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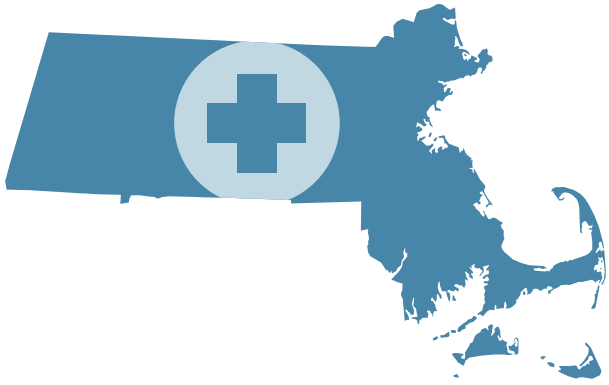
SHIFT-CARE CHALLENGE

Medication for Addiction Treatment (MAT) in the Emergency Department



FINAL EVALUATION REPORT

MASSACHUSETTS HEALTH POLICY COMMISSION

Brandeis | THE HELLER SCHOOL FOR SOCIAL POLICY AND MANAGEMENT

Contents

Acknowledgements

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Executive Summary

1. Introduction

The Massachusetts Health Policy Commission (HPC) issued the Sustainable Healthcare Innovations Fostering Transformation (SHIFT-Care) Challenge investment program opportunity in January 2018. This $10,000,000 initiative supported promising innovations that addressed health-related social needs and increased access to timely behavioral health services for residents of Massachusetts, with the goal of decreasing the use of costly and avoidable hospital care.[1] A portion of the SHIFT-Care Challenge funding was dedicated to supporting nine awardee hospitals to expand access to opioid use disorder (OUD) treatment by initiating medication for addiction treatment (MAT) in the emergency department (ED) and connecting patients to community-based behavioral health services. The HPC provided funding to awardees to establish programs that identified individuals with OUD in the ED; provided treatment and/or referral at the time of the ED visit; and reported to the HPC and its contracted evaluator on patients' ED and hospital utilization following referral to treatment, as well as their engagement and retention in evidence-based care for OUD. The initiative began in April 2019 and lasted through September 2020 for most awardees.[i]

2. Description of the Problem

OUD has caused substantial harm in Massachusetts, affecting nearly one in 20 residents[2] and leading to an estimated 19,830 opioid-related overdose deaths between 2000 and 2019.[3] MAT is strongly evidence-based, with findings showing improved patient outcomes compared to no treatment or treatment without MAT.[4-8] These outcomes include reduced risk of overdose, lower substance use, improved treatment retention,[4,7] and reduced mortality.[5,6]

Efforts are increasingly being made to incorporate MAT into ED-based care, including through the Yale School of Medicine model,[9] which guided this portion of the SHIFT-Care initiative. The ED is often the main setting in which patients with OUD interact with the health care system,[10] and, therefore, sees a higher volume of patients with OUD than other parts of the delivery system. While evidence is still emerging, programs involving ED initiation of MAT and linkage to ongoing care show promise.[9-13] However, implementation of these programs has been slow, due in part to clinician unfamiliarity with MAT and the need for clinicians to obtain an X-waiver from the Drug Enforcement Administration (DEA) in order to prescribe buprenorphine[10] (though this requirement has recently been loosened[14]). In addition, few studies specifically address the role of ED-based programs in improving initiation rates for clinically complex patients facing severe social and economic inequities.

3. Awardees and Program Variation

All awardees' SHIFT-Care programs used an ED-based intervention approach based on the Yale model and had similar patient populations (described in Section 4.1 and Section 5.1). However, there was considerable variation between programs. Awardees used different processes to identify eligible patients and refer them to behavioral health staff, with some taking more systematic approaches than others. Sites also varied in whether they had a bridge clinic, which serves as an outpatient treatment setting until the patient can access community-based care. Other differences included whether and to what extent sites incorporated recovery coaches, whether SHIFT-Care and behavioral health staff were co-located in the ED, what post-ED outreach and referral strategies were used, and how the program related to inpatient and primary care settings. Despite these variations, awardees shared the goals of

[i] For the remainder of this document, any further references to the SHIFT-Care initiative or SHIFT-care programs refer exclusively to the track of the SHIFT-Care Challenge focused on MAT in the ED.

improving patients' access to recovery and spreading, sustaining, and expanding key elements of their SHIFT-Care programs beyond the investment period.

The nine participating hospital sites were Addison Gilbert and Beverly Hospitals[ii] (AGH/BH), Beth Israel Deaconess Hospital – Plymouth (BID-Plymouth), Harrington Memorial Hospital (Harrington), Holyoke Medical Center (HMC), Lowell General Hospital (LGH), Massachusetts General Hospital (MGH), Mercy Medical Center (Mercy), North Shore Medical Center (NSMC), and UMass Memorial Medical Center (UMass). The 18-month SHIFT-Care implementation period, which began in April 2019, partially overlapped with the COVID-19 pandemic, which affected many aspects of awardees' program implementation.

4. Evaluation Framework and Methodology

This evaluation of the SHIFT-Care initiative, conducted by Brandeis University, assessed the implementation, impact, and sustainability of SHIFT-Care programs at the nine awardee institutions. It took a mixed-methods, quality improvement approach aimed at improving practice rather than developing research insights.

The mixed-methods approach was built on focused evaluation questions, listed in Section 3. As more data and insights were gathered, additional and broader findings became apparent beyond what might have been revealed through a narrower focus on the original questions. Thus, the findings reported here reflect a broader set of themes.

4.1 Quantitative Methodology

The quantitative portion of the SHIFT-Care analysis consisted of a cohort analysis across all nine awardees to measure SHIFT-Care activity and impact. SHIFT-Care was designed to be available to most people age 18-64 with OUD who presented to the ED. SHIFT-Care excluded individuals from participating only to the extent needed to ensure the approach was clinically appropriate and awardees would be able to track patient engagement in the community. Awardees collected data monthly and submitted the following measures quarterly:

- MAT initiations, including type of medication initiation;
- Engagement in treatment at 30, 60, 90, 120, and 180 days after initiation;
- 30-day ED revisits;
- Hospitalizations and ED visits within six months of initial eligibility;
- Fatal and non-fatal overdose; and
- All-cause mortality outcomes.

Initiation, engagement, and 30-day ED revisit measures were collected at the visit level because every ED visit is an opportunity to provide OUD treatment and support patients in treatment engagement. The measures that tracked utilization and outcomes for six months after an initial SHIFT-Care eligible visit were tracked by unique patients. A baseline period of three months prior to SHIFT-Care implementation was used as a comparison to activity post-implementation. Hospitals calculated most measures using their own hospital data and information they obtained from community partners. Data were then provided by each hospital to the evaluators to compile and analyze, with stratifications for patient characteristics such as age, race/ethnicity, and gender. Hospitals calculated all-cause mortality using their data and Massachusetts Department of Public Health mortality data. All data submitted by

[ii] For purposes of the SHIFT-Care initiative, Addison Gilbert and Beverly Hospitals – which are different locations but are together part of Beth Israel Lahey Health – counted as a single awardee.

awardee hospitals were periodically assessed by the evaluators for consistency and validated by the awardees.

4.2 Qualitative Methodology

Qualitative evaluation elements included gathering, compiling, and analyzing the insights and perspectives of patients and SHIFT-Care program staff, many of whom had lived experience of addiction. They also included extensive document and literature review and synthesis, as well as review of documents that HPC staff gathered from awardees. Data analysis was conducted in aggregate across awardees. Several strategies were used to increase the validity of the evaluation, including utilizing multiple data sources to triangulate findings.[15-17] Additional strategies included understanding the contextual framework of the SHIFT-Care programs and conducting debrief and validation meetings with each of the awardees.[16,17]

5. Contextual Factors for the SHIFT-Care Initiative

Quality improvement initiatives like SHIFT-Care are affected by the circumstances and environments into which they are launched, including unique clinical and environmental barriers and facilitators to improvement that their targeted patient populations may experience. While some of these contextual factors may be modifiable, those which are more intransigent can influence program efficacy. For the SHIFT-Care evaluation, key contextual factors were identified through an extensive literature review and synthesis, in-depth interviews with patients and staff with lived experience, and document review (e.g., program reports, meeting summaries). To ensure the highest possible validity, evaluators employed data triangulation, including validating findings with patients and staff with lived experience as well as with all nine SHIFT-Care teams.

5.1 Patients' Complex Clinical, Economic, and Social Needs

SHIFT-Care patients had complex clinical, economic, and social needs, including lengthy histories of substance use and addiction, early childhood and continual trauma, substantial mental health and medical conditions, and unmet social and economic needs. Most also faced barriers due to entrenched social and economic inequities. These combined factors led to substantial suffering and created significant impediments to treatment, engagement, and recovery.

5.2 Widespread, Entrenched Societal Stigma

Across all levels of society, OUD and other addictions are still often viewed as a choice or personal failing rather than a disease. This stigma persists within the medical system as well as in society at large, and is often internalized by patients. Many patients see their addictions as personal flaws that they have inflicted upon themselves: if they were better people or had more willpower, they could win their addiction battles. These perceptions fuel negative feelings like self-loathing and hopelessness that make patients less likely to seek treatment.

6. Evaluation Findings

6.1 SHIFT-Care Patient Population

The SHIFT-Care population exhibited high rates of comorbid mental health conditions and substance use severity. More than half of SHIFT-Care eligible visits were by individuals reported to have diagnosed mental health conditions in the past year, and 16% were by individuals experiencing housing insecurity, indicating SHIFT-Care served a population facing many challenges. Although OUD is a chronic condition, only 19.5% of visits were by patients who had received treatment for OUD in the past year—an important indication that these ED-based treatment efforts likely reached patients who otherwise would not have engaged in care. The SHIFT-Care eligible population was primarily male (66.9%) and White (64.9%). Hispanic individuals were the next largest racial/ethnic group at 27.8% of SHIFT-Care visits.

6.2 Impact

This evaluation sought to understand the impact of awardees' SHIFT-Care programs through both a quantitative and qualitative lens. Key areas of focus included MAT initiation, experiences, and patterns of care; engagement rates, experiences, and patterns of care; and health care utilization, overdose, and mortality outcomes.

MAT Initiation

Emergency department MAT initiation rates increased from 5.8% prior to SHIFT-Care to 11.6% of eligible ED visits during the SHIFT-Care period (June 2019-September 2020). A total of 8,878 eligible visits among 7,729 unique individuals resulted in 1,030 initiations to MAT for OUD through SHIFT-Care.

This increase in initiations represents a doubling of the initiation rate from the period prior to SHIFT-Care (a statistically significant increase). The increase in ED MAT initiation rates achieved through SHIFT-Care is consistent with similar programs. Recent observational studies of programs that offered ED-initiated buprenorphine reported MAT initiation rates ranging from 6.6% for a general OUD patient population to 45% among a smaller group limited to patients in opiate withdrawal.[13,18,19]

SHIFT-Care MAT initiations occurred in several ways. The cohort overall reported that 35% of initiations occurred in the ED or bridge clinic, 5% occurred in community OUD treatment programs after referral from the ED (verified initiation), 22% occurred at home (enabled by the ED visit), and 39% of initiations occurred after an inpatient admission. During the COVID-19 pandemic, four SHIFT-Care hospitals reported some MAT initiations via telemedicine. Across those four, 16% of initiations between March 2020 and September 2020 were conducted via telemedicine.

Treatment initiation rates differed by patient characteristics: SHIFT-Care eligible patients who were Black or Hispanic had lower rates of initiation in treatment than those who were White. Patients who experienced housing insecurity in the past year initiated at higher rates than those who did not.

Initiation Experiences and Patterns of Accessing Care

Patients and staff members with lived experience shared their perspectives on factors impacting patients' likelihood of initiating MAT in the ED, as well as SHIFT-Care's effects on these patterns:

- *Stigma in the ED:* All awardees attempted to address the contextual factor of OUD and, more broadly, substance use disorder (SUD) stigma with ED physicians and staff. Many patients nevertheless reported being treated poorly in the ED and had internalized the belief that their OUD was a personal failing. However, some patients noticed improvements during SHIFT-Care, and awardees reported both successes and challenges in confronting stigma within their institutions.
- *Use of care settings other than the ED:* While awardees endorsed the importance of connecting with patients in the ED, some felt that leveraging settings of care other than the ED once an OUD patient had been identified facilitated efforts to link patients with recovery pathways. EDs were typically focused on acute illness and trauma, and patients with OUD reported experiencing long waits with few services. This caused many to leave against medical advice.
- *Persistent outreach:* Repeatedly following up with patients after discharge made them more likely to initiate treatment, although usually not within the 72-hour timeframe required by awardees' quantitative measures to count toward the SHIFT-Care initiation rate. However, some awardees had less success with telephone outreach due to patients' lack of working phone numbers or the difficulty of building relationships with patients remotely. Most awardees and

patients reported that if a SHIFT-Care team member met the patient in the ED, initiation after discharge was more likely.

- *Collaboration within the hospital or health system:* Collaboration across hospital departments or within the larger health system facilitated initiation at many sites. All awardees with inpatient behavioral health teams reported that these teams were valuable tools for connecting with OUD patients. Several awardees also worked with primary care providers to provide education, raise awareness of hospital-based OUD programs, and connect patients with services such as bridge clinics or recovery coaches.

Engagement in Treatment

Among patients who initiated MAT through SHIFT-Care, the rate of 30-day engagement in treatment ranged by month from 29% to 63%. The overall 30-day engagement rate during the 18-month implementation period was 45%.

This is consistent with findings from other studies. Recent reports of efforts to offer ED-initiated buprenorphine reported 30-day engagement rates ranging from 38% to 49%.[13,18,20]

Longer-term engagement rates reported by awardees decreased as time since initiation increased: 60-day, 90-day, 120-day, and 180-day rates were 39%, 36%, 33%, and 34%, respectively. However, reported SHIFT-Care engagement rates may underestimate true treatment engagement because awardees captured treatment engagement only from their community partners and hospital-affiliated outpatient treatment providers. If patients engaged in treatment at other sites, this was not captured by SHIFT-Care. Few studies report longer-term treatment engagement. One small observational study reported 53% of patients initiated were in treatment 60 days after their ED visit.[21]

Engagement Experiences and Patterns of Accessing Care

Patients and staff members with lived experience shared perspectives on factors affecting patients' ongoing engagement in treatment, including ways in which SHIFT-Care impacted these patterns:

- *OUD recovery continuum deficits:* The OUD recovery continuum has notable access, equity, and quality deficits, including fragmentation, limited capacity, and lack of accessible, adequate-quality services for individuals facing social and economic barriers. Patients and most staff with lived experience reported an immense lack of accessible resources for individuals wanting recovery support and treatment, and perceived that this was particularly pronounced for patients with MassHealth or no insurance.
- *MAT with high-touch wraparound services:* Most staff and patients expressed strong support for MAT, though patients also experienced stigma surrounding medication use. Patients and staff with lived experience shared a strong sense that MAT is not effective alone and should be combined with high-touch wraparound services to support patients' economic, social, and mental health needs, which posed substantial barriers to recovery.
- *Role of recovery coaches:* All awardees reported that recovery coaches have a valuable role in both patient initiation and engagement, often seeing recovery coaches as a key strength of their SHIFT-Care programs. They felt that talking with someone with lived experience makes a meaningful connection with patients, which increases the odds of initiation or encourages patients to maintain their engagement. However, some also cautioned that recovery coaches alone cannot address the serious systemic barriers facing this patient population.

Health Care Utilization

Three measures of health care utilization by SHIFT-Care eligible patients were examined for SHIFT-Care visits: the 30-day ED revisit rate, and the number of ED visits and hospitalizations per unique patient in the six months after the first SHIFT-Care eligible visit.

The 30-day revisit rate increased immediately following implementation of SHIFT-Care. After this initial increase, the rate remained flat for the duration of the SHIFT-Care implementation period. There was no difference in the average 30-day ED revisit rate between patients whose first ED visits included initiation and those whose did not.

For the two six-month utilization measures, data were reported from June 2019 to May 2020. Among the 4,800 unique patients identified as eligible for SHIFT-Care during this period, awardees reported 989 hospitalizations and 9,169 ED visits within six months of identifying the patient for SHIFT-Care. Analyses found a statistically significant decline in hospitalizations from the baseline period compared to the intervention period for the SHIFT-Care eligible population. During the intervention period, hospitalizations following SHIFT-Care identification were lower among non-initiated patients than initiated patients.

Overdose and Mortality Outcomes

The SHIFT-Care evaluation also examined change in fatal and non-fatal overdose and all-cause mortality over the six-month period following a patient's SHIFT-Care eligible visit.

From June 2019 to May 2020, awardees identified 127 deaths (all-cause), 10 fatal overdoses, and 827 non-fatal overdoses among the 4,800 unique SHIFT-Care patients. Analyses of these data did not identify any statistically significant differences in mortality or overdose rates among eligible patients prior to SHIFT-Care compared to the SHIFT-Care period. However, these results should be interpreted with caution due to the low incidence of outcomes, data limitations from analyzing data only from individual awardees, and the many other factors associated with overdose and mortality that are not accounted for, including housing insecurity, experiences of trauma, and high rates of substance use and mental health conditions.

6.3 Implementation

In general, awardees accomplished the activities originally described in their logic models. While many adjusted finer points of their programs to adapt to challenges, relatively few made changes to their underlying model structure. All awardees noted some benefits from SHIFT-Care, believing that the initiative allowed them to provide better care to patients reached by the program. However, awardees varied in their assessments of the effectiveness of ED-based MAT initiation and patient engagement. A frequent sentiment was that these interventions were imperfect but valuable tools that should be situated within a strong continuum of OUD care.

Regarding program implementation, awardees noted the importance of providing support to ED clinicians, helping them become X-waivered, and ensuring buy-in and communication within the ED and among stakeholders. Gaining support from ED leadership and involving them in program planning and monitoring was described as a key facilitator of successful program implementation by multiple awardees, as was incorporating all relevant groups in decision-making. Educating ED physicians and nurses on both SHIFT-Care and OUD generally was helpful for multiple awardees, as was having formal processes for buprenorphine prescription that providers could follow and institutional resources they could rely on for consultation or patient follow-up.

In contrast to the factors that facilitated implementation, awardees' SHIFT-Care teams—often composed of behavioral health clinicians and recovery coaches—frequently perceived a lack of

prioritization of SHIFT-Care and OUD treatment by ED clinicians and/or ED leadership. Hiring and maintaining consistent staffing also presented challenges for some awardees.

7. COVID-19 Impacts

COVID-19 changed most sites' delivery models for at least the first few months of the pandemic (approximately March through June 2020), with many adopting a hybrid approach that combined telehealth with in-person care when required. Starting in March 2020, as noted, telehealth initiations comprised six percent of all initiations.

Some awardees believed that these changes improved accessibility for patients; however, many also raised concerns about patients without access to computers or smartphones and about the difficulty of developing meaningful relationships without in-person contact. Some also felt that not having SHIFT-Care team members in the ED because of COVID-19 safety protocols made OUD treatment engagement and stigma reduction efforts less effective.

Many awardees anecdotally reported that they believe relapse, overdose, and mortality rates increased considerably for OUD and SUD patients during the height of the COVID-19 pandemic. This was supported by initial Massachusetts data reports.[22] In addition, many patients and staff members with lived experience reported a substantial gap in ongoing recovery support, as well as increased social and economic challenges.

8. Sustainability

Most awardees shared a sense that the work they did and the lessons they learned in SHIFT-Care would provide a foundation for future OUD and SUD efforts. In addition, all are continuing program elements. Five are doing so through additional grant funding from the HEALing Communities Study, and the other four awardees will all retain the core features of their programs with some modifications.

9. Conclusion

The SHIFT-Care Initiative had a meaningful impact on initiation of MAT in the ED, doubling the rate of initiations over baseline activity. Of note, nearly 50% of individuals initiated via SHIFT-Care remained in treatment at 30 days, and a third at 180 days. These results are similar to those achieved in other comparable initiatives and may reflect the attention hospitals paid to the importance of community partners at the outset of their programs. It is difficult to determine the precise impact of SHIFT-Care on patient outcomes such as overdose or all-cause mortality due to the small numbers involved and the many other factors relevant to the SHIFT-Care population that may have contributed to outcomes. Nonetheless, because of the high risk of mortality in the months following an ED visit for overdose[23,24] and evidence that ED-initiated MAT is associated with lower mortality rates,[25] initiating treatment in the ED and engaging in follow-up care may have decreased the likelihood of subsequent overdose.

These results are particularly notable in light of broader societal issues that intersect with these types of programs. One of the barriers to initiating MAT in the ED, and certainly to treatment engagement over time, is capacity in the community to provide ongoing treatment post-initiation.[26-28] Also noteworthy is the fact that Black and Hispanic individuals had lower initiation rates than White individuals. This important finding may reflect a need for increased attention to populations who face formidable social and economic challenges that impede access to a recovery pathway.

SHIFT-Care increased staff perceptions that they were able to provide better care to patients with OUD. Strategies that facilitated initiation and engagement among SHIFT-Care patients included persistent outreach to patients, leveraging settings of care other than the ED when possible, and collaborating within the larger hospital or health system. In addition, recovery coaches were highly valuable in helping to facilitate readiness for treatment and sustained engagement. However, the perspectives shared by

many staff and patients underscore ongoing barriers to successful initiation and long-term treatment engagement, including gaps in the overall continuum of OUD care, the entrenched inequities that create significant complex clinical, economic, and social needs for SHIFT-Care patients, and persistent stigma related to OUD. These remain significant challenges to the health and health equity of individuals with OUD that must continue to be areas of focus for policymakers and other stakeholders.

1. Introduction

The Massachusetts Health Policy Commission (HPC) was established in 2012 through Massachusetts' landmark health care cost containment law, Chapter 224: 'An Act Improving the Quality of Health Care and Reducing Costs through Increased Transparency, Efficiency and Innovation.' The HPC is an independent state agency that develops policy to reduce health care cost growth and improve the quality of patient care. The HPC's mission is to advance a more transparent, accountable, and equitable health care system through its independent policy leadership and innovative investment programs. The HPC's goal is better health and better care—at a lower cost—for all residents across the Commonwealth.

Opioid use disorder (OUD) has caused substantial harm in Massachusetts, affecting nearly one in 20 residents[2] and leading to an estimated 19,830 opioid-related overdose deaths between 2000 and 2019.[3] An estimated 80% of individuals with OUD do not receive any treatment,[29] with serious health and public health consequences.[30,31] There are many barriers to receiving OUD treatment, including provider availability, treatment program capacity, stigma, lack of readiness to engage in treatment, and health care coverage.[26-28,32,33]

Medication for addiction treatment (MAT) is available and strongly evidence-based for OUD, with findings showing improved patient outcomes compared to no treatment or treatment without MAT.[4-8] These outcomes include reduced risk of overdose, lower substance use, improved treatment retention,[4,7] and reduced mortality.[5,6] However, many individuals with OUD do not have regular contact with the health care system, and opportunities for the health care system to offer MAT are limited. One approach to expand access to OUD treatment is to offer patient-centered services when and where patients present, including the emergency department (ED), where OUD can be addressed with medication and connection to outpatient treatment.

ED-initiated treatment for OUD has the potential to save lives in part by preventing overdose deaths that may occur following ED visits. Mortality after ED visits for opioid overdose is high, and individuals presenting in the ED with an overdose are likely to have another overdose unless treated.[34] A study of patients in Massachusetts EDs found that 5% of patients who survived an opioid overdose and were discharged from the ED died within one year. Among the group who died within a year, 20% died within one month of the ED visit and 5% within two days of leaving the ED.[23] Thus, EDs are a "critical entry point" for individuals with OUD to potentially access treatment.[30]

Efforts to incorporate MAT into care delivered in the ED include the Yale School of Medicine model and others that have shown promise.[9-13,18,19,35] The ED presents a unique opportunity for MAT initiation because so many individuals with OUD present in the ED directly as a result of their disorders (e.g., because of an overdose or co-morbid condition) or for unrelated reasons. However, implementation of these programs has been slow, due in part to physician unfamiliarity with MAT and the need for physicians to obtain an X-waiver from the Drug Enforcement Administration (DEA) to prescribe buprenorphine[10] (though this requirement has recently been loosened[14]). Programs vary in approaches to patient identification, treatment, program structure, relationship with community partners, financing, and sustainability.[27] In addition, few studies specifically address the role of ED-based programs in improving initiation rates for clinically complex patients facing severe social and economic inequities.

The HPC issued the Sustainable Healthcare Innovations Fostering Transformation (SHIFT-Care) Challenge investment program opportunity in January 2018. This $10,000,000 initiative supported promising innovations that addressed health-related social needs and increased access to timely behavioral health services for residents of Massachusetts, with the goal of decreasing the use of costly and avoidable hospital care.[1] A portion of the SHIFT-Care Challenge funding was dedicated to supporting nine awardee

hospitals to expand access to OUD treatment by initiating MAT in the ED and connecting patients to community-based behavioral health services. The HPC provided funding to awardees to establish programs that identified individuals with OUD in the ED; provided treatment and/or referral directly at the time of the ED visit; and maintained records and reported to the HPC and its contracted evaluator on patients' ED and hospital utilization following referral to treatment, as well as their engagement and retention in evidence-based care for OUD. The initiative began in April 2019 and lasted through September 2020 for most awardees[iii].

2. SHIFT-Care Awardees and Program Models

All awardees' SHIFT-Care programs used an ED-based intervention approach based on the Yale model. They also had similar patient populations (described in Section 4.1 and Section 5.1) with complex clinical needs and challenges brought on by pervasive social and economic inequities. While these factors decrease the potential efficacy of any quality improvement initiative, the sites demonstrated an understanding of these considerations. Sites differed in the maturity of their ED-based recovery pathways. As a result, programs varied notably across sites (Table 1). Awardees used different processes to identify eligible patients, with some taking more systematic approaches than others. Awardees also varied in whether they had a bridge clinic, which serves as an outpatient treatment setting until the patient can access community-based care. Other differences included whether and to what extent they incorporated recovery coaches, whether SHIFT-Care and behavioral health staff were co-located in the ED, what post-ED outreach and referral strategies were used, and how the program related to inpatient and primary care settings. Despite these variations, awardees shared the goals of improving patients' access to recovery and developing, spreading, sustaining, and expanding key elements of their SHIFT-Care programs beyond the investment period.

Table 1: Awardee model features

	AGH/BH	BID-Plymouth	Harrington	HMC	LGH	MGH	Mercy	NSMC	UMass
Identification via real-time ED tracker	X	X	X	X	X		X	X	X
Identification via ED universal screening							X	X	
Includes inpatients[i]	X	X	X	X				X	X
Includes outpatients/ community referrals			X	X	X	X			
Team members co-located in ED	X	X		X		X			
Incorporates recovery coaches	X	X		X	X	X	X	X	X
Recovery coaches employed by hospital (vs community program)	X				X	X		X	X
Incorporates bridge clinic	X		X		X	X			X
Offers ED/bridge clinic MAT initiation	X	X	X	X	X	X	X	X	X
Conducts home MAT initiation	X		X	X	X	X	X	X	X
Follow-up for discharged patients	X	In some cases	X	X	X	In some cases	X	In some cases	X

[iii] Any further references to the SHIFT-Care initiative or SHIFT-care programs refer exclusively to the track of the SHIFT-Care Challenge focused on MAT in the ED.

[i] Indicates whether the awardee's SHIFT-Care program included patients who presented in the ED and were admitted from the ED to the hospital.

2.1 Individual Awardee Overviews

Addison Gilbert and Beverly Hospitals

Addison Gilbert and Beverly Hospitals (AGH/BH) (now part of Beth Israel Lahey Health)[iv] are located in Gloucester and Beverly. The hospitals' SHIFT-Care program engaged patients with OUD in both the ED and inpatient settings, using a combination of recovery coach support, ED-based buprenorphine prescribing, and linkage to a bridge clinic and other outpatient resources. While AGH/BH's catchment area was not among the most disadvantaged in the SHIFT-Care cohort,[36] the hospitals' 2019 community health needs assessment (CHNA) still identified social determinants of health as a key issue for many in the area.[37] Specific concerns included a lack of affordable housing, transportation barriers, and the fact that a number of residents were unstably employed, underemployed, or living on fixed incomes.[37]

Beth Israel Deaconess Hospital – Plymouth

Beth Israel Deaconess Hospital – Plymouth (BID-Plymouth)'s SHIFT-Care program engaged patients with OUD both in the ED and on inpatient floors, offering MAT and connecting patients with follow-up services. The hospital partnered with a well-established community-based organization for recovery services. Those who left the ED against medical advice (AMA) received a visit from an affiliated program. BID-Plymouth's catchment area is fairly affluent compared to the overall SHIFT-Care cohort,[36] but the hospital's 2019 CHNA noted that some residents nevertheless experience structural barriers and health-related social needs (HRSNs).[38] Lack of affordable housing was a particular concern, and Plymouth in particular had a substantial population of people experiencing homelessness.[38]

Harrington Memorial Hospital

Harrington Memorial Hospital (Harrington) has locations in both Southbridge and Webster, the latter added as a second intervention location in October 2019. Harrington's SHIFT-Care program aimed to engage patients with OUD through the ED and in inpatient settings and was situated within the health system's broad continuum of substance use disorder (SUD) services. Unlike many other awardees, Harrington did not incorporate recovery coaches with lived experience, but did employ a patient navigator who was trained to provide assistance to patients. While Harrington's catchment area includes some relatively affluent towns, the health system's 2019 community benefits report noted that homelessness, unemployment, domestic violence, poverty, and lack of transportation are important concerns for parts of the catchment area.[39] Southbridge in particular is disadvantaged relative to the state as a whole, with a lower median income ($50,787 vs $77,378) and a higher poverty rate (19% vs 11%).[36]

Holyoke Medical Center

Holyoke Medical Center (HMC)'s SHIFT-Care program engaged patients with OUD in the ED and through inpatient and outpatient settings, offering recovery coach support, ED-based buprenorphine prescription, and linkage with resources such as HMC's affiliated outpatient treatment center. The hospital's catchment area faces substantial structural barriers and HRSNs, including transportation barriers, limited employment access, housing and food insecurity, poverty, and violence.[40,41] HMC's primary service area and the city of Holyoke itself both have lower median incomes ($60,067 and

[iv] For purposes of the SHIFT-Care initiative, Addison Gilbert and Beverly Hospitals – which are different locations but are together part of Beth Israel Lahey Health – counted as a single awardee.

$40,656, respectively) than the state overall ($77,378), as well as higher poverty rates (15% and 30% vs 11%).[36,40] Nearly half of Holyoke residents speak a language other than English at home.[42]

Lowell General Hospital

Lowell General Hospital (LGH)'s SHIFT-Care program focused on engaging patients through either of the system's two EDs or by referral from the Lowell Community Opiate Outreach Program (CO-OP). Identified patients were connected with LGH's Bridge Clinic, which assessed their needs and initiated MAT when appropriate. The city of Lowell was among the most disadvantaged and impoverished areas in the SHIFT-Care cohort. A 2017 CHNA identified housing as a key unmet need for many in the area,[43] with a rising homelessness rate[44] and estimates suggesting that nearly half of Lowell households have housing costs exceeding 30% of their total income.[43] Other notable HRSNs included a lack of jobs, transportation, and access to nutritious food.[43] Compared to Massachusetts, Lowell has a lower median income ($51,987 vs $77,378) and a higher poverty rate (21% vs 11%),[36] and about 43% of residents speak a language other than English at home.[42]

Massachusetts General Hospital

Massachusetts General Hospital (MGH) has a main campus in Boston and four health centers located in Boston (2), Chelsea, and Revere. The hospital's SHIFT-Care program engaged patients with OUD in the ED and outpatient settings, as well as through a partnership with the Boston Health Care for the Homeless Program (BHCHP). While MGH had a well-developed SUD program prior to SHIFT-Care, funding from the initiative allowed MGH to add evening hours at its Bridge Clinic, increase ED-based MAT, and incorporate recovery coaches into the ED and BHCHP's Barbara McInnis House. In its 2019 CHNA, MGH identified safe and affordable housing, economic stability and mobility, and access to health and social services as key health priorities across the communities it serves.[45]

Mercy Medical Center

Mercy Medical Center (Mercy) is located in Springfield. The hospital's SHIFT-Care program focused on engaging patients with OUD through the ED and outpatient settings by providing education, recovery coach support, ED-based MAT, and connection with follow-up care. The city of Springfield was one of the highest-need areas among the SHIFT-Care cohort. A 2019 CHNA identified housing as one of the most serious issues facing the catchment area, with high homelessness rates and more than one-third of Springfield residents spending over 30% of their income on housing.[46] The analysis also noted transportation and food insecurity as additional challenges.[46] Compared to Massachusetts as a whole, Springfield has a lower median income ($36,730 vs $77,378) and a higher poverty rate (29% vs 11%).[36] In addition, in a city in which 45% of residents are Hispanic and 19% are non-Hispanic Black,[47] the police force has been cited by the Department of Justice for patterns of racist bias and brutality.[48,49]

North Shore Medical Center

North Shore Medical Center (NSMC) is located in Salem. Its SHIFT-Care program focused on engaging patients with OUD through the ED and on inpatient units. A team including a recovery coach met with patients to provide education about available resources, offer initiation of MAT, and facilitate referral to primary care and outpatient behavioral health. While NSMC's catchment area was not among the most disadvantaged in the SHIFT-Care cohort, a 2018 CHNA nevertheless identified challenges such as gentrification, lack of affordable housing, limited transportation, poverty, lack of job opportunities, and a growing immigrant community facing unique barriers to health and wellbeing.[50] Lynn, the largest city in NSMC's catchment area, has a lower median income ($54,598 vs $77,378) and a higher poverty rate (17% vs 11%) than Massachusetts as a whole,[36] and over half of its residents speak a language other than English at home.[42]

UMass Memorial Medical Center

UMass Memorial Medical Center (UMass) is located in Worcester. The hospital's SHIFT-Care program focused on engaging patients with OUD through the ED and on inpatient units and connecting them with direct treatment, referral, and education about community-based services and resources. SHIFT-Care funding supported the creation and provision of bridge clinic services, recovery coaching, and initiation of MAT for eligible patients. The residents of Worcester face substantial HRSNs and structural barriers, with a 2018 CHNA finding poverty to be one of the leading health-related issues in the area, along with limited affordable housing and effects of discrimination and racism.[51] Other areas of concern included domestic violence and child abuse, transportation barriers, limited job opportunities, and pockets of food insecurity.[51] Compared to Massachusetts as a whole, the city of Worcester has a lower median income ($46,407 vs $77,378) and a higher poverty rate (21% vs 11%).[36]

2.2 Initiative Timeframe and COVID-19

The SHIFT-Care initiative's 18-month implementation period began in April 2019 and lasted through September 2020. This time period included the first seven months of the COVID-19 pandemic, which affected most aspects of awardees' program implementations. Overall, ED visits in Massachusetts declined by 55% from January to April of 2020, and hospital and outpatient treatment capacity was also reduced.[52]

Many sites adopted a hybrid approach for the first few months of the pandemic, combining telehealth with in-person care for patients who required it. Most also believed that relapse, overdose, and mortality rates increased considerably for OUD patients during the pandemic. The Massachusetts Department of Public Health reported 2,104 opioid overdose deaths in 2020, a 5% increase over 2019 and the first year since 2016 that saw an increase in overdose deaths.[22] The largest increase in overdose deaths was among Black, non-Hispanic males.[22] The increase in overdose deaths in Massachusetts is smaller than the estimated 30% increase seen nationwide in the 12 months ending October 2020.[53] See Section 6 for a detailed summary of the pandemic's impacts on SHIFT-Care programs.

3. Goals and Evaluation Framework

The HPC has a statutory responsibility to evaluate its investment programs, share evaluation findings publicly to inform policy, and support evidence-based care delivery transformation. In addition, the HPC has a mission to curate and share practical approaches, effective models, sustainable practices, and lessons learned from HPC investment programs with providers, payers, state government agencies, and policymakers to encourage health system transformation.

This evaluation of the SHIFT-Care initiative, conducted by Brandeis University, assessed the implementation, impact, and sustainability of SHIFT-Care programs at nine awardee institutions. It took a mixed-methods, quality improvement approach aimed at improving practice rather than developing research insights. Through SHIFT-Care, awardees introduced and sought to learn from new strategies, modifying them when necessary to improve patient care. This differs from a research model, in which investigators often test a standardized intervention to contribute to generalizable knowledge.

The quantitative portion of the evaluation documented the activities that occurred within the intervention and the impacts of those activities (e.g., MAT initiation, engagement in treatment, health care utilization, and outcomes). The qualitative portion sought insight into patient experience, a key component in assessing and improving any quality improvement initiative. It also explored the experience and perspective of providers involved with SHIFT-Care. Table 2 presents the evaluation focus questions along with the methodology used to address each question, the data source, and the corresponding section of this report. These focused evaluation questions initially guided the mixed-

methods approach; however, as more data and insights were gathered, additional and broader findings became apparent beyond what might have been revealed through a narrower focus on the original questions. Thus, the findings reported here reflect a broader set of themes.

Table 2: Evaluation focus questions

Question	Methodology	Data source	Report section
Q1. Were the planned program activities effectively implemented by the awardee? a) Did the awardee accomplish the activities described in the logic model? b) What were the challenges in implementing this model, and how were they handled? c) What adaptations did the awardee make to their original implementation plan based on rapid cycle evaluation? d) What factors contributed to successful or unsuccessful implementation?	Qualitative	Document Review	Section 5.3
Q2. Was initiation and engagement in treatment increased? a) How did initiation and engagement rates vary by patient demographic characteristics? b) How did initiation and engagement rates vary by patient severity and health-related need?	Quantitative	Hospital and community partner data	Section 5.2
Q3. Was ED utilization decreased?	Quantitative	Hospital data	Section 5.2
Q4. Was all-cause mortality decreased?	Quantitative	Hospital and MA Dept. of Public Health data	Section 5.2
Q5. Was overdose (lethal and non-lethal) decreased?	Quantitative	Hospital data	Section 5.2
Q6. Do patients perceive that this program altered their patterns of accessing health care, including OUD treatment?	Qualitative	Conversations with patients and staff with lived experience	Section 5.2
Q7. Was patient experience improved overall?	Qualitative	Conversations with patients and staff with lived experience	Section 5.2
Q8. Do providers perceive that this program enabled them to provide better care?	Qualitative	Document review	Section 5.3
Q9. Did staff perceive this model as feasible and effective?	Qualitative	Document review	Section 5.3
Q10. Does the awardee institution have a plan to continue this model in whole or part?	Qualitative	Document review	Section 8

3.1 Quantitative Evaluation Methodology

The aim of the quantitative portion of the SHIFT-Care evaluation was to conduct a cohort analysis across all nine awardees. SHIFT-Care was designed to be available to most people age 18-64 with OUD who presented to the ED. SHIFT-Care excluded individuals only to the extent necessary to ensure the approach was clinically appropriate and awardees would be able to track patient engagement in treatment in the community. Patients already enrolled in office-based opioid agonist treatment (OBOT) or receiving OUD medication (buprenorphine, methadone, naltrexone) were excluded from SHIFT-Care. People transferred from the ED to other facilities or who died in the hospital were also excluded. Finally, patients with an eligibility-identifying hospital stay longer than seven days were excluded. Some awardees employed additional exclusions described in the Quantitative Methods (Appendix F).

The metrics listed in Table 3 were used to measure SHIFT-Care activity and impact. Awardees calculated most measures using their own hospital data and internal systems, including patient characteristics such as gender, race/ethnicity, age, and insurance type. Race/ethnicity was reported by awardees according to their own internal, usual data collection processes. Patients were described as "Hispanic" if hospitals had data on Latinx/Hispanic ethnicity and otherwise were reported in one of the specific race categories (i.e., White, Black, Asian). If race/ethnicity was unknown or not otherwise listed in one of the specific categories, the patient was reported in the "other" category. Hospitals varied in their approaches to collecting race/ethnicity information, with some pulling data from hospital records and others asking patients to self-report. Treatment engagement measures included information hospitals obtained from community partners. All-cause mortality was calculated by the hospitals using their data and Massachusetts Department of Public Health mortality data. Each awardee provided data quarterly to the evaluators to review, compile, and analyze.

Table 3. Measures included in the analysis

Measure	Description	Source
Eligible ED visits	Count of all ED visits eligible for SHIFT-Care	Hospital data
MAT initiation	SHIFT-Care eligible ED visits with OUD medication initiation within 72 hours of SHIFT-Care identification	EMR
30-day engagement	Percent of patients who started medication treatment through SHIFT-Care and remained in outpatient treatment after 30 days	EMR and community partners
Engagement in outpatient treatment at 60, 90, 120, and 180 days following medication initiation	Percent of ED visits that resulted in patient engagement in follow-up care at each point in time	EMR and community partners
30-day ED revisit	SHIFT-Care eligible visits followed by another ED visit within 30 days	EMR
Hospitalizations	Hospitalizations per person in the six months following SHIFT-Care identification	EMR
ED visits	ED visits per person in the six months following SHIFT-Care identification	EMR
All-cause mortality	Deaths (all-cause) in the six months following SHIFT-Care identification	EMR and MA DPH data
Lethal overdose	Lethal overdoses in the six months following SHIFT-Care identification	EMR

Non-lethal overdose	Non-lethal overdoses in the six months following SHIFT-Care identification	EMR

EMR: Electronic medical record; DPH: Massachusetts Department of Public Health

To analyze the impact of SHIFT-Care, changes in MAT initiation, treatment engagement, treatment outcomes, and health care utilization during the SHIFT-Care initiative were measured. A three-month period prior to SHIFT-Care implementation (January-March 2019) was used as a pre-SHIFT-Care baseline for comparison. SHIFT-Care began in April 2019 and continued through September 2020, with the following data caveats:

- BID-Plymouth and Harrington began the intervention on May 15, 2019, rather than April 1, 2019, and continued until November 15, 2020.
- Mercy was unable to access data from outpatient partners for April and May 2019.
- Harrington initially implemented SHIFT-Care at the Southbridge Hospital location and expanded SHIFT-Care to a second location, Webster Hospital, in October 2019.
- LGH and UMass data excluded all visits that resulted in inpatient admission.
- MGH calculated eligible SHIFT-Care visits among patients with an MGH primary care physician and patients referred to Bridge Clinic or Barbara McInnis House.
- Because ramp-up activities varied across awardee hospitals and one hospital changed data reporting systems early in implementation, April and May 2019 data were excluded from descriptive and statistical analyses.
- The longer-term utilization and outcome measures needed a six-month run-out period, so results for those measures reflect only data for unique patients identified between June 2019 and May 2020.
- All SHIFT-Care findings should be interpreted within the larger context of efforts to address the OUD epidemic. During the SHIFT-Care intervention period, a range of stakeholders were working to address the OUD epidemic. Findings from the SHIFT-Care initiative may be affected by a combination of activities simultaneously occurring in the state. For example, the federal government directed funds to Massachusetts communities to address OUD. The HEALing Communities Study targeted eight Massachusetts communities, five of which included SHIFT-Care awardees (AGH/BH, BID-Plymouth, HMC, LGH, NSMC).[54] Hospitals, health plans, substance use treatment organizations, and others have programs addressing OUD as well.

Data collection generally ended in September 2020, though hospitals starting after April 2019 continued implementation to complete their full 18 months of the intervention. Those data are reflected in the individual hospital appendices (Appendix D), but the cohort analyses in this report reflect data through September 2020.

For a complete description of the methodology, see Appendix F.

3.2 Qualitative Evaluation Methodology

Qualitative evaluation elements included gathering, compiling, and analyzing the insights and perspectives of patients and SHIFT-Care program staff, many of whom had lived experience of addiction. They also included extensive document and literature review and synthesis.

The qualitative evaluation team conducted patient experience conversations with individuals identified as eligible for awardees' SHIFT-Care programs, recovery coaches supporting SHIFT-Care enrollees, and

other staff members who confidentially shared that they had lived experience with addiction. In some cases, other staff members who interacted with and provided services to eligible patients were invited to participate in the patient experience conversations, both as a supplementary source of information and to help protect the identities of staff with lived experience who did not wish to share this history with their colleagues.

In addition, the qualitative team reviewed data that HPC staff gathered from awardees, including through written program update documents that awardees submitted quarterly and regularly scheduled calls. The qualitative team also reviewed meeting notes and summaries created after learning collaborative meetings with the awardees. Data were then synthesized to identify key themes and highlight commonalities across awardees, as well as any notable differences.

Data analysis was conducted in aggregate across awardees. Several strategies were used to ensure the validity of the evaluation, including utilizing multiple data sources to triangulate findings,[15-17] which is the strongest method for ensuring validity. Additional strategies included defining the contextual framework of the SHIFT-Care initiative and awardees' individual programs, presenting any contradictory evidence as part of the findings,[16] and debriefing and validating findings through meetings with each of the nine awardees' SHIFT-Care program teams.[16,17] Validation meetings included all SHIFT-Care program staff and other hospital personnel who were involved with the program. The composition of each program's SHIFT-Care team differed from one awardee to another, but most often included behavioral health clinicians, recovery coaches, and sometimes others such as social workers or nurse practitioners. The purpose of these meetings was to validate the patient experience conversation findings and confirm that the participants in those conversations were representative of the overall SHIFT-Care patient population. The meetings also provided an opportunity to gather SHIFT-Care program teams' perspectives on barriers and facilitators to recovery and the role of the awardee's individual SHIFT-Care program within the recovery continuum. Summaries from these meetings are available in Appendix E.

For a complete description of the qualitative methodology, see Appendix G.

4. Contextual Factors for the SHIFT-Care Initiative

Quality improvement initiatives like SHIFT-Care are affected by the circumstances and environments into which they are launched, including unique clinical and environmental barriers and facilitators to improvement that their targeted patient populations may face. While some of these contextual factors could be modified by awardees, others were more intransigent and influenced program efficacy. For the SHIFT-Care evaluation, key contextual factors were identified through an extensive literature review and synthesis, in-depth interviews with patients and staff with lived experience, and document review (e.g., program reports, meeting summaries). To ensure the highest possible validity, data triangulation was used, including validating findings with patients and staff with lived experience as well as with all nine SHIFT-Care teams.

4.1 SHIFT-Care Patients' Complex Clinical, Economic, and Social Needs

Creating effective treatment pathways requires a deep, honest understanding of the patient population that will use those pathways: without knowledge of patients' needs and worldviews, efforts to improve care are missing an essential element.[55,56] The SHIFT-Care initiative focused on patients with OUD who presented to the ED for care. Among the general population, people who are experiencing poverty, covered by Medicaid, or in fair or poor health are more likely to seek care in the ED,[57] as are those who experience barriers to health care access or have no usual source of care.[58] The initiative's patients mirrored these characteristics, with many having lengthy histories of active substance use, early

childhood and continual trauma, significant mental health and medical conditions, and substantial economic and social needs exacerbated by underlying socioeconomic inequities.

All sites validated that the following themes accurately described much of their SHIFT-Care patient population:

Lengthy Histories of Substance Use and Addiction

> "My parents, everyone in my house, used cocaine. I started using when I was nine. No one cared about me. I didn't care about me."
> *– SHIFT-Care Patient*

Most patients who participated in patient experience conversations were still using drugs or alcohol. They reported beginning their substance use at an early age, consistent with national data showing that most people who misuse opioids first do so as teenagers or young adults[59,60] and that those who begin substance use at a younger age are at greater risk of future dependence.[61] Staff with lived experience of addiction reported that most SHIFT-Care patients began using as adolescents or teenagers, sometimes beginning with alcohol and/or cocaine, followed by heroin and now fentanyl. This potent synthetic opioid, which has driven a new wave of opioid deaths in the past few years,[62-64] was described as being prevalent in awardees' catchment areas. As one staff member described: "Today, heroin is just not available. Fentanyl has taken its place."

Early Childhood and Continual Trauma

> "For most, it is not just one trauma. Traumatic incidents occur continually."
> *– SHIFT-Care Staff Member*

Staff with lived experience described trauma as a pervasive and ongoing challenge for their patients, one that inflicts great pain and can be debilitating for individuals struggling with substance use. Patients echoed this account, sharing the impacts of their early and continual experiences of trauma. As one patient explained, "I was abused growing up. Have tried to talk with a psychiatrist. I don't like talking." This is consistent with literature showing that post-traumatic stress disorder (PTSD) is common among people with OUD and is associated with more severe OUD, lower functioning, and worse physical health.[65,66] Many patients and staff members also noted that living with addiction increases the likelihood of further trauma, something also documented in the literature.[66] In addition, some staff members with lived experience believed that women suffered trauma more frequently. Substance use is known to be associated with sexual victimization among women,[67] something that SHIFT-Care staff and patients echoed: as one patient shared, "I was raped at the shelter so my boyfriend stays with me in this parking lot. He is very sick, but he won't leave me."

Substantial Mental Health and Medical Conditions

OUD frequently occurs alongside mental illness, especially mood disorders,[4,7,68] and these comorbid mental health conditions can be a barrier to recovery.[69,70] This was true for SHIFT-Care patients, who reported struggling with depression and experiencing self-loathing, a lack of hope, and difficulties in caring for themselves. Staff members with lived experience noted this issue as well: "Soon after our patients initiate treatment, we try to refer them for mental health services. All of my patients need mental health treatment. Some will not engage even if I am able to get them an appointment." Patients who did participate in mental health services reported that it was an important component of their recovery: "I just didn't realize that I needed it. It helps. I am focusing better on what I need to do to survive. There were many days I did not want to live." This is consistent with evidence suggesting that OUD treatment is most effective when it includes both psychosocial interventions and MAT, not just one or the other.[71-73]

Patients also reported numerous acute and chronic medical conditions that received sporadic treatment due to their struggle with addiction. This aligns with literature showing that people with OUD have worse physical health than those without[4] and are at increased risk of infectious diseases.[4,7]

Unmet Social and Economic Needs

> "I live outside. Got beaten up too many times at the shelter. I always get my stuff stolen—my phone, shoes even."
> *– SHIFT-Care Patient*

The majority of patients who participated in patient experience conversations were homeless and had been for many years. Many reported difficulty at shelters and instead found refuge under a bridge or in a tent city. Staff with lived experience confirmed what patients shared. As one staff member explained: "Most of my patients are homeless. Shelter life is a poor option for those struggling with addiction." This is in part because being in places where other people are using or where drugs are readily available—something many patients reported experiencing in shelters—is a barrier to recovery.[70,74,75] Some shelters have also faced serious concerns about living conditions, sexual assault, and other forms of exploitation.[76,77] Homelessness itself also makes recovery more difficult[6,69,75] and is associated with a higher risk of fatal opioid overdose.[78]

In addition to housing, basic needs like personal safety and food were daily struggles for many patients. Most did not have a regular source of income. Those who did, such as through Supplemental Security Income (SSI), were sometimes able to rent a room; however, their SSI checks could not cover both rent and food, and places that offered free meals were sometimes miles away. These factors led to daily challenges for patients. As one patient explained: "I finally found this room to rent. I have to walk everywhere—miles for treatment appointments. I don't have enough money for food even with food stamps." Staff reported that lack of basic resources—such as transportation,[69,79-83] working phones,[81] and identification documents[81]—also creates barriers to treatment and recovery, making it more difficult for patients to escape these conditions.

Entrenched Social and Economic Inequity

The issues patients experienced represent not only unmet social and economic needs, but also the consequences of entrenched inequalities. The vast majority of interviewed patients reported long histories of inequity, including inability to complete high school or find a job with a living wage and experiences of street violence, parental incarceration, racism, and untreated trauma. Many Black and Hispanic patients, who made up a large portion of the population at sites in urban areas, reported being incarcerated at an early age.

> "I was caught with weed and ended up in jail. My father and brother went to prison—my brother killed someone—self-defense but he still got life. Not surprised I've been in and out of jail."
> *– SHIFT-Care Patient*

These factors all make OUD more likely, more severe, and more difficult to recover from. Unemployment, low income, low educational level,[4] and lower socioeconomic status[6] increase the risk of OUD, while also presenting a wide variety of barriers to recovery.[6,69,75,80,81,84-86] Criminal justice system involvement[70] and challenges associated with reentry after incarceration[74,75] pose barriers to recovery as well, while also being associated with a high risk of overdose.[78,87] In Massachusetts, formerly incarcerated people have an opioid overdose death rate about 50 times higher than those who have never been incarcerated—and for those recently released, the rate is 120 times higher.[78] However, despite this substantial risk factor, many common social needs screening tools lack questions about incarceration history[88,89] and, like most hospital EDs, SHIFT-Care sites did not routinely obtain information on patients' incarceration histories.

These daunting inequities make recovery a very difficult prospect. Most patients focused on how to survive today: "I am trying to survive. No one gets that." Staff with lived experience expressed an understanding of the severity of obstacles their patients faced: "I can talk with them about recovery and possible recovery pathways—it is so hard when you know they are going back to the streets."

4.2 Widespread, Entrenched Societal Stigma

Across all levels of society, OUD and other addictions are still often viewed as a choice or personal failing rather than a disease.[6,90] This stigma persists within the medical system[6,80,82,90-92] as well as in society at large,[6,90,93] and is often internalized by patients.[6,80,84,94] Many patients see their addiction as a personal flaw that they have inflicted upon themselves: if they were a better person or had more willpower, they could win their addiction battle. These perceptions fuel negative feelings like self-loathing and hopelessness that make patients less likely to seek treatment.[6,84] Staff with lived experience reported that most patients they see do not view their addiction as a disease that could benefit from support and treatment: "I have to let my patients know many, many times that their addiction is a disease and that there are a range of possible pathways that could help them. It can take years for patients to understand that." All SHIFT-Care sites worked to decrease stigma, with some noteworthy progress.

> "He (recovery coach) told me that my addiction was a disease. Seeking support and treatment could help me. I never heard it that way. He gave me hope."
>
> *– SHIFT-Care Patient*

5. Evaluation Findings

The evaluation findings address three broad areas: the population served by awardees' SHIFT-Care programs, the impact of those programs, and awardees' experiences with program implementation.

5.1 SHIFT-Care Patient Population

The SHIFT-Care population exhibited high rates of comorbid mental health conditions and substance use severity. While about one-third of the visits that qualified a patient for SHIFT-Care were for an opioid overdose, most SHIFT-Care patients were identified in other ways, such as via self-identification or through screening or algorithms for identifying OUD. More than half of the SHIFT-Care eligible visits were by individuals reported to have diagnosed mental health conditions in the past year and 16% were by individuals experiencing housing insecurity, indicating that SHIFT-Care served a population facing many challenges. Although OUD is a chronic condition, only 19.5% of visits were by patients who had received treatment for OUD in the past year—an important indication that ED-based efforts may reach patients who otherwise would not have engaged in care. SHIFT-Care eligible visits were made by patients who were primarily male (66.9%) and White (64.9%). Hispanic individuals were the next largest racial/ethnic group at 27.8% of SHIFT-Care visits. Most visits were by individuals age 26-40 (49.7%) and 41-64 (41.4%); patients under 18 years old and 65 years or older were excluded from the evaluation, but several awardee hospitals included these groups in SHIFT-Care services. Many visits (74%) were by individuals covered by Medicaid, nearly 19% involved individuals with unknown or no insurance, and 7% of visits were paid for by commercial insurance. Additional detail is available in Appendix C.

5.2 Impact

This evaluation sought to understand the impact of awardees' SHIFT-Care programs through both a quantitative and qualitative lens. Key areas of focus included MAT initiation rates, experiences, and patterns of care; treatment engagement rates, experiences, and patterns of care; overdose and mortality outcomes; and health care utilization.

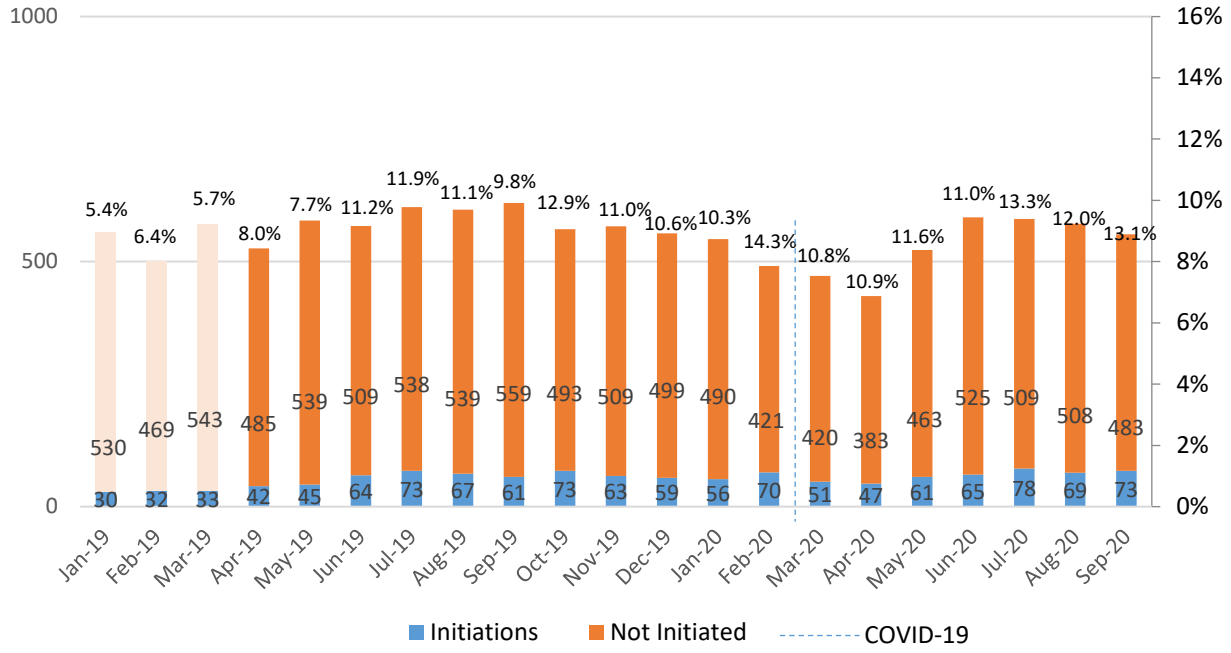
5.21 MAT Initiation Rates

In the three months prior to the start of SHIFT-Care (baseline, January-March 2019), 1,637 eligible ED visits and 95 initiations occurred, for an average initiation rate of 5.8%. During the intervention period (June 2019-September 2020) after the initial April-May 2019 ramp-up, there were 8,878 eligible visits that resulted in 1,030 initiations, an 11.6% MAT initiation rate (Figure 1). The average baseline initiation rate was statistically significantly different from that of the intervention period ($p<.001$), indicating that MAT initiations increased following SHIFT-Care implementation. The 8,878 eligible visits represented 7,729 unique individuals; the 1,030 initiations represented 978 individuals (some of whom were "initiated" to MAT more than once during SHIFT-Care).

SHIFT-Care achieved an increase in ED initiation rates that is consistent with results achieved by similar programs. The EMBED trial reported that ED-initiated buprenorphine increased from 3.5% of patients before the EMBED intervention to 6.6% following the intervention.[19] This study was conducted at a single site, but provides the most comparable population to SHIFT-Care because, as with SHIFT-Care, most individuals with OUD were eligible for the study. Other studies reported higher ED initiation rates but focused on a subset of individuals who may be more severe or in need of treatment. For example, an effort in three South Carolina hospitals identified 535 individuals with OUD who were in opiate withdrawal and 45% initiated medication treatment in the ED.[18] Individuals presenting to the ED in opiate withdrawal are more likely to initiate MAT than other individuals with OUD.[9] An effort in Denver reported 27% of individuals identified with a primary diagnosis of OUD initiated medication treatment in the ED, but this represented a small number of all patients with OUD.[13] The most rigorous study of ED-initiated buprenorphine, a randomized controlled trial (RCT), reported a 78% initiation rate among those assigned to the MAT group. However, there were important differences between the RCT and SHIFT-Care: inclusion criteria for the RCT were more restrictive than those of SHIFT-Care, so the RCT population was more severe, and 40% of the patients in the buprenorphine arm of the RCT presented to the ED asking to start MAT.[9]

SHIFT-Care MAT initiations occurred in several ways. From June 2019 to September 2020, the cohort reported that 35% of initiations occurred in the ED or bridge clinic, 5% occurred in community OUD treatment programs after referral from the ED (verified initiation), 22% occurred at home (enabled by the ED visit), and 39% of initiations occurred after an inpatient admission (data not shown). Due to the COVID-19 pandemic and subsequent federal policy changes, most SHIFT-Care hospitals expanded telemedicine services beginning in March 2020. Four SHIFT-Care hospitals reported conducting some MAT initiations via telemedicine. Across those four, 16% of initiations between March 2020 and September 2020 were conducted via telemedicine.

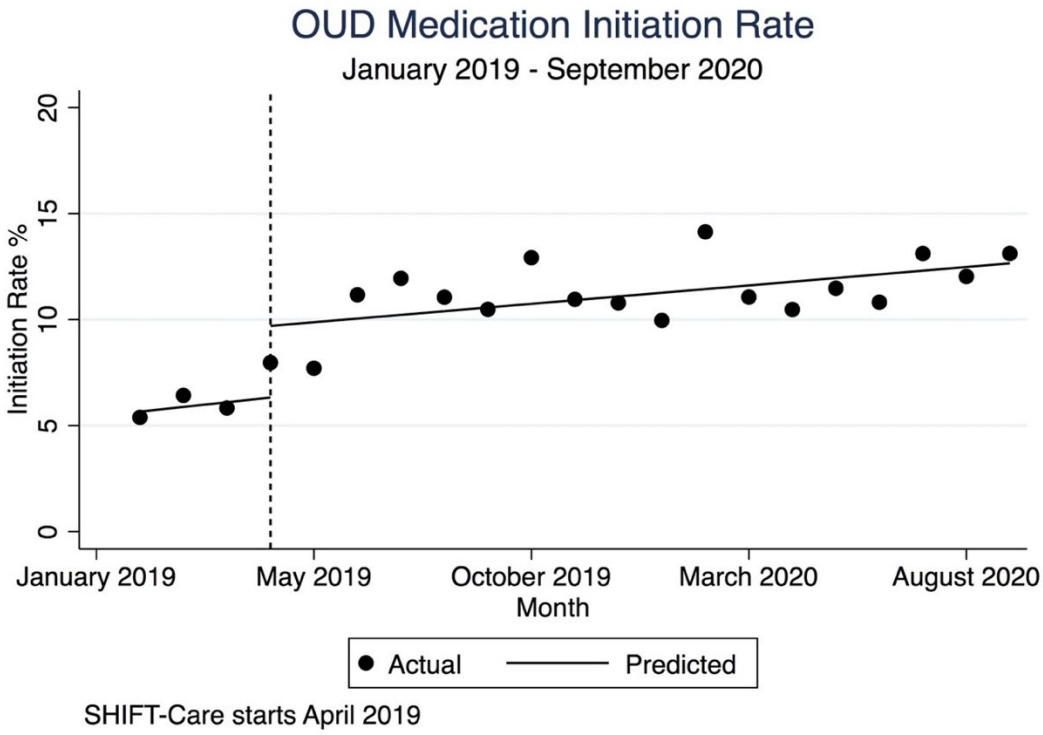
Figure 1. SHIFT-Care eligible ED visits and initiations, cohort cumulative, baseline (January-March 2019) and intervention (April-September 2020) periods



Notes: April and May 2019 data shown for descriptive purposes only; see Methods section for additional data details.

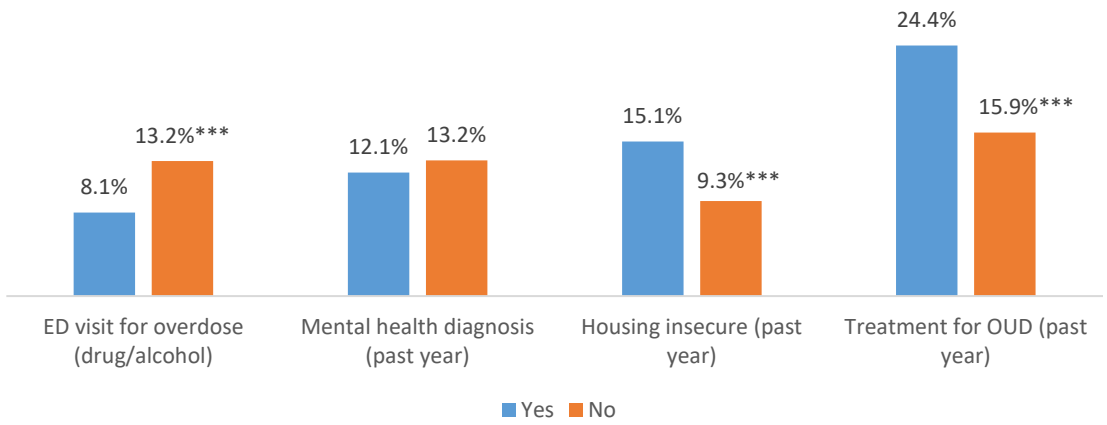
Monthly initiation rates were analyzed to assess how MAT initiation rates changed over time following SHIFT-Care implementation. This analysis shows a statistically significant increase in MAT initiations from before to after the SHIFT-Care program started (p=.002) (Figure 2). The MAT initiation rate rose at the start of the SHIFT-Care intervention compared to the three months before SHIFT-Care. This increase was maintained throughout SHIFT-Care but did not continue to rise.

Figure 2: Interrupted time series analysis of OUD medication initiation rate in SHIFT-Care hospitals



ED visits with primary diagnosis of overdose had a lower initiation rate than visits for other reasons (Figure 3). This is consistent with clinical experience and reports that patients presenting in the ED for opioid overdose are less likely to start MAT than those in withdrawal or who are otherwise ready for treatment.[9] Differences were not observed between individuals with a mental health diagnosis in the past year and those without. Individuals who received treatment for OUD and those reporting housing insecurity in the past year had higher rates of MAT initiation than those who did not. Most awardees reported difficulty obtaining data on past mental health diagnoses, previous treatment for OUD, and housing status information for their patients, resulting in a high rate of unknowns among the eligible population. Difficulty collecting housing status information has been previously reported.[95-97] Additional detail on characteristics is available in Appendix C.

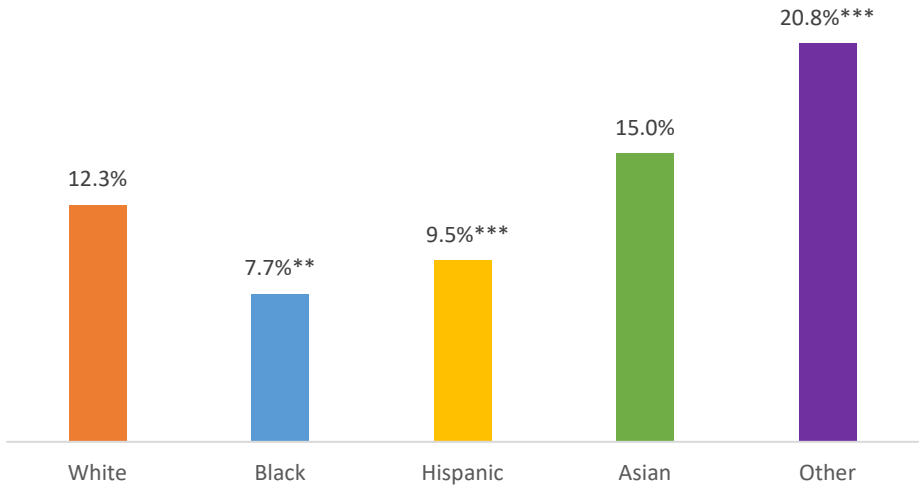
Figure 3. SHIFT-Care MAT initiation rates by select patient characteristics, June 2019-September 2020



Notes: Proportion of eligible visits where characteristic was unknown: mental health diagnosis in past year 17.8%, housing security 24.9%, treatment for OUD in past year 50.9%. *** indicates rate is significantly different from the 'yes' category rate at p<.001.

Awardees also reported race and ethnicity information on SHIFT-Care eligible patients. For the 8,878 SHIFT-Care eligible visits, race/ethnicity was reported as White for 5,764 visits, Hispanic for 2,465 visits, Black for 364 visits, Asian for 20 visits, and other (including unknown) for 265 visits. Figure 4 shows initiation rates by racial/ethnic categories available via hospital data. Initiation rates for Black and Hispanic people were significantly lower than the rate for White individuals. Individuals who are Asian had the highest rate of initiations out of those with known race/ethnicity, but with only 20 visits, this is not a statistically significant difference.

Figure 4. SHIFT-Care initiation rates by racial/ethnic categories, cohort cumulative, June 2019-September 2020



Notes: **p<.01 ***p<.001. The "other" category includes all patients not explicitly included in one of the other four race/ethnicity categories, e.g., unknown and multi-racial; see Methods section for additional data details.

5.22 Initiation Experiences and Patterns of Accessing Care

SHIFT-Care programs hoped to provide an accessible entry point to recovery by offering evidence-based MAT and linkage to treatment and services from the ED. In conversations with qualitative evaluators, patients and staff members with lived experience shared their perspectives on factors that impacted patients' experience and likelihood of initiating MAT, as well as ways in which SHIFT-Care affected these patterns.

OUD and SUD Stigma in the ED

Stigma adds to the pain experienced by individuals with OUD and other SUDs.[6] The majority of patients had many stigma-laced experiences in the ED: "They treated me like I am worthless. I am worthless—just can't beat this." Some patients attributed this treatment in part to their own actions, reporting that they often behaved unpleasantly, disrespectfully, and at times abusively toward ED staff during their visits and that clinicians often did not understand the true reasons for this behavior. As one patient explained, "They remember what you were like previously and don't seem to understand that it was the drugs, not me. I don't want to hurt anyone. Wish they didn't treat me like shit." This is consistent with literature documenting that agitation and anger often accompany opioid overdose reversal,[98-100] particularly if clinicians, staff, or others communicate negatively with patients during resuscitation.[99]

During the SHIFT-Care initiative, the majority of patients interviewed reported that they continued to experience stigma. However, several did report recent changes in how they were treated in the ED: "Once the (recovery coach, mental health clinician) came to talk to me, everyone treated me better." At a few SHIFT-Care sites, patients also reported experiencing positive interactions with ED physicians.

> "The doctor was surprisingly kind—seemed to care—everyone else, well, they could care less about me."
> *– SHIFT-Care Patient*

Patients felt that having someone treat them compassionately and without judgment was new and that it helped them think about potential pathways to recovery. This type of compassionate and nonjudgmental support is known to be an important facilitator of recovery for patients with OUD.[80,82,84]

Staff at several sites reported making observable progress in decreasing stigma in the ED. Staff shared the wide range of strategies they used in these efforts, including educating clinicians, sharing success stories and personal accounts from people in recovery, and integrating recovery coaches and experienced SUD clinicians into the ED. These approaches align well with stigma-reduction strategies noted in the literature.[90,101] Many staff members with lived experience shared that being in the ED, interacting with staff, and sharing their own recovery journeys were important elements of their role: "My job is also to educate ED clinicians about addiction. We're welcomed now in the ED; they look forward to us working there because we provide something that a lot of the doctors and nurses don't have, and that's the lived experience."

> "I actually think we've gotten a lot better. It's an ongoing process we need to keep working on."
> *– SHIFT-Care Staff Member*

> "It's been difficult for us. Most ED physicians, nursing—they still see addiction as a choice, not a disease."
> *– SHIFT-Care Staff Member*

Stigma toward individuals with OUD is deeply ingrained and can hamper attempts to implement OUD treatment and support programs.[80,91,92,102] Some staff with lived experience reported that this was the case in their SHIFT-Care sites. In some cases, SHIFT-Care teams perceived a lack of effective leadership in the ED as a contributing factor.

Limitations of the ED

> "I was in the ED waiting room for eight hours. Only the nurse talked with me for five minutes. Everyone ignored me. I kept going to the bathroom to use. The only way I could handle how sick I was feeling."
> *– SHIFT-Care Patient*

While awardees saw the value of situating MAT initiation in the ED because of the number of OUD patients seeking care there, they also recognized that the opportunity was balanced with some practical limitations of the ED as an initiation site. As one staff member explained: "Our ED is geared for acute illness and trauma. OUD/SUD patients are best steered to an alternative setting if they do not have serious medical issues, especially since once they're admitted to the ED, it can take hours to process them through the system." Patients reported experiencing long waits with few services, causing many to leave against medical advice. Staff confirmed this and emphasized the importance of their bridge or behavioral health clinic in mitigating these challenges: "We worked out a system with the ED triage nurse. If the OUD/SUD patient doesn't have serious medical issues, she calls us instead of admitting them. We head right over and can usually get the patient to come with us [to the bridge clinic] to discuss options."

Other staff noted, "There are so many acute and trauma patients in our ED. It's difficult to address addictions—you're competing with other concerns and OUD isn't high on the list." Some sites facing these barriers targeted nursing directly in their efforts to change ED processes and culture. These strategies often focused on triage nurses, providing training and updated processes for identifying patients with OUD and facilitating referral to a recovery coach and/or behavioral health team: "We get the referral from the triage nurse immediately. This helps us work with the ED team and patient to explore possible pathways for the patient to consider." Others used a variety of innovative approaches. As one staff member described, "We actually developed a new ED nursing role and provided training to one of the nurses in the management of psychiatric and SUD patients. She's wonderful and definitely changes the perspective of nurses and some physicians."

Persistent Outreach after ED Discharge

> "[The recovery coach] kept calling me. I never answered and then I did. I talk with her now twice a week."
> *– SHIFT-Care Patient*

Awardees experienced success with a variety of outreach strategies, though these efforts rarely led to initiation within the 72-hour timeframe defined in SHIFT-Care's MAT initiation measure. Instead, teams took a persistent approach, reaching out to patients about options and sharing their own experience with MAT and recovery. Several awardees called all patients with valid phone numbers who were identified as SHIFT-Care-eligible in the ED, even if they left AMA. Staff reported often calling patients many times before connecting. These continued outreach efforts led to ongoing conversations and, in many cases, an appointment to outline treatment options.

Some awardees experienced some limitations of telephone outreach following ED discharge: "Most patients did not have a valid phone number. We did talk with the intake nurse and ED leadership, and this helped. Still, cold-calling just does not work." However, most awardees and patients reported that if a SHIFT-Care team member met the patient in the ED, connecting after discharge was more likely. In the words of one staff member, "For me, if I met the patient before they are discharged, they are more likely to answer my call and agree to come in for an appointment. The face-to-face connection is a key factor."

Collaboration within the Hospital or Health System

> "Once [patients are] admitted to one of our floors, they are easily accessible. I can just pop in and see if they want to talk."
> *– SHIFT-Care Staff Member*

Building off their efforts in the ED, many awardees created inpatient behavioral health teams during SHIFT-Care or took advantage of pre-existing teams to follow up on patients identified in the ED. All who did so reported that their inpatient team was a valuable resource for maintaining connections with patients with OUD. SHIFT-Care teams worked with inpatient staff to determine the best approach to identifying and engaging patients. Many used the ED tracking system they developed during SHIFT-Care to identify patients, then contacted the inpatient unit to consider how to proceed. In contrast to the ED, inpatient stays provided a longer window to connect with patients, and team members sometimes made multiple visits with a patient during their stay. In the words of one patient who described this experience: "[The psychiatrist] kept stopping by. He talked about underlying health issues that make it hard for me to stop using. I started medication (buprenorphine) and have an appointment next week. I think he may be right—just never saw my need for drugs that way."

Another strategy that several awardees used or planned to implement was increasing coordination with their network's primary care providers (PCPs). As one staff member explained, "We have some new referral and outreach efforts at the health clinic and local PCPs. They talk with patients about having a behavioral health team member contact them. I get referrals weekly." These partnerships took different forms across awardees, including having dedicated recovery coaches to work with primary care patients, connecting PCP patients with the hospital's bridge clinic, conducting marketing and education efforts to make PCPs aware of the program, and offering X-waiver training to PCPs.

In addition, several awardees felt that combining ED-based outreach and initiation efforts for OUD with the hospital's treatment approaches for patients with other SUDs would be beneficial to patients, improve coordination, and increase the SHIFT-Care program's financial feasibility. Multiple sites reported a higher prevalence of patients with alcohol use disorder (AUD) than with OUD and emphasized that AUD is also a serious condition that can cause meaningful harm and death.[105,106] They further reported that many patients with OUD used other substances. Due to these factors and the overlap in recovery pathways across different types of SUDs, many awardees felt that a comprehensive approach to SUD services was most effective. Some incorporated this approach into their SHIFT-Care program.

5.23 Treatment Engagement Rates

Among patients who initiated MAT through SHIFT-Care, 30-day engagement in treatment ranged from 29% to 63% of initiated patients depending on the month (Figure 5). The overall 30-day engagement rate during the full SHIFT-Care period (June 2019-September 2020) was 45%. There were few differences in engagement rates by patient characteristics (Appendix C). Individuals aged 26-40 were more likely to engage than individuals aged 41-64 (47.7% vs. 40.0%, p=.02). People who reported previous treatment for OUD in the past year were more likely to engage than those who had not been in treatment in the past year (49.3% vs. 41.6%, p=.01)

Thirty-day engagement rates fluctuated over time. During the first months of the intervention (June 2019-November 2019), 30-day engagement rates were between 41% and 63% by month. Thirty-day engagement dropped in December 2019 and again in March 2020. The rates began to increase again in April 2020, but thereafter remained lower than earlier in the study.

The SHIFT-Care average 30-day engagement rate of 45% is consistent with other studies' findings. Recent reports of efforts to offer ED-initiated buprenorphine reported 30-day engagement rates ranging

from 38% to 49% depending on the study. An effort at a single urban medical center that started MAT in the ED and referred patients to community partners reported 39% of the 115 patients met criteria for 30-day engagement.[20] A program to implement MAT in three South Carolina EDs reported a 46% engagement rate.[18] A study of 219 patients in one hospital that started MAT in the ED and connected patients with outpatient treatment in the community reported 49% remained engaged in treatment at 30 days.[13]

All observational studies report lower 30-day engagement rates than the randomized controlled trial of ED-initiated buprenorphine which reported 78% of patients engaged in treatment after 30 days.[9] Similar to SHIFT-Care, the randomized trial did not exclude many patients from the study, but it did cover all costs of medication and visits during the 10-week study period, which may have contributed to higher engagement rates.

Figure 5. SHIFT-Care 30-day engagement visits for cohort, June 2019-September 2020

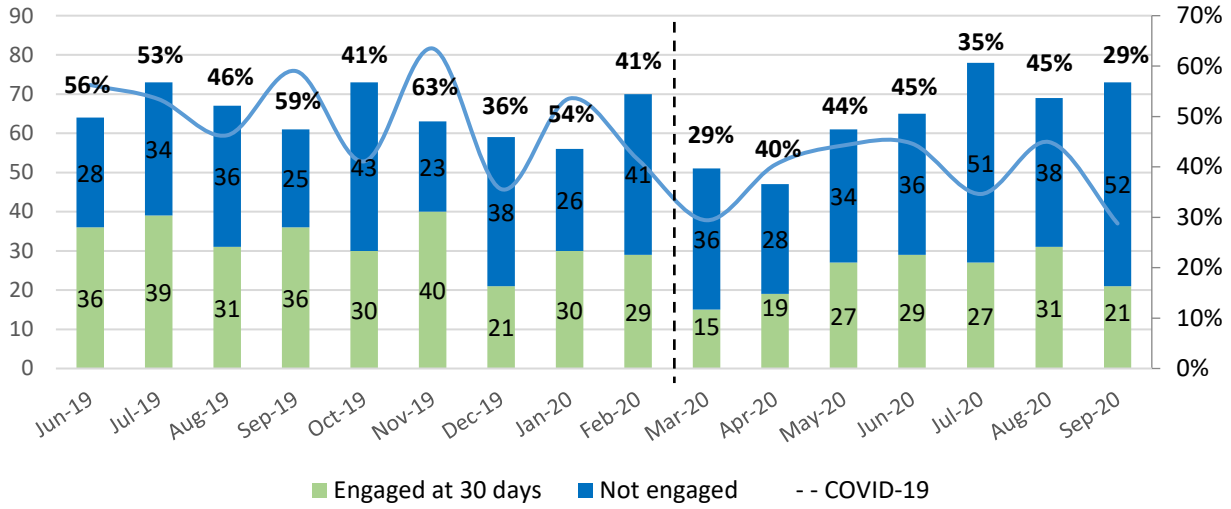
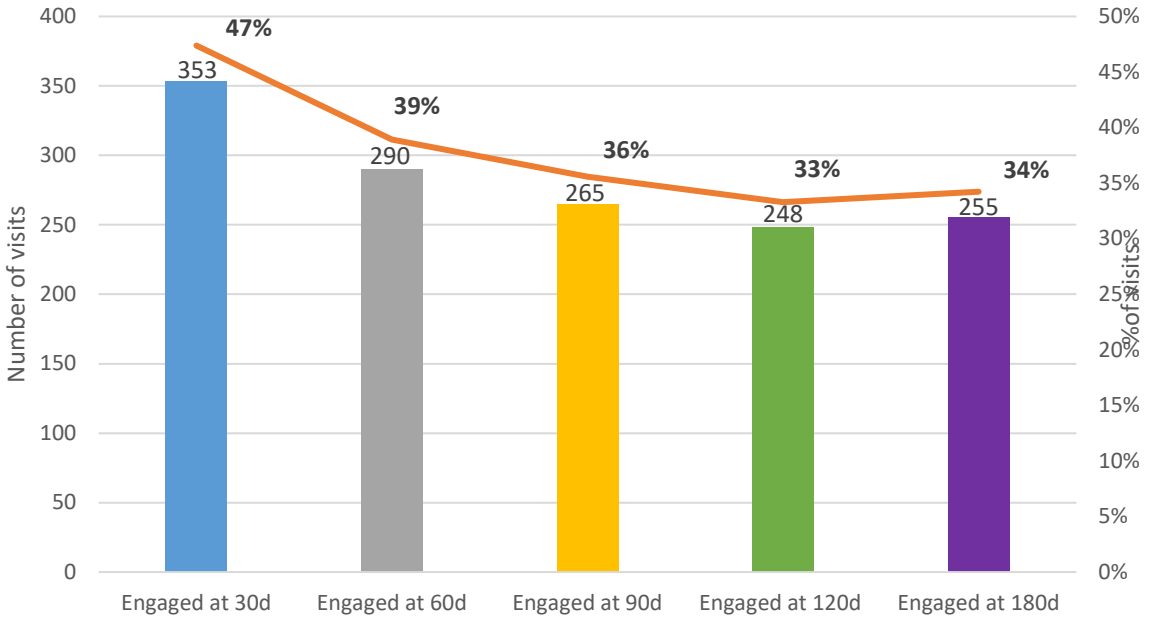


Figure 6 shows the percentage of people who continued to be engaged at 30 days and beyond, up to 180 days. Engagement was assessed independently for each time period and did not require engagement during the prior time period. At the 180-day post-intervention period, MGH reported the highest rate at 51% (104/202), though its denominator was limited to individuals in the MGH system.

Figure 6. Number and percent of initiated visits resulting in engagement at 30, 60, 90, 120, and 180 days post-initiation, SHIFT-Care cohort total, June 2019-May 2020 (note: time period is limited to count only visits with the potential for 6 months of follow-up before program end)



SHIFT-Care's reported 60-, 90-, 120-, and 180-day engagement rates may underestimate true treatment engagement because awardees captured treatment engagement only from their community partners and hospital-affiliated outpatient treatment providers. If patients remained in treatment but moved to a different provider or location for ongoing treatment, this was not captured by the SHIFT-Care data. In addition, a substantial part of SHIFT-Care took place during the COVID-19 pandemic when access to health care services was disrupted.

In comparing SHIFT-Care results to other ED programs, few studies reported treatment engagement rates beyond 30 days following ED-initiated MAT. Two observational studies looked at longer-term treatment engagement following ED-initiated buprenorphine. One showed 53% of 62 eligible patients were in treatment 60 days after their ED visit.[21] A small study of 19 patients found four (21%) were engaged in treatment after six months.[107]

In the randomized trial, 74% of patients were engaged in treatment at 60 days, 53% at six months, and 49% at 12 months.[12] However, only a subset of patients who initiated buprenorphine were followed over this time period. Assuming all patients lost to follow-up were not engaged in treatment, engagement rates decrease to 60% at two months, 43% at six months, and 37% at 12 months. The authors found the ED-initiated group had significantly higher treatment engagement at 60 days. The difference was not maintained for six or 12 months, but care disruptions due to the RCT design may have contributed to this finding.

5.24 Engagement Experiences and Patterns of Accessing Care

Patients and staff members with lived experience also shared perspectives on factors that affected patients' ongoing engagement in treatment, recovery, and/or harm reduction services after their ED visits, including ways in which SHIFT-Care impacted these patterns.

OUD Recovery Continuum Deficits

The OUD recovery continuum has notable access, equity, and quality deficits. Nationally, the treatment system is fragmented,[6,108] long waiting lists and limited bed availability are common,[6,80-82,109] and MAT is underused[6,7,25,90,110] despite strong evidence of its effectiveness.[4,6-8] OUD treatment availability and expertise are even more limited for people with medical or mental health comorbidities.[81,111,112] Massachusetts faces many similar challenges.[113-116] In addition, for individuals with socioeconomic barriers, accessing and remaining in treatment is more difficult. Financial and insurance-related constraints pose barriers to recovery,[80,81,84-86,109] as do factors such as lack of housing,[6,69,75] working phones,[81] transportation,[69,79-83] and identification documents.[81] (These issues are discussed in detail in Section 4.1.)

When patients are able to access treatment such as MAT, several recovery support and treatment options create diverse pathways to continue recovery or harm reduction.[117] These include acute and residential treatment settings, such as inpatient detoxification treatment, clinical stabilization services (CSS) and transitional support services (TSS), and recovery homes and other forms of sober housing.[118] Outpatient treatment also takes multiple forms, from primary care-based treatment programs or OBOTs[119] to higher-touch options such as intensive outpatient and partial hospitalization programs.[117] Regardless of recovery pathway, MAT is recommended as standard of care for OUD[4,6-8,120] and is thought to be particularly effective when combined with concurrent psychosocial treatment.[71,72,120] Despite this multitude of options, however, interviewed patients and most staff members with lived experience reported difficulty accessing resources for individuals wanting recovery support and treatment.

Medication Choice and Supportive Services

Facilitating access to evidence-based MAT was a central goal of all SHIFT-Care programs, and, regardless of the medication or pathway selected, most SHIFT-Care team members and patients expressed strong support for this type of treatment.

In order to best facilitate patients' ongoing engagement in treatment, SHIFT-Care teams worked with patients to determine the type of medication that would work best for them as they navigated the recovery pathway. Patients reported that clinicians worked with them to offer a choice of medications, and many had tried multiple options in the past. Sites strongly believed that the choice of medication should be a shared decision between patients and clinicians, and staff with lived experience emphasized that each medication has advantages and disadvantages that may make it a better fit for some patients than others. While SHIFT-Care focused on increasing initiation of buprenorphine (Suboxone) in the ED, several patients shared successful experiences with extended-release buprenorphine (Sublocade). This medication is taken once a month, eliminating the need to take a dosage every day. Some patients and SHIFT-Care staff with lived experience reported that extended-release buprenorphine keeps patients on MAT more effectively than other formulations, as patients do not need to decide every day if they should take their buprenorphine. As one patient who had experienced decades of opioid addiction shared, "I used Suboxone over the last seven years. I just stopped the Suboxone when I wanted to start using again. I can't do that on Sublocade. Have been in recovery for almost a year—first time in recovery—even in prison I was using. Can't believe it."

However, many patients also reported that they faced shame when using MAT, which could be a challenge to continued engagement. Staff with lived experience agreed: "Patients using medication as a component of their recovery pathway do hear that they are not in recovery because they are relying on another drug." Such stigma toward MAT is a well-documented barrier to wider availability and uptake of MAT.[6,7,70,80,84,86,90] Several staff members with lived

> "So many people have told me that I am not in recovery because I am on Suboxone, especially at AA. I just stopped telling people that I take medication."
>
> *– SHIFT-Care Patient*

experience reported that when patients hear these perspectives, they sometimes try a pathway without MAT "that never goes well." Recovery coaches reported that they addressed this stigma with patients, helped them understand the role and importance of MAT, and discussed strategies for handling the negative opinions of others.

> "For our population, the addiction is rooted in so many of their life and emotional challenges—it's not really possible to address one without the other."
>
> *– SHIFT-Care Staff Member*

In addition, literature suggests that MAT often works best in tandem with psychosocial interventions,[71-73] and all patients and staff members with lived experience felt that MAT is insufficient on its own. While this differs from evidence in the literature that MAT is effective even in the absence of other interventions,[6] it is important to note that most studies of MAT have not focused specifically on marginalized patients with high social and economic needs. Within this specific context, all patients and staff members with lived experience believed that high-touch wraparound services—additional supports that help address patients' medical, mental health, social, and economic needs[121,122]—were essential regardless of treatment pathway. One staff member summarized this view: "Our patients need so much. Yes, medication, along with trauma and mental health care, access to a range of credible treatment options, and they must have a way to access avenues off the streets—housing, food, work, activities if they can't work, sober support…" Many staff and individuals in recovery specifically noted the importance of social workers and community health workers (CHWs), who could sometimes help patients access these needed services. As one staff member with lived experience explained, "Our CHWs know the resources in the community. They work with individuals that are actively using and those in recovery to connect them with community resources—accessing housing they can afford, applying for Social Security disability, Medicaid, and food stamps. If there is a resource out there, they get patients connected. Unfortunately, the needs outweigh the resources like 500%."

Role of Recovery Coaches

> "I have been in recovery for five months. Met [the recovery coach] in the ED. I had given up. He shared his experience with wanting to give up and what he did. Thought maybe, you know, I had a chance."
>
> *– SHIFT-Care Patient*

All awardees reported on the valuable role recovery coaches have in patient initiation and engagement, often seeing recovery coaches as a key strength of their SHIFT-Care program. Recovery coaches are individuals with lived experience of addiction who support others with SUD recovery or harm reduction. Program teams felt that having someone with lived experience talk about their history and recovery pathways makes a meaningful connection with patients, which increases the odds of initiation or encourages patients to maintain their engagement. In the words of one SHIFT-Care team member, "Adding recovery coaches to our teams has really helped us connect with patients. Provides an important linkage as individuals consider initiation and navigate recovery pathways." Patients also expressed the importance of their interactions with recovery coaches in their own journeys to recovery or harm reduction. This aligns with evidence showing that supportive connections with other people engaged in treatment or recovery are important facilitators of recovery from OUD,[80,84] as well as with early evidence suggesting that recovery coaches can be helpful for patients with SUDs.[123-125]

Recovery coaches and transitional programs have an important role in "catching" patients during a moment of readiness. Many patients and staff with lived experience shared that encountering someone in recovery at the right time was an essential step toward becoming ready to consider a recovery pathway for themselves. Patients often described an encounter with a recovery coach who helped shift

their mindset: "I met [the recovery coach] at the [harm reduction] coffee house. I only went there to get food… You know, a place to go when the shelter is closed. [The recovery coach] talked with me about his experience. I went back there every day for a week and talked with him. I started treatment—in recovery now for eight months—my first time in recovery." Staff with lived experience believed that meeting patients in the ED was also an important way to "spark" readiness, whether this readiness emerged during the ED encounter itself or during follow-up outreach.

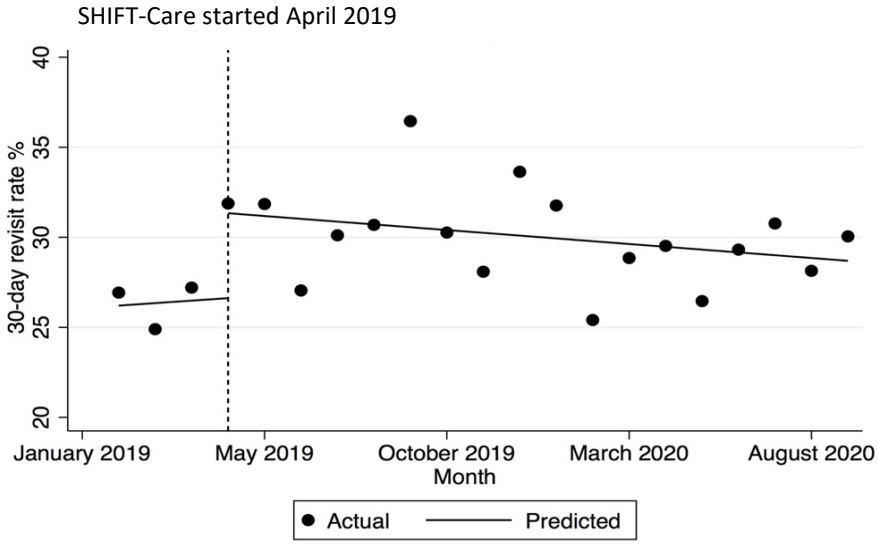
Although the importance of recovery coaches was a clear theme among both patients and SHIFT-Care teams, some also cautioned that recovery coaches alone cannot address the serious barriers facing this patient population. One team member summarized this tension: "The best recovery coach—don't get me wrong, they are fabulous—cannot solve the economic, social, and mental health barriers our patients face. We must create pathways that mitigate the structural barriers and inequities that make accessing support and services impossible for our patients."

5.25 Health Care Utilization: 30-Day Revisits, Hospitalizations, and ED Visits

To assess whether implementation of the SHIFT-Care initiative was associated with changes in health care utilization, the evaluation examined 30-day ED revisit rates and hospitalizations; and ED visits and hospitalizations in the six months following SHIFT-Care eligibility. The 30-day revisit measure is one important measure of health care utilization. An ED revisit is any visit to the ED, for any reason other than labor and delivery, within 30 days of a SHIFT-Care eligible visit. The 30-day ED revisit rate for all patients increased immediately following implementation of SHIFT-Care (Figure 7). Over time the 30-day revisit rate declined, but this decrease was not statistically significant. Thirty-day ED revisits were also calculated separately for visits during which patients initiated MAT and for those during which patients were eligible for SHIFT-Care but did not initiate MAT. The average 30-day ED revisit rate was not significantly different between visits that included initiation (28%) and those that did not (30%, p=.12).

While ED visits may be undesirable from the standpoint of being a costly form of health care utilization, it is worth noting that in the case of SHIFT-Care, repeat ED visits could signal the continuation of a productive course of treatment for a person with OUD. For example, such visits could indicate that a patient found the ED helpful or returned to receive a next dose of buprenorphine while waiting to access community treatment.

Figure 7. Interrupted time series analysis of 30-day ED revisits for cohort, 30-day ED revisit rate following SHIFT-Care eligible ED visits, January 2019-September



In addition to 30-day ED revisit rates, health care utilization was tracked for six months following a patient's first SHIFT-Care eligibility. Hospitalizations and total ED visits were analyzed for the baseline period (January-March 2019) compared to the SHIFT-Care intervention period of June 2019 to May 2020 (Table 4), as well as for those who initiated MAT compared to those who did not initiate.

Among the 4,800 unique patients identified for SHIFT-Care between June 2019 and May 2020, awardees reported 989 hospitalizations, 9,169 ED visits, and 677 MAT initiations within six months of identifying the patient for SHIFT-Care. Analyses comparing hospitalizations within six months of identification between baseline and the SHIFT-Care intervention identified a statistically significant decline in hospitalizations from the baseline period compared to the intervention. These data suggest the overall likelihood of hospitalization declined during SHIFT-Care. During the intervention period, hospitalizations were lower among non-initiated patients than initiated patients. This may be because patients who initiated MAT were more severely ill and therefore more likely to be hospitalized. It is important to note that these data reflect utilization only at SHIFT-Care hospitals; to the extent that patients sought care at other facilities, those data are not captured. In addition, health care utilization fell during the COVID-19 pandemic, which overlaps with the last three months of the data reported here.

The change in the number of ED visits per patient in the six months following SHIFT-Care identification was not statistically significant between baseline and the SHIFT-Care period. Similarly, the number of ED visits among patients who initiated MAT during SHIFT-Care was not significantly different from those who did not initiate.

Table 4. Six-month average count per unique patient for utilization and outcomes, baseline vs. intervention period and initiated vs. non-initiated

	Pre-Post		Intervention, June19-May20	
6-month measure	**Baseline, Jan-Mar19**	**Intervention, June19-May20**	**Among initiated**	**Among non-initiated**
Utilization measures per patient				
Hospitalizations	0.36	0.21***	0.34	0.18***
ED visits	1.06	1.91	1.98	1.90
Outcome measures per patient				
Mortality	0.03	0.03	0.02	0.03
Fatal overdose	0.00	0.00	0.00	0.00
Non-fatal overdose	0.16	0.17	0.16	0.17

Notes: Mortality data reported using hospital and DPH data; all other outcomes used hospital data only. See Methods section for additional data details. ***Significantly different from baseline or initiated at p<.001

5.26 Outcomes: Overdose and Mortality

To determine how SHIFT-Care impacted opioid treatment outcomes, we examined change over time in fatal and non-fatal overdose and mortality over the six-month period following a patient's SHIFT-Care eligible visit (Table 4). Outcomes for patients who were eligible prior to SHIFT-Care implementation were compared with outcomes for patients treated during the SHIFT-Care intervention (June 2019-September 2020).

From June 2019 to September 2020, awardees identified 127 deaths (all-cause), 10 fatal overdoses, and 827 non-fatal overdoses in the SHIFT-Care population. There were no statistically significant differences in mortality or overdose rates in eligible patients prior to SHIFT-Care compared to the SHIFT-Care intervention period. However, these results should be interpreted with caution due to the low incidence

of outcomes, data limitations from analyzing only data from individual awardees, and the many other factors that are associated with overdose and mortality, including housing insecurity, experiences of trauma, and high rates of substance use and mental health conditions.

5.3 Implementation

In general, awardees accomplished the activities originally described in their logic models. While many adjusted finer points of their programs to adapt to challenges, relatively few made changes to their underlying model structure. Of the four who did so:

- AGH/BH added an option for home initiation;
- Harrington expanded its SHIFT-Care program to include Webster Hospital;
- NSMC expanded its program to inpatients and eliminated a community health worker (CHW) position in favor of increased reliance on recovery coaches; and
- UMass eliminated a planned steering committee and replaced it with collaborations with community-based providers, state and local programs, and other departments within UMass Memorial Health Care and UMass Medical School.

Awardees also made model adjustments to respond to the COVID-19 pandemic. These are described in Section 6.

Implementation Facilitators

Awardees noted a wide range of factors that facilitated program implementation. Gaining buy-in from ED leadership and involving them in program planning and monitoring was described as key by multiple awardees. Similarly, multiple teams mentioned the importance of involving all relevant groups in decision-making, such as ensuring that physician, nursing, pharmacy, and information technology (IT) staff participated in developing buprenorphine dispensing protocols. The AGH/BH team emphasized the importance of regular communication with this wider group of stakeholders, as well as within the SHIFT-Care team itself. LGH team members explained that frequent meetings within the SHIFT-Care team also supported team members with the psychological impacts of working with patients in crisis.

Providing ED clinicians with tools and supports to help them better care for patients with OUD was another facilitator mentioned by many awardees. This included supporting ED physicians to become DEA X-waivered to prescribe buprenorphine, an important first step mentioned by multiple awardees. In addition, educating ED physicians and nurses on both SHIFT-Care and OUD generally was helpful for multiple awardees, as was having formal processes for buprenorphine prescription that providers could follow. For UMass, creating a bridge clinic increased ED physicians' comfort with prescribing buprenorphine because they knew patients would receive follow-up care; for AGH/BH, having an inpatient addiction consult team made hospitalists more comfortable and effective in treating patients with OUD. Sharing success stories was another important strategy multiple awardees used to increase clinician buy-in.

Implementation Challenges

Awardees' SHIFT-Care teams—often composed of behavioral health clinicians and recovery coaches—frequently mentioned that a key challenge to implementation was a perceived lack of prioritization of SHIFT-Care and OUD treatment by ED clinicians and/or ED leadership. Some awardees who faced this barrier attributed it to stigma toward patients with OUD, while others emphasized the busy nature of the ED and ED clinicians' many competing priorities. Since ED clinicians and leadership who were not directly involved in implementing SHIFT-Care were not interviewed for this report, it is difficult to provide a comprehensive view of this aspect of implementation; however, some awardees noted that efforts to engage with the ED staff proactively in the design and implementation of their programs were

important to their success. Other awardees addressed this challenge in other ways. For example, UMass found that focusing on engaging behavioral health providers already stationed in the ED, as well as ED clinicians who were highly committed to treating OUD, was a successful mitigation strategy.

Some awardees also had challenges hiring and maintaining consistent staffing during the program.

Provision of Better Care

All awardees noted some benefits from SHIFT-Care, believing that the initiative allowed them to provide better care to patients reached by the program. Most directly, awardees noted that SHIFT-Care increased their hospitals' ability to connect patients to treatment through the ED, including by prescribing or initiating MAT and facilitating follow-up care at a bridge clinic or outpatient provider. For those whose programs had an inpatient component, most believed that inpatient care improved as well—with at least one feeling that this area of the program was in fact the most effective. Many awardees shared a sense that ED clinicians became more proactive in caring for OUD patients throughout the program, and that the program demonstrated to ED staff and hospital leadership that OUD treatment was possible in an ED setting.

As discussed in Section 5.22, program teams reported that SHIFT-Care helped decrease stigma toward OUD in the ED though patients continued to recount stigmatizing experiences. Many also felt that SHIFT-Care improved patients' experiences of care by making peer support available and that, by treating patients with respect and providing them with resources, the program helped rebuild patients' trust in the medical community. Some program teams also emphasized that SHIFT-Care helped them build or strengthen community partnerships and relationships across different hospital departments.

Model Feasibility and Effectiveness

While all awardees perceived some benefit from their SHIFT-Care programs, they varied in their assessments of the effectiveness of ED-based MAT and patient engagement. A frequent sentiment was that these interventions were an important component of—but not the sole solution to—the challenge of ensuring reliable access to MAT for individuals with OUD.

Many awardees noted positive elements of ED-based MAT initiation and patient engagement. ED clinicians' having the capacity to provide evidence-based MAT and link patients to resources outside the ED was widely considered valuable by program teams. In addition, multiple awardees felt that connecting with patients in the ED provided a pathway to engagement or treatment for those who might not be otherwise connected with the health care system. Some also felt that the ED provided a good opportunity to try to move patients toward considering recovery, as many were in the midst of a negative consequence of their opioid use. In addition, one team mentioned that SHIFT-Care supported ED clinicians as well as patients since it provided them with the resources to more effectively care for their patients with OUD.

Awardees also noted some inevitable limitations of ED-based MAT initiation and patient engagement. Awardees acknowledged the ED as an unpleasant environment for patients, explained that wait times were often long, and patients were often eager to leave, and recognized that stigma lingered despite the gains made during the program. Some felt that because patients often came to the ED in crisis and were not seeking recovery, connecting with them proved difficult. Two awardees explained that admitting patients to inpatient detoxification treatment from the ED was more challenging than from other settings due to administrative hurdles.

Awardees also encountered challenges specifically related to MAT as a treatment option. A number learned that many of their patients either were not interested in MAT or already had a way to access it, leading to lower-than-expected initiation or referral rates. Many of these awardees emphasized that

efforts to provide buprenorphine in the ED should be situated within a larger suite of recovery and harm reduction services. There was also some variation among awardees in their view of buprenorphine as a treatment approach compared to other medications. One team conveyed a strong belief that extended-release naltrexone (Vivitrol) was both more effective for and more desired by many of its patients. Other awardees expressed a sense that buprenorphine prescription is an important form of treatment and that even diverted buprenorphine can constitute harm reduction. Regardless of a patient's choice of medication, most teams agreed that access to high-touch wraparound services—such as mental health care and support with HRSNs—is important for patients receiving MAT.

Finally, some awardees expressed frustration about the wider barriers that patients faced beyond the reach of their individual programs. These barriers are discussed in detail in Section 4.

Recommendations for Future Programs

Awardees identified a few approaches that they believed would mitigate some of the known challenges of ED-based initiation. Many of these recommendations involved providing additional resources to ED clinicians. For some awardees, this meant offering more educational opportunities or expanding these opportunities to a wider range of staff members; for others, it involved adding a dedicated physician or team who could provide consultation to clinicians working with OUD patients. Other recommendations focused more closely on increasing patient engagement, with NSMC planning to create a bridge clinic in future program iterations and UMass hoping to locate more SUD services directly in the ED.

Other recommendations addressed staffing considerations. AGH/BH felt that encouraging advanced practice providers (APPs) to become X-waivered to prescribe buprenorphine would help increase the program's reach. HMC believed that having a lead recovery coach manager would have improved communication with the team's externally-employed recovery coaches.

6. COVID-19 Impacts

Many awardees reported a perception that relapse, overdose, and mortality rates increased considerably for OUD and SUD patients during the height of the COVID-19 pandemic. The Massachusetts Department of Public Health reported 2,104 opioid overdose deaths in 2020, a 5% increase over 2019 and the first year since 2016 that saw an increase in overdose deaths.[22] The largest increase in overdose deaths was among Black, non-Hispanic males.[22] There was also a national rise in both fatal and nonfatal drug overdoses,[53,126,127] with the increase in overdose deaths in Massachusetts smaller than the estimated 30% increase seen nationwide in the 12 months ending October 2020.[53] Anecdotal reports suggest that drug and alcohol relapses may have increased as well.[126,128,129]

The number of SHIFT-Care eligible ED visits decreased from February 2020 to April 2020 (491, 471, and 430 visits, respectively), with an increasing trajectory starting in May 2020 (524 SHIFT-Care eligible visits). Overall, ED visits in Massachusetts declined by 55% from January to April of 2020 and hospital and outpatient treatment capacity was also reduced.[52] COVID-19 changed most awardees' delivery models for at least the first few months of the pandemic (approximately March through June 2020), with many using a hybrid approach that combined telehealth with in-person care for patients who required it. At many sites, recovery coaches worked remotely at the start of the pandemic. Some awardees believed that these changes improved accessibility for patients: "I am able to reach patients on their phones. They answer them and want to talk with me." In addition, the relaxation of regulations concerning MAT allowed patients to receive longer supplies of buprenorphine without coming to an in-person appointment if their clinician believed they were doing well. These changes were seen as helpful by both patients and staff and increased the likelihood that MAT use would continue. However, most

patients just beginning MAT still required an in-person appointment, and several awardees did not experience a substantial decrease in MAT clinic encounters.

While telephone and video options may have assisted some patients, awardees also expressed concerns about patients without access to such technologies and about the difficulty of developing meaningful relationships without in-person contact. Some also felt that not having SHIFT-Care team members in the ED because of COVID-19 safety protocols impeded OUD engagement and stigma reduction efforts.

> "I have no way of attending virtual AA meetings. I have been trying to stay connected to my sponsor, but he relapsed."
>
> *– SHIFT-Care Patient*

Many patients and staff members with lived experience reported that the biggest gap during the height of the pandemic was in ongoing recovery support since peer support meetings and recovery cafés were initially closed. As the pandemic continued, many of these support services provided virtual options, but SHIFT-Care patients often lacked the computer or smartphone access required for participation. In addition, patients faced increased social and economic challenges during the pandemic. Many found themselves with no place to live due to shelter closures or capacity limitations, despite ongoing efforts across the state to create additional shelter capacity consistent with social distancing guidelines.[130-132] Access to transportation also became more difficult.

7. Sustainability

Most awardees shared a sense that the work they did as part of SHIFT-Care—including implementing new systems, building momentum, and changing ED and hospital culture—would provide a foundation for future OUD and SUD efforts. Many felt that ED clinicians became more proactive in caring for OUD patients throughout the program, and that the program demonstrated to ED staff and hospital leadership that OUD treatment was possible in an ED setting. All also reported that they will continue specific program elements, though uncertainties about the financial impact of COVID-19 complicated the sustainability landscape for all awardees. Finding ways to fund recovery coaches was particularly challenging for many. Of the eight awardees that incorporated recovery coaches as part of their SHIFT-Care programs, two had to decrease recovery coach staffing levels and two have not yet found an ongoing funding source.

Many awardees are continuing their programs through additional grant funding with five of the nine awardees receiving funding through the HEALing Communities Study. Some of these awardees expanded their programs under the new grant such as by adding an addiction consult team, adding or expanding a bridge clinic, adding a mobile team, or expanding the program to inpatient floors. These awardees also typically intended to continue working to find more sustainable funding streams in the future.

Of the other four awardees, two will sustain most aspects of their programs, with some staffing changes, as part of an expansion of services funded through the hospital budget. For one of these awardees, this expansion involves opening an addiction immediate care clinic. For another, it means expanding bridging services to hospital and primary care patients in addition to ED patients. Another awardee is continuing the bulk of its OUD and SUD services, but partially rolling back expansions conducted under SHIFT-Care. The last of these four awardees is maintaining MAT initiation in the ED and working to continue recovery coach services.

8. Conclusion

This evaluation provides insight into the effectiveness of the SHIFT-Care initiative, including strengths, limitations, and successful strategies. In addition, it offers considerations for similar investment programs and recommendations for future actions and research.

8.1 Learnings from the Evaluation

The SHIFT-Care program had an impact on MAT initiation in the ED, on average doubling rates of initiation compared to the period immediately prior to SHIFT-Care. It is important to note that ED initiations generally led to engagement in treatment for a sustained period: nearly 50% of individuals initiated via SHIFT-Care remained in treatment at 30 days, and a third at 180 days. These results are similar to those achieved in other comparable initiatives. Of note, Black and Hispanic individuals had lower initiation rates than the White eligible population. This important finding may reflect a need for increased attention to populations who face formidable social and economic challenges that impede access to a recovery pathway.

It is difficult to determine the precise impact of SHIFT-Care on patient outcomes such as overdose or all-cause mortality due to the small numbers involved, as well as the many other factors mentioned in this report that can contribute to these outcomes. Nonetheless given the known high rate of death after ED visits for overdose documented in the literature [23,24] and evidence that ED-initiated buprenorphine is associated with lower all-cause and opioid-related mortality rates,[25] interventions enabled by SHIFT-Care may have decreased the likelihood of adverse outcomes after an ED visit.

An important measure of health system resource use is ED utilization. It might be expected that as a result of SHIFT-Care interventions in the ED, patients would be diverted to care in bridge clinics or outpatient treatment, thus avoiding repeat visits to the ED. This was not found to be the case for this initiative: the 30-day ED revisit rate increased initially and leveled off during SHIFT-Care. The evaluation design did not allow for a detailed analysis of this finding.

Despite benefits derived from the initiative, SHIFT-Care awardees were not able to reach all anticipated SHIFT-Care-appropriate patients. Some awardees had expected to identify many more patients for SHIFT-Care than they ultimately identified during the initiative, which could simply be a reflection of imprecise forecasting or more nuanced environmental factors such as availability of other options for MAT initiation. In addition, the patient population identified for SHIFT-Care had complex clinical, economic, and social needs, including lengthy histories of substance use and addiction, early childhood and continual trauma, substantial mental health and medical conditions, and unmet social and economic needs. Most also faced barriers due to entrenched social and economic inequities. These combined factors exacerbated patient challenges and created significant barriers to treatment, engagement, and recovery. Furthermore, despite intentional efforts of awardees, persistent stigma towards individuals with OUD meant that many patients reported being treated poorly in the ED and had internalized the belief that their OUD was a personal failing. Some patients did notice improvements during SHIFT-Care, and awardees reported both successes and challenges in confronting stigma within their institutions. Finally, the SHIFT-Care experience also reflected the known deficits in the OUD recovery continuum with regard to access, equity, and quality. Patients and most staff with lived experience reported a significant lack of accessible resources for individuals wanting recovery support and treatment.

Nevertheless, the evaluation revealed strategies that facilitated initiation and engagement among SHIFT-Care patients. Persistent outreach to patients, diverting patients from the ED when possible, and collaborating within the larger hospital or health system all facilitated initiation. Ongoing patient engagement was hampered by persistent barriers to acute and residential treatment, but outpatient

treatment—including through awardee bridge clinics—provided a more effective pathway for many. In addition, MAT emerged as a valuable form of treatment that needed to be paired with high-touch wraparound services in order to address patients' needs. Across awardees, recovery coaches helped to facilitate patient initiation and engagement, including by promoting readiness for treatment.

Awardee teams shared both overall reflections on the efficacy of their SHIFT-Care programs and factors that might have affected their success. All awardees noted benefits from SHIFT-Care, believing that the initiative allowed them to provide better care to patients reached by the program. Groups varied in their assessments of the limitations of the ED as a site for ED-based MAT and patient engagement. Many SHIFT-Care teams felt that, while their ED-based programs were imperfect, they developed valuable experience and believed ED-based MAT access has an important place on the OUD recovery pathway continuum.

Regarding implementation, awardees noted the importance of providing support to ED clinicians and ensuring buy-in and communication within the ED and among stakeholders. Gaining support from ED leadership and involving them in program planning and monitoring was described as a key facilitator of program implementation by multiple awardees, as was incorporating all relevant groups in decision-making. Educating ED physicians and nurses on both SHIFT-Care and OUD generally was helpful for multiple awardees, as was having formal processes for buprenorphine prescription that providers could follow and institutional resources they could rely on for consultation or patient follow-up.

8.2 Implications for Future Investment Initiatives

The SHIFT-Care initiative showed that focused interventions for OUD in the ED can result in a higher rate of treatment and follow-up for OUD patients. It also indicated that with provider initiative and focused investment, long-entrenched cultural beliefs can begin to be mitigated and relationships can be forged between health systems and behavioral health providers in the community. At the same time, there are opportunities to learn more about what contributes most to effective ED-based OUD interventions and engagement in long-term treatment. While all had the same goals, SHIFT-Care awardees differed in key features of their approach, such as identification and initiation methods, staffing, relationship to ED and inpatient settings, and nature of their relationship with follow-up treatment providers. For the SHIFT-Care initiative, each of the awardees designed a program that worked within their context and community setting and was adaptable to the changing environment during the intervention period. Investing in studying the impact of different approaches would inform policymakers, clinicians, and other stakeholders about what approaches might work best in different settings, as well as how to best adapt models to fit specific needs. Future work could examine how these differences may influence MAT initiation, treatment engagement, outcomes, and health care utilization.

This evaluation also revealed insights that may be relevant to policymakers and other stakeholders interested in implementing a similar care model. For the SHIFT-Care initiative, while initiation rates for the cohort doubled, 88% of the target population did not initiate MAT within 72 hours of their ED visit, suggesting that further investment is needed in other parts of the care continuum. As outlined in Section 4, SHIFT-Care eligible patients faced complex clinical, economic, and social needs, creating significant complications to their entry into treatment. Future investment programs could be designed to provide resources for and set expectations that awardees understand and address the effects of one or more of these known health-related social needs through their programs. This might include, for example, funding hospitals to partner with shelters and housing advocates to create living arrangements that support recovery, such as year-round dry and wet housing options. It could also include working with community organizations to establish a harm reduction day program that provides access to basic needs like food, shelter, bathrooms, and community resource specialists who can assist with accessing

additional services. This would align with the emphasis patients and staff with lived experience placed on the need for wraparound services for the SHIFT-Care target population, as described in Section 5.24.

In addition, this evaluation points to an ongoing need to address SUD stigma and other entrenched contextual factors. Broad strategies to address stigma call for a process of inviting a change in public attitudes and perceptions and providing an opportunity to build community empathy. There is also a clear need to address entrenched socioeconomic barriers, inequity, and racism—all factors that substantially limit the impact of even evidence-based initiatives like SHIFT-Care. The success of future efforts to improve the health and health equity of individuals with OUD, as well as increase the use of high-value care settings, may be significantly hindered if not accompanied by a focus on these prevailing contextual factors.

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Appendix A:
Awardee SHIFT-Care Model Overviews

Appendix A1. Key Features of Addison Gilbert and Beverly Hospitals' SHIFT-Care Program	
Project title	LEAP (Lahey Enhanced Assessment Program) to Recovery
Program structure	• Engages patients with OUD in both ED and inpatient settings • Refers initiated patients to bridge clinic (LEAP to Recovery Clinic) or other outpatient providers for ongoing care • Incorporates recovery coaches employed by the hospitals, who meet with patients in the ED, on inpatient floors, and in the community • Aims to increase ED-based prescribing of MAT through training, protocols, and waiver licensing • Follows patients for 60 days to ensure engagement and assist with care access
Target population	All-payer adult patients who present with an OUD and live within the hospitals' community benefits service area Exclusions include: • Patients not medically appropriate for MAT due to psychiatric or medical conditions • Pregnant patients (who receive care through a different program)
Patient identification	• Identifies patients based on previous OUD diagnosis or OUD diagnosis in the ED • Receives real-time reports of patient eligibility and presence in the ED • Captures admitted SHIFT-eligible patients via an inpatient addiction consult process • Uses a chart review process to identify missed opportunities to initiate treatment
Treatment services provided in ED	• Some recovery coaches and SUD clinicians are co-located in the ED • Recovery coach meets with identified patients to discuss MAT • Registered nurse completes Clinical Opiate Withdrawal Scale (COWS) assessment for interested patients
Initiation types	Treatment initiation by ED or bridge clinic via home initiation, referral to community partner (verified initiation), after admission to hospital, and telemedicine
Community relationships	Lahey Health Behavioral Services (LHBS) • Offers follow-up appointments at its LEAP to Recovery Clinic for all SHIFT-Care patients interested in MAT • Splits SHIFT-Care funding with Addison Gilbert and Beverly Hospitals Collaborates less formally with other groups, including first responders, community organizations, outpatient providers, and the local community health center
Health system details	Part of Lahey MassHealth ACO Participant in HPC's CHART program
Program financing	$1,041,046 ($750,000 from HPC)[5]

[5] Program financing includes both HPC funds expended and in-kind contributions by the awardee.

Appendix A2. Key Features of Beth Israel Deaconess Hospital – Plymouth's SHIFT-Care Program	
Project title	Project MATTER (Medication-Assisted Treatment for Transformative and Extended Results)
Program structure	• Engages patients with OUD in both ED and inpatient settings • Refers initiated patients to outpatient providers for ongoing care (no bridge clinic) • Reconnects ACO patients with primary care providers for ongoing support • Incorporates recovery coaches employed by Gosnold, who meet with patients in the ED and on inpatient floors • ***Does not*** follow patients after discharge, though those who leave against medical advice receive a follow-up visit from Plymouth County Outreach
Target population	All-payer adult ED patients with naloxone reversal, evidence of opioid use, other clinical indicators of OUD, and/or detoxification needs Exclusions include: • Patients already receiving MAT • Incarcerated patients seeking services in the ED
Patient identification	• Identifies patients based on naloxone reversal, evidence of opioid use, other clinical indicators of OUD, and/or detoxification needs or requests • Uses an electronic tracker with triage notes and initial physician interviews to assist with patient identification • Receives notifications from ED physicians
Treatment services provided in ED	• Recovery coaches and other SHIFT-Care team members are co-located in the ED • Registered nurse completes COWS assessment for interested patients and an ED physician administers buprenorphine • Recovery coach meets with identified patients to discuss post-discharge treatment options
Initiation types	Treatment initiation by ED via initiation in the ED and referral to community partner (verified initiation)
Community relationships	Outpatient treatment partners: • CleanSlate Addiction Treatment Centers (has data-sharing agreement and a location on the same campus as BID-Plymouth) • Crossroads Treatment Centers • Harbor Health Services • Spectrum Health Systems Recovery coach partner: Gosnold Also collaborates with county-wide programs, including Plymouth County Outreach
Health system details	Part of Beth Israel Deaconess Care Organization (BIDCO) ACO Participant in HPC's CHART program
Program financing	$990,848 ($742,407 from HPC)

Appendix A3. Key Features of Harrington Memorial Hospital's SHIFT-Care Program	
Project title	N/A
Program structure	• Engages patients with OUD in both ED and inpatient settings • Refers initiated patients to bridge clinicians and/or Harrington Hospital Outpatient Behavioral Health Services (OBH) for ongoing care • Incorporates a navigator, who meets with patients in the ED and in the community and provides support with HRSNs and treatment access • Provides support and follow-up by SUD clinician and navigator regardless of patient's recovery status or initiation of pharmacologic treatment
Target population	All-payer adult patients identified through ED or inpatient settings who are experiencing opiate withdrawal, dependence, or overdose
Patient identification	• Identifies patients via a live tracker that flags people with a history of OUD or who are in the ED for an overdose, withdrawal, or substance abuse primary reason • Can also receive referrals from ED clinicians
Treatment services provided in ED	• SUD clinician administers a medical, social, and behavioral health evaluation • SUD clinician involves ED physicians to conduct in-person or take-home buprenorphine initiation when desired and clinically appropriate • Navigator meets with identified patients to support treatment access and HRSNs • SHIFT-Care team is not co-located in either ED, but tries to meet patients there in person as much as possible
Initiation types	Treatment initiation by ED or bridge clinic via initiation in the ED or bridge clinic, home initiation, referral to community partner (verified initiation), and after admission to hospital
Community relationships	Harrington Hospital OBH (part of Harrington's network) • Offers a wide range of outpatient SUD services • Provides follow-up services for many SHIFT-Care patients Southbridge Police Department • Incorporates an embedded navigator to engage and coordinate treatment for the target population (supported by SHIFT-Care funding) • Has data-sharing agreement
Health system details	Part of Boston Accountable Care Organization (BACO) Participant in HPC's CHART program
Program financing	$673,563 ($485,055 from HPC)

Appendix A4. Key Features of Holyoke Medical Center's SHIFT-Care Program	
Project title	Bridging to Recovery
Program structure	• Engages patients with OUD in ED, inpatient, and outpatient settings • Refers patients to HMC's co-located Comprehensive Care Clinic (CCC; not a bridge clinic) or to community partners for follow-up care • Incorporates recovery coaches employed by Gándara Center, who meet with patients in the ED, on inpatient floors, and in the community • Provides nurse navigator follow-up for all patients discharged from the ED with OUD, as well as the option to work with a recovery coach • Expands the CCC and increases behavioral health supports in primary care sites
Target population	All patients with OUD identified in outpatient clinics, ED, or inpatient units Exclusions include: • Patients who are critically ill, unable to communicate due to dementia or psychosis, or suicidal • Patients in police custody
Patient identification	• Identifies patients via a tracker with chief complaints and a diagnosis-based flag • Receives notifications from social workers, recovery coaches, physicians, and nurses
Treatment services provided in ED	• Social workers co-located in the ED meet with identified patients to provide brief interventions and assess eligibility • ED providers conduct an evaluation for patients interested in MAT and prescribe buprenorphine and/or refer patients to the CCC • Social workers can arrange for methadone or inpatient detoxification treatment for patients not interested in buprenorphine • Psychiatric advanced practice nurse (not co-located in the ED) provides support, education, and clinical guidance • Recovery coaches co-located in the ED provide additional support and linkage with treatment and resources
Initiation types	Treatment initiation by ED via initiation in the ED, home initiation, referral to community partner (verified initiation), and after admission to hospital
Community relationships	Program partners: • Gándara Center (has data-sharing agreement) • Hampden County Sheriff's Department • Holyoke Medical Group • Providence Behavioral Health Hospital • River Valley Counseling Center (has data-sharing agreement) Collaborates less formally with other community groups and on local substance use treatment and recovery efforts
Health system details	Part of Beth Israel Deaconess Care Organization (BIDCO) ACO Participant in HPC's CHART program
Program financing	$1,215,758 ($750,000 from HPC)

Appendix A5. Key Features of Lowell General Hospital's SHIFT-Care Program	
Project title	N/A
Program structure	• Engages patients with OUD through the ED and by referral from the Lowell Community Opiate Outreach Program (CO-OP) • Connects eligible patients to bridge clinic, which assesses their social, medical, and behavioral needs and initiates MAT when appropriate • Connects patients via bridge clinic to other resources and outpatient providers for ongoing treatment • Incorporates recovery coach employed by the hospital, who meets with patients in the ED, bridge clinic, and community • Provides outreach by bridge clinic staff and Lowell CO-OP team for patients who do not initially engage, and regular recovery coach follow-up for those who do
Target population	All-payer adult patients who present to either of the hospital system's two EDs with evidence of opioid overdose or OUD Exclusions include: • Patients already connected with an MAT provider • Pregnant patients
Patient identification	• Identifies patients via bridge clinic review of live ED patient trackers • Receives bridge clinic referrals or consult requests from ED clinicians • Uses a next-day list to identify patients who visited the ED while the bridge clinic was closed or chose not to connect with the bridge clinic • Welcomes patients to walk into the bridge clinic without a referral
Treatment services provided in ED	• Team connects eligible patients with the bridge clinic via triage consult request, referral, or identification by bridge clinic staff • Bridge clinic recovery coach and CHW visit patients in the ED • Recovery coach conducts warm handoffs to bridge clinic • ED physicians can order a home initiation kit when bridge clinic is closed
Initiation types	Treatment initiation by ED or bridge clinic via home initiation, referral to community partner (verified initiation), after admission to hospital, and telemedicine
Community relationships	Lowell CO-OP: Community partner that follows up with patients post-overdose and assists with patient identification Outpatient treatment partners: • Lowell Community Health Center (has data-sharing agreement) • Middlesex Recovery
Health system details	Part of Wellforce ACO Participant in HPC's CHART program
Program financing	$747,930 ($560,795 from HPC)

Appendix A6. Key Features of Massachusetts General Hospital's SHIFT-Care Program	
Project title	N/A
Program structure	• Engages patients with OUD in ED and outpatient settings, as well as through a partnership with the Boston Health Care for the Homeless Program (BHCHP) • Refers initiated patients to the Bridge Clinic for care (when appropriate, Bridge in turn refers to BHCHP or MGH Primary Care) • Adds evening hours at existing Bridge Clinic • Increases ED-based MAT by offering training to ED clinicians • Incorporates recovery coaches into the ED and BHCHP's Barbara McInnis House medical respite program (joining recovery coaches already present throughout much of MGH, including in the Bridge Clinic, inpatient floors, and primary care) • Conducts follow-up for Barbara McInnis House patients
Target population	All-payer adult patients who present to the ED or Bridge Clinic with OUD and adult BHCHP patients for whom the Bridge Clinic is a more effective site of care Exclusions include: • Patients under age 18 • Patients who do not have OUD
Patient identification	• Identifies patients via triage process and through ED clinicians • Identifies missed opportunities and areas for improvement via chart and data reviews
Treatment services provided in ED	• Recovery coach and Addiction Consult Team members are co-located in the ED • Recovery coach meets with patients to discuss goals and strategies and provide connections with other resources, including warm handoffs when possible • ED clinicians initiate patients on MAT when desired and clinically appropriate • Patients are referred to the Bridge Clinic (with a warm handoff when possible) and other appropriate supports when applicable
Initiation types	Treatment initiation by ED or bridge clinic via initiation in the ED or bridge clinic, home initiation, and after admission to hospital
Community relationships	Program partners: • BHCHP (has data-sharing agreement): Assists in patient identification and referral; incorporates a recovery coach in its Barbara McInnis House medical respite program • MGH Primary Care
Health system details	Part of Partners HealthCare Choice ACO Not a participant in HPC's CHART program
Program financing	$1,115,259 ($549,998 from HPC)

Appendix A7. Key Features of Mercy Medical Center's SHIFT-Care Program	
Project title	ER STAR (Starting Treatment, Assisting Recovery)
Program structure	• Engages patients with OUD in both ED and outpatient settings • Refers initiated patients to outpatient providers for ongoing care (no bridge clinic) • Incorporates recovery coaches employed by Behavioral Health Network (BHN), who assist patients with treatment decision-making and transitions • Engage patients via social workers to address health-related social needs, including following up with patients within 48 hours of discharge • Contact patients in advance of their first outpatient appointment via recovery coaches, who can also conduct a warm handoff to a community recovery coach
Target population	All-payer adult patients with chief complaint of opioid overdose, any variant of opioid use disorder diagnosis, or a request for detoxification services Exclusions include: • Patients with dementia or other serious comorbidities • Patients who are pregnant • Patients with long-acting opioids on their toxicology screen or who are already on methadone
Patient identification	• Identifies patients based on chief complaint, review of real-time tracking screens, and rounding in the ED • Receives referrals from ED clinicians and outpatient providers
Treatment services provided in ED	• Recovery coaches are not based in the ED, but conduct regular rounds • Social workers round in the ED • Clinical staff engage patients to talk about intervention, including introducing recovery coaches (who meet patients in the ED when possible) • ED clinician administers COWS assessment for interested patients and conducts ED or home initiation • ED staff refer patients to an outpatient provider and make an appointment for them within 72 hours of discharge
Initiation types	Treatment initiation by ED via initiation in the ED, home initiation, referral to community partner (verified initiation), after admission to hospital, and telemedicine
Community relationships	Recovery coach partner: Behavioral Health Network Outpatient treatment partners: Healthy Living Program, Mercy Recovery Services, Providence Behavioral Health Hospital Outpatient Services Has over 60 data-sharing agreements (DSAs) with community treatment providers. Marketing efforts include outreach to local support and outreach groups as well as local ambulance companies.
Health system details	Part of Mercy Health ACO Participant in HPC's CHART program
Program financing	$522,328 ($391,746 from HPC)

Appendix A8. Key Features of North Shore Medical Center's SHIFT-Care Program	
Project title	N/A
Program structure	• Engages patients with OUD in both ED and inpatient settings • Refers initiated patients back to their primary care providers or to outpatient providers for ongoing care (no bridge clinic) • Incorporates recovery coaches employed by the hospital, supplemented by on-call Bridgewell recovery coaches during off-hours, who meet with patients in the ED (joining recovery coaches already present in primary care and inpatient floors) • Trains hospitalists and primary care providers to become X-waivered • Conducts outreach via recovery coaches (and community health workers [CHWs] at outpatient providers) for patients who do not attend follow-up appointments
Target population	All-payer adult patients who live in the primary service area and present to the ED with evidence of OUD or overdose Exclusions include: • Patients with acute/chronic pain requiring opioid management or an advanced psychiatric illness requiring higher levels of care • Patients on methadone maintenance or central nervous system depressants
Patient identification	• Identifies patients based on universal screening in the ED, presenting reason related to drugs or alcohol, and referrals from psychiatric triage • Use a real-time ED patient tracker to assist with identification
Treatment services provided in ED	• Recovery coaches are not co-located in the ED, but spend much of their time there • Team including a recovery coach meets with patients to provide education about available resources, offer initiation of MAT, and facilitate referral to primary care and outpatient behavioral health • ED clinician initiates MAT if desired and clinically appropriate
Initiation types	Treatment initiation by ED via initiation in the ED, home initiation, and after admission to hospital
Community relationships	Bridgewell: Provides on-call recovery coaches during off hours Outpatient treatment partners (all have data-sharing agreements): • Lynn Community Health Centers (also expanded its urgent care clinic access to include Sundays as part of SHIFT-Care) • North Shore Community Health • North Shore Physicians Group (affiliated primary care network; supported primary care providers to become X-waivered as part of SHIFT-Care) Collaborates less formally with other groups, including Salem's police-led high-risk homelessness taskforce
Health system details	Part of Partners HealthCare Choice ACO Not a participant in HPC's CHART program
Program financing	$919,817 ($681,465 from HPC)

Appendix A9. Key Features of UMass Memorial Medical Center's SHIFT-Care Program	
Project title	N/A
Program structure	• Engages patients with OUD in both ED and inpatient settings • Refers initiated patients to bridge clinic or other outpatient providers for ongoing care • Incorporates recovery coaches employed by the hospital, who met with patients in the ED and on inpatient floors • Conducts community outreach via recovery coaches, especially for patients who declined SHIFT-Care services • Reaches out to primary care providers to make them aware of the program
Target population	All-payer adult patients presenting in the ED with OUD Exclusions include: • Patients with medical or psychiatric contraindications
Patient identification	• Identifies patients based on review of a real-time patient tracker • Receives referrals from ED clinicians, including mental health clinicians embedded in the ED
Treatment services provided in ED	• SHIFT-Care team members are not co-located in the ED • ED physicians identify eligible patients and connect them with social workers and recovery coaches, who support them in accessing hospital- and community-based services • Eligible patients have access to MAT through the ED or from the bridge clinic
Initiation types	Treatment initiation by ED or bridge clinic via initiation in the ED or bridge clinic, home initiation, after admission to hospital, and telemedicine
Community relationships	Outpatient treatment partners: • AdCare Hospital • CleanSlate • Community HealthLink City of Worcester Department of Health and Human Services: Provides input and collaboration, including helping to review progress from a community perspective Also collaborates less formally with other groups, including community-based providers, city and state programs with shared objectives, and other departments within UMass
Health system details	Part of UMass Memorial Medicare ACO (not an HPC-certified ACO) Not a participant in HPC's CHART program
Program financing	$1,035,837 ($750,000 from HPC)

Appendix B:
Quantitative Measure Definitions

Quantitative measure definitions

Measure	Description	Source
SHIFT-Care eligible ED visits	Count of all visits eligible for the SHIFT-Care program (i.e., met inclusion/exclusion criteria) per month.	Hospital records
Medication initiation	A monthly count of SHIFT-Care eligible ED visits in which the individual was initiated on OUD medication (buprenorphine, methadone, or naltrexone) within 72 hours. Initiation in the ED, bridge clinic, hospital, and at home using a prescription obtained in the ED are all included. Following the start of the COVID-19 pandemic in March 2020, initiation via telehealth was also included. This measure was reported as a rate out of all eligible SHIFT-Care visits.	EMR
30-day outpatient treatment engagement	Monthly count of SHIFT-Care eligible ED visits followed by visit engagement (two or more outpatient counseling visits) **or** medication engagement (evidence of OUD medication treatment with a community partner) in the 30 days following their SHIFT-Care eligible ED visit. Also reported as a rate out of all visits resulting in MAT initiation.	EMR and community partners
Engagement in outpatient treatment 60, 90, 120, and 180 days following treatment initiation	Counts of ED visits that resulted in patient engagement in treatment follow-up care at each of these points in time. Any visit for OUD treatment with the community partner qualified and gaps in treatment were allowed. For example, a patient who did not meet the 60-day measure could still meet the 90-day measure. Sample measure guidance: 60-day engagement – Count of all individuals with at least one community partner OUD treatment visit or evidence of OUD medication treatment in the 30-day period between 30 and 60 days following their SHIFT-Care eligible ED visit. Also reported as a rate out of all visits resulting in MAT initiation.	EMR and community partners
30-day revisits	The total number of SHIFT-Care eligible ED visits in the reporting month that had a subsequent ED visit within 30 days.	EMR
Hospitalizations	Number of inpatient hospitalizations in the six months following the first SHIFT-Care eligible ED visit in the reporting period. Measured for SHIFT-Care eligible ED visits between January 2019 and May 2020. Reported as number per unique patient served during the reporting period.	EMR
ED visits	Number of ED visits in the six months following the first SHIFT-Care eligible ED visit in the special reporting period. Measured for SHIFT-Care eligible ED visits between January 2019 and May 2020. Reported as number per unique patient served during the reporting period.	EMR
All-cause mortality	Number of individuals who died (all-cause) in the six months following their first SHIFT-Care eligible ED visit in the reporting period. Reported as number per unique patient served during the reporting period.	EMR and MA DPH
Lethal overdose	Number of individuals with a lethal overdose (any drug/alcohol substance) in the six months following their first SHIFT-Care eligible ED visit in the reporting period. Lethal overdose was identified by ICD-10 codes X40 - X49 – Accidental poisoning, X60 - X69 – Intentional self-poisoning, and Y10 - Y19 – Poisoning. Reported as number per unique patient served during the reporting period.	EMR
Non-lethal overdose	Count of non-lethal overdoses (any drug/alcohol substance) in the six months following their first SHIFT-Care-eligible ED visit in the special reporting period. Nonfatal overdose was identified by ICD-10 codes T39 – Poisoning by nonopioid analgesics, antipyretics, and antirheumatics, T40 – Poisoning by narcotics and psychodysleptics [hallucinogens], T43 – Poisoning by psychotropic drugs, not elsewhere classified, T50 – Poisoning by diuretics and other and unspecified drugs, medicaments and biological substances, and T51 – Alcohol poisoning. Reported as number per unique patient served during the reporting period.	EMR

EMR: Electronic medical record; DPH: Massachusetts Department of Public Health; MAT: Medication for addiction treatment

Appendix C:
SHIFT-Care Measures by Patient Characteristics

Patient characteristics for SHIFT-Care eligible ED visits, initiated visits, 30-day ED revisit rate, and 30-day engagement rate, June 2019-September 2020, (n = 8,878 eligible visits)

Characteristics	Proportion of eligible ED visits in category %	Proportion of eligible visits initiated %	30-day ED revisit rate %	30-day engagement rate %
Total	**100.0**	**11.6**	**29.8**	**44.8**
Gender:				
Male (ref)	66.9	11.5	29.5	43.6
Female	32.8	12.0	29.6	46.8
Other	0.3	3.4	93.1	100.0
Race/ethnicity:				
Black	4.1	7.7	26.6	46.4
White (ref)	64.9	12.3	27.4	42.9
Hispanic	27.8	9.5	37.0	48.5
Asian	0.2	15.0	35.0	0.0
Other	3.0	20.75	17.0	54.5
Age group at identification:				
18-25	8.8	11.6	23.3	50.5
26-40	49.7	11.5	28.0	47.7
41-64 (ref)	41.4	11.7	33.3	40.0
Payment source:				
Medicaid (ref)	74.0	11.4	30.8	47.6
Commercial	7.1	11.7	16.3	32.4
Other	18.8	12.4	30.7	38.9
Eligibility-identifying ED visit was for overdose (drug/alcohol):				
Yes	31.1	8.1	20.4	47.6
No	68.9	13.2	34.0	44.0
Mental health diagnosis in the last year:				
Yes	52.2	12.1	38.2	46.3
No	30.0	13.2	19.8	44.0
Unknown	17.8	7.5	21.9	39.5
Housing insecure in the last year:				
Yes	16.5	15.1	38.2	44.8
No	58.5	9.3	30.0	48.5
Unknown	24.9	14.8	23.7	39.1
Treatment for OUD in the last year:				
Yes	19.5	24.4	29.4	49.3
No	29.5	15.9	26.0	38.0
Unknown	50.9	4.2	32.1	49.5

Note: see Methods section for additional data details.

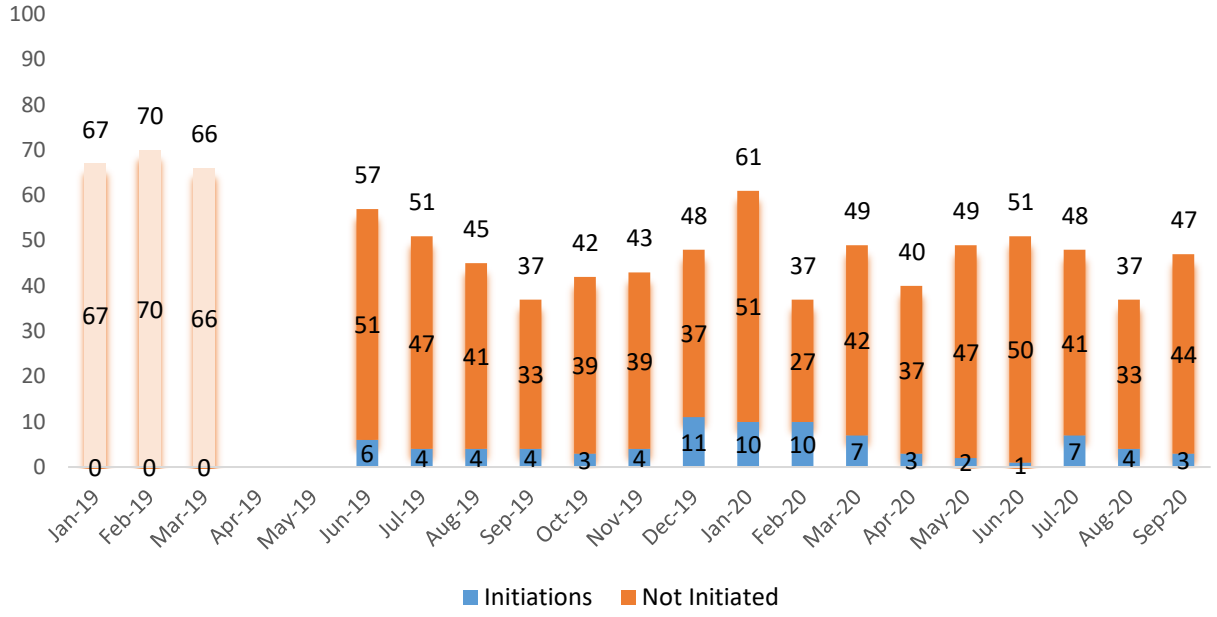
Appendix D:
Hospital-Specific Data

Appendix D1. Addison Gilbert and Beverly Hospitals

Eligible population: Adults age 18-64 with OUD, excluding those with serious mental or physical health comorbidities, pregnant patients (treated separately), and those meeting HPC-required exclusions.

Care model: Targets patients in both ED and inpatient settings. Expands ED-based pharmacotherapy through training, protocols, and support for waiver licensing. Includes recovery coaches and support for outpatient treatment engagement at hospitals' outpatient provider.

SHIFT-Care eligible ED visits and initiations, baseline (January-March 2019) and intervention period (June 2019-September 2020)



April 2019-September 2020: SHIFT-Care initiation, 30-day revisits, and treatment engagement rates

Patient characteristic	Eligible visits #	Initiation rate %	30-day revisit, initiated %	30-day revisit, not initiated %	30-day visit engagement %	30-day medication engagement %	30-day visit OR medication engagement %
Total	778	11.3	21.6	16.2	43.2	55.7	59.1
Gender:							
Male	502	11.8	20.3	14.9	33.9	50.8	54.2
Female	276	10.5	24.1	18.6	62.1	65.5	69.0
Other	0	N/A	N/A	N/A	N/A	N/A	N/A
Race/ethnicity:							
Black	23	4.3	0.0	9.1	100.0	0.0	100.0
White	706	11.3	22.5	16.1	46.3	58.8	61.3
Hispanic	*	33.3	0.0	33.3	0.0	0.0	0.0
Asian	*	0.0	N/A	0.0	N/A	N/A	N/A
Other	39	10.3	25.0	20.0	0.0	50.0	50.0
Age group at identification:							
18-25	91	9.9	44.4	7.3	44.4	55.6	66.7
26-40	467	10.9	19.6	18.0	35.3	52.9	54.9
41-64	220	12.7	17.9	16.1	57.1	60.7	64.3
Payment source:							
Medicaid	549	11.3	22.6	17.5	50.0	59.7	64.5
Commercial	130	10.8	21.4	14.7	14.3	42.9	42.9
Other	99	12.1	16.7	11.5	41.7	50.0	50.0
Eligibility-identifying ED visit was for overdose (any substance):							
Yes	179	8.4	13.3	14.6	40.0	53.3	66.7
No	599	12.2	23.3	16.7	43.8	56.2	57.5
Mental health diagnosis in last year:							
Yes	189	8.5	37.5	30.6	25.0	43.8	43.8
No / Unknown	589	12.2	18.1	12.3	47.2	58.3	62.5
Housing insecure in last year:							
Yes	60	6.7	75.0	19.6	25.0	50.0	50.0
No / Unknown	718	11.7	19.0	15.9	44.0	56.0	59.5
Treatment for OUD in last year:							
Yes	187	16.6	16.1	17.9	45.2	54.8	54.8
No / Unknown	591	9.6	24.6	15.7	42.1	56.1	61.4

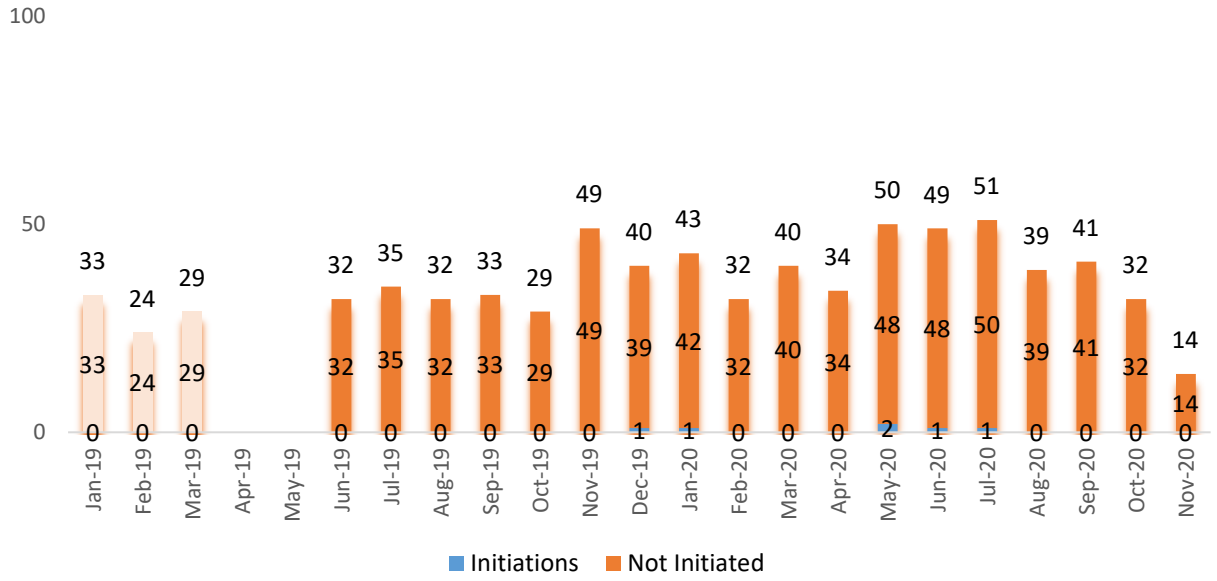
*Cells with 10 or fewer were suppressed. Where it was possible to calculate a suppressed number, another cell was obscured to > 10.

Appendix D2. Beth Israel Deaconess Hospital – Plymouth

Eligible population: Adults age 18-64 with OUD, excluding those incarcerated and those meeting HPC-required exclusions.

Care model: Targets patients in both ED and inpatient settings. Employs multi-disciplinary care team including nurses, social workers, and recovery navigators/coaches to help support treatment engagement. ACO patients are linked back to primary care team.

SHIFT-Care eligible ED visits and initiations, baseline (January-March 2019) and intervention period (June 2019-November 2020)



May 15, 2019-November 15, 2020: SHIFT-Care initiation, 30-day revisit, and treatment engagement rates

Patient characteristic	Eligible visits #	Initiation rate %	30-day revisit, initiated %	30-day revisit, not initiated %	30-day visit engagement %	30-day medication engagement %	30-day visit OR medication engagement %
Total	689	1.0	28.6	25.4	57.1	71.4	71.4
Gender:							
Male	497	1.0	40.0	26.0	60.0	80.0	80.0
Female	192	1.0	0.0	23.7	50.0	50.0	50.0
Other	0	N/A	N/A	N/A	N/A	N/A	N/A
Race/ethnicity:							
Black	27	0.0	0.0	11.1	N/A	N/A	N/A
White	655	1.1	28.6	25.9	57.1	71.4	71.4
Hispanic	*	0.0	N/A	33.3	N/A	N/A	N/A
Asian	0	N/A	N/A	N/A	N/A	N/A	N/A
Other	*	0.0	N/A	25.0	N/A	N/A	N/A
Age group at identification:							
18-25	98	2.0	0.0	21.9	50.0	50.0	50.0
26-40	415	0.7	0.0	26.0	66.7	100.0	100.0
41-64	176	1.1	100.0	25.9	50.0	50.0	50.0
Payment source:							
Medicaid	519	1.0	40.0	27.6	40.0	60.0	60.0
Commercial	106	0.9	0.0	22.9	100.0	100.0	100.0
Other	64	1.6	0.0	11.1	100.0	100.0	100.0
Eligibility-identifying ED visit was for overdose (any substance):							
Yes	276	1.1	0.0	23.2	66.7	66.7	66.7
No	413	1.0	50.0	26.7	50.0	75.0	75.0
Mental health diagnosis in last year:							
Yes	279	1.4	50.0	32.4	50.0	50.0	50.0
No / Unknown	410	0.7	0.0	20.6	66.7	100.0	100.0
Housing insecure in last year:							
Yes	147	2.0	66.7	34.0	33.3	33.3	33.3
No / Unknown	542	0.7	0.0	23.0	75.0	100.0	100.0
Treatment for OUD in last year:							
Yes	442	1.6	28.6	29.7	57.1	71.4	71.4
No / Unknown	247	0.0	N/A	17.8	N/A	N/A	N/A

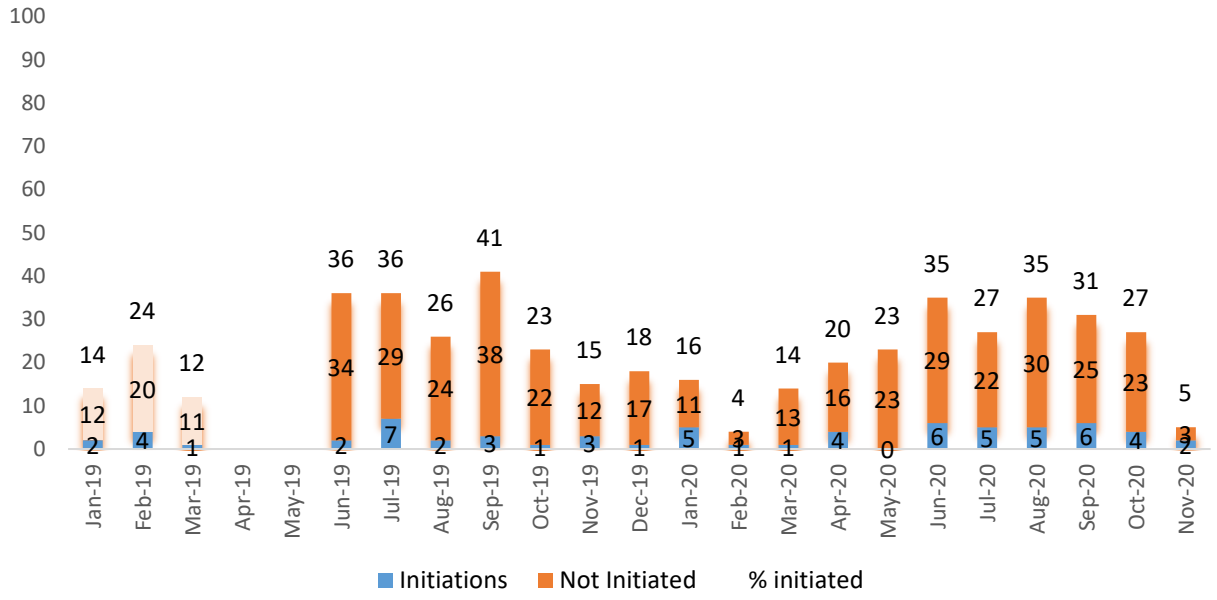
*Cells with 10 or fewer were suppressed. Where it was possible to calculate a suppressed number, another cell was obscured to > 10.

Appendix D3. Harrington Hospital (Southbridge)

Eligible population: Adults age 18-64 with OUD. No additional exclusions beyond those required by HPC.

Care model: Targets patients in ED, inpatient, and community settings and through partnership with police and EMS. The model includes substance use disorder therapists and recovery navigators to support engagement.

SHIFT-Care eligible ED visits and initiations, baseline (January-March 2019) and intervention period (June 2019-November 15, 2020)



May 15, 2019-November 15, 2020: SHIFT-Care initiation, 30-day revisit, and treatment engagement rates

Patient characteristic	Eligible visits #	Initiation rate %	30-day revisit, initiated %	30-day revisit, not initiated %	30-day visit engagement %	30-day medication engagement %	30-day visit OR medication engagement %
Total	435	13.6	27.1	29.0	55.9	30.5	64.4
Gender:							
Male	286	11.9	29.4	27.8	55.9	32.4	64.7
Female	149	16.8	24.0	26.6	56.0	28.0	64.0
Other	0	N/A	N/A	N/A	N/A	N/A	N/A
Race/ethnicity:							
Black	*	0.0	N/A	20.0	N/A	N/A	N/A
White	305	11.5	25.7	27.0	54.3	17.1	57.1
Hispanic	65	6.2	50.0	34.4	50.0	75.0	75.0
Asian	0	N/A	N/A	N/A	N/A	N/A	N/A
Other	> 10	33.9	25.0	20.0	60.0	45.0	75.0
Age group at identification:							
18-25	56	26.8	40.0	19.5	73.3	20.0	80.0
26-40	226	10.6	12.5	24.8	41.7	41.7	54.2
41-64	153	13.1	35.0	33.8	60.0	25.0	65.0
Payment source:							
Medicaid	371	14.0	25.0	29.7	53.8	30.8	63.5
Commercial	18	16.7	33.3	6.7	100.0	33.3	100.0
Other	46	8.7	50.0	17.1	50.0	25.0	50.0
Eligibility-identifying ED visit was for overdose (any substance):							
Yes	196	8.2	18.8	22.1	56.3	37.5	62.5
No	239	18.0	30.2	32.3	55.8	27.9	65.1
Mental health diagnosis in last year:							
Yes	179	12.8	21.7	28.6	60.9	43.5	78.3
No / Unknown	256	14.1	30.6	26.6	52.8	22.2	55.6
Housing insecure in last year:							
Yes	71	25.4	22.2	39.6	55.6	16.7	55.6
No / Unknown	364	11.3	29.3	25.4	56.1	36.6	68.3
Treatment for OUD in last year:							
Yes	147	27.2	30.0	34.6	55.0	22.5	57.5
No / Unknown	288	6.6	21.1	24.5	57.9	47.4	78.9

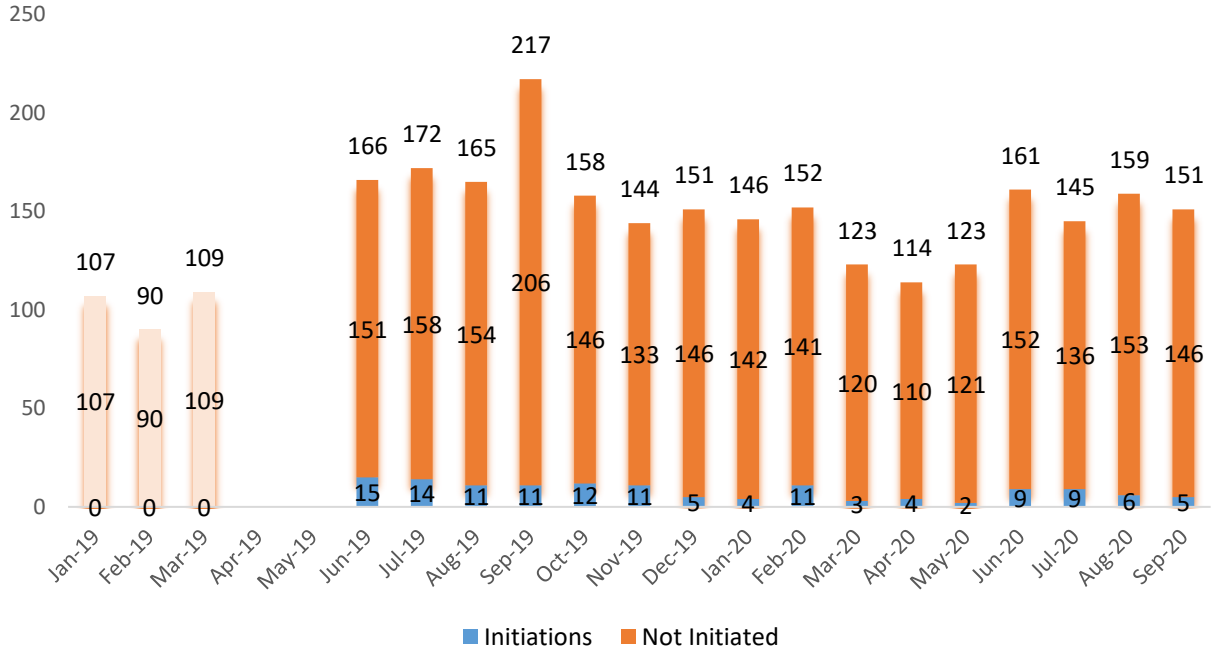
*Cells with 10 or fewer were suppressed. Where it was possible to calculate a suppressed number, another cell was obscured to > 10.

Appendix D4. Holyoke Medical Center

Eligible population: Adults age 18-64 with OUD excluding those critically ill, unable to communicate due to dementia or psychosis, suicidal, or in police custody and any meeting HPC-required exclusions.

Care model: Provides support for behavioral health services integrated in primary care sites. Includes funding for expanding nurse practitioner psychiatric prescribing and uses community health workers to support patient engagement.

SHIFT-Care eligible ED visits and initiations, baseline (January-March 2019) and intervention period (June 2019-September 2020)



April 2019-September 2020: SHIFT-Care initiation, 30-day revisit, and treatment engagement rates

Patient characteristic	Eligible visits #	Initiation rate %	30-day revisit, initiated %	30-day revisit, not initiated %	30-day visit engagement %	30-day medication engagement %	30-day visit OR medication engagement %
Total	2765	5.1	34.3	44.5	39.3	65.7	71.4
Gender:							
Male	1859	5.8	38.0	45.6	40.7	68.5	72.2
Female	906	3.5	21.9	42.3	34.4	56.3	68.8
Other	0	N/A	N/A	N/A	N/A	N/A	N/A
Race/ethnicity:							
Black	> 10	5.5	100.0	40.6	25.0	50.0	50.0
White	1219	4.4	27.8	40.3	29.6	57.4	63.0
Hispanic	1465	5.5	36.3	48.2	47.5	73.8	80.0
Asian	0	N/A	N/A	N/A	N/A	N/A	N/A
Other	*	25.0	0.0	50.0	0.0	0.0	0.0
Age group at identification:							
18-25	185	9.7	27.8	39.5	33.3	72.2	77.8
26-40	1250	6.2	33.8	43.1	40.3	64.9	72.7
41-64	1330	3.4	37.8	46.5	40.0	64.4	66.7
Payment source:							
Medicaid	2270	5.1	31.3	44.6	38.3	64.3	70.4
Commercial	14	7.1	0.0	76.9	0.0	0.0	0.0
Other	481	5.0	50.0	43.3	45.8	75.0	79.2
Eligibility-identifying ED visit was for overdose (any substance):							
Yes	295	10.8	37.5	29.7	40.6	78.1	81.3
No	2470	4.4	33.3	46.2	38.9	62.0	68.5
Mental health diagnosis in last year:							
Yes	2625	3.8	36.6	44.8	42.6	68.3	75.2
No / Unknown	140	27.9	28.2	37.6	30.8	59.0	61.5
Housing insecure in last year:							
Yes	470	10.4	46.9	49.9	44.9	65.3	73.5
No / Unknown	2295	4.0	27.5	43.5	36.3	65.9	70.3
Treatment for OUD in last year:							
Yes	150	40.7	31.1	23.6	41.0	67.2	72.1
No / Unknown	2615	3.0	36.7	45.3	38.0	64.6	70.9

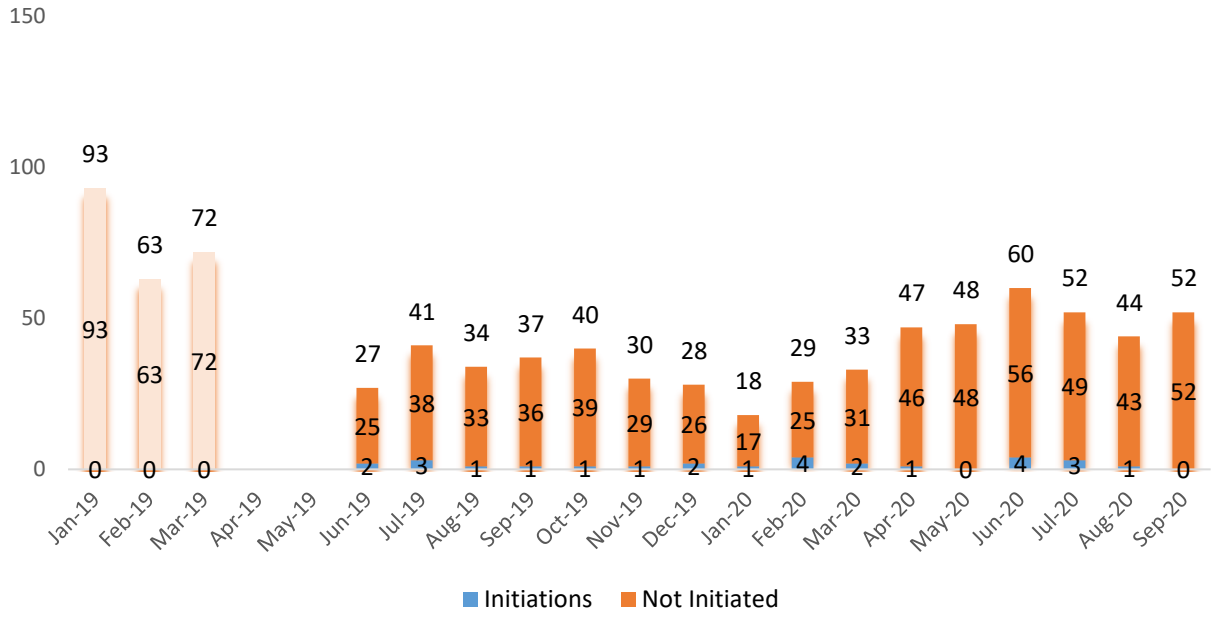
*Cells with 10 or fewer were suppressed. Where it was possible to calculate a suppressed number, another cell was obscured to > 10.

Appendix D5. Lowell General Hospital

Eligible population: Adults age 18-64 with OUD, HPC-required exclusions only, other than all visits that resulted in an admission.

Care model: Targeting patients in the hospital system's two emergency departments and by referral from the Lowell Community Opiate Outreach Program. The model has a Bridge clinic for pharmacotherapy and a multi-disciplinary team including nurses, social workers, community health workers, and recovery coaches.

SHIFT-Care eligible ED visits and initiations, baseline (January-March 2019) and intervention period (June 2019-September 2020)



April 2019-September 2020: SHIFT-Care initiation, 30-day revisit, and treatment engagement rates

Patient characteristic	Eligible visits #*	Initiation rate %	30-day revisit, initiated %	30-day revisit, not initiated %	30-day visit engagement %	30-day medication engagement %	30-day visit OR medication engagement %
Total	924	3.0	10.7	18.3	32.1	28.6	32.1
Gender:							
Male	660	3.3	13.6	19.9	31.8	27.3	31.8
Female	264	2.3	0.0	14.3	33.3	33.3	33.3
Other	0	N/A	N/A	N/A	N/A	N/A	N/A
Race/ethnicity:							
Black	>10	0.0	N/A	20.7	N/A	N/A	N/A
White	697	3.7	7.7	18.2	34.6	30.8	34.6
Hispanic	156	0.6	0.0	17.9	0.0	0.0	0.0
Asian	*	20.0	0.0	25.0	0.0	0.0	0.0
Other	37	0.0	N/A	19.4	N/A	N/A	N/A
Age group at identification:							
18-25	115	0.9	0.0	14.9	100.0	100.0	100.0
26-40	484	3.9	5.3	16.1	26.3	21.1	26.3
41-64	325	2.5	25.0	22.7	37.5	37.5	37.5
Payment source:							
Medicaid	651	3.7	12.5	17.2	33.3	29.2	33.3
Commercial	197	2.0	0.0	17.6	25.0	25.0	25.0
Other	76	0.0	N/A	28.9	N/A	N/A	N/A
Eligibility-identifying ED visit was for overdose (any substance):							
Yes	442	3.2	7.1	15.4	35.7	35.7	35.7
No	482	2.9	14.3	21.0	28.6	21.4	28.6
Mental health diagnosis in last year:							
Yes	199	5.0	20.0	29.6	10.0	10.0	10.0
No / Unknown	725	2.5	5.6	15.3	44.4	38.9	44.4
Housing insecure in last year:							
Yes	196	4.6	11.1	13.4	22.2	11.1	22.2
No / Unknown	728	2.6	10.5	19.6	36.8	36.8	36.8
Treatment for OUD in last year:							
Yes	28	0.0	N/A	0.0	N/A	N/A	N/A
No / Unknown	896	3.1	10.7	18.9	32.1	28.6	32.1

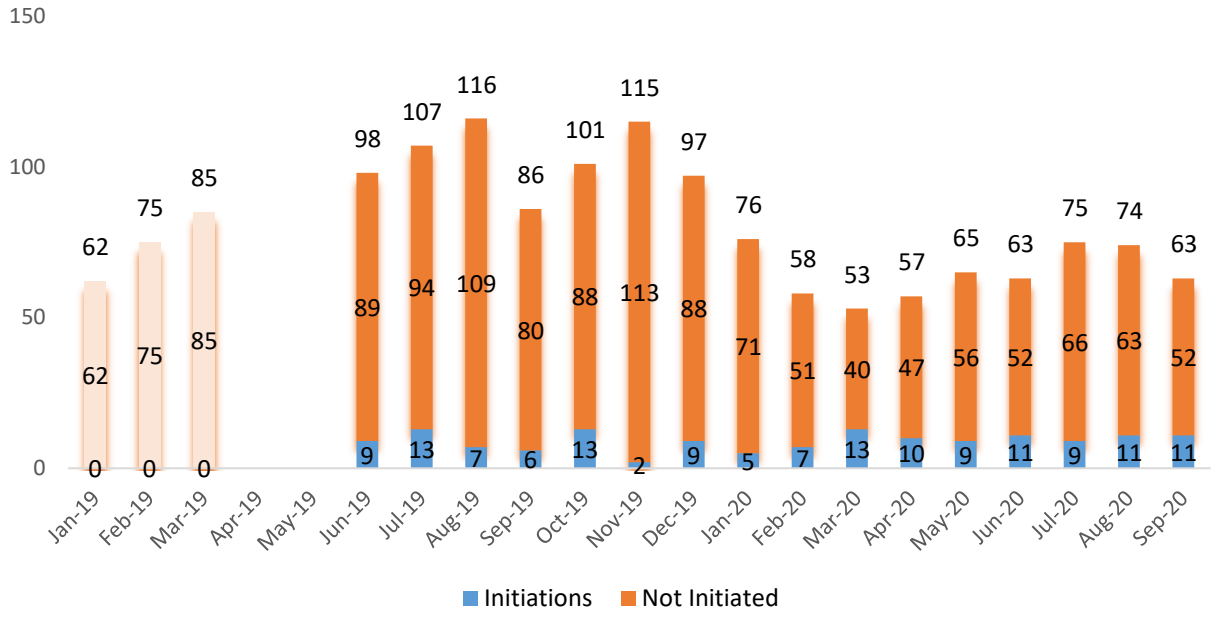
*Cells with 10 or fewer were suppressed. Where it was possible to calculate a suppressed number, another cell was obscured to > 10. Lowell data excluded all visits that resulted in inpatient admission.

Appendix D6. Mercy Medical Center

Eligible population: Adults aged 18-64 with OUD, excluding those who fall under HPC-required exclusions, those with serious comorbidities, dementia, or pregnancy, and those already on methadone.

Care model: Patients are provided services from recovery coaches and social workers. Recovery coaches assist patients in decision-making regarding initiation and engagement in buprenorphine treatment as well as provide support in the transition from ED to outpatient settings, while social workers work with patients to address health related social needs during treatment and recovery.

SHIFT-Care eligible ED visits and initiations, baseline (January-March 2019) and intervention period (June 2019-September 2020)



April 2019-September 2020: SHIFT-Care initiation, 30-day revisit, and treatment engagement rates

Patient characteristic	Eligible visits #*	Initiation rate %	30-day revisit, initiated %	30-day revisit, not initiated %	30-day visit engagement %	30-day medication engagement %	30-day visit OR medication engagement %
Total	1459	10.4	27.0	26.5	13.8	12.5	16.4
Gender:							
Male	997	11.4	28.1	26.5	12.3	11.4	15.8
Female	462	8.2	23.7	26.4	18.4	15.8	18.4
Other	0	N/A	N/A	N/A	N/A	N/A	N/A
Race/ethnicity:							
Black	105	4.8	20.0	27.0	0.0	0.0	0.0
White	655	10.2	20.9	26.9	11.9	11.9	13.4
Hispanic	631	11.7	32.4	27.6	17.6	13.5	20.3
Asian	*	0.0	N/A	0.0	N/A	N/A	N/A
Other	> 10	9.0	33.3	11.5	0.0	16.7	16.7
Age group at identification:							
18-25	88	13.6	16.7	21.1	16.7	16.7	16.7
26-40	576	10.8	27.4	22.8	12.9	11.3	17.7
41-64	795	9.8	28.2	29.7	14.1	12.8	15.4
Payment source:							
Medicaid	980	11.2	29.1	27.0	13.6	12.7	16.4
Commercial	59	15.3	11.1	28.0	22.2	22.2	33.3
Other	420	7.9	24.2	25.1	12.1	9.1	12.1
Eligibility-identifying ED visit was for overdose (any substance):							
Yes	452	8.2	18.9	20.0	16.2	18.9	21.6
No	1007	11.4	29.6	29.5	13.0	10.4	14.8
Mental health diagnosis in last year:							
Yes	255	9.4	12.5	29.4	12.5	16.7	16.7
No / Unknown	1204	10.6	29.7	25.8	14.1	11.7	16.4
Housing insecure in last year:							
Yes	134	20.9	25.0	35.8	10.7	14.3	17.9
No / Unknown	1325	9.4	27.4	25.6	14.5	12.1	16.1
Treatment for OUD in last year:							
Yes	170	30.0	17.6	26.9	17.6	23.5	23.5
No / Unknown	1289	7.8	31.7	26.4	11.9	6.9	12.9

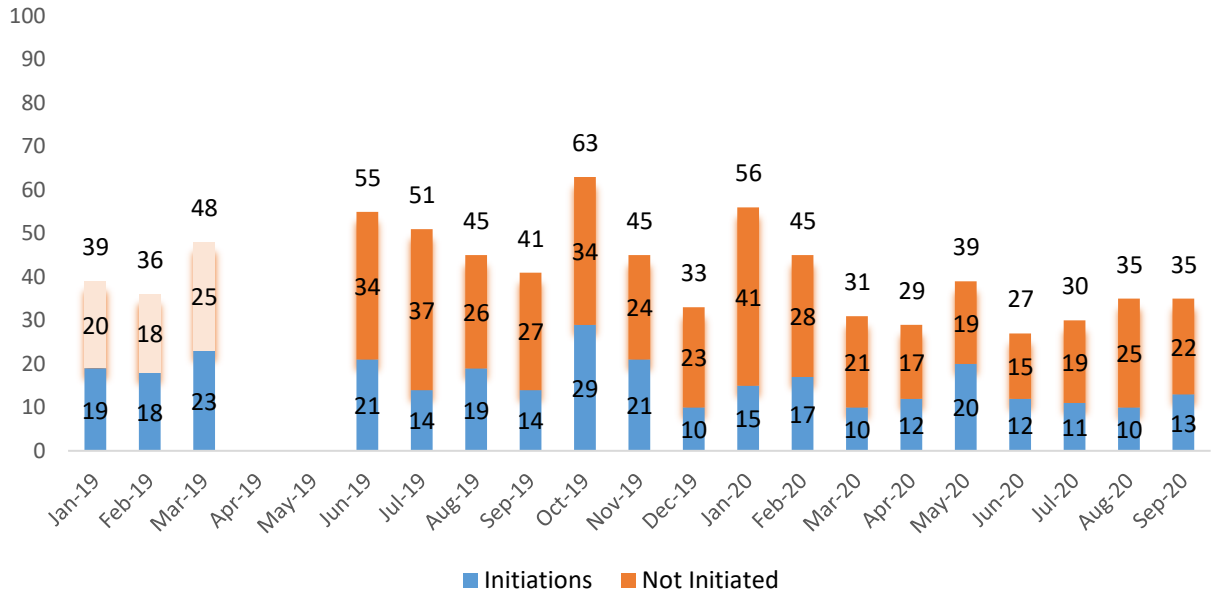
* Cells with 10 or fewer were suppressed. Where it was possible to calculate a suppressed number, another cell was obscured to > 10. Mercy was not able to access data from outpatient partners for April & May 2019.

Appendix D7. Massachusetts General Hospital

Eligible population: Adults age 18-64 with OUD unless excluded by HPC criteria. Data collection is limited to patients with an MGH primary care physician and patients referred to Bridge Clinic or Barbara McInnis House.

Care model: Opioid medication treatment services are expanded in the ED and Bridge Clinic and expanded to serve patients in the Boston Health Care for the Homeless Program. Recovery coach services are expanded beyond the Bridge Clinic to include the ED and the Barbara McInnis House.

SHIFT-Care eligible ED visits and initiations, baseline (January-March 2019) and intervention period (June 2019-September 2020)



April 2019-September 2020: SHIFT-Care initiation, 30-day revisit, and treatment engagement rates

Patient characteristic	Eligible visits #	Initiation rate %	30-day revisit, initiated %	30-day revisit, not initiated %	30-day visit engagement %	30-day medication engagement %	30-day visit OR medication engagement %
Total	739	38.6	28.8	35.0	20.7	34.7	38.6
Gender:							
Male	502	38.4	29.5	38.2	22.8	33.7	36.8
Female	237	38.8	27.2	28.3	16.3	35.9	41.3
Other	0	N/A	N/A	N/A	N/A	N/A	N/A
Race/ethnicity:							
Black	40	27.5	18.2	31.0	36.4	45.5	45.5
White	621	37.0	28.7	35.3	22.2	35.7	40.4
Hispanic	51	49.0	44.0	46.2	4.0	20.0	20.0
Asian	0	N/A	N/A	N/A	N/A	N/A	N/A
Other	27	70.4	15.8	0.0	15.8	36.8	36.8
Age group at identification:							
18-25	41	46.3	5.3	27.3	31.6	36.8	36.8
26-40	334	35.9	32.5	33.6	27.5	38.3	44.2
41-64	364	40.1	28.8	37.2	13.7	31.5	34.2
Payment source:							
Medicaid	522	37.2	33.5	37.8	22.2	38.1	41.8
Commercial	66	37.9	8.0	16.7	20.0	32.0	32.0
Other	151	43.7	22.7	33.3	16.7	25.8	31.8
Eligibility-identifying ED visit was for overdose (any substance):							
Yes	83	25.3	23.8	28.6	28.6	38.1	42.9
No	656	40.2	29.2	36.3	20.1	34.5	38.3
Mental health diagnosis in last year:							
Yes	511	37.6	36.5	41.4	19.8	35.9	41.1
No / Unknown	228	40.8	12.9	20.0	22.6	32.3	33.3
Housing insecure in last year:							
Yes	151	41.1	41.9	53.4	21.0	37.1	45.2
No / Unknown	588	37.9	25.1	29.6	20.6	34.1	36.8
Treatment for OUD in last year:							
Yes	271	41.7	33.6	42.4	23.0	38.9	46.9
No / Unknown	468	36.8	25.6	31.1	19.2	32.0	33.1

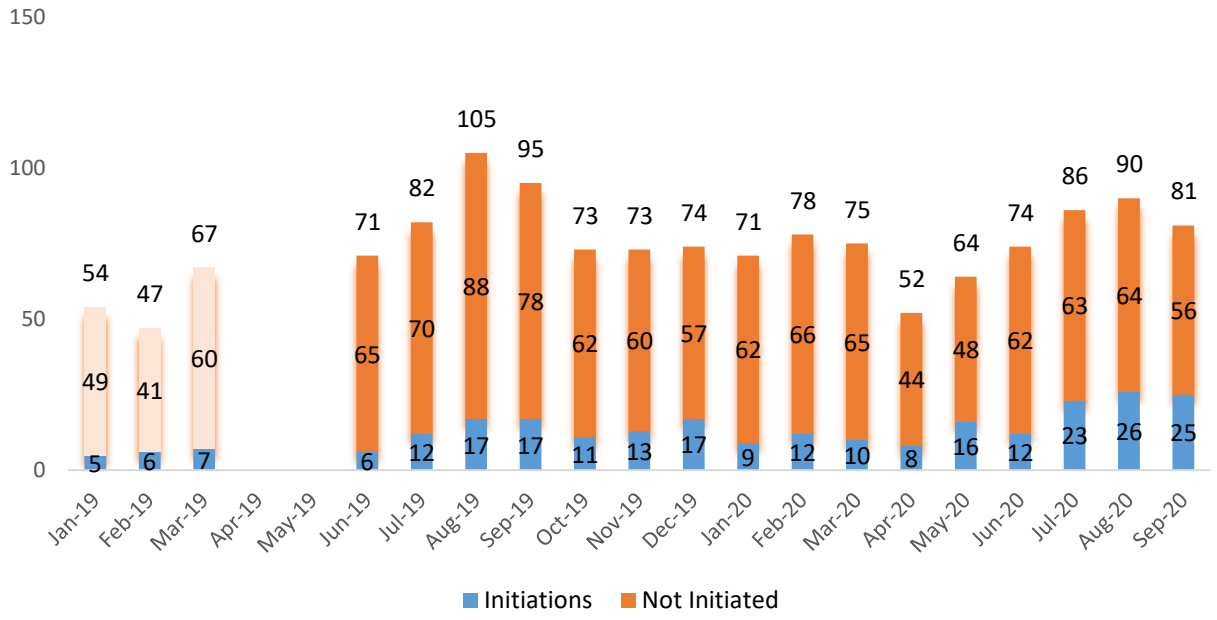
* Cells with 10 or fewer were suppressed. Where it was possible to calculate a suppressed number, another cell was obscured to > 10. Limited eligibility to those whom they could follow at Massachusetts General Hospital and partner providers.

Appendix D8. North Shore Medical Center

Eligible population: Adults aged 18-64 with OUD, excluding those with HPC-required exclusions, patients with acute/chronic pain requiring opioid management or an advanced psychiatric illness requiring higher levels of care, and patients on methadone maintenance or central nervous system depressants.

Care model: This model expands training and waivering of primary care physicians to increase initiation of pharmacologic treatment in the ED, followed by referrals to primary care or an affiliated outpatient behavioral health partner.

SHIFT-Care eligible ED visits and initiations, baseline (January-March 2019) and intervention period (June 2019-September 2020)



April 2019-September 2020: SHIFT-Care initiation, 30-day revisit, and treatment engagement rates

Patient characteristic	Eligible visits #	Initiation rate %	30-day revisit, initiated %	30-day revisit, not initiated %	30-day visit engagement %	30-day medication engagement %	30-day visit OR medication engagement %
Totals	1373	18.2	26.0	22.6	26.8	24.8	31.2
Gender:							
Male	825	14.9	26.0	19.2	22.0	22.0	26.0
Female	548	23.2	26.0	28.3	31.5	27.6	36.2
Other	0	N/A	N/A	N/A	N/A	N/A	N/A
Race/ethnicity:							
Black	89	6.7	16.7	22.9	16.7	33.3	33.3
White	1010	20.7	25.8	23.6	25.4	23.4	30.1
Hispanic	239	13.4	31.3	20.8	37.5	31.3	37.5
Asian	*	25.0	0.0	33.3	0.0	0.0	0.0
Other	>10	3.7	0.0	3.8	100.0	100.0	100.0
Age group at identification:							
18-25	139	12.9	22.2	15.7	27.8	22.2	27.8
26-40	675	18.7	26.2	21.7	24.6	25.4	31.7
41-64	559	19.0	26.4	25.6	29.2	24.5	31.1
Payment source:							
Medicaid	846	19.0	28.0	20.0	26.7	27.3	31.7
Commercial	124	16.9	9.5	8.7	9.5	14.3	14.3
Other	403	16.9	26.5	32.2	32.4	22.1	35.3
Eligibility-identifying ED visit was for overdose (drug/alcohol):							
Yes	674	10.4	12.9	16.2	17.1	21.4	25.7
No	699	25.8	31.1	30.1	30.6	26.1	33.3
Mental health diagnosis in last year:							
Yes	793	25.7	29.4	32.6	26.5	24.0	30.9
No/unknown	580	7.9	10.9	11.6	28.3	28.3	32.6
Housing insecure in the last year:							
Yes	213	17.8	42.1	31.4	18.4	18.4	21.1
No/unknown	1160	18.3	23.1	21.0	28.3	25.9	33.0
Treatment for OUD in the last year:							
Yes	290	36.6	29.2	31.5	27.4	25.5	34.0
No/unknown	1083	13.3	23.6	20.9	26.4	24.3	29.2

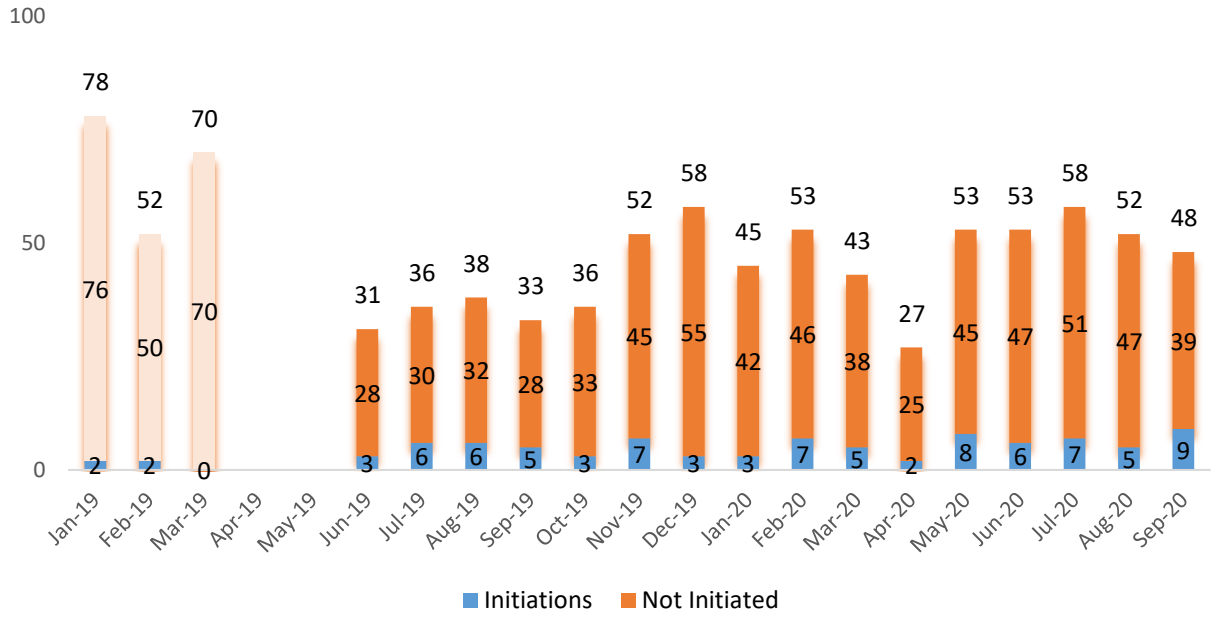
* Cells with 10 or fewer were suppressed. Where it was possible to calculate a suppressed number, another cell was obscured to > 10.

Appendix D9. UMass Memorial Medical Center

Eligible population: Adults aged 18-64 with OUD, excluding those with medical or psychiatric contraindications and HPC-required exclusions**.**

Care model: The model targets patients in the ED and aims to engage patients, families, and the community in treatment, referral, and education. Bridge clinic and recovery coaches support patient engagement and retention in outpatient recovery through in-person and videoconference interactions.

SHIFT-Care eligible ED visits and initiations, baseline (January-March 2019) and intervention period (June 2019-September 2020)



April 2019-September 2020: SHIFT-Care initiation, 30-day revisit, and treatment engagement rates

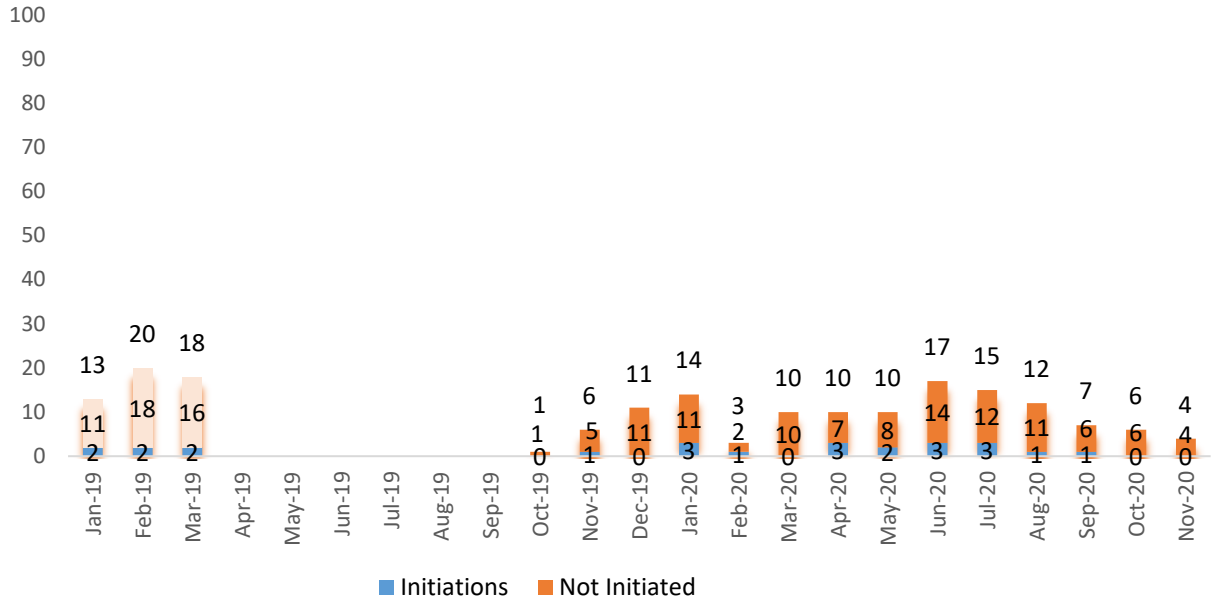
Patient characteristic	Eligible visits #	Initiation rate %	30-day revisit, initiated %	30-day revisit, not initiated %	30-day visit engagement %	30-day medication engagement %	30-day visit OR medication engagement %
Total	789	12.2	22.9	30.9	29.2	77.1	77.1
Gender:							
Male	511	13.5	21.7	27.6	30.4	78.3	78.3
Female	249	10.4	23.1	29.6	26.9	76.9	76.9
Other	29	3.4	100.0	92.9	0.0	0.0	0.0
Race/ethnicity:							
Black	33	12.1	25.0	27.6	50.0	100.0	100.0
White	563	11.5	18.5	32.9	29.2	72.3	72.3
Hispanic	170	15.3	34.6	22.9	26.9	84.6	84.6
Asian	*	0.0	N/A	71.2	N/A	N/A	N/A
Other	> 10	6.3	0.0	26.7	0.0	100.0	100.0
Age group at identification:							
18-25	84	8.3	42.9	50.6	28.6	71.4	71.4
26-40	458	13.1	21.7	30.4	33.3	78.3	78.3
41-64	247	11.7	20.7	24.8	20.7	75.9	75.9
Payment source:							
Medicaid	527	13.9	21.9	31.9	28.8	82.2	82.2
Commercial	83	4.8	25.0	20.3	50.0	75.0	75.0
Other	179	10.6	26.3	33.1	26.3	57.9	57.9
Eligibility-identifying ED visit was for overdose (any substance):							
Yes	451	5.3	20.8	27.9	16.7	79.2	79.2
No	338	21.3	23.6	35.7	33.3	76.4	76.4
Mental health diagnosis in last year:							
Yes	266	13.2	28.6	39.8	37.1	85.7	85.7
No / Unknown	523	11.7	19.7	26.4	24.6	72.1	72.1
Housing insecure in last year:							
Yes	168	15.5	34.6	47.9	30.8	76.9	76.9
No / Unknown	621	11.3	18.6	26.5	28.6	77.1	77.1
Treatment for OUD in last year:							
Yes	219	19.6	20.9	35.8	34.9	79.1	79.1
No / Unknown	570	9.3	24.5	29.2	24.5	75.5	75.5

* Cells with 10 or fewer were suppressed. Where it was possible to calculate a suppressed number, another cell was obscured to > 10.

Appendix D10. Webster Hospital (Part of Harrington Hospital)

Eligible population: Adults age 18-64 with OUD. No additional exclusions beyond those required by HPC. SHIFT-Care was introduced at Webster Hospital in October 2019 following the success of the model at Harrington's Southbridge, MA, location.

SHIFT-Care eligible ED visits and initiations, baseline (January-March 2019) and intervention period (October 2019-November 2020)



October 15, 2019-November 15, 2020: SHIFT-Care initiation, 30-day revisit, and treatment engagement rates

Patient characteristic	Eligible visits #	Initiation rate %	30-day revisit, initiated %	30-day revisit, not initiated %	30-day visit engagement %	30-day medication engagement %	30-day visit OR medication engagement %
Total	116	15.5	44.4	23.5	50.0	22.2	50.0
Gender:							
Male	86	18.6	50.0	21.4	50.0	25.0	50.0
Female	30	6.7	0.0	28.6	50.0	0.0	50.0
Other	0	N/A	N/A	N/A	N/A	N/A	N/A
Race/ethnicity:							
Black	0	N/A	N/A	N/A	N/A	N/A	N/A
White	93	12.9	58.3	25.9	33.3	16.7	33.3
Hispanic	*	30.0	33.3	14.3	66.7	33.3	66.7
Asian	0	N/A	N/A	N/A	N/A	N/A	N/A
Other	> 10	23.1	0.0	10.0	100.0	33.3	100.0
Age group at identification:							
18-25	11	9.1	100.0	10.0	0.0	0.0	0.0
26-40	71	18.3	46.2	22.4	53.8	15.4	53.8
41-64	34	11.8	25.0	30.0	50.0	50.0	50.0
Payment source:							
Medicaid	98	18.4	44.4	22.5	50.0	22.2	50.0
Commercial	*	0.0	N/A	0.0	N/A	N/A	N/A
Other	> 10	0.0	N/A	41.7	N/A	N/A	N/A
Eligibility-identifying ED visit was for overdose (any substance):							
Yes	63	9.5	50.0	8.8	66.7	33.3	66.7
No	53	22.6	41.7	43.9	41.7	16.7	41.7
Mental health diagnosis in last year:							
Yes	43	11.6	0.0	31.6	60.0	20.0	60.0
No / Unknown	73	17.8	61.5	18.3	46.2	23.1	46.2
Housing insecure in last year:							
Yes	14	7.1	100.0	53.8	0.0	0.0	0.0
No / Unknown	102	16.7	41.2	18.8	52.9	23.5	52.9
Treatment for OUD in last year:							
Yes	28	28.6	62.5	20.0	62.5	12.5	62.5
No / Unknown	88	11.4	30.0	24.4	40.0	30.0	40.0

*Cells with 10 or fewer were suppressed. Where it was possible to calculate a suppressed number, another cell was obscured to > 10.

Appendix E:
Awardee Findings, Sustainability, and Lessons Learned

Appendix E1. Addison Gilbert and Beverly Hospitals Findings, Sustainability, and Lessons Learned

Care Model Overview

Addison Gilbert and Beverly Hospitals (AGH/BH), part of Beth Israel Lahey Health, are located in Gloucester and Beverly. The hospitals' SHIFT-Care program, internally titled LEAP (Lahey Enhanced Assessment Program) to Recovery, engaged patients with opioid use disorder (OUD) in both the ED and inpatient settings. It also aimed to increase ED-based prescribing of medication for addiction treatment (MAT) through training, protocols, and X-waiver licensing. Recovery coaches met with identified patients to discuss MAT; those interested were assessed and received home or in-person buprenorphine initiation. Patients were also given a follow-up appointment at the Lahey Health Behavioral Services (LHBS) LEAP to Recovery Clinic, which prescribes buprenorphine, methadone, and extended-release naltrexone and split SHIFT-Care funding with AGH/BH in order to increase treatment continuity and engagement. Recovery coaches continued to follow patients in the community to help with treatment access and health-related social needs (HRSNs).

Program Context

AGH/BH's catchment area was not among the most disadvantaged in the SHIFT-Care cohort, but nevertheless has populations facing substantial structural barriers. The hospitals' 2019 community health needs assessment (CHNA) identified social determinants of health as a key issue for many in the catchment area, with lack of affordable housing and transportation emerging as particular concerns.[1] The report also noted that a number of residents were unstably employed, underemployed, or living on fixed incomes.[1] In Gloucester, one of the highest-need areas in the catchment area, the median income and poverty rate are both somewhat lower than those in the state overall, at $65,377 vs $77,378 and 9% vs 11%.[2] However, the CHNA emphasized that poverty persisted even in areas considered affluent,[1] and the SHIFT-Care team echoed this assessment.

> "There are two distinct groups, the haves and the have-nots, and we mostly see the latter."
>
> *– Sandi Akers, RN, MSN, High Risk Intervention Team Clinical Administrator*

The 2019 CHNA identified mental health and substance use as leading health issues in the catchment area, with OUD a particular concern and alcohol use also highlighted.[1] It further found that many patients struggled to access treatment for these conditions due to factors such as limited providers and beds, inadequate insurance coverage, and lack of transportation.[1] Financial resources, cultural and language differences, and health literacy were also barriers to health care access overall.[1] In Gloucester, emergency medical services (EMS) incidents related to opioids decreased in 2019 compared to 2018,[3] and preliminary data suggest that opioid overdose deaths among residents fell slightly.[4]

Population Served

The AGH/BH team validated that their SHIFT-Care patients fit the overall cohort patient population. While patients spanned a wide socioeconomic range, many faced obstacles such as homelessness, lack of transportation, and court involvement. In addition, as with many awardees, a substantial portion of patients had mental health comorbidities and past and ongoing experiences of trauma.

Pathways and Barriers to Recovery

Pathways and barriers for AGH/BH patients largely align with those identified across the cohort. Structural barriers posed challenges for many patients, particularly when paired with gaps in the treatment system, such as limited bed availability and lack of a clear care continuum. Common issues included homelessness and unstable or unsafe living environments, transportation barriers, being un- or underinsured, and lacking identification documents. Lack of working phones was also a frequent problem, making it difficult for the SHIFT-Care team to contact patients. Recovery coaches provided

support with some HRSNs, such as by arranging transportation, and the team met regularly to strategize approaches to individual patient barriers. Separately from SHIFT-Care, AGH/BH also provided funding for the local police department to distribute phones to some individuals experiencing homelessness, and recommend that future programs engage registration and admission staff to ensure accurate phone number collection.

> "We've been hearing that patients don't want to go to the ED, but some do come anyway. It is a pathway, but I think we have better pathways."
>
> *– Sandi Akers, RN, MSN, High Risk Intervention Team Clinical Administrator*

Like several SHIFT-Care awardees, the AGH/BH team felt that engaging patients with OUD in the ED was a valuable but imperfect approach. Training ED physicians and providing them with resources to treat patients with OUD was seen as meaningful, a way to both support providers and create a pathway to treatment for patients who might not otherwise engage. However, they also described the ED as less welcoming for patients and a less cost-effective treatment setting. The team plans to continue developing additional treatment and engagement pathways based on their learnings from SHIFT-Care, including expanding same-day access in outpatient clinics and creating a mobile treatment van in partnership with Gloucester Family Health Center.

In addition to engaging patients in the ED, the AGH/BH SHIFT-Care team engaged hospitalized patients with OUD via recovery coaches and an inpatient addiction consult team developed as part of SHIFT-Care. These patients were connected with the LEAP Clinic upon discharge if they were interested in continuing MAT. The team considered these components a valuable part of their SHIFT-Care program, finding that they helped ensure that patients received adequate treatment during their stay and were less likely to leave against medical advice.

> "Whether patients are accessing Suboxone from the ED or a prescriber or the street, there's real value in having access to needed medication and treatment."
>
> *– Ashley Shoares Sauve, LEAP Clinic Project Manager*

Finally, awardees across the SHIFT-Care cohort had differing views on how best to address buprenorphine diversion. The AGH/BH team approached this through a harm-reduction lens, believing that increased buprenorphine availability—even on the street—was valuable and had the potential to save lives. They therefore encouraged ED physicians to use professional discretion but not to limit the number of times patients could receive a buprenorphine kit.

SHIFT-Care Impacts and Learnings

> "All day long, our recovery coaches are planting seeds. We've had people call back six to eight months later and say, 'I remember you, you talked to me, and I'm ready now.'"
>
> *– Sheila Laffy, Program Manager, High Risk Intervention Team*

The impacts and learnings from AGH/BH's SHIFT-Care program largely echo those reflected in the cross-awardee report. Like many awardees, the AGH/BH team described recovery coaches as a "pivotal" part of the SHIFT-Care program. The team saw recovery coaches as helping to put patients at ease within the stressful environment of the ED and supporting them in moving toward readiness for recovery. These perceptions are consistent with patients' appreciation of recovery coaches across the SHIFT-Care cohort. There was also a sense among some team members that recovery coaches helped facilitate culture change in the ED.

> "Through the efforts of the SHIFT-Care team, frontline staff now see opioid addiction as a treatable disease. Relapse is now viewed as a predictable part of recovery."
>
> *– Saul Cohen, MD, FAAEM, Chair of Emergency Medicine*

In addition, despite patient-reported experiences of stigma across all awardees, the AGH/BH team believed that SHIFT-Care decreased stigma and increased buy-in for ED-based OUD treatment. The team reported that physicians, nurses, and ED leadership came to view OUD as a disease and, over time, became more comfortable working with the SHIFT-Care team. In addition, all ED physicians became X-waivered and all nurses attended training on stigma and conducting the Clinical Opiate Withdrawal Scale (COWS) assessment. By providing resources and training to support ED staff in treating OUD patients, engaging the ED chief as a physician champion, and sharing success stories, the team felt that SHIFT-Care meaningfully changed ED culture. In the future, they recommend including advance practice providers, not just physicians, in X-waiver training to further expand MAT access in the ED.

The AGH/BH team reported that an overall lesson learned from SHIFT-Care was that engaging all stakeholders is crucial for effective transformation. They emphasized the importance of involving physician and ED leadership in program planning and monitoring, incorporating information technology (IT) and pharmacy input in developing protocols, and holding regular meetings. They also believed that collaborating with the wider community—including first responders, community organizations, and outpatient providers—was essential, and that SHIFT-Care had strengthened these connections. The team also collaborated with primary care physicians (PCPs) to a limited extent, inviting them to participate in AGH/BH's X-waiver training and reconnecting patients with their PCPs for MAT when appropriate. In addition, they worked to develop a more collaborative relationship with the local community health center, including by sharing funding to support complementary services.

As for all awardees, the COVID-19 pandemic forced substantial changes that may have affected the impacts of the SHIFT-Care program. Recovery coaches continued to see patients in person but conducted most follow-up by phone, while the LEAP Clinic and other outpatient providers offered both in-person and telehealth appointments. Volume in the ED fell at the start of the pandemic, then gradually rose again as overdoses and relapses appeared to increase. In addition, the demands of the pandemic meant that ED staff were less focused on treating OUD. The SHIFT-Care team worked to gently counter this effect while also respecting the substantial demands facing ED providers.

Sustainability

AGH/BH is sustaining its SHIFT-Care program through a grant from the HEALing Communities Study. This funding will support the continuation of existing services and an expansion of same-day access at the LEAP Clinic, which is also exploring the possibility of prescribing extended-release buprenorphine in addition to its current offerings. Recovery coach staffing will be reduced to two full-time positions rather than three. While the financial impacts of COVID-19 made it difficult to continue the program without grant funding, the team plans to continue working to build a sustainable model of reimbursement.

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Appendix E2. Beth Israel Deaconess Hospital – Plymouth Findings, Sustainability, and Lessons Learned

Care Model Overview

Beth Israel Deaconess Hospital – Plymouth (BID-Plymouth) is a nonprofit hospital affiliated with Beth Israel Lahey Health and located in the town of Plymouth. Its SHIFT-Care program engaged patients with opioid use disorder (OUD) in both emergency department (ED) and inpatient settings, offering medication for addiction treatment (MAT) and connecting patients with follow-up services. The team, which included a nurse practitioner, a social worker, an aftercare specialist, and recovery navigators with lived experience, worked to engage patients and link them with ongoing outpatient or acute care treatment. The team did not conduct continued follow-up for most patients once they left the hospital; however, patients who left the ED against medical advice received a follow-up visit from Plymouth County Outreach (PCO), an affiliated program that sent a recovery navigator and a plain-clothes police officer within 24 to 48 hours. In addition, patients who were members of BID-Plymouth's accountable care organization (ACO) were reconnected with their primary care providers (PCPs) for ongoing support. Recovery navigators were employed by Gosnold, one of BID-Plymouth's partners in the program.

Program Context

The town of Plymouth, and BID-Plymouth's catchment area more broadly, is fairly affluent compared to the overall SHIFT-Care cohort. Plymouth's median income exceeds that of Massachusetts as a whole ($87,595 vs $77,378), and it has a lower poverty rate (7% vs 11%) and a smaller portion of households receiving Supplemental Nutrition Assistance Program (SNAP) benefits (8% vs 12%).[1] However, the hospital's 2019 community health needs assessment (CHNA) notes that some catchment area residents nevertheless experience structural barriers and health-related social needs (HRSNs), and that poverty persists even in affluent areas.[2] While unemployment is relatively low, the report notes that many residents are underemployed, unstably employed, or living on fixed incomes.[2] Lack of affordable housing was a particular concern, and Plymouth in particular had a substantial population of people experiencing homelessness.[2]

> "I would definitely confirm that homelessness is an issue among our population, as are challenges such as cyclical poverty and joblessness."
> *– Catherine Cooper, LCSW, ED Social Worker*

BID-Plymouth's 2019 CHNA identified mental health and substance use as leading health issues in the catchment area, with participants expressing concern about both the opioid epidemic and the ongoing challenge of alcohol misuse.[2] State opioid statistics show no clear trend for Plymouth, with opioid overdose deaths among residents staying constant from 2018 to 2019,[3] deaths occurring in the town increasing,[3] and emergency medical services (EMS) incidents related to opioids decreasing.[4] The 2019 CHNA noted that many people struggled to access behavioral health care, due in part to structural barriers, lack of providers, and limited bed availability.[2] The report also identified transportation and cost as key barriers to health care access overall, with issues around navigating the health care and health insurance systems as another important challenge.[2]

Population Served

The BID-Plymouth team validated that their SHIFT-Care patients fit the overall cohort patient population. While the population spanned a wide range of socioeconomic statuses, many faced structural barriers such as homelessness and unemployment. Lack of a social support network to provide assistance in recovery was also common. As was true across awardees, many patients also had co-occurring mental health conditions and past and ongoing trauma. In addition, the team reported that many patients with OUD also had comorbid alcohol misuse.

Pathways and Barriers to Recovery

> "One of the biggest barriers is really insurance and having a plan moving forward."
>
> *– Brendan Davidson, BA, Behavioral Health Aftercare Specialist*

Pathways and barriers for BID-Plymouth patients largely align with those identified across the cohort. The team saw patients' type of insurance as a particularly important barrier. They perceived that patients with commercial insurance were able to access treatment more quickly and easily than patients with MassHealth, and that the places they went for treatment were likely to be of higher quality. There was also a belief that patients with MassHealth were more likely to face gaps in the treatment continuum, such as a lack of access to longer-term care, that placed them at risk for relapse. Because the team believed that high-touch wraparound supports and services—including resources to help patients address HRSNs and restabilize their lives after initial treatment—were important to recovery, these gaps were particularly concerning. Some team members further emphasized that patients newly recovering from OUD were not in a place to proactively follow up with services or weather crises easily, making a clear continuum of care even more important.

> "Some find Suboxone very helpful; some don't. It's got a lot of different messages attached to it, from what clients are reporting."
>
> *– Bryan Lally, Recovery Navigator*

The BID-Plymouth team also had a mixed experience offering buprenorphine to their patients. Overall, the team emphasized the value of being able to offer this evidence-based treatment and believed that it provided a useful tool to help people in their recovery. However, they found that many ED patients were either already on buprenorphine or had tried it previously and not liked it. These patients sometimes had a variety of concerns about the medication, including that it could be used as a form of currency and that it represented a new addiction. As a result, the SHIFT-Care team typically connected patients with inpatient detoxification treatment or relinked them with outpatient MAT providers. The team reported a high success rate in finding detox placements for interested ED patients; on occasions when they could not find a bed during a patient's ED visit, a recovery navigator followed up with them to complete the process. This was the most frequent form of outreach that the BID-Plymouth team conducted, as its primary focus was on working with patients on a short-term basis while they were at the hospital.

SHIFT-Care Impacts and Learnings

> "We're very lucky to have the recovery navigators. We've worked very hard to get and maintain them in the hospital, and it's definitely a benefit for us and the patients."
>
> *– Catherine Cooper, LCSW, ED Social Worker*

The impacts and learnings from BID-Plymouth's SHIFT-Care program largely echo those reflected in the cross-awardee report. Like many awardees, the team found recovery navigators to be a valuable addition to the team, reporting that their insight and lived experience were critical for engaging patients. This is consistent with the appreciation that patients across the cohort expressed for recovery coaches. There was also a sense that recovery navigators meaningfully assisted the team by sharing the workload of meeting with patients and connecting them to further care.

> "I think SHIFT-Care has forced us to look more closely at what's working and what isn't. We all knew the seriousness of the problem, but this program has forced us to look more closely at how we do business."
>
> *– Catherine Cooper, LCSW, ED Social Worker*

The team also saw SHIFT-Care as complementing and building on their previous OUD and substance use disorder (SUD) work. They felt that SHIFT-Care provided an opportunity to look more closely at what was and was not working and gave them the resources and incentive to expand into new areas. This included providing buprenorphine initiation in the ED; encouraging ED physicians to become X-waivered-; and engaging pharmacy, nursing, and clinical pathways staff to develop MAT pathways and order sets. The team also leveraged success stories and lessons learned from SHIFT-Care and previous efforts to encourage BID-Plymouth's sister hospital, BID-Milton, to develop a similar ED clinical pathway for MAT. In addition, the team developed closer relationships with community partners such as Clean Slate, Column Health, and PCO. They described collaboration and partnerships as very valuable for their work.

As for all awardees, the COVID-19 pandemic caused substantial changes that may have affected the impacts of BID-Plymouth's SHIFT-Care program. The SHIFT-Care team retained an in-person presence in the ED throughout the pandemic, but recovery navigators worked virtually for approximately the first three months. This posed some challenges, such as making it more difficult to build rapport with patients and complicating the process of finding detox placements; on the other hand, the team also felt that telehealth made mental health consultations and other forms of outpatient treatment more accessible to patients who had the technology to access them. Patient volumes initially fell before returning to normal levels by July, and many of the patients who did present were more acute. The team also saw an increase in overdoses and relapses.

Sustainability

As for many awardees, COVID-19 complicated sustainability for BID-Plymouth's SHIFT-Care program. The hospital has absorbed some of the staffing as permanent positions, while Gosnold agreed to fund a six-month extension of recovery navigator services to allow the team more time to look for funding to sustain this element of the program. In addition, BID-Plymouth was one of five organizations in Plymouth to receive support through the HEALing Communities Study, which will allow them to add an addiction nurse who can conduct mobile initiations in partnership with PCO. BID-Plymouth also plans to add an addiction nurse to its medical floors.

> "In the five years I've been here, I think we've been slowly building different layers and aspects of our behavioral health response and intervention team. I think we had a good base that SHIFT-Care allowed us to expand on."
>
> *– Sarah Cloud, MBA, MSW, LICSW, Director of Social Work*

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Appendix E3. Harrington Memorial Hospital Findings, Sustainability, and Lessons Learned

Care Model Overview

Harrington Memorial Hospital (Harrington), a nonprofit hospital affiliated with the Harrington HealthCare System, has locations in both Southbridge and Webster. The hospital's SHIFT-Care program aimed to engage patients with opioid use disorder (OUD) in the emergency department (ED) and inpatient settings. While ED clinicians could initiate referrals, the SHIFT-Care team typically identified patients via a live tracker linked to the electronic medical record (EMR) that flagged patients with a history of OUD or who were in the ED for an overdose, withdrawal, or substance abuse primary reason. After identification, a substance use disorder (SUD) clinician administered a medical, social, and behavioral health evaluation and, when desired and clinically appropriate, involved ED physicians to conduct in-person or take-home buprenorphine initiation. Patients received follow-up from an SUD clinician and a patient navigator, who helped facilitate access to care and address health-related social needs (HRSNs). Those initiated on medication for addiction treatment (MAT) also received a follow-up appointment with an outpatient prescriber.

Harrington's SHIFT-Care program was designed to complement the health system's existing SUD services, which include an inpatient co-occurring disorders unit and a range of outpatient treatment programs. It also built on Harrington's existing relationship with the Southbridge Police Department by embedding a recovery specialist there to engage and coordinate treatment for individuals with OUD.

Program Context

While Harrington's catchment area includes some relatively affluent towns, it is also home to populations facing structural barriers such as poverty and limited job and educational opportunities. Harrington HealthCare System's 2019 community benefits report noted homelessness, unemployment, and family or domestic violence as important concerns for parts of the catchment area, and top community-sourced suggestions for improving health included creating more jobs, improving access to healthy food, and adding more safe recreational spaces.[1] In Southbridge and Webster, which the report described as needier regions of the service area, poverty and lack of transportation also posed challenges.[1] Southbridge residents have a lower median income ($50,787 vs $77,378) and higher rates of Supplemental Security Income (SSI) receipt (11% vs 6%), Supplemental Nutrition Assistance Program (SNAP) receipt (28% vs 12%), and poverty (19% vs 11%).[2] Nearly a quarter of Southbridge residents speak Spanish at home.[3]

In the 2019 community benefits report, OUD, SUD, and mental illness emerged as leading health concerns.[1] Preliminary data suggest that opioid overdose deaths[4] and emergency medical services (EMS) incidents related to opioids[5] increased in both Southbridge and Webster in 2019, though the changes were more notable for Southbridge. Expanding access to mental health and SUD treatment were frequent community-sourced suggestions for improving health, while perceived barriers to health care access included financial and insurance constraints, lack of transportation, and long wait times for an appointment.[1]

Population Served

The Harrington team validated that their SHIFT-Care patients fit the overall cohort patient population. While patients spanned a wide range, team members reported working with many who struggled with structural barriers such as poverty, unemployment, homelessness or housing instability, and involvement with the justice system and/or the Department of Children and Families (DCF). As was true across awardees, many also had co-occurring mental health conditions and past and ongoing trauma.

Pathways and Barriers to Recovery

> "This really validates what we see with regard to the social and health issues. These are such barriers for people trying to seek recovery."
>
> *– Gregory Mirhej, MSW, Vice President of Behavioral Health*

Pathways and barriers for Harrington patients largely echo those reflected in the cross-awardee report. As was true across awardees, structural barriers often posed obstacles for patients and complicated recovery. Homelessness and housing instability were serious challenges, with some patients having nowhere to go upon discharge. Transportation was also difficult, making it hard for some patients to attend appointments and access other forms of care. Lack of working phones and accurate phone numbers meant team members often struggled to contact patients, while language barriers and lack of cultural competence within the health care system sometimes affected the care patients received. Harrington's patient navigator helped address these needs, and the team worked to connect patients with primary care providers; however, team members perceived a need for more case management and navigation resources to help patients address HRSNs and negotiate the health care system.

> "I think SHIFT-Care has shown that when a patient is willing and the resources are there, the ability to get them into treatment increases. It's been fundamental to our understanding of how behavioral health needs to be integrated into all medical services."
>
> *– Gregory Mirhej, MSW, Vice President of Behavioral Health*

For the Harrington team, integrating behavioral health and recovery services into all areas of care was key to improving OUD and SUD care. SHIFT-Care contributed to this by allowing the team to quickly connect ED patients with MAT prescribers and facilitating engagement of patients on inpatient units. For those not ready to engage or not interested in MAT, the team employed harm reduction approaches; they also emphasized the importance of working with patients over time and finding options that worked for each individual. While many awardees emphasized the importance of wraparound services for patients, Harrington was unusual in offering a broad continuum of SUD treatment within its health system. However, this did not include inpatient detoxification treatment unless a patient also qualified for a psychiatric admission, and this form of treatment was sometimes more difficult for patients to access.

> "Sobriety is never a linear thing. We're able to reconnect people with different resources over and over again, and I think that's extremely beneficial for our population."
>
> *– Ashley Adams, MS, SHIFT-Care Program Coordinator*

Despite these efforts toward an integrated care continuum, for much of the implementation period the Harrington team reported significant challenges in implementing MAT initiation in the ED. Despite all ED physicians being X-waivered, the team felt they were unable to effect process changes in the ED, and perceived a lack of awareness or buy-in for the program among ED clinicians and leaders. However, the team also noticed positive changes toward the end of the implementation period, including increased engagement among ED nurses and a promising change of ED leadership.

SHIFT-Care Impacts and Learnings

The impacts and learnings from Harrington's SHIFT-Care program largely align with those identified across the cohort. The team reported being able to quickly connect a number of patients with outpatient prescribers. Engaging ED nurses also produced positive changes, with nurses completing training on the Clinical Opiate Withdrawal Scale (COWS) and contributing to improved patient care by administering it consistently. Learnings from SHIFT-Care also helped give rise to a new nurse champion role, in which a nurse trained with Harrington's behavioral health teams in the management of psychiatric and SUD patients. She was then stationed in the ED, where her presence has helped to engage patients and reduce the use of restraints and sedatives. The hospital is hoping to expand this role in the future. In addition, Harrington's psychiatric emergency services team, already an accepted presence in the ED, has begun evaluating patients for substance use in addition to mental health concerns.

> "We've seen much less restraint and medication use through hiring the nurse champion. She also develops quick relationships with patients—they actually look for her when they come in."
>
> *– Jess Calcidise, RN, Vice President of Nursing and Ancillary Operations*

As for all awardees, the COVID-19 pandemic caused substantial changes that may have affected SHIFT-Care's impacts. SHIFT-Care team members remained available to meet with patients in person in the ED, but conducted most outreach and follow-up telephonically. Team members also noted increases in overdoses and relapses, reported that many outside sources of patient support had closed, and noticed an increase in housing-related needs. The pandemic particularly exacerbated inequities facing patients without computers, smartphones, or internet access, who struggled to access virtual health and support resources. Working remotely also made it more difficult for SHIFT-Care team members to build awareness of the program among ED staff.

Sustainability

Harrington opened a new Addiction Immediate Care (AIC) clinic in late 2020, which will sustain most of the SHIFT-Care team after the investment program ends. The goal of the AIC is to provide addiction care using an urgent care model, creating one centralized location that patients can visit on short notice to receive a variety of types of treatment. The clinic provides buprenorphine, methadone, and extended-release naltrexone, and the team is exploring adding extended-release buprenorphine in the future. The AIC can also conduct physical exams and connect patients with help for other medical concerns. Because transportation is a barrier in the catchment area, the hospital has arranged contracts with community vans and with Uber so that they can transport patients to the clinic. In addition, Harrington is exploring the possibility of incorporating a patient navigator and/or recovery coach into the AIC team. The SHIFT-Care team hopes that having the AIC available will make it easier for ED staff to connect patients with SUD treatment, as it will provide one centralized place where clinicians can send patients for care.

> "We're hoping that SHIFT and AIC work hand-in-hand. We want to continue our partnership with the ED by getting referrals and meeting patients' readiness for change in real time."
>
> *– Sarah Calnan, DO, Medical Director of Recovery Services*

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Appendix E4. Holyoke Medical Center Findings, Sustainability, and Lessons Learned

Care Model Overview

Holyoke Medical Center (HMC) is a nonprofit community hospital located in Holyoke and affiliated with Valley Health Systems. Its SHIFT-Care program engaged patients with opioid use disorder (OUD) in the emergency department (ED) and through inpatient and outpatient settings. Social workers met with patients to provide brief interventions and assess eligibility, while recovery coaches employed by Gándara Center were available in the ED to provide additional support and linkage with care and resources. For patients interested in medication for addiction treatment (MAT), ED clinicians conducted an evaluation and prescribed buprenorphine and/or referred patients to HMC's Comprehensive Care Center (CCC) for MAT and other longer-term services. A psychiatric advanced practice nurse was available to provide support, education, and clinical guidance when needed. The CCC offered walk-in hours and did not require a referral, and also had co-located mental health services provided through River Valley Counseling Center. SHIFT-Care patients were assigned a nurse navigator to assist with clinical scheduling and referrals.

Program Context

The city of Holyoke, and to a lesser extent HMC's broader catchment area, faces substantial structural barriers and health-related social needs (HRSNs). HMC's 2019 community health needs assessment (CHNA) identified transportation, cultural awareness, employment training and access, and housing security and homelessness as important HRSNs for its service area, with challenges related to poverty, food insecurity, and violence also noted.[1,2] While the state of Massachusetts has a median income of $77,378 and a poverty rate of 11%,[3] these figures are $60,067 and 15% in HMC's primary service area[1] and $40,656 and 30% in Holyoke itself.[3] Rates of Supplemental Security Income (SSI) and Supplemental Nutrition Assistance Program (SNAP) receipt are similarly elevated in the city of Holyoke, at 19% and 33% respectively compared to the state's 6% and 12%.[3] In addition, 50% of rented homes in Holyoke and 48% in HMC's primary service area are cost-burdened, paying over 30% of income in housing costs.[1] Nearly half of Holyoke residents speak a language other than English at home.[4]

HMC's 2019 CHNA identified mental health and substance use of drugs and alcohol as important health issues in the catchment area.[1] Identified barriers to mental health treatment included financial barriers or lack of insurance, inability to get an appointment, lack of transportation, and hours that were inconvenient or competed with other responsibilities.[2] Within the city of Holyoke specifically, opioid overdose deaths increased in 2018 despite an overall decreasing trend in Massachusetts.[5,6] Preliminary data show that the number of such deaths occurring in the city leveled off in 2019 but did not decrease to earlier levels,[5] while emergency medical services (EMS) incidents related to opioids increased.[7]

Population Served

The HMC team validated that their SHIFT-Care patients fit the overall cohort patient population. Homelessness was specifically mentioned as a common and concerning barrier, with some staff members also noting that shelter access within Holyoke itself was minimal. As for most awardees, a large portion of patients had mental health comorbidities and experienced early and persistent trauma. The team reported that many of their patients were involved with the justice system but, to their knowledge, the majority had not spent time in prison.

Pathways and Barriers to Recovery

Pathways and barriers for HMC patients largely echo those reflected in the cross-awardee report. The HRSNs and structural barriers described above, including poverty and lack of affordable housing, posed particularly notable challenges. Homelessness was common and made any attempt at recovery much more difficult, as did living with others who used substances. Lack of transportation was another substantial barrier, though SHIFT-Care funding allowed HMC to contract with Lyft to provide transportation to inpatient detoxification facilities, partially bridging this gap. Lack of working phones made it difficult to contact patients, while lack of identification documents complicated admission into treatment programs.

> "I think lack of working phones was a huge barrier. If patients didn't show up for an appointment, you just couldn't get in touch with them for months at a time."
> *– Kyrie Bretz, RN, Nurse Navigator*

> "One of the biggest problems is where to go after detox. Once they finish CSS, the halfway houses and recovery homes are all full. It's hard to get into outpatient recovery when you're going back out on the street."
> *– Damon Wood, Recovery Coach*

Overall, the HMC team and most awardees shared a sense that while MAT was a helpful tool, it needed to be paired with high-touch wraparound services and resources. This included other forms of structured treatment as well as supportive relationships and help addressing HRSNs. Like most awardees, HMC staff also described gaps in the treatment system that made it more difficult to sustain recovery. Getting interested patients into inpatient detox programs could be challenging, and accessing longer-term treatment after these programs ended was even more difficult due to a lack of beds to meet the demand. This put patients in a very difficult position, particularly if they did not have a place to live after discharge. Some staff members also described specific barriers for women and people of color, explaining that racism persisted within the treatment system and that fewer resources were available for women.

For the HMC team, initiation in the ED was an imperfect but valuable approach. Team members felt that the ED provided an opportunity to engage patients who might not have been reached in any other setting and could sometimes create readiness for change by highlighting the consequences of their opioid use. In addition, while the outpatient CCC had walk-in hours and sometimes diverted patients from the ED, staff explained that untreated withdrawal symptoms could make patients less likely to engage. ED triage and buprenorphine administration were seen as a way to address that barrier.

> "If a patient is really in withdrawal and uncomfortable, it's better to get them in, triaged, and medicated so they're more comfortable when they have to sit through an appointment."
> *– Kyrie Bretz, RN, Nurse Navigator*

> "The best part about Sublocade is that it gives patients a steady level of buprenorphine in their system. They don't have the peaks and valleys or get to the point that they're thinking about using."
> *– Sharon French, RN*

Across awardees, opinions differed about how best to address the potential for buprenorphine diversion, particularly among patients with high HRSNs. HMC has been offering extended-release buprenorphine (Sublocade) for two years and has found that this medication is often effective for patients, including those at high risk of relapse. The team did not find buprenorphine diversion to be a frequent or concerning issue. In fact, some expressed the perspective that increased buprenorphine availability on the street is not necessarily negative, since it may help individuals modulate their substance use. The HMC team also

saw value in harm reduction approaches more generally and is working to educate staff and create patient-facing materials on this subject.

SHIFT-Care Impacts and Learnings

The impacts and learnings from HMC's SHIFT-Care program largely align with those identified across the cohort. As for many awardees, recovery coaches arose as a particularly impactful part of the program. Because recovery coaches worked directly in the ED, they were able to both connect with patients and develop stronger relationships with ED staff, which team members credited with helping to reduce stigma among providers. The HMC team also perceived ED buy-in for OUD treatment as increasing during the program, explaining that by the end it seemed much less common for patients with OUD to be discharged from the ED without treatment resources. While they acknowledge that more work remains to be done, they considered these changes to be important impacts of the program. Team members described the importance of consistent messaging and attention from all levels of the organization in helping to create these shifts.

> "Patients are now being held until a recovery coach or someone from our team comes in. Before, people were discharged with a piece of paper. Now it's very much the exception that someone is told to go and figure it out on their own."
>
> *– Maria Quinn, MSN, PMHNP-BC, SHIFT-Care Program Lead*

The HMC team also described increased connections with partners and other community groups as a result of the SHIFT-Care program. Relationships and referral processes with community partners strengthened, community groups became more aware of HMC's work, and HMC became more closely involved in Holyoke substance use treatment and recovery efforts. Staff in turn became more aware of available community resources with which to connect patients.

Finally, as for all awardees, the COVID-19 pandemic caused substantial changes that may have affected the impacts of the SHIFT-Care program. Key HMC SHIFT-Care team members were pulled into other roles in the hospital, while recovery coaches worked remotely from March through May, making it more difficult to engage patients and highlighting a need for a recovery coach manager to streamline communication between recovery coaches and HMC staff members. The CCC continued to offer in-person appointments for patients without phones, while telehealth was available for those who could access it. Resources for patients became scarcer, with transportation becoming more difficult to access and support services closing or going remote. Patient volumes fell at the start of the pandemic, then rose again as overdoses and relapses appeared to increase. Some staff also perceived that the pressures of the pandemic diverted ED providers' attention from treating OUD patients.

Sustainability

HMC is sustaining its SHIFT-Care program through a grant from the HEALing Communities Study, which has allowed them to continue recovery coach services and establish a new addictions consult team. While ED-based services will continue, the expanded program will focus on extending services to the hospital's medical floors.

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Appendix E5. Lowell General Hospital Findings, Sustainability, and Lessons Learned

Care Model Overview

Lowell General Hospital (LGH) is an independent, not-for-profit community hospital located in Lowell and serving the surrounding region. The hospital's SHIFT-Care program focused on expanding access to opioid use disorder (OUD) treatment by engaging patients through either of the system's two emergency departments (EDs) or by referral from the Lowell Community Opiate Outreach Program (CO-OP). Identified patients were connected with LGH's Bridge Clinic, which assessed their social, medical, and behavioral needs and initiated medication for addiction treatment (MAT) when appropriate. Patients could also walk into the Bridge Clinic without a referral to access treatment and/or spend time in its sober drop-in space. The Bridge Clinic team—which included a psychiatric nurse practitioner, a social worker, a registered nurse, a community health worker, and a recovery coach—connected patients to other providers for ongoing care. The Lowell Community Health Center (Lowell CHC) office-based addiction treatment (OBAT) clinic was a key partner in the program.

Program Context

The city of Lowell faces a range of structural barriers and was among the most disadvantaged and impoverished areas in the SHIFT-Care cohort. A 2017 community health assessment identified housing as a key unmet need for many in the area,[1] with a rising homelessness rate[2] and estimates suggesting that nearly half of Lowell households have housing costs exceeding 30% of their total income.[1] Other notable health-related social needs (HRSNs) highlighted in the assessment included a lack of jobs, transportation, and access to nutritious food.[1] Compared to Massachusetts, Lowell has a lower median income ($51,987 vs $77,378), higher rates of Supplemental Security Income (SSI) and Supplemental Nutrition Assistance Program (SNAP) receipt (13% vs 6% and 23% vs 12%, respectively), and a higher poverty rate (21% vs 11%).[3] About 43% of residents speak a language other than English at home.[4] In addition, the LGH SHIFT-Care team noted that Lowell has a number of transient people who arrive from other parts of the state.

Opioid deaths in Lowell increased in 2018 despite an overall decreasing trend in Massachusetts.[5] However, preliminary data show that opioid overdose deaths in the city decreased in 2019,[6] as did emergency medical services (EMS) incidents related to opioids.[7] Substance abuse resources and mental health services were identified as important unmet health needs in the 2017 assessment.[1]

Population Served

The LGH team validated that their SHIFT-Care patients fit the overall cohort patient population. However, LGH patients in particular had alarming challenges around basic needs, with frequent issues including homelessness, having no source of food, and violence. The majority also had underlying mental illness and early and persistent trauma, similar to patients at other awardee sites.

Pathways and Barriers to Recovery

Pathways and barriers for LGH patients largely echo those reflected in the cross-awardee report. As with other awardees, limited access to longer-term treatment after inpatient detoxification constrained potential paths to recovery. Poverty, racism, and other structural barriers exacerbated this, as patients faced obstacles such as living on the streets without food, working phones, or transportation. Housing needs were particularly impactful, as the experience of homelessness and the proximity to drugs and alcohol that living in shelters or on the streets often forced made attempts at recovery very difficult. Transportation also played a crucial role in determining treatment accessibility, with LGH's partnership with Rides to Recovery filling an essential gap for patients unable to get to inpatient detox facilities on their own. While LGH worked to assist patients with HRSNs, these factors nevertheless created serious inequities for those with fewer resources.

Complicating these inequities further, nuances emerged across the SHIFT-Care cohort around the role of buprenorphine for patients with high HRSNs. While the medication was an important form of harm reduction, diversion was common due to its street value and/or a desire to continue using substances. Because of the combined barriers created by lack of services, the street value of buprenorphine, and severe HRSNs, the LGH team encouraged extended-release naltrexone (Vivitrol) initiation. The team often used an outpatient detox approach to safely transition patients onto the medication, though inpatient detox with immediate follow-up at the LGH Bridge Clinic upon discharge was also an option. The LGH team reported "commonly" initiating patients on Vivitrol through these methods. They also found that patients were increasingly aware of and interested in the medication. While LGH did not offer extended-release buprenorphine during SHIFT-Care, citing barriers such as a lack of appropriate patients and the prohibitive expense of offering it to uninsured walk-in patients, they are exploring this as a potential option in the future. In addition, LGH team members believed that MAT must be paired with human connection and support, and encouraged patients to utilize resources such as therapists, support groups, and structured treatment programs.

> "We keep close tabs on patients during outpatient detox. There's a lot of support around them. And starting on Vivitrol gives patients a huge sense of relief because they no longer have to make the decision to take their medication every day."
>
> *– Ashley Tobey, PMHNP-BC, Bridge Clinic Nurse Practitioner*

> "A pill or a shot isn't going to do everything. I always encourage people that they should have a therapist or other forms of support."
>
> *– Danielle Czekanski, LICSW, Bridge Clinic Social Worker*

Finally, as was common across the SHIFT-Care cohort, the LGH SHIFT-Care team observed that stigma in health care settings posed challenges for LGH patients. Team members felt that ED staff treated substance use disorder (SUD) patients differently and often wanted to discharge them as quickly as possible. In addition, many ED staff lacked an awareness of the SHIFT-Care program and many patients wanted to leave the ED quickly. These factors contributed to patients having negative experiences in the ED and, at times when the Bridge Clinic team could not connect with them, being discharged with only a list of detox facilities. Admitting a patient to detox from the ED was also more difficult than doing so from another setting. For these reasons and because OUD patients in the ED were often in the midst of a difficult experience, the LGH team felt that the ED was not an effective entryway to recovery for patients. In response, the Bridge Clinic team attempted to divert patients without emergent medical issues from the ED waiting room to the Bridge Clinic.

> "The hoops the hospital has to jump through to get somebody into detox are so much higher than if they came next door to the Bridge Clinic. We could get them in in five minutes if beds are available."
>
> *– Debbie Ryan, Recovery Coach*

SHIFT-Care Impacts and Learnings

The impacts and learnings from LGH's SHIFT-Care program largely align with those identified across the cohort. As with many awardees, the recovery coach role appeared meaningful for patients, and the Bridge Clinic overall was a helpful access point for compassionate and nonjudgmental care. The Lowell CHC OBAT program, which practices harm reduction and has a low threshold to provide buprenorphine, was also a valuable pathway for patients, though the clinic sometimes had difficulty retaining patients in care during early recovery. Some team members felt that SHIFT-Care played an important role in increasing communication between the two organizations, which in turn increased continuity and patient trust. In addition, LGH SHIFT-Care team members believed that their work had started to reduce stigma in the LGH ED, noting that ED staff became more respectful of the SHIFT-Care team's role and

more willing to generate consults. However, most felt that much work remained to be done in this area. They speculated that creating an educational program for ED staff before the start of the program, had time allowed, might have helped.

Other lessons learned from SHIFT-Care involved staffing and the best way to support team members. Working with patients in crisis took a toll on staff, but the team found that frequent debriefings provided support and helped minimize these effects. More logistically, team members felt that having a dedicated information technology (IT) role would have helped make patient tracking more efficient and save time spent on data management.

As for all awardees, the COVID-19 pandemic caused substantial changes that may have affected the impacts of the SHIFT-Care program. During the spring of 2020, the SHIFT-Care team worked remotely, which made it more difficult to connect and build trust with patients. The team found that face-to-face communication over an extended time was essential for relationship building, and patients were noticeably more guarded and less open to treatment recommendations during virtual visits. There was also a sense that SUD treatment was sidelined within the hospital more than other areas of care. Some staff members also perceived that the pandemic increased HRSNs, especially homelessness, and contributed to a higher rate of overdoses and/or relapses among patients.

Sustainability

Overall, SHIFT-Care appears to have been successful in laying the groundwork for a growing SUD program at LGH. The team reported that beginning in January 2021, SHIFT-Care components continued under a grant from the HEALing Communities Study. As part of this ongoing program, the hospital is adding an Addictions Consult Team consisting of one nurse practitioner and one recovery coach, which Bridge Clinic staff hope will be a source of referrals and an avenue for patients to begin initial treatment. The new grant will also include additional community partnerships to improve follow-up and wraparound care for patients, as well as outreach to primary care providers as part of the team's marketing approach. In addition, the LGH team plans to follow up more closely with patients they send to detox and create more time for education and case management by incorporating a pharmacist to assist with naltrexone administration. Finally, the team is working to maximize reimbursement rates and anticipates that the next iteration of the program will be more financially sustainable.

> "We're building stronger relationships with community partners so we can connect patients and make sure they're getting the care and services they need."
>
> *– Ashley Tobey, PMHNP-BC, Bridge Clinic Nurse Practitioner*

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Appendix E6. Massachusetts General Hospital Findings, Sustainability, and Lessons Learned

Care Model Overview

Massachusetts General Hospital (MGH) is an academic medical center, with a main campus in Boston and four health centers located in Boston, Chelsea, and Revere. The hospital's SHIFT-Care program engaged patients with opioid use disorder (OUD) in the emergency department (ED) and outpatient settings, as well as through the hospital's partnership with the Boston Health Care for the Homeless Program (BHCHP). SHIFT-Care funding allowed MGH to add evening hours at its existing Bridge Clinic and increase ED-based provision of medication for addiction treatment (MAT) by offering training to ED clinicians. In addition, funding supported the incorporation of recovery coaches into the ED and the Barbara McInnis House, a medical respite program run by BHCHP. These new recovery coaches joined an existing team already incorporated throughout many areas of MGH, including in the Bridge Clinic, inpatient floors, and primary care.

Program Context

MGH draws from a large catchment area, including the city of Boston and many surrounding towns and cities. While these communities span a wide socioeconomic range, many MGH patients face substantial health-related social needs (HRSNs) and structural barriers to health and well-being. In its 2019 community health needs assessment (CHNA), MGH identified safe and affordable housing, economic stability and mobility, and access to health and social services as key health priorities across the communities it serves.[1] For Boston—where the poverty rate (20%) is nearly double that of Massachusetts (11%)[2]—rising housing costs were a particular concern, and affording and accessing childcare and transportation was also challenging for many residents.[1] In lower-income Boston neighborhoods, often home to communities of color, grocery stores were often lacking as well.[1] MGH patients across communities often screened positive for a range of HRSNs, with those related to education, food, employment, housing, and utilities being especially common.[1]

MGH's 2019 CHNA also identified substance use disorders (SUDs) and mental health as key health priorities for its catchment area, noting that these issues were particularly prevalent among marginalized groups and people facing structural barriers such as poverty and unemployment.[1] Preliminary data show that opioid overdose deaths occurring in Boston decreased in 2018 and then remained relatively constant in 2019,[3] while emergency medical services (EMS) incidents related to opioids increased very slightly.[4] The 2019 CHNA reported that, for Boston residents, obstacles to behavioral health and SUD care included language barriers, cost, lack of cultural competency, and stigma.[1] Additional barriers to overall health care access included issues around transportation, immigration status, navigating the health care and insurance systems, and lack of available appointments and/or convenient hours.[1] Lack of insurance was also a barrier for some groups, including undocumented immigrants and people experiencing homelessness.[1]

Population Served

The MGH team validated that their SHIFT-Care patients fit the overall cohort patient population. They reported that the majority of patients were covered by public insurance and facing unemployment and homelessness, and that while many were eligible for public assistance programs, a substantial portion did not actually receive these benefits. In addition, many patients had co-occurring mental health conditions and experiences of early and continuing trauma. Traumatic brain injury was also common.

Pathways and Barriers to Recovery

Pathways and barriers for MGH patients largely align with those identified across the cohort. Like many awardees, MGH staff members highlighted a number of gaps in the OUD treatment continuum, including an overall scarcity of housing, stabilization bed space, and resources for patients leaving inpatient detoxification treatment. This included inadequate access to longer-term treatment and affordable, high-quality sober housing. Team members also shared concerns about the role of insurance in shaping the recovery pathways available to patients, including a perception that options available to MassHealth patients tended to be of lower quality than those available to patients with commercial insurance. In addition, as was true across the SHIFT-Care cohort, HRSNs and structural barriers—including poverty, homelessness, lack of transportation, and inconsistent phone access—were common among MGH patients and posed substantial challenges for recovery. Lack of phones made follow-up difficult, leading the MGH team to recommend that future iterations of the program include resources to provide patients with prepaid cellphones or tablets.

In the context of these challenges, the MGH team saw the ED as a valuable setting in which to engage patients who were ambivalent about treatment or not connected with other health care services. Having the ability to connect with patients during a vulnerable time, plant seeds of engagement or treatment, and link them to care, support, and harm reduction services was considered important. In addition, the team reported that these efforts made a meaningful difference for patients: not only did they express appreciation but, as with most awardees, patients given a buprenorphine pack in the ED were also more likely to follow up at the Bridge Clinic and less likely to revisit the ED. Those who received a warm handoff to the Bridge Clinic were more likely to engage in ongoing care. While the team felt that the ED was not always the ideal place to begin recovery and recognized the value of directing patients directly to the Bridge Clinic when possible, ED engagement was nevertheless considered an important tool.

> "There are a lot of people who might not have contemplated treatment before they ended up in the ED. And for some, it might be the only option—the only place they're being seen at all by health care providers."
>
> *– Dawn Williamson, RN, DNP, PMHCNS-BC, CARN-AP, ED Addiction Specialist*

> "The ED is a great opportunity to plant seeds when someone's vulnerable and maybe in the throes of a negative consequence due to their substance use."
>
> *– Dan Foley, Recovery Coach and Peer Support Specialist*

The MGH team also emphasized the value of making evidence-based treatments easily available for patients, including by creating streamlined systems through which patients can access MAT and other services and supports. While increased prescription of buprenorphine sometimes raises concerns about diversion, and interviewed SHIFT-Care patients did report trading buprenorphine for other substances, the MGH team felt strongly that availability of buprenorphine was an important form of harm reduction and that potential diversion should not be a barrier to prescribing. This was particularly important to note, they felt, in the context of the strong evidence of its effectiveness and the substantial stigma toward it that persists in health and social service organizations and the community at large. While the MGH team does offer medications other than buprenorphine—for example, they have been prescribing extended-release buprenorphine (Sublocade) for two years and have found it to be a "game changer" for many—they emphasized that the choice of which medication to use is a shared decision between patient and provider.

> "I was initially concerned about Suboxone diversion, but have heard from patient after patient that it has limited street value. I wouldn't want it to be seen as a barrier in any way."
>
> *– Ben White, MD, Director of Clinical Operations in the ED*

SHIFT-Care Impacts and Learnings

The impacts and learnings from MGH's SHIFT-Care program were similar to those identified across the cohort. MGH made notable progress in addressing stigma in the ED prior to SHIFT-Care, and like many awardees, noticed an even greater culture shift during the program. The MGH team felt that ED clinicians became more likely to see OUD as a treatable illness, more comfortable prescribing buprenorphine, and more willing to provide new types of harm reduction resources. Staff felt that these changes had meaningful impacts for patients and helped create a strong foundation for future SUD treatment efforts.

The team also saw SHIFT-Care as increasing collaboration between the Bridge Clinic, the ED, and BHCHP. The program helped to strengthen a monthly meeting between the Bridge Clinic and ED teams, which provided a venue to discuss specific patients as well as ongoing projects. ED clinicians also began placing electronic referrals to the Bridge Clinic more consistently, allowing Bridge Clinic staff to follow up if patients did not arrive. Recovery coaches were a valuable component of this work, helping not only to engage patients but also to provide a stronger link between the ED and the Bridge Clinic. Across these areas, the SHIFT-Care team perceived ED leadership as providing consistent support that strengthened these efforts.

> "It's been great for us to collaborate more with the ED and our colleagues at BHCHP as well. That's been the biggest boon and our patients have benefited because of it."
>
> *– Laura Kehoe, MD, MPH, Bridge Clinic Medical Director*

> "The pandemic has really strained our flexible, walk-in models. Telehealth is flexible for some people, but it's not accessible for everyone."
>
> *– Sarah Wakeman, MD, Medical Director, Substance Use Disorders Initiative*

As for all awardees, the COVID-19 pandemic caused substantial changes that may have affected SHIFT-Care's impacts. The Bridge Clinic began providing most care virtually, with limited in-person hours for patients who required in-person care. The clinic also suspended its evening hours, and staff from those times were reassigned to COVID-19 response. These changes altered the Bridge Clinic's usual flexible, walk-in approach. In addition, telehealth expanded accessibility for some patients but created access barriers for others, and the MGH team saw an increase in overdoses and relapses among their patients. The team was able to refer COVID-positive patients with SUDs to the Barbara McInnis House, where they could begin MAT while receiving care for the virus, but the ongoing lack of readily available housing further complicated patients' attempts to stabilize when they returned to the street.

Sustainability

The financial impacts of COVID-19 complicated plans for SHIFT-Care sustainability at MGH, as they did for many awardees. However, the team nevertheless retained most elements of the program. The Bridge Clinic's evening hours continued at a reduced level based on data showing low patient volume later in the evening. The ED recovery coach role also continued, with partial support from a grant received in collaboration with the ED's infectious disease team. The Barbara McInnis House is working to incorporate its recovery coach position into its ongoing budget. In addition, the monthly meeting between the ED and Bridge Clinic teams continued after SHIFT-Care.

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Appendix E7. Mercy Medical Center Findings, Sustainability, and Lessons Learned

Care Model Overview

Mercy Medical Center (Mercy) is a faith-based, non-profit hospital located in Springfield and affiliated with Trinity Health of New England. The hospital's SHIFT-Care program focused on engaging adult patients with opioid use disorder (OUD) through the emergency department (ED) and outpatient settings. Eligible patients were educated about buprenorphine and offered the opportunity to initiate buprenorphine treatment in the ED and/or to schedule a follow-up appointment with an outpatient provider. The team also helped connect patients to methadone and extended-release naltrexone prescribers, inpatient detoxification (detox), and/or other residential treatment when appropriate. During this process, patients received support from recovery coaches, who assisted with treatment decision-making and transitions, and social workers, who helped patients address health-related social needs (HRSNs). Key partners included Behavioral Health Network (BHN), which provided recovery coaches, and Mercy Recovery Services, which facilitated access to continuing medication for addiction treatment (MAT).

Program Context

The city of Springfield faces substantial structural barriers and was one of the highest-need areas among the SHIFT-Care cohort. A 2019 community health assessment identified housing as one of the most serious issues facing the catchment area, with high homelessness rates and more than one-third of Springfield residents spending over 30% of their income on housing.[1] The analysis also noted that nearly a quarter of Springfield residents relied on public transportation, which has decreased its service and raised fares in recent years, and that parts of Springfield, Holyoke, and Chicopee experience high rates of food insecurity.[1] Compared to Massachusetts as a whole, the city has a lower median income ($36,730 vs $77,378), higher Supplemental Security Income (SSI) and Supplemental Nutrition Assistance Program (SNAP) receipt (20% vs 6% and 38% vs 12%, respectively), and a higher poverty rate (29% vs 11%).[2] In addition, in a city in which 45% of residents are Hispanic and 19% are non-Hispanic Black,[3] the police force has been cited by the Department of Justice for patterns of racist bias and brutality.[4,5]

Opioid overdose deaths in Springfield nearly doubled in 2018 despite an overall decreasing trend in Massachusetts.[6,7] Preliminary data show that this leveled off in 2019 but that deaths did not decrease to earlier levels.[6] Emergency medical services (EMS) incidents related to opioids within the city increased in 2019 compared to 2018.[8] The 2019 community health assessment identified a variety of barriers to health care access in the area, including challenges navigating insurance and health care systems, limited provider availability, lack of transportation, financial barriers, need for culturally competent care, lack of care coordination, and health literacy and language barriers.[1]

Population Served

> "That does sound like our patients. We have such a great relationship with our patients that it's hard to hear them put in this light—all the things that are against them."
>
> *– Cristina Rivera, LICSW, ER STAR Clinical Program Manager*

The Mercy team validated that their SHIFT-Care patients fit the overall cohort patient population. Compared to the larger group, HRSNs and structural barriers—including poverty, racism, homelessness, having no source of food, history of incarceration, lack of health insurance, and inability to find employment—were particularly common at Mercy. Members of Mercy's SHIFT-Care team expressed concern about the prevalence of homelessness, lack of transportation, and lack of working phones among their patients, listing these as major barriers to recovery. They also reported that most of their patients are Hispanic, and estimated that about half of that group does not speak English.

Pathways and Barriers to Recovery

Pathways and barriers for Mercy patients largely align with those identified across the cohort. However, as with HRSNs, many barriers were magnified in Mercy's catchment area. In addition to the challenges posed by HRSNs themselves, lack of outpatient and residential treatment options after detox arose as notable gaps. SHIFT-Care team members also found that finding detox placements could itself be a barrier due to lack of beds and transportation. Similarly, while the team referred interested patients to therapy, they encountered a shortage of providers, long wait times, and limited Spanish-speaking clinicians. Low-threshold programs in the area were curtailed by the COVID-19 pandemic. Because Mercy's SHIFT-Care team felt strongly that patients required high-touch wraparound services to support them in their recovery, they saw these gaps in the care continuum as particularly concerning. Team members suggested that some form of intensive case management to assist with HRSNs might be valuable for helping patients achieve and sustain recovery.

> "There are so many barriers, and I know that from living it, not just reading about it. More wraparound services could mitigate things that might happen to the individuals that are seeking recovery."
>
> *– Julio Torres, CPS, Recovery Coach*

Despite these challenges, some patients successfully connected with resources outside of Mercy. BHN, certain outpatient providers, and Gándara Center—which offers a variety of treatment and drop-in programs in the area—emerged as places patients could visit and feel comfortable. Many SHIFT-Care patients did not have primary care providers (PCPs) and/or were not able to clearly explain what providers they were seeing and why, and while the team did not make a concerted effort to connect patients with PCPs, they were occasionally able to make these linkages. The Mercy ED also recently added a staff member to help connect patients with PCPs when needed. In addition, while 12-step groups such as Alcoholics Anonymous and Narcotics Anonymous could be of variable help due to lingering stigma around MAT, some patients had positive experiences with them.

Finally, while Mercy focused on providing buprenorphine as part of its SHIFT-Care program, the team was able to connect patients with providers who could prescribe extended-release buprenorphine (Sublocade) or other forms of MAT. Barriers to providing Sublocade at Mercy included the need for prior authorization and ordering the medication. In addition, team members noted that some organizations have a financial incentive to avoid long-lasting injectable medications such as Sublocade, as their business models rely on patients having frequent visits.

> "I think a lot of it often boils down to whether the clinics are for-profit or not-for-profit. We usually try to connect patients based on geographic area, but it might be worth thinking about that as well."
>
> *– Ari Kriegsman, MD, Addiction Consult Service Medical Director*

SHIFT-Care Impacts and Learnings

The impacts and learnings from Mercy's SHIFT-Care program largely echo those reflected in the cross-awardee report. While patients reported experiencing stigma in a variety of settings, including the ED, the SHIFT-Care team—including recovery coaches, social workers, and behavioral health staff—provided a compassionate and nonjudgmental space. Patients appreciated that someone took the time to reach out to them after their ED visit and at times described the team as a lifeline. Both patients and the SHIFT-Care team highly valued recovery coaches.

> "We know the value of a recovery coach. You can't take away that healing and connection, and we've seen that for ourselves."
>
> *– Cristina Rivera, LICSW, ER STAR Clinical Program Manager*

While experiences of stigma remained, SHIFT-Care team members felt that the program and particularly the presence of recovery coaches contributed to notable improvements. Team members found that once given the right tools, ED staff became more willing to take the time to assist OUD patients with recovery and more comfortable offering buprenorphine rather than only inpatient detox. They felt that additional training for ED staff and an assigned physician in the ED who could be consulted for guidance on OUD treatment would have been helpful additions to their program.

> "I've seen this change in the time I've been working here, and it has permeated all the way down to the security guards. Sometimes they're relieved that I'm there so I can help."
>
> *– Julio Torres, CPS, Recovery Coach*

As for all awardees, the COVID-19 pandemic caused substantial changes that may have affected the impacts of the SHIFT-Care program. In the early days of the pandemic, fewer patients visited the ED; later, the team saw an increase in overdoses and relapses. A number of resources became less available as shelter capacity fell, transportation options became more limited, and patients without phones struggled to connect with virtual meetings and services. The SHIFT-Care team continued seeing patients primarily in person through most of the pandemic, though telehealth options were available when needed and for ongoing treatment.

Sustainability

Mercy received a no-cost extension to its SHIFT-Care award that allowed them to continue operating through March 2021. While COVID-19's financial impact made it challenging to find the resources to sustain the program, Mercy will continue to initiate patients on MAT in the ED and is working with BHN to reserve walk-in hours at a local MAT clinic where ED patients can receive prompt follow-up. The team is investigating other grant-funded initiatives to continue the program in the future, as well as working to find ways to employ recovery coaches within the hospital. Because MassHealth requires that recovery coaches work longitudinally with patients in order to be reimbursed, the team plans to pilot a hybrid model in which recovery coaches would carry a caseload of patients while also continuing to meet patients in the ED.

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Appendix E8. North Shore Medical Center Findings, Sustainability, and Lessons Learned

Care Model Overview

North Shore Medical Center (NSMC) is part of the Mass General Brigham health system. Located in Salem, it serves the surrounding area, including the cities and towns of Salem, Lynn, Peabody, Saugus, Beverly, Rowley, Marblehead, Swampscott, and Gloucester. The hospital's SHIFT-Care program focused on engaging patients with opioid use disorder (OUD) through the emergency department (ED) and on inpatient units. A team including a recovery coach met with patients to provide education about available resources, offer initiation of medication for addiction treatment (MAT), and facilitate referral to primary care and outpatient behavioral health. One of NSMC's key partners in the program was North Shore Physicians Group (NSPG), an affiliated network of primary care practices that worked with the SHIFT-Care team and supported primary care providers to become waivered to prescribe buprenorphine. Another partner, Lynn Community Health Center, received referrals from the SHIFT-Care team and implemented expanded hours at its urgent care clinic as part of the grant.

Program Context

NSMC's catchment area was not among the most disadvantaged in the SHIFT-Care cohort, but nevertheless has pockets of poverty and populations facing substantial structural barriers. In a 2018 community health needs assessment, NSMC identified a wide range of such barriers, including gentrification and a lack of affordable housing, limited transportation, poverty, lack of job opportunities, and a growing immigrant community facing unique barriers to health and wellbeing.[1] Lynn, the largest city in NSMC's catchment area, has a lower median income ($54,598 vs $77,378), higher rates of Supplemental Security Income (SSI) and Supplemental Nutrition Assistance Program (SNAP) receipt (12% vs 6% and 28% vs 16%, respectively), and a higher poverty (17% vs 11%) rate than Massachusetts as a whole.[2] Over half of Lynn residents speak a language other than English at home.[3]

NSMC's 2018 assessment concluded that substance use disorders (SUDs), and OUD in particular, were leading health concerns in NSMC's catchment area, and that expanded treatment services were needed.[1] Alcohol use was also a prevalent issue, with some assessment participants feeling that the recent focus on opioid use diverted resources from this important area.[1] Mental health concerns such as anxiety, depression, and trauma were also common, with barriers to care including a lack of providers both overall and for MassHealth patients in particular.[1] The report also identified barriers to health care access generally, including being under- or uninsured, lack of accessible and culturally competent care, limited transportation, and barriers around language and immigration status.

Population Served

The NSMC team validated that their SHIFT-Care patients largely fit the overall cohort patient population. As at many sites, a substantial majority of patients were covered by MassHealth. Homelessness was common and a number of patients lacked working phones or accurate phone numbers on file, making it difficult to contact them. However, compared to the larger cohort, the NSMC team found that a smaller portion of their patients had spent time in jail or prison. In addition, team members who worked with patients with a range of SUDs reported that those with alcohol use disorder (AUD)—not OUD—made up a majority of their population.

Pathways and Barriers to Recovery

Pathways and barriers for NSMC patients largely echo those reflected in the cross-awardee report. As for many awardees, recovery coaches made an important difference for patients. At NSMC, this included helping connect them with wraparound services that the team understood as essential for recovery. This ability to link patients with a wide range of services was seen as an important part of the recovery coach role. At the same time, recovery coaches also made an important difference in patients' experience of care, providing a compassionate, respectful, and patient-centered approach, a stark contrast to the stigmatizing interactions commonly experienced by patients in ED. Recovery coaches' role as navigators was facilitated by the presence of recovery coaches in affiliated primary care practices and on inpatient floors, which strengthened coordination between inpatient and outpatient settings, and by assistance from other staff members within the hospital and in primary care practices.

> "When training recovery coaches, we make sure they really understand that we're not trying to fix everything ourselves. We have a lot of services that are available to us on the back end, and that makes a huge difference—we're not left alone in the wilderness to handle everything."
>
> *– Richard Zombeck, CARC, Recovery Coach Supervisor*

Despite these strengths, however, significant gaps in the treatment continuum remained. Finding inpatient detoxification placements could be challenging, and patients leaving detox faced limited options for longer-term treatment. Some staff members perceived a need for more resources for patients dealing with mental health conditions and trauma histories. Health-related social needs (HRSNs) such as homelessness and poverty posed barriers to recovery, as did stigma both in health care settings and society at large. In addition, despite the team's attention to care coordination and wraparound services, communication with partners was sometimes difficult. The team saw community health centers in particular as difficult to collaborate with, perhaps due in part to limited resources and staff turnover.

> "So many people interact with patients from the minute they walk in until the minute they're discharged. Even if nine out of ten don't come across as stigmatizing, it's the one who they remember. We need to do better at every point along the way."
>
> *– Natasha David-Hays, LICSW, LADC1, Clinical Director of Substance Use Services*

In addition, the SHIFT-Care team had mixed opinions on the value of engaging patients in the ED. Many believed that this setting provided an important window of opportunity, particularly as NSMC did not have a bridge clinic during the grant. However, there was also a sense that ED providers were more apt to prioritize patients' emergent medical issues than OUD treatment. Moreover, the ED environment and fact that patients were often in crisis made the ED setting a more difficult time to build relationships, and working with patients in the ED left recovery coaches little time to conduct follow-up with patients they had previously engaged.

> "Following up with patients later seems to have a better result than meeting them in the ED when they're in full-on withdrawal and there's all this stuff going on around them. The ED's a pretty stressful place."
>
> *– Richard Zombeck, CARC, Recovery Coach Supervisor*

SHIFT-Care Impacts and Learnings

The impacts and learnings from NSMC's SHIFT-Care program largely align with those identified across the cohort. As mentioned above, recovery coaches were identified as helpful both for providing support to patients and linking them with a range of services, so much so that the team felt that recovery coaches were one of the most valuable elements of the program. The team also credited recovery coaches' presence in the ED as helping to shift providers' approaches to OUD: while recovery coaches at

> "I would say stigma's an area where we've made a really positive impact. The overall reduction in stigma is part of the building block that's allowing us to expand our SUD program."
> *– Tina McLoughlin, Community Benefits Manager*

first identified patients and reached out to their care teams, ED providers eventually began to proactively contact recovery coaches for assistance. This change was also seen as corresponding with a decrease in stigma. Though patients across all awardees reported experiences of stigma in the ED and the NSMC team acknowledged that more work remained to be done, they nevertheless believed that SHIFT-Care made important progress in this area and created more openness to continuing SUD care efforts within the hospital.

An additional lesson that the NSMC SHIFT-Care team reported was the importance of compassionate care for patients with SUDs, particularly when those patients were experiencing a crisis that brought them to the ED. Working with patients to find a way forward that fit with their preferences and priorities, rather than assuming that MAT with buprenorphine would be a universal solution, was also mentioned as an important learning.

Finally, as for all awardees, the COVID-19 pandemic caused substantial changes that may have affected the impacts of the SHIFT-Care program. Recovery coaches began working remotely, which some team members felt made OUD treatment less of a priority for ED providers and prevented recovery coaches from proactively intervening. In addition, reliance on telephonic and virtual communication made it more difficult to connect with patients without working phones. However, the NSMC team also noted positive impacts of remote work: following up with patients after their ED visits appeared to be more successful than attempting to engage them at the time of their ED visit, and recovery coaches had more time to spend on follow-up rather than attending to immediate needs. This differs from the experience of some other awardees, who found that virtual outreach was less effective for reaching and building relationships with patients.

Sustainability

NSMC's SHIFT-Care program is continuing and expanding under a grant from the HEALing Communities Study. Recovery coaches will continue, and NSMC also plans to explore options for a more sustainable way to fund these services in the long-term. In addition, NSMC is adding a bridge clinic, believing that having the ability to provide a warm handoff rather than a referral from the ED will improve engagement rates. They are also adding an addictions consult team—consisting of an addiction psychiatry physician, an addiction nurse practitioner, and a social worker—that will provide consultation to ED and inpatient providers. The team perceived SHIFT-Care as having provided an important foundation for these efforts, creating awareness, momentum, and learnings that made these changes possible.

> "Even though I don't feel that we provided a lot of Suboxone, I think that we got those conversations started within the establishment and started a momentum for things to move forward. I think that's been really helpful."
> *– Deidra Smith-Horton, LICSW, Behavioral Health Program Manager*

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Appendix E9. UMass Memorial Medical Center Findings, Sustainability, and Lessons Learned

Care Model Overview

UMass Memorial Medical Center (UMass), part of the UMass Memorial Health Care system, is an academic medical center located in Worcester and serving the surrounding region. The hospital's SHIFT-Care program focused on engaging patients with opioid use disorder (OUD) through the emergency department (ED) and connecting them with direct treatment, referral, and education about community-based services and resources. The program included efforts to strengthen relationships with community partners in order to facilitate referral, follow-up, and retention in outpatient recovery. SHIFT-Care funding supported the creation and provision of bridge clinic services, recovery coaches, and initiation of medication for addiction treatment (MAT) for eligible patients.

Program Context

The city of Worcester faces substantial health-related social needs (HRSNs) and structural barriers. A 2018 community health assessment of Greater Worcester concluded that poverty is one of the leading health-related issues in the area, along with impacts of discrimination and racism.[1] Housing was specifically highlighted as a key challenge, with the area facing a lack of affordable housing and rising rates of homelessness.[1] Other areas of concern noted in the report included domestic violence and child abuse, transportation barriers, limited job opportunities, and pockets of food insecurity.[1] Compared to Massachusetts as a whole, the city of Worcester has a lower median income ($46,407 vs $77,378), higher rates of Supplemental Security Income (SSI) and Supplemental Nutrition Assistance Program (SNAP) receipt (11% vs 6% and 22% vs 12%, respectively), and a higher poverty rate (21% vs 11%).[2]

Opioid overdose deaths in Worcester increased in 2018 despite an overall decreasing trend in Massachusetts.[3] Preliminary data for 2019 are mixed, showing a decrease in such deaths among Worcester residents but an increase in those occurring in the city.[4] However, emergency medical services (EMS) incidents related to opioids fell in 2019.[5] The 2018 community health assessment identified mental health and substance use as leading issues and noted that patients struggled to access services due to limited providers and lack of options for uninsured and MassHealth patients.[1] Other barriers to overall health care access included cost, transportation, cultural and linguistic barriers, and lack of accessible and culturally competent services for patients with disabilities.[1]

Population Served

The UMass team validated that their SHIFT-Care patients fit the overall cohort patient population. As for many awardees, a large majority of patients had MassHealth insurance, exceeding the rate of MassHealth coverage in Worcester overall. Homelessness and having no source of food were common issues for patients, along with barriers such as lack of working phones, transportation, and identification documents needed for admission to most detoxification and treatment programs. In addition, as for most awardees, a large portion of patients had mental health comorbidities and experienced early and persistent trauma.

> "We miss a lot of people simply because they bypass big institutions like UMass. Addiction crosses economic levels, but the population we see is mostly Medicaid."
>
> *– Peter Dezso, LICSW, LADC, Addiction Psychiatry Team Program Manager*

Pathways and Barriers to Recovery

Pathways and barriers for UMass patients largely echo those reflected in the cross-awardee report. As for other awardees whose SHIFT-Care programs included admitted patients, inpatient settings provided a valuable opportunity to engage patients in considering substance use disorder (SUD) treatment and recovery. However, like other awardees, the UMass team reported substantial gaps in the care

continuum. Finding an inpatient detox bed could be a lengthy process, and patients exiting detox faced a lack of options for longer-term treatment. Team members also expressed the view that options available to patients with MassHealth were of lower quality than those available to the commercially insured, and felt that finding appropriate treatment for patients with co-occurring mental health conditions was often more difficult. Overall, team members emphasized the importance of wraparound services to support patients in recovery, but felt that existing services were insufficient to meet the need. Specific services mentioned included assistance with HRSNs, mental health treatment, social support, and training in practical life skills.

> "It's important to have capacity in the ED to do medication initiation, but as a public health initiative this was less robust than hoped. Patients want to get out of there, patients Narcan'ed in the field don't want to come in, and busy ED physicians remain focused on addressing presenting problems, not addressing additional risks."
>
> *– Alan Brown, MD, Vice Chair, Integrated Care and Population Health*

In addition, like some other awardees, the UMass team questioned whether the ED was an effective setting to engage patients with OUD. On one hand, team members saw the ED as a good backup for patients not engaged elsewhere and felt that having the capacity to initiate MAT in the ED was important. However, they also felt that both ED patients and physicians had other priorities that made the ED a difficult setting to discuss recovery. In a busy department with many rotating staff, prioritization of OUD treatment was sometimes a challenge, and physicians often focused on emergent medical issues and moving patients quickly. Patients, in turn, often came to the ED out of necessity and wanted to leave as soon as possible; many were not seeking or ready for recovery. As a result, fewer patients than expected initiated MAT or were referred to the bridge clinic. In addition, finding detox placements for appropriate patients was more difficult from the ED than from other settings.

SHIFT-Care Impacts and Learnings

> "Battling the stigma of this whole disease, it's just a great benefit to have the work that we're doing open and available in the hospital setting. Just existing in the hospital is a great benefit in breaking down stigma."
>
> *– Brian Tveliajr, Recovery Coach*

Many of the impacts and learnings from UMass's SHIFT-Care program align with those identified across the cohort. Team members noted that many more ED providers became X-waivered- and that having bridging services helped physicians feel more comfortable prescribing buprenorphine. They also felt that their team—composed of recovery coaches, social workers, advanced practice providers, and physicians—brought complementary expertise that allowed them to provide individualized, patient-centered, cost-effective treatment. In addition, SHIFT-Care facilitated an expansion of services for inpatients with OUD, which increased patient identification, expanded the hospital's use of MAT and withdrawal management, and helped foster a stronger emphasis on care coordination as part of hospital-wide efforts to reduce readmission rates. Team members also noted the positive impact of SHIFT-Care on education for medical students, nurses, and other providers.

> "When I'm not able to get a recovery coach to meet with a patient and I only give them a card, it doesn't seem like enough. It would be helpful to have more of them."
>
> *– Nina Vallirajan, MBBS, ED Behavioral Health Clinician*

In addition, while patients across all awardees continued to report experiences of stigma in the ED, team members believed that SHIFT-Care and previous SUD work contributed to substantial improvements in this area. Recovery coaches were an important part of this process, both for their importance to patients and their impact on hospital culture. While the team described some challenges integrating recovery coaches into the bureaucratic environment of the hospital, these lessened over time as recovery coaches were incorporated in similar ways to staff performing other care coordination roles. Other staff members came to be more aware and appreciative of recovery coaches over time, often seeking them out to work with patients. However, some SHIFT-Care team members cautioned that recovery coaches could not solve all the problems associated with a flawed system of care.

> "At the end of the day, recovery coaches do end up being in a very difficult position just like the rest of us. Their options to help the patient navigate the system are very limited."
>
> *– Peter Dezso, LICSW, LADC, Addiction Psychiatry Team Program Manager*

Another important lesson learned for the UMass SHIFT-Care team was the importance of having SUD staff in the ED in future iterations of the program. The team found that relying on busy and rotating ED providers was not a reliable way to identify patients. While working with mental health clinicians stationed in the ED was more successful, these teams focused primarily on patients with co-occurring mental health concerns. SHIFT-Care team members therefore recommended that future programs co-locate recovery services in the ED in order to facilitate patient identification and engagement.

Finally, as for all awardees, the COVID-19 pandemic caused substantial changes that may have affected the program's impacts. Team members reported that fewer patients visited the ED and that reaching and connecting with patients virtually was challenging, hampering engagement efforts. At the same time, more patients relapsed due to factors such as isolation and the disruption of regular meetings and sources of support. In addition, while opinions among the SHIFT-Care team differed, some believed that quality improvement efforts underway before the pandemic might have improved the program's effectiveness had they not been cut short.

Sustainability

Despite complications due to COVID-19's financial impact, the UMass SHIFT-Care team secured support from the hospital administration to continue providing bridging services with only small staffing reductions. To make this possible, the team will work with a wider range of patients in addition to those in the ED, including patients in primary care and those being discharged from the hospital. The team is also working to make recovery coach services reimbursable. The team credits the SHIFT-Care grant for helping to make this work possible, as it allowed the team to create the bridge clinic and demonstrate its feasibility and impact to hospital leadership.

> "Getting the bridging construct piloted so hospital leadership could see it in action and support it was really a positive impact."
>
> *– Alan Brown, MD, Vice Chair, Integrated Care and Population Health*

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Appendix F:
Quantitative Methodology

Introduction

This appendix describes the approach and methods for the quantitative elements of the SHIFT-Care evaluation. The quantitative approach builds on the evaluation design provided by the HPC to examine the implementation, impact, and sustainability of SHIFT-Care in nine awardee hospitals. The aim of the quantitative portion of the SHIFT-Care analysis was to analyze the impact of SHIFT-Care across the nine awardees.

Quantitative Evaluation Questions

The quantitative evaluation goal was to answer the questions outlined by the HPC and listed in Table 1. Sub-questions regarding how initiation and engagement rates varied by patient characteristics were developed through discussion between HPC and the evaluation team.

Table 1. Quantitative evaluation questions

Evaluation Question	Data source
Q2. Was initiation and engagement in treatment increased? a) How did initiation and engagement rates vary by patient demographic characteristics? b) How did initiation and engagement rates vary by patient severity and health-related need?	Hospital and community partner data
Q3. Was ED utilization decreased?	Hospital data
Q4. Was all-cause mortality decreased?	Hospital and MA Dept. of Public Health data
Q5. Was overdose (lethal and non-lethal) decreased?	Hospital data

Intervention Approach and Population Served

Each awardee developed its own approach for SHIFT-Care; the care models are described in Appendix A. All focused on expanding access to MAT in the ED but were allowed flexibility in developing the intervention. In order to fit seamlessly into each hospital's ED flow and to reach as many people as possible, SHIFT-Care was designed to be available to most people with OUD. Individuals under 18 and over 64 were excluded from the evaluation, but hospitals may have provided SHIFT-Care services to individuals in these age groups.

To ensure the approach was clinically appropriate and awardees would be able to track patient engagement in the community, individuals who met any of the following criteria were excluded from SHIFT-Care:

- Currently enrolled in office-based opioid agonist treatment (OBOT)
- Currently receiving OUD medication (buprenorphine, methadone, naltrexone)
- Transferred from the ED to another facility (e.g., acute care hospital, rehabilitation or long-term care facility, residential substance use treatment)
- Died in the hospital
- Stayed in the hospital longer than 7 days

Some awardees employed additional exclusions:

- AG/BH: Patients with serious mental or physical health comorbidities and pregnant patients (treated separately)
- HMC: Patients critically ill, unable to communicate due to dementia or psychosis, suicidal, or in police custody
- LGH: Patients admitted to the hospital

- Mercy: Patients with serious comorbidities, dementia, or pregnancy
- MGH: Patients who did not have an MGH primary care provider or who were not treated at the Barbara McInnis House or the Bridge Clinic
- NSMC: Patients with acute/chronic pain requiring opioid management or an advanced psychiatric illness requiring higher levels of care and patients on central nervous system depressants
- UMass: Patients admitted to the hospital and patients with medical or psychiatric contraindications

Approach to Data Collection and Analysis

The metrics listed in Table 2 were used to measure SHIFT-Care activity and impact. The quantitative team developed detailed measure definitions (Appendix B) and guidance for summarizing and submitting data. Awardees established relationships with community partners where they connected patients following ED visits and developed systems for collaborating with community partners to obtain information on patient engagement in community treatment.

Awardees collected and tabulated the data using individual approaches that worked with available hospital data systems. Most measures were calculated by the awardees using their own hospital data. Engagement measures used hospital data and information that hospitals obtained from community partners. All-cause mortality was calculated by the awardees using their own data and Massachusetts Department of Public Health mortality data. As the program and larger environment evolved, quantitative questions were added, such as regarding the use of telehealth for initiation during COVID-19.

Measures were calculated on a monthly or six-month basis, and submitted by each hospital to the evaluators on a quarterly basis using a secure data transfer portal. Most data were collected for the period from January 2019 to September 2020. The long-term engagement and outcome measures were collected for eligible visits that occurred through May 2020 to allow for a six-month period following the ED visits.

Table 2. Measures included in quantitative analysis

Measure	Description	Source
Eligible ED visits	Count of all ED visits eligible for SHIFT-Care	Hospital data
MAT initiation	SHIFT-Care eligible ED visits with OUD medication initiation within 72 hours of SHIFT-Care identification	EMR
30-day engagement	Percent of patients who started medication treatment through SHIFT-Care and remained in outpatient treatment after 30 days	EMR and community partners
Engagement in outpatient treatment at 60, 90, 120, and 180 days following medication initiation	Percent of ED visits that resulted in patient engagement in follow-up care at each point in time	EMR and community partners
30-day ED revisit	SHIFT-Care eligible visits followed by another ED visit within 30 days	EMR
ED visits	ED visits per person in the six months following SHIFT-Care identification	EMR
Hospitalizations	Hospitalizations per person in the six months following SHIFT-Care identification	EMR
All-cause mortality	Deaths (all-cause) in the six months following SHIFT-Care identification	EMR and MA DPH data

Lethal overdose	Lethal overdoses in the six months following SHIFT-Care identification	EMR
Non-lethal overdose	Non-lethal overdoses in the six months following SHIFT-Care identification	EMR

EMR: Electronic medical record; DPH: Massachusetts Department of Public Health

A three-month period prior to SHIFT-Care implementation (January-March 2019) was used as a pre-SHIFT-Care baseline for comparison. SHIFT-Care began in April 2019 and continued through September 2020, with the following data caveats:

- Beth Israel Deaconess-Plymouth & Harrington Hospitals began the intervention on May 15, 2019, rather than April 1, 2019, and continued until November 15, 2020.
- Mercy Medical Center was unable to access data from outpatient partners for April and May 2019.
- Harrington Hospital initially implemented SHIFT-Care at the Southbridge Hospital location and expanded SHIFT-Care to a second location, Webster Hospital, in October 2019.
- Lowell General Hospital and UMass Memorial Medical Center data excluded all visits that resulted in inpatient admission.
- Massachusetts General Hospital calculated eligible SHIFT-Care visits from patients with an MGH primary care physician and patients referred to Bridge Clinic or the Barbara McInnis House.
- Because ramp-up activities varied across awardee hospitals and one hospital changed data reporting systems early in implementation, April and May 2019 data were excluded from descriptive and statistical analyses.
- The longer-term utilization and outcome measures needed a six-month run-out period, so results for those measures reflect only data for unique patients identified between June 2019 and May 2020.
- All SHIFT-Care findings should be interpreted within the larger context of efforts to address the OUD epidemic. During the SHIFT-Care intervention period, a range of stakeholders were working to address the OUD epidemic. Findings from the SHIFT-Care initiative may be affected by a combination of activities simultaneously occurring in the state. For example, the federal government directed funds to Massachusetts communities to address OUD. The HEALing Communities study targeted eight Massachusetts communities, and five of these communities included SHIFT-Care awardees (AGH/BH, BID-Plymouth, HMC, LGH, NSMC).[1] Hospitals, health plans, substance use treatment organizations, and others have programs addressing OUD as well.

Data collection generally ended in September 2020, though hospitals starting after April 2019 continued implementation to complete their full 18 months of the intervention. Those data are reflected in the individual hospital appendices (Appendix D), but the cohort analyses in this report generally reflect data through September 2020.

The quantitative evaluation team worked with each awardee to ensure data collection integrity. The team held regular calls with each awardee to answer questions and reviewed hospital data quarterly. When anomalies in the data were identified, the quantitative team followed up with awardees for clarification; awardees corrected their data as needed.

Information on patient demographic characteristics was reported by awardees using data available in hospital reporting systems. Hospitals may have different approaches to gathering demographic data and use, for example, differing race and ethnicity categories and different approaches to data collection. Since the SHIFT-Care evaluation did not engage in primary data collection, the evaluation is limited to using data elements common across all hospital systems. Therefore, the race/ethnicity variable is a combination of race and ethnicity in which awardee hospitals categorized a patient as Hispanic first and, if not Hispanic, assigned one of the other categories. The "other" race category includes those of unknown race or who are multiracial.

The quantitative analysis took an intent-to-treat approach which analyzes all patients eligible for SHIFT-Care regardless of whether they initiated medication treatment. Pre-post analyses were used to examine change over time in MAT initiation rates. The pre period consisted of the three-month period from January to March 2019 and the SHIFT-Care period was April 2019 to September 2020. Because it took time for awardees to ramp up SHIFT-Care activities and data collection, some analyses exclude the first two months of SHIFT-Care (April and May 2019). Additional analyses of differences in utilization and outcomes between those who initiated and those who did not were also conducted. Descriptive analyses were conducted across all programs. Significant differences are based on a .05 significance level. An interrupted time series analysis was used to examine changes in trends in MAT initiation and 30-day ED revisits, measures where it was possible to collect monthly data for both the pre-SHIFT-Care time period and the SHIFT-Care period. For other measures (treatment engagement, utilization, outcomes), trends over time were examined using pre-post analyses. Hospital-level findings were shared with awardees periodically for validation.

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Appendix G:
Qualitative Methodology

Introduction

This appendix details the methodology and data-gathering activities for the qualitative elements of the SHIFT-Care evaluation, which assessed the implementation, impact, and sustainability of SHIFT-Care programs in nine awardee institutions. It took a quality improvement (QI) approach aimed at improving practice rather than developing research insights. Awardees introduced and sought to learn from new strategies, modifying them when necessary to improve patient care. This differs from a research model, in which investigators often test a standardized intervention in an effort to contribute to generalizable knowledge.

Qualitative Evaluation Approach

Qualitative evaluation elements included gathering, compiling, and analyzing the insights and perspectives of patients and SHIFT-Care program staff, many of whom had lived experience of addiction. It also included extensive document and literature review and synthesis. The evaluation used initial evaluation focus questions (Table 1) as the basis for both data gathering and analysis.

Data for qualitative evaluation questions were gathered via the sources discussed above. Table 1 matches each qualitative evaluation focus question with its corresponding data source. "Providers" may include all program staff, although Brandeis did not collect formal feedback from all staff.

Table 1: Qualitative evaluation focus questions

Data Source	Qualitative Evaluation Focus Question
Patient conversations Meetings with staff members with lived experience	Q6. Do patients perceive that this program altered their patterns of accessing health care, including OUD treatment? Q7. Was patient experience improved overall?
Document review (HPC-provided data and notes from awardee meetings)	Q1. Were the planned program activities effectively implemented by the awardee? a) Did the awardee accomplish the activities described in the logic model? b) What were the challenges in implementing this model, and how were they handled? c) What adaptations did the awardee make to their original implementation plan based on rapid cycle evaluation? d) What factors contributed to successful or unsuccessful implementation? Q8. Do providers perceive that this program enabled them to provide better care? Q9. Did staff perceive this model as feasible and effective? Q10. Does the awardee institution have a plan to continue this model in whole or part?

A variety of strategies were used (Table 2) to increase the validity of this evaluation. Using multiple data sources allowed for triangulation of findings, obtaining diverse perspectives on identified themes.[1-3] This triangulation was further strengthened by the assembly of information on the contextual framework of the SHIFT-Care program and awardees' individual initiatives. This framework included an overview of OUD recovery pathway evidence-based approaches and practices that show promise, as well as a summary of the socioeconomic and OUD treatment contexts in each awardee's catchment area. In cases

where contradictory evidence arose regarding key themes, the evaluation presented this discrepant information as part of the findings.[2] In addition, after conducting data analysis, the qualitative evaluation team debriefed and validated the findings by holding meetings with the nine SHIFT-Care program teams and other hospital personnel who were involved with the program.[2,3] The purpose of these meetings was to validate the patient experience and confirm that patient conversation participants were representative of the overall SHIFT-Care patient population. Meetings also gathered providers' perspectives on patients' worldview, barriers and facilitators to recovery, and the role of the awardee's individual SHIFT-Care initiative within the recovery continuum. Following these meetings, awardee-specific validation notes were shared with each site for their review.

Table 2: Strategies used to increase validity

Strategy	Implementation
Respondent Validation/Member Checking[2-4]	• Sharing patient worldview with sites and partners • Sharing validation notes with sites for feedback and comment
Data Triangulation[1-3]	• Utilizing patient conversations, meetings with staff with lived experience, and document review • Validating patient worldview with sites and partners • Drawing connections to the wider literature and context
Transparency[2,4]	• Reporting detailed methods, including data collection activities and reason for choosing the utilized approach • Reporting contradictory evidence as part of findings

IRB/Ethics Requirements

The Brandeis University Institutional Review Board (IRB) reviewed this project and determined that, because it was a QI evaluation, it did not constitute human subjects research and could move forward without Brandeis IRB approval. The IRB and/or ethical review committees of BID-Plymouth, AGH/BH, Harrington, HMC, LGH, MGH, NSMC, and UMass concurred with this assessment, determining that the effort was QI and that formal approval was not required. The Mercy IRB agreed that this was a QI evaluation but required formal approval to proceed, which was granted on June 30, 2020. Awardees were also responsible for determining whether and how 42 CFR Part 2, the federal substance use disorder confidentiality regulations, applied to the hospital's SHIFT-Care program and the awardee's processes for obtaining patient consent for purposes of the qualitative evaluation.

Patient Conversations

The qualitative team conducted qualitative patient experience conversations with individuals identified as eligible for awardees' SHIFT-Care programs. The team met with participants until thematic saturation (assessed separately for English- and Spanish-speaking participants) was achieved.[2,3,5]

Eligibility, Recruitment, and Scheduling

Participants were patients identified as eligible for awardees' SHIFT-Care programs. These eligibility criteria varied somewhat across awardees. In addition, eligible participants were required to be aged 18 years or older, speak English or Spanish (with other languages considered per awardee needs), and be able and willing to provide consent. There were no eligibility restrictions based on gender, race, or ethnicity.

The qualitative team worked with awardees to determine the best approach to solicit patient experience. Because of the COVID-19 pandemic, all conversations were conducted by phone rather than in person. While processes varied across awardees, all followed a similar model. During the normal course of their interaction with patients, staff members of the nine awardees and/or their partner

organizations informed eligible patients about the evaluation and asked if they were willing to be contacted by an evaluator to learn more. If a patient consented, program staff typically provided that person's name and phone number to the qualitative team, who followed up to further explain the evaluation and, if the patient agreed, conduct an initial conversation. Reaching patients typically required multiple outreach attempts, averaging eight attempts per patient. A few awardees decided not to share patient contact information, instead forwarding patient calls or providing patients with the evaluation team's contact information so they could reach out themselves. Once these calls connected, the rest of the process proceeded in the same way.

Patients who agreed to an initial conversation were asked if they would like to be contacted for a follow-up conversation. At the time of the follow-up, an evaluator either called the patient back or was reconnected with the patient through the awardee team. Occasionally, patients chose to call back the evaluator with whom they had spoken.

Consent Process

This evaluation was exempt from IRB review by the Brandeis IRB and eight of the nine awardee IRBs and/or ethics committees, meaning that the qualitative evaluation team was not required to obtain written consent from these participants. The remaining IRB determined that documented informed consent was not required because participants were not being enrolled into a research study. However, each potential participant was informed about the evaluation, the importance of hearing their perspective, that whatever they shared would be kept confidential, and that they could decide to end the conversation at any time or skip any questions that they did not wish to answer.[6] Separately, awardees also determined whether written consent in compliance with 42 CFR Part 2 was required for patient names and contact information to be shared with the qualitative team.

The qualitative team offered all participants a modest gift card to a local store that did not sell cigarettes or alcohol (typically CVS, Dunkin Donuts, or Dollar Tree). This helped acknowledge participants' contribution and time and also served as an incentive to increase participation. However, participants were not required to accept the gift card.

Conducting Initial Conversations

Patient conversations focused on gathering patients' perspectives on their experience with SHIFT-Care and accessing OUD treatment. The conversations began with warm-up conversation starters.[2,6,7] Then, the qualitative evaluator presented the purpose of the evaluation, emphasizing the importance of the participant's perspective and input.[5] The patient experience conversation consisted of general open-ended topics of inquiry that began after the patient agreed to share their experience.[1-3,6] In order to ensure that topic areas addressed the intended content,[3] conversation topics and processes were tested during the first few patient meetings and adjusted accordingly. Conversations took place in both English and Spanish, to minimize exclusion criteria and the corresponding selection bias threat to validity.[8,9]

Conducting Follow-up Conversations

In order to learn more about patients' experience throughout the treatment process, the qualitative team conducted follow-up conversations with a subset of participants. Second conversations typically occurred several months after the first ones.

Meetings with Staff Members with Lived Experience

The qualitative evaluators met with staff working as recovery coaches and other staff who confidentially shared that they had lived experience with addiction. In some cases, other staff members who interacted with and provided services to eligible patients were also interested in participating, and were invited to do so as a supplementary source of information as well as to protect staff with lived

experience who did not want to disclose this history to their colleagues. The team met with participants until thematic saturation was achieved.[2,3,5]

Eligibility, Recruitment, and Scheduling

Participants were staff working as recovery coaches and other staff who confidentially shared that they had lived experience with addiction. In some cases, other staff members who interacted with and provided services to eligible patients were also included. Among people meeting these criteria, eligible participants were people of all genders, races, and ethnicities who were aged 18 years or older, spoke English, and were willing to provide consent.

Participants were identified by the nine awardees and/or their partner organizations, then contacted by the qualitative team with further information. If the individual was interested in participating after learning more, the qualitative team scheduled a meeting time to go over the details of the qualitative evaluation, including the staff member's rights as a potential participant, then conduct the meeting if approval was given. These meetings took place either by phone or on Zoom, due to the COVID-19 pandemic.

Consent Process

As for patient conversations, obtaining formal consent from participants was not required. However, each potential participant was informed about the evaluation, the importance of hearing their perspective, and their rights as a participant. The qualitative team emailed potential participants to inform them of the evaluation and determine whether they would be interested in learning more. This email was written in non-technical language and advised recipients that declining would not have any negative impacts on their role/employment status at the awardee hospital. Unlike patients, staff participants were not offered a gift card or other compensation for participating.

Conducting Staff Member Meetings

Staff member meeting topics focused on garnering staff members' perspectives on patients' experiences with SHIFT-Care. Like patient conversations, staff member meetings began with warm-up conversation starters, followed by open-ended questions on substantive topics. The meeting topics were tested during the first few meetings and adjusted accordingly. Unlike patient conversations, staff member meetings were conducted in English only.

Aggregated Attendance Table

Because of small numbers at some sites, awardee-specific numbers of patient conversations and staff member meetings are suppressed to protect participants' privacy. Instead, the below table presents total counts of conversations and meetings across the cohort.

Table 3: Aggregated attendance table

Conversation Type	Patients	Staff with Lived Experience	Other Staff	Total
Initial Conversations	48	25	10	83
Follow-up Conversations	13	0	0	13
Total	61	25	10	96

HPC Document Review

HPC staff gathered awardee perspectives concerning the following evaluation questions and contextual framework areas through awardees' quarterly program updates and regularly scheduled awardee calls:

Q1. Were the planned program activities effectively implemented by the awardee?

a) Did the awardee accomplish the activities described in the logic model?
b) What were the challenges in implementing this model, and how were they handled?
c) What adaptations did the awardee make to their original implementation plan based on rapid cycle evaluation?
d) What factors contributed to successful or unsuccessful implementation?

Q8. Do providers perceive that this program enabled them to provide better care?

Q9. Did staff perceive this model as feasible and effective?

Q10. Does the awardee institution have a plan to continue this model in whole or part?

A compilation of gathered information was shared with Brandeis at the end of the project. The qualitative evaluators reviewed these data and synthesized key themes, highlighting commonalities across awardees as well as any notable differences. The overall qualitative analysis combined this information with any awardee notes, meeting minutes, or other records Brandeis collected during the initiative. This multidimensional approach provided a more detailed view of implementation activities and increased the internal validity of the evaluation.[1-3]

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