to buprenorphine treatment in rural areas with the use of telemedicine. *American Journal on Addictions*. 2018; 27(8): 612-617.

Weiss L, Egan JE, Botsko M, Netherland J, Fiellin DA, Finkelstein R. The BHIVES collaborative: Organization and evaluation of a multisite demonstration of integrated buprenorphine/naloxone and HIV treatment. *Journal of Acquired Immune Deficiency Syndromes*. 2011; 56(suppl 1): S7-S13.

Wilder C, Lewis D, Winhusen T. Medication assisted treatment discontinuation in pregnant and postpartum women with opioid use disorder. *Drug & Alcohol Dependence*. 2015; 149: 225-231.

Winkelman TNA, Chang VW, Binswanger IA. Health, polysubstance use, and criminal justice involvement among adults with varying levels of opioid use. *JAMA Network Open*. 2018; 1(3): e180558.

Yarborough BJH, Stumbo SP, McCarty D, Mertens J, Weisner C, Green CA. Methadone, buprenorphine and preferences for opioid agonist treatment: a qualitative analysis. *Drug & Alcohol Dependence*. 2016; 160(1): 112-118.



**U.S. Department of Health and Human Services
Assistant Secretary for Planning and Evaluation
Office of Disability, Aging and Long-Term Care Policy**

LITERATURE REVIEW

APPENDIX 1

OF

MODELS FOR MEDICATION-ASSISTED TREATMENT FOR OPIOID USE DISORDER, RETENTION, AND CONTINUITY OF CARE

[HTTPS://ASPE.HHS.GOV/REPORT/MODELS-MEDICATION-ASSISTED-TREATMENT-OPIOID-USE-DISORDER-RETENTION-AND-CONTINUITY-CARE](https://aspe.hhs.gov/report/models-medication-assisted-treatment-opioid-use-disorder-retention-and-continuity-care)

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LITERATURE REVIEW

IBM Watson Health

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ACRONYMS

The following acronyms are mentioned in this appendix.

ADHD	Attention Deficit Hyperactivity Disorder
AHRQ	HHS Agency for Healthcare Research and Quality
ASAM	American Society of Addiction Medicine
AUD	Alcohol Use Disorder
BHIVES	Buprenorphine-HIV Evaluation and Support study
CBT	Cognitive Behavioral Therapy
CEO	Chief Executive Officer
CJS	Criminal Justice System
CM	Contingency Management
CMS	HHS Centers for Medicare & Medicaid Services
COR-12	Comprehensive Opioid Response with the Twelve Steps
CPT	Cognitive Processing Therapy
CRT	Cognitive Rehabilitation Treatment
CSI	Contracting with Staff Incentives
ED	Emergency Department
FDA	HHS Food and Drug Administration
FQHC	Federally Qualified Health Center
HHS	U.S. Department of Health and Human Services
HIV	Human Immunodeficiency Virus
ICER	Institute for Clinical and Economic Review
IOP	Intensive Outpatient
MAT	Medication-Assisted Treatment
NIATx	Network for the Improvement of Addiction Treatment
NQF	National Quality Forum
OBOT	Office-Based Opioid Treatment
OBOT-B	Office-Based Opioid Treatment with Buprenorphine
OUD	Opioid Use Disorder
PCP	Primary Care Provider
POATS	Prescription Opioid Addiction Treatment Study
PTSD	Post-Traumatic Stress Disorder
QI	Quality Improvement
RCT	Randomized Controlled Trial

SAMHSA	HHS Substance Abuse and Mental Health Services Administration
SUD	Substance Use Disorder
UDS	Urine Drug Screen
VA	U.S. Department of Veterans Affairs
XR-NTX	Extended-Release Naltrexone

EXECUTIVE SUMMARY

Objective

This review summarizes the recent literature on retention in or continuity of treatment for opioid use disorder (OUD) that involves medication-assisted treatment (MAT) and, to a lesser extent, treatment for substance use disorders (SUDs) more generally. It establishes context for five case studies of programs, sites, or treatment approaches to OUD treatment that show promise in retaining individuals with OUD in treatment.

Methods

We performed a literature review that addressed retention in SUD treatment with a primary focus on OUD treatment. The review included peer-reviewed and grey literature. The peer-reviewed literature included English-language publications from 2014-2018, supplemented, where appropriate, with seminal literature prior to 2014. We culled the literature to determine components of SUD treatment that support retention and recovery, including psychosocial supports, reimbursement structures or payment models, and other factors. We also reviewed the literature to lay the groundwork for defining treatment retention and continuity. The grey literature review included searches of websites of government agencies, health systems, non-profit stakeholders, and research organizations. We searched for information on ongoing treatment models, programs, program evaluations, and reimbursement initiatives with an eye toward their influence on retention in treatment.

Findings

Our focus on **retention** or **continuity** of MAT treatment requires that those terms be defined. **Retention** involves remaining in treatment for some period of time. The concept of **continuity of care** may equate to retention, most frequently continuous possession of treatment medication, or may be used to identify successful transitions of care from intensive treatment, such as detoxification or residential, to less intensive outpatient (IOP) treatment.

Retention has been operationalized in many ways, with time frames ranging between 3 months and 7 years. Studies and measures may or may not allow for gaps in treatment when measuring retention. They rarely allow retention to include treatment re-entry after disengagement or relapse and most do not address the nature of treatment participation. Previous studies, using differing periods for measurement, reveal widely disparate retention rates.

Variables that affect retention in SUD treatment include patient characteristics, treatment-related variables, and payer policies. Patient characteristics such as age, sex, race/ethnicity, education, housing status, previous or current substance use, co-occurring psychiatric conditions such as PTSD, pregnancy status, geographic location, insurance, and health system use characteristics are identified as influential in recent literature.

Practice or system-focused interventions also may influence retention. A few examples addressed in this review include in-hospital induction to buprenorphine with facilitated entry into

outpatient treatment, home-based delivery of extended-release naltrexone (XR-NTX), use of an onsite pharmacy, physician-pharmacist collaboration, low-threshold buprenorphine treatment, the nurse care manager model of buprenorphine treatment, integration of buprenorphine treatment into HIV clinics, rapid treatment with MAT in young adults newly diagnosed with OUD, and use of telehealth in the prescribing of buprenorphine. Evidence also shows that the dose of medication treatment influences retention. Recent studies also identify psychosocial supports that have been shown to positively influence retention in MAT for OUD, including contingency management (CM), cognitive behavioral therapy (CBT), trauma-specific Prolonged Exposure or cognitive processing therapy (CPT), and integration of a 12-step approach into buprenorphine treatment that also included Motivational Interviewing and CBT.

The literature on effects of reimbursement policy changes on retention in or continuity of SUD treatment is limited. A large-scale intervention in Delaware involving incentive and penalty-associated measures of “program completion” and “active participation,” coupled with subsequent quality improvement (QI) initiatives, resulted in increased treatment length of stay. An initiative in Washington State focused on continuity of care after residential treatment or detoxification and included electronic reminders regarding patients in need of follow-up and financial awards based on continuity of care. The Washington State initiative resulted in improvements only for clients at residential agencies already performing at either a moderate or high level. Finally, a reimbursement-focused approach to improving continuity of care known as “contracting with staff incentives” or CSI helped improve transitions between a short-term intensive residential facility and outpatient care in the Baltimore area by providing incentives to the outpatient facility for intake and three follow-up visits.

There is historic evidence that retention in MAT treatment for OUD results in better outcomes, including medical morbidity, social functioning, rates of HIV transmission, and criminal activity. Recent research provides us with additional evidence of reduced mortality, substance use, and inpatient utilization.

Gaps in the Literature

There are certain subjects related to treatment retention in OUD MAT that are not adequately studied in the current literature. For example, there is not much research in understanding retention and outcomes over periods longer than 2-5 injections of XR-NTX. There also is need for evaluating certain models of MAT that are recently being used, such as the Medicaid Opioid Health Homes; treatment approaches that promote early use of MAT after initial diagnosis; and treatment approaches that promote retention for postpartum women. We also need a better understanding of the effects of providing recovery supports such as social support, housing support, employment support, childcare, or transportation on MAT treatment retention and outcomes, as well as improved understanding of the effects of long-term retention on functioning and quality of life. More research is also needed on the occurrence of multiple episodes of treatment, retention within and across episodes, and outcomes from recurring treatment.

INTRODUCTION

In recent years, the rate of opioid overdose and death among the American population has escalated to record levels. From 2016 to 2017, drug overdose deaths increased by an age-adjusted 9.6 percent. In 2017, there were 70,237 drug overdose deaths, and 47,600 or 67.8 percent of these deaths involved opioids (Centers for Disease Control and Prevention, 2018). In October 2017, the opioid crisis was declared a national public health emergency by the federal administration (HHS, 2017).

The most effective solution available for treating people with OUD is MAT (e.g., Fullerton et al., 2014; Mattick et al., 2009; Thomas et al., 2014), which is the integration of medication and psychotherapy. There are three federally approved medications to treat OUD: methadone, buprenorphine, and XR-NTX. Despite the availability of effective treatment, use of treatment services has remained extremely low. The National Survey on Drug Use and Health estimated that in 2017 approximately 20.7 million people aged 12 years or older needed treatment for a SUD and only 0.9 percent of those who needed treatment received it at a specialty facility (SAMHSA, 2018). Further, once treatment is initiated, rates of retention also are estimated to be quite low. In our own analysis of private insurance and Medicaid claims data, we found that only 13 percent of individuals with private insurance and 21 percent of Medicaid beneficiaries who initiated treatment for OUD continued it for 180 days or more (IBM Watson Health, 2017). Research has demonstrated that treatment of OUD with MAT improves social functioning and decreases drug use, infectious disease transmission, inpatient utilization, criminal activities, and the risk of relapse, overdose, and death (Ma et al., 2018; Manhapra et al., 2018; Shcherbakova et al., 2018; Stone et al., 2018), and better understanding approaches to improved retention is important in addressing the opioid emergency.

OBJECTIVE

The objective of this literature review was to summarize the recent literature on retention in or continuity of treatment for SUD, with a primary focus on MAT for OUD, examining patient characteristics, practice or system-based approaches, psychosocial supports, and reimbursement approaches that influence retention, as well as examining the effects of retention on patient outcomes. We also reviewed the literature to support defining treatment retention and continuity. The results will lay the groundwork and establish context for five case studies of programs, sites, or treatment approaches to OUD treatment that show promise in retaining individuals with OUD in treatment and, to the extent possible, in promoting positive treatment. In addition to providing context for the case studies, it will assist in developing criteria to select sites and inform our choices for recruitment.

METHODS

We performed a literature review that addressed retention in SUD treatment with a primary focus on treatment for OUD. The literature review included both peer-reviewed and grey literature.

Peer-reviewed literature. The peer-reviewed literature included English-language publications from the years 2014-2018, supplemented, where appropriate, with seminal literature prior to 2014. Our searches of the peer-reviewed literature used the PubMed and Google Scholar databases.

We culled the recent literature to determine what is known about the following: the components of SUD treatment that support retention and sustained recovery, including psychosocial supports, reimbursement structures or payment models that support retention and sustained recovery, and other factors that may support retention and sustained recovery and which may interact with or influence the development or application of treatment models. Initial search terms included the Level 1 search (Table A1-1) with additional search terms included as secondary searches to help discriminate between subtopics:

TABLE A1-1. Preliminary Search of Peer-Reviewed Literature	
Level 1	Level 2 Options
Language: English	Option 1: evidence OR evidence-based
AND Publication Dates: 2014-2018	Option 2: psychosocial OR counseling OR support* OR therapy
AND ((substance OR opioid) AND disorder) AND treatment	Option 3: outcome*
AND (retain OR retention OR continuity)	Option 4: reimburse* OR financing OR payment OR insurance*
	Option 5: setting* OR model* OR structure

We: (1) reviewed identified abstracts to determine if they were relevant to the research questions; (2) for abstracts identified as relevant, retrieved the full-text articles to determine if they provided material related to retention in SUD treatment; and (3) abstracted those articles for further use in the literature review. Key words were used to track pertinence to research questions, allowing sorting and filtering of literature as part of our synthesis. Initial key words included: evidence-based, psychosocial, outcome, retention, abstinence, overdose, reimbursement, setting, and model. These key terms were supplemented after abstracting began to include related terms (e.g., continuity, relapse), MAT medication types, and other terms relevant to our study. Based upon findings in the articles identified, we included additional literature referenced in the initial publications.

Grey literature review. The grey literature included searches of websites of federal and state government agencies (e.g., state health department and Medicaid programs, SAMHSA, CMS, AHRQ, VA), private payers and health systems, non-profit stakeholders, and research organizations. We searched for information on ongoing treatment models, programs, program evaluations, and reimbursement initiatives with an eye toward their influence on retention in treatment. We also reviewed reports and information supplied by key informants being interviewed as part of the larger study.

Approach to synthesis. The resources identified in the peer-reviewed and grey literature were reviewed with the objectives of: (1) describing the meaning of “retention” and “continuity” as used in the literature; (2) synthesizing the information collected in order to address each of the research questions for this study; (3) identifying gaps in the literature; and (4) beginning the process of developing criteria for selecting case study sites and starting to identify a subset of sites for further consideration. Our findings also will inform the development of the case study protocol in advance of site visits.

FINDINGS

In this section, we summarize our findings, including: (1) an overview of treatment settings and models of OUD treatment using MAT; (2) a discussion of how retention and continuity are defined and operationalized; (3) summaries of recent literature on patient characteristics, practice or system-focused approaches to treatment, psychosocial supports, and reimbursement approaches that affect retention; and (4) discussion of effects of retention on patient outcomes.

<p style="text-align: center;">Practice-Based Models in Primary Care</p> <ul style="list-style-type: none">• OBOT• Buprenorphine HIV Evaluation and Support Collaborative Model• One-stop shop model (HIV/Hepatitis C virus management and buprenorphine)• Integrated prenatal care and buprenorphine
<p style="text-align: center;">Systems-Based Models in Primary Care</p> <ul style="list-style-type: none">• Hub-and-spoke model• Medicaid health home model• Project ECHO• Collaborative opioid prescribing• Massachusetts nurse care manager model• ED initiation of OBOT• Inpatient initiation of OBOT• Southern Oregon model

Treatment Settings and Models of OUD MAT

As background for our discussion of approaches to treatment for OUD and other SUDs, we examined the literature to obtain an overview of current models of treatment. In 2016, AHRQ published a report identifying 12 representative models of OUD MAT treatment in primary care settings. The models were characterized as either practice-based (i.e., capable of implementation in an individual clinic) or systems-based (i.e., involving components across the health care system, including some that have origins in inpatient or emergency department settings). Key components of the models included: (1) pharmacological therapy (primarily buprenorphine); (2) provider and community educational interventions; (3) coordination or integration of SUD treatment with other care; and (4) psychosocial services, although not all models incorporate every component (AHRQ, 2016). The text box to the right lists the 12 models identified by AHRQ, many of which are referenced throughout this report if there are recently published studies related to retention. Models that do not have published evidence regarding retention might warrant further investigation. In addition to the models identified by the AHRQ report, this literature review suggests other models that might be added, including low-threshold models, physician-pharmacist collaborative models, models involving telehealth, home-based models, criminal justice models, and models integrating 12-step approaches into treatment with medication.

Defining Retention and Continuity of Care

Defining **retention** and **continuity of care** in SUD treatment is not straightforward. The first concept, **retention**, presupposes entry into treatment and requires continuation in treatment for some period of time. Retention also has been called “persistence” (Shcherbakova et al., 2018). As discussed below, retention may be operationalized many ways. The second concept, **continuity of care**, may equate to treatment retention, but most frequently refers to continuous or near-continuous possession of treatment medication (e.g., Saloner et al., 2017). A recently developed performance measure which has been endorsed by NQF considers 180 days with no more than a 7-day gap in medication possession to be continuity of pharmacotherapy for OUD (NQF, 2018). Continuity of care also may be used to identify successful transitions of care from intensive treatment, such as detoxification or residential, to less IOP treatment (e.g., Acevedo et al., 2018).

Studies looking at retention often define it based on the duration of data available if the study is claims-based, or a reasonable time within which data can be collected. Thus, retention has been defined as 3 months (e.g., Weintraub et al., 2018), as 7 years (Bhatraju et al., 2017), and as different time periods within that range (e.g., Timko et al., 2016). The NQF-endorsed measure of medication continuity uses a 180-day period, primarily based on FDA registration trials which have studied effectiveness over 3-month to 6-month periods (NQF, 2018). Concern has been expressed about unintended consequences of such measures, including that payers may begin to treat whatever period is measured as “sufficient” and decline to pay for additional treatment (ASAM, 2014).

Studies and measures on retention in care may allow for gaps in treatment. Some measure only continuous involvement in treatment (e.g., Manhprapa et al., 2017; Manhprapa et al., 2018; Riggins et al., 2017); others allow gaps, such as 30 days (e.g., Eibl et al., 2017; Franklyn et al., 2017; Shcherbakova et al., 2018; Wilder et al., 2015) or 90 days (Saloner et al., 2018). On the other hand, Bhatraju et al. (2017) excluded only those with a mean non-participation of greater than 18 weeks, judging that to be evidence of multiple treatment episodes. The 180-day measure of MAT pharmacotherapy permits a gap of only 7 days, in part based on the rationale that risk of mortality increases immediately after treatment cessation (NQF, 2018). The idea that treatment should be continuous has been criticized as not considerate of the chronic nature of SUD. Vogel et al. (2016) suggest that there are three approaches to retention: (1) a single continuous episode; (2) a provider’s perspective that looks backwards from the current point and asks how long a patient has been in treatment; and (3) a public health perspective that asks how many days in the past year the person has been in treatment. Vogel et al. characterize the third approach as best addressing chronicity and cycles of relapse and remission.

Individuals Often Enter and Leave Treatment Repeatedly

Studies rarely examine the extent or course of repeated cycles of OUD or SUD treatment, including retention over the course of treatment participation. Studies that do, find repeated episodes to be not uncommon.

Studies rarely allow retention to include treatment re-entry after disengagement or relapse. A long-term follow-up study after the National Drug Abuse Treatment Clinical Trials Network Prescription Opioid Addiction Treatment Study (POATS), however, revealed that, even after the buprenorphine treatment in the original POATS ended, among those available for follow-up at 42 months (375/653), 29.4 percent were in opioid agonist therapy and did not meet current symptom criteria for OUD while 31.7 percent were abstinent and not on opioid agonist therapy

(Weiss et al., 2015). Other studies have recognized the fact that treatment reoccurs. Shcherbakova et al. (2018) did, independently of retention, examine number of treatment episodes within 365 days of the first prescription and found that 20 percent of patients had two or more treatment episodes during the 1-year period. Similarly, Weinstein et al. (2017) looked both at a more conventionally defined retention and at the number of treatment episodes experienced during a lengthy study period.

Most studies also do not address the nature of treatment participation, although the outcome of retention in studies often is paired with an outcome of abstinence from all illicit substances and sometimes alcohol (e.g., Kumar et al., 2016; McLellan et al., 2008 (where the abstinence outcome adhered to state requirements for pay-for-performance)), suggesting that, for treatment to be considered successful, one cannot simultaneously be using other substances. This pairing is interesting as individuals are sometimes administratively discharged upon discovery of any substance use (A.R. Williams, personal communication, November 13, 2018), effectively precluding retention.

Studies, using differing periods for measurement, reveal widely disparate retention rates and at least four recent systematic reviews have addressed retention in MAT. A systematic review of 55 studies of retention in MAT treatment covers findings from studies published between 2010 and 2014 (Timko et al., 2016). One review included 35 studies of primary care-centered interventions involving buprenorphine or methadone with coordinated care that were published prior to 2016 (Lagisetty et al., 2017). Another examined 34 studies related to use of XR-NTX that were published between 2006 and 2017 (Jarvis et al., 2018). Finally, Wilder et al. (2015) reported on 15 studies published between 1973 and 2012 of buprenorphine and methadone treatment discontinuation among pregnant and postnatal women. Recent studies examined for this review, and in which MAT was a clearly identified part of treatment, reveal retention rates as shown in Appendix A.

Patient Characteristics Affecting Retention in SUD Treatment

Variables that affect retention in SUD treatment may include patient characteristics, treatment-related variables, and payer policies. In this section, we examine patient characteristics such as age, sex, other socio-demographic characteristics, previous or current substance use, co-occurring psychiatric conditions, and other patient-related factors identified as influential in recent literature. Effects of some of these characteristics vary depending on stratification, such as by sex, and are addressed under the relevant stratification characteristic.

Patient Characteristics Associated with Increased Retention

Being older, having more education, having stable housing status, not using cocaine, and living in the same county as the pharmacy where buprenorphine prescriptions are filled have all been associated with increased length of retention in treatment for OUD.

Age. Retaining younger adults in treatment has historically been more difficult than retaining older adults. In analysis using Medicaid claims data, Samples et al. (2018) examined factors associated with discontinuation of buprenorphine treatment. Adjusted logistic regression indicated that discontinuation of buprenorphine treatment before 180 days was significantly associated with being younger than 55 years of age, with discontinuation most pronounced among those ages 18-24 years. Multivariate analyses using an all-payer claims pharmacy database revealed that, compared to those ages 18-34 years, those who were older were more

likely to remain in buprenorphine treatment for 180 days (Saloner et al., 2017). Schuman-Olivier et al. (2014) examined retention in buprenorphine treatment among emerging adults ages 18-25 years compared to those who were older. Emerging adults remained in treatment at significantly lower rates at 3 months (57 percent vs. 78 percent) and 12 months (17 percent vs. 45 percent).

Sex. In their analysis of Medicaid claims data, Samples et al. (2018) found that discontinuation of buprenorphine treatment before 180 days was significantly associated with being male. In contrast, multivariate analyses using an all-payer claims pharmacy database revealed that females were less likely than males to remain in buprenorphine treatment for 180 days (Saloner et al., 2017). Choi et al. (2015) note that, historically, women are more likely to remain in treatment if they have higher education and income and lower psychiatric severity. In contrast, in public outpatient treatment settings, men may be better retained. Choi explored retention in private for-profit residential treatment among individuals with co-occurring mental health disorders and SUDs, where the status of MAT use was unclear, by sex and found that, at 30 days, 40 percent of women remained in treatment, in contrast to 30 percent of men. Factors associated with increased retention among men included being older, having ADHD in contrast to mood disorder, and having less severe employment issues. Among women, increased retention was associated with not being cocaine dependent, greater severity on the Addiction Severity Index alcohol subscale, depression in contrast to another mood disorder, and being in the action or maintenance stages of readiness to change. In another study of an intervention that did not incorporate MAT, Braitman et al. (2016) examined influences on initiation and retention in 12 weekly outpatient sessions of Behavioral Couples Therapy. The couples all had at least one child, and one or both the spouses were already in SUD treatment elsewhere, which may or may not have included MAT. Couples were significantly more likely to attend a greater number of treatment sessions if the male was older when he noticed substance use problems, did not report being a victim of intimate partner violence, or had more obsessive-compulsive or phobic anxiety symptoms. There were no characteristics of the women that were significantly associated with couples attending treatment. Older research does indicate that gender-specific treatment has historically been linked with improved retention among females (see, e.g., references cited in Choi et al., 2015).

Other socio-demographic characteristics. Cui et al. (2016) found that both education and housing status were associated with 12-week and 24-week retention of veterans in a dual diagnosis clinic focused on psychosocial treatment for those with combined PTSD, depression, and SUD. Higher levels of education predisposed participants to remain in treatment at both time points. In contrast housing difficulties at baseline significantly interfered with treatment retention at 12 weeks. Samples et al. (2018) research using Medicaid claims data indicated that discontinuation of buprenorphine treatment before 180 days was significantly associated with being African-American or Latino in contrast to White.

Other substance use. Recent studies have investigated how substance use affects retention in OUD treatment. In analysis using Medicaid claims data, Samples et al. (2018) found that discontinuation of buprenorphine treatment before 180 days was significantly associated with having alcohol use disorder (AUD) or other non-OUDs identified on claims or having experienced an opioid overdose in the 6 months prior to buprenorphine induction. Several studies indicate that cocaine use at baseline is a predictor of poor retention in OUD treatment. In a nurse manager model of IOP with transition to outpatient buprenorphine treatment, cocaine-positive toxicology at intake predicted poor 3-month treatment retention (Schuman-Olivier et al., 2014). One-year retention in methadone/ buprenorphine clinics in Ontario was associated with not having a cocaine-positive urine screen at baseline (46 percent if negative (median days retained=302), 39 percent if positive (median days retained=212 days)) (Franklyn et al., 2017).

A study of HIV-infected individuals with AUD or OUD who initiated XR-NTX while incarcerated found that receipt of the second injection within 30 days post-release was significantly less likely if the person had a cocaine-positive toxicology result after release (Springer et al., 2015). A study in Italy that did not address MAT concluded that patients with cocaine use disorder had lower retention rates in residential treatment than did those with heroin use disorders (Maremmani et al., 2017). In contrast, a study by Socias et al. (2018) of individuals in treatment in methadone/buprenorphine clinics in Vancouver found that those who used cannabis at least daily during treatment had greater odds of retention in OUD treatment at 6, 12, and 18 months than did those who did not.

Co-occurring behavioral health disorders. Several recent studies have examined the effect of co-occurring behavioral health disorders on treatment retention, as well as interventions focused on those disorders. Several indicate that patient trauma affects retention in treatment. Kumar et al. (2016) examined the effect of early childhood trauma on retention in outpatient buprenorphine treatment. Adjusted regressions revealed that those with moderate to severe physical or emotional neglect are significantly more likely to leave OUD treatment within 90 days. A study conducted at a Veterans Health Administration dual diagnosis clinic looked at characteristics associated with 24-week treatment retention among veterans with depression, trauma, and SUD (Cui et al., 2016). Type of SUD varied, and the study did not specifically address use of MAT. However, veterans who had experienced sexual trauma attended more individual treatment sessions than did those with combat-related or other traumas.

Therapeutic alliance and motivation to engage in treatment. Therapeutic alliance and patient motivation to participate in treatment have historically been associated with improved SUD treatment retention (Meier et al., 2005; Joe et al., 1997; Joe et al., 1998).

Health system factors and insurance. In analysis of Medicaid claims data, Samples et al. (2018) examined factors associated with discontinuation of buprenorphine treatment. Adjusted logistic regression indicated that, among other things, discontinuation before 180 days was significantly associated with having capitated Medicaid coverage and with inpatient service use in the 6 months before induction. Saloner et al. (2017) conducted multivariate analyses using an all-payer claims pharmacy database and found that those whose primary prescriber was other than a primary care provider (PCP) or psychiatrist were significantly less likely to remain in buprenorphine treatment for 180 days, compared to those seen by a PCP. Six-month retention in buprenorphine treatment also was significantly associated with cash payments for the prescription fill, in contrast to insurance payment (Saloner et al., 2017).

Criminal justice system (CJS) involvement. In a study of treatment outcomes among individuals receiving buprenorphine treatment integrated into HIV clinics, Riggins et al. (2017) examined whether incarceration in the 30 days before clinic entry influenced retention in treatment. There was no significant difference in either 6-month or 12-month retention in treatment between those who had and had not been recently incarcerated.

Pregnancy status. Wilder et al. (2015) undertook both a systematic literature review of factors influencing retention in buprenorphine or methadone treatment of pregnant and postpartum women, as well as an analysis of retention of a group of pregnant and postpartum women in methadone treatment. The literature review revealed several studies of varying ages that inconsistently separated the pregnant and postpartum periods, and did not all include MAT, making conclusions difficult to interpret. A separate analysis using data from the methadone treatment program revealed a prenatal discontinuation rate of 11 percent and an adjusted 6-

month postpartum discontinuation rate of 56 percent. A longer prenatal connection to the clinic was significantly associated with slightly lower risk of postpartum discontinuation.

Geography. In a study of 6-month retention in buprenorphine treatment using an all-payer claims pharmacy database, those who crossed county lines to fill the prescription were significantly less likely to remain in treatment for 180 days. The state in which the pharmacy was located also had a significant effect on 6-month retention (Saloner et al., 2017).

Evidence-Based Methods to Address Treatment Retention in SUD and OUD Treatment

Approaches to SUD treatment have been developed that are intended to promote treatment retention and to provide other benefits. We discuss elsewhere psychosocial and reimbursement-related interventions. In this section, we address approaches that are practice or system-focused or that otherwise rely on the treatment system structure. We address separately the use of telehealth because it affects access and, consequently, retention. We also look at recent literature on medication dosing. The evidence supporting these influences on retention is variable. Studies are of various sizes, of different durations, and involve different settings and treatment approaches. Only some include comparison groups or earlier retention rates. We address, first, eight studies with some comparison; second, six studies or models without any comparison; third, three studies involving telehealth; and, finally, a selection of recent studies that examine dosing of buprenorphine or methadone.

Studies with Comparative Data

A Washington statewide intervention designed to promote continuity of care after detoxification or residential treatment was established as a randomized four-arm trial including: (1) **weekly electronic reminders** on recently discharged patients not receiving follow-up treatment; (2) a reimbursement option (discussed elsewhere); (3) both; or (4) no intervention. The weekly reminders identified clients discharged in the previous 2 weeks, their continuity of care deadline, and the number of days until the deadline, as well as graphs of the agency's quarterly performance. Tips for improving continuity of care and a link to resources also were provided. The continuity of care measure looked only at admission within 14 days to subsequent treatment following discharge from one of the two settings. The use of electronic reminders had a significant effect only for agencies that were already performing at a moderate or high level at baseline. Focus group interviews revealed some reasons that continuity of care did not improve more consistently. These included the need for wrap-around services, most commonly transportation; the complexity of patients, including many with co-occurring disorders and homelessness; technical problems related to opening encrypted emails or slow entry of service data; lack of treatment system capacity; and competing state-level transitions that impeded attention to improving continuity of care (Acevedo et al., 2018).

To assess effects of **inpatient induction** into buprenorphine treatment, patients with OUD who were hospitalized in a New England hospital were randomized to either: (1) in-hospital detoxification with buprenorphine and post-discharge referral information; or (2) in-hospital buprenorphine induction, a maintenance dose, and facilitated entry into an associated primary care opioid addiction treatment (OAT) program. Retention-related outcomes included entry into the OAT within 6 months and continuation in treatment at 6 months. Slightly less than 12 percent of the comparison group entered treatment in the OAT within the 6 months follow-up

period, in contrast to 72.2 percent of the experimental group. At 6 months, 16.7 percent of the experimental group were still in treatment with 64.4 mean days of buprenorphine treatment, compared to 3.0 percent of the comparison group with 26.2 mean days of buprenorphine treatment (Liebschutz et al., 2014).

Rationales for Failure of Continuity of Care Interventions

Reasons cited by residential and withdrawal management providers that reminders of need for follow-up or incentives for ensuring patient continuity of care did not improve continuity into outpatient treatment included:

- need for wrap-around services;
- patient complexity;
- technical problem;
- slack of treatment system capacity;
- competing demands.

(Acevedo et al., 2018)

A study of retention after being seen in the emergency department involved three alternate interventions: (1) referral information for further treatment; (2) brief intervention in the emergency department with linkage to a referral; and (3) brief intervention with buprenorphine induction in the emergency department, followed by take-home daily doses sufficient to last until they could be seen in the hospital's primary care center within 72 hours, where they received treatment for 10 weeks and referral to follow-on care. In the arm of the study where buprenorphine was started, those who requested it were also provided 2 weeks of detoxification. The group inducted on buprenorphine in the emergency department had significantly higher rates of self-reported participation in formal treatment at 2 months, compared to the other two groups (74 percent vs. 53 percent (referral) or 47 percent (brief intervention)) but not at 6 months (D'Onofrio et al., 2017).

Home-Based Delivery of XR-NTX

A Baltimore pilot program involving home-based delivery of XR-NTX showed promise for retention of young adults in treatment over a 16-week, 5-dose course of treatment (Vo et al., 2018).

In general, evidence has shown that successful induction of XR-NTX can be difficult (Lee et al., 2018). A couple of recent studies involved retention in treatment with XR-NTX. To address issues of retention of young adults at a Baltimore community-based treatment program with specialty programming for adolescents and young adults with OUD, a small pilot program was established for **home-based delivery of XR-NTX** to young adults (Vo et al., 2018). Residential detoxification and induction of either naltrexone or buprenorphine was followed by outpatient maintenance using XR-NTX or buprenorphine, with the first dose of XR-NTX given in the residential setting. The young adult outpatient program began with IOP care, including treatment of co-occurring conditions, comprised of groups and individual sessions. Fourteen patients, selected to include variable clinical status, were offered enrollment in the home-based XR-NTX program. Home visits occurred every 3-4 weeks and participants continued to receive usual counseling at the clinic, or at home if the person was not attending the clinic. Thus, the intervention included **home-based delivery of XR-NTX** and medication management services, assertive outreach, and case management, with decreased emphasis on psychosocial treatment or abstinence from non-opioid substances. The pilot group was compared to an historic group of 21 patients who received usual care XR-NTX over the prior year. Of the 14 youths enrolled in the home-based intervention, nine initiated outpatient treatment and received

at least one dose at home. Over a 16-week period, the intervention group received a greater number of doses (66 percent vs. 40 percent of the maximum five doses), were more likely to receive all five doses (50 percent vs. 9 percent), attended a similar number of counseling sessions (fewer per week (mean 1.3 vs. 2.3) spread over a longer period of time (mean 7.9 weeks vs. 6.1 weeks)), and had a retention rate of any past-month attendance of 64 percent compared to 19 percent for the group receiving treatment as usual (Vo et al., 2018).

Induction and retention in treatment for individuals leaving the CJS is important, particularly given the high rates of opioid-related overdoses after release. Implementation of **pre-release induction of XR-NTX** has proven useful to encourage subsequent treatment participation. The Hampden County Correctional Center in western Massachusetts instituted a program of XR-NTX induction 7 days before release, with a link to a collaborating community program for continued treatment and counseling. Buprenorphine was also available at the community sites. Forty-seven prisoners were inducted pre-release and 20 were referred for induction post-release. Retention was as follows: week 4, 55 percent vs. 25 percent; week 8, 36 percent vs. 25 percent; week 24, 21 percent vs. 15 percent. At weeks 8 and 24, the difference was not statistically significant (Lincoln et al., 2018).

In Canada, methadone treatment initiation must occur in a specialized clinic and, although the drug must be prescribed by an addiction specialist, it can be dispensed by a nurse or pharmacist. Once stabilized, patients can be treated with observed dosing in a primary care setting or in a pharmacy and take-home doses eventually are allowed. Studies of methadone treatment initiatives in Canada reveal retention improvement from which we might draw lessons for MAT more generally in the United States. One study from Ontario was aimed at retention in multiple methadone clinics, testing dispensing in onsite pharmacies against dispensing from offsite pharmacies (Gauthier et al., 2018). Patients using an **onsite pharmacy** demonstrated a 1-year retention of 57.3 percent compared to 11.9 percent retention in the offsite pharmacy group. Multivariate regressions found that those who filled their prescriptions at onsite pharmacies were 77 percent less likely to withdraw from treatment before 1 year, compared to the offsite pharmacy group.

A Network for the Improvement of Addiction Treatment (NIATx) open-access model of rapid enrollment in methadone treatment was implemented at a community-based organization in New Haven, Connecticut (Madden et al., 2018). A study using 9 years of data found increased access without large changes in retention. The program undertook numerous modifications to promote ease of access to treatment, which included rapid access to group and individual treatment options. Among the structural changes implemented were minimizing barriers to rapid intake such as not requiring a tuberculosis skin test to be read before admission; providing walk-in same-day screening, intake, and initiation; providing treatment regardless of ability to pay and assistance in obtaining Medicaid; and making the primary mode of treatment drop-in groups with individual counseling available as needed or on request. The most immediate goal of the model was to improve access, which happened, with increased census, reduced wait times, and an increase in overall revenue. There were no major changes in rates of negative toxicology screens or mortality. The measure of 90-day retention at baseline was 89.3 percent. In the 9 years after baseline, mean retention ranged from 81.9 percent to 91.8 percent (tests of significance were not performed).

Timely treatment of young adults (ages 19-21 years) newly diagnosed with OUD was associated with improved retention in an analysis using Medicaid claims data. Timely treatment was defined as receipt of behavioral health services within 3 months of diagnosis with OUD. Among 4,837 youths diagnosed with OUD, 75.5 percent received any treatment within 3 months

of diagnosis; 52 percent received only behavioral health services, while 23.5 percent received medication. Median retention in care among youths who received timely buprenorphine was 123 days; naltrexone, 150 days; and methadone, 324 days, compared with 67 days among those who received only behavioral health services. Adjusted multivariate analysis showed that timely receipt of each drug independently was associated with lower attrition from treatment compared with receipt of only behavioral health services (Hadland et al., 2018).

Studies without Comparative Data

Low-threshold or no-threshold OUD treatment is increasingly being discussed as an option to reduce impediments to retention in treatment. Bhatraju et al. (2017) reported on an initiative to treat OUD in an office-based primary care setting in a New York City public hospital. Although there was no comparison group, the study did have the advantage of providing 7 years of data. Program characteristics included unobserved buprenorphine-naloxone induction following a new patient visit, weekly and then less frequent follow-up, and a general recommendation but no requirement for additional psychosocial treatment. During the initial office visit, the patient was offered a prescription and provided with bilingual pictogram-based instructions to self-administer the initial induction and maintenance doses after leaving the clinic. Psychosocial support was primarily delivered during provider-patient medical management visits. The study examined retention from program inception in 2006-2013. Treatment retention was a median of 38 weeks (range 0-320 weeks) among induction patients (n=302); 110 weeks (0-353 weeks) among transfers (n=175), and 57 weeks for all patients (n=477). Treatment departure for those inducted to buprenorphine in the program was as follows: week 5, 25 percent; week 38, 50 percent; week 144, 75 percent. Among all patients, adjusted hazard ratios for earlier drop-out included induction and participation in an earlier time in the study period.

Another initiative that focused on reducing barriers to treatment was the Baltimore **Buprenorphine Initiative/Advancing Recovery** project. Advancing Recovery was a Robert Wood Johnson/NIATx initiative implemented in three Baltimore treatment agencies. Treatment included buprenorphine treatment combined with IOP counseling, followed by extended buprenorphine treatment and transfer to community physicians. Seeking to reduce wait time, the program greatly trimmed paperwork and other barriers to admission, reducing wait time considerably. The response was positive yet did not result in increased continuity in care. The rationale provided in a case study published by NIATx (2010) was that patients who wanted RAM were likely in acute withdrawal and not interested in IOP counseling. The program undertook focus groups and surveys to determine barriers to continuation and the top reasons for not remaining in treatment were transportation, work schedules, cost of services, and housing issues. Many other barriers were also identified. The focus groups also revealed that clients wanted individual counseling and help with housing and job skills as part of group counseling. The program responded to what they learned but the results of those changes are not available.

Massachusetts OBOT Model

A 12-year study of OBOT with buprenorphine in a large public hospital found that 53.7% of patients had at least 1 treatment period of a year or more (Weinstein et al., 2017). A 6-year study of the model as applied in community health centers showed increased 12-month retention rates as high as 65% (LaBelle et al., 2016).

Weinstein et al. (2017) reported on retention within the Massachusetts model of **Office-Based Opioid Treatment (OBOT)** with buprenorphine, a model that uses a nurse care manager to

promote collaborative care. The setting was a large urban safety-net hospital and data were available covering a 12-year period, beginning with model implementation. Both primary care and buprenorphine treatment were included in the hospital's primary care clinic. A nurse care manager saw patients weekly for the first month and the buprenorphine prescriber saw them approximately every 3 months, depending on stability. Weekly SUD counseling was required but was most often accessed outside the hospital. During the last 2 years of the study period, limited enhanced access to psychiatry was available at the primary care clinic. The study examined retention in OBOT for at least 1 year, allowing for up to a 60-days gap in treatment. Patients who left the program, but who re-enrolled, contributed repeated observations. Forty-five percent of all treatment periods were 1 year or longer and 53.7 percent of patients had at least one treatment period of a year or more.

A related study examined retention and other outcomes in the Massachusetts model of **OBOT with buprenorphine (OBOT-B)**, but within primary care in the system of community health centers that participated throughout the Commonwealth. The health centers used nurse care managers to provide buprenorphine waived physicians with clinical support to manage patients with OUD. Data from a 6-year period showed that patients remaining in treatment for longer than 12 months during 2010, 2011, and 2012 were 32 percent, 56 percent, and 65 percent, respectively. Data on retention at baseline in 2007 were not reported (LaBelle et al., 2016).

The Buprenorphine-HIV Evaluation and Support (BHIVES) study **integrated buprenorphine treatment into HIV clinics** in different parts of the United States. Sites included academic medical centers, community clinics, and a public hospital; only one had provided MAT before the study began. All sites provided comprehensive medical and social services, including substance use counseling and case management, and most provided follow-up outreach services, although approaches varied by site. Extensive technical assistance was provided as part of implementation and evaluation (Weiss et al., 2011). Early analysis of retention over a 1-year period showed that a small percentage of patients (8 percent) transferred to methadone and 3 percent went into inpatient or detoxification settings. Over the course of 1 year, 74 percent, 67 percent, 59 percent and 49 percent were retained at 3, 6, 9, and 12 months, respectively (Fiellin et al., 2011). Riggins et al. (2017) reported on one aspect of the larger BHIVES study, to determine if incarceration within 30 days before initiation affected retention. There was no significant difference in retention between those recently incarcerated and those not.

A small initiative was implemented in a suburban health department in the Baltimore area and involved **physician-pharmacist collaboration**. The patients were inducted on buprenorphine-naloxone by outside providers and referred to the collaborative program for continued treatment. The providers involved in the collaborative program included a PCP, a medical assistant, and a psychiatric pharmacist. Protocols and responsibilities were established in advance. Patients were initially monitored weekly and then monthly depending on treatment plan adherence and toxicology results. Participants were required to use one pharmacy and the preferred pharmacy was the one involved in the collaboration. Referrals were made for 19 patients, of which 12 participated. Mean duration in the pilot was 20 weeks (ranging from 2-52 weeks). Retention was defined as being enrolled and remaining in treatment for 6 and 12 months. Fifty percent of patients (6/12) successfully progressed from weekly to monthly monitoring. One hundred percent were retained for 6 months and 73 percent for 12 months (DiPaula & Menachery, 2015).

Telehealth and Retention

Access to care and retention are related. If access is difficult, initiation, engagement, and retention will be more difficult. For that reason, interventions designed to promote access also affect retention. Service delivery via **telehealth** is one such approach. Weintraub et al. (2018) studied the use of telehealth for prescribing buprenorphine in a drug treatment center for adults in rural Maryland. The program included IOP treatment and transitional housing. The intended treatment duration was 4 months and all patients presented already detoxified. Medications were provided by an affiliated local pharmacy and were placed by patients in locking bags kept in a locked room at the housing unit. The telehealth provider was at a university site and both the distant and originating/local sites had site coordinators. Retention out of 177 participants was as follows: 1 month, 91 percent, 2 months, 72.8 percent, and 3 months, 57.4 percent.

In a Canadian study (Eibl et al., 2017), clinics across Ontario provided both methadone and buprenorphine. Because of provider shortages, **telehealth** came to be used extensively in both rural and urban areas. The telemedicine practice guidelines required one in-person visit to occur within the first 6 weeks of treatment. The study categorized patients as predominantly in-person (<25 percent by telemedicine), predominantly telemedicine (>75 percent telemedicine), or mixed. Treatment discontinuation was defined as 30 continuous days without either methadone or buprenorphine. Patients using predominantly telemedicine were maintained for a median of 366 days and 50 percent were retained for 1 year; patients receiving care predominantly in-person or mixed care were maintained for a median of 207 days with 39 percent retained for 1 year and 317 days with 47 percent retained for a year, respectively. Patients who did not see their physician in-person within 6 weeks of beginning treatment were as likely or more likely to be retained than patients who did have an in-person visit within their first 6 weeks.

A second study from Ontario incidentally concluded that **telehealth** may be a factor influencing retention. Franklyn et al. (2017) sought to determine the effect of cocaine use on OUD treatment retention over a 1-year period. Non-retention was defined as non-receipt of either methadone or buprenorphine/naloxone over 30 consecutive days. Medical records for 3,835 patients were examined from 58 clinics providing opioid agonist treatment throughout Ontario. In general, baseline cocaine users or those who used cocaine at higher rates had a lower retention rate and patients in northern Ontario had higher rates of cocaine use. Despite this, patients from northern Ontario had better retention than those from the southern part of the province. The study authors hypothesized that the more common use of telehealth in the remote northern areas likely increased retention compared to that of more urban southern patients.

Buprenorphine Dosing

An initial buprenorphine dose ≤ 4 mg/day was associated with discontinuation of treatment before 180 days (Samples et al., 2018).

Dosing and Retention

There is considerable evidence that the dose of methadone or buprenorphine prescribed affects treatment outcomes, including treatment retention. A 2014 summary of the evidence on dose by the Institute for Clinical and Economic Review (ICER) indicates the threshold doses beyond which clinical outcomes do not improve are approximately 100 mg/day for methadone and 16-32 mg/day for buprenorphine/naloxone. Doses that are too low, however, can adversely affect retention. ICER's summary of the evidence references three case studies concluding that methadone doses of over 60 mg/day, precisely 96 mg/day, or up to but not exceeding 100

mg/day of methadone enhance retention. The evidence on buprenorphine dosing referenced by ICER includes randomized controlled trials (RCTs) indicating that less than daily dosing can be as effective as daily dosing. In more recent analysis using Medicaid claims data, Samples et al. (2018) examined factors associated with discontinuation of buprenorphine treatment. Results indicated that discontinuation of buprenorphine treatment before 180 days was significantly associated with having an initial dose of buprenorphine less than or equal to 4 mg/day.

Promising Models of Psychosocial Support for Retention in OUD MAT

Clinical guidelines recommend concurrent medication and psychosocial treatment or supports for those with OUD (e.g., ASAM, 2015; British Columbia Centre on Substance Use, 2017). The psychosocial treatment is provided to help patients control urges to use drugs, remain abstinent and also to assist patients in coping with the emotional strife that often accompanies addiction (Dutra, et al., 2018). There, however, are those who argue the psychosocial supports are not a necessity for everyone (Martin et al., 2018), and others suggest that a stepped-care model might be preferable, whereby the level of treatment is matched to the patient (Carroll & Weiss, 2017). One reason for this stance is that, over the past decade and a half, studies are not consistent in finding that concurrent treatment results in improved retention in treatment or other outcomes (see, e.g., studies referenced in Meshberg-Cohen et al., 2018; Carroll & Weiss, 2017). A 2016 systematic review on the use of psychosocial interventions with medication for treatment of OUD examined three literature reviews and 27 more recent publications; CM and CBT were most widely studied, and the medication most often studied was methadone (Dugosh et al., 2016). Dugosh et al. agreed that there was inconsistency of results but concluded that there were benefits and that the evidence was strongest in the studies with methadone treatment. Studies examining methadone maintenance found significant effects of psychosocial treatment (i.e., CM and general supportive therapy) on treatment attendance and drop out, while a smaller number of studies showed significant effects on attendance and retention in buprenorphine treatment (i.e., Intensive Role Induction). Positive effects on retention and attendance also were found with oral naltrexone (i.e., behavioral therapy and CM) and XR-NTX (i.e., CM). It has been noted that many of the studies not finding benefit from concurrent psychosocial treatment are conducted in primary care settings; exclude patients with varieties of clinical severity such as alcohol or other drug disorders, trauma, mental illness, or poor physical health; and may not address fidelity to treatment protocols. It has been suggested that studies focusing on patients with less clinical acuity may rule out those who might most benefit from psychosocial supports (Klein, 2017).

We discuss below recent findings regarding the effect of psychosocial supports on retention in OUD-MAT. Because claims analyses cannot identify types of psychotherapy received, we focused on studies of specific treatments to determine whether there are promising models of psychosocial support that assist in maintaining individuals in MAT for OUD. As background, however, a recent large-scale claims analysis did indicate that receipt of psychotherapy in conjunction with buprenorphine among the privately insured is associated with increased retention in MAT (Manhapra et al., 2018).

Recent studies have examined retention in MAT treatment for OUD with psychosocial supports that include CBT and buprenorphine, trauma-specific Prolonged Exposure treatment or CPT with buprenorphine, integration of a 12-step approach into buprenorphine treatment, and a study from Iran reporting on retention in treatment that included a program of cognitive rehabilitation treatment (CRT) coupled with methadone maintenance in a court-mandated

setting. These are discussed below. We also address one recent study that examined retention in relation to psychosocial treatments without explicit incorporation of medication treatment for OUD. This was a VA study that examined treatment participation involving CBT and CPT for veterans with different SUDs. Apart from the Iranian study, each of these show promise for retention. The Iranian study is included because the intervention (CRT) is proving to address cognitive impediments that can be associated with opioid abuse and, in a setting that is not court-mandated, might have beneficial effects for retention in MAT for OUD.

An outpatient addiction treatment center affiliated with the University of Arkansas provides buprenorphine treatment coupled with weekly relapse prevention groups, medication education groups, and individual **CBT**. Study participants, the majority of whom used prescription opioids, could advance to Phase 2 biweekly sessions if they had at least 4 consecutive weeks of negative toxicology screens (for all illicit substances) and attendance at all scheduled group and individual treatment appointments. Evaluation looked at phase advancement within 90 days and retention, defined as ongoing participation in treatment with no absence longer than 8 days during the first 90 days (n=113). The study was focused particularly on the outcomes for participants who had experienced early childhood trauma as assessed at intake. Eighty-two percent of the sample remained in treatment during the 90-days and 76 percent advanced to Phase 2 during that time. Treatment retention was more common among those without a history of moderate to severe trauma. Multivariate regression revealed that those who had experienced physical or emotional neglect were significantly more likely to leave treatment early (Kumar et al., 2016).

Although not focused on delivery of MAT or OUD specifically, another study heavily populated with participants who had PTSD, as well as depression and different SUD diagnoses, also showed promise using **CBT** or **CPT** as alternate arms in a clinical trial over a 6-month period. A VA outpatient dual diagnosis clinic in San Diego implemented a trial in which 146 veterans with depression, SUD, and trauma received 12 weeks of group Integrated CBT for depression and substance use and then were randomized to 12 weeks of either individual CBT (n=62) or CPT (n=61) modified to address substance use and trauma. All had a SUD (alcohol, other drug, or polysubstance) and 82 percent had PTSD (combat-related, sexual, or other). The trial was not focused on OUD specifically and receipt of MAT for either alcohol or OUD was not an integral part of the study. The analyses, however, did include receipt of a “substance use medication prescription” as a variable of analysis, with 21 percent of participants having a prescription for a substance use treatment medication. Receipt of such a prescription was not significantly correlated with treatment attendance, nor was it significantly associated with attendance in multivariate regression. Retention over the 24-week period was not addressed but number of group and individual sessions attended was. Participants attended an average of 14.5 group sessions out of 24 and 6.6 individual sessions out of 12, or more than 50 percent of available treatment (Cui et al., 2016).

The Role of Trauma-Specific Treatment in MAT for OUD

A study found that adding trauma-specific treatments such as Prolonged Exposure or CPT to buprenorphine treatment resulted in improved 6-month retention in treatment, with veterans with PTSD and trauma treatment having 30.23 times the odds of retention compared to veterans with PTSD who received no trauma-specific treatment (Meshberg-Cohen et al., 2018).

A study conducted at a VA outpatient clinic examined the effectiveness of adding trauma-specific treatment (**Prolonged Exposure** or **CPT**) to buprenorphine treatment for veterans with

PTSD (n=21), compared to veterans with PTSD who did not receive trauma treatment (n=46), and to veterans without PTSD (n=73). There is evidence that PTSD, as well as other psychiatric conditions, may impede response to SUD treatment and the objective was to determine if trauma-specific therapy could alleviate that. Veterans with PTSD who received trauma treatment had 6-month retention of 90.5 percent, while 46.6 percent of those without either PTSD or trauma treatment and 23.9 percent of those with PTSD but no trauma treatment were retained. When treatment was regressed on group alone, veterans with PTSD and trauma treatment had 30.23 times the odds of retention compared to the reference group of veterans with PTSD who received no such treatment. The odds of retention for those without PTSD and no trauma treatment were nearly three times the odds for those in the reference group (Meshberg-Cohen et al., 2018).

Twelve-step approaches such as Narcotics Anonymous have traditionally not been receptive to participation by individuals receiving medication treatment for OUD. The city of Baltimore encouraged outpatient drug treatment programs that were abstinence-based to incorporate buprenorphine treatment. This study (n=300) drew data from two such programs (an federally qualified health center [FQHC] and a community mental health center) which adopted buprenorphine treatment; encouraged participants to attend a 12-step program, with one offering the program onsite; and included counseling services. Some counselors required 12-step attendance (for 76 percent of participants). Multivariate analyses showed that group counseling attendance was negatively associated with retention at 6 months, while attendance at Narcotics Anonymous was positively associated with retention, although mandated attendance was not. Of the 300 initial participants, 93 percent were available for follow-up at 6 months and there was a 63 percent overall retention at that time (Monico et al., 2015). Another study conducted by the Butler Center for Research with the Hazelden Betty Ford Foundation (Hazelden) found that Hazelden's Comprehensive Opioid Response with the Twelve Steps™ (COR-12), which combines buprenorphine or naltrexone with individual and group counseling using motivational interviewing and CBT and 12-step approaches in residential treatment, reduced drop-out and resulted in longer stays in residential treatment among those in the COR-12 program (Klein, 2017).

Chronic use of opioids can lead to neurocognitive impairment which can impede treatment for OUD. To address this, a RCT (n=120) was conducted among recruits with OUD who were receiving treatment at a court-mandated methadone maintenance residential program in Tehran. The court mandate required participants to remain at the treatment program for at least 2 months. After completion of the 2-month residential program, participants were treated on an outpatient basis. Participants were randomized to treatment as usual (daily methadone and counseling) or to **CRT** plus treatment as usual. CRT is designed to improve cognitive functioning and is being applied to brain injuries, strokes, and other conditions, including treatment of AUDs. CRT was provided in a group setting for 1 hour, twice a week for 8 weeks. To mirror the contact provided by CRT, the control group attended group painting for equal periods. At 3 months, only biweekly visits were required, including to obtain take-home methadone doses. There was significant improvement in cognitive functioning in the experimental group at 3 months which continued among those assessed at 6 months. Retention in treatment at 3 months, however, was not significantly different between the two study arms (39 percent (CRT) and 47 percent (control), p=0.51). There was a low rate of retention between 3 months and 6 months, with no significant differences between the two groups (Rezapour et al., 2017).

Reimbursement Policy, Effects on Services and Retention in SUD Treatment

Reimbursement policy levers such as incentives or payment withholds for providers are typically implemented using a metric established or adopted for that purpose. The metrics and associated reimbursement policies are designed to encourage changes in provider behavior, with the ultimate intention of influencing outcomes such as retention in treatment. They may, effectively, be regarded as the provider counterpart to the use of CM for patients.

The published literature on effects of reimbursement policy changes on retention in SUD treatment is limited. We address here two large-scale interventions in Delaware and Washington State, and a smaller intervention in Maryland. The Washington State and Maryland studies consider a short time frame and address continuity of care between settings. All address SUD treatment services more generally, beyond the provision of MAT. There are other interventions underway that utilize reimbursement approaches such as bundled payments (e.g., the Vermont hub-and-spoke model (ASTHO, n.d.) and the Medicaid Opioid Health Homes established in Maryland, Rhode Island, and Vermont (CMS, 2015)) where research into outcomes is not complete.

To improve quality of care in SUD treatment, Delaware implemented contract requirements for outpatient SUD treatment facilities, including incentive payments and penalties (reduced base payments) on a monthly basis with other billing. Measures used were: (1) capacity utilization; (2) active participation in treatment; and (3) “program completion.” The second measure set a standard number of treatment sessions per patient per week or month, depending on phase of treatment, with additional precautions to avoid measure manipulation. The third measure required active participation for at least 60 days, achievement of treatment plan goals, and at least four consecutive urine drug screens (UDSs) negative for alcohol or illicit drug use. Nearly all providers met the criteria for the third measure, requiring the state to cap those payments. The second measure resulted in an increase in active participation across all four phases of care (1-30, 31-90, 91-180, and 180+ days) but particularly in the last two phases, although each phase was calculated separately based on number at the beginning of that phase rather than on continuity from the prior phase. This meant that actual retention across phases was not being measured. As part of its initiative, Delaware provided technical assistance to providers as part of the initiative, including opportunities for providers to share strategies. The study did not provide extensive detail on program strategies but did note that they included one or more of the following: streamlined admission to improve early engagement, increased hours of operation, new satellite office in underserved areas, physical changes to facilities, sharing bonuses with clinical staff, and clinician training (primarily Motivational Interviewing and CBT) (McLellan et al., 2008).

Effects of a Reimbursement Initiative Coupled with QI Assistance on Outpatient SUD Treatment

A Delaware reimbursement and QI intervention focused on improving treatment session attendance and retention in SUD treatment resulted in increased length of stay in treatment (Stewart et al., 2013).

Delaware subsequently added a QI component to this initiative, with facilities participating in QI through NIATx and Advancing Recovery. Analysis of data from the longer-term Delaware initiative used data from Maryland to create a comparison group and looked at length of stay in treatment, subtracting admission date from discharge date and adding 1 day for those admitted

and discharged on the same day. Outliers were omitted, and the researchers were unable to combine records to capture readmissions in Maryland, which did occur for about 2 percent of Delaware admissions. This analysis revealed that length of stay increased in Delaware after the introduction of the contracting component and increased further with the QI intervention. Interviews with program CEOs indicated that the contracting intervention was instrumental and led to increased attention both to strategies to increase treatment length of stay and to the QI interventions designed to assist in that effort (Stewart et al., 2013).

Electronic Reminders and Pay for Performance

These interventions were only effective in improving continuity of treatment between residential or withdrawal management programs and outpatient specialty services in residential programs that were already performing at a moderate or high level in ensuring continuity of care for patients they discharged (Acevedo et al., 2018).

An initiative in Washington State randomized residential and detoxification agencies receiving public funding into one of four trial arms: (1) weekly electronic reminders on recently discharged patients not receiving follow-up (discussed elsewhere); (2) financial awards based on patient continuity of care relative to either a benchmark or improvement; (3) both of the continuity interventions; or (4) no intervention. Continuity was defined as admission to a SUD treatment service within 14 days of discharge from residential or detoxification services. Baseline data indicated that the 50th percentile or achievement threshold for continuity at detox facilities was 29 percent and 40 percent for residential facilities. The benchmark 90th percentile was 37 percent and 56 percent, respectively. To earn up to 10 points, the agency had to exceed the 50th percentile and, to earn the maximum, attain the 90th percentile. Agencies also could earn up to 10 points for improvement on their individual baseline. Agencies were trained on the process and informed twice a quarter of their approximate performance. Incentive payments were based on number of discharges and points earned. The total amount the state could spend was \$1.5 million over nine quarters for a possible 33 agencies. The interventions did not produce statistically significant results overall. Adjusted difference-in-difference results, however, revealed that clients at residential agencies already performing at either a moderate or high level at baseline had improved continuity of care, while those at lower-performing agencies did not. We discuss elsewhere some of the factors reported by providers in focus groups that may have interfered with additional improvement (Acevedo et al., 2018).

A separate but similar intervention in Washington State, involving performance-based contracting and reminders for specialty outpatient services, targeted engagement in treatment within 14 days of treatment initiation using the definition of engagement in the National Committee for Quality Assurance Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment measure. No significant effect was found for any of the interventions, regardless of baseline performance, including when IOP services were examined separately (Garnick et al., 2017). Subsequent analysis of the residential, detoxification, and outpatient data, comparing clients with an SUD only to those with co-occurring psychiatric disorders, found that the interventions did not affect either engagement or continuity of care, other than a positive effect on continuity of care from residential treatment for those with co-occurring disorders (Lee et al., 2018).

Another reimbursement-focused approach to improving continuity of care is known as “contracting with staff incentives” or CSI. This was used to improve transitions between a short-term (21-28 day) medically monitored intensive residential facility and outpatient care in the Baltimore area. A counselor from the selected outpatient facility would meet the patient at the

residential facility and, using a Motivational Interviewing approach, provide information about the outpatient program and the benefits of transition, schedule an intake appointment, and have the patient sign a continuing care “contract.” The outpatient program received up to \$100 for each such patient referred, with \$25 paid for patient enrollment and for up to three sessions in the first 30 days (n=49). A separate study arm provided a client incentive for intake and attendance (n=97) and both were compared to a usual care group (n=114) that was simply referred to outpatient care. The CSI group had significantly higher rates of admission to outpatient care. However, for both the usual care group and other groups, outpatient intake was highest when it was at the clinic onsite with the residential facility (Aquavita et al., 2013).

Effects of Treatment Retention on Outcomes

There is historic evidence that retention in MAT treatment for OUD results in better outcomes, including medical morbidity, social functioning, rates of HIV transmission, and criminal activity (see, e.g., studies referenced in Manhapra et al., 2018). Recent research provides us with additional evidence of positive effects on mortality, reduced substance use, and service utilization. It is important to note that these studies are so different in terms of time frames studied and the nature of the medications and other treatments provided, that it is impossible to say definitively that a specific retention period is required for a given outcome.

A systematic review and meta-analysis by Ma et al. (2018) found that crude mortality rates, all-cause mortality, and overdose deaths were significantly lower for those retained in treatment for longer than a year, with 30 studies examined ranging 2-20 years in duration. During medication treatment, all-cause rates were lowest for those treated with naltrexone, followed by buprenorphine and methadone. All-cause mortality rates shortly after discharge from medication treatment are high but were lowest for those who had been taking buprenorphine. Ma et al. noted that many studies showed transitioning in and out of treatment, resulting in repeated exposure to times with high mortality risk. A recent study of retention in methadone maintenance treatment in an area of Rhode Island with high fentanyl exposure also found that those who remained in treatment during a 6-month follow-up period experienced no mortality, in contrast to those who were not retained (Stone et al., 2018).

Effects of Treatment Retention on Patient Outcomes

Recent research reveals that longer duration of MAT is associated with positive effects on mortality, substance use, and service utilization (e.g., Bhatraju et al., 2017; Lo-Ciganic et al., 2016; Ma et al., 2018; Monico et al., 2015; Shcherbakova et al., 2018; Stone et al., 2018).

UDSs are commonly used to assess substance use during treatment. Recent studies confirm that treatment retention is associated with abstinence although most studies do not compare those retained to follow-up with those not retained. One exception was a study by Stone et al. (2018), who found that 71 percent of all patients and 89 percent of those retained for 6 months in methadone treatment achieved abstinence from opioids within 6 months. Other studies look at changes over time within the patient population in treatment. A study at a primary care-based buprenorphine treatment program within a hospital found that positive drug screens for opioids were reduced over time, from 60 percent for those in treatment less than 12 weeks to 27 percent for those in treatment more than 52 weeks (Bhatraju et al., 2017). A study of buprenorphine treatment via telemedicine found that 86.1 percent of patients engaged in treatment at 3 months were opiate negative, an increase from 78.6 percent at 1 week

(Weintraub, 2018). A multivariate logistic regression predicting abstinence from heroin or cocaine after 6 months of buprenorphine treatment integrated with 12-step Narcotics Anonymous group participation showed that those retained in treatment for 6 months had nearly seven times the odds of abstinence ($p < 0.001$) (Monico et al., 2015). A systematic review of the literature on treatment with XR-NTX by Jarvis et al. (2018) also showed a limited association between extended retention in treatment and abstinence.

Retention in treatment has also been identified as a factor reducing inpatient admissions and emergency department use (Lo-Ciganic et al., 2016; Shcherbakova et al., 2018). One study of persistence in buprenorphine treatment revealed that all-cause inpatient admissions were 70 percent less likely among those retained in buprenorphine treatment for 1 year (Shcherbakova et al., 2018). Another analyzed Medicaid data in Pennsylvania to determine effects of different durations of buprenorphine treatment on all-cause inpatient admissions and emergency department use. Six trajectories for discontinuation were identified: 24.9 percent discontinued in less than 3 months; 18.7 percent discontinued between 3 months and 5 months; 12.4 percent discontinued between 5 and 8 months; 13.3 percent discontinued after 8 months, 9.5 percent refilled intermittently and 21.2 percent refilled persistently for 12 months. Persistent refills trajectories were associated with an 18 percent lower risk of hospitalizations and 14 percent lower risk of emergency department visits in the following year, compared with those discontinuing between 3 and 5 months (Lo-Ciganic et al., 2016).

GAPS IN THE LITERATURE

This review focused primarily on literature from the years 2014-2018 related to OUD and treatment involving MAT for OUD. There are subjects related to treatment retention in OUD MAT that are not adequately studied in the current literature. This includes retention and outcomes over periods longer than 2-5 injections of XR-NTX. There also is need for evaluation of certain models in recent use, such as the Medicaid Opioid Health Homes; treatment approaches that promote early use of MAT after initial diagnosis; and treatment approaches that promote retention for postpartum women. We also need a better understanding of the effects on retention and outcomes of providing recovery supports such as social support, housing support, employment support, childcare, or transportation, which AHRQ has identified as critical for treatment retention in MAT in rural areas (AHRQ, 2017). We believe these supports are important for improving retention and outcomes in both rural and urban areas. We also need more research on the effects of long-term retention on functioning and quality of life. Given the apparent frequency with which individuals with OUD and other SUDs cycle into and out of care, as well as the extreme risk of overdose at the immediate end of an episode of treatment for OUD, much more also needs to be known about the occurrence of multiple episodes of treatment, retention within and across episodes, and outcomes from recurring treatment.

REFERENCES

Acevedo A, Lee MT, Garnick DW, Horgan CM, Ritter GA, Panas L, Campbell K, Bean-Mortinson J. Agency-level financial incentives and electronic reminders to improve continuity of care after discharge from residential treatment and detoxification. *Drug & Alcohol Dependence*. 2018; 183: 192-200.

Acquavita SP, Stershic S, Sharma R, Stitzer M. Client incentives versus contracting and staff incentives: How care continuity interventions in substance abuse treatment can improve residential to outpatient transition. *Journal of Substance Abuse Treatment*. 2013; 45(1): 55-62.

Agency for Healthcare Research and Quality (AHRQ). *Implementing Medication-Assisted Treatment for Opioid Use Disorder in Rural Primary Care: Environmental Scan*. Vol. 1, Rep.No. 17(18)-0050-EF. 2017.
https://integrationacademy.ahrq.gov/sites/default/files/mat_for_oud_environmental_scan_volume_1_1.pdf. Accessed December 3, 2018.

Agency for Healthcare Research and Quality (AHRQ). *Medication-Assisted Treatment Models of Care for Opioid Use Disorder in Primary Care Settings*. 2016.
https://effectivehealthcare.ahrq.gov/sites/default/files/pdf/opioid-use-disorder_technical-brief.pdf. Accessed December 3, 2018.

American Society of Addiction Medicine (ASAM). *The ASAM Performance Measures for the Addiction Specialist Physician*. 2014. https://www.asam.org/docs/default-source/advocacy/performance-measures-for-the-addiction-specialist-physician.pdf?sfvrsn=5f986dc2_0. Accessed December 3, 2018.

American Society of Addiction Medicine (ASAM). *The ASAM National Practice Guideline for the Use of Medications in the Treatment of Addiction Involving Opioid Use*. 2015.
<https://www.asam.org/docs/default-source/practice-support/guidelines-and-consensus-docs/asam-national-practice-guideline-supplement.pdf?sfvrsn=24>. Accessed December 3, 2018.

Association of State and Territorial Health Officials. *Medication Assisted Treatment Program for Opioid Addiction*. 2015. <http://www.astho.org/Health-Systems-Transformation/Medicaid-and-Public-Health-Partnerships/Case-Studies/Vermont-MAT-Program-for-Opioid-Addiction/>. Accessed December 3, 2018.

Bhatraju EP, Grossman E, Tofighi B, McNeely J, DiRocco D, Flannery M, Garment A, Goldfeld K, Gourevitch MN, Lee JD. Public sector low threshold office-based buprenorphine treatment: Outcomes at year 7. *Addiction Science & Clinical Practice*. 2017; 12(1): 7.

Braitman AL, Kelley ML. Initiation and retention in couples outpatient treatment for parents with drug and alcohol use disorders. *Experimental & Clinical Psychopharmacology*. 2016; 24(3): 174-184.

British Columbia Centre on Substance Use, British Columbia Ministry of Health. *A Guideline for the Clinical Management of Opioid Use Disorder*. 2017. http://www.bccsu.ca/wp-content/uploads/2017/06/BC-OUD-Guidelines_June2017.pdf. Accessed December 3, 2018.

Carroll KM, Weiss RD. The role of behavioral interventions in buprenorphine maintenance treatment: A review. *American Journal of Psychiatry*. 2017; 174(8): 738-747.

Choi S, Adams SM, Morse SA, MacMaster S. Gender differences in treatment retention among individuals with co-occurring substance abuse and mental health disorders. *Substance Use & Misuse*. 2015; 50(5): 653-663.

Center for Disease Control and Prevention. *Opioid Overdose Deaths*. 2018. <https://www.cdc.gov/drugoverdose/data/statedeaths.html>. Accessed January 4, 2019.

Centers for Medicare & Medicaid Services (CMS). *Designing Medicaid Health Homes for Individuals With Opioid Dependency: Considerations for States*. 2015. <https://www.chcs.org/media/HH-IRC-Health-Homes-for-Opioid-Dependency.pdf>. Accessed December 3, 2018.

Cui R, Haller M, Skidmore JR, Goldsteinholm K, Norman S, Tate SR. Treatment attendance among veterans with depression, substance use disorder, and trauma. *Journal of Dual Diagnosis*. 2016; 12(1): 15-26.

DiPaula BA, Menachery E. Physician-pharmacist collaborative care model for buprenorphine-maintained opioid-dependent patients. *Journal of the American Pharmacists Association*. 2015; 55(2): 187-192.

D'Onofrio G, Chawarski MC, O'Connor PG, Pantalon MV, Busch SH, Owens PH, Hawk K, Bernstein SL, Fiellin DA. Emergency department-initiated buprenorphine for opioid dependence with continuation in primary care: outcomes during and after intervention. *Journal of General Internal Medicine*. 2017; 32(6): 660-666.

Dugosh K, Abraham A, Seymour B, McLoyd K, Chalk M, Festinger D. A systematic review on the use of psychosocial interventions in conjunction with medications for the treatment of opioid addiction. *Journal of Addiction Medicine*. 2016; 10(2): 93-103.

Dutra L, Stathopoulou G, Basden SL, Leyro TM, Powers MB, Otto MW. A meta-analytic review of psychosocial interventions for substance use disorders. *American Journal of Psychiatry*. 2008; 165 2: 179-187.

Eibl JK, Gauthier G, Pellegrini D, Daiter J, Varenbut M, Hogenbirk JC, Marsh DC. The effectiveness of telemedicine-delivered opioid agonist therapy in a supervised clinical setting. *Drug & Alcohol Dependence*. 2017; 176: 133-138.

Fiellin DA, Weiss L, Botsko M, Egan JE, Altice FL, Bazerman LB, Chaudhry A, Cunningham CO, Gourevitch MN, Lum PJ, Sullivan LE, Schottenfeld RS, O'Connor PG, BHIVES Collaborative. Drug treatment outcomes among HIV-infected opioid-dependent patients receiving buprenorphine/naloxone. *Journal of Acquired Immune Deficiency Syndromes*. 2011; 56(suppl 1): S33-S38.

Franklyn AM, Eibl JK, Gauthier GJ, Marsh DC. The impact of cannabis use on patients enrolled in opioid agonist therapy in Ontario, Canada. *PLoS One*. 2017; 12(11): e0187633.

Fullerton CA, Kim M, Thomas CP, Lyman DR, Montejano LB, Dougherty RH, Daniels AS, Ghose SS, Delphin-Rittmon ME. Medication-assisted treatment with methadone: assessing the evidence. *Psychiatric Services*. 2014; 65(2): 146-157.

Gauthier G, Eibl JK, Marsh DC. Improved treatment-retention for patients receiving methadone dosing within the clinic providing physician and other health services (onsite) versus dosing at community (offsite) pharmacies. *Drug & Alcohol Dependence*. 2018; 191: 1-5.

Hadland SE, Bagley SM, Rodean J, Silverstein M, Levy S, Laroche MR, Samet JH, Zima BT. Receipt of timely addiction treatment and association of early medication treatment with retention in care among youths with opioid use disorder. *JAMA Pediatrics*. 2018; 172(11): 1029-1037.

IBM Watson Health, unpublished analysis of IBM MarketScan Medicaid and private insurance claims data, 2017.

Institute for Clinical and Economic Review (ICER). *Management of Patients With Opioid Dependence: A Review of Clinical, Delivery System, and Policy Options*. Draft report. 2014. https://icer-review.org/wp-content/uploads/2016/01/CEPAC-Opioid-Dependence-Draft-Report_June-9-2014-FINAL_With-Corrections.pdf. Accessed December 3, 2018.

Jarvis BP, Holtyn AF, Subramaniam S, Tompkins DA, Oga EA, Bigelow GE, Silverman K. Extended-release injectable naltrexone for opioid use disorder: A systematic review. *Addiction*. 2018; 113(7): 1188-1209.

Joe GW, Simpson DD, Broome KM. Effects of readiness for drug abuse treatment on client retention and assessment of process. *Addiction*. 1998; 93(8): 1177-1190.

Klein A. *What Does It Really Mean To Be Providing Medication-Assisted Treatment for Opioid Addiction?* Hazelden Betty Ford Foundation; 2017. <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=2ahUKewi7zsftwtHeAhVJh-AKHYBQD4UQFjAAegQIBxAC&url=https://www.hazeldenbettyford.org/~media/files/bcrwhitepapers/matopioidaddictonwp1710.pdf?la=en&usq=AOvVaw2FiZKskeVmeYSkYfGsMXxi>. Accessed December 3, 2018.

Kumar N, Stowe ZN, Han X, Mancino MJ. Impact of early childhood trauma on retention and phase advancement in an outpatient buprenorphine treatment program. *American Journal on Addictions*. 2016; 25(7): 542-548.

LaBelle CT, Han SC, Bergeron A, Samet JH. Office-based opioid treatment with buprenorphine (OBOT-B): Statewide implementation of the Massachusetts Collaborative Care Model in community health centers. *Journal of Substance Abuse Treatment*. 2016; 60: 6-13.

Lagisetty P, Klasa K, Bush C, Heisler M, Chopra V, Bohnert A. Primary care models for treating opioid use disorders: What actually works? A systematic review. *PLoS One*. 2017; 12(10): e0186315.

Lee JD, Nunes EV Jr, Novo P, Bachrach K, Bailey GL, Bhatt S, Frakas S, Fishman M, Gauthier P, Hodgkins CC, King J, Lindblad R, Liu D, Matthews AG, May J, Peavy KM, Ross S, Salazar D, Schkolnik P, Shmueli-Blumberg D, Stablein D, Subramaniam G, Rotrosen J. Comparative effectiveness of extended-release naltrexone versus buprenorphine-naloxone for opioid relapse prevention (X:BOT): A multicentre, open-label, randomised controlled trial. *Lancet*. 2018; 27; 391: 309-318.

Lee MT, Acevedo A, Garnick DW, Horgan CM, Panas L, Ritter GA, Campbell KM. Impact of agency receipt of incentives and reminders on engagement and continuity of care for clients with co-occurring disorders. *Psychiatric Services*. 2018; 69(7): 804-811.

Liebschutz JM, Crooks D, Herman D, Anderson B, Tsui J, Meshesha LZ, Dossabhov S, Stein M. Buprenorphine treatment for hospitalized, opioid-dependent patients: A randomized clinical trial. *JAMA Internal Medicine*. 2014; 174(8): 1369-1376.

Lincoln T, Johnson BD, McCarthy P, Alexander E. Extended-release naltrexone for opioid use disorder started during or following incarceration. *Journal of Substance Abuse Treatment*. 2018; 85: 97-100.

Lo-Ciganic WH, Gellad WF, Gordon AJ, Cochran G, Zemaitis MA, Cathers T, Donohue JM. Association between trajectories of buprenorphine treatment and emergency department and in-patient utilization. *Addiction*. 2016; 111(5): 892-902.

Ma J, Bao YP, Wang RJ, Su MF, Liu MX, Li JQ, Degenhardt L, Farrell M, Blow FC, Ilgen M, Shi J, Lu L. Effects of medication-assisted treatment on mortality among opioids users: A systematic review and meta-analysis. *Molecular Psychiatry*. 2018; doi.org/10.1038/s41380-018-0094-5.

Madden LM, Farnum SO, Eggert KF, Quanbeck AR, Freeman RM, Ball SA, Schottenfeld RS, Shi JM, Savage ME, Barry DT. An investigation of an open-access model for scaling up methadone maintenance treatment. *Addiction*. 2018; 113(8): 1450-1458.

Manhapra A, Agbese E, Leslie DL, Rosenheck RA. Three-year retention in buprenorphine treatment for opioid use disorder among privately insured adults. *Psychiatric Services*. 2018; 69(7): 768-776.

Manhapra A, Petrakis I, Rosenheck R. Three-year retention in buprenorphine treatment for opioid use disorder nationally in the Veterans Health Administration. *American Journal on Addictions*. 2017; 26(6): 572-580.

Maremmani AGi, Pani PP, Trogu E, Vigna-Taglianti F, Mathis F, Diecidue R, Kirchmayer U, Amato L, Ghibaudi J, Camposeragna A, Saponaro A, Davoli M, Faggiano F, Maremmani I. The impact of psychopathological subtypes on retention rate of patients with substance use disorder entering residential therapeutic community treatment. *Annals of General Psychiatry*. 2016; 15: 29.

Mattick R, Breen C, Kimber J, Davoli M. Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence. *Cochrane Database of Systematic Reviews*. 2009; (3): CD002209.

McLellan AT, Kemp J, Brooks A, Carise D. Improving public addiction treatment through performance contracting: the Delaware experiment. *Health Policy*. 2008; 87(3): 296-308.

Meier PS, Barrowclough C, Donmall MC. The role of the therapeutic alliance in the treatment of substance misuse: A critical review of the literature. *Addiction*. 2005; 100(3): 304-316.

Meshberg-Cohen S, Black AC, DeViva JC, Petrakis IL, Rosen MI. Trauma treatment for veterans in buprenorphine maintenance treatment for opioid use disorder. *Addictive Behaviors*. 2018; 89: 29-34.

Monico LB, Gryczynski J, Mitchell SG, Schwartz RP, O'Grady KE, Jaffe JH. Buprenorphine treatment and 12-step meeting attendance: conflicts, compatibilities, and patient outcomes. *Journal of Substance Abuse Treatment*. 2015; 57: 89-95.

National Institute on Drug Abuse. *Overdose Death Rates*. 2018. <https://www.drugabuse.gov/related-topics/trends-statistics/overdose-death-rates>. Accessed December 3, 2018.

National Quality Forum (NQF). *Measures, Reports and Tools. Continuity of Pharmacotherapy for Opioid Use Disorder (Measure 3175)*. https://www.qualityforum.org/Measures_Reports_Tools.aspx. Accessed December 3, 2018.

NIATx. *Getting Started with Medication-Assisted Treatment*. 2010. <https://niatx.net/PDF/NIATx-MAT-Toolkit.pdf>. Accessed December 3, 2018.

Rezapour T, Hatami J, Farhoudian A, Sofuoglu M, Noroozi A, Daneshmand R, Samiei A, Ekhtiari H. Cognitive rehabilitation for individuals with opioid use disorder: A randomized controlled trial. *Neuropsychological Rehabilitation*. 2017; 29(8): 1-17.

Riggins DP, Cunningham CO, Ning Y, Fox AD. Recent incarceration and buprenorphine maintenance treatment outcomes among human immunodeficiency virus-positive patients. *Substance Abuse*. 2017; 38(3): 297-302.

Saloner B, Daubresse M, Caleb Alexander G. Patterns of buprenorphine-naloxone treatment for opioid use disorder in a multistate population. *Medical Care*. 2017; 55(7): 669-676.

Samples H, Williams AR, Olfson M, Crystal S. Risk factors for discontinuation of buprenorphine treatment for opioid use disorders in a multi-state sample of Medicaid enrollees. *Journal of Substance Abuse Treatment*. 2018; 95: 9-17.

Schuman-Olivier Z, Weiss RD, Hoepfner BB, Borodovsky J, Albanese MJ. Emerging adult age status predicts poor buprenorphine treatment retention. *Journal of Substance Abuse Treatment*. 2014; 47(3): 202-212.

Seth P, Scholl L, Rudd RA, Bacon S. Overdose deaths involving opioids, cocaine, and psychostimulants--United States, 2015-2016. *Morbidity & Mortality Weekly Report*. 2018; 67(12): 349-358.

Shcherbakova N, Tereso G, Spain J, Roose RJ. Treatment persistence among insured patients newly starting buprenorphine/naloxone for opioid use disorder. *Annals of Pharmacotherapy*. 2018; 52(5): 405-414.

Simpson DD, Joe GW, Rowan-Szal GA. Drug abuse treatment retention and process effects on follow-up outcomes. *Drug & Alcohol Dependence*. 1997; 47(3): 227-235.

Socias ME, Ahamad K, Le Foll B, Lim R, Bruneau J, Fischer B, Wild TC, Wood E, Jutras-Aswad D. The OPTIMA study, buprenorphine/naloxone and methadone models of care for the treatment of prescription opioid use disorder: Study design and rationale. *Contemporary Clinical Trials*. 2018; 69: 21-27.

Springer SA, Brown SE, Di Paola A, Altice FL. Correlates of retention on extended-release naltrexone among persons living with HIV infection transitioning to the community from the criminal justice system. *Drug & Alcohol Dependence*. 2015; 157: 158-65.

Stewart MT, Horgan CM, Garnick DW, Ritter G, McLellan AT. Performance contracting and quality improvement in outpatient treatment: Effects on waiting time and length of stay. *Journal of Substance Abuse Treatment*. 2013; 44(1): 27-33.

Stone AC, Carroll JJ, Rich JD, Green TC. Methadone maintenance treatment among patients exposed to illicit fentanyl in Rhode Island: Safety, dose, retention, and relapse at 6 months. *Drug & Alcohol Dependence*. 2018; 192: 94-97.

Substance Abuse and Mental Health Services Administration (SAMHSA), Center for Behavioral Health Statistics and Quality. *Key Substance Use and Mental Health Indicators in the United States: Results From the 2017 National Survey on Drug Use and Health*. HHS Publication No. SMA 18-5068, NSDUH Series H-53. 2018.

<https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHFFR2017/NSDUHFFR2017.pdf>. Accessed December 4, 2018.

Thomas CP, Fullerton CA, Kim M, Montejano L, Lyman DR, Dougherty RH, Daniels AS, Ghose SS, Delphin-Rittmon ME. Medication-assisted treatment with buprenorphine: assessing the evidence. *Psychiatric Services*. 2014; 65: 158-170.

Timko C, Schultz NR, Cucciare MA, Vittorio L, Garrison-Diehn C. Retention in medication-assisted treatment for opiate dependence: A systematic review. *Journal of Addictive Diseases*. 2016; 35(1): 22-35.

U.S. Department of Health and Human Services (HHS). *HHS Acting Secretary Declares Public Health Emergency to Address National Opioid Crisis*. 2017.

<https://www.hhs.gov/about/news/2017/10/26/hhs-acting-secretary-declares-public-health-emergency-address-national-opioid-crisis.html>. Accessed December 4, 2018.

Vo HT, Burgower R, Rozenberg I, Fishman M. Home-based delivery of XR-NTX in youth with opioid addiction. *Journal of Substance Abuse Treatment*. 2018; 85: 84-89.

Vogel M, Dürsteler KM, Walter M, Herdener M, Nordt C. Rethinking retention in treatment of opioid dependence--the eye of the beholder. *International Journal of Drug Policy*. 2017; 39: 109-113.

Weinstein ZM, Kim HW, Cheng DM, Quinn E, Hui D, Labelle CT, Drainoni ML, Bachman SS, Samet JH. Long-term retention in office based opioid treatment with buprenorphine. *Journal of Substance Abuse Treatment*. 2017; 74: 65-70.

Weintraub E, Greenblatt AD, Chang J, Himelhoch S, Welsh C. Expanding access to buprenorphine treatment in rural areas with the use of telemedicine. *American Journal on Addictions*. 2018; 27(8): 612-617.

Weiss L, Egan JE, Botsko M, Netherland J, Fiellin DA, Finkelstein R. The BHIVES collaborative: Organization and evaluation of a multisite demonstration of integrated buprenorphine/naloxone and HIV treatment. *Journal of Acquired Immune Deficiency Syndromes*. 2011; 56(suppl 1): S7-S13.

Weiss RD, Potter JS, Griffin ML, Provost SE, Fitzmaurice GM, McDermott KA, Srisarajivakul EN, Dodd DR, Dreifuss JA, McHugh RK, Carroll KM. Long-term outcomes from the National Drug Abuse Treatment Clinical Trials Network Prescription Opioid Addiction Treatment Study. *Drug & Alcohol Dependence*. 2015; 150: 112-119.

Wilder C, Lewis D, Winhusen T. Medication assisted treatment discontinuation in pregnant and postpartum women with opioid use disorder. *Drug & Alcohol Dependence*. 2015; 149: 225-231.

APPENDIX A. RETENTION RATES FROM MAT-FOCUSED STUDIES IN THIS REVIEW

Reference	Retention Results
Bhatraju, 2017	Treatment with buprenorphine: median retention 38 weeks (range 0-320 weeks) among induction patients (n=302); 110 weeks (0-353 weeks) among transfers (n=175), and 57 weeks for all patients (n=477). Drop-out: week 5, 25%; week 38, 50%; week 144, 75%.
DiPaula, 2015	Treatment with buprenorphine: mean duration 20 weeks (2-52 weeks), 100% retained for 6 months and 73% for 12 months
D'Onofrio, 2017	Buprenorphine induction in the ED accompanied by brief intervention, take-home daily doses pending admission to the hospital's primary care center within 72 hours, where they received treatment for 10 weeks and referral to follow-on care: 74% at 2 months
Eibl, 2017	Treatment with buprenorphine or methadone: predominantly telemedicine retained for a median of 366 days and 50% retained for 1 year; predominantly in-person median of 207 days with 39% retained for 1 year; mixed care retained for a median of 317 days with 47% retained for a year
Fiellin, 2011	Treatment with buprenorphine in HIV clinics: 74%, 67%, 59% and 49% retained at 3, 6, 9, and 12 months, respectively
Franklyn, 2017	Treatment with buprenorphine or methadone: retained for 365 days, baseline cocaine users 39% and non-users 46%
Gauthier, 2018	Treatment with methadone: onsite pharmacy 1-year retention of 57.3% compared to 11.9% retention in offsite pharmacy group
Hadland, 2018	Treatment of young adults with buprenorphine, methadone, or naltrexone within 3 months of OUD diagnosis: median retention with buprenorphine, 123 days; naltrexone, 150 days; and methadone, 324 days, compared with 67 days for only behavioral health services
Kumar, 2016	Treatment with buprenorphine: retention 82% at 90 days
LaBelle, 2016	Community health center OBOT-B, patients remaining in treatment for longer than 12 months during 2010, 2011, and 2012 were 32%, 56%, and 65%, respectively
Lincoln, 2018	Pre-correctional release induction of XR-NTX vs. induction post-release. Retention rates: week 4, 55% vs. 25%; week 8, 36% vs. 25%; week 24, 21% vs. 15%
Lo-Ciganic, 2016	Treatment with buprenorphine: 24.9% discontinued in less than 3 months; 18.7% discontinued between 3 and 5 months; 12.4% discontinued between 5 and 8 months; 13.3% discontinued after 8 months
Madden, 2018	Treatment with methadone: 90-day retention at baseline 89.3%; in 9 years after, mean retention ranged from 81.9 to 91.8%
Manhapra, 2017 (VA)	Treatment with buprenorphine: mean duration=1.68 years, with 61.60% >1 year, 31.83% >than 3 years
Manhapra, 2017 (comm)	Treatment with buprenorphine: 85% for 31-365 days, 45% for 1-3 years, 13.7% >3 years
Meshberg-Cohen, 2019	Treatment with buprenorphine: veterans with PTSD who received trauma treatment had 6-month retention of 90.5%; 46.6% of those without trauma treatment; 23.9% of those with PTSD but no trauma treatment
Monico, 2015	Treatment with buprenorphine: 6-month retention 63%
Riggins, 2017	Treatment with buprenorphine: 6-month retention 66%; 12-month retention if recently incarcerated at baseline 39% vs. 50% if not
Saloner, 2017	Treatment with buprenorphine: mean duration 266 days, median duration 118 days, 41% for 6 months or longer

Reference	Retention Results
Samples, 2018	Treatment with buprenorphine: 89.6% for 1 week, 71.6% for 1 month, 35.4% for 180 days. In analysis using Medicaid claims data, Samples et al. (2018) examined factors associated with discontinuation of buprenorphine treatment.
Schuman-Olivier, 2014	Treatment with buprenorphine: Emerging adults: month 3, 57%, month 6, 38%, month 9, 21%, month 12, 17%; other adults: month 3, 78%, month 6, 62%, month 9, 53%, month 12, 45%
Shcherbakova, 2018	Treatment with buprenorphine: mean duration of first treatment episode greater than 30 days = 206.4 days, 82.4% for 30 days, 53.6% for 6 months, 40.4 for 1 year
Socias, 2018	Treatment with buprenorphine and (primarily) methadone: 6 months, 52.6%; 12 months, 38.5%; 18 months, 31.5%
Stone, 2018	Treatment with methadone: 68% for 6 months
Vo, 2018	Treatment with XR-NTX with young adults: Over 16-weeks, in-home visits 50% received all 5 doses, clinic visits 9% did
Weinstein, 2017	Treatment with buprenorphine: 45% of treatment periods were a year or longer; 53.7% of patients had at least 1 such treatment period
Weintraub, 2018	Treatment with buprenorphine: 57.4% for 3 months
Wilder, 2015	Treatment with methadone among pregnant and postpartum women: prenatal retention rate of 89%, postpartum at 6 months retention rate of 38.1%



**U.S. Department of Health and Human Services
Assistant Secretary for Planning and Evaluation
Office of Disability, Aging and Long-Term Care Policy**

CASE STUDIES SITE SELECTION CRITERIA

APPENDIX 2

OF

MODELS FOR MEDICATION-ASSISTED TREATMENT FOR OPIOID USE DISORDER, RETENTION, AND CONTINUITY OF CARE

[HTTPS://ASPE.HHS.GOV/REPORT/MODELS-MEDICATION-ASSISTED-TREATMENT-OPIOID-USE-DISORDER-RETENTION-AND-CONTINUITY-CARE](https://aspe.hhs.gov/report/models-medication-assisted-treatment-opioid-use-disorder-retention-and-continuity-care)

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CASE STUDIES SITE SELECTION CRITERIA

IBM Watson Health

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ACRONYMS

The following acronyms are mentioned in this appendix.

CJS	Criminal Justice System
MAT	Medication-Assisted Treatment
OUD	Opioid Use Disorder
SUD	Substance Use Disorder

SITE SELECTION CRITERIA

Based on input from ASPE at the kickoff meeting, the literature review, and discussion with key informants and internal subject matter experts, we propose the criteria listed in Table A2-1 to be considered as part of case study site selection. We do not believe that any given size or length of time in operation, for example, should be determinative. Rather, these are characteristics to take into account as we consider potential sites in order to have a balanced group to study.

TABLE A2-1. Criteria to Consider as Part of Case Study Selection	
Criteria	Sub-Criteria to Consider
Structural	<ul style="list-style-type: none"> • Size • Provider mix • Reimbursement innovations • Time in operation • State Medicaid expansion status
Programmatic	<ul style="list-style-type: none"> • Models of specialty SUD treatment • Evidence-based or other treatments • Medication used for OUD MAT • Models of psychosocial support used • Integration of supports such as housing, childcare, transportation • Integration or coordination of SUD, mental health, and/or physical health care • Focus on OUD vs. other SUDs • Telehealth as a promoter of treatment continuity • Integrated treatment
Population	<ul style="list-style-type: none"> • Geographic factors such as region, rurality, opioid prevalence • Diversity of populations served • Special populations (material and child; CJS, homeless)
Outcomes	<ul style="list-style-type: none"> • Higher retention in treatment • Patient outcomes (e.g., reduced overdoses, abstinence, functioning)
Other	<ul style="list-style-type: none"> • Evidence from other evaluations • Other criteria to be determined



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SITE INTERVIEW PROTOCOL

APPENDIX 3

OF

MODELS FOR MEDICATION-ASSISTED TREATMENT FOR OPIOID USE DISORDER, RETENTION, AND CONTINUITY OF CARE

[HTTPS://ASPE.HHS.GOV/REPORT/MODELS-MEDICATION-ASSISTED-TREATMENT-OPIOID-USE-DISORDER-RETENTION-AND-CONTINUITY-CARE](https://aspe.hhs.gov/report/models-medication-assisted-treatment-opioid-use-disorder-retention-and-continuity-care)

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SITE INTERVIEW PROTOCOL

IBM Watson Health

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ACRONYMS

The following acronyms are mentioned in this appendix.

ASPE	HHS Office of the Assistant Secretary for Planning and Evaluation
AUD	Alcohol Use Disorder
CEO	Chief Executive Officer
CMO	Chief Marketing Officer
COO	Chief Operating Officer
MAT	Medication-Assisted Treatment
OUD	Opioid Use Disorder
SUD	Substance Use Disorder

OVERVIEW

Purpose

This Site Visit Protocol is for use in the research study, Models for Medication-Assisted Treatment for Opioid Use Disorder, Retention, and Continuity of Care. This study is funded by ASPE.

The purpose of this Protocol is to establish a semistructured discussion guide that will be used when interviewing substance use disorder (SUD) specialty treatment sites or models (hereinafter Sites) that show promise in retaining individuals in Medication-Assisted Treatment (MAT) for Opioid Use Disorder (OUD). In addition, it will be used to organize background information about the organization.

How to Use

The Logistics section of this Protocol is a template that will be tailored to each of site visit. Tailored Protocols will include logistics specific to the site visit including an agenda for the visit and contact information for the interviewees and research team.

The Discussion Guide included in this resource provides both a quick reference checklist of the key topics to be discussed and the discussion guide by topic. The research team anticipates that the guide will be modified for each site to include site-specific profile and background information. The research team will decide which topics will be covered for each meeting arranged during the site visit. The interviewer can use the checklist to ensure that major topics are covered during the site visit. The Discussion Guide will provide primary and probing questions for each topic area. Additionally, the team anticipates that the guide will be modified based on lessons learned or new focal areas discovered in the course of conducting the site visits. Any changes to the guide will be discussed with, reviewed, and approved by ASPE prior to implementation in subsequent site visits.

The Site Background section should be included, tailored to each site visit based on information gathered about the site prior to the site visit. This section provides useful background information on the site and the context in which it is operating.

Appendix A offers a brief eight-step overview of the interview and note-taking process that the researchers will review prior to each site visit. Finally, Appendix B is the note-taking template that the researchers will use to document each interview.

LOGISTICS

Site Visit Cover

Site Visit Protocol: **SITE NAME**

Site Visit Date: **DATE**

Site Visit Agenda

Site Name		
Site Visit Agenda		
Day One: MONTH DD, YYYY	Task	Location
HH:HH AM – HH:HH PM	Meet and Greet: NAMES	
HH:HH AM – HH:HH PM	Meeting: NAMES Topics:	
HH:HH AM – HH:HH PM	Tour: NAMES Topics:	
HH:HH AM – HH:HH PM	Lunch [NAMES]	
HH:HH AM – HH:HH PM	Meeting: NAMES Topics:	
HH:HH AM – HH:HH PM	Meeting: NAMES Topics:	
HH:HH AM – HH:HH PM	Day 1 Wrap-Up [NAMES]	

Contact Information

Interviewees at Site Visit (this will be tailored to the visit)

- NAME, Chief Executive Officer, ###-###-####, email
- NAME, Chief Medical Officer, ###-###-####, email
- NAME, Clinical Director, ###-###-####, email
- NAME, Clinical Staff, ###-###-####, email
- NAME, Case Manager, ###-###-####, email
- NAME, Outreach Coordinator, ###-###-####, email
- NAME, #####, ###-###-####, email
- NAME, Patient, ###-###-####, email

- NAME, #####, ###-###-####, email
- NAME, #####, ###-###-####, email

Interviewers Traveling for Site Visit

- Peggy O'Brien, 339-927-1064, marbrien@us.ibm.com
- Kristin Schrader, 301-547-4692, kschrader@us.ibm.com

DISCUSSION GUIDE

Key Points Checklists

Purpose: Use these checklists to ensure that all major subtopics are covered during the Site visit. Phrasing of questions will be based on questions described in the sections that follow this checklist; this checklist is simply a topic area reminder tool for the interviewers. Each checklist is specified to the interviewee's role.

Site Description

1. Organization
2. Partners
3. Local Population
4. Policies
5. Data

Treatment Design

1. Treatment focus
2. Types of SUD treatment
3. Care integration/coordination
4. Case management
5. Staff training

Retention and Continuity of Care

1. Duration of treatment
2. Retention initiatives
3. Retention measurement
4. Barriers and solutions to retention
5. Continuity of care

Patient Outcomes

1. Relation of retention to outcomes
2. Data

Models/State or Local Authorities

1. State model
2. Relationship to retention
3. Relationship to continuity

Warm-Up Questions

- Discuss goals of this research. Do you have any additional questions about this project before we get started?
- How long have you been with [Site]?
- What are the major responsibilities in your current position?

Topic 1. Discussion Questions: Site and Environment Description

Discussion Goals: To understand the site's organizational design and management and local environmental factors influencing operations.

Key Points That Need to Be Clarified by Discussion's Close:

Treatment facility structure and payments sources, partners, local population demographics and substance use patterns, other local and state context such as rurality and employment (some of which can be gathered before the site visit), and state or local policies affecting the facility's operation and provision of treatment.

Key Words: organizational structure, management, funding, reimbursement, value-based payments, partners, demographics, SUD patterns, state policy, local policy

Site and Environment Description Discussion Questions

(If already know answer, use questions to confirm)

INTRODUCTION: This group of questions looks at the big picture of your organization and the setting in which you are located.

- **At a high level, how is your organization structured?**
PROBES:
 - For-profit, non-profit, government owned or operated, academic medical setting
 - Organizational structure
 - Do you bill Medicaid or other insurance?
 - What other funding sources do you rely on?
 - Do you participate in any value-based purchasing (pay-for-performance) initiatives (either incentives or payment withholds) based on how services are provided, retention in treatment, continuity of care, or patient outcomes?
 - Follow-up on what they answer as it relates to this research.

- **Do you have any major partners in the community?**
PROBES:
 - Hospitals, withdrawal management facilities, residential facilities, sobering centers, other substance use treatment organizations, housing entities, other social services organizations, governmental or community organizations, others?
 - What is the nature of these partnerships?
 - Are there referrals between your organization and theirs? (We will discuss care coordination and integration in more detail later.)

- **What are the local population demographics and SUD patterns in your treatment area?**
PROBES:
 - Demographics
 - SUD use and change over time (be sure to address OUD specifically (pills, heroin, fentanyl)).
 - Urban vs. rural nature of the treatment area?

- Can you discuss the general employment trends in your treatment area?
- How do most of your patients pay for care? (Medicaid, uninsured, private.)
- **Are there state or local policies that closely affect your facility operations or provision of SUD treatment?**
- **How does your program make use of data?**
PROBES:
 - Electronic health records?
 - Reporting of performance metrics?
 - Retention and outcomes.

Topic 2. Discussion Questions: Treatment Design

Discussion Goals: To understand the site's SUD treatment program structure and design.

Key Points That Need to Be Clarified by Discussion's Close:

Program's focus and composition, treatments offered, approach to care coordination, approach to care integration, approach to provision of MAT and psychosocial supports, staffing and staff training, and related challenges and solutions.

Key Words: provider type, population, treatment approaches, psychosocial, MAT, integration, coordination, staffing

Treatment Design Discussion Questions (If already know answer, use questions to confirm)

INTRODUCTION: This group of questions looks at your approach to SUD treatment.

- **Describe [the Site's] SUD treatment focus and composition?**

PROBES:

- What substances do you address?
- What levels of SUD treatment do you offer?
- Do you have a specific approach or treatment model you use?
 - Can you describe it please?
- Do you have requirements regarding ongoing substance use while in treatment?
Opioids, alcohol, other substances?
 - If yes, can people stay in treatment or are they discharged?
 - Has this policy changed over time?
 - What do you do when someone has a positive drug screen?
- Do you provide SUD treatment for specific populations?
 - Gender-specific.
 - Age-focused.
 - Dual diagnosis.
 - Pregnant and parenting women.
 - Adolescents.
 - Others.
- Have there been changes to your program that reflect a need to address the opioid crisis?
 - Follow-up on the reply.

- **What types of SUD treatment do you offer?**

PROBES:

- Describe [the Site's] use of MAT in SUD treatment (be specific (for OUD and AUD)).
 - Which medications do you use?
 - How long have you offered each?
 - What is the uptake as an estimated percent of your patient population?
 - Has that changed over time? Why?

- Describe [the Site's] use of psychosocial services and supports in SUD treatment.
 - What approaches do you use?
 - If motivational interviewing is used, when is it used?
 - Is use of psychosocial services mandatory, encouraged, up to the patient?
 - What is your history of using these approaches? Has there been change over time? Why?
- **Describe [the Site's] approach to care integration and care coordination.**
 PROBES:
 - Integration or coordination of mental health screening or treatment?
 - Integration or coordination of physical health screening or treatment?
 - What challenges do you encounter in providing either integrated or coordinated care?
- **Describe the role of case management at [the Site].**
 PROBES:
 - Follow-up on what they state.
 - Can you elaborate as it relates to efforts to retain people in treatment?
 - Are there specific approaches you take when someone fails to appear for expected treatment?
 - Has [the Site's] approach to case management changed over time in an effort to address retention?
- **Describe your staff training and education protocols.**
 PROBES:
 - Staff composition.
 - Education and credentialing requirements.
 - Continuing training requirements.
- **Are there specific challenges and solutions you would like to share with us related to the services you provide or would like to provide?**
 PROBES:
 - Follow-up on what they identify.
 - Workforce or treatment availability limitations?
 - Access to waived prescribers?
 - Use of nurse practitioners or physician assistants to prescribe buprenorphine?
 - Access to methadone treatment?

Topic 3. Discussion Questions: Patient Retention and Continuity of Care

Discussion Goals: To understand how the site addresses patient retention and continuity.

Key Points That Need to Be Clarified by Discussion's Close:

Duration of retention in treatment, challenges and solutions to improve retention, approaches to monitoring retention, access barriers, motivational barriers, approaches to assuring and monitoring continuity of care.

Key Words: retention, follow-up, continuity of care, access, motivation

Patient Retention Discussion Questions (If already know answer, use questions to confirm)

INTRODUCTION: This group of questions looks at issues related to retention and continuity of care.

- **Describe the expected and typical duration in treatment for patients at [the Site].**
PROBES:
 - Do you have an objective for the length of time you would hope to see someone remain in treatment with you?
 - What is the typical or average length of treatment?
 - What is the range of retention in treatment?
 - Has your site's retention duration changed over time?
 - If changed: What caused this change in retention?
- **Has [the Site] taken steps to improve retention in treatment, for example quality improvement initiatives?**
PROBES:
 - What actions were taken?
 - What were the effects of those actions?
 - Were there any unintended effects (good or bad)?
 - What challenges and solutions did you encounter in trying to improve retention?
- **What approaches do you use to monitor retention?**
PROBES:
 - Do you have any data that you would be willing to share regarding treatment retention?
- **What are the primary barriers to retaining patients in treatment?**
PROBES:
 - Follow-up on what they identify, including their attempts to solve the problems and degree of success.
- **Describe [the Site's] approach to alleviating access burdens for patients.**
PROBES:
 - Insurance or payment ability (Problem? Attempted solutions? Effect?)
 - Transportation services (Problem? Attempted solutions? Effect?)
 - Childcare (Problem? Attempted solutions? Effect?)
 - Access to pharmacy to fill buprenorphine prescriptions (Problem? Attempted solutions? Effect?)

- Other geographic barriers (Problem? Attempted solutions? Effect?)
- Other (Problem? Attempted solutions? Effect?)
- Telehealth
 - If used: How do you use it? (Prescribing and medication management, psychosocial, consults, etc.)
 - How long have you used it?
 - What percentage of the patient population uses it?
 - What effect on retention?
- **Describe [the Site's] approach to addressing patient motivation to engage and remain in treatment.**
 PROBES:
 - How do you address patient motivational challenges?
 - When do you find this to be successful?
 - Discuss your approach to re-engaging patients you haven't seen in a while.
 - Do you do outreach? What outreach strategies do you use?
 - What continued barriers do you encounter?
- **I am going to ask you some specific questions related to other items that might or might not enhance retention and would like your feedback on these:**
 - Are there specific clinical approaches related to either MAT or psychosocial services that may improve retention?
 - Ongoing motivational interviewing?
 - Are there specific social supports that may improve retention?
 - Are there structural approaches regarding how care is organized that may improve retention?
 - Are there other specific changes to how you conduct SUD treatment that might improve retention?
 - Are there specific governmental (federal, state, or local) policies that might be changed that could enhance retention?
 - Are there differences in what affects retention for OUD compared to other SUDs?
- **Describe [the Site's] approach to coordinating follow-up or ongoing care for SUD for your patients?**
 PROBES:
 - What methods are used?
 - Level of success?
 - How long have you been doing this? Has it changed over time? Why?
 - What other barriers are there to assuring continuity of care when someone leaves your site?
 - What methods do you use to monitor continuity of care after someone leaves your site?
- **Is there anything else we should know related to retention and continuity of care?**

Topic 4. Discussion Questions: Patient Outcomes

Discussion Goals: To understand retention and patient outcomes of treatment.

Key Points That Need to Be Clarified by Discussion's Close:

Relationship of retention to treatment outcomes such as abstinence, overdose rates, employment, criminal justice involvement, and level of child welfare involvement.

Key Words: outcomes, abstinence, overdose, employment, child welfare, criminal justice

Patient Outcomes Discussion Questions (If already know answer, use questions to confirm)

INTRODUCTION: These questions are about the relationship between retention and outcomes.

- **Based on your experience at [the Site], is there a relationship between retention in treatment and patient outcomes of treatment?**

PROBES:

- Follow-up on what they offer
- Do you see differences in the following outcomes:
 - Substance use, abstinence
 - Mental health
 - Overall functioning
 - Overdose rates
 - Employment
 - Level of child welfare involvement
 - Level of criminal justice involvement
 - Other important outcomes
- Do you have data that you can share related to outcomes?

Topic 5. Discussion Questions: Models/State or Local Authorities

Discussion Goals: To understand how the state's model of treatment and/or reimbursement relate to retention and patient outcomes.

Key Points That Need to Be Clarified by Discussion's Close:

Relationship of state model of treatment or reimbursement to retention and continuity of care.

Key Words: model, reimbursement, retention

State Treatment Model Discussion Questions (If already know answer, use questions to confirm)

INTRODUCTION: These questions are about the relationship between the state's treatment or reimbursement model and patient retention and outcomes.

- **Describe the [treatment/reimbursement] model.**

PROBES:

- Follow-up on what they offer.
- Structure.
- Reimbursement approach.
- Relationship to aspects of treatment in the state.

- **How does the design of the [treatment/reimbursement] model affect retention in treatment?**

PROBES:

- Organization:
 - Model structure.
 - Ability to provide office-based MAT and how to handle when acuity increases.
 - Cross-system collaboration.
 - Value-based payment (incentives and withholds).
- Treatment design:
 - Policies on substance use while in treatment.
 - MAT (availability and whether mandated or not).
 - Psychosocial services (availability and whether mandated or not).
 - Care integration and coordination.
 - Case management.
- Access:
 - Geographic issues (rural, other shortage areas, pharmacy or OTP availability).
 - Social supports and removal of access barriers.
 - Insurance and ability to pay.
 - Telehealth.
 - Wait time and low-threshold treatment access.
- Follow-up and continuity between settings.

- **Are there other things we should know about this model and how it relates to retention or continuity of care?**
- **Do you have data that you can share related to retention in treatment, continuity of treatment, and/or patient outcomes?**

APPENDIX A. INTERVIEW/NOTE-TAKING PROCESSRESEARCH FINDINGS

1. Review Discussion Guide questions, site information, including notes from preliminary outreach calls with the site, and interviewee background prior to the interview.
2. The lead interviewer and note-taker will pre-select key discussion topics based on the interviewee's position. They will designate pre-determined timing for each topic area based on interviewee's position and keep track of time to assure coverage of all key topics.
3. Inform the interviewee that specific interviewee names will not be revealed to ASPE or published. Sites will be identified by name in reports or publications unless the site objects. Results of interviews with patients (if any) will only be discussed if it can be done in a way that does not reveal who said what to their programs.
4. Provide a project overview (e.g., major goals) and an overview of the topics that will be covered during the interview.
5. Ask warm-up questions to start the interview and create a comfortable environment with the interviewee.
6. Conduct interview.
7. Close interview by asking "is there anything else you would like to share"?
8. Review notes at the end of the interview day to fill in any gaps and record impressions and other useful observations.

APPENDIX B. TEMPLATE FOR SITE VISIT NOTES

Interview Information	
Date & Time	MM/DD/YYYY, HH:MM AP/M
Interviewer Name	
Note Taker Name	
Participant Information	
Site Name	
Site Location	
Interviewee(s) Name(s) & Titles	
Participant Types	
Executives (i.e. CEO, CMO, COO)	[# interviewed]
Managers (i.e. Directors of Quality, Behavioral Health, Contracting, Care Management)	[# interviewed]
Affiliated Case Managers	[# interviewed]
Key Providers	[describe role, # interviewed]
Other Site-Related Stakeholders	[describe role, # interviewed]
State or Local-Level Officials	[describe role, # interviewed]
Topics Covered in Interview	
[cross out topics not covered]	<ul style="list-style-type: none"> ▪ Topic 1 ▪ Topic 2 ▪ Topic 3 ▪ Topic 4 ▪ Topic 5 ▪ Topic 6
Discussion	



**U.S. Department of Health and Human Services
Assistant Secretary for Planning and Evaluation
Office of Disability, Aging and Long-Term Care Policy**

SITE VISIT REPORTS

APPENDIX 4

OF

MODELS FOR MEDICATION-ASSISTED TREATMENT FOR OPIOID USE DISORDER, RETENTION, AND CONTINUITY OF CARE

[HTTPS://ASPE.HHS.GOV/REPORT/MODELS-MEDICATION-ASSISTED-TREATMENT-OPIOID-USE-DISORDER-RETENTION-AND-CONTINUITY-CARE](https://aspe.hhs.gov/report/models-medication-assisted-treatment-opioid-use-disorder-retention-and-continuity-care)

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SITE VISIT REPORTS

IBM Watson Health

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Unique Aspects of the Site	A4-25
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ACRONYMS

The following acronyms are mentioned in this appendix.

ACS	New York Administration for Children's Services
ADHD	Attention Deficit Hyperactivity Disorder
APG	Ambulatory Patient Group
ASAM	American Society of Addiction Medicine
AUD	Alcohol Use Disorder
BHO	Behavioral Health Organization
CCC	Oregon Central City Concern
CCO	Coordinated Care Organization
CDP	Chemical Dependency Professional
CEP	Community Engagement Program
CFS	Child and Family Services
CJS	Criminal Justice System
COWS	Clinical Opiate Withdrawal Scale
CVAM	Central Vermont Addiction Medicine
CVMC	Central Vermont Medical Center
DBT	Dialectical Behavior Therapy
DSM-V	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
ETS	Washington Evergreen Treatment Services
FDA	HHS Food and Drug Administration
FFS	Fee For Service
FQHC	Federally Qualified Health Center
FTE	Full-Time Equivalent
HIV	Human Immunodeficiency Virus
IOP	Intensive Outpatient
K2	Synthetic Marijuana
KEEP	Key Extended Entry Program
LADC	Licensed Alcohol and Drug Counselor
LGBT	Lesbian, Gay, Bisexual, and Transgender
MAT	Medication-Assisted Treatment
MDT	Multidisciplinary Team
Mg	Milligram
MPR	Medication Possession Ratio
MSBI	New York Mount Sinai Beth Israel Gouverneur Clinic
MTC	Maryland Treatment Centers

OBOT	Office-Based Opioid Treatment
OTC	Oregon Old Town Clinic
OTP	Opioid Treatment Program
OUD	Opioid Use Disorder
PCP	Primary Care Provider
PDMP	Prescription Drug Monitoring Program
QI	Quality Improvement
RAM	Rapid Access to Medication-Assisted Treatment
SAMHSA	HHS Substance Abuse and Mental Health Services Administration
SBIRT	Screening, Brief Intervention, and Referral to Treatment
SUD	Substance Use Disorder
VA	U.S. Department of Veterans Affairs
WCSARP	Washington County Substance Abuse Regional Partnership
XR-Bupe	Extended-Release Buprenorphine
XR-NTX	Extended-Release Naltrexone

EVERGREEN TREATMENT SERVICES

Site Name: Evergreen Treatment Services (ETS)

Location: 1700 Airport Way South, Seattle, Washington 98134

Date Visited: May 13, 2019

Site Description

Evergreen Treatment Services (ETS) is a private non-profit organization with locations in the Seattle, Renton, Olympia, and Grays Harbor, Washington, areas. We visited the Seattle location. Most of its services are funded by Medicaid billing. ETS also has contracts with the City of Seattle and relies on grant funding (e.g., a grant from law enforcement covers diversion and allows ETS to work with difficult-to-engage HIV patients).

All patients have a diagnosis of opioid use disorder (OUD); ETS will treat other substance use disorder (SUD) conditions if the diagnosis is co-occurring with OUD. Common other SUDs are methamphetamine, cocaine, alcohol, and benzodiazepine use disorders. It does not treat adolescents but does treat pregnant women. The population now includes a larger proportion of homeless patients, those with chronic or severe mental illness, and young adults, compared to the past.

ETS offers opioid treatment program (OTP) services and has a small practice of prescribing buprenorphine. Buprenorphine prescribing is most common at the rural Grays Harbor location. ETS has a grant to enhance office-based opioid treatment (OBOT) prescribing within the FlexCare nurse manager care model, which is a hub-and-spoke model, and can refer patients to the OTP as the hub. ETS also operates the REACH program, which is a large program that serves “vulnerable, chronic homeless adults with SUDs and other comorbidities.” REACH is funded through contracts and grants.

ETS currently has 1,334 patients in treatment. Of those, 436 have been in treatment for more than 4 years (see Table 1).

TABLE 1. Number of Patients Served by ETS and Their Retention	
Retention	No. of Patients
Less than 30 days	64
31 - 60 days	37
61 - 90 days	19
91 - 120 days	12
121 - 150 days	19
151 - 180 days	26
181 days - 1 year	173
1 - 2 years	263
2 - 3 years	186
3 - 4 years	99
More than 4 years	436
Total Census	1,334

ETS works directly and indirectly with Harborview Medical Center, which is affiliated with the University of Washington. ETS also works with community partners, including the Hepatitis Education Program and the needle exchange program.

Unique Aspects of the Site

Washington State, American Association for the Treatment of Opioid Dependence, and the FDA have issued statements indicating that patients should not be denied treatment for OUD simply because they are using benzodiazepines. ETS is one of the few treatment programs locally that keep people who take benzodiazepines in treatment, although it will not allow those taking Xanax to participate in treatment. Xanax has a higher mortality rate when used with methadone. Xanax is also more popular for illicit use among the patient population. ETS hopes to influence prescribing behavior in the community through this policy and reduce the number Xanax prescriptions to stop diversion and illicit use.

Information on Study Research Questions

Question 1: What variables affect retention in SUD treatment across disorders? How have these changed with the evolution of drug use patterns?

Site Information:

ETS discussed several issues that can impede patient retention. The largest source of discharge is people who walk away and do not return. Patients are discharged if they miss 11 consecutive doses. ETS is focused on getting patients on a stabilized dose early and safely. A number of patients linger at 30 mg/day because they do not come in for dose evaluation and their dose cannot be increased beyond the initial limit. ETS has started a discussion on how to get people stabilized more quickly, especially those who do not regularly attend.

Some barriers to accessing and staying in treatment are transportation to the site and finding childcare for the appointment time.

For those who chose to taper off medication-assisted treatment (MAT), their choice usually is prompted by scheduling issues around dosing. Specifically, construction workers have conflicting schedules with ETS's dosing times (which are 5:30 a.m. to 1:00 p.m.). If someone voluntarily tapers, ETS offers aftercare services during which patients can see their counselor.

Question 2: What are evidence-based methods to address treatment retention in SUD treatment, and how do these apply to treatment of OUD?

Site Information:

ETS has implemented several practices to help retain patients in treatment.

- Unlike some providers that schedule dosing windows, ETS does not put patients into time slots. ETS uses broad dosing hours to maximize the ability of people to obtain medication.

- During the intake process, ETS looks at how to get patients to come back for treatment and get them engaged early in treatment. The intake process has changed, including creating treatment on demand if there is an open medical slot. Patients can be admitted to treatment the same day they walk in the door. If patients have to come back (because ETS is unable to serve them), they are given head-of-the-line privileges the day they return. ETS is trying to shorten the amount of time between when patients say they want treatment to when they are admitted into treatment.
- It does not discharge patients for having a positive urine screen, because substance use can be considered a symptom of the patient's illness. ETS may discharge patients presenting for being intoxicated or if the patient is dealing or acting unsafely at the clinic.
- ETS has switched to unobserved urine collection. For many people, the pressure to produce a sample is a barrier, and there is added pressure when being observed. Further, observed collection is demeaning.
- ETS uses an engagement tracker to closely monitor for the first 90 days of treatment. The engagement tracker is color-coded and addresses risk factors for avoidable discharges, such as being homeless; being under 30; being new to treatment; having a co-occurring diagnosis; being LGBT; and other risk factors. This lets ETS keep better track of the risk factors and allows the peer recovery specialist to step in before the patient leaves treatment. It can contact patients by flagging their dose.
- When a patient misses two consecutive doses, ETS reaches out to the patient.
- ETS has a mobile methadone clinic that travels to two neighborhoods that do not have a fixed clinic. This expands capacity and is more convenient for some patients, so it probably helps retention.
- The Grays Harbor clinic uses telehealth as part of buprenorphine treatment, using a prescriber in Seattle. That clinic, however, is closing shortly.

Question 3: Are there promising models of psychosocial support that assist in maintaining an individual in MAT for OUD? Do longer, more continuous durations of treatment result in better outcomes?

Site Information:

ETS offers individual counseling, group therapy, peer support, case management, and acupuncture. Every patient in treatment receives an ASAM assessment, and a treatment plan is developed. This process allows ETS to look at all the patient's needs at intake and to understand what must be addressed to help the person maintain stability, including mental health treatment and housing.

The primary treatment modality is individual counseling. Every patient has an individual counselor. ETS uses motivational interviewing, which is a style of counseling that works well with developing a relationship and helping patients who are not in the action phase of change. Motivational interviewing is used on an ongoing basis, and those skills are used to reinforce change. Many of the counselors use a cognitive therapy approach, looking at how thoughts and feelings affect cravings. A small number of counselors have specialty training in dialectical

behavior therapy (DBT) and trauma-informed care. ETS also offers psychiatric education around the risk of ongoing use early in treatment. ETS also provides limited psychiatric services to those patients who cannot get it elsewhere.

ETS is expanding the number of counseling groups offered because the size of its client population has increased greatly. Current groups include ones related to seeking safety and co-occurring diagnoses, as well as groups for men, women, older clients, and LGBT clients.

Six months ago, ETS hired a peer engagement specialist who approaches patients as an equal. This work is ongoing, but the particular focus is on engaging with patients in the first 90 days of treatment, beginning at intake. This helps remove some of the shame that new patients may feel.

Case management is part of receiving treatment at ETS. Currently, there are two case managers onsite 3-4 days a week, but it is looking to hire more case managers and to provide more out-of-office case management. The case managers work to connect people to services and will help make the call if necessary. The ETS clinic also has case management through the REACH program for those who need additional support.

ETS also offers acupuncture at the Seattle location.

Question 4: How have changes in reimbursement policy affected the provision of services? Have reimbursement policy changes expanded retention in treatment?

Site Information:

ETS currently is contracted with the behavioral health organization (BHO) in the state, which manages and integrates care. The BHO system will end and the payment structure will change next year when medical care is integrated with behavioral health in the state. ETS is reimbursed at a bundled rate as an OTP. This rate does not include case management, and having it incorporated into the bundle would be very helpful, especially because ETS recently has been able to hire more case managers. As part of the state's HealthierHere initiative, ETS reports measures that are part of a value-based payment model. Retention is one measure, as are measures relating to the use of the PHQ9 and patient perception of care.

Additional Key Information From Visit

- In response to the opioid epidemic, ETS is working to get more people into treatment. One barrier to accessing treatment has been a statutory limit on number of patients per license and a county limit on the number of licenses. The restrictions on number of patients gradually have been lifted. The patient population has grown substantially, and there are now more young adult patients.
- Every patient has an assigned medical provider. These providers take an active role in coordinating medical care. There is a small primary care provider (PCP) program, whereby a Harborview Medical Center PCP is onsite 2 half days per week. ETS also provides some Hepatitis C treatment onsite and through the link with the HEP C project downtown for screenings for Hepatitis C and HIV.

- Although Evergreen case managers reach out to patients who miss two doses, they do not have a standard mechanism to try to re-engage those discharged after 11 consecutive missed doses. Evergreen noted that its patients often do not have either stable housing or a consistent cell phone number where they can be contacted.
- The state's chemical dependency treatment requirements affect provision of services. The Washington Administrative Code requires that all patients receive counseling with a Chemical Dependency Professional (CDP). CDP counseling is separate from other professional counseling, and even a psychiatrist cannot bill for drug counseling unless the psychiatrist is also a CDP. Until very recently, a CDP visit was required at least once a month. Now the requirement is based on the patient service plan and is revisited every 6 months. There have been times in the past when ETS could not admit new patients because it did not meet capacity with its CDPs. CDPs are not paid well but have a high cost of licensure, which disincentivizes people from entering that profession. ETS is working on a commitment to support CDPs and offer continuing education courses. The case managers also must be CDPs.
- County trainings for motivational interviewing are always full, so ETS is considering adding an internal training on motivational interviewing to further spread its use.
- ETS expands its staff capabilities by using physician assistants and nurse practitioners as medication providers. Frequently, physician assistant students do rotations in the clinic. Additionally, ETS has a fellow from the Swedish Medical Center, and some residency programs send residents for half days.
- ETS also is exploring getting licensed as a community mental health center to provide mental health services in house.

STATE OF VERMONT: CENTRAL VERMONT MEDICAL CENTER, CENTRAL VERMONT ADDICTION SERVICES, WCSARP COMMUNITY MEETING, TREATMENT ASSOCIATES

Site Name: State of Vermont hub-and-spoke model, as implemented in Central Vermont, including emergency department buprenorphine induction

Location: Central Vermont Medical Center (CVMC), Central Vermont Addiction Services, Washington County Substance Abuse Regional Partnership Meeting (WCSARP) Community Meeting, Treatment Associates

Date Visited: June 18, 2019

Follow-up Call: July 8, 2019

Site Description

The State of Vermont is the most mature example of the hub-and-spoke system of treatment. The original design of the system called for patients to be inducted in MAT at a hub clinic (an OTP) and stepped down to a spoke clinic (often an outpatient general practitioner) after stabilization and for continued treatment. The hub remains available if restabilization is needed. There are six service regions in the state. This report details information gathered from the central Vermont region, in Washington and surrounding counties. For this region, the hub is Central Vermont Addiction Medicine (CVAM), located in Berlin, Vermont, and part of BAART (Baymark), with several spokes in the surrounding communities (Gifford Medical Center in Randolph (a specialty spoke or “super spoke,” which cannot provide methadone but includes addiction specialists), Treatment Associates in Morrisville and Montpelier (both specialty spokes), and CVAM’s spoke in Berlin. In addition to the original hub-and-spoke model, Vermont is implementing rapid access to MAT (RAM). The pilot for this has been the emergency department at the CVMC in Berlin, although the RAM model is spreading across the state.

The site visit included meetings with the CVMC emergency department team, the CVAM hub team, and attendance at a regional meeting of the WCSARP. We were supposed to meet with Treatment Associates, but that in-person meeting was cancelled. We held a follow-up call by phone with Treatment Associates after the site visit. See below for more information on the site(s).

Unique Aspects of the Site

Use of Buprenorphine:

Historically, and until recently, there were no methadone clinics in Vermont because they were prohibited. As the opioid crisis grew, patients initially were transported to Massachusetts for methadone treatment, and in 2002, the first methadone clinic was allowed to open. As a result of this history, however, Vermont uses buprenorphine far more than methadone and more than

most states. This approach allows patients to be stepped down from specialty to less intense settings. Patients who are treated with methadone must remain in treatment at the hub because the spokes are not OTPs. Using the community buprenorphine infrastructure allows the emergency department to be involved with inducting patients through the RAM program.

RAM Program:

Traditionally, the emergency department did not induct people into MAT; rather, patients would see a specialist for induction. However, because buprenorphine has been available in general medical offices for a number of years in Vermont, the state and CVMC decided to begin using the emergency department as an induction site. The emergency department at CVMC had considerable prior experience with inducting MAT for AUD. The emergency department began by conducting Screening, Brief Intervention, and Referral to Treatment (SBIRT) for alcohol use and other drugs (integrated into the electronic medical record), which laid the groundwork for the emergency department to begin prescribing for AUD in 2014. SBIRT reframed the approach to substance use treatment to make it a part of triage. SBIRT helped get people to think in terms of the disease model of addiction. Community stakeholders and the WCSARP supported the MAT program for AUD, and that paved the way for the RAM emergency department buprenorphine prescribing program and RAM and facilitated pathways from the emergency department to further treatment.

The RAM pilot began in July 2018. People presenting in the emergency department who are inducted on buprenorphine include individuals who have overdosed, who are in withdrawal, and who want entry into the MAT system. Anecdotally, many people who come into the RAM program are not in withdrawal but know their buprenorphine dose from using buprenorphine on the street. Many people do not want to be sick and are “doing their own MAT.”

The MAT for AUD program was adapted for OUD with three primary changes:

1. Emergency department providers are trained in buprenorphine prescribing. All CVMC emergency department physicians are now waived under the Drug Addiction Treatment Act to prescribe buprenorphine, allowing for more flexibility than use of the “72-hour rule” would allow. Subsequent work with other emergency departments has led to the realization that having waived providers in the emergency department cannot be optional and that it is essential to making the process work. CVMC tries to make RAM easy for providers. The CVMC emergency department paid the providers for 8 hours of training at their normal rate. This was an administrative expense but was important to getting many providers to take the training. CVMC noted that one way to expand this at other hospitals would be to make the number of waived providers a quality measure, which would help get support from the hospital to fund the training.
2. The emergency department now has substance use specialists and licensed alcohol and drug counselors (LADCs) available to assist emergency department physicians. The emergency department also received a grant for recovery coaches. A recovery coach (peer recovery specialist) from the local recovery center works with the patient in the emergency department, using a Recovery Coach Emergency Department Checklist.
3. Guaranteed follow-up was introduced. The emergency department worked with the regional hub and super spokes. Between the hub and two super spokes, every day is covered and each day the emergency department can refer a patient to a location. The patient should be seen within 72 hours at the most. The recovery coach that the patient

met in the emergency department follows up by phone or text with the patient to encourage the patient to get to the appointment.

While in the emergency department, patients receive a medical assessment to confirm that they meet the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) criteria for OUD and receive a Clinical Opiate Withdrawal Scale (COWS) assessment. CVMC provides a paper checklist (for DSM-V and COWS) to the patient to complete. The COWS is nurse administered. The screening tools also are integrated into the electronic medical record, which makes screening a low-barrier program for providers. The emergency department provider prescribes buprenorphine, which may be provided in any of the following ways: dose only, dose and pack to go, pack only, referral only, and dose plus prescription. The emergency department prefers to give patients go-packs of medication to bridge the time until their hub or spoke appointment. The first time that a local pharmacist received a buprenorphine prescription from the emergency department, there were multiple calls to confirm its legitimacy. The team concluded that pharmacists need to be oriented in advance to seeing prescriptions for buprenorphine and filling such prescriptions.

In Vermont, patients are presenting with co-occurring crack or cocaine use. RAM has seen an increase in men over women, and the mean age is consistently in the mid-30s. The program has not treated any adolescents but would do so in consultation with other providers. The CVMC RAM program keeps statistics. The program is working to improve the consistency of follow-up data, but Table 1 provides preliminary data.

Outcome	3 months	6 months	9 months
Follow-up rate			
Total referred	18	34	74
Followed up	14	28	60
Consistent	6	11	26
Inconsistent	6	5	0
Discharged	2	1	23
Expired	0	1	1
No attendance/no-show	4	6	12
Follow-up within 72 hours	13	24	49
Follow-up exceeded 72 hours	1	4	3

Information on Study Research Questions

Question 1: What variables affect retention in SUD treatment across disorders? How have these changed with the evolution of drug use patterns?

Site Information:

CVMC: Geography and transportation are barriers to retention. It is particularly hard for patients in rural mountainous areas to get to treatment. Some patients may have a provider in their county but are required to start at a hub that is farther away and difficult to reach. Patients may have positive and negative connotations regarding each place. The hubs encounter the most stigma because they tend to treat the sickest people (those early in treatment and not yet stable). The dosing line is uncomfortable. There is exposure to people who may entice patients toward illicit drug use. The emergency department also may be intimidating. Some patients'

worst experiences with health care may have been in the hospital. Not all providers in the emergency department are enthusiastic about prescribing (providers are not required to prescribe, and a second provider can be there if needed).

CVAM: The following are items that CVAM identified as areas for improvement in retention:

- There is an opportunity for growth in making the system appear integrated for patients moving from the hub to the spokes, particularly in terms of having the patient feel that moving to a spoke is part of his or her recovery process. The hub is starting to do more spoke informational groups to help educate patients. CVAM also is working to create a level system where a lower or higher (yet to be determined) level will earn high privileges. It is not meant to be considered a level of treatment but rather a way to guide people in moving to the spokes. This will allow patients to understand what to expect in the first 3 months, the next 3 months, and so forth through 1 year.
- Helping patients understand the treatment process by setting the stage and helping them understand what to expect are a big piece of treatment. If patients can come into CVAM from the emergency department knowing what to expect, fewer patients will be surprised.
- Some RAM patients are very complex and may have mental health struggles or be a pain patient. If insufficient information is received from the emergency department, the hub needs to investigate to understand the patient's needs. It may only receive the last dose letter and the COWS assessment from the emergency department. For most Suboxone[®] patients, the doctor at CVAM meets the patient for 15 minutes during the intake process. When the patient is referred from the emergency department, this intake meeting is not done. CVAM felt that more information could be shared between the emergency department and the hub, particularly for the more complex cases. This also was noted by CVMC emergency department, which had tried to streamline its paperwork for follow-up. This issue was raised separately by both sites.
- CVAM also receives referrals from the spokes. Communication between the hub and the spoke is very important for these referrals. The ability for one clinic to call another clinic makes it possible to focus referrals on the patient, instead of just a checklist. The spoke patients' information needs to be organized and reviewed by the doctor. The spoke clinics may feel hesitant to disengage the patient without receiving permission from the hub doctor. CVAM is working to develop a standard referral process from the spokes back to the hubs.
- Some patients are retained in the hub, and some are stepped down to a spoke. There are a number of considerations. If patients are on methadone, they cannot be stepped down. Many patients have been to multiple providers or have opinions about different providers. For example, some spokes may require more urine analyses or counseling than the hub, and this may feel like a punishment rather than a reward and may deter patients from moving to a spoke.
- CVAM is working to establish a common definition of *stable* across axes to overcome transition challenges. People can be unstable in many different ways.

Treatment Associates: Treatment Associates has some clients who have been in treatment for more than 10 years and some who have been in treatment for just 1 day. Treatment Associates has a general understanding that clients are more successful over a long period of time if they are engaged in treatment for a longer period of time. Treatment Associates is working on the understanding that if it can keep clients in treatment, it can improve clients' treatment.

Treatment Associates is starting a program to assess clients in treatment using a questionnaire given at the start of treatment, at 6 months, and again at 12 months. The program is still very new, but it is trying to answer the questions around keeping people engaged by finding out what is working in treatment and in life.

Treatment Associates has a lot of movement of clinicians, which is a blow to the clients. Clients find it challenging to continually retell their story to new clinicians, and when a clinician leaves, the clients lose their connection and can disengage from treatment. The workforce piece is essential to retention. Treatment Associates does not punish clients for relapse. However, clients have the mindset of punishment, so they try to hide relapse or leave treatment. Treatment Associates does observed urine analysis, except for a few clients who have unobserved urine analysis for trauma-related reasons.

Treatment Associates is continuously trying to improve its intake process and the process for how clients are moved through transitions. Treatment Associates does not lose a lot of clients in the beginning, but it is working to smooth the process overall. Treatment Associates brought on additional staff to conduct intake as part of the RAM program. The transition process is where clients are lost. More clients are lost for non-MAT services (alcohol, cocaine, and marijuana treatment) than are lost for MAT services. The MAT is the incentive to keep clients coming back in.

Treatment Associates loses most clients to incarceration. Vermont has made improvements in the past year to ensure that MAT is maintained in jail and to make sure there is a plan in place when the person is released. The Department of Corrections and the criminal justice system (CJS) are working to improve care coordination with providers. Other barriers to retention are transportation, childcare, and lack of housing.

Question 2: What are evidence-based methods to address treatment retention in SUD treatment, and how do these apply to treatment of OUD?

Site Information:

The sites have implemented several practices to help retain patients in treatment.

CVMC: The emergency department at CVMC is trying to understand whether there is something it can do as an emergency department and in partnership with the treatment pathway to keep people in treatment. The clinics have reported that the patients are not aware of what to expect when they reach the hub, so the emergency department is working to educate patients that treatment is not just getting a pill.

The recovery coaches help retain patients in treatment. Having the recovery coaches is the key to the success of the RAM program. The recovery coach is paged any time that the emergency department has a patient in need of buprenorphine treatment, and the recovery coach is there in person with the patient. The recovery coach also follows up with the patient by phone or text.

The coach may have a later physical meeting with the patient and will continue working with the patient, if the patient wants the coach to help. If patients do not attend treatment within 72 hours, they are not lost. People have entered treatment at the hub a range of 12 hours to 21 days after receiving a referral from the emergency department. Most patients appear at the hub within 48 hours. They may not need to be reinducted if they miss the window, because induction can be done in the office if it is appropriate.

The emergency department is working to understand whether retention rates differ by those who receive one dose, one pack, or a referral. Anecdotally, the patients who receive more medication from the emergency department tend to move into further treatment better. In many ways, this is counterintuitive, but it gives patients some stability to get to treatment.

CVAM: The 90-day retention rate at CVAM for December was 74 percent.

- CVAM is both a hub and a spoke and is both an OTP and a prescriber of buprenorphine. This allows flexibility.
- CVAM starts methadone dosing at 5:30 a.m. and continues until 11:30 a.m. (6-10 a.m. on weekends). Early dosing is convenient for patients who have jobs and who need a dose early. The patient community does a good job of accommodating each other's schedules and allowing for line skipping.
- Urine analysis is typically unobserved, but patients are cautioned to expect observed urine analysis at some point because it is used to confirm medication.
- CVAM does not dismiss patients who relapse. If a patient continues to use at high levels, CVAM will increase or decrease the dose on the basis of the patient's use or the patient may be referred to residential treatment. Few patients are dismissed from treatment. One was discharged because he could not change his vocabulary and it was affecting other patients.
- CVAM works to meet the patients where they are. On occasion, patients can become disenchanted during treatment, and anger may be the result of a patient needing to be heard. CVAM works to hear patients and work toward a solution. The management team meets to discuss hard cases.

Treatment Associates: Treatment Associates offers full addiction treatment and mental health treatment. Clients are treated for mental health needs and provided addiction treatment for alcohol, cocaine, marijuana, stimulants, and opioids, with and without medication. Most clients are in opioid treatment with MAT. Treatment Associates is building up its AUD treatment program with the knowledge that AUD has been overshadowed. Treatment Associates is owned by a psychiatrist and can provide short-term mental health medication. However, Treatment Associates tries to connect those patients to a regular practitioner. Treatment Associates has prescribed the pill form of naltrexone, but no injections. Treatment Associates also is using sublingual Suboxone™ and Sublocade™ injections.

Treatment Associates is associated with Turning Point, the peer recovery network in the area. Treatment Associates suggests that clients connect with Turning Point and occasionally has the Turning Point coaches come into Treatment Associates to talk about the services offered. Treatment Associates does a lot of case management around connecting clients to resources.

Treatment Associates does not have structured arrangements or meetings with Turning Point at this time. Treatment Associates also has regular meetings with the Department of Corrections and the local hub. Treatment Associates works with the Central Vermont Association of Treatment Professionals and the Central Vermont Community Response Team, a team consisting of housing services, child services, corrections, and prenatal services, which are focused on pregnant and postpartum women.

Treatment Associates is working to think outside the box with its services and determine how it can improve from just a counseling and therapeutic program to a program that addresses other parts of people's lives. Treatment Associates has started offering some childcare, telemedicine for counseling, Saturday groups, a book club, and an exercise program for people in recovery. Treatment Associates offers different connections to community mental health programs, psychiatric providers, hospitals, and local PCPs.

Clients are moved to the hub when they are not meeting the requirements around urine analysis and medication counseling. Clients will be moved to a higher level of care if they are a danger. Treatment Associates will move in steps, starting with a move to intensive outpatient (IOP) treatment, then to the hub, and finally to inpatient treatment. Clients are reluctant to move to the hub or inpatient treatment, but a move to IOP is less invasive.

Question 3: Are there promising models of psychosocial support that assist in maintaining an individual in MAT for OUD? Do longer, more continuous durations of treatment result in better outcomes?

Site Information:

CVAM: Patients are required to receive 60 minutes of psychosocial counseling per month. CVAM does not require that the entire 60 minutes occur at once. Because reimbursement is through a bundled payment, CVAM can be flexible with the counseling time. Patients may receive shorter, more frequent visits to meet the 60-minute requirement. As a patient becomes more stable, the frequency can be decreased. CVAM focuses on making a counselor connection. Engagement is both the impediment to successful treatment and the answer to successful treatment. Patients are not discharged because of missed counseling.

When reviewing patient cases, CVAM tries to match patients to a good counselor for that patient during the intake interview. It is possible to refer patients to counselors outside CVAM if it is clinically preferred.

CVAM also uses groups for treatment. CVAM offers psychosocial skills support, such as training for jobs, budgeting, life skills, and tobacco cessation. It would like to offer more trauma-informed care. CVAM currently relies most on individual counseling but plans to include changes with the level system that encourages greater use of groups.

CVAM provides counselor training. It encourages counselors to use the structure of motivational interviewing (stage of change, continuum of change). Counselors use motivational interviewing throughout the process to keep patients engaged. Some patients come in ready to do the work. Some patients come in just looking for medication, and once a counselor pulls them in, the counselor uses motivational interviewing strategies.

Maintaining workforce has been a challenge for CVAM. Some clinics have one nurse. If that nurse is away from work, the clinic will ask nurses from other clinics to cover. CVAM has no per

diem nurses at present. Maintaining counselor staff is also a challenge. Counselors must be LADC licensed. Currently, two counselors at CVAM are licensed LADCs, and other counselors are working on licensure. Counselors are an underpaid position. Many come to the hub for 1 year and then move on to private practice or to work in the hospital, where they can make a much higher salary.

Treatment Associates: Treatment Associates has a strongly therapeutic-focused program. Clients are expected to do counseling as part of treatment but will account for individual needs for counseling. Clients are expected to attend anywhere from two sessions per month to five sessions per week, and this can be a combination of individual and group sessions. Treatment Associates offers a wide variety of groups, including cognitive behavior, DBT, and life skills. Clients can choose which groups to be a part of. Treatment Associates also does IOP, which consists of 9 hours per week of counseling and incorporates family and life skills. Clients can choose the approach that is the right fit for them, rather than Treatment Associates offering a specific approach. Motivational interviewing is the backbone of treatment and has been incorporated into all levels of treatment, including case management, individual counseling, and group counseling.

The program is based on a phased system, with phases indicated by urine analysis and attendance. Treatment Associates generally tries to lean on the phase system when someone is not engaging in counseling, providing increased support when needed. If someone is not stable enough to meet the counseling requirements, Treatment Associates will try to increase the structure around the chaos in his or her life. Counseling is important but no longer technically required for a client to receive medication.

Question 4: How have changes in reimbursement policy affected the provision of services? Have reimbursement policy changes expanded retention in treatment?

Site Information:

Vermont Medicaid uses the health home managed care model for payment. This allows flexibility in terms of services provided and avoids quantity-based fee for service (FFS) payments. Both hubs and spokes benefit from enhanced staffing. Hubs are reimbursed through bundled payments and spokes have the benefit of one full-time equivalent (FTE) nurse and one FTE licensed clinician case manager for every 100 patients across multiple providers and their offices.

As a hub, CVAM is reimbursed by Medicaid through bundled payments. If a patient prefers or needs to see an outside provider, CVAM can refer them out. That provider is paid via FFS reimbursement, and CVAM still is paid the bundled rate for the services it provides, as long as it meets the requirements for its bundle. The spoke, Treatment Associates, does not participate in value-based purchasing. Most of its patients are covered by Medicaid, and Treatment Associates offers a sliding scale for self-pay patients.

Uninsured patients in Vermont tend to be the working poor, who have too much income to qualify for Medicaid. For these patients, treatment at the hub may be better financially because hub patients do not pay for medication. This is beneficial for patients without insurance. Spoke clinics may help patients with the cost of the visit but cannot help with medication costs.

Medicaid can pay for transportation, if there is no vehicle registered to the patient's home. Patients can appeal if they have a vehicle registered but it is unavailable to them. There are no

prohibitions on going outside the catchment area, but Medicaid will transport patients only to the closest clinic. The hospital can help patients with understanding transportation or with their appeal if transportation is denied.

Additional Key Information From Visit

- Vermont has successfully eliminated its wait list for treatment.
- In 2017, the statewide initiation in OUD treatment rate was 60-65 percent (75-80 percent for Washington County) and the statewide engagement rate was 40-45 percent (55-60 percent for Washington County).
- One lesson learned at CVMC is that patients will come to its emergency department from surrounding areas that do not have emergency department (RAM) prescribing. CVMC is working with other locations to start emergency department prescribing programs and is sharing materials with other programs. It already has protocols in place. The RAM program also has been improving its practices around data collection. There is a challenge in finding time for a person to collect the data and analyze it. CVMC has received a grant from the accountable care organization. This package contains funding to:
 - Create materials that can help other emergency departments start such a program.
 - Help with data collection and analysis, specifically to make it less laborious and to help them understand which data points are worth tracking to understand how long someone stays in treatment.
- The state is beginning work on RAM Phase II to pilot messaging to people in need of, but not seeking, treatment in central Vermont. This audience includes people who may have misconceptions about treatment or are experiencing barriers to treatment. Materials were developed that include messaging to address the most frequently mentioned barriers to treatment, such as transportation or childcare issues. This messaging was scheduled to be launched summer 2019.
- Pregnant women are inducted into treatment in the same way as other patients. The emergency department has a robust obstetrics case management system that is used to get women into treatment quickly. There also is a women's health clinic in the hospital building. Women can continue their obstetrics care in that clinic, but they may not deliver at CVMC. If the child is at risk of withdrawal, the hospital has a withdrawal protocol. The women's health clinic does not have any providers who are waived, but University of Vermont Medical Center's Comprehensive Obstetrics and Gynecological Clinic can prescribe buprenorphine and provide obstetrics care for high-risk women.

MOUNT SIANI BETH ISRAEL GOUVERNEUR CLINIC

Site Name: Mount Sinai Beth Israel (MSBI) Gouverneur Clinic

Location: 109 Delancey Street, New York, New York

Date Visited: June 20, 2019

Site Description

Mount Sinai Beth Israel (MSBI) Gouverneur Clinic is part of the large Mount Sinai health system. Mount Sinai acquired Beth Israel in 2015. The Gouverneur Clinic is one of many OTPs and other facilities in the MSBI health system. The clinic serves 480 patients currently, and the MSBI system is licensed to treat 6,000 patients across ten clinics.

The local population of this clinic has changed over time. There are more younger patients now than in the past. The patient population is more male than female. Gentrification has changed the neighborhood and the population. The older population more often uses heroin; the younger population more often uses pills. The clinic is seeing some fentanyl use. The clinic offers training on overdose prevention, and patients and staff carry Narcan[®]. The clinic sees cocaine, crack, marijuana, K2, fentanyl, and benzodiazepines as the most frequent co-occurring substances. About 70 percent of the clinic population has some form of mental disorder, such as depression or anxiety. Some patients are diagnosed with schizophrenia, borderline personality, or ADHD, and some have intellectual disabilities.

The clinic has the rest of the MSBI system as a major partner. The clinic also has linkage agreements with providers at clinics all over the city. One important linkage is with certain long-term residential programs, where the clinic provides methadone to the residents (because residential programs are not licensed as OTPs). The residential program pharmacy takes custody of the medication through a special exemption arrangement with the SAMHSA Center for Substance Abuse Treatment. The clinic also has partnerships with programs that help with housing. The clinic social workers and counselors also can help patients with housing.

The clinic follows outcomes, including overall functioning, vocational status, criminal justice activity, and overdoses. The clinic has a coordinator of children and family services, who is aware of all active Administration for Children's Services (ACS) cases. The clinic tracks the number of patients who receive overdose prevention training and who have a naloxone kit (although naloxone is not always used for the person who has it because the patient could use it for a friend).

Unique Aspects of the Site

KEEP Program at Rikers Island:

MSBI Gouverneur Clinic works with the Key Extended Entry Program (KEEP) at Rikers Island to keep incarcerated individuals on MAT. The clinic has a good relationship with KEEP. When a patient is discharged from Rikers, the patient has 30 days to come back to the clinic for MAT. Individuals at Rikers are retained on the clinic rolls.

Staff Composition:

The staff at the MSBI Gouverneur Clinic encompasses a wide range of specialties, including a physician, physician assistant, counselors, a social worker, nurses, and other staff. Primarily, the doctor does the prescribing. The physician assistant has been trained and can prescribe when the doctor is not in. The physician assistant does the admit physical, annual physical, and vaccines and deals with medical issues. Some of the other staff at the clinic are vocational rehabilitation counselors, financial counselors, a coordinator for Child and Family Services (CFS), and a patient advocate. The CFS coordinator and the patient advocate travel to multiple clinics in the system.

The staff at the clinic have stayed with the clinic or the larger health system long term. The staff are unionized and have good compensation and benefits, which helps with staff retention. All counselors must be credentialed as certified alcohol and substance abuse counselors.

Information on Study Research Questions

Question 1: What variables affect retention in SUD treatment across disorders? How have these changed with the evolution of drug use patterns?

Site Information:

The clinic's objective in retaining people is to keep them "for as long as possible or forever." Research shows that patients who leave treatment have a greater chance of relapse. MSBI Gouverneur Clinic has had patients in the clinic for decades. But the treatment for these longer-term patients is different from treatment for more recent patients. They often are part of a cohort of patients who are on a low dose of methadone, with reduced pick-up schedules. Some people can taper, and some may switch to buprenorphine. The clinic has seen retention periods get longer, because patients realize that they need to stay in treatment. Keeping the homeless in treatment is hard because they change locations all around the city.

Retention, Days	2012	2013	2014	2015	2016	2017	2018	2019
30	76	79	90	90	90	87	87	91
90	71	69	75	76	81	79	79	75
180	61	54	64	65	63	70	68	
365	46	42	49	52	49	60	64	

The first day of treatment is the longest day, because the patient meets with everyone on staff. Once a patient is accepted into treatment, the patient is assessed on the day of admission using

the ASAM assessment to determine whether the patient meets the criteria for admission. The patient is given a wellness screening and a screening for suicide risk. The patient meets with a counselor to discuss the treatment plan. These treatment plans are how the patient is monitored throughout treatment. During the wellness screening, the patient is screened for mental health to determine whether he or she needs a mental health referral. The social worker can make these referrals to the hospital or to another more intensive program. Counseling is required once per week for the first 90 days of treatment. The clinic feels strongly about weekly or sometimes more than once per week counseling. The New York State Office of Alcoholism and Substance Abuse Services has relaxed the regulations on pick-up schedules. Patients can get reduced pick-up on the basis of a clinical assessment, which can help patients stay in treatment longer. Patients also are seen by the doctor to assess dose more frequently during the first 30 or 90 days.

The clinic does not have transportation burdens in the city. If a patient cannot attend during dosing hours, the clinic will transfer the dose to the late-day clinic (located elsewhere in the city). The clinic also may give a courtesy dose for patients from other clinics. Patients with children who cannot afford childcare bring their children to treatment. The clinic does not offer childcare services. Parents may come for counseling and dosing when their children are in school. Parents who are doing well and maintain abstinence and sobriety can have reduced visits and counseling schedules.

MSBI Gouverneur Clinic is working to improve care coordination for primary care and mental health treatment. Sometimes patients do not want to sign consents for that treatment. The clinic has some patients assigned to the MSBI health home organization because of difficulties with patients willing to give consent. For patients who give consent, the clinic can coordinate care with an outside doctor or mental health care provider. When a patient is hospitalized, the hospital will call the clinic to find out the patient's dose. Hospitals also will call the clinic when a patient is discharged.

Question 2: What are evidence-based methods to address treatment retention in SUD treatment, and how do these apply to treatment of OUD?

Site Information:

The clinic uses a multidisciplinary approach, and when patients are having difficulty, they will be asked to participate in a multidisciplinary team (MDT) meeting. Some patients have difficulty tolerating the structure of the program--they may feel like the staff is telling them what to do. In these instances, the counselors can take patients into an MDT, which brings multiple disciplines to bear on the patient and helps the patient feel connected and better understood.

The clinic does not discharge patients who relapse, but patients must be working toward their treatment goals. Patients who are continuously using may be transferred to a higher level of care. Patients who are not trying or not engaged in the treatment process may be discharged. Most patients will be asked to meet with the MDT or accept referral to a higher level of care before discharge becomes a possibility. If a patient is not appearing for treatment, before the patient is discharged, there is a process to reach out and try to pull the patient back into treatment. At 7 days, the patient gets a call. At 14 days, the patient is sent a letter. Some patients are transient and do not provide correct phone numbers or use burner phones. But patients know where the clinic is, and although it may take multiple attempts, the patients often come back.

Patients may be abstinent from opioids but using another substance. The clinic offers counseling about co-occurring substance use. If a patient is using benzodiazepines, the clinic will ask the patient to show a prescription for the medication. If the patient is using illicit benzodiazepines, the clinic will not restrict methadone unless the patient is sedated. The clinic's concern around benzodiazepines is that the patient may appear fine but is sedated after dosing. The clinic will call emergency medical services if needed. The clinic checks the Prescription Drug Monitoring Program (PDMP); however, methadone is not listed on the PDMP, so other prescribers will not know from the PDMP that the patient is receiving it.

MSBI Gouverneur Clinic always does unobserved urine analysis. If there is a concern about adulteration, it will do an oral swab test. For reduction in schedule or for ACS cases, the clinic does an oral swab test. Observed urine analysis would allow counselors to ensure that the person is using his or her own urine; some patients get embarrassed if they relapse and try to hide it by using another person's urine. Most counselors have a good relationship with the patients and work hard to not demonstrate disappointment if a patient relapses in treatment.

MSBI Gouverneur Clinic does not yet offer peer recovery coaching. The clinic provided peer recovery training for 70 patients to become peer coaches. Some of these patients went on to become peer coaches, but then the state instituted a test as part of the certification requirements. Some trainees are doing their testing, and some are working on their hours. The clinic also received a grant from the state for a peer advocate. It has peers who volunteer in the program helping the patients get set up for a group or engaging with newer patients.

Question 3: Are there promising models of psychosocial support that assist in maintaining an individual in MAT for OUD? Do longer, more continuous durations of treatment result in better outcomes?

Site Information:

MSBI Gouverneur Clinic offers a variety of groups. The clinic prides itself on the groups, including a pharmaceutical group that teaches patients about medication, a dual diagnosis group, a women's group, a harm reduction group, a life skills group, and an overdose prevention group. The clinic's quality improvement (QI) projects have not been specifically focused on retention, but staff members believe that groups have helped promote retention. The clinic has enhanced the group programming it offers and the clinical skills of the staff to conduct effective sessions (there is annual counselor training). Patients may attend more than one group, but the clinic does not encourage attending more than one group per day (to make sure that there is group access for all patients). Patients can join groups 5 days per week. A patient's first group is usually the orientation group, which orients them to everything about the program, including the loitering policy and the toxicology policy, and helps them understand the program. The clinic also has a choir that is very popular among patients and is considered an effective method of providing patients with recreational opportunities in a non-drug setting. Similarly, the staff tries to engage patients in other such activities, for instance, picnics in Central Park.

The counselors are trained in motivational interviewing and use a cognitive approach to treatment. Motivational interviewing continues throughout treatment. The clinic takes a trauma-informed approach to trauma treatment but does not actively treat trauma.

Question 4: How have changes in reimbursement policy affected the provision of services? Have reimbursement policy changes expanded retention in treatment?

Site Information:

Within the MSBI Gouverneur Clinic, 85 percent of patients are covered by Medicaid. Methadone treatment is reimbursed at a per-service rate, set by the state on the basis of type of service, frequency, and so forth, for Ambulatory Patient Groups (APGs). The rest of the patients are self-paying, on a self-pay scale based on salary. Commercial insurance is starting to cover treatment, so patients are starting to use that. The MSBI Gouverneur Clinic gets deficit funding from the State of New York. The clinic is primarily an OTP but provides buprenorphine for a small number of patients. Staff members report that patients typically do not want buprenorphine, on the basis of their experience using buprenorphine on the street. Those on buprenorphine usually will see a physician in an office, and “do not want to be engaged in treatment.”

OTPs are not part of value-based purchasing in New York. They are reimbursed through APG categories. In 2015, reimbursements went from a bundled rate to a per-service rate. The state determined what services could be provided and how much should be reimbursed on the basis of types of service, frequency, and so forth.

Additional Key Information From Visit

- The MSBI Gouverneur Clinic is participating in a Hepatitis C initiative research project.
 - Because it is such a large organization, the clinic often is asked to participate in research projects.
 - The clinic was selected to participate in a University of Buffalo Patient-Centered Outcomes Research Institute grant using telemedicine for Hepatitis C treatment.
 - Many patients have not been treated well in other areas of health care because of stigma around being in MAT, and this grant program is an effort to bring Hepatitis C treatment to them. Some patients are being referred out for Hepatitis C treatment, and some are doing telemedicine at the clinic. Then, the clinic obtains and administers the Hepatitis C medications with the methadone.
- The clinic does not offer HIV treatment, but every patient is offered testing. There is an infectious disease clinic at the hospital. The clinic does not have a high percentage of HIV+ patients.

MARYLAND TREATMENT CENTERS

Site Name: Maryland Treatment Centers (MTC), Mountain Manor Treatment Center

Location: Baltimore, Maryland

Date Visited: July 9, 2019

Site Description

This SUD treatment and research center provides MAT via buprenorphine/buprenorphine-naloxone (including Sublocade) and long-acting injectable naltrexone (Vivitrol™) medications to people diagnosed with OUD. The program also provides treatment to people with other types of SUD, including those with SUDs related to benzodiazepines, cannabis, stimulants, methamphetamines, cocaine, and alcohol (AUD is particularly common among the older adults). It is offering naltrexone, disulfiram, and gabapentin for AUD. Most of its patients are on medication now, and it credits better public education and reduced stigma for that advancement. It has both for-profit and non-profit arms available to offer treatment to individuals, and it has a research division. Its patient base is about 80-85 percent Medicaid and 15 percent commercial insurance. It also has municipal and state grants to deliver treatment. The program acts as a community partner for Johns Hopkins, the University of Maryland, and other local universities, providing training on addiction for providers.

Its population consists of two subgroups. The young adult subpopulation tends to be whiter and more suburban than the adult population and tends to have more OUD diagnoses than the adult population, which is primarily African-American. However, MTC is finding that the average age of initiation for African-American individuals is dropping. Over time, it has seen its population become more acute (the less acute patients are being seen by other providers, and there is an abundance of providers in the area available to less acute patients).

Unique Aspects of the Site

- **Aspect #1:** This site has started a home-delivery program for injectable extended-release Naltrexone (XR-NTX) and has done extensive research to understand the effectiveness of this approach for improving retention in treatment.
- **Aspect #2:** This site recently began offering injectable extended-release buprenorphine (XR-Bupe) through its home-delivery program and has plans to conduct research to determine whether, like XR-NTX, the injectable buprenorphine formulation is also more effective at improving retention in treatment in this novel home-delivery intervention. The impact of the XR-Bupe may be different from XR-NTX because XR-Bupe tends to have a more immediate effect on patients than naltrexone, which can take more time to be felt.
- **Aspect #3:** MTC is beginning to look at recovery housing as a mechanism for providing a needed structure to support outpatient treatment. It has found that much of the

recovery housing available to patients currently is not supportive of the patient receiving medications, which can be a barrier to treatment, and it is often not developmentally specific or able to meet patients' age-appropriate needs (for example, recovery housing may not be supportive of young adults' romantic relationships). MTC is looking into opening its own recovery housing to overcome some of these barriers.

- **Aspect #4:** MTC recently began a family advocacy group, which focuses on peer supports for parents and other family members of individuals with SUD. Parents who have lost a child provide support to other parents who have a child or other family member with SUD, and they also provide advice and coaching to help keep other parents from suffering a similar fate.

Information on Study Research Questions

Question 1: What variables affect retention in SUD treatment across disorders? How have these changed with the evolution of drug use patterns?

Site Information:

- **Age.** MTC reported that all treatment is more efficacious for older adults because they tend to be more engaged in it. This happens for a variety of reasons: young people do not have subjective self-recognition of impairment, they have not encountered many social barriers, they have not suffered as much as older people coming to treatment, there are safety-nets for them, they can be more ambivalent toward consequences, sometimes they are still receiving positive reinforcement from drug usage, they are not as motivated for help, they are pre-contemplative, people give them more room to have delinquent or deviant behavior, experimentation is normative, and parents do not know how to proactively address drug usage and boundary pushing. The Medical Director also mentioned that there is some normative tension between kids and their parents that is exacerbated in a treatment situation; there is a struggle for control between young adult children and their parents.
- **Patient motivation and how it is leveraged.** MTC reported that people often come to treatment because they find themselves in a “crisis-driven moment” (e.g., they are going through withdrawal, they become homeless, they have a crisis with a loved one that brings them to treatment). MTC’s challenge is how to leverage that touchpoint in order to motivate and engage the patient in sustained treatment. For example, it may start the patient on buprenorphine and engage the patient in the development of a treatment plan to leverage the touchpoint.
 - Motivational barriers to naltrexone include stigma, ambivalence about the treatment, side effects of the medication or a preference for a different medication (the effect of naltrexone is not as quick as buprenorphine), and that all medications may be a reminder that a patient is sick, which is not always appreciated.
- **Retention in treatment.** Retention in treatment may produce further retention in treatment. Engagement and therapeutic alliance tend to be reinforcing of help-seeking. The more symptom relief a person experiences, the more a person is retained. On the other hand, once a person experiences symptom relief, the person may have an overconfident sense of “being fixed,” with reduced motivation for further care.

- **Proper social support and a supportive environment.** As reported in Aspect #3 above, MTC reported that recovery housing can be helpful to the point that it offers patients housing and a new and different environment to begin engaging in treatment. (However, the way that recovery housing is implemented and overseen is not always helpful). Another step that MTC takes to improve retention in treatment is to identify “locators” at the first touch of treatment. Locators are people who can be contacted to help MTC get back in touch with a patient, if needed.
- **Flexibility.** MTC has found that there is a population of people who cannot accept the high-intensity treatment for which the system is built (e.g., 10 hours per week of IOP group therapy). For example, patients may need a more individualized or flexible touch than group therapy can provide. In general, MTC emphasized that flexibility and being able to “meet patients where they are at” is important to improving retention in treatment. Counseling also has become more flexible over time as MTC recognizes the need to “meet patients where they are at” instead of trying to get them to fit a prescribed model.
- **Social determinants.** Social determinants that may negatively affect retention in care include lack of stable housing, poverty, sex trafficking, and being a young parent.

Question 2: What are evidence-based methods to address treatment retention in SUD treatment, and how do these apply to treatment of OUD?

Site Information:

Evidence-Based Methods

- MTC has done substantial research on the use of XR-NTX delivered through a home-delivery model, and it is finding statistically significant drops in OUD use over a 6-month period for people engaging in this model of treatment over “usual care.”
- MTC also suspects that medications such as buprenorphine have pharmacologic properties that might encourage retention in treatment because the effects are immediately felt by the patient. This type of effect does not exist with medications for other types of SUDs, and it is not as immediate with naltrexone.
- MTC also offers motivational incentives (money) for medication adherence specific to the naltrexone initiative (and will be adding these incentives for XR-Bupe), with increased amounts tied to longer retention.

Other Insights Supporting Retention

- This site believes in a flexible, individualized, and responsive approach to SUD treatment, including the development of a “contract” between the site, the person in treatment, and the person’s family members at the first touch for treatment. The contract is then a tool to sustain relationship-building and try to make everyone feel included and supported. It is flexible and tries to be responsive to the individual’s treatment needs. The site also uses relatives/family as “locators” to help it remain in contact with the person who needs treatment, and it believes in a high-touch model. MTC said that

keeping care out in the open is very important. The family and the patient should be aware of recommended medications and involved in the treatment. The patient and the family also should be aware of the consequences when treatment is not adhered to.

How Do SUD Practices Apply to OUD?

- MTC emphasized that OUD is different from some other SUD treatment in that it is more urgent. With OUD treatment, the provider does not have the luxury of learning from its mistakes and patients do not hit rock bottom before they start getting better. If you let them hit rock bottom, they will die.

Question 3: Are there promising models of psychosocial support that assist in maintaining an individual in MAT for OUD? Do longer, more continuous durations of treatment result in better outcomes?

Site Information:

- In response to this question specifically, MTC emphasized the importance of helping patients with something else in their life that they want help with--whether it be some sort of personal crisis, family issue, or another problem. This shows patients that MTC can be helpful and helps MTC build a relationship with them.
- MTC does use motivational interviewing, particularly before a patient is ready to change. Once a patient has committed to a plan of change, there is a shift to more directive behavioral approaches (e.g., the patient-family-provider “contract”). MTC emphasized the need for the psychosocial model to be responsive to the needs of the patient. It offers a flexible approach instead of the structured approach typically offered in group therapy and mentioned the importance of emails, calls, and Facebook messages in particular for its population. Its focus is on leveraging the power of the family member or loved one to retain the person in treatment. MTC talked about how it is using group texts, which include the family member in order to continuously try to engage the member in treatment.

Question 4: How have changes in reimbursement policy impacted the provision of services? Have reimbursement policy changes expanded retention in treatment?

Site Information:

- There have not been specific reimbursement changes that were mentioned, but the site would like to see reimbursement become more flexible to support effective treatment. MTC mentioned that much of what is important to offer is not reimbursed (i.e., high-touch case management, treatment supervision, and outcomes monitoring). MTC also would like to see a pay-for-performance or value-based payment model that pays for outcomes and quality instead of the FFS model under which it is currently reimbursed, which offers the wrong incentives. Much of the naltrexone pilot is grant funded, allowing MTC to provide these supports.

Question 5: What types of settings have seen success in implementation of SUD treatment retention methods, and how do they structure their programs? Have these

methods been specifically applied to MAT for OUD, and are these programs structured differently?

Site Information:

- MTC is having a lot of success with its home-delivery of naltrexone program, as described above. This effort targets the OUD population. MTC currently also is looking at the relative effect of home-delivered Sublocade.

Additional Key Information From Visit

- Provider barriers to administration of naltrexone include that it is more expensive than other MAT, the patient needs to be past withdrawal, and logistical challenges (including needing to have the right resources at the right time; for example, MTC must order the naltrexone, and it takes time to be delivered).
- Dr. Fishman felt that another pharmacological property of OUD medications that may make them more effective than other SUD medications is that they are “blockers.” The patient may feel that “on this medication, I am blocked and I can’t get high,” which may inhibit them from trying to get high. This is particularly true with XR-NTX, an opioid antagonist.
- MTC’s research and data show that the “treatment as usual” group does particularly poorly, especially in the transition from residential care to an outpatient program. Most patients do not make it from a residential program to a sustained outpatient level of care, and those who do pre-determined that he/she wants outpatient treatment. Most patients discharging from residential treatment are ambivalent about a sustained course of outpatient treatment. At a policy level, MTC feels that this needs to be addressed--there needs to be a more effective bridge from residential care to outpatient treatment.

CENTRAL CITY CONCERN

Site Name: Central City Concern (CCC)

Location: Portland, Oregon

Date Visited: August 14, 2019

Site Description

Central City Concern (CCC) is a multifaceted social service agency that includes SUD treatment, mental health treatment, two federally qualified health centers (FQHCs), and housing and employment services. Close to 90 percent of its client population is homeless. Nearly everyone CCC works with is at or below 200 percent of the Federal Poverty Level. CCC clients are predominantly older and male, although it treats a variety of ages. CCC also offers treatment for pregnant people. The SUD treatment includes the Hooper Detoxification Stabilization Center (Hooper) (Level 3.7, 18 women's beds and 42-45 men's beds), with a bridge program for individuals they cannot place into treatment elsewhere as quickly as needed; IOP services (Level 2); and other outpatient services (Level 1), including MAT for OUD, primarily using buprenorphine, and for AUD. The Letty Owings Center includes 29 beds for women, provides MAT, and allows children under age 5 years to be there with their mother. CCC has domestic violence and driving under the influence programs as part of its SUD treatment. CCC also operates a sobering program in collaboration with the Portland Police Bureau and a Recuperative Care Program with 18 short-term beds for highly acute individuals in need of physical care. The FQHC locations are the Old Town Clinic (OTC) and the new Blackburn Center, the latter of which makes all services available in one building. Both are part of the Healthcare for the Homeless FQHC program. The OTC has an onsite pharmacy and the ability to treat HIV, Hepatitis C, and chronic pain. Housing services include both transitional housing and permanent supportive housing, with approximately 2,400 units, comprising both recovery housing (clean and sober) and low-barrier housing (Housing First). The philosophy of the housing services program is to offer people choices between abstinence-only and low-barrier housing. The employment services program serves between 1,700 and 1,900 individuals a year.

Unique Aspects of the Site

- The Hooper bridge clinic was created to bridge needed medication or other services for individuals completing treatment at Hooper when some portion of services are not immediately available. It is based on a model pioneered at Massachusetts General Hospital. Previously, people would come to Hooper for withdrawal management, using buprenorphine to get through withdrawal and then be tapered off. It is now maintaining people on buprenorphine and using the bridge clinic to do so where necessary. Individuals can come into the waiting room in the morning for treatment and receive buprenorphine that afternoon or later. If an individual decides to leave, CCC will offer a bridge prescription for a few days. People can stay in the bridge program until needed services are available, subject to insurance coverage limitations. Some have stayed for

many months. It was noted that it once took 11 months to obtain needed services for someone at a VA treatment facility.

Hooper shared retention data from January 2019-July 2019. Of 561 clients with a primary diagnosis of OUD served in that time, 361 (64 percent) completed admission and 188 (34 percent) had at least one completed bridge clinic visit. Hooper used referral tracking for a subset (179) who discharged on buprenorphine maintenance with a follow-up appointment scheduled. Among this subset, 68 percent were engaged in treatment at 7 days and 56 percent at 30 days after discharge from Hooper. Of the subset, 93 percent were discharged to supportive housing and 7 percent were homeless. In that subset, 32 percent were in treatment at CCC, 23 percent went to another large Portland treatment provider (11 percent to the OTP and 12 percent for outpatient treatment). Another 37 percent went to a for-profit buprenorphine provider in Portland. The remainder were in treatment in other settings.

- CCC offers an integrated set of services, including behavioral health treatment, physical health treatment, and housing and employment services. Until recently, for a client to engage in the variety of services CCC offers, the client may have needed to move between CCC locations across the Portland area. In July, CCC opened the Blackburn Center, which has 300 beds, 60 of which are set aside for Hooper clients. The beds are being filled gradually as the center gets off the ground. A care coordinator at Hooper indicated that the clients she has sent to Blackburn are doing well--they are set up with a PCP and an intake appointment, a mental health appointment, an SUD appointment, and a medication appointment. She can send people to Blackburn with a bridge prescription, and they have all their services taken care of in house. Then clients can come back for the bridge clinic to obtain one more prescription. Out of the 38 or so clients she has sent to Blackburn so far, only one has come back for detoxification treatment.

Information on Study Research Questions

Question 1: What variables affect retention in SUD treatment across disorders? How have these changed with the evolution of drug use patterns?

Site Information:

Being homeless negatively affects retention, as does inability to access needed care. CCC, in conjunction with the Portland Police Bureau, operates a sobering center that CCC struggles to connect to the rest of its care continuum. Seventy percent of those admitted complete the program, but of those, 15-20 clients a week are discharged with no path to housing or access to care. The most recent Point in Time count found that Portland had 2,900 people sleeping outside, 1,800 of whom were chronically homeless. This capacity issue is regional.

CCC has found that the introduction of buprenorphine into the Hooper facility increased the rate of those leaving stabilized from 1 percent to 70 percent.

Polysubstance use along with opioids is common in the population CCC treats, including alcohol, methamphetamine, cannabis, and benzodiazepine use. SUDs that are not treated with medications can be more difficult to treat, impeding retention.

The most difficult clients to retain in SUD treatment are those with mental health issues or substance-induced mental health issues.

If clients obtain employment that includes health insurance, they sometimes lose the ability to use buprenorphine or naltrexone because some commercial insurance does not pay for it.

The CJS has been slow to embrace buprenorphine or naltrexone treatment for the incarcerated, resulting in people who are in treatment going through painful withdrawal upon entry into jail or prison. Multnomah County is planning to try to continue methadone and buprenorphine for those who enter the system already in treatment. It is now allowing people to be released with naloxone after a series of overdoses immediately postrelease.

Many of CCC's clients do not have reliable phones and can be difficult to contact to ensure that they come to treatment. Many have to bring their children with them to treatment because they lack childcare, which CCC does not offer.

Question 2: What are evidence-based methods to address treatment retention in SUD treatment, and how do these apply to treatment of OUD?

Site Information:

Some general practices that are believed to help with retention include the following:

- CCC uses peers and certified recovery mentors with lived experience in the treatment and housing programs. Becoming a peer employed by CCC requires 2 years of abstinence (many are former clients). Becoming a mentor requires 2 years of relevant experience or certification, which takes up to 2 years. CCC conducts internal training and funds part of the activities needed for training and certification.
- People are allowed in treatment if they are using benzodiazepines. CCC does not prescribe benzodiazepines (other than as part of the alcohol withdrawal protocol at Hooper) but does not keep people out of treatment as a result of use.
- CCC keeps people when they relapse but helps them get into a higher level of care.
- CCC avoids doing things that foster shame when someone relapses, and if someone leaves, it has a low-barrier to re-entry.
- CCC will provide medication continuity for up to 30 days if someone has to leave for another provider.
- No matter where someone is being seen on a given day at CCC, it seems that the staff uses that as an opportunity to help steer the client toward the client's next meeting.
- Where it makes sense, CCC provides home induction of buprenorphine.
- CCC allows walk-in physical or behavioral health appointments, allowing prompt receipt of buprenorphine, and sets a plan for follow-up within 48-72 hours.

At Hooper, the following practices are believed to be helping retention:

- If there is no place to send someone after Hooper, CCC can: (1) create a medication plan and maintain continuity of medication; (2) vary the amount of buprenorphine supplied by how much support a person needs and has on the outside; (3) allow the person to come in as needed and obtain the medication; and/or (4) set up a PCP appointment at the OTC or Blackburn FQHCs with a bridge prescription until the PCP can see the person.
- At the Hooper bridge clinic, CCC tracks clients through regular meetings, care coordination, and case management; this allows it to triple the rate of placements from the bridge program.

At the OTC:

- It is now overbooking appointments because it typically has a 30 percent no-show rate. This allows the OTC flexibility to take walk-ins.
- The embedded SUD treatment providers:
 - See people 3 days a week when they begin buprenorphine treatment at the OTC.
 - Maintain an open-door policy.
 - Conduct hands-on coordination with other programs.

In the housing program, the following practices have helped with retention:

- The addition of MAT to housing services helps people stabilize and engage. Traditionally, the housing services were abstinence focused, and MAT use was not considered abstinence.
- It holds a bed if someone is in jail for less than 30 days; otherwise, it tries to expedite services when someone returns.
- The housing program holds regular meetings and sends daily rosters within the organization.

Question 3: Are there promising models of psychosocial support that assist in maintaining an individual in MAT for OUD? Do longer, more continuous durations of treatment result in better outcomes?

Site Information:

As a general matter, CCC requires that individuals be in psychosocial treatment at the Hooper facility to receive buprenorphine as well as in other parts of its care continuum such as housing services. This policy was one reason that CCC opened the bridge clinic at Hooper, to provide a way to meet the need for both those services and buprenorphine delivery until clients can receive treatment in the community. The new Blackburn Center, which is a fully integrated service delivery facility, is encouraging but not mandating psychosocial treatment. The SUD outpatient treatment team integrated into the OTC uses, among other things, motivational interviewing to retain and encourage participation in treatment. Warm hand-offs and an open-door policy also help in that regard. A consistent theme from different people we spoke with was

that meeting clients “where they are at” is critical. The facilities incorporate both 12-step and evidence-based approaches.

Related to the topic of psychosocial treatment (as well as medication), a substantial portion of the CCC client population (currently about 740 individuals) has mental health treatment needs in addition to SUD needs. It can be difficult to get clients rapidly into mental health treatment, both because of a shortage of providers and because some providers, including area psychiatric hospitals, turn them away, attributing their symptoms to SUD rather than mental illness. At Hooper, it was estimated that 20 percent come in with a psychotic or bipolar disorder and about 50 percent have another affective disorder. Only about 30 percent do not have some sort of mental disorder. CCC can restart medication at Hooper, but if someone has acute mania or other serious symptoms, it can interfere with the treatment of others. To address the population of chronically homeless people with co-occurring mental health, SUD, and/or physical concerns, it operates the Community Engagement Program (CEP), a multidisciplinary recovery model. CEP services include recovery mentors/case managers, dual diagnosis case managers, social workers, nurse practitioners, acupuncturists, benefits and employment specialists, housing specialists, and a PCP. A program brochure indicates that, for the more than 200 people in the program, 99 percent remained in housing 1 year after enrollment.

CCC offers culturally specific programming. This includes the Puentes program for the Portland Latinx community, which has staff that are bilingual and bicultural, and the Imani Center, which offers Afrocentric and trauma-informed approaches to mental health, SUD treatment, peer support, and case management.

CCC has clinical counselors who can conduct an ASAM assessment within 24 hours.

Question 4: How have changes in reimbursement policy impacted the provision of services? Have reimbursement policy changes expanded retention in treatment?

Site Information:

CCC is paid a case rate by the Oregon Medicaid Coordinated Care Organization (CCO) for its area. Its CCO does not require prior authorization for buprenorphine treatment, but some other CCOs do, making treatment of people from elsewhere in Oregon more difficult. One area that is not reimbursed is outreach and engagement, and it was pointed out that being reimbursed for these activities could help with getting people into needed treatment. CCC pays for outreach as overhead. Other areas where additional reimbursement would be helpful might include: (1) for services provided during the first month of treatment when people need additional support; (2) for the housing supports that help get people into housing and help them retain it (which are not reimbursed by Medicaid, although Oregon is applying for an 1115 waiver to include this in the services that can be reimbursed); and (3) for complex cases (e.g., where CCC must undertake dual assessments for benzodiazepines and opioids and use dual treatment protocols for withdrawal [approximately 28 percent of current clients]). It was noted that a case rate at, for instance, the Hooper facility, has the perverse incentive of encouraging stays past midnight but no longer than that, because the same amount is paid once midnight passes, regardless of the length of stay. This reimbursement incentive does not cause CCC to reduce stays, but longer stays do reduce net income. Because buprenorphine maintenance was added to Hooper, the percentage of those leaving against medical advice has dropped from 70 percent to 30 percent. People are being stabilized, and that requires longer stays, which result in a reduced bottom line. For people who opt to taper rather than remain on buprenorphine, the case rate incentivizes more rapid tapering, which may undermine recovery. CCC does not taper more

rapidly as a result, but this practice also negatively affects net income. For example, the process of connecting a homeless person who has OUD and psychosis to all the needed supports within CCC takes far longer than simply stabilizing the person with buprenorphine and discharging them, although greater reimbursement is not given for CCC's greater effort. CCC has many clients with this level of complexity.

Question 5: What types of settings have seen success in implementation of SUD treatment retention methods, and how do they structure their programs? Have these methods been specifically applied to MAT for OUD, and are these programs structured differently?

Site Information:

CCC is a multifaceted service provider that can offer a variety of services and supports that address physical and behavioral health treatment needs, as well as housing and employment services that help address social determinants of health. This allows the creation of a recovery environment.

Additional Key Information From Visit

- Despite the size and scope of the CCC programs, resources still are limited. Wait times can be challenging for receipt of physical or mental health care, as well as some necessary SUD treatment on the treatment continuum (e.g., intensive SUD treatment). One concrete example involves the need for additional withdrawal management services. Hooper is one of three such facilities in Portland. Hooper served 250 people in July. The demand is so great, however, that it also had to turn away another 250 during that month. Other such programs in the area tend to be smaller and do not treat people on benzodiazepines, nor do they treat pregnant people. Another example involves the Hooper bridge program and the sobering station where they often must discharge people to the street because no housing is available in the area.
- CCC maintains data related to medication possession ratio (MPR) as an indicator of MAT retention. For the period between February 2018 and January 2019, approximately two-thirds of clients in its OTC had an MPR greater than 0.75 with engagement longer than 30 days. For the same period, in the CEP program, MAT initiation rates were 91 percent, while 55 percent had an MPR greater than 0.75 with engagement longer than 30 days. Also, in the CEP cohort, another 25 percent had engagement longer than 30 days with a moderate MPR of 0.5 to 0.74.
- CCC has made major progress in the past few years in adopting MAT throughout its services, including housing, all of which were formerly 12-step and abstinence focused.
- It was noted that compliance with 42 Code of Federal Regulations Part 2 can impede care coordination within CCC and with other providers.