



Factors Influencing Medication-Assisted Treatment in Ohio Halfway Houses and Community-Based Correctional Facilities

Kimberly Gentry Sperber, Ph.D.
Director

Amber N. Manzo, M.S.
Senior Research Associate

Final Report Submitted to the Office of Criminal Justice Services

May 13, 2016

This research was supported by grant number 2014-JG-E01-6020, awarded by the Office of Criminal Justice Services, Edward Byrne Memorial Funding, to Talbert House. Points of view or opinions contained within this document are those of the authors and do not necessarily represent the official opinions or policies of the U.S. Department of Justice or the Office of Criminal Justice Services.

ACKNOWLEDGEMENTS

The Center for Health and Human Services Research (CHHSR) team would like to thank the Ohio Office of Criminal Justice Services (OCJS) for funding this study. We would also like to thank all of the halfway house and CBCF staff who participated in the study. This study would not have been possible without the commitment of correctional practitioners across the state. We are grateful for the courtesy, professionalism, and time that these staff extended to us throughout the study. In addition, we would like to thank Insun Park for serving as a member of our research team and for all of her assistance in conducting site visits and entering study data. Finally, we would like to extend a special thanks to the following individuals for providing guidance on study design and execution and for helping us to identify key issues of importance to practitioners and policy makers: Anne Connell-Freund (Oriana House), Linda Gallagher (Hamilton County Mental Health and Recovery Services Board), Lusanne Green (Ohio Community Corrections Association), Dr. Edward Latessa (University of Cincinnati School of Criminal Justice), and Dr. Erin Winstanley (University of Cincinnati College of Pharmacy).

Table of Contents

EXECUTIVE SUMMARY	4
Major Findings	4
Table 1. Summary of Variable Impact on Odds of Endorsing an Opinion about Each Medication	6
Table 2. Summary of Variable Impact on Odds of Agreeing that Each Medication is Acceptable	7
Table 3. Summary of Variable Impact on Odds of Agreeing that Each Medication is Effective	7
Recommendations	7
Introduction	8
Methodology.....	9
Interview Results.....	11
Program Characteristics.....	11
Staffing Characteristics	11
Figure 1. Organizational Size	12
Risk and Clinical Attributes of Clients and Programs.....	12
Figure 2. Estimates of Risk to Re-offend	13
Figure 3. Estimates of Substance Use Disorders.....	13
Pharmacotherapy	14
Perceived Barriers to MAT	15
Table 1. Financial Barriers to Hiring Medical Staff.....	15
Table 2. Availability of Medical Staff in the Local Labor Market	16
Table 3. Perceived Barriers Reported by Medical Staff	17
Table 4. Perceived Barriers to MAT in Non-MAT Programs.....	18
Knowledge of and Support for Medication-Assisted Treatment.....	19
Table 5. Program Directors’ Perceived Support from Single State Agency	19
Table 6. Sources of Program Knowledge about Using Medications to Treat Addiction.....	20
Table 7. Ratings of Stakeholder Support for MAT	21
Survey Results	21
Respondent Characteristics	21
Table 8. Survey Respondent and Program Characteristics	22
Staff Attitudes and Beliefs	23
Table 9. One-Way Analyses of Variance for Effects of Staff Position on Treatment Philosophy Beliefs	24

Table 10. One-Way Analyses of Variance for Effects of Staff Position on Perceived Concerns	25
Table 11. One-Way Analyses of Variance for Effects of Staff Position on Outcomes Beliefs	27
Table 12. One-Way Analyses of Variance for Effects of Staff Position on Acceptability Ratings.....	28
Diffusion of Knowledge.....	28
Table 13. Distribution of Pharmacotherapy Diffusion and Staff Perceptions, % or Mean (SD).....	29
Perceived Acceptability of Medications.....	31
Perceived Effectiveness of Medications	32
Table 14: Logistic Regression Results for Diffusion of Medication Knowledge	33
Table 15: Logistic Regression Results for Perceived Acceptability of Medications	34
Table 16: Logistic Regression Results for Perceived Effectiveness of Medications.....	35
Implications.....	36
Conclusions	38
REFERENCES.....	39

EXECUTIVE SUMMARY

Recent years have witnessed an alarming increase in the number of people dependent on opiates. Nationally, opiate overdose is the second leading cause of injury related death, surpassed only by car accidents. In Ohio, accidental overdoses has been the leading cause of death since 2007. In fact, there has been a 472% increase in drug overdose deaths from 1999 to 2013. An increase in opiate dependent people means that community corrections programs are seeing a dramatic increase in admissions of opiate dependent offenders. This is not surprising given that the link between opiate use and crime is well established.

The Center for Health and Human Services Research at Talbert House completed a study based on previous National Institutes of Health studies that have examined: (1) barriers to MAT within private and public substance abuse treatment programs and (2) counselor attitudes toward MAT. This study was replicated in halfway houses and Community Based Correctional Facilities (CBCF) across Ohio and assesses attitudes of both treatment and security staff in these programs. All Ohio Department of Rehabilitation and Corrections (ODRC)-funded halfway houses and CBCFs were invited to participate in the study. All but two programs elected to participate.

Data were collected through two mechanisms. The first was an in-depth structured, face-to-face interview with key staff including Program Directors, Clinical Supervisors, a representative of the medical staff, and at least two clinical/direct service staff. An interview guide was used to gather information on key independent variables within a number of domains. Examples of these domains include organizational structure, organizational resources, dominant treatment philosophy and types of services offered, availability of medical personnel, funding sources, exposure to and understanding of MAT research findings, referral source support for MAT, staff support for MAT, concerns associated with providing MAT to offenders, and client characteristics. A total of 181 staff participated in interviews for this study.

The second mechanism was the administration of anonymous surveys to all staff at each facility. These surveys assessed knowledge about MAT, beliefs about the effectiveness and appropriateness of MAT for offenders, and endorsement of myths about MAT. 1876 surveys were distributed, and 910 were returned for a response rate of 49%. Interview and survey questions asked about MAT in general as well as about specific medications (e.g., methadone, buprenorphine, and naltrexone), where appropriate. Survey items were rated on a Likert scale.

Major Findings

A total of 49 facilities participated in the study. Interviews with the Program Directors of these facilities demonstrated that 17 of the programs did not allow any access to MAT at the time of the interview while 13 programs directly prescribed addiction medication to clients with opioid disorders, and an additional 19 programs allowed clients to access addiction medications through an external provider during their stay in the facility. Of the 13 programs providing MAT, 62% prescribed oral naltrexone, 46% prescribed injectable naltrexone, and 62% prescribed buprenorphine. No programs prescribed or allowed access to methadone.

While many programs had begun to implement various forms of MAT, interview results showed that the programs faced a number of barriers to implementing comprehensive MAT services including: infrastructure, financial, workforce development, and stakeholder support.

- 63.3% of the facilities did not have access to medically supervised detoxification services for the clients they serve.
- Response patterns indicated financial barriers to hiring medical staff.

- Respondents indicated difficulties finding medical staff willing to provide services within correctional programs and with the appropriate experiences for treating a criminal justice population, particularly those with substance use disorders.
- 83% of the Program Directors agree that the Ohio Department of Mental Health and Addiction Services (OHMAS) is supportive of the use of medications for treating substance abuse in community corrections settings. However, less than 40% of the Program Directors agreed that OHMAS had adequately disseminated information about how to implement MAT in community corrections programs or that OHMAS had offered sufficient training opportunities about using medications to treat substance abuse.
- The primary method staff use to learn about MAT is having conversations with staff of other substance abuse treatment organizations.

Survey data were used to assess staff beliefs about general treatment approaches for clients with addiction disorders, beliefs about MAT for clients with addiction disorders, and beliefs about the outcomes of MAT.

- Regarding overall treatment philosophy, survey responses demonstrated an overall pattern of clinical staff providing significantly higher ratings on items reflective of cognitive-behavioral and motivational enhancement approaches, and operations staff providing significantly higher ratings on items reflective of 12-step approaches and more confrontational approaches.
- Regarding concerns with MAT, the consistent pattern was that operational staff were more likely to agree with a series of negative statements, such as “Using medications to treat addiction is substituting one drug for another” or “Medications are drugs and you cannot be clean if you are taking drugs.”
- Operations staff provided a statistically significantly lower endorsement of agreement to the item “I have received adequate information about the effects of using medication-assisted treatment for offender populations.”
- Operations staff also provided significantly lower ratings of agreement than supervisory and clinical staff on items that reflected benefits of MAT, such as MAT reduces relapse, increases employment, reduces crime, reduces or blocks the effects of opioids, increases family stability, and improves birth outcomes for children born to addicted mothers. On the other hand, they provided significantly higher ratings of agreement to items indicating beliefs about negative outcomes of MAT, such as MAT rewards criminals for being drug users and interferes with the ability to drive a car.

In the surveys, we also asked staff about their perceptions of the acceptability and effectiveness of four medications used to treat opioid disorders: buprenorphine, methadone, oral naltrexone, and injectable naltrexone. Since previous studies have found that lack of information about medication effectiveness serves as a barrier to its implementation, we also sought to examine the extent of knowledge diffusion regarding each medication. We operationalized diffusion as a dichotomous variable. This variable was coded based on the response to the item “Based on your knowledge and personal experience, to what extent do you consider each of the following treatment techniques to be effective?” Answering “I don’t know” was coded as a lack of diffusion, while all other ratings were considered as evidence of diffusion. Finally, we sought to identify predictors of knowledge diffusion, endorsements of acceptability, and endorsements of effectiveness. Results are summarized below:

- 35.1% did not know the effectiveness of buprenorphine, 37.2% did not know the effectiveness of methadone, 55.4% did not know the effectiveness of oral naltrexone, and 44% did not know the effectiveness of injectable naltrexone. This trend is consistent with

the amount of time these medications have been in use within the field of community corrections in Ohio.

- Staff perceived methadone and buprenorphine as less effective than both oral and injectable naltrexone, with the highest rating of effectiveness assigned to injectable naltrexone. Regarding acceptability, the results show the same trend, with staff rating methadone and buprenorphine as less acceptable than both forms of naltrexone. Again, injectable naltrexone received the highest endorsement of acceptability.
- Operations staff were more likely to provide a “don’t know” response regarding the effectiveness all four medications (see Table 1.). On the other hand, staff who worked in programs that provided access to MAT (rather than directly providing MAT) were more likely to endorse an opinion about all four medications. Staff who agreed that they had received adequate information about the effects of using MAT with offender populations also had an increased likelihood of endorsing an opinion about the effectiveness of all four medications.
- Staff and agency characteristics did not consistently predict perceived acceptability across the four medications (see Table 2.). Predictors that were somewhat consistent across models included staff beliefs about outcomes of MAT, whether the facility directly provided MAT, and staff concerns about MAT. Specifically, staff who demonstrated a higher level of agreement with positive statements indicating positive outcomes of MAT were significantly more likely to endorse the use of buprenorphine, oral naltrexone, and injectable naltrexone as acceptable. While direct provision of MAT served to increase the probability that staff would rate oral and injectable naltrexone as acceptable, it served to decrease the probability that staff would endorse methadone as acceptable.
- The only consistent predictor of perceived effectiveness across all four medications was staff beliefs regarding the positive outcomes of MAT (see Table 3.). Higher average ratings on these beliefs resulted in statistically significant increases in the probability that staff would agree that the medication was effective.

Table 1. Summary of Variable Impact on Odds of Endorsing an Opinion about Each Medication

Variable	Methadone	Buprenorphine	Oral Naltrexone	Injectable Naltrexone
Parent agency	Not Significant	Not Significant	Increased Odds	Increased Odds
Female	Increased Odds	Increased Odds	Not Significant	Increased Odds
Hours worked	Not Significant	Not Significant	Not Significant	Not Significant
Clinical position	Not Significant	Not Significant	Decreased Odds	Not Significant
Operations position	Decreased Odds	Decreased Odds	Decreased Odds	Decreased Odds
Recovery status	Increased Odds	Increased Odds	Not Significant	Not Significant
Level of education	Increased Odds	Increased Odds	Not Significant	Not Significant
Information on MAT	Increased Odds	Increased Odds	Increased Odds	Increased Odds
12-step orientation	Not Significant	Decreased Odds	Not Significant	Not Significant
Facility provides MAT	Increased Odds	Not Significant	Increased Odds	Increased Odds
Facility provides access to MAT	Increased Odds	Increased Odds	Increased Odds	Increased Odds
Works in a CBCF	Not Significant	Not Significant	Increased Odds	Increased Odds

Table 2. Summary of Variable Impact on Odds of Agreeing that Each Medication is Acceptable

Variable	Methodone	Buprenorphine	Oral Naltrexone	Injectable Naltrexone
Parent agency	Not Significant	Not Significant	Not Significant	Not Significant
Female	Not Significant	Not Significant	Not Significant	Increased Odds
Hours worked	Not Significant	Not Significant	Not Significant	Not Significant
Recovery status	Not Significant	Not Significant	Not Significant	Not Significant
Staff beliefs	Not Significant	Increased Odds	Increased Odds	Increased Odds
Education level	Not Significant	Not Significant	Not Significant	Increased Odds
12-step orientation	Not Significant	Not Significant	Not Significant	Not Significant
Staff information	Not Significant	Not Significant	Not Significant	Not Significant
Facility provides MAT	Decreased Odds	Not Significant	Increased Odds	Increased Odds
Clinical staff	Not Significant	Not Significant	Decreased Odds	Not Significant
Operations staff	Not Significant	Not Significant	Decreased Odds	Decreased Odds
Works in CBCF	Not Significant	Decreased Odds	Not Significant	Not Significant
Staff concerns	Decreased Odds	Decreased Odds	Decreased Odds	Not Significant

Table 3. Summary of Variable Impact on Odds of Agreeing that Each Medication is Effective

Variable	Methodone	Buprenorphine	Oral Naltrexone	Injectable Naltrexone
Parent agency	Not Significant	Not Significant	Not Significant	Not Significant
Female	Not Significant	Not Significant	Not Significant	Not Significant
Hours worked	Not Significant	Not Significant	Not Significant	Not Significant
Recovery status	Not Significant	Not Significant	Not Significant	Not Significant
Staff beliefs	Increased Odds	Increased Odds	Increased Odds	Increased Odds
Education level	Not Significant	Not Significant	Not Significant	Not Significant
12-step orientation	Not Significant	Not Significant	Not Significant	Not Significant
Staff information	Not Significant	Not Significant	Not Significant	Not Significant
Facility provides MAT	Not Significant	Not Significant	Increased Odds	Not Significant
Clinical staff	Not Significant	Not Significant	Not Significant	Not Significant
Operations staff	Not Significant	Not Significant	Decreased Odds	Decreased Odds
Works in CBCF	Decreased Odds	Decreased Odds	Not Significant	Not Significant
Staff concerns	Decreased Odds	Not Significant	Not Significant	Not Significant

Recommendations

Results from this study indicate that there is great interest among community corrections practitioners about how best to treat opioid dependent clients in ways that best meet the needs of the clients and that are appropriate to the setting. Findings also highlighted a number of barriers to full-scale implementation of evidence-based practices for treating opioid dependent clients in these environments. These barriers fall into four categories: infrastructure, workforce development, staff and stakeholder education, and technical assistance. Recommendations from the larger report focus on identifying opportunities to partner with the medical field to enhance workforce development efforts, enhancing staff and stakeholder education efforts, and collaborating with the Ohio Department of Mental Health and Addiction Services to identify technical assistance opportunities. To assist Ohio practitioners with these efforts, we are also currently working on creating a practitioner toolkit in order to centralize existing available resources and to create new resources. We will also continue to work with the Ohio Community Corrections Association to determine what products will be of most value to Ohio practitioners and to determine the best methods of disseminating these products as well as the study results and findings.

SECTION 1

Introduction

Recent years have witnessed an alarming increase in the number of people dependent on opiates. Nationally, opiate overdose is the second leading cause of injury related death, surpassed only by car accidents (Nosyk et al., 2013). In Ohio, accidental overdoses are the leading cause of death and have been since 2007. In fact, there has been a 472% increase in drug overdose deaths from 1999 to 2013 (Ohio Department of Health, 2015). While prescription opioids were driving much of this trend until 2012, there has been a shift in this trend with some decrease in painkillers and a sharp increase in heroin-related deaths (Massatti, Beeghly, Hall, Kariisa, & Potts, 2014). These deaths cost Ohio \$3.6 billion annually, with nonfatal overdoses costing an additional \$31.9 million. Similarly, the number of Ohio substance abuse treatment clients with a primary diagnosis of opioid dependence rose from 5,790 in FY01 to 24,833 in FY12. The largest percentage of clients with this diagnosis in any county in FY01 was 14.3%; in FY12 it was 69.7% (Ohio Department of Health, 2014).

This increase in opiate dependent people also means that community corrections programs are seeing a dramatic increase in admissions of opiate dependent offenders. This is not surprising given that the link between opiate use and crime is well established (e.g., Anglin & Speckart, 1988; Bennett, Holloway, & Farrington, 2008; Darke, Torok, Kaye, Ross, & Mcketin, 2010; Gottfredson, Kearley, & Bushway, 2008; Inciardi, 2008). This influx of opiate dependent offenders poses challenges for community corrections providers that have typically offered psychosocial treatment interventions to reduce substance use and recidivism, most notably cognitive-behavioral treatment (CBT). While there is much evidence demonstrating the effectiveness of CBT in reducing both crime and substance use generally, CBT alone has not been shown to be the most effective approach to reducing substance use and recidivism for those suffering from an opioid disorder. In fact, research has clearly demonstrated the superiority of medication-assisted treatment (MAT) to traditional forms of psychosocial interventions alone (Marlowe, 2003). When MAT is provided as part of a comprehensive continuum of services, it has been shown to improve treatment retention, reduce drug use, decrease crime, lower death rates and overdoses, reduce incidence of HIV and Hepatitis C, and improve birth outcomes for opiate-dependent women (e.g., Amato et al., 2005; Coviello et al., 2012; Egli et al., 2009; Volkow & Montaner, 2011). Despite the evidence, community corrections has been slow to accept and adopt pharmacotherapies for the treatment of addiction disorders (Friedmann et al., 2012).

Increases in the number of opioid dependent offenders in community corrections environments raises the risks of increased Absence without Official Leave (AWOL), program failures, death, and

recidivism. Consequently, policy makers and practitioners alike are contemplating the appropriate role of MAT within community corrections environments. Current conversations about the pros and cons of integrating MAT in community corrections programs often focus on medication costs and issues with abuse/diversion of certain medications, however, there are a number of other organizational and systems factors that likely impact the successful implementation of MAT. For example, prior research in private and public substance abuse treatment programs as well as institutional corrections environments demonstrates a number of individual staff characteristics as well as organizational level characteristics to be predictive of adopting MAT for opioid dependent clients. Examples of such factors include, but are not limited to, endorsement of abstinence-based treatment approaches, limited knowledge about MAT, security and liability concerns associated with MAT, lack of qualified medical personnel, regulatory prohibitions, funding constraints, agency size, Medicaid penetration rates, educational backgrounds of clinical staff, and caseload size (Friedmann et al., 2012; Knudsen, Abraham, & Oser, 2011; Knudsen, Abraham, & Roman, 2011).

While researchers have examined the barriers to MAT implementation in behavioral health environments, fewer studies have examined the organizational, systemic, and staff attributes associated with adoption of different medications for treating addiction disorders within a criminal justice population. Most notably lacking is research conducted in community-based residential environments such as halfway houses and Community Based Correctional Facilities (CBCFs). There is great opportunity to impact this public health and public safety issue by integrating MAT into these environments, however. With the appropriate resources, the residential environment allows for safe detox that is required before prescribing some of these medications, and clients can have access to several months of medication and stabilization prior to being released into the community. For halfway house clients who travel to work and are exposed to triggers daily, MAT could be an essential tool for combating relapse and AWOL (an ongoing issue across the state). Consequently, this project sought to identify the facilitators and barriers to MAT in halfway houses and CBCFs in order to provide concrete recommendations about how to best direct the state's finite resources toward the most effective strategies for improving Ohio's ability to effectively treat opiate addicted offenders and to reduce recidivism for this population.

Methodology

This study was based on previous National Institutes of Health studies that have examined: (1) barriers to MAT within private and public substance abuse treatment programs and (2) counselor

attitudes toward MAT. This study was replicated in halfway houses and CBCFs across Ohio and assesses attitudes of both treatment and security staff in these programs. All ODRC-funded halfway houses and CBCFs were invited to participate in the study. All but two programs elected to participate.

Data were collected through two mechanisms. The first was an in-depth structured, face-to-face interview with key staff. Staff invited to participate in the interview included a Program Director, a Clinical Supervisor, a representative of the medical staff, and at least two clinical/direct service staff. Interviews took place between March and November of 2015. The number of staff participating in interviews at each site varied based on program size and the types of staff employed at the program. An interview guide was used to gather information on key independent variables within a number of domains. These domains were based on the previous NIH studies as well as input from key medical and corrections professionals. Examples of these domains include organizational structure, organizational resources, dominant treatment philosophy and types of services offered, availability of medical personnel, funding sources, exposure to and understanding of MAT research findings, referral source support for MAT, staff support for MAT, concerns associated with providing MAT to offenders, and client characteristics. A total of 181 staff participated in interviews for this study.

The second mechanism was the administration of anonymous surveys to all staff at each facility. These surveys assessed knowledge about MAT, beliefs about the effectiveness and appropriateness of MAT for offenders, and endorsement of myths about MAT. A total of 1876 surveys were distributed, and 910 were returned for a response rate of 49%. Interview and survey questions asked about MAT in general as well as about specific medications (e.g., methadone, buprenorphine, and naltrexone), where appropriate. Survey items were rated on a Likert scale.

SECTION 2

Interview Results

Program Characteristics

In total, 49 programs participated in the study: 28 were halfway houses, while 21¹ were CBCFs. Programs ranged in age from 1 year to 66 years, with an average age of 23 years. Nearly 100% of all programs were accredited by the American Correctional Association. In addition, 39% were certified by the Ohio Department of Mental Health and Addiction Services.

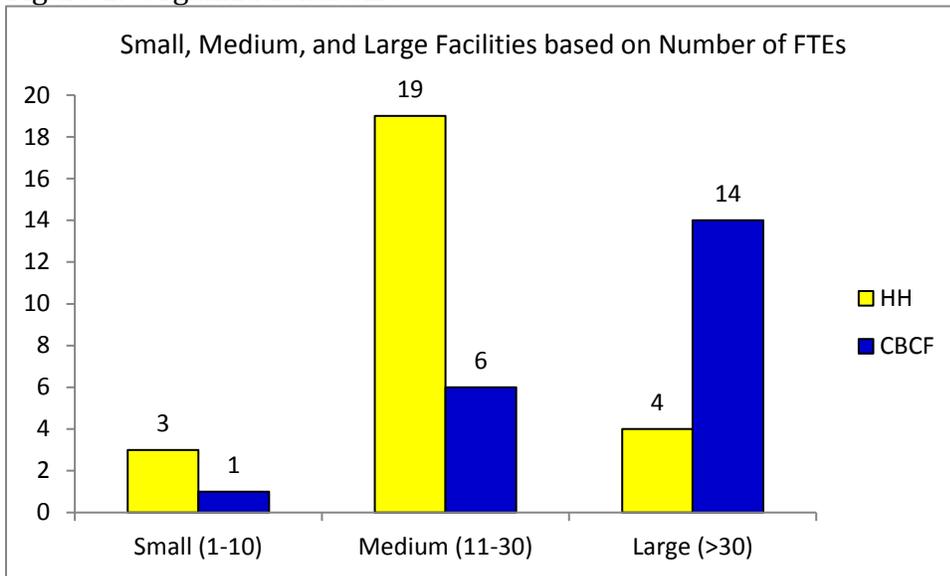
Staffing Characteristics

Staffing patterns across the programs ranged from as few as 5 full-time equivalents (FTEs) to as many as 88 FTEs. In terms of total employees, both part-time and full-time combined, programs ranged from a staffing pattern of 9 to 102 total staff. On average, halfway houses employed 21 FTEs with a total of 26 staff, while CBCFs employed an average of 46 FTEs and a total of 50 staff. As expected, CBCFs demonstrated larger staffing patterns than halfway houses overall (see Figure 1). Both halfway houses and CBCFs employed a similar percentage of clinical staff with a master's degree or higher (37% and 30%, respectively). However, there were stark differences between the two types of facilities in terms of access to medical staff on site. Nurses were available at 90% of CBCFs either as employees or as contract staff compared to 37% of halfway houses. Similarly, 76% of CBCFs employed or contracted with physicians compared to 11% of the halfway houses. Consequently, referring clients to external providers for medical care was more common among halfway house providers.

The discrepancy between halfway houses and CBCFs is likely due in large part to significant differences in program size. While CBCFs averaged 140 clients, halfway houses averaged 98 clients. In addition, while the average census at halfway houses was 98 clients, halfway houses were substantially more likely to house 50 or fewer clients than were CBCFs. This means that differences in the provision of medication-assisted treatment may be reflective of economy of scale provided by the CBCF setting rather than a stronger endorsement of the value of medication-assisted treatment.

¹ Ohio Department of Rehabilitation and Correction recognizes a total of 19 CBCFs. For the purpose of this study, a CBCF was counted more than once if services were delivered in separate buildings, with separate staff, and for a separate population. This counting method accounts for the discrepancy between our numbers and ODRC numbers.

Figure 1. Organizational Size



Risk and Clinical Attributes of Clients and Programs

All Program Directors were asked a series of questions related to the clinical characteristics of clients served and a series of questions related to programmatic characteristics. As illustrated in Figure 2, CBCFs were more likely to serve a moderate to high risk population, with only 5% estimated as low risk. Halfway houses, on the other hand, estimated that almost a quarter of their client population was low risk, with almost half of the clients scoring as moderate risk². Figure 3 illustrates that halfway houses provided a higher estimate of clients with a substance use disorder than their CBCF counterparts (90% versus 64%); however, CBCFs estimated a higher percentage of clients with an opiate abuse/dependence disorder than the halfway houses (64% versus 44%)³.

² Risk distribution percentages were often based on Program Director perceptions rather than quantifiable data; therefore, these estimations should be treated with caution.

³ Substance use disorder percentages were often based on Program Director perceptions rather than quantifiable data; therefore, these estimations should be treated with caution.

Figure 2. Estimates of Risk to Re-offend

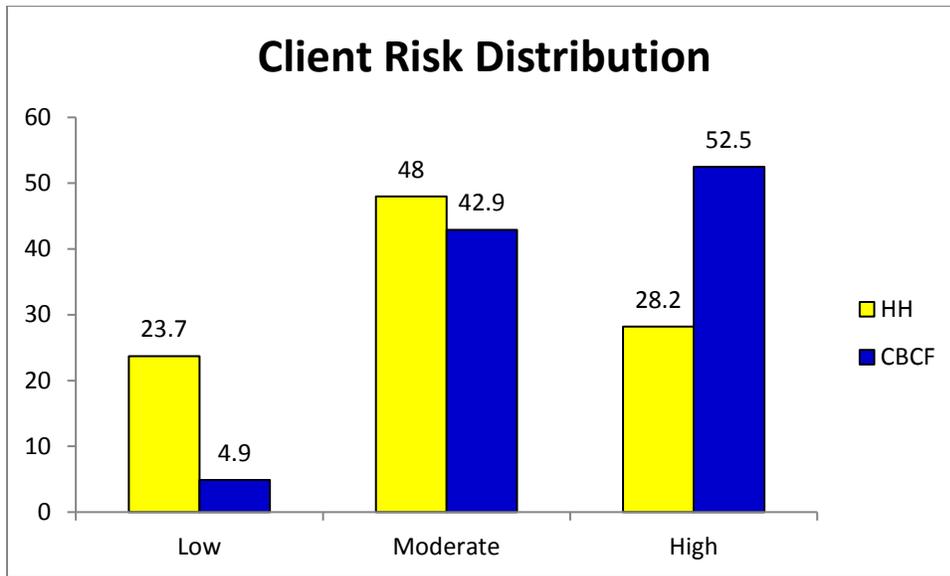
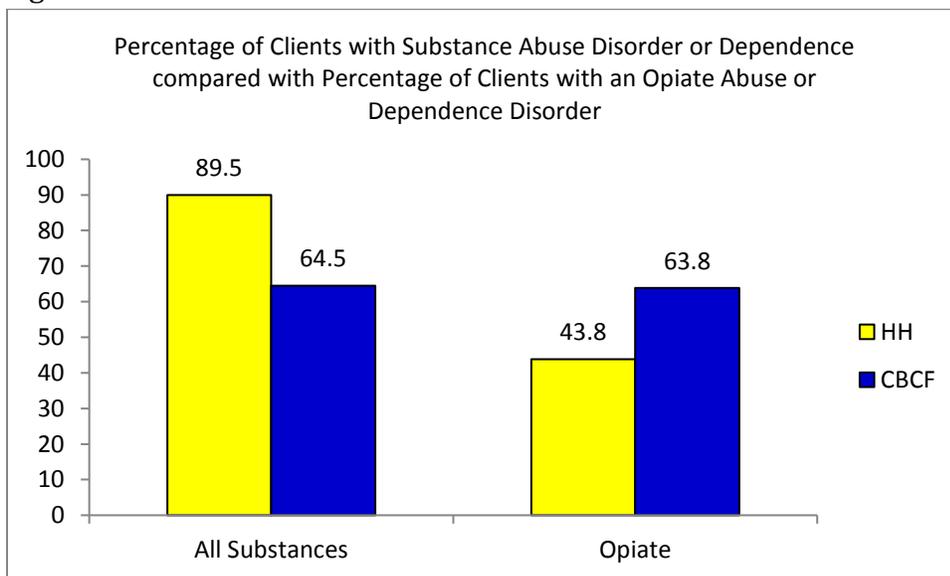


Figure 3. Estimates of Substance Use Disorders



To address the criminogenic needs of clients served, all participating programs indicated that they provide cognitive-behavioral groups for criminality, substance abuse treatment, and employment services. The overwhelming majority of programs also provide anger management services and life skills groups, while less than one third of all programs offer programming specifically tailored for sex offenders. Notable differences existed between halfway houses and CBCFs in terms of services targeting education, mental health, and domestic violence. CBCFs were significantly more likely than halfway

houses to provide education (95% versus 61%), mental health services (76% versus 29%), and domestic violence programming (38% versus 18%).

Regarding treatment models, CBCFs were more likely than halfway houses to endorse cognitive-behavioral treatment (CBT) as their primary modality of treatment (71% versus 57%). Conversely, halfway houses were more likely than CBCFs to endorse an eclectic/mixed model of services (43% versus 29%). Of those programs endorsing an eclectic model of service delivery, the most frequent components in order of most endorsed to least endorsed were 12-step (43% for halfway houses and 24% for CBCFs), CBT (39% for halfway houses and 29% for CBCFs), Motivational Enhancement Therapy (14% for halfway houses and 19% for CBCFs), and therapeutic communities (4% for halfway houses and 0% for CBCFs).

Pharmacotherapy

To determine the extent of pharmacotherapy in use at each program, Program Directors were asked questions about overall use of medications to treat psychiatric and substance use disorders and questions about the use of specific medications. 60.5% of the respondents reported that their facilities prescribed medications to treat psychiatric conditions but not substance use disorders, while 39.5% reported that they prescribed medications to treat both psychiatric conditions and substance use disorders. While CBCFs were more likely to report prescribing medications for both mental health conditions and substance use disorders than halfway houses, the difference was not statistically significant.

Results specific to the provision of medication-assisted treatment showed that 13 of the programs directly prescribed addiction medications to clients with opioid use disorders. 19 programs did not directly prescribe medications but did allow clients to access medications from external providers and then allowed them to continue use of the medication while in the program. Finally, 17 of the programs did not allow any form of access to addiction medications. Of the 13 programs that directly prescribed addiction medications, 62% prescribed oral naltrexone, 46% prescribed injectable naltrexone, and 62% prescribed buprenorphine. No programs prescribed or allowed access to methadone.

Related to the use of pharmacotherapy is the issue of access to medically supervised detoxification services. Only two facilities reported that they had medically supervised detoxification services available on site (4.1%). 16 facilities reported that they had access to medically supervised detoxification services through an external provider (32.7%). The remaining facilities indicated that they had no access to medically supervised detoxification services for the clients they serve (63.3%).

Perceived Barriers to MAT

Program Directors and Clinical Supervisors were asked about barriers to hiring or contracting with medical staff. The two types of barriers assessed were financial constraints and limited availability of medical staff both willing and qualified to work with correctional populations. Table 1 below illustrates the percentage of respondents who indicated that it was “somewhat difficult” or “very difficult” to find medical staff due to fiscal constraints. Response patterns indicate that employing medical staff is more cost prohibitive than contracting with medical staff. For example, 70% indicated that having a physician on staff would exceed their available financial resources, while only 38.5% indicated that the cost of contracting with physicians would exceed their available financial resources. Similarly, 48.8% agreed that the cost of having a nurse on staff would exceed their available financial resources, while only 25.6% agreed that the cost of contracting with nurses would exceed their available financial resources. The higher rate of endorsement for items pertaining to physicians versus nurses is reflective of the higher costs associating with employing physicians. Further evidence of this can be found in the higher rate of agreement to the statement “our primary source of funding will not adequately reimburse the costs associated with physician time” versus the statement “our primary source of funding will not adequately reimburse the costs associated with nursing time” (50.7% versus 39%).

Table 1. Financial Barriers to Hiring Medical Staff

Item	n	Percent Indicating “Agree” or “Strongly Agree”
The costs of having a physician on staff would exceed our available financial resources.	80	70.0
The cost of having a nurse on staff would exceed our available financial resources.	80	48.8
The cost of contracting with physicians would exceed our available financial resources.	78	38.5
The cost of contracting with nurses would exceed our available financial resources.	78	25.6
Our primary source of funding will not adequately reimburse the costs associated with physician time.	77	50.7
Our primary source of funding will not adequately reimburse the costs associated with nursing time.	77	39.0

In addition to financial barriers, many of the respondents indicated difficulties finding medical staff willing to provide services within correctional programs and finding medical staff with the appropriate experiences for treating a criminal justice population (see Table 2). Overall, response patterns indicated more barriers associated with locating physicians to treat correctional clients than with locating nurses. Just around half of the respondents indicated that it was somewhat or very difficult to find physicians to provide primary care to correctional clients (51.7%), to provide mental health care to correctional clients (50.6%), and who have experience treating clients with substance use disorders (46.9%). Fewer respondents indicated barriers to finding nurses willing to contract with correctional treatment programs to provide primary care services to clients, with only 38.5% rating this as somewhat or very difficult. However, respondents rated the difficulty of finding nurses willing to contract with correctional treatment programs to provide mental health care to clients and finding nurses with experience treating clients with substance abuse disorders similar to physicians, with approximately half indicating that these two tasks were somewhat or very difficult.

Table 2. Availability of Medical Staff in the Local Labor Market

Item	n	Percent Indicating “Somewhat Difficult” or “Very Difficult”
Finding physicians who are willing to contract with correctional treatment programs to provide primary care services to clients?	85	51.7
Finding physicians or psychiatrists who are willing to contract with correctional treatment programs to provide mental health care to clients?	83	50.6
Finding physicians with experience treating clients with substance abuse disorders?	79	46.9
Finding nurses who are willing to contract with correctional treatment programs to provide primary care services to clients?	78	38.5
Finding nurses who are willing to contract with correctional treatment programs to provide mental health care to clients?	78	51.3
Finding nurses with experience treating clients with substance abuse disorders?	77	46.8

For programs that were already administering medication-assisted treatment, medical staff were asked to assess a series of potential barriers to effective and efficient implementation within the program. These barriers were rated on a scale of 1 to 5, ranging from “no extent” to “very great extent.” The results indicate that the greatest barrier perceived by medical staff is lack of knowledge by non-

medical staff about the medications in use at the facility to treat substance abuse; 72.8% of medical staff rated this barrier as moderate to very great (see Table 3). The second largest perceived barrier was associated with procedures to refer and approve a client for medication-assisted treatment, with half of the respondents rating this barrier as moderate to very great. Only about a quarter of medical staff interviewed indicated that the time required to assess and monitor clients, documentation requirements, or contradictory messages by line staff were notable barriers to implementation of MAT within the facility.

Table 3. Perceived Barriers Reported by Medical Staff

Item	n	Percent Indicating “Moderate” to “Very Great” Extent
Procedures to refer and approve a client for medication-assisted treatment.	12	49.9
Time required to adequately assess and monitor clients for adherence, side effects, and progress.	12	24.0
Additional documentation requirements.	11	27.3
Inadequate frequency of urinalysis available to adequately monitor clients on medication-assisted treatment.	11	18.2
Lack of knowledge by non-medical staff about the medications in use at the facility to treat substance use disorders.	11	72.8
Line staff send provide contradictory messages to clients about the effectiveness of medications for substance abuse treatment.	11	27.3

For those facilities not prescribing medications to treat substance use disorders, we asked the Program Director to rate how important specific barriers were to the implementation of MAT in their specific facility. The results in Table 4 show that the largest perceived barriers were financial constraints. For example, 81.8% indicated that clients’ inability to pay for substance abuse medications was an important or very important barrier to their facility’s adoption of MAT. 75% also indicated that lack of funding to reimburse physician time, to pay for necessary laboratory tests, and to purchase the medications were important or very important barriers. The next set of items most frequently endorsed as barriers to MAT involved lack of access to medical staff followed by items indicating a lack of adequate information about implementing MAT and concerns that use of specific medications (e.g., methadone and buprenorphine) causes to many problems with diversion and contraband. While not as strongly endorsed as a barrier, it is also interesting to note that 40.9% indicated that referral sources would not allow them to use medications to treat substance abuse regardless of how the medications

were funded. Also of note is that relatively few Program Directors agreed that using medications to treat substance abuse was inconsistent with their program’s treatment philosophy (27.3%).

Table 4. Perceived Barriers to MAT in Non-MAT Programs

Item	n	Percent Indicating “Important” or “Very Important”
State regulations prohibit us from prescribing medications because our program lacks medical staff.	23	65.2
State regulations prohibit us from prescribing medications because of the levels of care that we offer.	23	60.8
State regulations prohibit the use of medications to treat substance abuse in this state.	23	36.4
We lack access to physicians with expertise in prescribing medications to treat substance abuse.	23	56.5
We lack access to nurses or other medical staff with expertise in implementing medications to treat substance abuse.	23	60.7
Medications for treating substance abuse are inconsistent with this center’s treatment philosophy.	22	27.3
There is not enough evidence that substance abuse treatment medications are clinically effective.	22	22.7
There are better alternatives to using medications as part of substance abuse treatment.	22	45.5
We have not received adequate information about how to implement substance abuse treatment medications.	22	50.0
Using medications to treat addiction is substituting one drug for another.	22	18.2
Our counselors do not support the use of medication-assisted treatment.	22	22.7
Our clients are not interested in using medications as part of their substance abuse treatment plans.	22	31.8
Our clients cannot afford to pay for substance abuse treatment medications.	22	81.8
Using medications to treat addiction causes too many problems with diversion and contraband within the facility.	22	50.0
Too many of our clients have <u>medical</u> conditions that would make these medications clinically inappropriate for them.	22	13.6
Too many of our clients have <u>psychological</u> conditions that would make these medications clinically inappropriate for them.	20	15.0
Our primary sources of funding will not reimburse the physician time needed to implement medications.	20	75.0
Our primary sources of funding will not pay for the laboratory tests needed to implement medications.	20	75.0

Item	n	Percent Indicating "Important" or "Very Important"
Our primary sources of funding will not pay for the costs of purchasing medications.	20	75.0
Our referral sources will not allow us to use medications to treat substance abuse regardless of how the medications are funded.	22	40.9

Knowledge of and Support for Medication-Assisted Treatment

All Program Directors were asked to rate three items related to their experience with Ohio's Single State Agency – the Ohio Department of Mental Health and Addiction Services (OHMAS). These items were rated on a 1 to 5 scale, ranging from "strongly disagree" to "strongly agree." Table 5 illustrates that almost all of the Program Directors interviewed agree that OHMAS is supportive of the use of medications for treating substance abuse in community corrections settings. However, less than 40% of the Program Directors agreed that OHMAS has adequately disseminated information about how to implement medication-assisted treatment in community corrections programs or that OHMAS has offered sufficient training opportunities about using medications to treat substance abuse.

Table 5. Program Directors' Perceived Support from Single State Agency

Item	n	Percent of PDs Indicating "Agree" or "Strongly Agree"
OHMAS is supportive of the use of medications for treating substance abuse in community corrections settings.	47	83.0
OHMAS has adequately disseminated information about how to implement medication-assisted treatment in community corrections programs.	48	37.5
OHMAS has offered sufficient training opportunities about using medications to treat substance abuse.	47	36.2

All interviewees were also asked to rate the extent that their program used a variety of information sources to learn about medication-assisted treatment. Each item was rated on a scale of 1 to 5, with 1 equal to "no extent" and 5 equal to "very great extent." Table 6 below indicates the percentage of respondents indicating that the program used the information source from a moderate to very great extent to learn about medication-assisted treatment. The results show that the most frequently endorsed item was having conversations with staff of other substance abuse treatment

organizations. The second most frequently endorsed items were accessing the Ohio Department of Mental Health and Addictions Services and the Ohio Department of Rehabilitation and Correction. Fewer than half of the respondents indicated that their program accessed the National Institute of Drug Abuse’s (NIDA) website and publications or the Substance Abuse and Mental Health Services Administration’s (SAMHSA) Center for Substance Abuse Treatment (CSAT) Technical Assistance Publications or Technical Improvement Protocols for information on medication-assisted treatment (43.5% and 35.4%, respectively). Just over half reported that staff learned about medication-assisted treatment through journals, newsletters, and professional trade publications. Finally, very few respondents indicated that their program accessed information through attendance at NIDA’s annual blending conference or by accessing information from their area Addiction Technology Transfer Center (ATTC).

Table 6. Sources of Program Knowledge about Using Medications to Treat Addiction

Item	n	Percent Indicating “Moderate” to “Very Great” Extent
Journals, newsletters, or other professional (trade) publications?	177	54.8
Contacts or promotional materials from pharmaceutical companies?	175	29.2
Conversations with staff of other substance abuse treatment organizations?	176	76.2
Ohio Department of Mental Health and Addictions Services?	176	58.5
Ohio Department of Rehabilitation and Correction?	176	58.0
National Institute on Drug Abuse’s website and publications?	175	43.5
NIDA’s annual “Blending” conferences?	174	8.6
Your area’s Addiction Technology Transfer Center (ATTC)?	174	9.2
Technical Assistance Publications (TAPs), Treatment Improvement Protocols (TIPs), and other publications from the Center for Substance Abuse Treatment (CSAT)?	175	35.4

Table 7 demonstrates means support scores for MAT from a variety of program stakeholders. For each of these groups, respondents were asked to rate their support for MAT on a scale ranging from 1 to 10, with 1 equal to “very low” and 10 equal to “very high.” Respondents provided the highest mean rating for their perceptions of support provided by their program’s treatment staff, while the lowest mean rating was provided for their perception of support provided by operations or non-treatment staff. While non-treatment staff were rated the lowest in terms of support, these ratings were often qualified by interviewees as being tied to a lack of knowledge about MAT among operations staff rather than overt resistance to MAT. To illustrate, 85 interviewees made comments in support of their rating

that indicated that this group of staff simply lacked knowledge about MAT. Their comments often also reflected a tendency of programs to exclude these staff from discussions of MAT.

While non-treatment staff received the lowest rating among the stakeholders, none of the groups received high ratings. Even for treatment staff, who received the highest mean rating of support, numerous comments were made during the interviews that reflected issues with mixed support for MAT depending on the medication in question, concerns with misuse of certain medications, and misunderstanding of how some of the medications work. For example, one interviewee shared that some treatment staff at his/her program were concerned that clients would be become addicted to Vivitrol. These themes of mixed support for MAT and for harm reduction strategies, lack of comprehensive knowledge about the entire range of medication options involved in MAT, and ongoing concerns with misuse of medications were common among respondent comments in relation to all of the stakeholder groups.

Table 7. Ratings of Stakeholder Support for MAT

Question	n	Mean	Standard Deviation
How would you rate the support of the larger criminal justice community for MAT?	171	6.22	2.208
How would you rate the support of your treatment staff for MAT?	172	6.73	2.660
How would you rate the support of your non-treatment staff for MAT?	159	5.27	2.616
How would you rate the support of other external stakeholders of your program for MAT?	132	5.53	2.590
How would you rate the support of the larger community for MAT?	159	6.04	2.167

SECTION 3

Survey Results

Respondent Characteristics

Table 8 describes the survey respondents. 59.1% of the participants worked in a CBCF. 59.3% of the sample were female, and 54.8% had at least a 4 year college degree. The majority of respondents worked first shift (72.1%). 20.3% of respondents were in management, 27.5% were in direct service positions, and 40.7% were in operations. The most common example of management staff were Program Directors and Supervisors. Direct service included such positions as clinicians, case managers, employment specialists, and teachers. Operations staff, while primarily comprised of security staff, also

included other positions such as kitchen workers and maintenance. Finally, few of the respondents indicated that they were in recovery from addiction (9.1%).

Table 8. Survey Respondent and Program Characteristics

Variable	N	% or Mean (SD)
Facility		
Halfway house	371	40.8
CBCF	538	59.1
Gender		
Male	368	40.4
Female	540	59.3
Hours per week		
		40.54 (7.82)
Shift		
First	656	72.1
Second	162	17.8
Third	83	9.1
Education		
<High school	1	.1
High school/GED	238	26.3
2 year college	167	18.4
4 year college	345	37.9
Graduate	144	15.8
Post-graduate	10	1.1
Position		
Management	185	20.3
Clinical	250	27.7
Medical	10	1.1
Operations	70	40.7
Other	84	9.2
In recovery from addiction		
Yes	81	9.1
No	827	90.9
Time in corrections		
<1 year	190	20.9
1-2 years	159	17.5
3-5 years	150	16.5
6-10 years	114	12.5
11-20 years	103	11.3
20+ years	29	3.2

Staff Attitudes and Beliefs

Survey data were used to assess staff beliefs about general treatment approaches for clients with addiction disorders, beliefs about medication-assisted treatment for clients with addiction disorders, and beliefs about the outcomes of medication-assisted treatment. All survey items were rated on a scale of 1 to 4, with 1 equal to “strongly disagree” and 4 equal to “strongly agree.” Results from these surveys are presented in this section.

Respondents were first asked about their beliefs regarding various psychosocial (i.e., non-MAT) treatment approaches for clients with addiction disorders. Belief statements included in the survey align with one of three treatment approaches: cognitive-behavioral therapy, 12-step, or motivational enhancement therapy. Table 9 includes comparisons of the mean responses to each item by staff position – supervisory, clinical, or operations. One-way Analysis of Variance (ANOVA) was used to examine whether the three staff groups differed significantly in terms of their endorsement of each item on the survey. Post hoc analyses using Tukey’s procedure demonstrate that the majority of significant findings pertain to differences in opinions of clinical and operations staff, primarily when compared to each other rather than to supervisory staff. Table 9 illustrates an overall pattern of clinical staff providing statistically significantly higher ratings on items reflective of cognitive-behavioral and motivational enhancement approaches, and operations staff providing statistically significantly higher ratings on items reflective of 12-step approaches and more confrontational approaches. Items rated significantly higher by clinical staff are:

- Treatment sessions should be tailored to the client’s stage of change.
- Treatment session should include routine discussions of “high-risk” situations for substance use and how to use coping skills in those situations.
- Expressing support for the client’s ability to succeed is important during treatment sessions.
- Clients should be encouraged to think about how their behaviors are preventing them from reaching their goals and ideals.
- Clients should be assigned homework so that they can practice new skills.

Items rated significantly higher by operations staff are:

- Clients must accept that they must reach out to recovering addicts.
- The primary goal of treatment is to encourage clients to work the 12 steps.
- Clients should be confronted about their resistance during treatment.

Table 9. One-Way Analyses of Variance for Effects of Staff Position on Treatment Philosophy Beliefs

Variable and Source	Supervisory		Clinical/Client Services		Operations		F	Post Hoc
	Mean	n	Mean	n	Mean	n		
Clients must accept that they must reach out to recovering addicts.	2.43	181	2.52	300	2.73	373	12.520***	<u>O</u> <u>SC</u>
Treatment sessions should be tailored to the client's stage of change.	3.34	181	3.38	304	3.24	368	4.831**	<u>SC</u> <u>O</u>
The primary goal of treatment is to encourage clients to work the 12 steps.	2.25	179	2.35	299	2.76	364	41.863***	<u>O</u> <u>SC</u>
Treatment sessions should include routine discussions of "high-risk" situations for substance use and how to use coping skills in those situations.	3.56	184	3.55	305	3.43	378	4.804**	<u>SC</u> <u>O</u>
Expressing support for the client's ability to succeed is important during treatment sessions.	3.60	184	3.66	307	3.53	372	5.267**	<u>SC</u> <u>O</u>
Treatment sessions should use role-playing to teach new skills.	3.41	183	3.40	306	3.31	373	2.322	
Clients should be encouraged to think about how their behaviors are preventing them from reaching their goals and ideals.	3.60	185	3.62	307	3.52	377	3.378*	<u>SC</u> <u>O</u>
Clients should be assigned homework so that they can practice new skills.	3.46	182	3.48	307	3.35	377	4.632**	<u>SC</u> <u>O</u>
Clients should be confronted about their resistance during treatment.	2.99	176	2.95	301	3.17	372	9.863***	<u>O</u> <u>SC</u>
Harm reduction is an important goal for treatment.	3.13	175	3.13	296	3.21	363	1.726	
It is important to help clients to replace unrealistic and destructive thoughts.	3.59	184	3.52	305	3.46	374	3.912*	<u>SC</u> <u>O</u>
Addiction can be best characterized as a brain disease.	2.77	176	2.77	302	2.73	372	.251	
Clients must accept that they have no control over their addiction and that recovery requires that they have faith in a higher power.	2.25	182	2.16	301	2.32	374	2.597	

S=Supervisory; C=Clinical/Client Services; O=Operations

After rating items on overall treatment approaches for addiction, respondents were next asked to assess the extent to which they agreed with a series of statements indicative of various perceived concerns related to the use of medication-assisted treatment in corrections programs. Table 10 provides the average ratings for supervisory staff, clinical staff, and operational staff. Here we see statistically significant differences in mean ratings of these three groups on all but two items. The consistent pattern presented is that operational staff were more likely to agree with negative statements associated with medication-assisted treatment. These items were:

- Using medications to treat addiction is substituting one drug for another.
- Using medications to treat addiction in correctional programs causes too many problems with diversion and contraband within the facility.
- Providing medication alone is sufficient to treat opioid addiction.
- Medications are drugs and you cannot be clean if you are taking drugs.
- Using medication in substance abuse treatment is promoting the pharmaceutical companies.

Also of interest is that operations staff provided a statistically significantly lower endorsement of agreement to the item “I have received adequate information about the effects of using medication-assisted treatment for offender populations.”

Table 10. One-Way Analyses of Variance for Effects of Staff Position on Perceived Concerns

Variable and Source	Supervisory		Clinical/Client Services		Operations		F	Post Hoc
	Mean	n	Mean	n	Mean	n		
Using medications to treat addiction is substituting one drug for another.	2.46	174	2.57	281	2.89	323	18.302***	<u>Q</u> <u>SC</u>
Our client are not interested in using medications as part of their substance abuse treatment.	2.03	132	2.09	224	2.16	237	1.861	
Our clients cannot afford to pay for substance abuse treatment medications	3.14	148	3.10	250	3.05	245	.710	
Using medications to treat addiction in correctional programs causes too many problems with diversion and contraband within the facility.	2.49	154	2.70	257	2.87	309	10.645***	<u>Q</u> <u>C</u> <u>S</u>

Table 10 Cont'd. One-Way Analyses of Variance for Effects of Staff Position on Perceived Concerns

Variable and Source	Supervisory		Clinical/Client Services		Operations		F	Post Hoc
	Mean	n	Mean	n	Mean	n		
Providing medication alone is sufficient to treat opioid addiction.	1.45	169	1.41	293	1.67	308	11.178***	<u>O</u> <u>SC</u>
Medications are drugs and you cannot be clean if you are taking drugs.	1.92	175	1.96	290	2.16	333	7.701***	<u>O</u> <u>SC</u>
Using medication in substance abuse treatment is promoting the pharmaceutical companies.	2.10	162	2.24	255	2.44	304	10.011***	<u>O</u> <u>SC</u>
I have received adequate information about the effects of using medication-assisted treatment for offender populations	2.63	168	2.57	286	2.41	295	4.561*	<u>SC</u> <u>O</u>

S=Supervisory; C=Clinical/Client Services; O=Operations

Finally, all respondents were also asked to rate a series of items related to their beliefs about specific outcomes of medication-assisted treatment. Table 11 shows that operations staff provided significantly lower ratings of agreement than supervisory and clinical staff on items that reflected benefits of MAT, such as MAT reduces relapse, increases employment, reduces crime, reduces or blocks the effects of opioids, increases family stability, and improves birth outcomes for children born to addicted mothers. On the other hand, they provided significantly higher ratings of agreement to items indicating beliefs about negative outcomes of MAT, such as MAT rewards criminals for being drug users and interferes with the ability to drive a car. In addition, supervisory staff provided significantly higher ratings of agreement than both groups of line staff for two items – MAT lowers death rates and MAT increases program retention.

In the surveys, we also asked staff about their perceptions of the acceptability and effectiveness of four medications used to treat opioid disorders: buprenorphine, methadone, oral naltrexone, and injectable naltrexone. Table 12 below outlines differences in staff opinions about the acceptability of each of the medications. Mean ratings for each staff group are reported for the survey item “In your opinion as a corrections professional, how acceptable is each of the following treatment techniques for substance abuse?” Responses were scored on a scale ranging from 1 to 4 (1=unacceptable, 2=somewhat unacceptable, 3=somewhat acceptable, 4=acceptable). There were no statistically significant differences

Table 11. One-Way Analyses of Variance for Effects of Staff Position on Outcomes Beliefs

Variable and Source	Supervisory		Clinical/Client Services		Operations		F	Post Hoc
	Mean	n	Mean	n	Mean	n		
Medication-assisted treatment reduces relapse.	2.85	117	2.71	209	2.52	247	10.1000***	<u>SC</u> <u>O</u>
Medication-assisted treatment rewards criminals for being drug users.	1.86	154	1.88	261	2.13	305	14.982***	<u>O</u> <u>SC</u>
Medication-assisted treatment increases employment.	2.81	102	2.64	174	2.46	221	9.079***	<u>SC</u> <u>O</u>
Medication-assisted treatment reduces crime.	2.69	114	2.58	180	2.29	258	15.018***	<u>SC</u> <u>O</u>
Medication-assisted treatment interferes with the ability to drive a car.	2.19	99	2.34	162	2.69	222	21.147***	<u>O</u> <u>SC</u>
Medication-assisted treatment reduces or blocks the effects of heroin and other opioids.	3.13	131	3.00	236	2.80	235	11.058***	<u>SC</u> <u>O</u>
Medication-assisted treatment reduces sexually transmitted infections and HIV.	1.87	117	1.83	206	1.85	267	.072	
Medication-assisted treatment lowers death rates.	2.87	106	2.56	191	2.39	241	13.582***	<u>S</u> <u>CO</u>
Medication-assisted treatment prolongs addiction.	2.15	124	2.34	199	2.47	249	7.046**	<u>O</u> <u>SC</u>
Medication-assisted treatment increases program retention.	2.90	109	2.70	154	2.63	202	6.310**	<u>S</u> <u>CO</u>
Medication-assisted treatment increases family stability.	2.86	115	2.70	176	2.56	237	7.287***	<u>SC</u> <u>O</u>
Medication-assisted treatment improves birth outcomes for children born to addicted mothers.	2.81	77	2.64	129	2.47	174	4.897**	<u>SC</u> <u>O</u>

S=Supervisory; C=Clinical/Client Services; O=Operations

between the groups on perceived acceptability of buprenorphine or methadone. Supervisory staff and clinical staff did have significantly higher ratings of acceptability of oral naltrexone and injectable naltrexone compared to operational staff. Response patterns also indicate that all groups of staff provided the strongest endorsements of acceptability for injectable naltrexone and oral naltrexone, while methadone received the weakest endorsements for acceptability by all three groups.

Table 12. One-Way Analyses of Variance for Effects of Staff Position on Acceptability Ratings

Dependent Variable	Supervisory		Clinical/Client Services		Operations		F	Post Hoc
	Mean	n	Mean	n	Mean	n		
Buprenorphine	2.13	129	2.15	213	1.94	217	2.260	
Methadone	1.83	124	1.81	205	1.80	217	.044	
Oral tablet naltrexone	2.89	98	2.62	162	2.29	165	8.304***	<u>SC</u> <u>O</u>
Injectable naltrexone	3.18	127	3.08	209	2.40	211	25.504***	<u>SC</u> <u>O</u>

Diffusion of Knowledge

Since previous studies have found that lack of information about medication effectiveness serves as a barrier to its implementation, we sought to examine the extent of knowledge diffusion regarding each medication. In addition, we sought to identify predictors of knowledge diffusion. Using the methodology of Abraham, Ducharme, and Roman (2009), we operationalized diffusion as a dichotomous variable. This variable was coded based on the response to the item “Based on your knowledge and personal experience, to what extent do you consider each of the following treatment techniques to be effective?” Scaled responses ranged from “very ineffective” to “very effective”; however, staff were also able to choose a “don’t know” response. Responses were coded as a 0 for each medication if the staff provided a response of “don’t know” to the item and a 1 if he/she provided an opinion on effectiveness (regardless of whether the rating indicated a view that the medication was effective or ineffective). Higher percentages of staff endorsing a “don’t know” response indicates less complete diffusion of the medication within the field of corrections.

Table 13 outlines the information about diffusion of opioid pharmacotherapies in Ohio halfway houses and CBCFs. The results show that fewer staff provided a “don’t know” response regarding the

effectiveness of buprenorphine and methadone compared to the oral and injectable forms of naltrexone. Specifically, 35.1% did not know the effectiveness of buprenorphine, 37.2% did not know the effectiveness of methadone, 55.4% did not know the effectiveness of oral naltrexone, and 44% did not know the effectiveness of injectable naltrexone. This trend is consistent with the amount of time these medications have been in use within the field of community corrections in Ohio.

The acceptability and effectiveness data contained in Table 13 show that Ohio corrections staff perceive methadone and buprenorphine as less effective than both oral and injectable naltrexone, with the highest rating of effectiveness assigned to injectable naltrexone. Regarding acceptability, the results show the same trend, with staff rating methadone and buprenorphine as less acceptable than both forms of naltrexone. Again, injectable naltrexone received the highest endorsement of acceptability.

Table 13. Distribution of Pharmacotherapy Diffusion and Staff Perceptions, % or Mean (SD)

Variable	Buprenorphine	Methadone	Oral Naltrexone	Injectable Naltrexone
Dependent variables				
Diffusion	35.1%	37.2%	55.4%	44.0%
Perceived effectiveness	1.95 (.82)	1.80 (.80)	2.31 (.90)	2.74 (.99)
Perceived acceptability	2.06 (1.08)	1.81 (1.01)	2.54 (1.20)	2.83 (1.20)

Independent Variable. Independent variables fell into four categories – staff characteristics, program characteristics, pharmacotherapy exposure, and general beliefs about medication-assisted treatment for offenders. Staff characteristics included gender (female = 1), education (graduate degree or higher=1, bachelor’s degree or lower=0), average number of hours worked each week, staff position (management, clinical, or operations), recovery status (in recovery from addiction = 1), and 12-step orientation (measured on a 3-item scale created and validated by Kasarabada et al., 2001). Program characteristics included whether the program was part of a larger parent agency (yes=1) and program type (CBCF=1). Pharmacotherapy exposure included two variables – level of medication-assisted treatment offered at the respondent’s program (no access to MAT, external access to MAT, direct provision of MAT) and whether the staff person agreed with the statement “I have received adequate information about medication-assisted treatment” (agreed=1). Finally, general beliefs were assessed via average ratings on two scales. The first scale assessed staff beliefs about outcomes of medication-assisted treatment and included such items as “medication-assisted treatment reduces crime” and “medication-assisted treatment increases employment.” The second scale assessed commonly expressed staff concerns about MAT and included such items as “Using medications to treat addiction is

substituting one drug for another” and “Using medications to treat addiction in correctional programs causes too many problems with diversion and contraband within the facility.” Respondents rated items on these scales on a scale of 1 to 4, with 1 = strongly disagree and 4 = strongly agree.

Table 14 contains results of logistic regression models used to predict the odds of a respondent endorsing an opinion of effectiveness for each of the medications. Similar patterns exist across all four models. For example, operations staff were more likely to provide a “don’t know” response for all four medications. Holding an operations position reduced the odds of the staff person endorsing an opinion by 55% for methadone, 45% for buprenorphine, 49% for oral naltrexone, and 61% for injectable naltrexone. Staff who agreed that they had received adequate information about the effects of using medication-assisted treatment with offender populations also had an increased likelihood of endorsing an opinion about the effectiveness of all four medications. Depending on the medication examined, staff who agreed that they had received adequate information were 2.3 to 3.5 times more likely to endorse an opinion compared to those who did not agree that they had received adequate information. Gender was also a significant predictor in 3 of the 4 models, with females demonstrating an increased probability of endorsing an opinion about methadone, buprenorphine, and injectable naltrexone. Individuals with a graduate degree were significantly more likely to endorse an opinion about the effectiveness of methadone and buprenorphine. Having a graduate degree also approached significance ($p=.059$) in predicting endorsement of an opinion about oral naltrexone. In addition, staff who identified as being in recovery from a substance use disorder were significantly more likely to endorse an opinion about methadone and buprenorphine. Finally, endorsing a 12-step orientation was predictive of a “don’t know” response regarding the effectiveness of buprenorphine.

In addition to staff characteristics, there were several agency or program characteristics that were predictive of diffusion. First, staff who worked in programs that provided access to medication-assisted treatment (rather than directly providing medication-assisted treatment) were more likely to endorse an opinion about all four medications, while staff working in programs that were providing their own medication-assisted treatment services were more likely to endorse an opinion for three of the four medications – methadone, oral naltrexone, and injectable naltrexone. Second, working in a CBCF was predictive of having an opinion about the effectiveness of both oral and injectable naltrexone. Finally, working in a program that was housed within a larger parent agency was also predictive of endorsing an opinion about both oral and injectable naltrexone.

Perceived Acceptability of Medications

Table 15 presents the results of logistic regression models predicting the odds of a respondent endorsing each medication as acceptable. Respondents were asked to rate the acceptability of each medication using a 4-point scale, with 1 equal to “unacceptable”, 2 equal to “somewhat unacceptable”, 3 equal to “somewhat acceptable”, and 4 equal to “acceptable.” Responses were collapsed into a dichotomous variable so that responses of “unacceptable” and “somewhat unacceptable” were coded as a 0, and responses of “somewhat acceptable” and “acceptable” were coded as a 1.

While there are some patterns in predictors across models, staff and agency characteristics did not consistently predict perceived acceptability across the four medications. Predictors that were somewhat consistent across models included staff beliefs about outcomes of medication-assisted treatment, whether the facility directly provided medication-assisted treatment, and staff concerns about medication-assisted treatment. Specifically, staff who demonstrated a higher level of agreement with statements indicating positive outcomes of MAT were significantly more likely to endorse the use of buprenorphine, oral naltrexone, and injectable naltrexone as acceptable. Depending on the medication in question, higher endorsement of these outcome beliefs resulted in staff being 2.18 to 5.83 times more likely to agree that the medication was acceptable. Similarly, higher endorsement of items reflecting concerns with MAT for offenders produced a statistically significant lower odds of agreeing that three of the medications were acceptable for use with correctional clients; these medications were methadone, buprenorphine, and oral naltrexone. While not statistically significant at the $p=.05$ level, staff concerns did approach significance as a predictor of acceptability for injectable naltrexone as well ($p=.06$).

Working in a facility that directly provided MAT was also a statistically significant predictor of endorsing the acceptability of methadone, oral naltrexone, and injectable naltrexone. While direct provision of MAT served to increase the probability that staff would rate oral and injectable naltrexone as acceptable, it served to decrease the probability that staff would endorse methadone as acceptable. For example, working in a facility that provided MAT reduced the probability of endorsing methadone as acceptable by 54%. While not statistically significant the $p=.05$ level, there is a similar pattern with buprenorphine (which approaches significance at $p=.08$) that demonstrates a lower probability of endorsing buprenorphine as acceptable in facilities that directly provided MAT.

Variables that were not consistent predictors of acceptability included education level of the respondent, working as a direct service provider, working as operations staff, and working in a CBCF. For example, having a graduate degree was a significant predictor of the acceptability of injectable

naltrexone but not for other medications. Individuals with a graduate degree were 2.34 times more likely to endorse injectable naltrexone as acceptable. The respondent's position was predictive of acceptability of both oral and injectable naltrexone. Operations staff were significantly less likely to endorse these medications as acceptable as compared to management staff, while clinical or direct service staff were significantly less likely only to endorse oral naltrexone as acceptable. Finally, working in a halfway house significantly reduced the likelihood that the respondent would endorse buprenorphine as acceptable. While not reaching statistical significance for the other medications, the patterns of the results suggest that working in a CBCF exerts a positive influence on perceptions of acceptability of naltrexone, while working in a halfway house exerts a negative influence on perceptions of acceptability of methadone and buprenorphine.

Perceived Effectiveness of Medications

Table 16 presents the results of logistic regression models predicting the odds of a respondent endorsing each medication as effective. Respondents were asked to rate the effectiveness of each medication using a 4-point scale, with 1 equal to "not at all effective", 2 equal to "somewhat effective", 3 equal to "effective", and 4 equal to "very effective." Responses were collapsed into a dichotomous variable so that responses of "not at all effective" were coded as a 0, and all other responses were coded as a 1.

The only consistent predictor across all four models was staff beliefs regarding the outcomes of MAT. Higher average ratings on these beliefs resulted in statistically significant increases in the probability that staff would agree that the medication was effective. Working in a facility that provides MAT was a significant predictor of perceiving oral naltrexone to be effective; respondents working in a facility that provides MAT were 3.41 times more likely to endorse oral naltrexone as effective than respondents working in programs that did not provide MAT. Operations staff were significantly less likely to endorse oral and injectable naltrexone as effective; while not statistically significant at the $p=.05$ level, identifying as direct service/clinical staff approached significance as a predictor ($p=.06$) of less favorable attitudes toward oral naltrexone. Working in a halfway house produced significantly lower odds of endorsing methadone and buprenorphine as effective (63% lower odds and 64% lower odds, respectively). Finally, higher endorsement of concerns related to use of MAT with offenders resulted in a 56% reduction in odds of endorsing methadone as effective. Unlike some previous studies, 12-step orientation and personal recovery status were not significant predictors of endorsement of effectiveness for any of the medications.

Table 14: Logistic Regression Results for Diffusion of Medication Knowledge

Variable	Methadone			Buprenorphine			Oral Naltrexone			Injectable Naltrexone		
	B	SE	OR	B	SE	OR	B	SE	OR	B	SE	OR
Parent agency	-.03	.27	.97	-.06	.27	.94	.65*	.27	1.92	.71*	.29	2.04
Female	.41*	.19	1.51	.51**	.19	1.67	.28	.18	1.32	.41*	.19	1.51
Hours worked	-.01	.01	.99	-.01	.01	.99	-.01	.01	.99	.01	.01	1.01
Clinical position ^a	-.32	.26	.73	-.29	.26	.75	-.49*	.23	.61	-.23	.25	.80
Operations position ^a	-.80**	.26	.45	-.59*	.26	.55	-.68**	.25	.51	-.95***	.26	.39
Recovery status	2.13**	.55	8.40	1.57**	.44	4.80	.07	.31	1.07	.38	.34	1.47
Level of education	.86**	.28	2.38	.61*	.27	1.84	.44	.23	1.55	.47	.25	1.59
Information on MAT	.83**	.18	2.30	.96***	.19	2.63	1.11***	.17	3.05	1.26***	.18	3.54
12-step orientation	-.10	-.10	.90	-.36*	.16	.70	.04	.15	1.04	-.22	.15	.80
Agency provides MAT ^b	.46*	.46	1.58	-.09	.22	.91	1.01***	.21	2.75	1.16***	.23	3.20
Agency provides access to MAT ^b	.56*	.56	1.76	.64**	.25	1.90	.52*	.23	1.69	.70**	.23	2.02
CBCF	.16	.16	1.17	-.09	.29	.91	.57*	.29	1.77	.60*	.70	1.82
Model chi-square			95.68***			85.14***			98.07***			132.98***
Nagelkerke R ²			.193			.175			.191			.253

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

^a Reference category = Management/supervisory position

^b Reference category = Agency allows no access to MAT

Table 15: Logistic Regression Results for Perceived Acceptability of Medications

Variable	Methadone			Buprenorphine			Oral Naltrexone			Injectable Naltrexone		
	B	SE	OR	B	SE	OR	B	SE	OR	B	SE	OR
Parent agency	.26	.43	1.29	-.12	.40	.89	1.06	.58	2.88	.79	.51	2.21
Female	.22	.29	1.25	-.21	.27	.81	.48	.37	1.62	.63*	.33	1.88
Hours worked	.01	.02	1.01	-.02	.02	.98	-.04	.03	.96	.02	.02	1.02
Recovery status	.26	.44	1.29	.03	.44	1.03	.06	.58	1.06	.25	.53	1.28
Staff beliefs	.31	.27	1.37	.78**	.26	2.18	1.76***	.37	5.83	1.73***	.33	5.62
Education level	.23	.35	1.26	.29	.33	1.34	.51	.46	1.66	.85*	.44	2.34
12-step orientation	.27	.23	1.31	.37	.22	1.45	.00	.31	1.00	-.13	.27	.87
Staff information	-.12	.28	.89	-.12	.26	.89	.18	.37	1.20	.14	.31	1.15
Facility provides MAT	-.78**	.31	.46	-.49	.28	.61	.98**	.39	2.67	1.14***	.35	3.14
Clinical staff ^a	.44	.36	1.56	.13	.33	1.14	-.95*	.48	.39	-.50	.42	.60
Operations staff ^a	.48	.40	1.62	.02	.36	1.02	-1.03*	.51	.36	-.98*	.44	.37
CBCF	-.48	.43	.62	-1.21**	.40	.30	.68	.60	1.97	.71	.52	2.04
Staff concerns	-.90***	.27	.40	-.90***	.26	.41	-1.08***	.33	.34	-.53	.28	.59
Model chi-square			42.94***			84.64***			148.97***			152.61***
Nagelkerke R ²			.175			.291			.568			.494

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

^a Reference category = Management/supervisory position

Table 16: Logistic Regression Results for Perceived Effectiveness of Medications

Variable	Methadone			Buprenorphine			Oral Naltrexone			Injectable Naltrexone		
	B	SE	OR	B	SE	OR	B	SE	OR	B	SE	OR
Parent agency	-.49	.37	.61	-.36	.40	.70	.45	.67	1.57	-.09	.73	.92
Female	-.2	.26	.88	-.03	.28	.97	.17	.43	1.18	.28	.46	1.32
Hours worked	.01	.02	1.01	.01	.02	1.01	-.03	.03	.97	-.04	.04	.96
Recovery status	.32	.40	1.38	.08	.45	1.09	.34	.77	1.40	.30	.73	1.36
Staff beliefs	1.11***	.25	3.04	1.47***	.27	4.36	2.17***	.46	8.77	2.60***	.49	13.52
Education level	-.04	.32	.96	.30	.37	1.35	.30	.59	1.35	.28	.67	1.32
12-step orientation	.15	.22	1.16	.10	.23	1.11	-.27	.40	.76	-.30	.41	.74
Staff information	-.34	.26	.71	-.47	.27	.62	-.46	.45	.63	-.20	.46	.82
Facility provides MAT	.05	.27	1.05	.04	.30	1.04	1.23**	.47	3.41	.85	.50	2.35
Clinical staff ^a	-.17	.32	.84	.23	.35	1.26	-1.17	.63	.31	-.56	.64	.57
Operations staff ^a	.38	.36	1.46	.02	.37	1.02	-1.25*	.62	.29	-1.36*	.63	.26
CBCF	-.99**	.38	.37	-1.03**	.42	.36	-.39	.70	.68	-.86	.78	.42
Staff concerns	-.44*	.23	.64	-.16	.24	.85	-.44	.36	.64	-.42	.39	.66
Model chi-square			69.86***			79.64***			90.64***			92.68***
Nagelkerke R ²			.244			.282			.481			.473

*p≤.05, **p≤.01, ***p≤.001

^a Reference category = Management/supervisory position

SECTION 4

Implications

This study sought to identify barriers to medication-assisted treatment in community corrections programs and to identify predictors of staff attitudes toward the acceptability and effectiveness of specific medications used to treat opioid addiction. The results of this study indicate that barriers to MAT in halfway houses and CBCFs in Ohio fall into four categories. These are infrastructure, workforce development, staff and stakeholder education, and technical assistance.

Probably the most glaring deficit in terms of infrastructure is the lack of access to medically supervised detoxification services for opioid dependent clients, with 63.3% of facilities indicating that they have no access to these services. However, there may be opportunities to expand access to detoxification services in the future through House Bill 483. Language in H.B. 483 directs the Ohio Department of Mental Health and Addiction Services to assist local county boards with providing a full spectrum of care, which includes the provision of detoxification services.

Also related to infrastructure is the ability to recruit and retain medical staff necessary for the delivery of MAT. Limited financial resources hinders the ability of many community corrections programs' efforts, however. While most respondents indicated that the cost of having medical personnel on staff was cost prohibitive, they did report more success with bringing medical personnel on as contract staff. Respondents also indicated more success with finding nurses and nurse practitioners (NPs) to provide medical care relative to findings physicians; this was related to nursing staff being more willing to work in correctional environments combined with the lower costs associated with contracting with nurses and NPs versus physicians. Still, there was a great deal of variation in how programs structured their medical services, even across similar program types. Finally, small programs face an additional barrier to contracting with medical personnel if they do not have enough volume of services required to make a contract attractive to a prospective contractor.

In addition to financial constraints, the findings clearly demonstrate that many programs struggle to find medical staff that are both willing and qualified to work with criminal justice clients who have mental health and/or substance use disorders. These findings suggest that there is a need for further workforce development among the medical community and that additional collaboration between the fields of community corrections and medicine would be of value. For example, there may be opportunities to establish partnerships through professional state trade associations such as the Ohio Community Corrections Association, the Ohio State Medical Association, and the Ohio Hospital Association. There also may be opportunities to partner with universities for specialized clinical

placements within community corrections programs to create a pipeline of medical personnel qualified to work with criminal justice clients.

Regarding the knowledge and attitudes of staff currently working in Ohio halfway houses and CBCFs, the study produced a number of findings that indicate that community corrections programs would benefit from enhancing staff education and training. Enhancements to current efforts should include: (1) increased consumption of information from scientific sources, (2) information on all medications involved in medication-assisted treatment, to include evidence of the efficacy of each; and (3) inclusion of operations staff in all education efforts and discussions. Increasing use of scientific information can help dispel some of the inaccurate perceptions about MAT and can help staff to better understand the underlying mechanisms of each medication and how they impact patient functioning.

Expanding education efforts to include the effectiveness all medications approved for treatment of opioid addiction, regardless of the specific medications in use at a program, will help staff to understand the full range of medications available under the umbrella of MAT and that while there may be operational reasons to prefer one medication over another, these reasons are often unrelated to effectiveness. Qualitative information from the interviews would also suggest that limited exposure to information on all medications and individual level experiences with specific medications has resulted in many staff interpreting the phrase “medication-assisted treatment” to only mean specific medications (e.g., only Vivitrol or only Suboxone). The result is that staff then form their opinions about “medication-assisted treatment” based only on their knowledge and opinions of a single medication.

In addition to enhancing the source and content of staff education materials, efforts should be made to specifically target operations staff as there was clear and consistent findings regarding operational staff and: (1) their lack of knowledge about MAT, (2) their overall lower rates of agreeing that MAT is acceptable for use with criminal justice populations, and (3) their lower rates of agreeing that MAT is effective. Qualitative data from the interviews suggest that this is simply due to lack of knowledge (rather than from resistance to MAT), in large part due to exclusion from internal communication/training efforts. This is further supported by lower ratings from operational staff on the item assessing whether they thought that they had received adequate information about MAT.

In addition to enhancing staff education, barriers to MAT may be reduced by increasing systematic efforts to educate key external stakeholder groups, such as the volunteer community (to include AA/NA) and referral sources, such as probation and parole agencies. Evidence for this is seen in the moderate support ratings provided by interview respondents. Supplementary evidence specific to referral sources is demonstrated by 40% of respondents from programs that had not yet implemented

MAT indicating that their referral sources prohibited the provision of MAT regardless of the availability of funding to cover the expense of providing MAT.

Finally, while the majority of interview respondents agreed that Ohio's Single State Agency – the Ohio Department of Mental Health and Addiction Services (OHMAS) – was supportive of using medications to treat opioid dependent individuals residing in community corrections programs, most did not agree that the OHMAS had done enough to assist community corrections programs with implementing MAT. Consequently, there may be an opportunity to formally partner with OHMAS for technical assistance, possibly through the Ohio Community Corrections Association.

Conclusions

Results from this study indicate that there is great interest among community corrections practitioners about how best to treat opioid dependent clients in ways that best meet the needs of the clients and that are appropriate to the setting. Findings also highlighted a number of barriers to full-scale implementation of evidence-based practices for treating opioid dependent clients in these environments. While some of these barriers were related to adequate infrastructure, much of the findings centered on education and workforce development opportunities. To assist Ohio practitioners with these issues, we are currently working on creating a practitioner toolkit in order to centralize existing available resources and to create new resources. We will also continue to work with the Ohio Community Corrections Association to determine what products will be of most value to Ohio practitioners and to determine the best methods of disseminating these products as well as the study results and findings.

REFERENCES

- Amato, L., Davoli, M., Perucci, C. A., Ferri, M., Faggiano, F., & Mattick, R. P. (2005). An overview of systematic reviews of the effectiveness of opiate maintenance therapies: Available evidence to inform clinical practice and research. *Journal of Substance Abuse Treatment, 28*, 321-329.
- Anglin, M. D., & Speckart, G. (1988). Narcotics use and crime: A multisample, multimethod analysis. *Criminology, 26*(2), 197-233.
- Bennett, T., Holloway, K., & Farrington, D. (2008). The statistical association between drug misuse and crime: A meta-analysis. *Aggression and Violent Behavior, 13*, 107-118.
- Coviello, D. M., Cornish, J. W., Lynch, K. G., Boney, T. Y., Clark, C. A., Lee, J. D., ... & O'Brien, C. P. (2012). A multisite pilot study of extended-release injectable naltrexone treatment for previously opioid-dependent parolees and probationers. *Substance Abuse, 33*, 48-59.
- Darke, S., Torok, M., Kaye, S., Ross, J., & McKetin, R. (2010). Comparative rates of violent crime among regular methamphetamine and opioid users: Offending and victimization. *Addiction, 105*(5), 916-919.
- Egli, N., Pina, M., Christensen, P. S., Aebi, M., & Killias, M. (2009). Effects of drug substitution programs on offending among drug-addicts. *Campbell Systematic Reviews, 3*.
- Friedmann, P. D., Hoskinson Jr., R., Gordon, M., Schwartz, R., Kinlock, T., Knight, K., ... & Frisman, E. (2012). Medication-assisted treatment in criminal justice agencies affiliated with the criminal justice-drug abuse treatment studies (CJ-DATS): Availability, barriers, and intentions. *Substance Abuse, 33*, 9-18.
- Gottfredson, D.C., Kearley, B. W., & Bushway S. D. (2008). Substance use, drug treatment, and crime: An examination of intra-individual variation in a drug court population. *The Journal of Drug Issues, 38*(2), 601-630.
- Inciardi, J. A. (2008). *The War on Drugs IV. 4th ed.* Upper Saddle River, NJ: Prentice Hall.
- Kasarabada, N. D., Hser, Y. I., Parker, L., Hall, E., Anglin, M. D., & Chang, E. A. (2001). A self-administered instrument for assessing therapeutic approaches of drug-user treatment counselors. *Substance Use Misuse, 36*(3), 273-299.
- Knudsen, H. K., Abraham, A. J., & Oser, C. B. (2011). Barriers to the implementation of medication-assisted treatment for substance use disorders: The importance of funding policies and medical infrastructure. *Evaluation and Program Planning, 34*, 375-381.

- Knudsen, H. K., Abraham, A. J., & Roman, P. M. (2011). Adoption and implementation of medications in addiction treatment programs. *J Addict Med*, 5(1), 21-27.
- Marlowe, D. B. (2003). Integrating substance abuse treatment and criminal justice supervision. *Science & Practice Perspectives*, 2(1), 4-14.
- Massatti, R., Beeghly, C., Hall, O., Karissa, M. & Potts, L. (2014). Increasing Heroin Overdoses in Ohio: Understanding the Issue. Columbus, OH: Ohio Department of Mental Health and Addiction Services
- Ohio Department of Mental Health and Addiction Services. (2014). *Increasing overdoses in Ohio: Understanding the issue*. Columbus, OH: Massatti, R., Beeghly, C., Hall, O., Kariisa, M., & Potts, L.
- Nosyk, B., Anglin, M. D., Brissette, S., Kerr, T., Marsh, D. C., Schackman, B. R., ... & Montaner, J. S. G. (2013). A call for evidence-based medical treatment of opioid dependence in the United States and Canada. *Health Affairs*, 32(8), 1462-1469.
- Ohio Department of Health. (2014). *2013 Drug overdose data*. Retrieved from <http://www.healthy.ohio.gov/vipp/data/rxdata.aspx>
- Ohio Department of Health (2015). *2014 Ohio drug overdose preliminary data: General findings*. Retrieved from <http://www.healthy.ohio.gov/vipp/data/rxdata.aspx>
- Volkow, N. D. & Montaner, J. (2011). The urgency of providing comprehensive and integrated treatment for substance abusers with HIV. *Health Aff (Millwood)*, 30(8), 1411-1419.