EVALUATION OF THE IMPACT OF MEDICATION ASSISTED TREATMENT IN MAINE

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Maine Office of Substance Abuse

Hornby Zeller Associates, Inc.
New York • Maine • Arkansas • Florida • Pennsylvania

Evaluation of the Impact of Medication Assisted Treatment in Maine

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EXECUTIVE SUMMARY

The Office of Substance Abuse (OSA) within the Maine Department of Health and Human Services is one of twelve single state agencies to receive a two-year Advancing Recovery grant funded by the Robert Wood Johnson Foundation. The purpose of the Advancing Recovery grant is to promote the use of evidence-based practices in an effort to improve outcomes of consumers of addiction treatment services. Of the five evidence-based practices articulated by the Robert Wood Johnson Foundation,[1] OSA selected medication assisted treatment (MAT) as one of the practices to promote among providers of addiction treatment services. There is a substantial body of research showing that the combination of medication assisted treatment along with counseling and other behavioral therapies generates more positive treatment outcomes as well as improved social, behavioral and economic outcomes for consumers and the general public.

The Advancing Recovery grant enabled OSA to support key staff positions to help providers make effective use of medication assisted treatment as well as to direct funding for medication for uninsured consumers. OSA also procured the services of an evaluator, Hornby Zeller Associates, to measure key results of its efforts. The overall goal of the research is to determine whether the use of medication assisted treatment produces better outcomes for consumers of addiction treatment services than behavioral health services alone. Some of the research questions posed for the evaluation are: how many more consumers received medication assisted therapy as part of treatment; how did the outcomes of consumers of MAT compare with those who did not receive MAT; compared to treatment as usual, what are the differences in service utilization and associated cost with MAT; and what were the challenges in implementing MAT?

The study examines data obtained through interviews with providers and consumers at Advancing Recovery pilot agencies as well as information obtained from administrative data sources maintained by the Office of MaineCare Services and the Office of Substance Abuse. Results of the study provide Maine with a unique opportunity to explore the relationship between medication assisted treatment, behavioral health and outcomes relating to retention in treatment and service utilization. They also provide

[1] The other categories are: screening and brief intervention; psychosocial therapies, continuing care/aftercare, and case management/wrap around services.

important feedback from providers in the community, illustrating strengths and weaknesses of Maine's treatment delivery system as it pertains to MAT, as well as information on how well this modality is working for consumers based on their direct experience.

Major findings of this report include: wide variation in how medication assisted treatment is implemented both in policy and practice throughout the state; improved outcomes as reported by consumers; increased treatment retention; and reductions in expensive hospital-based service utilization. The following highlights these and other findings presented in the report.

1. ***Variation in treatment philosophy among providers***: Significant variation was also observed in philosophy among the Advancing Recovery pilot agencies that are currently offering a MAT program, specifically whether MAT is strictly a harm reduction practice or whether MAT should fit more into the "long-term abstinence expectation."

2. ***Variation in policy and practice among providers:*** Significant variation was observed both in policy and in practice among the Advancing Recovery pilot agencies offering a MAT program. These variations include: program design and delivery of treatment; induction and maintenance dosage levels; and knowledge base and training surrounding evidence-based best practices associated with MAT.

3. ***Growing acceptance of MAT among providers:*** While there has been growing acceptance of the use of MAT over time, there still exists in each agency a reluctance among some to use this method of treatment. Most providers, however, view MAT as a "tool" that enables clients to actively engage in other therapeutic interventions to assist them in overcoming their addiction; it is generally not seen as the only component needed.

4. ***Great acceptance among consumers seeking treatment:*** Most clients present to treatment specifically to receive MAT and consumer support of MAT was nearly universal. Clients also highlighted that behavioral health treatment in conjunction with medication assistance was critical in order to achieve sobriety.

5. ***Demand for Suboxone outpaces availability of prescribers:*** Among the medication options, there is a high demand for Suboxone, to the point where many agencies maintain waiting lists and clients struggle to find a provider. Both providers and

consumers identified prescribing doctor availability as the most significant barrier to receiving care, followed by transportation and MaineCare or other insurance.

6. ***Clients prefer Suboxone over methadone:*** Among clients with experience with both Suboxone and methadone, the overwhelming majority preferred Suboxone because of the unpleasant side effects, lack of treatment options, and inconvenience of the daily commitment associated with methadone.

7. ***Formal training lacking:*** Despite the overall popularity of MAT, especially Suboxone, few providers acknowledged receiving any formal training in how to effectively incorporate Suboxone into a person's behavioral health treatment.

8. ***Significant increase in users of MAT:*** Generally, one of the goals of the Advancing Recovery initiative was to increase access to medication assisted treatment among the original pilot agencies. Comparing pilot agencies at the beginning of the AR initiative to the end of fiscal year 2009, there was a significant increase in the proportion of individuals receiving MAT, increasing from 8 percent to 21 percent.

9. ***Significant numbers of people with opioid dependence are not treated:*** Cross-referencing information obtained from MaineCare's management information system and OSA's treatment data system revealed a significant number of individuals throughout Maine who received a diagnosis of opioid dependence but never received any form of behavioral health treatment or MAT.

10. ***Consumers of MAT and behavioral health treatment have more difficult histories than those with behavioral health only:*** Consumers who received MAT in addition to behavioral health treatment were significantly more likely than opioid dependent individuals receiving behavioral health treatment alone to have a co-occurring mental health disorder, to have injected drugs, and to have engaged in prior substance abuse treatment.

11. ***Individuals receiving behavioral health and MAT treatment have increased service use:*** Regardless of whether individuals were receiving MAT, both groups receiving behavioral health treatment (MAT plus behavioral health vs behavioral health only) were observed to have an increase in service utilization, namely behavioral health treatment, laboratory and testing services, and ancillary services, such as transportation. However, notable reductions were observed for both groups in

more expensive hospital-based services, such as inpatient, emergency room and critical care.

12. ***MAT is associated with higher treatment retention.*** The rate of retention in behavioral health treatment among those receiving MAT was significantly higher than those receiving only behavioral health treatment, which is generally considered a positive long term outcome.

13. ***Increased service use is a function of greater retention and higher use of ancillary services:*** Differences in overall service utilization between the two groups may be explained by differences in retention and the increased likelihood of accessing ancillary services such as drug testing.

As a result of these findings, HZA would recommend that the state consider the following recommendations.

1. ***Disseminate "best practices" in MAT:*** The state should work to develop best practices for therapeutic behavioral health agencies to establish greater consistency in the delivery of MAT. Best practice should minimally cover the induction and maintenance process, to include dosage and behavioral health treatment expectations. A building block for the development of best practices could be SAMSHA's TIP 40, **"Clinical Guidelines for the Use of Buprenorphine in the Treatment of Opioid Addiction."**

2. ***Develop formal MAT training:*** The state should work to develop formal training opportunities that should be required of individuals and agencies providing MAT. The Buprenorphine Blending Initiatives training developed by SAMHSA and NIDA is an example of a potential training opportunity.

3. ***Increase MAT prescriber pool:*** To expand treatment availability, the state should incentivize the waiver process to increase the number of available Maine doctors to prescribe Suboxone. The state should work to connect free-standing, existing prescribers who do not maintain a full census with therapeutic agencies who could work to alleviate some of the associated treatment burden. Finally, the state should work with those agencies administratively housed within a medical facility not currently offering MAT to create more delivery capacity.

4. ***Enhance ability to flag MAT users in state database:*** The state should work to establish procedures for maintaining records that clearly identify consumers of all forms of MAT. For example, one cannot identify people using addictions medications such as Suboxone, in MECMS, the MaineCare database, because the claims are coded for outpatient behavioral health and medication management without specifying particular medications or whether they are even addiction-related. Doing so will allow for better monitoring and tracking of client outcomes in the future.

STUDY CONTEXT

The Office of Substance Abuse (OSA) within the Maine Department of Health and Human Services is one of twelve single state agencies to receive a two-year Advancing Recovery grant funded by the Robert Wood Johnson Foundation. The purpose of the Advancing Recovery grant is to promote the use of evidence-based practices in an effort to improve outcomes of consumers of addiction treatment services. Of the five evidence-based practices articulated by the Robert Wood Johnson Foundation,[2] OSA selected medication assisted treatment (MAT) as one of the practices to promote among providers of addiction treatment services. There is a substantial body of research showing that the combination of medication assisted treatment along with counseling and other behavioral therapies generates positive treatment outcomes as well as improved social, behavioral and economic outcomes for consumers and the general public.

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- How many more consumers received medication assisted therapy as part of treatment;
- How did the outcomes of consumers of MAT compare with those who did not receive MAT;
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What Is Medication Assisted Treatment (MAT)?

Medication assisted treatment (MAT) for substance addiction involves the use of medication to help individuals stop harmfully using substances by alleviating withdrawal symptoms. In addition, medications may assist in reducing cravings and preventing euphoria when a patient relapses and uses illicit drugs. In the harm-reduction model of treatment, the patient may be able to stabilize his or her life by addressing housing, employment, or relationship needs while receiving medication assisted treatment (Connock et al., 2007).

Early Responses for Treatment of Opioid Addictions

The first widespread use of opioids in the United States began after the Civil War when they were prescribed widely to veterans and women for the pain and discomfort of war injuries and menstrual symptoms. As a result, opioid addiction became a burgeoning problem (Brecher, 1972; Courtwright, 2001, Courtwright et al., 1989). The first federal response to this epidemic was The Pure Food and Drug Act of 1906, which required that medicines containing opioids be labeled as such (Center for Substance Abuse Treatment, 2005).

At the turn of the 20th century, opioids began to be used for their psychological effects (i.e., not for the mitigation of pain). Given widespread availablity of opioids and, at the same time, the influx of European immigrants in inner-cities, a shift was created in the demographic makeup of the opioid addicted population. The face of the opioid addicted population became poor, young, male immigrants who often used illegal means to obtain opioids from non-medical suppliers, rather than sympathetic veterans and women suffering from pain (Center for Substance Abuse Treatment, 2005). With this transition, public sentiment toward opioid addiction changed, viewing addicts as criminals, and society's response turned from a focus on treatment to that on law enforcement. At this time, several municipal detoxification and maintenance treatment programs offering morphine, heroin, or cocaine emerged (Courtwright, et al., 1989), while federal regulations began to restrict the manufacture, distribution, and prescription of narcotics.

Restricting Narcotics Prescription

The Harrison Narcotic Act of 1914 was the first federal regulation surrounding licensing, records inspection, and fees paid to the U.S. Treasury pertaining to the production, importation and distribution of narcotics. While the Harrison Act permitted medical professionals to dispense or distribute opioids in the course of professional practice, the Act was interpreted by Treasury to mean that prescription for the sole purpose of addiction maintenance was outside the scope of practice. When the U.S. Supreme Court

upheld this interpretation in 1919, MAT for addictions lost its legitimate role within the medical establishment and all of the established municipal MAT programs were closed by the 1920s (Center for Substance Abuse Treatment, 2005).

With the focus on law enforcement and new restrictions on the use of opioids, treatment for addiction began to focus on psychosocial factors. Congress established funds for two opioid detoxification facilities offering social, medical, psychological, and psychiatric services, which opened in the 1930s. These programs were considered ineffective, with reported relapse rates between 93 and 97 percent (Center for Substance Abuse Treatment, 2005). The non-MAT treatment model trend continued through the middle of the 20th century (Center for Substance Abuse Treatment, 2005).

Researching Medication as Treatment

In the late 1950s, groups such as the New York Academy of Medicine and the Advisory Commission on Narcotic Drug Abuse began voicing support for the concept of opioid maintenance programs in the U.S. (Brecher, 1972). In 1958, a joint committee of the American Bar Association and the American Medical Association recommended the establishment of an outpatient addiction treatment facility prescribing opioids on a controlled experimental basis. Researchers discovered that short-acting opioids (e.g., heroin, codeine, oxycodone, meperidine and morphine) were not effective in managing opioid maintenance because of their sedating effects, short half-life, and the necessity to increase the dosage quickly as tolerance developed (Brecher, 1972). Research therefore turned to focus on longer-acting methadone, and its alternative levo-alpha acetyl methadol (LAAM) (Center for Substance Abuse Treatment, 2005), which are synthetic drugs used medically as an analgesic and therapeutically for those who are opioid addicted.

Recent MAT Public Health Initiatives

In the later part of the 20th century, heroin use became widespread, especially among middle-class young White Americans; crime related to opioid use did continue to rise. Psychosocial treatment for opioid addiction began to lose public support and alternatives such as opiate treatment programs (OTPs) became popular options. During this time, methadone maintenance transformed from a research initiative to a public health initiative (Center for Substance Abuse Treatment, 2005).

Increasingly, federal regulations began to focus on regulating the use of opioids in treatment rather than prohibiting their use. For example, the Controlled Substances Act of 1970 required all manufacturers, distributors, and prescribers of controlled substances to register with the DEA. This Act was amended by the Narcotic Addict Treatment Act in 1974, which recognized the legitimate use of prescribed medications

such as methadone for the treatment of opioid addiction and defined maintenance treatment. As a result, the number of patients receiving methadone treatment skyrocketed, from approximately 9,000 in 1971 to 73,000 in 1973 (Center for Substance Abuse Treatment, 2005).

Current Trends

While treatment for opioid addiction has traditionally been offered in specialized OTPs, a recent movement has emerged to offer outpatient treatment in less restrictive settings. The Children's Justice Act of 2000 allows physicians who meet certain qualifications to treat opioid addiction with Schedule III, IV, and V narcotic medications that have been specifically approved by the Food and Drug Administration for such treatment, in treatment settings outside of the traditional OTP. Those qualifications include (Center for Substance Abuse Treatment, 2005):

- Board-certified in addiction psychiatry from the American Board of Medical Specialties;
- Board-certified in addiction from the American Society of Addiction Medicine;
- Board-certified in addiction medicine form the American Osteopathic Association;
- Completed at least eight hours of training in treatment and management of opioid-addicted patients provided by the American Society of Addiction Medicine, American Academy of Addiction Psychiatry, American Medical Association, American Osteopathic Association, American Psychiatric Association, or other organization DHHS determines appropriate;
- Participated as an investigator in at least one clinical trial leading to the approval of a narcotic drug in schedule III, IV, or V for maintenance or detoxification treatment;
- Has such other training or experience as the medical licensing board in the state in which the physician practices considers to demonstrate the ability of the physician to treat and manage opioid-addicted patients; or
- Has such other training or experience as DHHS considers to demonstrate the ability of the physician to treat and manage opioid-addicted patients, as established by regulation.

Overview of current Medications for Addictions Treatment

There are a number of medications available to treat a number of addictions, including alcohol and other drug dependencies such as cocaine and nicotine. While this report is primarily concerned with the most recently available medication for opioid treatment (Suboxone), it discusses other forms of medication assisted treatment where appropriate.

OPIOID TREATMENT

METHADONE: Methadone was the first medication studied and approved for treatment of opioid addictions. It is a long-acting full opioid agonist, which binds to the mu opiate receptors on the surface of brain cells, mediating the effects of opioids (Center for Substance Abuse Treatment, 2005). Appropriate doses suppress withdrawal symptoms and opioid craving as short-acting opioids such as morphine and heroin are eliminated from the body in detoxification treatment. They also block the euphoric effects of other opioids when used in maintenance treatment. The agonist dose needed to produce this cross-tolerance depends on the level of tolerance for short-acting opioids. Methadone is primarily given orally, which has the distinct advantage of being less subject to diversion and offering increased dosing flexibility.

Patients on methadone are usually inducted at 10-40 mg and increased by 10-20 mg per week until no signs of withdrawal are present, usually at 60-120 mg daily (Connock et al., 2007). When an appropriate dose of methadone is determined, withdrawal and drug craving are typically alleviated for 24 to 36 hours (Center for Substance Abuse Treatment, 2005). Methadone is appropriate for use as a maintenance drug because it appears to have no serious long-term side effects and when used in conjunction with psychosocial services, produces even more positive long-term outcomes (O'Connor & Fiellin, 2000).

BUPRENORPHINE: The most recent addition to the pool of opioid addiction medications is buprenorphine, which was approved by the FDA for use in opioid addiction treatment in 2002. Unlike methadone, buprenorphine can be received through a primary care physician who has gone through the certification process established under the Drug Addiction Treatment Act of 2000. Buprenorphine is a partial agonist at the mu opiate receptor and an antagonist at the kappa receptor. Because buprenorphine does not fully activate mu receptors, larger doses do not have greater agonist effects, resulting in greater safety in higher doses when compared to full agonists such as methadone (Center for Substance Abuse Treatment, 2005). *It provides a milder, less euphoric, and less sedating effect than full opioid agonists like heroin or methadone (Connock et al., 2007).*

Buprenorphine is available in two forms: buprenorphine-only monotherapy (Subutex) and 4 mg to 1 mg buprenorphine-naloxone combination therapy (Suboxone) (Center for Substance Abuse Treatment, 2005). Both are available in sublingual tablets. The initial recommended daily dose is .8-4 mg according to Great Britain's National Health System guidelines, though a starting dose over 4 mg is often used and some researchers and

practitioners suggest that this dose is too low. The maximum daily dose is 32 mg (Connock et al., 2007).

Buprenorphine is also an appropriate candidate for maintenance therapy because of its ease of use and accessibility as well as a lack of long-term side effects, lower risk of diversion and improved treatment outcomes when used in conjunction with psychosocial therapy.

OTHER OPIOID TREATMENT MEDICATIONS: LAAM and naltrexone are two other medications that been used in the treatment of opioid addictions. Similar to methadone, LAAM act as full opioid agonist, and was FDA-approved for opioid treatment in 1993. Due to potential cardiac complications, production was discontinued in 2004 (Center for Substance Abuse Treatment, 2005).

The FDA approved naltrexone for use in the treatment of opioid addiction in 1984. Naltrexone is an opioid antagonist that binds to mu opiate receptors, displacing heroin, morphine, methadone, and (in higher doses) buprenorphine and blocking their effects (Center for Substance Abuse Treatment, 2005). This can lead to withdrawal symptoms in patients who have not been abstinent from opioids for seven to ten days (O'Connor & Fiellin, 2000). However, there are no withdrawal symptoms when a patient stops using naltrexone, and there is no potential for abuse (Center for Substance Abuse Treatment, 2005). It has been shown to be highly effective in preventing relapse when used as directed, but has shown poor patient compliance due to its inability to eliminate cravings (O'Connor & Fiellin, 2000). Therefore, it is not widely used for the treatment of opioid addiction in the U.S.

COMMON MEDICATION ASSISTED TREATMENTS FOR OTHER DEPENDENCIES

Today, there are a wide number of medications available for the treatment of addictions not related to opiate use. One of the earliest medications available for the treatment of alcohol addiction was Antabuse, first marketed in 1951. It is infrequently in use today primarily due to its inability to eliminate withdrawal or craving symptoms coupled with an acute sensitivity to alcohol; patients on Antabuse who consume alcohol experience acute, unpleasant side effects.

While naltrexone has shown unfulfilled promise in treating opioid addiction, it has had better results in reducing cravings for alcohol and received FDA approval in 1995. It is available as both a tablet and an extended-release intra-muscular injection. The 50 mg tablet must be taken daily, while the injection (under the brand name Vivitrol) lasts for up to 30 days (Sinclair, 2001).

Another medication used to treat alcohol addiction is acamprosate, marketed under the name Campral and approved by the FDA in 2004. The FDA (2004) states that the mechanism of action is not fully understood, but researchers suggest the drug reduces surges of glutamate and may protect neurons from damage and death during alcohol withdrawal (DeWitte et al., 2005). Campral is available as a delayed-release tablet containing 300 mg of acamprosate. Two tablets are taken three times per day.

There have also been a number of medications developed to treat nicotine and cocaine dependence that are not as readily prescribed; their long-term effectiveness is still under investigation.

OUTCOMES

Studies have evaluated the efficacy in treating substance addiction with MAT. The literature identifies positive outcomes for MAT in conjunction with psychosocial interventions to include reduced and/or eliminated substance use, longer durations of program retention, and higher rates of program completion.

SUBSTANCE USE

Substance use following treatment intervention has been measured in different ways. One measure of substance use is the number or proportion of patients screening positive for substances while in treatment. Positive screening rates vary widely, ranging from seven percent to 100 percent across multiple studies reviewed for this report. Different programs screen for different substances, with some focusing only on illicit opioid use while others include all illicit substances and/or alcohol. Another measure is self-reported use following treatment, or the number or proportion of clients who report substance use following treatment completion. Studies used for a meta-analysis of the effectiveness of MAT in the United Kingdom showed self-reported relapse rates for patients in OTPs ranging from 23 percent to 81 percent overall (Connock, et al., 2007).

METHADONE VS. BUPRENORPHINE: Both methadone and buprenorphine have been shown to be effective in reducing illicit opioid use. The greatest number of studies examining substance use following MAT intervention has shown that both methadone and buprenorphine improve substance use outcomes over other types of therapy regardless of how substance abuse is measured, and there is no statistical significance between the two medications (e.g., Maremmani, Pani, Pacini & Perugi, 2007; Marsch, Stephens, Mudric, Strain, Bigelow & Johnson, 2005).

However, there are a number of contextual factors that have been shown to mediate substance use outcomes. For example, an evaluation of a program protocol involving an 11-week disposition period for opioid related treatment showed individual factors significantly predicted opioid positive screening test results (Marsch, Stephens, Mudric, Strain, Bigelow & Johnson, 2005). Being married and employed significantly predicted better treatment outcomes. Female patients and patients with a prior treatment history in the past 30 days at intake each had significantly poorer opiate use outcomes. No significant predictors of treatment outcome were medication-specific.

Treatment Retention and Completion

Higher retention rates during specific time intervals in treatment, higher program completion rates, and longer average lengths of stay in treatment are considered positive outcomes and predictive of long-term success. In many cases, treatment retention and completion are often discussed in tandem because sufficient retention in fixed-length treatment programs result in program completion. Treatment retention is often measured in multiple ways and varies widely among studies reviewed for this report. One way to measure treatment retention is the number or proportion of patients who remain actively enrolled in treatment at a specific point in time (e.g., at 12 weeks) or for a specific duration of time (e.g., for at least six months). Completion is measured by the number or proportion of patients who are retained for the entire length of a fixed-length program, or who are retained long enough to successfully complete program goals in varied-length programs. Generally, studies cited in the literature focus on retention and completion with respect to a single treatment program. However in reality, treatment continues for as long as the patient is in need and engaged, and often does not account for circumstances in which a patient changes providers, moves, or ceases and then resumes treatment over the course of numerous years. Data made available in this report attempts to correct for these circumstances providing the best possible estimate of treatment retention outcomes.

In addition to effectively reducing substance use, most studies demonstrate that methadone and buprenorphine expand retention in maintenance treatment programs over the use of other medications and no medications in treatment (e.g., Amato, Davoli, Ferri, Gowing, & Perucci, 2004; Connock, et al., 2007). Again, some studies show that methadone is better for retention than buprenorphine, but many show no difference in treatment retention between the two medications.

One in-depth review of multiple randomized controlled trials concluded that fixed doses of methadone treatment resulted in better treatment retention than comparable fixed doses of buprenorphine treatment (Connock, et al., 2007). Comparative analyses of

flexible dose studies have not yet been conducted, but a single study comparing flexible dose methadone treatment to flexible dose buprenorphine treatment found similar results (Connock, et al., 2007).

On the other hand, multiple studies have found no difference in retention rates between methadone and buprenorphine. Fifty-two percent of patients receiving either buprenorphine or methadone maintenance treatment were retained throughout a six-month study overall, with 55 percent of the methadone group and 48 percent of the buprenorphine group retained at six months (Soyka, Zingg, Koller & Kuefner, 2008). A separate study found 78 percent of patients receiving buprenorphine treatment and 75 percent of 107 patients receiving methadone treatment who survived the first three months in treatment were retained in treatment at 1 year (Maremmani, Pani, Pacini & Perugi, 2007).

These conflicting findings may be due to differences in the length of treatment programs or medication dosages utilized. One comparison of efficacy of buprenorphine and methadone in a 12-week treatment program, methadone patients had a higher retention rate at 4 weeks, but this effect diminished by 12 weeks (Gerra, et al., 2004). The above finding by Maremanni and colleagues (2007) in which patients who survived early attrition had high retention rates (75% to 78%) at one year indicates that most patients who leave treatment do so early in the program.

In terms of treatment length for Suboxone consumers, much of the current knowledge base is subjective in nature; there are few studies that address long-term outcomes associated with Suboxone use. Rather, many studies examine the immediate two to three months after induction, often termed the stabilization phase. SAMHSA's TIP 40 indicates that "the design of long-term treatment depends in part on the patient's personal treatment goals and in part on objective signs of treatment success." That is, the length of Suboxone treatment should be determined by both consumer sentiment and prescriber or clinician opinion. Anecdotal findings have demonstrated that of the two medications, methadone is seen as the more long-lasting treatment regimen, compared to Suboxone, which is used as a more short-term intervention.

OTHER FACTORS AFFECTING RETENTION AND COMPLETION: While the type of medication does not appear to predict retention in treatment directly, dosing may predict retention and completion. A meta-analysis of maintenance programs showed higher fixed doses were generally more effective for increasing retention than lower fixed doses of either medication (Connock, et al., 2007). Also, the intensity of withdrawal symptoms was the strongest predictor of program drop-out in one study (Soyka, Zingg, Koller & Kuefner, 2008)

Some characteristics have been shown to be associated with treatment retention and completion as well, albeit with individual studies. Predictors of retention in treatment were better social functioning scores, younger participants, and being married or cohabitating (Pinto, Rumball & Holland, 2008). In a separate study, age at onset of and length of continuous use were found to predict program completion in a buprenorphine group, whereas co-occurring conditions were predictive of significantly better retention of those within a methadone group. (Soyka, Zingg, Koller & Kuefner, 2008; Gerra, et al., 2004).

PERSPECTIVES

The literature is fairly clear that there is no single best treatment for opioid addictions. As such, much of the decision on which medication to choose for treatment relies on the discretion of the treatment providers and consumer preference.

PROVIDER PERSPECTIVES ON MAT

While the literature is clear that treatment outcomes are better using medication assisted treatment than without it, many treatment providers still subscribe to the notion that treatment for opioid addiction should be strictly psychosocial in nature. What is known is that there is a direct correlation between providers with more exposure to the use of MAT and their acceptance of its use in treatment. Counselors affiliated with the National Institute on Drug Abuse's Clinical Trials Network reported significantly greater acceptability of buprenorphine than non-affiliated counselors (Knudsen, Ducharme & Roman, 2007) whereas another study revealed nearly one-half of community-based providers had no knowledge about the effectiveness of pharmacological treatments (Herbeck, Hser & Teruya, 2008).

A recent study assessing professional attitudes toward the use of medication assisted treatment showed attitudes were shaped less by organizational variables than by individual characteristics (Fitzgerald & McCarty, 2009). Programs with a strong social model influence and those with a higher proportion of staff in recovery were less supportive of medication in substance abuse treatment. The ability to prescribe medication, more advanced education, and general support for psychiatric medications were individual characteristics related to more positive staff attitudes toward MAT. There is little available in the literature to assess providers' preference toward one opioid medication over another.

CONSUMERS

In general, consumers demonstrate knowledge of medications available for the treatment of opioid addiction, strongly prefer one medication over another, and attest to its effectiveness in their recovery (Fiellin, et al., 2008). One study of 42 opiate-dependent patients seeking treatment illustrated patients' beliefs and decision-making processes when seeking medication assisted treatment for opiate addiction (Pinto, Rumball, Maskrey & Holland, 2008). Patients were asked to choose methadone or buprenorphine and why they chose the specific medication. Results showed beliefs about the medications were based primarily on their own past experiences and experiences of other users, rather than on the information given by agencies. Patients who chose methadone seemed to base their decision on familiarity, while patients who chose buprenorphine did so because they felt it would block heroin more effectively, reduce craving, give less intoxication, and be easier to stop taking.

MEDICATION ASSISTED TREATMENT IN MAINE

Over the past decade, abuse of prescription narcotics such as OxyContin has increased substantially in the state of Maine. According to the Maine Office of Substance Abuse Treatment Data System (TDS), prescription narcotics are the second most frequently listed primary drug of choice, following alcohol. In addition, the number of treatment admissions for the abuse of prescription narcotics excluding heroin and morphine has grown by 63 percent since the first half of 2005, and the number of treatment admissions for abuse of heroin has jumped sharply in the past year (CESN, April 2009).

Methadone has been available for treatment of opioid addiction in Maine since 1995. Use of this medication in treatment has increased over the past decade: in 1996, there were 200 people receiving methadone in the state while today there are approximately 1500. Currently, three methadone detoxification programs and 10 methadone maintenance programs operate in the state (OSA, 2009).

Buprenorphine was approved by the FDA for treatment of opioid addiction in October, 2002. Maine's Prescription Drug Monitoring program has been tracking the number of prescriptions for both Suboxone and Subutex since 2005. The number of patients prescribed buprenorphine in Maine has increased from 1540 in 2005 to 5662 in 2008, a 268 percent increase. Currently, there are 85 individual physicians and 37 treatment programs in the state of Maine authorized to prescribe or dispense buprenorphine for the treatment of opioid addictions.

Maine is among the more progressive states in the nation for reimbursing for medication assisted treatment for a range of chemical dependencies. As shown in Table

1, there are vast differences across states regarding Medicaid coverage for methadone, Suboxone, and naltrexone, their delivery and treatment setting, as well as whether Suboxone and naltrexone are listed in the state's formulary, the list of drugs covered by Medicaid.

MaineCare offers Medicaid payment for methadone in OTPs, Suboxone in both OTPs and physicians' offices, and naltrexone in physicians' offices. Six other states, including New Hampshire, Vermont, and Massachusetts offer the same level of coverage for opioid addiction treatment medications in their Medicaid programs. The only thing MaineCare does not allow for is the coverage of naltrexone in OTPs. Generally, Maine ranks among the top states in the nation in terms of its Medicaid coverage for all types of medication assisted treatment.

While MaineCare provides prescription coverage for both methadone and Suboxone, the manner in which it provides reimbursement to providers significantly differs between the two. For methadone treatment, billers utilize a single billing code to indicate the patient is enrolled in a methadone treatment program, covering the cost of behavioral health treatment, medication management and the cost of the medication itself. In contrast, Suboxone providers must bill for each component of treatment (e.g., behavioral health, medication management) separately, despite the existence of a single billing code for Suboxone treatment in Medicaid. Another difference is that MaineCare requires prior authorization for behavioral health treatment services associated with Suboxone treatment through its Administrative Service Organization but does not require prior authorization for methadone treatment. These differences in administrative policy and practice have numerous unintended consequences for the services available to and received by consumers seeking Suboxone treatment.

While the system of methadone maintenance treatment has been previously evaluated by the state (CSAT, 2003), the system for the use of buprenorphine treatment has not been fully evaluated, hence, a factor addressed by this report.

Table 1. Medicaid Coverage for MAT by State[3]

State	Offers Medicaid for Methadone in OTPs	Offers Medicaid for Suboxone in Physician's Offices	Offers Medicaid for Suboxone in OTPs	Offers Medicaid for Naltrexone in Physician's Offices	Offers Medicaid for Naltrexone in OTPs	Medicaid Drug Formulary Status of Suboxone	Medicaid Drug Formulary Status of Naltrexone
Alabama	Yes	No	No	No	No	No	No
Alaska	Yes	Yes	Yes	Yes	Yes	Yes	No
Arizona	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arkansas	No	No	No	No	No	No	No
California	Yes	Yes	Yes	Dk	No	Yes	Dk
Colorado	Yes	Yes	No	Yes	Yes	Dk	Dk
Connecticut	Yes	Yes	Yes	No	No	Yes	N/A
Delaware	Yes	Yes	Dk	Yes	Dk	Yes	Yes
D.C.	No Response	No Response	No Response	No Response	No Response	No Response	No Response
Florida	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Georgia	Yes	Yes	Yes	No	Yes	Yes	No
Hawaii	Yes	Yes	Yes	No	No	Yes	No
Idaho	No	No	No	No	No	N/A	N/A
Illinois	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Indiana	Partial	Yes	Yes	No	No	Yes	Yes
Iowa	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kansas	Partial	Yes	Yes	No	No	Yes	No
Kentucky	No	No	No	No	No	No	No
Louisiana	No	No	No	No	No	No	No
Maine	Yes	Yes	Yes	Yes	No	Yes	Yes
Maryland	Yes	Yes	Yes	Yes	No	Yes	Yes
Massachusetts	Yes	Yes	Yes	Yes	No	Yes	Yes
Michigan	Yes	Yes	Yes	No	No	Yes	No
Minnesota	Yes	No	Yes	No	Yes	Dk	Dk
Mississippi	No Response	No Response	No Response	No Response	No Response	No Response	No Response
Missouri	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Montana	No	Yes	No	Yes	No	No	Dk
Nebraska	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nevada	Yes	Yes	No	Dk	Dk	No	No
New Hampshire	Yes	Yes	Yes	Yes	No	Yes	Yes
New Jersey	Yes	Yes	Yes	Yes	Yes	Yes	Yes

[3] National Conference of State Legislatures, http://www.ncsl.org/default.aspx?tabid=14144#71

State	Offers Medicaid for Methadone in OTPs	Offers Medicaid for Suboxone in Physician's Offices	Offers Medicaid for Suboxone in OTPs	Offers Medicaid for Naltrexone in Physician's Offices	Offers Medicaid for Naltrexone in OTPs	Medicaid Drug Formulary Status of Suboxone	Medicaid Drug Formulary Status of Naltrexone
New Mexico	No	Yes	Yes	Yes	Dk	Yes	Yes
New York	Yes	Yes	No	Yes	Yes	Yes	Yes
North Carolina	No Response	No Response	No Response	No Response	No Response	No Response	No Response
North Dakota	N/A	Yes	N/A	Yes	N/A	Yes	Yes
Ohio	Yes	Yes	Dk	Yes	No	Yes	Yes
Oklahoma	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Oregon	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pennsylvania	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rhode Island	No Response	No Response	No Response	No Response	No Response	No Response	No Response
South Carolina	No	Dk	Dk	Yes	Yes	Dk	Dk
South Dakota	Yes	Yes	Yes	Yes	Yes	No	No
Tennessee	Yes	Yes	Yes	Yes	Yes	No	Yes
Texas	Dk	Yes	No	Yes	No	Yes	Yes
Utah	Yes	No	No	No	No	No	No
Vermont	Yes	Yes	Yes	Yes	No	Yes	No
Virginia	Yes	Yes	Yes	Yes	Yes	No	No
Washington	Yes	Yes	Yes	Yes	No	Yes	Yes
West Virginia	No	No	No	No	No	Yes	Yes
Wisconsin	Yes	Yes	Yes	Yes	No	Yes	Yes
Wyoming	No	Yes	No	Yes	No	No	No

ADVANCING RECOVERY GRANT

As indicated above, the Advancing Recovery Grant is part of a national initiative to improve the results of addictions treatment both by promoting the use of evidence-based practices within states across the country and by developing innovative partnerships between state agencies and local providers to improve outcomes of consumers of addiction treatment services.

Maine has chosen to focus on advancing the use of medication assisted therapies (MAT) among providers responsible for developing comprehensive treatment plans for consumers of addiction services. The Advancing Recovery grant awarded to the Office of Substance Abuse enabled the state of Maine in part to provide direct funding to pilot

agencies for medication for uninsured consumers. These agencies include: Acadia Hospital, Aroostook Mental Health Center, Addiction Resource Center at Mid Coast Hospital, Catholic Charities Maine Counseling, Day One, MaineGeneral Health, Mid-Coast Mental Health at Pen Bay Healthcare, Portland Public Health – Healthcare for the Homeless, Regional Medical Center Lubec and St. Mary's Regional Medical Center.

After two years of implementing the Advancing Recovery grant, policy-makers and key stakeholders are now interested in knowing the outcomes of this new initiative. This evaluation describes the current state of MAT in the State of Maine. Specifically it examines how participating agencies implemented MAT, how consumers perceive MAT including the differences between methadone and Suboxone, the types of outcomes MAT produced compared to conventional behavioral health treatment, and the costs and utilization of services between and among people using MAT plus behavioral health, behavioral health only and no treatment at all.

This study set out to answer research questions relating to the experience of the treatment agencies in implementing MAT, the experience of consumers in receiving MAT and the outcomes actually achieved for consumers. Key research questions are outlined as follows:

AGENCY EXPERIENCE

- How do agencies differ in terms of MAT medications used, dosing, and required behavioral health participation?
- What were providers' views in regard to the use of MAT?
- What were the challenges in implementing MAT?

CONSUMER EXPERIENCE

- What were the consumers' overall views about the effectiveness of MAT?
- How did consumers compare their experiences with methadone versus Suboxone?

CONSUMER OUTCOMES

- What was the impact of the Advancing Recovery grant on increasing the number of consumers receiving medication assisted therapies? How do targeted MAT providers compare with other providers in the state in terms of the number of MAT consumers they serve?
- Is there a difference in retention between consumers receiving MAT with behavioral health treatment and behavioral health treatment only?
- Is there variation in service use, and associated costs, both before and after treatment, of those who used MAT plus behavioral health treatment, those who used behavioral health treatment only, and those who did not receive treatment?

To answer the research questions posed above, HZA used a variety of both qualitative and quantitative methods. The qualitative component of the evaluation consisted of a series of interviews and focus groups with both providers and consumers of medication assisted treatment and a consumer survey. HZA visited each agency with an Advancing Recovery grant. The quantitative methods principally surrounded the analysis of administrative data sets, specifically the Office of Substance Abuse's Treatment Data System and the Office of MaineCare Service's Management Systems (Medicaid), and information provided by the Advancing Recovery pilot agencies.

QUALITATIVE DATA SOURCES

ADVANCING RECOVERY PILOT AGENCIES

The ten pilot sites who participated in this project were chosen based on their affiliation with the Advancing Recovery grant. The five original pilot sites, listed in the box to the right, have participated in Advancing Recovery activities since grant inception in October of 2006. Some agencies, most notably Acadia Hospital, had offered MAT prior to this project, but other agencies did not until after grant start-up, near the spring of 2007. Among the original pilot sites, Portland Public Health is the exception in that it did not become involved in the project until early summer of 2008. These five agencies provided information about the population receiving medication assisted treatment that informed the quantitative analysis component of this report as well as the population for the consumer focus groups and survey.

ADVANCING RECOVERY PILOT AGENCIES

Original Pilot Sites

- Acadia Hospital
- Addiction Resource Center, Mid Coast Hospital
- Aroostook Mental Health Center
- MaineGeneral Health
- Portland Public Health, Healthcare for the Homeless

Oncoming Pilot Sites

- Catholic Charities Maine Counseling
- Day One
- Mid Coast Mental Health – Choice Skyward
- Regional Medical Center Lubec
- St. Mary's Medical Center

The five oncoming pilot sites, also listed in the box to the right, joined the Advancing Recovery initiative in the spring of 2009 and are divergent in their respective histories with MAT; Catholic Charities and Day One are on the early end of the implementation spectrum while the remaining sites have been offering MAT for varying periods of time. Based on the varying levels of implementation, only interviews with staff were conducted at these agencies.

PROVIDER INTERVIEWS

Interviews with providers were designed to identify information about the types of clinical interventions provided; their attitudes, beliefs and opinions about treatment services in general; the role of MAT in the delivery of treatment; consumer eligibility criteria for MAT; as well as service needs, gaps and barriers in the treatment delivery system. Some questions were based on a study conducted with the pilot agencies at the beginning of the Advancing Recovery grant process; this was done to determine whether provider attitudes and beliefs changed during the grant period[4]. Lead staff at each agency were asked to identify a broad spectrum of participants to include, at least and where present, a medical provider, administrator, clinician and other staff associated with the MAT program.

Table 2. Provider Interviews

	Provider Interviews
Acadia Hospital	8
Addiction Resource Center	5
Aroostook Mental Health Center	6
Catholic Charities	2
Day One	1
MaineGeneral Health	7
Mid-Coast Mental Health	6
Portland Public Health	9
Regional Medical Center Lubec	3
St. Mary's Medical Center	5
TOTAL	**52**

Interviews were conducted with providers at all ten pilot sites; most interviews were done individually but group interviews were conducted in some instances based on staff availability. A separate, slightly different interview was developed for medical staff to determine relevant program information such as induction and maintenance dose. In all, 52 individuals participated in the interview process; clinicians and administrators constituted the majority of those interviewed.

[4] In March of 2007, Pan Atlantic SMS Group produced a report, "Focus Groups with Counselors and Clinical Supervisors on the use of Medications in Drug and Alcohol Treatment," for The Maine Association of Substance Abuse Programs that detailed the results of focus groups held at each of the AR Original Pilot Sites.

Consumer Focus Groups & Survey

Focus groups with consumers of MAT were designed to obtain information and opinions about their history of participation in treatment, opinions and satisfaction with providers, services offered and received, self reported outcomes relating to behavioral health outcomes as well as recommendations for system improvement. Participation in the focus groups was voluntary; participants received a $10 gift card in appreciation of their cooperation. At the end of the group, participants were also given the option to complete a voluntary survey that focused on their individual experience with substance use and treatment. In this manner, some demographic information was captured on the client population. Focus groups were conducted only at the original pilot sites since these agencies all had established MAT programs and consumer base; some of the oncoming pilot sites did not have a population base.

Table 3. Client Focus Groups & Interviews

	Client Focus Group / Interviews
Acadia Hospital	8
Addiction Resource Center	3
Aroostook Mental Health Center	4
MaineGeneral Health	8
Portland Public Health	7
TOTAL	**30**

In all, thirty individuals participated in either a focus group or individual interview, of which twenty-six completed the survey. Four focus groups involved consumers of Suboxone, one group involved consumers of methadone, and two consumers of Vivitrol participated in a one-one-one interview[5]. Table 3 provides the number of participants volunteering feedback from each agency.

Administrative Data Sources

The quantitative analysis is based upon an analysis of administrative data obtained from three primary data sources including: 1) Maine Office of Substance Abuse Treatment Data System (TDS); 2) Office of MaineCare Services, Management Information System (MECMS); and, 3) Advancing Recovery provider records. The purpose in reviewing provider records was to obtain identifying information about MAT consumers so that

[5] Another consumer of Suboxone expressed the desire participate in a focus group but was unable due to a scheduling conflict. This individual was provided the opportunity to share his/her experience with medication assisted treatment through a one on one interview lasting approximately 15 minutes.

comparative analyses of outcomes could be performed both at the agency and consumer level.

Information obtained from each source was cross-matched using identifiers common to each system (e.g., DOB, MaineCare ID, Social Security Number) and analyzed together to assemble three groups of individuals all of whom received a diagnosis of opioid dependency. These three groups include: 1) individuals receiving medication assisted treatment in addition to behavioral health services (MAT; n=604); 2) individuals receiving behavioral health counseling only (BH Only; n=844); and, 3) individuals who received neither MAT nor behavioral health services (No Treatment; n=795). A retrospective, observational design was performed to assess differences in outcomes among eligible groups as it pertains to retention in treatment and service utilization.

STUDY LIMITATIONS

Several limitations should be considered when interpreting data presented in this report. First, estimating the number of recipients of Suboxone was limited to information provided by the Advancing Recovery pilot sites and information gleaned from the Office of Substance Abuse Treatment Data System. Suboxone recipients could not be identified through MaineCare claims as Suboxone services billed under MaineCare are coded separately in terms of medication management and outpatient behavioral health rather than a common or bundled procedural code such as what exists for methadone. Second, the Treatment Data System captures service information from only OSA contracted service providers and excludes many agencies and physicians that are able to provide MAT. Third, there is a general tendency for Suboxone recipients, compared to those not on Suboxone, to have their benefits extended for outpatient substance abuse treatment services due to the behavioral health treatment requirement expected by the prescribing physician. That is, in order for someone to receive Suboxone over an extended period, he or she must continue to be in behavioral health treatment, beyond that which is typically capped at 30 units in 40 weeks in a given year. The practice affects service utilization data. Lastly, qualitative findings were limited to interviews with consumers and providers from the Advancing Recovery sites and hence do not capture perspectives from OTP clinics, community-based prescribing physicians and individuals not on MAT.

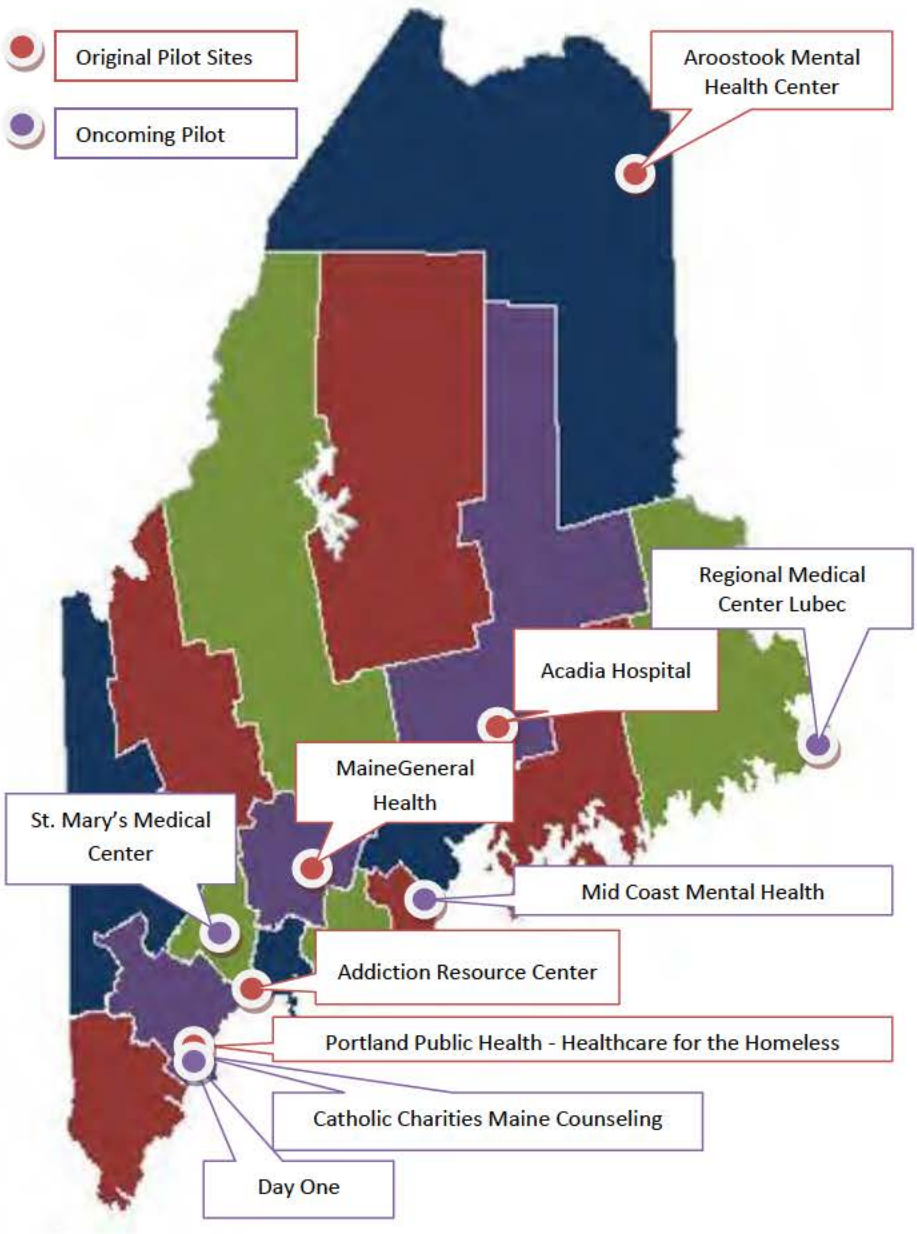
RESULTS

This section addresses the research questions relating to Agency Experience and Consumer Experience in participating in MAT.

AGENCY AND PROGRAM CHARACTERISTICS

AGENCY CHARACTERISTICS

This section provides a brief summary of each of the agencies in the original pilot sites and then the oncoming pilot sites. It then provides the answers to the three research questions posed about provider agencies.



Original Pilot Sites

Portland Public Health – Healthcare for the Homeless; Portland, Cumberland County

Portland Public Health – Healthcare for the Homeless (PPH) is a medical clinic located in downtown Portland that provides physical and behavioral healthcare services to the homeless population. The clinic includes dental care and provides outpatient individual and group counseling. There are four nurse practitioners who prescribe naltrexone or Vivitrol, and one contracted physician who prescribes Suboxone.

A client's treatment path is determined by the medication that he or she was prescribed. In addition to individual counseling, clients who are prescribed Suboxone are required to participate in a newly formed Suboxone group session on a weekly basis and, upon graduation from the group, are required to participate in another group session (differentiated by gender) open to all clinic clients. Clients who are prescribed naltrexone or Vivitrol are not required to attend such a group but are still required to attend individual counseling.

Addiction Resource Center, Mid Coast Hospital; Brunswick & Damariscotta, Cumberland & Lincoln Counties

Addiction Resource Center (ARC) is the substance abuse treatment facility administratively located within Mid Coast Hospital. Outpatient and intensive outpatient services, including individual, family and group sessions, are provided through ARC. There are two psychiatrists who prescribe Suboxone or naltrexone through the center; they are both doctors with Mid Coast Hospital whose time is partially dedicated to the center. A satellite office in Damariscotta has recently begun providing Suboxone.

Clients do not have a fixed behavioral health treatment path in that the care provided to them is individualized based on need and treatment wishes. That is, not all clients are required to participate in the center's IOP program when they are first enrolled in the program, though many of them do. After clients are inducted, however, they are required to attend a medication management group on a phase-based system that determines visit frequency. This group represents a combination of both physical and behavioral healthcare co-facilitated by one of the prescribing physicians and a behavioral health clinician.

MaineGeneral Health; Waterville, Kennebec County

Addiction services provided through MaineGeneral Health (MGH) are offered through its Seton campus in Waterville. A full spectrum of behavioral and physical healthcare services are provided; on the behavioral health side, services range from inpatient, including detoxification and inpatient psychiatric units, to outpatient services and

include addiction and mental health services. There are two MaineGeneral Health physicians partially dedicated to the Suboxone clinic.

Clients have a fixed behavioral path in that all clients who receive Suboxone through MGH are required to participate in the hospital's intensive outpatient program (IOP) upon entrance into the program. Ideally, both forms of care (induction on Suboxone and initiation of the IOP) are provided concurrently. However, if there is a waiting list for the Suboxone clinic, clients are still eligible to participate in IOP. After graduation from IOP, clients remain engaged in outpatient behavioral healthcare as determined by their treatment team and wishes, and in the Suboxone clinic as required.

Acadia Hospital, Eastern Maine Healthcare Systems; Bangor, Penobscot County

Acadia Hospital is one of the most extensive behavioral health providers in the range and depth of behavioral health services offered, and is the only non-profit methadone clinic in Maine. Acadia offers inpatient services ranging from acute hospitalization to shelter services and outpatient services including intensive outpatient, group and individual treatment. There are multiple dedicated physicians located within the addictions portion of Acadia who prescribe Suboxone and methadone to incoming clients.

Clients do not have a fixed behavioral health treatment path in that the care provided to them is individualized based on need and treatment wishes. Prior to the induction process, clients who will be placed on Suboxone are required to participate in a group that educates about Suboxone and readies clients to begin the medication. All clients who receive MAT are required to participate in weekly group sessions in addition to their individualized treatment; Acadia offers a wide variety of groups based on target population and topic covered.

Aroostook Mental Health Center; Caribou & Houlton, Aroostook County

Aroostook Mental Health Center (AMHC) is the largest provider of behavioral health care in Aroostook County that has recently expanded to include service provision in Washington and Hancock Counties; it provides a range of outpatient addiction and mental health services and also operates The Farm, a residential treatment facility for individuals and their families suffering from addiction and co-occurring disorders. AMHC contracts with approximately five physicians to provide MAT services. The agency operates an Opiate Replacement Therapy clinic (ORT) from its Caribou Office and there is also one prescribing physician who provides MAT through the Houlton office.

Clients do not have a fixed behavioral health treatment path in that the care provided to them is individualized based on need and treatment wishes. Many clients who enter

into the ORT begin treatment at either the IOP or residential level and progress to less intensive care as treatment continues.

Oncoming Pilot Sites

Catholic Charities Maine Counseling; Portland, Cumberland County

Catholic Charities Maine Counseling (CCMC) is the largest outpatient addictions and co-occurring provider in the greater Portland area. It provides a range of outpatient services including group, individual and family based treatment. CCMC is in the early implementation stages of providing MAT to clients; approximately 35 clients are seen at CCMC who are prescribed Suboxone through an out-of-agency doctor. The agency is currently focusing efforts on developing and implementing a treatment protocol for MAT clients as well as formalizing its relationship with prescribing doctors through "preferred provider" agreements.

Day One; Portland, Cumberland County

Day One provides outpatient and residential addictions services to adolescents and their families, and operates screening, assessment and treatment activities in Maine's two Youth Development Centers. Day One is in the early planning stages of MAT provision in that it currently does not carry a caseload of clients receiving MAT, but is looking to partner with local doctors interested in prescribing MAT to the adolescent population.

St. Mary's Medical Center; Lewiston, Androscoggin County

St. Mary's Medical Center (SMMC) provides hospital-based inpatient and outpatient addictions and mental health services. SMMC has been actively prescribing buprenorphine for opioid dependent clients for seven years. There are two dedicated prescribing physicians.

Clients do not have a fixed behavioral health treatment path in that the care provided to them is individualized based on need.

Mid-Coast Mental Health Center & Choice Skyward, Penn Bay Healthcare; Rockland & Belfast, Knox & Waldo Counties

Mid-Coast Mental Health Center & Choice Skyward (MCMH-CS) provides inpatient and outpatient addictions and mental health treatment in addition to a residential mental health facility. MCMH-CS utilizes different methods to provide MAT services based on the physical location at which the client is engaged in services. The Rockland office provides Suboxone to clients through a Penn Bay Healthcare physician whose time is partially dedicated to the clinic. The Belfast satellite office provides Suboxone through a collaborative partnership with Seaport Family Practice, also located in Belfast. The

Belfast office is the "gatekeeper" for clients seeking Suboxone in that people must first go through the MCMH-CS Access Center for a substance abuse assessment to establish eligibility before they are inducted onto Suboxone at Seaport Family Practice. Further, clients must remain engaged in outpatient treatment through the Belfast office to continue to receive Suboxone through the practice.

At the Belfast office, clients do not have a fixed behavioral health treatment path in that the care provided to them is individualized based on need and treatment wishes, though Seaport Family Practice strongly encourages participation in the IOP. At the Rockland office, clients must participate in the IOP program upon induction onto Suboxone.

Regional Medical Center Lubec; Lubec, Washington County

Regional Medical Center Lubec (RMCL) is a community-based health clinic providing outpatient physical and behavioral healthcare in Eastern Maine, including mental health and addictions treatment. RMCL has been providing Suboxone treatment to clients for approximately seven years and currently serves slightly over 40 individuals, many who also receive their physical healthcare at the clinic. The Medical Director for the clinic dedicates part of his time to the management of Suboxone clients. As the clinic maintains a wait list, clients can also be referred to a doctor in the Jonesboro area but still receive behavioral healthcare at the clinic.

Clients do not have a fixed behavioral health treatment path in that the care provided to them is individualized based on need and treatment wishes. However, clients are encouraged to participate in one of the group modalities offered at the clinic.

Program Characteristics: Analysis of Agency Differences

There is significant variation in policy and practice among Advancing Recovery pilot sites implementing MAT services, illustrated in Table 4. Findings from a series of provider interviews suggest that MAT program implementation has been largely an organic process shaped by agency setting, staff attitudes, past experience and findings on what constitutes best practice for this population. The similarities and differences are summarized below.

Setting: Portland Public Health (PPH) and Regional Medical Center Lubec (RMCL) are federally qualified health centers which provide both physical and behavioral healthcare; PPH exclusively serves the homeless population while RMCL serves residents of Washington County. Aroostook Mental Health Center is strictly a behavioral health treatment center. Addiction Resource Center, MaineGeneral Health and Mid-Coast Mental Health are behavioral health treatment providers administratively located within

local hospitals. Acadia Hospital and St. Mary's Medical Center are hospitals, with Acadia Hospital focused on providing psychiatric and behavioral health services.

Medical Prescriber: The relationship between prescribing doctors and behavioral health providers varies from agency to agency. Agency setting often correlates to the type of relationship agencies maintain with the medical prescriber. All of the hospital and medical clinic-based programs employ their own prescribers for their programs. Mid-Coast Mental Health Center is unique in that it employs prescribers at its Rockland office, but the Belfast office is the preferred provider for a local health clinic. Aroostook Mental Health Center, the only AR pilot site without an affiliation with a medical entity, solely contracts with outside prescribers and does not employ any prescribers directly.

Medications: All of the AR pilot agencies prescribe Suboxone; Acadia Hospital is the only one that prescribes methadone. All of the agencies prescribe medications that are given to the alcohol dependent population such as naltrexone, Vivitrol, Campral and Antabuse. However, the percentage of clients who receive these medications is often much smaller than that of Suboxone, or methadone, respectively.

Suboxone Dosing: There is wide variation among agencies in regard to Suboxone dosing level at induction and maintenance. With the exception of MaineGeneral Health, who inducts at a fixed dose of 16 milligrams, all pilot agencies utilize a flexible induction dose falling within a small milligram range, typically between 4 to 8 milligrams. When a client presents at induction to such agencies, he or she is prescribed two 4 milligram tablets; the first of the tablets is ingested and the client is monitored for the presence of withdrawal symptoms. Based on a client's reaction to the drug and the presence of withdrawal symptoms, the doctor may then advise to patient to take the remaining 4 milligram tablet. In the days following induction, the client is monitored to determine the appropriate maintenance dosage. All agencies maintain a maximum allowable dose, although again there is interagency variability in this regard.

Behavioral Health Program Participation: In addition to receiving medication assistance, all Advancing Recovery agencies require all clients to engage in some level of behavioral health treatment. However, treatment requirements vary widely from agency to agency. For example, MaineGeneral Health and Mid-Coast Mental Health (Rockland location) have fixed treatment paths in that they require that all clients who are prescribed Suboxone to participate in the intensive outpatient program. Likewise Suboxone clients receiving care at PPH are required to participate in a group specifically designed for such clients. The remaining agencies develop treatment plans tailored to individual need and client desire, but staff at many of these agencies identified that the

majority of clients seeking Suboxone are first placed within an intensive outpatient program.

Many of the AR agencies utilize a phase-based system that dictates how frequently a client receives behavioral health treatment and meets with a medical provider. Phases usually include: evaluation / induction; stabilization; and maintenance. While there are timeframes given to each of these phases, staff indicate that transition through the phases is not a fixed process but rather is based on his or her level of engagement and treatment needs.

Table 4 shows the differences in setting, MAT prescriber, MAT medications used, dosing levels for Suboxone and behavioral health treatment requirements for the AR agencies that have such protocols established.

Table 4. Advancing Recovery Pilot Site MAT Implementation and Protocol

Program Name	Setting	MAT Prescriber	MAT Medications	Suboxone Dosing		Behavioral Health Program Participation	
				Starting Dose	Max Dose	Fixed Treatment Path	Phase Based
PPH – Healthcare for the Homeless	Medical Clinic	Employed by Agency AND Contracted by Agency	Suboxone	4-8 mg	24 mg	Yes	No
Addiction Resource Center	Behavioral Health Center in Hospital	Employed by Agency	Suboxone	8-12 mg	16 mg	No	Yes
MaineGeneral Health	Behavioral Health Center in Hospital	Employed by Agency	Suboxone	16 mg	32 mg	Yes	No
Acadia Hospital	Hospital	Employed by Agency	Methadone Suboxone	4-8 mg	24 mg	No	No
Aroostook Mental Health Center	Behavioral Health Center	Contracted by Agency	Suboxone	8-24 mg	24 mg	No	Yes
St. Mary's Medical Center	Hospital	Employed by Agency	Suboxone	4-8 mg	24 mg	No	No
Mid-Coast Mental Health	Behavioral Health Center in Hospital	Employed by Agency AND Preferred Provider Relationship	Suboxone	12-16 mg	32 mg	Yes & No (Dependent on Site)	Yes
Regional Medical Center Lubec	Medical Clinic	Employed by Agency	Suboxone	4-8 mg	32 mg	No	No

Agency and Staff Perception of MAT

Overall, the use of MAT has a high level of support among AR pilot sites, with 90 percent of staff reporting at least partial support of MAT (Table 5). And most staff members also feel that the use of MAT is generally effective in the treatment of substance abuse, with 95 percent of staff reporting that MAT is at least somewhat effective (Table 6). Moreover, most staff also report that their beliefs are shared and supported by their parent agency. Staff opinions were compared to those identified in the 2007 Pan Atlantic report, which conducted focus groups at each of the original AR pilot sites. Comparing the two time intervals, data shows that staff support of and belief in MAT effectiveness has increased over the past two years.

Table 5. Provider Support of MAT

How Supportive of MAT	2007[6]	2009
Not at all	12	10
Somewhat	31	23
Very	57	67
TOTAL	**100**	**100**

Table 6. Provider Perceived Effectiveness of MAT

How Effective is MAT	2007[3]	2009
Not at all	30	6
Somewhat	42	35
Very	27	60
TOTAL	**100**	**100**

Staff Opinions about MAT

"Suboxone isn't a genie in a bottle in that it won't make everything better at once, but it helps people to start making changes."

"Suboxone is a tool to help people make changes, but it is not the answer."

"When Suboxone is provided, it helps with client retention and abstinence."

When describing their support of and beliefs pertaining to the effectiveness of MAT, nearly all individuals identified that MAT is a tool that is most effective when used in conjunction with behavioral health treatment and not as a free-standing intervention. The use of MAT alleviates symptoms of craving and withdrawal, and in doing so enables a client to fully engage in treatment. This finding was reinforced among the medical staff, many of whom questioned whether free-standing prescribers (i.e., those not affiliated with a behavioral health treatment center) can provide as effective care.

Nonetheless, significant resistance to the use of MAT was observed by some individuals at most agencies. These individuals were spread throughout the state and were not representative of a single interview site. That is, most sites had both strong supporters of MAT and at least one staff member unsupportive of its use irrespective of discipline. Among those who did not support MAT, they questioned its long-term effectiveness, expressed concern about diversion

[6] 2007 Pan Atlantic SMS Group report of focus groups conducted at each of the AR Original Pilot Sites

within the community and believed use of medications was simply substituting one drug with another.

There were also varying levels of support and belief in effectiveness of the different medications available for treating addiction. Some staff members supported MAT for the alcohol-addicted population, but not for the opioid-addicted population because the medications used to treat alcohol addiction cannot be abused in the same manner as those used to treat opioid addiction. Other staff members supported the use of Suboxone for opioid addiction, but did not support the use of methadone due to its side effects and method of delivery.

No pilot agency embraces the philosophy of utilizing MAT as a means of crisis stabilization in its outpatient practice. Most agencies report that they receive a substantial number of inquiries about same-day availability of Suboxone on regular basis. However, all agencies require that individuals go through an intake process which includes both a behavioral and physical health assessment. Depending on whether an agency maintains a wait list and how quickly a client can meet all assessment requirements, this process can take upwards of two to three months to complete. Some agencies report this as a good thing, in that clients who are seeking Suboxone as a "quick fix" are required to engage in additional therapeutic interventions. Other agencies reported this as a barrier to providing prompt care to individuals who sometimes are motivated to change for only brief periods; by the time such a client may be ready to receive Suboxone, the window of opportunity for engaging in treatment may have already passed.

Additional Staff Opinions about MAT

"Suboxone is an effective and evidence-based practice; to not offer such a practice to eligible clients is irresponsible."

"As clinicians, we need to ask what is the best therapeutic intervention for an individual. If this is the first treatment experience for an individual, I usually don't recommend MAT; if a person can achieve recovery without meds, why put them on that level of treatment?"

"We are not in support of this being a harm reduction model; we are trying to get people into recovery."

"We help people to reduce or eliminate their negative behavior, but 100% abstinence isn't always realistic."

Along these lines, opinions differ as to whether MAT should be offered to all opioid dependent individuals, as a humane treatment to alleviate withdrawal symptoms, or only those with a chronic history of addiction and failed treatment episodes. Some staff questioned whether medication should be the first response for a younger opioid addict who has never attempted treatment or sobriety; in these cases, the agency should first assist the individual in attaining recovery without medication as an intervention, they believe.

There were also conflicting opinions as to whether providing MAT constituted a harm reduction practice. Some agencies maintained that they were not operating a harm reduction model as treatment expectations, such as abstinence, were the same for all clients regardless of whether they received MAT or not. Other agencies acknowledged that MAT did constitute a harm reduction

practice since an opioid was still being utilized, but highlighted that many of the negative consequences associated with substance abuse, such as criminal involvement, were decreased due to appropriate treatment.

Existing literature supports the finding that both Suboxone and methadone are effective in the treatment of opioid dependence. Interviews elicited the finding that some providers feel quite strongly about these two medications, however. While it was not clear that providers objected to methadone as a medication, it was clear that many providers objected to the manner in which methadone is dispersed throughout Maine. The most frequent concerns included dosing levels, lack of appropriate treatment (in terms of frequency), and chronicity of use, usually manifested by consumer difficulty in terminating use.

In Maine, Acadia Hospital is the only agency at which a client may be prescribed either Suboxone or methadone. Thus, in all other areas of the state, a client's use of Suboxone or methadone is determined by where he or she seeks treatment: an opiate treatment program that provides methadone; or a physician or behavioral health agency that provides Suboxone. In that manner, it is primarily a client's choice that affects his or her medication use, though this may also be mitigated by other factors such as wait lists, client insurance or lack thereof, and treatment availability in the particular residential area. For example, a methadone program is not available in Aroostook County; clients who reside in this county must travel to Penobscot or Washington County to receive such a service.

In light of this treatment parameter, it is difficult to determine that one drug is more appropriate for a certain client than the other. At Acadia, the sentiment was that methadone was more appropriate for those clients who had a longer history of use, were heroin users, or IV users, while Suboxone was more appropriate for clients who may be younger, have a shorter history of dependence, and may not have been IV users.

Many providers discussed expectations surrounding appropriate treatment length for Suboxone consumers. While there was general acknowledgement that the previous sentiment was usually for one year, many individuals openly questioned whether Suboxone will eventually become akin to methadone. That is, short-term use may be realistic for those individuals able to readily meet treatment goals, but long-term use may be indicated for individuals where risk of relapse is high. With this burgeoning realization, generated by the past two years' experience providing Suboxone treatment, some individuals have questioned whether chronic or long-term use is in the spirit of Suboxone treatment. Some providers, including prescribers, acknowledged this as a simple fact of working with the opioid dependent population, but others questioned the appropriateness of this and acknowledged that they work to eventually taper clients off Suboxone, usually at about the one year mark.

Challenges in Implementing MAT

There is an extremely high demand for Suboxone treatment, confirmed by staff perception as well as the waiting lists maintained by some agencies. In recent years, the demand for Suboxone has increased to the point where many agencies report that: a majority of "inquiry calls" pertain to the availability of Suboxone; a majority of clients self-identify their desire for Suboxone; and Suboxone clients constitute a majority of their program census. Staff, including medical staff, report that one of the key barriers to allowing more clients to receive this treatment is prescriber availability. Simply put, there are not enough doctors available throughout the state that are, first, allowed to prescribe Suboxone, and second, willing to maintain an active Suboxone caseload. For those agencies with an affiliated hospital or medical provider, many doctors are not willing to undergo the certification process. And medical staff identified that there are some doctors in the community who underwent the certification process but prescribe only to a few individuals who may have been their regular patients for some time. Very rarely did staff members note that the certification process, including the time and money involved, was a barrier to increasing prescriber census. Rather, interviewees highlighted that the most frequent reason a doctor would either not want to be certified or carry an active caseload is a lack of desire to treat addicted individuals.

Additional Staff Opinions about MAT

"I have been chronically trying to involve more of my peers with Suboxone, but my efforts are generally met with apathy. A lot of doctors don't want to deal with addicts, even if they may be seeing them for their physical health concerns."

"Many of my peers are advocates for the alcohol and smoking medications available, but not Suboxone. They don't want to be burdened by the responsibilities that go along with it. It's not just a matter of going through the training."

Additional Staff Opinions about MAT

"We are missing a 'middle' portion of the population eligible for MAT; those that don't have MaineCare or private insurance and are unable to privately pay for the medication and treatment. Even transportation can be very difficult to obtain for many individuals."

Another barrier is a potential client's MaineCare or other funding stream; many individuals without MaineCare are unable to pay the out-of-pocket expenses for the medication as well as the associated behavioral health treatment. The original pilot sites (those who had received a stipend to pay for those clients otherwise eligible for care) identified that the grant funding was a tremendous benefit in helping individuals to promptly access care. A third barrier identified, especially among agencies in rural settings, was difficulty arranging for transportation.

Most staff members working in addictions programs do not have formal MAT-specific training. Only 27 percent of those interviewed indicated that they had received such training, though many more indicated that they had received on-the-job training or had access to information about MAT. Despite a lack of formal training, most staff members reported a medium to high level of knowledge and comfort with the science behind MAT.

Another challenge that many staff members reported was the variation of practice within an agency. While all agencies maintain policies and procedures in regard to expectations of clients, such protocols are variably enforced by different clinicians and doctors. Many staff reported that in providing MAT to clients, especially in light of diversion fears, established protocols need to be followed consistently for the program to operate effectively. This challenge can at times be compounded in agencies where clients do not routinely see the same prescriber, or where different prescribers have different treatment philosophies.

A key aspect of MAT implementation is the effective collaboration between the medical and behavioral health providers, which often hinges upon frequent and open communication. While 35 percent of interviewees reported such communication is good, or acceptable, and 40 percent reported the communication is very good or excellent, approximately one-quarter of interviewees reported communication between medical and behavioral health staff is fair to poor, suggesting there is room for improvement of communications between staff members in at least some MAT areas. Many agencies that acknowledged that communication is a problem also reported that they are taking steps to address this issue. At least one agency has instituted "medication management" groups that are co-facilitated by a prescriber and behavioral health clinician to ensure a greater coordination of care.

Consumer Experience

An important element of determining the full impact of medication assisted treatment is to obtain first-hand experiences from every day consumers in recovery from addiction. Qualitative feedback from consumers receiving medication assisted treatment was obtained through a series of focus groups and interviews held at each of the five original pilot agencies as well as the voluntary survey distributed after the group process.

MAT and Recovery

Of those clients who participated in the focus group and interview process, approximately 31 percent were currently taking methadone, while nearly 58 percent were currently taking Suboxone and nearly 11 percent were currently taking Vivitrol. The overwhelming majority of focus group participants reported chronic substance use, multiple treatment experiences as well as use of varying types of medications utilized as part of their recovery. These findings are clearly evidenced by survey results wherein only 15 percent of respondents reported this was their first treatment experience and 20 percent reported this was their first experience with medication assisted treatment. Moreover, the majority (65%) of clients presented to this current treatment episode specifically seeking some form of MAT and almost all clients (85%) had previously used either methadone or Suboxone illicitly.

Table 7. Consumer History

Clients indicating:	Percent
First experience in treatment	15.4
First experience with medication	19.2
Sought out this agency specifically	65.4
Taken MAT illegally prior to current treatment	84.6

Perhaps the most dominant theme of the focus group and interview experience was the overwhelming support of MAT, regardless of respective medication, that nearly all participants expressed. Clients characterized the use of medication to assist in their recovery as a "life saving intervention" without which sobriety would be difficult if not impossible to obtain. Considering that most of the population had significant past experience in attempting sobriety, evidenced through multiple treatment attempts, this endorsement carries particular weight.

Consumer Opinions about MAT

"I found it a lot easier to get sober on the medication. I had a really, really hard time before."

"If I didn't have Suboxone, I wouldn't have recovery."

"Anybody can take the drug, but you need support to learn coping skills."

"You really need to change who you are. You have to change your whole life. It's not just about taking a medication."

While participants acknowledged the essential need for medication assistance, they also placed equal weight on behavioral health counseling, family and supportive services as additional requisites for recovery. Many participants appreciated the additional therapeutic services provided rather than resisted the commitment many agencies require. Participants at every pilot site expressed sincere gratitude for the services available to them, the openness with which the agency welcomed then and the support that staff provided.

Additional Consumer Opinions about MAT

"I'm not committing crimes, my sleep pattern is better, I feel healthier. I have sanity back in my life knowing that I'm not going to get high even if I want to."

"Suboxone does help. It helps everything. I'm not on the street hunting cause when you are that's when shit happens. Yeah, I got many friends who are in prison."

"Even if I felt the urge to get high, I know it wouldn't work. It's a fail safe. I think everyone tests it though."

"It is impossible to get high on Suboxone. If it weren't for it, I wouldn't be clean for six months. It breaks the cycle, the whole cycle."

Many clients recognized that their receipt of effective treatment coupled with their newfound sobriety enhanced multiple domains of their life. The majority of participants reported engagement in other types of criminal activity, having prior criminal justice involvement and/or periods of incarceration as a consequence of their opiate use. There was widespread agreement among participants that these behaviors would be ongoing if it were not for the medication assistance (regardless of drug type). Indeed, this was one of the more poignant topics raised across groups. In short, participants wanted to express, and make the public aware, that medication assistance significantly reduces crime both from their own experience as well as what they knew about others with opiate dependence.

In addition to preventing criminal activity, the most significant benefit of medication assistance espoused by participants was their ability to abstain from illicit substance use, at least partially facilitated by the alleviation of craving and withdrawal symptoms. The vast majority of individuals (88.4%) reported that their respective medication at least partially helped with their withdrawal symptoms (Table 8) and 84.6 percent with their craving symptoms (Table 9).

Table 8. Effectiveness of MAT in Alleviating Withdrawal

How well does medication help with withdrawal?	Percent
Very Well	76.9
Somewhat Well	11.5
Not Very Well	7.7
Not Well at All	3.8
Total	**100**

Table 9. Effectiveness of MAT in Alleviating Craving

How well does medication help cravings?	Percent
Very Well	61.5
Somewhat Well	23.1
Not Very Well	11.5
Not Well at All	3.8
Total	**100**

Despite almost universal support of MAT, clients also identified many barriers to treatment. In focus groups, individuals highlighted the difficulty in accessing treatment in a timely manner based on agency waiting lists; many participants cited the delay in accessing treatment as one of the primary motivators for their illicit use of methadone or Suboxone. That is, focus group participants who admitted to illicit use of MAT acknowledged they often took these substances to alleviate withdrawal symptoms while waiting to gain entry into treatment rather than for their addictive qualities. Clients recognized that there are too few doctors willing to prescribe the medication, which results in lengthy waiting lists in some communities. Difficulty with funding sources, including the co-pay if an individual is a MaineCare recipient, was also cited as a barrier to accessing care.

Additional Consumer Opinions about MAT

"There aren't enough Docs; it's $8 a pill on the street. I'm lucky to have gotten into this place."

"There's always a waiting list. What am I supposed to do? Wait 3-4 months? I'm an addict. There's so very few providers to give you Suboxone which is why the methadone clinic is always swamped."

Clients also focused on how the use of MAT can be stigmatizing. For example, individuals recognized that the general public is not educated about substance abuse and frowns on the use of methadone or Suboxone as effective treatment practices; such individuals are then hesitant to openly acknowledge their use of MAT. These sentiments are sometimes shared by the recovery community. Traditionally, 12 Step peer support groups, such as Narcotics Anonymous (NA), have been resistant to accepting individuals who utilize medication; the philosophy has been that doing so replaces one addiction with another. While focus groups at some agencies did confirm this finding, individuals at some agencies reported a positive and supportive relationship with their local AA and / or NA chapter, perhaps indicating that sentiments are slowly changing. Despite acknowledging that the use of MAT can be stigmatizing, many individuals reported that the benefits of their sobriety were also liberating; individuals no longer needed to hide their addiction and were able to resume a healthier lifestyle.

Additional Consumer Opinions about MAT

"Everyone knows about the clinics. My husband pushed me to come here but the stigma kept me from doing it. Outside, you'll hear 'you f'n junkies' when you come to treatment."

"I don't feel ashamed anymore, don't need to wear long sleeves; it feels good."

There was some discussion about whether individuals viewed MAT as a long- or short-term option in their recovery. While some clients openly discussed their plans to taper off the respective medications in the near future, other clients indicated their current preference to maintain their prescription for the foreseeable future. Many of these sentiments were based on what individuals felt was right for their own recovery. The majority of the population anticipates at least some difficulty in terminating use of the medication; over two-thirds responded that it would be either "not very easy" or "very hard" to stop using their respective medication (Table 10).

Table 10. Perceived Difficulty Terminating MAT

How hard will it be to stop using medication?	Percent
Very Easy	7.7
Somewhat Easy	26.9
Not Very Easy	30.8
Very Hard	34.6
Total	**100**

Different Medications

Participants strongly advocated the use of medications (regardless of type) asserting that sobriety would not have been possible without medication assistance. With the exception of the methadone group, consumers showed remarkable preference towards Suboxone given their experience with both medications. Consumers cited the physical side effects of methadone as well as being tied to a clinic as their main reasons for preferring Suboxone; some clients also noted the difficulty in receiving appropriate care at a clinic compared to their experiences with behavioral care while on Suboxone. However, participants in the methadone group were equally satisfied, with only one participant indicating a preference for methadone over Suboxone. Overall, consumer feedback suggests both drugs can be a significant benefit in treatment. The few individuals who were on an alcohol related medication generally reported positive results associated with those medications, though there were some complaints about the physical side effects.

Additional Consumer Opinions about MAT

"Suboxone is great, better than anything else especially methadone. It helps with withdrawal and it's not addictive. It's like black and white, I'm totally functional now, alive."

There were notable differences, though, in rates of illicit use between those individuals on methadone compared to Suboxone. As shown in Table 11, of those clients receiving methadone, three-quarters (n=8) had used an illicit substance during their current treatment episode, compared to only one-third of clients receiving Suboxone (n=18). Slightly under half (n=26) of all consumers reported illicit use. This information was collected on the anonymous survey completed after the focus groups; the topic was not discussed in great detail during the focus groups, but some clients noted that it was harder to experience the pleasurable effects of illicit use while on Suboxone.

Table 11. Illicit Use of Other Substances

Used Other Illicit Substances	N	Percent
Currently on Methadone	8	75.0
Currently on Suboxone	18	33.3
Total	26	47.8

There were also differences in withdrawal and craving symptomatology between methadone and Suboxone. While the majority of the population felt that both methadone and Suboxone helps "very well" with withdrawal symptoms (Table 12), only 25 percent of respondents on methadone responded similarly for the alleviation of craving symptoms.

Table 12. Effectiveness of MAT in Alleviating Withdrawal: Methadone vs. Suboxone

How well does medication help with withdrawal?	Methadone	Suboxone
	Percent	Percent
Very Well	62.5	86.7
Somewhat Well	12.5	6.7
Not Very Well	12.5	6.7
Not Well at All	12.5	0.0
Total	**100**	**100**

In contrast, nearly all respondents on Suboxone responded that the medication helped "very well" (Table 13).

Table 13. Effectiveness of MAT in Alleviating Craving: Methadone vs. Suboxone

How well does medication help cravings?	Methadone	Suboxone
	Percent	Percent
Very Well	25.0	86.7
Somewhat Well	50.0	6.7
Not Very Well	25.0	0.0
Not Well at All	0.0	6.7
Total	**100**	**100**

Noticeable differences between methadone and Suboxone were also present when difficulty in terminating medication was examined. Of the participants currently taking methadone, nearly 63 percent reported it would be difficult to stop taking the medication. In contrast, only 27 percent of the participants taking Suboxone reported it would be very hard to stop taking the medication, while 47 percent reported it would not be very easy and 27 percent reported it would be somewhat easy to stop taking Suboxone. No participants currently taking either methadone or Suboxone felt it would be very easy to stop using the medication.

Table 14. Perceived Difficulty Terminating MAT: Methadone vs. Suboxone

How hard do you think it will be to stop using medication?	Methadone	Suboxone
	Percent	Percent
Very Easy	0.0	0.0
Somewhat Easy	25.0	26.7
Not Very Easy	12.5	46.7
Very Hard	62.5	26.7
Total	**100**	**100**

In the field of addictions research outcomes are generally described in terms of how long people last in treatment; what proportion complete treatment; how many treatment episodes people have; and how their service patterns change before and after treatment. People are particularly interested in whether the use of non-emergency hospital-based services goes down and whether there are reductions in overall cost even after factoring in the potential for more outpatient treatment. This section answers the following outcome questions:

- What was the impact of the Advancing Recovery grant on increasing the number of consumers receiving medication assisted therapies? How do targeted MAT providers compare with other providers in the state in terms of the number of MAT consumers they serve?
- Are there differences in the characteristics of consumers who receive MAT compared to those who only receive behavioral health counseling?
- Is there a difference in retention between consumers receiving MAT with behavioral health and behavioral health only?
- Is there variation in service use, and associated costs, both before and after treatment, of those who used MAT plus behavioral health, those who used behavioral health only, and those who did not receive treatment?

ACCESS TO MEDICATION ASSISTED TREATMENT

The Advancing Recovery grant enabled OSA to support key staff positions to help providers make effective use of medication assisted treatment as well as to provide funding for medication for uninsured consumers. One of the key objectives of the Advancing Recovery grant was to increase access for consumers who wish to receive medication assisted treatment in the five original pilot agencies. Using information from the Treatment Data System supported by OSA, HZA compared differences in the proportion of individuals receiving MAT over time for both the pilot agencies participating in the AR grant as well as the rest of the state as a whole. Information presented in Table 15 shows a substantial increase in the use of medication assisted treatment. Overall between 2007 and 2009, the use of MAT increased from 9 percent to 16 statewide, from 8 percent to 21 percent among pilot agencies, and between 9 percent and 15 percent among non-pilot agencies. In total the numbers nearly doubled. These figures represent the percent of all people receiving treatment in the Treatment Data System who specifically received medication assisted treatment.

Table 15: People Receiving Medication Assisted Treatment over Three Years

	AR Pilot Agencies		Non-pilot Agencies		TOTAL	
	N	Percent	N	Percent	N	Percent
FY 2007	213	7.9%	921	9.2%	1134	8.9%
FY 2008	563	20.0%	1798	17.5%	2361	18.1%
FY 2009	540	20.5%	1471	15.1%	2111	16.2%

MAT Consumer Characteristics

HZA used information from the TDS to assess whether there are important differences between the population of Medicaid-eligible consumers of MAT who also receive behavioral health counseling (N=604) and the population of Medicaid-eligible consumers with opioid dependence receiving behavioral health counseling alone (n=844). As shown in Table 16, consumers who received MAT in addition to behavioral health treatment were significantly more likely than their counterparts receiving behavioral health treatment alone to have a co-occurring mental health disorder, to have injected drugs, and to have been engaged in a prior substance abuse treatment episode. No significant differences between the two groups were found with respect to age (mean = 30.0 years), gender, educational level (mean highest grade completed = 11th), or history of criminal justice involvement.

Table 16. Demographic Characteristics of Consumers on MAT vs. Behavioral Health Treatment

	BH Only (n=844)		MAT + BH (n=604)	
	Number	Percent	Number	Percent
Female	450	52.0	343	56.6
Co-occurring mental health disorder	480	55.5	435	71.8
Ever Injected Drugs	357	41.3	377	62.2
Prior Substance Abuse Treatment	549	63.5	476	78.5
Criminal Justice Involvement	375	43.4	266	43.9

Addictions Treatment Retention

As described above, treatment retention and completion are often discussed in tandem because sufficient retention in fixed-length treatment programs results in program completion. Treatment retention may be measured in multiple ways. One way is to calculate the proportion of patients who remain actively enrolled in treatment at a specific point in time (e.g., at 12 weeks) or for a specific duration of time (e.g., for at least six months) from service initiation. Similar to this measure of retention, another is to measure completion by the number or

proportion of patients who are retained for the entire length of a fixed-length treatment program, or who are retained long enough to successfully complete program goals in varied-length treatment programs. Another way to measure treatment retention, and the one selected here, is the mean and median length of time a group of individuals remains in treatment. Higher retention rates for specific time periods, higher completion rates, and longer average durations of retention are considered positive retention and completion outcomes.

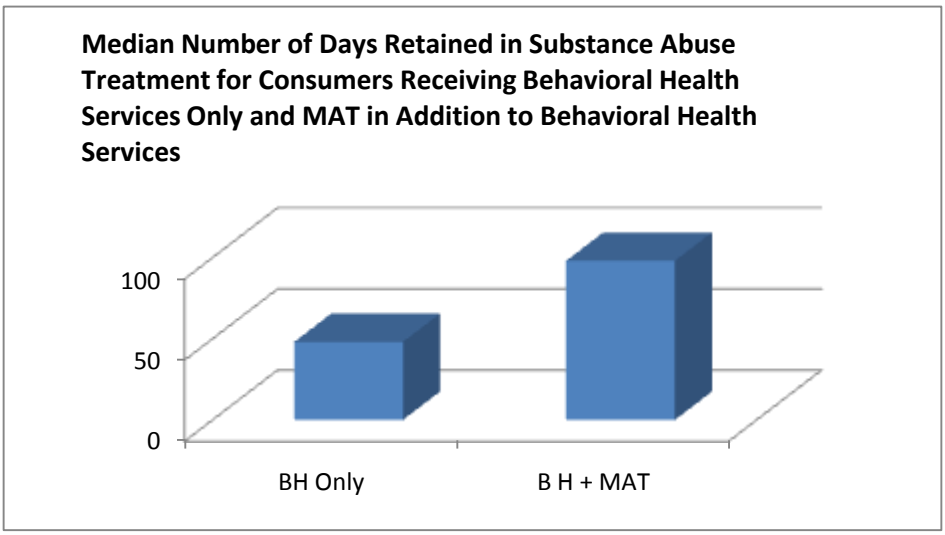
Using information obtained from the Treatment Data System and provider records, an analysis of time in treatment, or retention, was conducted for two groups of individuals, each of which received a substance use diagnosis of opioid dependence. Due to the constraints of the data source, it was not possible to measure patients who remain actively enrolled at a particular point in time such as 12 weeks. Since agency practices vary so much, it was not feasible to use measures of a fixed-length program. Therefore the mean and medians measures were selected. The two groups include individuals on MAT in addition to behavioral health treatment (N=604) and individuals with opioid diagnoses receiving behavioral health counseling only (N=844). Information presented in Table 17 and the figure below show differences in retention between both groups.

Overall, substance abuse treatment retention for consumers with opioid addictions averaged 119 days, with consumers who incorporated MAT into their treatment program remaining in treatment twice as long as consumers who did not use MAT. This difference is statistically significant (t (1448) = 10.30, $p < .01$) and is considered a positive result.

Table 17: Number of Days Retained in Substance Abuse Treatment Services for Consumers Receiving Behavioral Health Services Only and Consumers Receiving MAT and Behavioral Health Services

	Number of Consumers	Minimum Number of Days Retained	Maximum Number of Days Retained	Mean Number of Days Retained	Median Number of Days Retained
BH Only	844	1	994	84	48
BH + MAT	604	1	1134	169	98
Total	1448	1	1134	119	87

The median number of days retained is shown in the figure below. Again, those incorporating MAT into their treatment regimen were retained twice as long.



SERVICE UTILIZATION

Another outcome measure is to compare differences in service utilization and associated costs. An analysis of MaineCare claims was conducted for three distinct groups of individuals with an associated opioid dependency diagnosis. The three groups include individuals on MAT in addition to behavioral health treatment, individuals receiving behavioral health counseling only, and individuals who received neither MAT nor behavioral health treatment. A retrospective one year pre post observational design was conducted to determine differences in service utilization both within and across each of the three groups. Information in Table 18 is presented as a ratio representing the number of paid service claims per person for each of the two time intervals.

As shown there as well as in Table 19, there is significant variation within and across each group both in terms of the quantity and types of services utilized over time. One year *prior* to service the group receiving MAT had a higher average costs per person, $10,779, than the group receiving behavioral health only, $8,069. The higher costs were associated particularly with in-patient hospitalization and laboratory-based hospital work which themselves accounted for $1570 of the $2710 difference. As expected, service utilization increased for both groups of consumers receiving behavioral health treatment. However, the increased use of services primarily surround those for behavioral health treatment, laboratory and testing services, and ancillary services whereas notable reductions were observed for both groups in more expensive hospital-based care such as inpatient, emergency room and critical care services. Consumers with opioid dependency with no behavioral health intervention had substantially higher service utilization of hospital-based services at a substantially higher overall average cost. That is, one year after services the highest cost group was those with no substance abuse treatment, either behavioral health or MAT. Their care, largely hospital based, cost $16,512 per person on average.

The average costs of those receiving both MAT and behavioral health were higher after one year than the behavioral health only group. Differences in overall service utilization between the two groups may be explained by differences in retention and the increased likelihood of accessing ancillary services such as drug testing. For example, laboratory work for the behavioral health only group amounted to $835 on average whereas the same costs category for those on MAT equaled $2080. Similarly, pharmacy costs for the first group was $462 compared to $770 for the latter. The costs associated with administering MAT itself as well as the sustained amount of time in treatment accounted for much of the difference. The higher level of treatment engagement is not surprising considering that such engagement is needed to receive the desired prescription coupled with the fact that individuals on MaineCare are more likely to have their benefits for outpatient service utilization extended while on Suboxone.

Table 18: Claim Ratios by Service Type

Service Category	MAT and Behavioral Health (N=604)			Behavioral Health Only (N=844)				No Treatment (N=795)		
	1 Year Prior	1 Year Post	Percent Difference	1 Year Prior	1 Year Post	Percent Difference	Difference (MAT)	1 Year Post	Difference (BH Only)	Difference (MAT)
Hospital Based										
Inpatient	1.93	1.80	-6.4	1.34	1.08	-19.3	-0.40	3.96	2.66	1.20
Emergency Room	2.18	1.61	-26.2	2.10	1.47	-29.9	-0.09	2.89	0.96	0.79
Critical Care (e.g., ICU)	0.04	0.02	-36.4	0.01	0.01	-41.7	-0.64	0.13	14.92	4.70
Outpatient	5.56	5.57	0.2	3.52	3.45	-2.2	-0.38	12.75	2.70	1.29
Dental	0.53	0.79	50.2	0.39	0.45	17.5	-0.43	1.04	1.30	0.32
Laboratory	8.15	14.95	83.5	5.37	5.54	3.2	-0.63	12.29	1.22	-0.18
Imaging/Testing	2.72	1.88	-30.7	1.86	1.65	-11.3	-0.12	5.97	2.62	2.17
Pharmacy/DME	2.01	2.07	3.4	1.50	1.32	-12.0	-0.36	4.69	2.54	1.26
Ambulance	0.31	0.31	-1.1	0.26	0.17	-36.9	-0.46	0.44	1.64	0.43
Other Medical	0.23	0.28	20.1	0.24	0.33	35.0	0.19	0.92	1.79	2.33
Mental Health										
Crisis Intervention	0.25	0.28	15.4	0.21	0.15	-32.0	-0.49			
Inpatient	0.06	0.10	57.9	0.04	0.04	-8.8	-0.63			
Med Management	0.72	0.84	16.6	0.28	0.32	15.7	-0.61			
PNMI Residential	0.22	0.11	-49.6	0.20	0.18	-10.8	0.56			
Group	0.62	2.54	307.4	0.21	0.27	33.3	-0.89			
Individual	1.67	3.27	95.9	1.14	1.18	3.7	-0.64			
Other	0.23	0.42	84.6	0.02	0.09	322.2	-0.78			
Substance Related										
Residential	0.32	0.67	109.8	0.28	0.61	120.1	-0.09			
Detox	0.04	0.04	-18.5	0.04	0.04	0.0	0.07			
Clinic	0.83	1.15	38.3	0.00	0.00					
IOP	0.11	0.86	649.3	0.23	0.44	88.7	-0.49			
Group	0.07	0.37	465.0	0.06	0.19	194.4	-0.50			
Individual	0.41	2.58	527.8	0.38	1.61	325.3	-0.37			
Other	0.05	0.02	-55.2	0.00	0.02	950.0	0.16			
Ancillary										
Community Support Services	1.56	1.78	13.8	0.65	1.15	76.4	-0.35	0.24	-0.79	-0.86
Rehabilitative	0.40	0.32	-20.7	0.36	0.31	-15.4	-0.03	0.98	2.21	2.11
Transportation	13.29	30.78	131.6	4.31	10.69	148.0	-0.65	5.49	-0.49	-0.82

Case Management	0.16	0.26	63.9	0.15	0.12	-19.5	-0.55	0.35	1.98	0.33
Total Claims	**44.66**	**75.68**	**69.5**	**25.18**	**32.88**	**+30.6**	**-0.57**	**53.74**	**0.63**	**-0.29**

Table 19: Average Per Person Cost for Services

Service Category	MAT and Behavioral Health (N=604)			Behavioral Health Only (N=844)				No Treatment (N=795)		
	1 Year Prior	1 Year Post	Percent Difference	1 Year Prior	1 Year Post	Percent Difference	Difference (MAT)	1 Year Post	Difference (BH Only)	Difference (MAT)
Hospital Based										
Inpatient	$4,286.15	$4,252.21	-0.8%	$3,134.60	$2,768.03	-11.7%	34.9%	$7,438.08	168.7%	74.9%
Emergency Room	$1,240.54	$917.51	-26.0%	$1,206.11	$844.26	-30.0%	8.0%	$1,642.62	94.6%	79.0%
Critical Care (e.g., ICU)	$137.72	$123.84	-10.1%	$74.39	$35.78	-51.9%	71.1%	$322.03	800.1%	160.0%
Outpatient	$317.18	$293.98	-7.3%	$208.01	$203.81	-2.0%	30.7%	$821.64	303.1%	179.5%
Dental	$30.08	$48.77	62.1%	$25.13	$28.57	13.7%	41.4%	$65.42	128.9%	34.1%
Laboratory	$1,330.49	$2,079.87	56.3%	$911.12	$834.52	-8.4%	59.9%	$1,970.57	136.1%	-5.3%
Imaging/Testing	$990.30	$629.63	-36.4%	$720.86	$637.71	-11.5%	-1.3%	$1,972.01	209.2%	213.2%
Pharmacy/DME	$731.64	$770.25	5.3%	$601.99	$462.48	-23.2%	40.0%	$1,444.93	212.4%	87.6%
Ambulance	$33.85	$30.43	-10.1%	$27.01	$19.26	-28.7%	36.7%	$36.91	91.7%	21.3%
Other Medical	$7.48	$8.66	15.7%	$17.64	$34.57	96.0%	-299.3%	$29.88	-13.6%	245.1%
Mental Health										
Crisis Intervention	$90.04	$108.51	20.5%	$88.17	$46.32	-47.5%	57.3%			
Inpatient	$248.64	$377.21	51.7%	$159.62	$143.88	-9.9%	61.9%			
Med Management	$79.71	$73.60	-7.7%	$28.14	$38.29	36.1%	48.0%			
PNMI Residential	$113.48	$87.38	-23.0%	$135.53	$53.04	-60.9%	39.3%			
Group	$20.54	$85.77	317.7%	$6.76	$9.31	37.7%	89.1%			
Individual	$223.36	$510.07	128.4%	$150.91	$162.23	7.5%	68.2%			
Other	$113.20	$66.86	-40.9%	$5.95	$10.77	81.0%	83.9%			
Substance Related										
Residential	$196.95	$502.56	155.2%	$189.17	$476.75	152.0%	5.1%			
Detox	$17.78	$14.48	-18.5%	$15.55	$15.55	0.0%	-7.3%			
Clinic	$65.91	$90.23	36.9%				100.0%			
IOP	$13.65	$82.38	503.7%	$24.00	$44.85	86.9%	45.6%			
Group	$3.37	$17.53	419.4%	$3.72	$11.84	218.3%	32.5%			
Individual	$36.72	$132.51	260.9%	$33.35	$133.68	300.8%	-0.9%			
Other	$5.72	$7.49	30.9%	$0.05	$2.86	5930.0%	61.8%			
Ancillary										
Community Support Services	$148.08	$132.19	-10.7%	$96.17	$110.03	14.4%	16.8%	$23.10	-79.0%	-82.5%

Rehabilitative	$153.06	$159.86	4.4%	$120.49	$87.42	-27.4%	45.3%	$516.73	491.1%	223.2%
Transportation	$108.22	$371.95	243.7%	$52.33	$127.74	144.1%	65.7%	$70.67	-44.7%	-81.0%
Case Management	$35.50	$46.68	31.5%	$32.46	$17.31	-46.7%	62.9%	$43.84	153.3%	-6.1%
Total Claims	**$10,779.4**	**$12,022.4**	**11.5%**	**$8,069.22**	**$7,360.86**	**-8.8%**	**38.8%**	**$16,612.44**	**125.7%**	**38.2%**

The use of medication to assist people in attaining recovery has been in practice since the beginning of the twentieth century and is proven to be effective in helping individuals remain in treatment and abstain from illicit substance use. While methadone has traditionally been the primary medication prescribed to individuals seeking medication assisted treatment for opioid dependence, the recent emergence of Suboxone has provided another medication option.

The award of a Robert Wood Johnson Advancing Recovery grant permitted the Maine Office of Substance Abuse to provide a stipend to five agencies to increase the number of people receiving Suboxone treatment as well as provide staff support for training and technical assistance to a total of ten agencies. The grant also permitted OSA to procure the services of an independent evaluator to determine provider and consumer perspectives about MAT as well consumer outcomes associated with MAT. The following are highlights presented throughout the report.

1. ***Variation in treatment philosophy among providers:*** Significant variation was also observed in philosophy among the Advancing Recovery pilot agencies that are currently offering a MAT program. Agencies differ in their belief as to whether MAT is strictly a harm reduction practice or whether MAT should fit more into the "long-term abstinence expectation." Additionally, individual philosophy towards client eligibility criteria differs; some clinicians feel that it is inhumane not to offer medication to assist clients from opiate withdrawal. Other clinicians believe that MAT should be offered only to those clients who have an extensive history of use, attempted periods of sobriety and an inability to terminate use without further medical intervention.

2. ***Variation in policy and practice among providers:*** Significant variation was observed in practice among the Advancing Recovery pilot agencies that are currently offering a MAT program. These variations in practice include: expected treatment regimen in conjunction with the use of MAT; appropriate dosage levels; and knowledge base of best practices associated with MAT. Even within agencies, there is variation among staff in treatment expectations as well as how these expectations are enforced. Despite significant variation in practice, no agency utilizes the prescription of Suboxone as a "crisis stabilization" tool in its outpatient practice. That is, a client who presents at an agency desiring Suboxone needs to undergo a usually lengthy assessment process before he or she reaches the induction point; this can take one to two months depending on how quickly a client is able to meet the assessment requirements.

3. ***Growing acceptance of MAT among providers:*** While there has been growing acceptance of the use of MAT over time, there still exists in each agency a reluctance among some to use this method of treatment. Most providers, individually and as agencies, support the use of MAT, describing it as a "tool" that enables clients to actively engage in other therapeutic interventions to assist them in overcoming their addiction; it is generally not seen as the only component needed. Among the medical providers interviewed, the overwhelming majority questioned the effectiveness of delivering MAT from a free-standing physician not connected with a behavioral health agency. Those who don't often question the effectiveness of the medication, are suspicious of diversion, and believe that the use of a medication is replacing one addiction with another.

4. ***Great acceptance of MAT among consumers seeking treatment:*** Most clients present to treatment specifically to receive MAT; most have had at least some illicit experience with methadone or Suboxone prior to entering treatment and many have had a previous MAT treatment experience. Consumer support of MAT was nearly universal; clients voiced that the use of MAT has been both "life-changing" and "life-saving." Most clients also highlighted that the behavioral health treatment in conjunction with the medication is what has enabled them to achieve sobriety.

5. ***Demand for Suboxone outpaces availability of prescribers***: There is a high demand for Suboxone, to the point where many agencies maintain waiting lists and clients struggle to find a provider. Both providers and consumers identified that prescribing doctor availability is the most significant barrier to receiving care, followed by transportation and MaineCare or other insurance status. Due to the inability to access MAT services in a timely manner, consumers reported that their prior illicit substance use was often motivated by the alleviation of withdrawal and craving symptoms rather than to achieve a euphoric sensation.

6. ***Clients prefer Suboxone over methadone:*** Many clients and providers prefer Suboxone over methadone due to the unpleasant side effects associated with methadone as well as implementation concerns, including dosing, treatment availability and inconvenience of the daily commitment.

7. ***Formal training for providers is lacking:*** Despite the overall popularity of MAT, especially Suboxone, as a form of treatment, few providers acknowledged any form of formalized training in the use of Suboxone in conjunction with behavioral health treatment. Training is generally available to individuals through in-service and online modules, but there are few conference- based opportunities that are readily accessible.

8. ***Significant increase in users of MAT***: Generally, one of the goals of the Advancing Recovery initiative was to increase access to medication assisted treatment among the original pilot agencies. Comparing pilot agencies at the beginning of the AR initiative to the end of fiscal year 2009, there was a significant increase in the proportion of individuals receiving MAT, increasing from 8 percent to 21 percent.

9. ***Significant numbers of people with opioid dependence are not treated*:** Cross-referencing information obtained from MaineCare's management information system and OSA's Treatment Data System revealed a significant number of individuals throughout Maine who received a diagnosis of opioid dependence but never received any form of behavioral health treatment.

10. ***Consumers of MAT and behavioral health treatment have more difficult histories than those with behavioral health only:*** Consumers who received MAT in addition to behavioral health treatment were significantly more likely than opioid dependent individuals receiving behavioral health treatment alone to have a co-occurring mental health disorder, to have injected drugs, and to have engaged in prior substance abuse treatment.

11. ***People receiving behavioral health and MAT treatments have increased service use:*** Regardless of whether individuals were receiving MAT or behavioral health treatment without medications, increased service utilization in terms of the number of MaineCare claims was observed for both groups one year post service initiation. There were more claims in categories such as individual and group treatment, laboratory and testing services, and ancillary services, namely transportation. However, notable reductions were observed for both groups in more expensive hospital-based services, including inpatient, emergency room and critical care. Consumers with opioid dependency with no behavioral health intervention had substantially higher service utilization of hospital-based services at a substantially higher overall average cost when all services are taken into account

12. ***MAT is associated with higher treatment retention:*** The rate of retention in behavioral health treatment among those receiving MAT was significantly higher than those receiving only behavioral health treatment, which is generally considered a positive long term outcome.

13. ***Increased service use is a function of greater retention and higher use of ancillary services:*** Differences in overall service utilization between the two groups may be explained by differences in retention and the increased likelihood of accessing ancillary services such as drug testing. The higher level of treatment engagement is not surprising considering that such engagement is needed to receive the desired prescription coupled with the fact that

individuals on MaineCare are more likely to have their benefits for outpatient service utilization extended while on Suboxone.

As a result of the major findings presented in this report, HZA would like to encourage the Office of Substance Abuse and key stakeholders within the State of Maine to consider the following recommendations so as to improve treatment delivery of MAT which will likely generate improved outcomes for addicted individuals seeking treatment as well as the agencies providing such services.

1. ***Disseminate "best practices" in MAT:*** Given wide variation in how MAT is delivered, the state should work to develop best practices for therapeutic behavioral health agencies to establish greater consistency in the delivery of MAT. Best practice should minimally cover the induction and maintenance process, to include dosage and behavioral health treatment expectations. A building block for the development of best practices should be SAMSHA's TIP 40, "Clinical Guidelines for the Use of Buprenorphine in the Treatment of Opioid Addiction." Two key components addressed in the TIP are the utilization of phases as well as induction and maintenance dosing. The TIP recommends a three-tiered phase system based upon the stages of Suboxone use: induction, which includes a starting dose of 4 to 8 milligrams of Suboxone; stabilization, where a consumer's dose is adjusted based on withdrawal symptomatology but does not exceed 32 milligrams; and maintenance. Agencies that are in the planning process, or even considering implementing a MAT program, should engage in a collaborative planning process to gather input from relative stakeholders, and establish program policies and expectations based on these best practice guidelines.

2. ***Develop formal MAT training:*** Interviews with providers at Advancing Recovery agencies revealed a lack of formalized training in the implementation and evidence-based practices in the utilization of medication assisted treatment in conjunction with behavioral health treatment. As such, the state should work to develop formal training opportunities for individuals seeking to learn more about MAT as well as agencies who may be contemplating providing this service. The Buprenorphine Blending Initiatives training developed by SAMHSA and NIDA is one training opportunity that can be offered to individual staff interested in learning more about Suboxone.

3. ***Increase MAT prescriber pool***: Both providers and consumers acknowledged that one of the most significant barriers to accessing MAT is a lack of prescribing physicians within the state. To expand treatment availability, OSA should incentivize the waiver process, perhaps with grant funding to start, to increase the number of available Maine doctors to prescribe Suboxone. A number of existing prescribers are reluctant to take on a full census of clients given the demands this population typically presents. Given this, OSA should work to

connect these free-standing, existing prescribers with therapeutic agencies who could work to alleviate some of this burden. Finally, there are a number of existing agencies with an administrative medical facility that currently do not offer MAT. OSA should work with these agencies to create more opportunities for delivering MAT.

4. ***Enhance ability to flag MAT users in state database***: Given the limitations referenced in this report and evidenced by the lack of information sharing across systems, the state should work to establish procedures for maintaining records that clearly identify consumers of all forms of MAT. For example, OSA does not capture the full census of clients receiving MAT in the state, only those served by contracted providers, and systems like the Office of MaineCare Services (MECMs) only captures information relating to claims for outpatient behavioral health and medication management, but not Suboxone in and of itself. Doing so will allow for better monitoring and tracking of client outcomes in the future.

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