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Trends in abstinence and retention associated with implementing a Medication Assisted Treatment program for people with opioid use disorders using a Collective Impact approach

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Abstract

Background: Medication Assisted Treatment (MAT) is an evidence-based program for patients with opioid use disorders. Yet, within the state of Utah, MAT had not been widely available, promoted, or adopted within the public sector. Recognizing the potential benefit, a collective impact approach was used to promote social change and increase the utilization of MAT in the community for treatment of opioid use disorders.

Objective: Conduct a retrospective, observational case series study to measure the effect of a community-based, collective impact approach implementing the MAT program to improve the rate of abstinence and retention among individuals identified with an opioid use disorder in three Utah counties.

Methods: The study was designed and implemented by the Utah Opioid Community Collaborative (OCC) using a collective impact approach, which included broad sector coordination (public-private collaboration), a common agenda, participation in mutually reinforcing activities, continuous communication, consistent measurement of results, and identification of a backbone organization. The MAT intervention program includes use of FDA-approved medications in combination with counseling and behavioral therapies delivered within two community sites.

Analysis was performed over time to describe the rate of abstinence and retention associated with participation in the MAT program during 2015–2017.

Results: Of the 339 identified with risk of an opioid use disorders, 228 enrolled in the MAT Program. At MAT enrollment, average age was 32.6±8.2 years old and 58.0% were female. At 365 days post-MAT enrollment, 84% of participants were abstinent from opioid substances and 62% from all illicit substances.

Conclusions: Utilization of a collective impact approach provides a successful mobilization framework in Utah for increasing community engagement and expanding patient access to under-resourced MAT programs while suggesting a high rate of abstinence from illicit substances at 12 months.

Keywords

community-based participatory research; opioid use disorder; collective impact; prevention; medication assisted treatment

Introduction

Since the 1990's, historical physician opioid-prescribing patterns have been linked to opioid misuse and death.¹ Despite significant reductions in physician opioid prescribing since 2010², opioid misuse persists and has accelerated among some populations, with increases in heroin and synthetic opioid deaths in recent years.^{3,4} Approximately 4% of US adults (aged 25 years and older) misuse prescription opioids, accounting for more than 68% (47,600) of all drug overdose deaths in 2017 involving an opioid.^{5,6} From 2013–2015, Utah ranked 7th in the nation for drug overdose deaths per capita, led by prescription opioid overdose deaths, for which the state ranks 4th in the nation.⁴ While Utah is seeing a decline in prescription opioid deaths since 2010—including a 12% decline in the recent calendar year as reported by the Centers for Disease Control and Prevention (CDC), the number of heroin deaths increased during the same period.^{7,8} Healthcare utilization (i.e., emergency room visits and in-hospital admissions) for overdose related encounters has significantly increased during this time and continues to be highest among patients aged 18–24.⁷ Despite national and state-wide efforts within the health care system to reduce opioid prescribing, the prevalence of opioid use disorders and related harms remains a primary public health concern.⁹

Medication-assisted treatment (MAT) for patients with opioid use disorders has proven effective in improving recovery and abstinence in randomized controlled trials versus psychosocial treatment alone.¹⁰ MAT, including opioid treatment programs, combines behavioral or psychosocial therapies, counseling and pharmacologically-approved medications to treat opioid use disorders. Among medication-assisted treatment programs, buprenorphine, naltrexone, and methadone-based medication programs have been shown to be most effective with a high degree of evidence for increased treatment retention and opioid misuse reduction.^{11,12} Retention in MAT programs among patients with opioid use disorders is associated with better outcomes, fewer inpatient admissions of all types, and a reduction in health care expenditures and utilization of preventable services.^{13–16}

Despite promising results, population access to MAT remains a barrier to reducing overdose deaths. Only 36,000 (4%) of the over 900,000 available physicians in the United States able to prescribe opioids, have a waiver to prescribe buprenorphine to treat opioid use disorder, with limited access particular to rural areas.^{17,18} Inadequate addiction-related training, stigma associated with treating individuals who have opioid use disorders, unpredictable insurance coverage, along with a requirement of frequent check-in visits, drug monitoring tests and chronic prescription refills, make it difficult to convince physicians alone to provide effective addiction care using MAT.¹⁹ In 2015, a national study reported that among states and the District of Columbia, 96% had opioid abuse or dependence rates higher than their buprenorphine treatment capacity rates; 37% had a gap of at least 5 per 1000 people; and 38 states (77.6%) reported at least 75% of their Opioid Treatment Programs were operating at 80% capacity or more.²⁰ Therefore, the motivation for MAT participation exists; however, there are a lack of programs and health professionals able to provide access to MAT. As such, the scale and depth of the opioid crisis has proven to be a thorny problem—a problem that requires an “ecosystem of collaboration” to address a community’s needs.²¹

Collective impact methods, grounded in coalition action theory, is a framework to “tackle deeply entrenched and complex social problems” and is premised on the belief that no single policy, government, institution, or program can achieve significant and lasting social change without each other.²² Collective impact was created as a movement or action framework to help problem solve and mobilize complex social change; community-based participatory research (CBPR), a complimentary framework used specifically for conducting research, is characterized by principles on how to engage communities in the research process.²³ Deliberate study using CBPR evaluation methods has the potential to provide a coherent representation of how mobilization and collective action is gradually developed and leads to systematic changes in health priorities for communities.²³ A systematic review performed by Anderson et al., suggested that coalition-led interventions benefit a diverse range of individual health outcomes and behaviors, as well as health and social care delivery systems.²⁴ Leveraging the full resources and collective action of a community—including partnership among public, private, and not-for-profit organizations like health systems—has undoubtedly become a critical path to future progress to combat the opioid epidemic.^{25,26}

Nonetheless, the ability to assess the effects of a community-based partnership to reduce the opioid crisis has not been demonstrated. To address these gaps in knowledge, this study characterizes the development and deployment of a MAT demonstration project as part of a broader collective impact approach to identify, prioritize and address the root causes of prescription opioid misuse, addiction and overdose deaths in Utah communities while improving access to care. This paper briefly describes the organization of the Opioid Community Collaborative (OCC), development of the MAT demonstration project and the differences in abstinence and retention outcomes over discrete treatment periods in the MAT program for individuals identified with an opioid use disorder.

Methods

Developing the Collective Impact Approach: The Opioid Community Collaborative (OCC)

Prescription opioid addiction stems from numerous causes and requires multifaceted interventions involving multiple stakeholders to impact health outcomes. Recognizing the need for a community-based, participatory action approach for intervention development, the Utah Department of Health, Weber Human Services (WHS), Davis Behavioral Health (DBH), multiple local community agencies, and anchor institutions such as Intermountain Healthcare (Intermountain), formed the Opioid Community Collaborative (OCC) in 2015. (Table 1)

The charter of the OCC was to work equitably as partners using existing community assets to plan, implement and study strategies to decrease the burden of pharmaceutical opioid misuse, addiction, and overdose deaths in Utah communities. OCC members agreed to a common agenda, participation in mutually reinforcing activities, continuous communication, consistent measurement of results, and identification of a backbone organization to take on the role of managing the community collaboration.²² The strategies developed by the membership of the OCC are reported elsewhere and include awareness, physician prescribing practices, and treating opioid use disorders.²⁶

Role of Member Organizations in the Opioid Community Collaborative

A collaborative structure was organized for the OCC including alignment with a state-led coalition (Utah Coalition for Opioid Overdose Prevention), OCC steering committee, and committees focused on the three common OCC objectives including a policy advisory committee. (Figure 1). Committees were facilitated by different OCC members and included membership from partner organizations that utilized participation from laypersons affiliated with community organizations. Best clinical practices for opioid awareness, opioid prescribing, and opioid use disorder treatment were shared within committees and within organizations to translate and generalize knowledge generated within the OCC structure. Each OCC member was responsible for upholding the guiding principles of the collective action framework.

Members of the OCC identified limited access to treatment options for opioid use disorders as a primary barrier to treatment. OCC stakeholders contributed by developing a care process model, or clinical workflow, for the MAT program that included deliberate, standardized screening and treatment (pharmacologic and non-pharmacologic) guidelines over the course of the program. Local community sites adapted the care process to fit their local needs and population. In addition, OCC stakeholders helped to develop data collection processes and define data measures to track improvements over time. Finally, OCC stakeholders collectively met monthly to share lessons learned and ideas for improvement, to review real-time data through audit and feedback dashboarding, and to review future strategic priorities such as sustainability and scale for other settings and community groups. As a backbone organization, Intermountain committed \$500,000 per year to fund a three-year, community-based demonstration project to test the effectiveness of a MAT program combined with counseling and recovery supports in reducing opioid dependence.

Medication Assisted Treatment (MAT) Program Intervention

MAT is the use of FDA-approved medications in combination with counseling and behavioral therapies, to provide a “whole-patient” approach to the treatment of substance use disorders.²⁷ Patients can be referred from a number of settings: a treating healthcare provider, court-ordered to attend, from other community professionals (including OCC organizations like the county jail), clergy, family/friends or be self-referred into the program. The clinical staffing structure for the MAT program includes a treating physician, a registered nurse, a licensed clinical social worker/care coordinator, and a licensed practical nurse. Individuals were screened for eligibility and then enrolled within the program. The clinical team considers MAT if a patient shows signs of mild to moderate withdrawal. In addition to MAT, the program also includes: 1) psychosocial services, 2) education, outreach and recovery supports, and 3) coordination/integration of care. All care components of MAT (pharmacologic and non-pharmacologic) are delivered in the same setting (ex. DBH or WHS) by members of its clinical team and do not use a collaborative opioid prescribing model linking opioid treatment programs with office-based buprenorphine providers.²⁸ Patients are retained in the programs for as long as needed. However, at 12 months, the MAT team together with the patient reviews progress made and determines if long-term maintenance or tapering pharmacologic therapy with discharge or “transition” from the program is suggested. Each discharge process is individualized, a successful one defined by achieving 75% of the individual treatment goals set by the patient and the MAT clinical team.

Target Population and Community MAT Settings

The target population for the MAT intervention, as defined by the OCC community participants, included all insured, underinsured and uninsured individuals living in Utah’s Davis, Weber and Morgan, counties identified with an opioid use disorder with a specific emphasis on serving pregnant women and people at-risk for or experiencing homelessness. In Utah, Medicaid patients receive behavioral health care through a county-level Mental Health Authority that both coordinates delivery of behavioral health and substance use disorder services and administers health plan financing. Davis Behavioral Health (DBH) and Weber Human Services (WHS), organized under a cooperative agreement between Davis, Weber and Morgan (Utah) county governments, were selected to administer the MAT program to the target populations. For context, the Utah Medicaid program does cover methadone treatment for individuals in need, and the state of Utah did not have Medicaid expansion at the time of this analysis.

Adult individuals (aged ≥ 18 years) referred to DBH or WHS locations were identified as candidates for the MAT program if they were identified with an opioid use disorder. Opioid risk was defined by the NIDA Quick Screen Question, the NIDA Modified Assist 2.0 screening test, or by discretion of the treating provider. Any persons indicating “yes” to the use of illegal or prescription drugs for non-medical reasons in the last 12 months, also with a substance involvement score ≥ 3 measured in the last 3 months, received an assessment to validate an opioid use disorder and the need for medication-assisted treatment. Additionally, to be included in the study, subjects had to: 1) be a Davis, Weber, or Morgan County resident, 2) be willing to attend counseling in addition to MAT, and 3) have at least one

Urine Analysis (UA) laboratory test completed during the MAT program. Individuals were excluded from the study if they: 1) had any contraindication to buprenorphine, naltrexone, methadone, or naloxone, 2) were seeking pain management, or 3) exhibited dangerous behavior to the staff or others. Additionally, provider capacity issues were considered at the time of enrollment, which may have excluded additional individuals from enrollment and thus, participation in the study.

Individuals who met the inclusion/exclusion criteria were further delineated into two study groups: a Brief MAT (B-MAT) cohort including individuals with at least 90 days of enrollment and an Extended MAT (E-MAT) cohort including individuals with at least 365 days of enrollment within the MAT program. All participants in the E-MAT cohort were also reported in the B-MAT cohort. This stratification was purposively selected to describe the MAT results early within a person's treatment journey (within 90 days) when the main goal of MAT is to stabilize their opioid exposure, while suppressing and mitigating craving and withdrawal symptoms. Additionally, results were reported within a group of patients who had longer term exposure to the MAT program—those successfully retained for 12 months—to describe the program outcomes among those being considered at that time for discharge or transition from the program.

Data Collection/Measurement.

Data were included from July 2015 through October 2017. All data were reported and extracted using electronic medical records from DBH and WHS facilities including demographics, treatment encounters, medications, clinical characteristics, and laboratory data. The primary endpoints were abstinence and retention in the program when enrolled in MAT. Abstinence was measured using a standard 12-panel UA laboratory test to discover any amphetamines, barbiturates, benzodiazepines, cocaine, ecstasy, heroin opiates, marijuana, methadone, methamphetamines, oxycodone HCl, phencyclidine (i.e., PCP) and propoxyphene. Laboratory results were analyzed for presence of: 1) opioids only and 2) all substances including opioids but excluding amphetamines (methamphetamines were not excluded). Abstinence was measured as the percentage of UA laboratory test results that were negative (from the substances listed above) over the total tests conducted (negative UA tests/total UA tests). Amphetamines were excluded because this medication class can also be prescribed for treatment of other mental health conditions, one's quite common among participants. UA laboratory tests were analyzed over the course of the MAT program. Retention in the program was measured by the percentage of patients who remained engaged in medical treatment and therapy over the total patients that started treatment. Patients may have left the treatment group if they were discharged, transferred, deceased, incarcerated or had prolonged inactivity.

Secondary endpoints included the: 1) median number of UA tests per patient, 2) percentage of patients with at least one UA test, and 3) percentage of successful versus unsuccessful discharges measured over time for each cohort to show treatment impact and document a baseline in care for MAT participants. A successful discharge was defined by achieving 75% of the individual treatment goals set by the patient and the MAT clinical team. Health outcomes such as death during MAT enrollment were also tracked. Self-reported data was

included on living conditions and employment impact, categorized as “improved, same, or worse” and measured at 3 and 12 months in the MAT program.

Demographic data was self-reported at treatment program enrollment and included: age (in years), sex (defined as male, female, or unknown/unreported), race/ethnicity, insurance payer type (i.e., uninsured, Medicaid, or commercial insurance), percentage of federal poverty line, employment status (defined as unemployed, employed, disabled, homemaker, student, retired, unknown), and living arrangement status (defined as private residence, jail/correctional facility, homeless, 24-hour residential care facility). Individuals living in a 24-hour residential care facility or a jail/correctional facility were transported to the MAT program locations for participation.

Statistical Analysis.

Summary statistics were used to describe the study participant characteristics. Primary measures were computed for all eligible patients with at least one urine test during treatment. All patients were diagnosed as positive for opioids and all-illegal substances on their first test. The urine test results were plotted over 30-day intervals for those in the B-MAT cohort and over 90-day intervals for patients in the E-MAT cohort. To identify the abstinence trend for opioids only and all substances, univariate linear regression was performed. To measure retention, B-MAT patients were assessed for active engagement at 30-day intervals since treatment enrollment, and E-MAT patients were assessed for active engagement at 90-day intervals since treatment enrollment. Time intervals were pre-determined and selected by the OCC membership as the best method to monitor the performance of the MAT over time. Rates of abstinence and retention were visualized in line graphs plotted over time to help detect trends, shifts, or patterns in performance. This research study was approved by the Department of Human Services, State of Utah Institutional Review Board, and the Intermountain Healthcare’s Institutional Review Board.

Results

Of the patients screened for the MAT program, 339 met study inclusion/exclusion criteria and 288 enrolled into the MAT program during the study period. Of these, 186 attended the MAT program at DBH and 102 at WHS. Fifty-one patients were excluded from the study because results from UA tests were not collected electronically in the beginning of the MAT program. Of those enrolled, 56% (n=288) had enrolled in the MAT program for 90 days (B-MAT cohort), and 44% (n=221) had enrolled in the MAT program for 365 days (E-MAT cohort).

Baseline demographics are summarized in Table 2. At MAT enrollment, the average MAT participant was 32.6±8.2 years old with 58.0% being female. MAT participants were 87.5% white, and 9.4% were of Hispanic or other ethnic background. Participants tended to be uninsured (73.6%); however, 18.4% had Medicaid insurance and 8.0% had commercial insurance. Over 64.2% of the MAT participants had an income level below 100% of the federal poverty level. A majority of participants were unemployed (51.3%) or disabled (7.3%), while only 37.7% were actively employed. Most MAT participants resided in a private residence (90.6%); however, 5.7% were enrolled from a jail or a correctional facility,

and 2.4% reported homelessness. Of the MAT participants, 13.4% were pregnant (n=38). There were no clinically significant differences between the B-MAT cohort and E-MAT cohort participants.

As described in Figure 2, 75% were abstinent from opioid substances and 59% from all illegal substances found on UA tests for those with 90 days of MAT program enrollment (abstinence was measured as the percentage of UA laboratory test results that were negative over the total tests conducted). For those with at least 365 days of MAT enrollment, 84% of participants were abstinent from opioid substances and 62% from all illegal substances. Figure 3 demonstrates a 94% retention rate for participants who have been enrolled for at least 90 days and 58% retention rate for participants enrolled at least 365 days.

Secondary outcomes are reported in Table 3. Trends over time in the program suggest an increase in the median number of UA tests per patient, an increase in the percent of patients with at least 1 UA test, and the count of successful discharges. Unsuccessful discharges were relatively small (n=12) in the first 90 days of the program yet, substantially higher beyond 90 days (n=58). MAT participants self-reported improvements in living conditions (58%) and employment (66%) after participating in the program. One patient died during MAT participation though the cause of death was not attributable to the pharmacologic treatment or psychosocial services.

Discussion

Addressing the root causes of opioid dependence using a collective impact approach led to improvements in access to scarce MAT program resources in three Utah counties. The results of this study uniquely demonstrate the effects of an evidence-based MAT program deployed using partnership and collaboration taking form in the healthcare industry to solve the community's most pressing problems. Engaging a broad group of aligned community organizations and a backbone or "integrator" (i.e., Intermountain) to hold the whole and create a space for aligned action while attacking the problem of opioid-use disorder, demonstrated that patient participation in a community-based MAT program resulted in promising abstinence rates up to 1 year following enrollment (84%). The results of this study also provided a structured baseline to document the process of care for MAT participants, which was unknown (i.e. enrollment totals, median tests per patient, successful/unsuccessful discharges) and allowed OCC members and clinical care teams to understand if care processes were changing over time. Further, many of the participants self-reported improvements in living conditions and employment suggesting return to customary living standards. Of recent, the Centers for Disease Control and Prevention reported that there was a 12% decline in fatal overdoses in Utah over a one-year period ending in January 2018—case avoidance statistics that may be associated with the statewide OCC collaborative model and will require further program evaluation.⁸

Utilizing a collective impact approach to implement the MAT program in community settings demonstrated promise for a healthcare system focused on promoting health and well-being in communities, while also strategically building capacity and capability within community-based organizations. This study demonstrated comparable rates of abstinence

and retention amongst a predominately underserved, vulnerable population compared to other published healthcare-based strategies.^{12,19,29,30} These results are hypothesized to have emerged because of the key pillars of the community approach. First, the OCC partnership was structured as a learning collaborative allowing stakeholders to act quickly to incorporate new ideas from a variety of settings and disciplines into daily practice. Second, the OCC crossed multiple sectors and institutions, self-selecting teams and individuals that were highly effective and passionately connected to the health priority, allowing work to progress in concert rather in isolation, and providing unique perspectives to address difficulties. Third, challenges in implementing MAT within the community settings were addressed with customized support. By working alongside OCC members, the emerging needs of the community partners were addressed with tailored support and resources instead of a mass-produced solution. Based on the success of the OCC partnership and the early results of this study, we surmise that this approach could be generalized to other urgent health priorities based in communities such as initiatives to prevent deaths from suicide and to mitigate the effects of social determinants on health and well-being.

Yet, even with this success, key lessons were identified by the OCC as the MAT program was implemented to improve access to treatment for prevention of opioid-use disorders. OCC stakeholders learned along the way to proceed vigilantly, focusing time and effort on the most promising practices or care processes within their own wheelhouse. For example, as an integrated delivery system, Intermountain was more suited to act as a backbone organization rather than as the MAT service provider because local mental health providers were already geographically situated in the communities, specialized in addiction medicine, already existed to provide mental health services to a high proportion of their community members and were less stigmatized in their provision of MAT. The health system in return provided credibility and anchoring to the OCC—including the foresight to work with community partners to maintain programs once grant funding expires. This lesson documents the need to recognize and mobilize community assets that exist and may be underutilized outside of an individual healthcare system to efficiently progress towards meeting community-wide goals. Additionally, organizing the OCC took considerable time and resources to ensure a consistent care process was delivered at multiple discrete sites—resources that must be maintained over time to sustain the gains in health outcomes among participants. Identifying capable leaders within the healthcare system and in community organizations that can act as clinical champions, while sustaining these community relationships, is essential especially amidst multiple overlapping priorities and goals. Likewise, recognizing that clinical champions did not necessarily need to be traditional health professionals such as a physician or a nurse leader; licensed social workers and care coordinators were responsible for implementing much of the MAT program at county locations. Finally, evaluating the impact of a collaborative solution such as MAT was challenged, particularly when identifying and defining collective measures of success and data sharing among independent health organizations—an essential component of tracking and monitoring health.

Limitations.

Several limitations should be considered when interpreting the study results. First, despite attempts to include all referred clients who enrolled with the MAT program within a three-county area in Utah, generalizability to a population outside of this area may be difficult due to differences in underlying community characteristics, lack of established organizational partnerships, and alignment of county priorities. Second, we do not yet know if the effects have persisted beyond the time period outlined in the study though longitudinal program evaluations are planned. Third, data that was not electronically captured in the study (i.e., beginning UA test results and NIDA screening assessments) is not available for data collection. In conjunction with this limitation, participants were only required to have 1 UA test to be considered eligible for study. However, among those that participated for at least 12 months, close to 80% of participants had UA tests in all time periods from enrollment suggesting a consistent clinical practice among participants and sites. Additionally, intermediate health outcomes (e.g. relapse/overdose), acute care utilization (e.g. ED visits or hospitalizations), or social outcomes (e.g. arrests) have also been associated with persons who have opioid use disorder seeking treatment but were not available for study. Finally, as this was a retrospective, observational case series study employed to describe provisional outcomes associated with participation in the MAT program, no comparator or control group was used. Further research is needed to compare the effectiveness of MAT—a program with a multi-faceted approach to treat opioid-use disorder—with more traditional programs focused more exclusively on psychosocial therapy.

Conclusion.

Collective impact provides a successful mobilization framework in Utah for increasing community engagement and expanding patient access to under-resourced MAT programs. Further research is needed to determine if positive results are sustained when comparing the effectiveness to other proven psychosocial methods and more globally if the strategies of the OCC have contributed to Utah's decreasing fatality rate in 2018. This study supports the notion that other strategic health care initiatives (i.e., suicide prevention and improving an individual's social determinants of health) may benefit from a collective impact approach, especially when community's most pressing needs are at the intersection of health care delivery and the public's well-being.

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What is the purpose of the study?

- To describe the Utah Opioid Community Collaboration (OCC)—a community-based, collective impact approach deployed within 3 counties in Utah to combat the opioid epidemic.
- To assess the rate of abstinence and retention associated with participation in the OCC's Medication Assisted Treatment (MAT) program for individuals identified with an opioid use disorder.

What is the problem?

- Widespread, population-level access to MAT remains a barrier in reducing the prevalence and deaths associated with opioid use disorders.
- Despite the demonstrated effectiveness to treat opioid use disorders with MAT, within Utah this program has not been widely available, promoted, or adopted within the public sector.
- Inadequate addiction-related training, stigma associated with treating individuals who have opioid use disorders, unpredictable insurance coverage along with a requirement of frequent check-in visits, drug monitoring tests and chronic prescription refills make it difficult to convince physicians alone to provide effective addiction care using MAT.

What are the findings?

- Collective impact provides a successful mobilization framework in Utah for increasing community engagement and expanding patient access to under-resourced MAT programs for individuals with opioid use disorders.
- Engaging a broad group of aligned community organizations while developing aligned and coordinated action demonstrated that participation in a community-based MAT program resulted in promising abstinence rates and program retention for up to one-year post enrollment.

Who should care most?

- Individuals, families, and healthcare professionals impacted by opioid use disorder need to be aware and open to the use of MAT as an evidence-based treatment option.
- Community-based organizations should recognize their value in delivering this much needed treatment in the communities that they serve.
- Health systems may consider adopting a collective impact approach when pressing public needs rooted in the community intersect with internal health system priorities such as reducing opioid use disorders.
- Other anchor institutions (i.e., established academic universities or faith-based institutions) may be well positioned to leverage the full resources and collective action of a community—including partnership among public, private, and not-for-profit organizations like health systems—to tackle deeply entrenched and complex social problems.

Recommendations for Action

- Health systems should recognize their distinct role in the community as an anchor institution - rooted in the community with a public mission, capital and enduring relationships that can help mobilize social change.
- Efforts to address social determinants of health and its effects on healthcare outcomes is relatively new with limited available evidence regarding what works. Organizations should proceed cautiously, focusing time and effort on the most promising practices.
- Identifying capable community health leaders within the healthcare system that can create and sustain community relationships is essential.
- Early and frequent engagement by community health leaders with key stakeholders is critical so that the right initiatives are identified that have broad support.

Figure 1-
Collaboration and alignment structure of the Opioid Community Collaborative

Figure 2:

Abstinence was measured by the rate of negative Urine Analysis laboratory tests over the number of total tests during the days in the program period. Figure 2A represents participants in the Brief Medication Assisted Treatment (B-MAT) cohort with 90 days of enrollment. Figure 2B represents participants in Extended Medication Assisted Treatment (E-MAT) cohort with 365 days of enrollment. All participants in the E-MAT cohort were also reported in the B-MAT cohort.

Figure 3:

Retention in the Medication Assisted Treatment program was measured by the percentage of patients that remained engaged in pharmacological treatment and psychosocial services over the total patients that started treatment. Figure 3A represents participants in the Brief Medication Assisted Treatment cohort with 90 days of enrollment. Figure 3B represents participants in the Extended Medication Assisted Treatment (E-MAT) cohort with 365 days of enrollment. All participants in the E-MAT cohort were also reported in the B-MAT cohort.

Table 1-

List of Opioid Community Collaborative (OCC) Partners

Opioid Community Collaborative Partners
Intermountain Healthcare (Co-Chair)
Davis Behavioral Health (Co-Chair)
Utah Department of Health
Weber Human Services
Commission on Criminal and Juvenile Justice
Local Prevention Coordinating Councils
Local Pharmacies
Federally Qualified Health Centers
Utah Poison Control Center
Health Insurers
University of Utah
Use Only as Directed Campaign
Utah Division of Substance Abuse and Mental Health
Utah Naloxone

Table 2-

Demographic and social economic characteristics of participants in the Medication Assisted Treatment Program

Data Variables	Medication Assisted Treatment (MAT) Program Participants			
	B-MAT [†] cohort: Enrolled 90 Days		E-MAT [*] cohort: Enrolled 365 Days	
	n=288		n=221	
	n	Mean± SD or %	n	Mean± SD or %
Average age, years	288	32.6±8.2	221	32.9±7.6
Age Categories				
18 to 24	39	13.54%	25	11.31%
25 to 34	131	45.49%	99	44.80%
35 to 44	80	27.78%	69	31.22%
45 to 64	38	13.19%	28	12.67%
Gender				
Female	167	57.99%	131	59.28%
Male	121	42.01%	90	40.72%
Ethnicity				
Not Hispanic	261	90.63%	204	92.31%
Hispanic	22	7.64%	13	5.88%
Mexican	3	1.04%	3	1.36%
Puerto Rican	1	0.35%	1	0.45%
Unknown	1	0.35%	0	0.00%
Race				
White	252	87.50%	197	89.14%
Other single race	24	8.33%	15	6.79%
American Indian	6	2.08%	4	1.81%
Two or more races	3	1.04%	3	1.36%
Asian	2	0.69%	2	0.90%
Unknown	1	0.35%	0	0%
Insurance				
Uninsured	212	73.61%	162	73.30%
Medicaid	53	18.40%	43	19.46%
Commercial	23	7.99%	16	7.24%
Socio-Economic Status (100% of FPL[‡])				
Below	185	64.24%	140	63.35%
Above	103	35.76%	81	36.65%
Employment Status				
Unemployed	146	50.69%	115	52.04%
Employed	110	38.19%	82	37.10%
Disabled	20	6.94%	17	7.69%
Homemaker	8	2.78%	4	1.81%

Medication Assisted Treatment (MAT) Program Participants				
Data Variables	B-MAT [†] cohort: Enrolled 90 Days		E-MAT [*] cohort: Enrolled 365 Days	
	n=288		n=221	
	n	Mean± SD or %	n	Mean± SD or %
Student	2	0.69%	1	0.45%
Retired	1	0.35%	1	0.45%
Unknown	1	0.35%	1	0.45%
Living Arrangement Status				
Private Residence	260	90.28%	201	90.95%
Jail or correctional facility	15	5.21%	14	6.33%
Homeless	7	2.43%	5	2.26%
24-hour residential care	4	1.39%	1	0.45%
Unknown	2	0.69%	0	0%
Pregnant Women	38	13.19%	30	13.57%

[†] B-MAT: Brief Medication Assisted Treatment cohort included individuals with at least 90 days of enrollment

^{*} E-MAT: Extended Medication Assisted Treatment cohort included individuals with at least 365 days of enrollment. All participants in the E-MAT cohort were also reported in the B-MAT cohort

[‡] FPL= Federal Poverty Level

Table 3-

Secondary outcomes associated with the Medication Assisted Treatment (MAT) Program.

	Medication Assisted Treatment (MAT) Program Participants											
	B-MAT [†] cohort: Enrolled >=90 Days n=288						E-MAT [*] cohort: Enrolled >=365 Days n=221					
Patients	Day 0	@ Day 30	@ Day 60	@ Day 90	Day 0	Day 270	@ Day 90	@ Day 180	@ Day 270	@ Day 365		
Enrolled and attending MAT (in treatment)	288	284	279	271	221	154	213	188	154	127		
Successfully Discharged	0	0	0	0	0	12	0	3	12	20		
Unsuccessfully Discharged	0	1	5	12	0	48	7	25	48	65		
Transferred	0	2	3	4	0	6	0	4	6	8		
Died	0	1	1	1	0	1	1	1	1	1		
Total Patients	288	288	288	288	221	221	221	221	221	221		
	Urine Analysis (UA)											
	Day 0	Day 1-30	Day 31-60	Day 61-90	Day 0	Day 1-90	Day 91-180	Day 181-270	Day 271-365			
# of Patients	288	193	182	177	221	176	151	132	100			
# of Tests	290	574	530	482	222	1159	894	738	625			
# of Negative tests: opioid substances	0	414	410	363	0	862	708	588	523			
# of Negative tests: All illegal substances	0	306	312	283	0	645	526	438	388			
Measures												
Median Tests per Patient	1	3	4	4	1	8	8	7.5	8			
Percentage patients with at least 1 UA test	100%	68%	65%	65%	100%	83%	80%	86%	79%			
% Negative UA tests for opioid substances	NA	72%	77%	75%	NA	74%	79%	80%	84%			
% Negative UA tests for all illegal substances	NA	53%	59%	59%	NA	56%	59%	59%	62%			
Count of successful discharges	0	0	0	0	0	0	3	9	8			
Count of unsuccessful discharges	0	1	4	7	0	7	18	23	17			

[†] B-MAT: Brief Medication Assisted Treatment cohort included individuals with at least 90 days of enrollment

^{*} E-MAT: Extended Medication Assisted Treatment cohort included individuals with at least 365 days of enrollment. All participants in the E-MAT cohort were also reported in the B-MAT cohort