RESEARCH REPORT

Implementing an Integrated Medication-Assisted Treatment Program at Community Health Centers

Lessons from a Pilot Project in California

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Executive Summary

In 2015, the California Health Care Foundation (CHCF) launched a pilot project to develop sustainable, integrated care models that "[knit] together […] mental health care and substance use disorder treatment with health care as a whole"[1] for patients with opioid use disorder (OUD) in the primary care setting using medication-assisted treatment (MAT). MAT involves the use of Food and Drug Administration–approved medications in combination with counseling and behavioral therapies to treat substance use disorders. The benefits of buprenorphine, which can be administered in an outpatient setting, for OUD treatment are well-documented (Clark et al., 2011; Degenhardt et al., 2009; Dunlop et al., 2017; Lawrinson et al., 2008; Mattick et al., 2014; Romelsjö et al., 2010).

CHCF funded planning and implementation grants and technical and other assistance for partnerships between several California Medicaid (Medi-Cal) plans and 10 community health centers (CHCs) and county-run safety net clinics in California. Researchers from the Urban Institute performed an evaluation of the implementation phase of the initiative to (1) identify program goals and assess program implementation experiences, (2) measure preliminary program measures, and (3) assess the potential for measuring changes in utilization and cost reductions as a result of the MAT initiative.

The evaluation team administered a web-based survey to all 10 health care provider organizations that received support under the initiative, conducted in-person site visits to four federally qualified health centers (FQHCs) that participated in the project, and attempted to obtain and analyze patient-level data for participants in the MAT programs operated by those four health centers. One significant limitation of the evaluation was that it turned out to be much more difficult than expected for health plans and the health centers to collect and share utilization and cost reduction data.

Research Findings on Implementing Team-Based Integrated MAT Programs

The four CHCs that participated in the project were selected from the 10 health care provider organizations that participated in the initiative because they were furthest along in implementing their MAT programs or had the highest potential for accessing and analyzing patient encounter and cost data. All four CHCs offer a wide range of family practice, primary care, mental or behavioral health, counseling, and dental services. They serve different communities (urban, rural, and suburban with neighboring rural communities) and vary significantly in the number of patients they serve annually (ranging from 6,000 to over 150,000 patients). As of August 2017, MAT program enrollment across the four CHCs ranged from 18 to 210 patients.

The participating CHCs went through a cultural shift to implement their team-based MAT programs supported by the technical assistance and coaching they received under the project. With respect to the shift to team-based MAT, key respondents indicated that that

- new processes and systems were needed when developing and implementing a MAT program in the primary care setting;

- providers and staff needed education and training to understand and address the fact that relapse is common and a symptom of OUD.;

- being flexible with patients with OUD was described as an essential element of a MAT program, but must be balanced against the practical needs of a health center operation; and

- although these programs share common elements, each FQHC developed a unique MAT program based on existing strengths of its organization.

We identified several facilitators for success across the four CHCs based on our case study:

- "Provider Champions" who provided leadership and support to others in the organization were critical to the development and maintenance of these MAT programs.

- The team-based approach to care, including especially the role of case managers, was essential to the success of these programs.

- Strong support from top leadership within the agency was important to MAT program success.

- Integration of mental health services into the MAT program helped contribute to success, particularly because there are significant rates of mental health comorbidities among those with OUD.

- Technical assistance, education around OUD, and peer supports were important for providers and other team members who lack significant (or sometimes any) experience treating people with OUD.

- Designated appointment slots for providers to meet with MAT patients helped support effective treatment of patients.

- Use of group meetings facilitated patient education, peer support, and case manager communication with patients, and regular provider appointments helped the CHCs implement their MAT programs.

- Use of an on-site or "near-site" pharmacy was critical to conducting on-site supervised inductions.

- It was helpful to ramp up each MAT program intentionally and carefully and not take too many patients or see MAT patients at multiple sites initially (but once systems and workflows were developed, more rapid growth was possible).

- Partnerships and relationships with external organizations, including jails, social service providers, hospitals and other medical providers were helpful for referrals, retention, and continuity of care, but were often challenging to build and maintain.

- MAT program implementation often benefitted from the use of "phases" or "tiers" to distinguish between patients requiring different levels of treatment intensity.

- Medical providers and staff often experienced great personal and professional satisfaction when they worked with patients who did well in treatment.

Finally, we also found some common challenges and barriers to success in implementing a team-based integrated MAT program in the community health center setting:

- Financial sustainability was a challenge, in part because FQHCs are reimbursed (in all state Medicaid programs, including managed care) based on prospective payment system rates for visits with certain licensed medical and mental health providers, and Medi-Cal does not reimburse FQHCs for case management, group sessions, or visits with both a medical provider and a licensed mental health provider on the same day.

- Continuity of care was a challenge for patients who lose Medi-Cal eligibility or have other changes in insurance coverage.

- Scheduling and no-shows were an ongoing challenge when working with patients with OUD.

- High attrition rates among patients were a challenge, not only for patient outcomes, but also because they impacted staff morale.

- Lack of sufficient space for appointments and group meetings was a challenge, particularly as these programs scaled up.

- Lack of provider MAT treatment capacity (i.e., enough providers with the federal buprenorphine waiver) was a challenge and required a commitment to obtain the license and participate in the MAT program.

- High staff turnover (including some provider turnover) was a challenge.

- Stigma around OUD was an ongoing challenge in the broader community and sometimes even within agencies that have strong leadership and provider support for the MAT program.

- CHCs and their health plan partners were not able to access all the encounter data needed to measure changes in health care utilization or potential cost reductions from the MAT programs.

- Many communities did not have residential treatment programs, or if they did, the programs were until recently "abstinence" programs without MAT experience. Many of these programs reportedly stigmatized patients using medications.

As part of the project, we also conducted a survey of all 10 health care provider organizations that were supported under the project. Key findings from the survey were that a variety of different approaches were taken to implement programs, and they also used a variety of different approaches to patient care in terms of screening tools and treatments offered, for example 6 of the 10 sites reported offering buprenorphine treatment for OUD. The provider organizations reported several changes as a result of the CHCF-funded initiative: new or expanded treatment for opioid dependence integrated with primary care and mental health (nine), improved patient outcomes (seven), improved quality of patient care (seven), stronger community partnerships to integrate mental health and substance use disorder treatment with primary care (seven), and reduced emergency department use (six). One of the goals of the evaluation was to assess the feasibility of determining the costs and savings related to the implementation of integrated care models that use MAT for patients with OUD at FQHCs. We found that this was limited by the burden of data collection for organizations and their Medi-Cal plan partners or their inability to provide such data. Only two of the four case-study grantee partnerships were able to provide some of the requested data. One grantee provided data for all patients and the other provided data from a random sample of 20 patients; neither could provide data related to outside service utilization (e.g., number of ED visits, hospitalizations and inpatient days). Small sample sizes and lack of access to outside encounter data limited the analysis to a descriptive study of the number of visits per patient.

Conclusion

Primary care clinics are an important component of a comprehensive system of care for OUD. There is tremendous opportunity to increase access to OUD treatment in outpatient primary care settings using buprenorphine and naltrexone as part of an integrated MAT program. According to the California Health Care Foundation's website, "integrated care" MAT programs are MAT programs "that "[knit] together […] mental health care and substance use disorder treatment with health care as a whole."[2]

California has launched several statewide initiatives to expand MAT access, relying on primary care as one access point in a broader network. This initiative, which focused on four FQHCS, demonstrated that it takes time, funding, technical assistance, training, leadership, and effort to help CHCs provide integrated MAT care, but that such efforts can be successful and help expand access to treatment for OUD.

We found that FQHCs face certain cost barriers to implementation of team-based integrated care MAT programs in Medi-Cal but also have some funding advantages that can help support team-based integrated care MAT programs, including specialized funding opportunities and experience covering case management costs through Medicaid prospective payment reimbursement rates. Although this project initially intended to test new reimbursement models, calculating program costs and determining changes in utilization proved to be too difficult for the participating CHCs and their health plans to implement, at least with available resources. Nevertheless, each health center found a way to cover the costs of the program through a variety of funding sources.

To expand access to OUD treatment, some initial investments will likely be needed to help CHCs develop an integrated MAT program and adapt that program to their own systems, work processes, staffing, and patient populations. Medicaid officials and other policymakers could also explore ways to help ensure that CHCs and other primary care providers are able to obtain adequate reimbursement to provide the full set of services needed in a team-based integrated MAT program.

Background on the Complex Care MAT Initiative

In 2015, the California Health Care Foundation (CHCF) launched a pilot project to improve outcomes and lower the cost of care for patients with opioid use disorder (OUD) and other complex care needs in the primary care setting. The initiative supported development of sustainable, integrated care models that "[knit] together […] mental health care and substance use disorder treatment with health care as a whole," [3] and that included MAT. CHCF funded planning and implementation grants and technical and other assistance for partnerships between Medi-Cal plans and community health centers (CHCs) and county-run safety net clinics in California. Researchers from the Urban Institute's Health Policy Center were asked to perform an evaluation of the implementation phase of the initiative to (1) identify program goals and assess program implementation experiences; (2) measure preliminary program measures; and (3) assess the potential for measuring program return on investment (ROI). The original evaluation request to assess the potential for measuring program ROI was later modified to address the capacity to measure changes in utilization and cost reductions.

The CHCF initiative was designed to overcome several barriers to implementing "integrated care programs," most notably the challenges of identifying and engaging patients in the program, navigating fragmented financing streams, integrating different disciplines with diverse cultures, and the lack of good data to demonstrate ROI and make the case for sustainable funding. CHCF provided planning and implementation grants to eight partnerships consisting of eight Medi-Cal health plans and 10 health care provider organizations. The 10 provider organizations included five federally qualified health centers (FQHCs) and four county-funded providers: one hospital-based system that operates several outpatient clinics, one urgent care center within a hospital, one hospital and, as an additional participant, its related outpatient primary care clinics, and one outpatient health center. In two cases, partnerships included one Medi-Cal plan and two provider organizations; in one of those partnerships, the providers were FQHCs located in different communities.

The initial purpose of the initiative was to support the establishment of new integrated care programs and the creation of financially sustainable reimbursement models, and to assess the potential for measuring program-related cost reductions in emergency department (ED) and hospital utilization and other factors related to ROI. Phase 1 of the initiative funded the partnerships to develop implementation plans for their projects. Phase 2 provided funding and technical assistance to support integrated MAT program implementation.

The initiative, originally called "Care Integration for Patients with Complex Needs," was inspired by a complex care (ambulatory intensive care unit) model developed by Dr. Corey Waller, Shelly Virva, and others at the Center for Integrative Medicine in Grand Rapids, Michigan.[4] The Center for Integrative Medicine specialized in treating high ED utilizers and pregnant patients who were taking a controlled substance, and demonstrated significant reductions in its patients' ED utilization. Dr. Waller and his colleagues also developed, negotiated, and implemented a novel, per-member per-year payment model based on a patient complexity index. Dr. Waller and his team recognized that substance use, often OUD, was a common factor among many of the highest ED utilizers and developed specific initiatives, using MAT, to address and treat OUD.

MAT involves the use of Food and Drug Administration–approved medications in combination with counseling and behavioral therapies to treat substance use disorders. Three medications are approved by the Food and Drug Administration for the treatment of OUD: buprenorphine, methadone, and naltrexone. For people with OUD, buprenorphine and methadone reduce cravings and other withdrawal symptoms and block the effects of other opioids ; naltrexone stops the activity of opioids and blocks the effects of using either opioids or alcohol (SAMHSA 2009). Because methadone cannot be dispensed outside of a certified opioid treatment program,[5] the integrated MAT programs in the initiative used buprenorphine and naltrexone.

The benefits of buprenorphine for OUD treatment are well documented. Outcomes include decreased mortality (Degenhardt et al. 2009; Schwartz et al. 2013; Sordo et al. 2017), reduced morbidity (Romelsjö et al. 2010) including reduced HIV and hepatitis C infection (Lawrinson et al. 2008; Tsui et al. 2014), increased retention in OUD treatment (Mattick et al. 2014), decreased relapse events such as hospitalizations and emergency department visits (Clark et al. 2011), and reduced involvement with the justice system (Dunlop et al. 2017). Naltrexone has been effective with highly motivated patients (Schuckit 2016). Under the Drug Addiction Treatment Act of 2000 (DATA 2000), physicians, nurse practitioners and physician assistants must obtain a waiver to prescribe buprenorphine for OUD treatment. Prescribers have a 30-patient limit, though physicians can apply to increase their waiver limit to 100 or 275.[6]

CHCF partnered with Dr. Waller and Ms. Virva to design and launch the planning phase of its own MAT-based complex care initiative. In 2016, Dr. Waller and Ms. Virva joined the New Jersey-based National Center for Complex Health and Social Needs, launched by the Camden Coalition of Healthcare Providers (Camden), to address patients with complex medical, psychological, and social needs.[7] CHCF then retained Camden to provide technical assistance and training support to the implementation

teams for its complex care initiative, and to manage the implementation phase of the project. Camden subsequently contracted with the Urban Institute to conduct this evaluation.

Dr. Waller served as a consultant during the initiative's planning phase and advised grantees on clinical approaches to complex patients, integrated care, and MAT program development. "At the end of the day," Dr. Waller explained, "we were trying to take the lessons learned within the walls of the Center [for Integrative Medicine] and expand that out to a number of different clinics in different cultural areas with different payment models and different payers." However, it soon became clear to Dr. Waller and his team that, "[i]n California, different counties are like different states, as far as the ways that they deal with health insurance payments, prior authorizations, etc.," which served to "[add] a pretty significant layer of complexity" to the work. It also became clear that most of the health care provider organizations in the planning group were unable to access and identify which of their own patients were high ED utilizers in local hospitals. Thus, during the implementation phase, CHCF allowed each of the 10 health care provider organizations to focus on launching or, in some cases, reorganizing and strengthening their MAT programs into integrated care models and developing their own methods for identifying patients to participate in their MAT programs. The partnerships received grants ranging from $45,000 to $50,000 to implement their MAT integrated care programs.

The Camden team provided a variety of technical assistance to the CHCF grantees through in-person conferences, monthly project management calls (with each grantee team), monthly open-invitation case conferencing calls (for all grantee teams), informational webinars and other online resource offerings, and in-person site visits by Camden staff to the participating health care provider organizations.

Methodology

The Urban Institute team designed a mixed-methods evaluation plan that included four key elements: (1) background research on the project and the participating health care provider organizations; (2) design, administration, and analysis of a web-based survey of all 10 health care provider grantees; (3) qualitative analysis (primarily through in-person site visits and some telephone interviews with program staff) of four health care provider organizations participating in the initiative; and (4) collection and analysis of quantitative data from those four health care provider organizations and their health plan partners. Camden selected four federally qualified health centers and their three health plan partners to be the primary focus of the evaluation. Camden selected those grantees that were furthest along in implementing their MAT programs and/or had the highest potential for accessing and analyzing patient

encounter and cost data. We refer throughout this paper to these four health centers as the "case-study CHCs."

BACKGROUND RESEARCH AND DOCUMENT REVIEW

As background research, the evaluation team met by telephone on several occasions with members of the Camden project management team and reviewed written materials, including each grantee's implementation plan, quarterly reports, comparative tables of all grantee organizations (prepared by Camden), and Camden staff's notes from their site visits to the four case-study CHCs.

WEB-BASED SURVEY

The Urban Institute evaluation team created and conducted a web-based survey and analyzed the responses received from the 10 provider organizations participating in the initiative. The evaluation team used the Qualtrics[8] online platform for the survey, which was intended to collect point-in-time data from each grantee regarding program design and implementation progress.

IN-PERSON SITE VISITS

The qualitative component of the evaluation was centered around site visits to the four case-study CHCs in November 2017. The evaluation team had initial telephone conversations with MAT program leadership at each of those CHCs to plan the visit and obtain preliminary information about their MAT programs and staffing. The team developed a set of interview protocols, conducted interviews of health center and MAT program leadership, medical and behavioral health providers, and other MAT team staff, transcribed and analyzed the notes from these interviews, and identified cross-site findings and lessons learned. Members of the evaluation team conducted telephone interviews with people who were not available for in-person interviews at the time of the site visits. The evaluation team conducted 24 interviews with a total of 28 respondents. After completing the site visits and preparing a summary of their cross-cutting findings, the qualitative research team also conducted interviews of Dr. Waller and Ms. Virva.

QUANTITATIVE ANALYSIS OF IN-DEPTH PATIENT-LEVEL DATA

Members of the Urban Institute evaluation team also assessed patient-level program data from the four case-study CHCs. We requested quarterly counts for specific outcome measures for each MAT patient for 10 quarters (quarter 4, 2015 through quarter 4, 2017). For each patient, we asked for the gender, age, starting quarter for buprenorphine (if applicable), and quarter that the patient died (if applicable). We also requested the following quarterly, patient-level data: number of outpatient clinic visits, number

of individual counseling or behavioral therapy outpatient visits, number of group counseling or behavioral therapy visits, number of buprenorphine prescriptions for opioid use disorder, number of non-MAT opioid prescriptions, number of available emergency department visits, number of hospitalizations, and number of inpatient days. The evaluation team also spoke by telephone with representatives of the case-study CHCs and their partner Medi-Cal plans to help facilitate the gathering of the quantitative data.

Limitations

Our study has several limitations. First, the purpose and design of the CHCF initiative (and of the evaluation as initially envisioned) changed over the course of the project: instead of implementing a multidisciplinary complex care model, most clinics focused on MAT integration. The original vision, implementing an integrated complex care team model (sometimes called an ambulatory intensive care unit) in a CHC, was more difficult than anticipated, so CHCF allowed the partnerships to implement MAT integration programs. Clinic workflows, staffing, and financing all created challenges for implementing the type of model Dr. Waller and Ms. Virva had developed in Michigan in an integrated health system setting and none of the health plan-partnerships were able to implement new payment models.

In addition, it proved to be much more difficult than expected for health plans to collect and share utilization and cost reduction data. In consultation with Camden and CHCF, except for the survey, our evaluation therefore focused on overall MAT program implementation by the case-study CHCs, and the possibility of measuring cost reductions from those 4 MAT programs.

We only visited four of the 10 health care provider organizations that participated as partners on grantee teams in the project. We purposefully identified and selected four organizations that were information-rich in terms of the main study questions. Although a random sampling of sites would have likely improved the generalizability of findings, the purpose of our research was to understand the sites that Camden identified as having been most successful at launching or expanding their MAT programs or those with the best potential for providing data that could be used to measure utilization and cost reductions. Although a robust analysis of implementation at the other sites would likely identify additional findings relevant to MAT program implementation (especially regarding challenges to implementation) such an analysis remains outside of the scope of the current evaluation effort. We focused solely on the CHCs selected by Camden for the qualitative research and the intensive quantitative data collection.

Another limitation to the qualitative findings is that once we began speaking with CHC staff to plan our visits, we learned that most did not distinguish between the CHCF-funded initiative (or "pilot" program) and their overall MAT programs. Thus, in consultation with Camden, we focused on implementation of those health centers' integrated MAT programs overall, not on implementation of the specific CHCF-funded project or fidelity to the implementation plans created during the planning phase of the initiative. Similarly, during the interviews, it became clear that many staff were uncertain about who was "responsible" for organizing and funding conferences, trainings, and other technical assistance related to development and growth of their MAT programs. One reason is this project was in progress as several other statewide efforts to expand MAT launched: the California Hub and Spoke System,[9] the Drug Medi-Cal Organized Delivery System,[10] new federal funding opportunities (through the Health Resources and Services Administration, or HRSA, and SAMHSA) and another CHCF-funded program, Treating Addiction in Primary Care[11] (in which 2 of the 10 clinics also participated). In addition, there were CHCF- and state-funded efforts to add MAT services in emergency department (MAT-ED Bridge[12]) and hospital (Project SHOUT[13]), both of which worked with CHCs and county clinics to coordinate care. This rich variety of programs and resources in California made it impossible for us to evaluate the impact of the specific funding and support provided solely through the CHCF-funded complex care initiative.

The quantitative analysis of patient-level in-depth data from the case-study CHCs was limited by the burden of data collection or their inability to provide such data. Only two of the four case-study grantees were able to provide the requested data. One grantee provided data for all patients; the other provided data from a random sample of 20 patients. Both sites populated select data fields, including gender, age, number of outpatient clinic and counseling visits, starting quarter of buprenorphine, and number of buprenorphine prescriptions for OUD, though the last field was dropped from analysis because one site reported prescription numbers while the other reported total pill counts. However, neither site was able to populate data fields related to outside service utilization (e.g., number of ED visits, hospitalizations and inpatient days). Small sample sizes and sites' lack of access to outside encounter data limited the analysis to a descriptive study of the number of visits per patient. Because of the higher-than-expected burden associated with data collection, we did not request any additional quarters of data (as had originally been planned), and were not able to analyze results over time. As described in more detail below, the inability or burden of collecting quantitative data limited the ability to conduct an analysis of changes in utilization or cost reductions.

We initially planned to conduct a quantitative analysis of existing quarterly site reporting template data from all 10 health care provider organization grantees. However, the analysis was not conducted

because of high levels of missing data. Instead, evaluators referenced existing quarterly site reporting template data to corroborate survey data for specific fields, such as patient enrollment numbers.

Qualitative Research Findings on Team-Based Integrated MAT Programs in Four Community Health Centers

The evaluation team visited the facilities where the four case-study CHCs operate their MAT programs. In addition to providing MAT for patients with OUD, each of them offers a wide range of family practice, primary care, mental or behavioral health, counseling, and dental services. One serves an urban community, two primarily serve rural communities, and one serves a suburban community and some neighboring rural areas. Each of the case-study CHCs operates multiple clinical sites, but has one central site where they house their MAT program, conduct initial MAT inductions, and where the lead provider and most members of the MAT team work. The case-study CHCs varied considerably in size and the overall number of patients served; the smallest serves approximately 6,000 patients and the largest serves over 150,000 patients annually.

The Design and Implementation of the MAT Programs

All four case-study CHCs implemented team-based integrated MAT programs based on a harm reduction approach to care. All four programs were staffed by at least one buprenorphine-waivered provider and at least one licensed clinical social worker or psychologist who provides therapy to MAT patients with mental illness or conducts behavioral health screenings when patients first enter the MAT program. Three of the four case-study CHCs had a full- or part-time MAT program coordinator or manager, and all four provided case management services to MAT patients. The backgrounds of the case managers varied and included registered nurses, licensed vocational nurses, alcohol or other drug counselors, and mental health case managers. They communicated regularly with patients, including by explaining the MAT program, contacting them to remind them about appointments, and determining whether they needed transportation to make their appointments. Case managers, to varying degrees, attempted to connect MAT patients with transportation, housing, and other social services in the

community. Physicians assistants, registered nurses, nurse practitioners, or licensed vocational nurses administered medication at the time of induction; in some cases, medical assistants drove patient intake (e.g., by "rooming" patients, collecting vitals, and collecting urine for urine toxicology tests). Some of the case-study CHCs employed full- or part-time data management and electronic health record specialists to perform analyses and track the progress and retention of patients enrolled in MAT.

As reflected in figure 1, as of August 2017, MAT program enrollment across the four CHCs we studied ranged from as few as 18 patients in one to as many as 210 in another. All four health centers anticipated some attrition from current program participants and all four also projected increased enrollment over the course of the next six months.

FIGURE 1

Number of Patients Participating in Four Federally Qualified Health Centers' MAT Programs for Persons with Opioid Use Disorder as of August 2017

■ Patients enrolled in the Camden-supported Complex Care/MAT pilot program during August 2017
■ Current patients expected to stay enrolled in the pilot program during the next 6-month period
■ Expected number of new patients to enroll in the pilot program during the next 6-month period
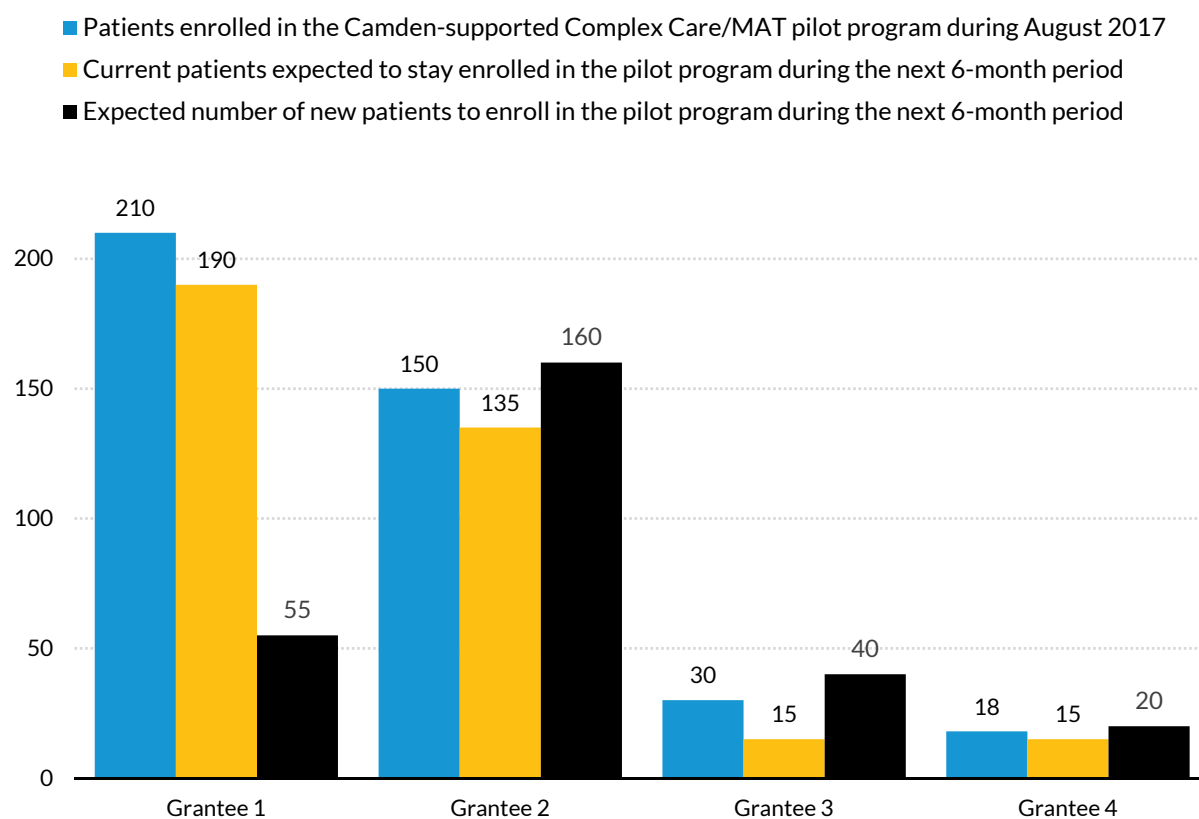
Source: Authors' analysis of the web-based survey.

In 2017, each of the four case-study CHCs were awarded $175,000 in Access Increases in Mental Health and Substance Abuse Services funding from HRSA at the US Department of Health and Human Services, for use in "supporting the expansion of access to mental health services, and substance abuse services focusing on the treatment, prevention, and awareness of opioid abuse."[14] Each leveraged that HRSA Access Increases in Mental Health and Substance Abuse Services funding, at least in part, to fund the hiring of MAT program staff, including team members whose services cannot be billed to Medi-Cal (e.g., case managers, medical assistants, alcohol and other drug counselors). One case-study CHC received a multiyear HRSA grant that helped it build its team-based MAT program. Another reported using HRSA funding for information technology infrastructure improvements in its electronic medical records system to support the delivery of MAT services for OUD. Three out of four of the case-study CHCs reported that HRSA funding was essential for their MAT service expansions, with CHCF funding and technical assistance being "in addition to" HRSA funding.

Each case-study CHC had implemented changes within their agencies prior to receiving the CHCF grants that facilitated implementation of their team-based MAT programs, although those contexts varied among the health centers. For example, two CHCs had already made significant progress integrating physical and behavioral health care services. One CHC had built its own electronic health records system, which enabled it to make MAT-specific electronic health record system changes (e.g., MAT-specific order sets that streamline processes around patient referrals and MAT-related lab orders). Another CHC established a new facility in which it now centralizes the delivery of all MAT services and houses all MAT program staff, which "brought cohesiveness to the [MAT] team." Two CHCs operated safe-prescribing-focused programs (often referred to as "Safe Rx" programs), which aimed to reduce the prescription volume of narcotic painkillers and serve as MAT referral pipelines. One grantee had long-established relationships with residential treatment providers in the area, which they used to "step up and down" the intensity of treatment for higher-intensity MAT patients.

Although one case-study CHC had no experience providing MAT for OUD before the CHCF grant award, three had physicians on staff who had waivers to prescribe MAT for OUD before they were selected to participate in the CHCF project. Not all of those physicians, however, were prescribing buprenorphine at the time the CHCF initiative began, and all four case-study CHCs developed their team-based integrated MAT programs with support and technical assistance from the CHCF grants.

Three of the four case-study CHCs required MAT patients to participate in some type of group meeting, and the fourth had plans to develop a group model. The content of these groups varied between the health centers. Buprenorphine prescription refills were often tied to attendance at group sessions, which, for this reason, had been labelled "refill groups" at one agency. One of the case-study

CHCs instituted a "pull-out" model of group meetings; patients were "pulled out" of the group setting to meet one-on-one with a waivered provider and receive their buprenorphine prescription refill. This model helped keep the group sessions financially sustainable. Although the group session could not be billed to Medi-Cal or other insurance, the one-on-one visits with buprenorphine-waivered providers were reimbursable. The group sessions also provided structure for the MAT teams who meet to discuss the patients they expected to be coming in for the group meetings and refills, to address any important clinical or behavioral issues. One CHC with particularly robust connections to residential treatment providers in the surrounding community developed agreements with one of those providers to allow its MAT patients to attend group sessions at either organization. One of the case-study grantee organizations utilized a nine-week curriculum to guide its group sessions, focusing each week on a different topic (e.g., neuroscience, nutrition, and myths and facts related to buprenorphine use). The other two CHCs that used groups operated more free-form sessions that functioned more as "patient support groups" than as opportunities to educate participants about the disease of addiction and MAT for OUD.

Two case-study CHCs used "tiers" or "phases" to delineate between patients requiring differing intensities of MAT treatment. Under such a model, a patient in a particularly intense tier might have been required to come in more frequently for medical visits, counseling, urine toxicology screenings, and/or group meetings, while patients in less intense tiers were granted more leeway in terms of program requirements. All case-study CHCs had one clinical site for their MAT programs that served as the induction site, the location for group meetings, and housed most of the MAT team members. However, some patients lived closer to other CHC facilities. Once patients were in the maintenance phase of their MAT treatment, they could receive their prescriptions from a buprenorphine-waivered provider located at one of these other clinical sites. For all of the programs, the goal was to have buprenorphine-waivered providers available at each clinical site for patients who were in the maintenance phase of treatment.

Training, Technical Assistance and Support

Staff from the four case-study CHCs reported that they received technical assistance from Camden during the implementation phase, which included monthly project management calls with each partnership team, monthly case conferencing calls with all health care provider organizations participating in the initiative, semiregular informational webinars, and other electronic resource offerings on topics related to the provision of MAT for patients with OUD. In addition, throughout the

course of both the planning and implementation grant phases, grantees were invited to attend in-person conferences, where experts presented on approaches and considerations related to addressing addiction through medication-assisted treatment. Additionally, during the implementation phase, representatives from Camden conducted in-person site visits of each of the case-study CHCs to gain familiarity with the facilities, staff, and operations of each grantee's MAT program for OUD. Staff at one of the case-study CHCs reported that Camden's in-person site visit was extremely helpful to the extent that it improved the quality of subsequent conference calls, since the Camden team had more familiarity with the clinic and its operations and could therefore tailor their advice to the situation.

Staff at all four case-study CHCs brought up and spoke highly of Dr. Corey Waller's contributions to the development of their MAT programs. Some of the physicians found his advice and coaching particularly helpful. For example, Dr. Waller helped at least one CHC shift towards a harm-reduction approach to MAT for OUD. In-person conferences were also seen as being very useful, particularly for waivered providers. Finally, Camden reportedly referred the sites to resources that prescribing providers found instrumental to their MAT-related success.

Representatives from all four case-study CHCs described the cultural shift needed to implement their team-based MAT programs and how the technical assistance and coaching helped them accomplish that shift. We repeatedly heard from staff in all four CHCs how important it was for them to understand OUD as a disease of the brain and that relapse is a condition of the disease. All four case-study CHCs had to deal with stigma of OUD and treating patients with OUD, not only in their relationships in the broader community, but even within their own organizations. The technical assistance and coaching helped all of them address these issues.

Cross-Cutting Qualitative Research Findings

The following cross-cutting qualitative research findings emerged from our site visits to the four case-study CHCs, qualitative interviews conducted with CHC staff at each site, and document review. In the following pages, we summarize three categories of findings: (1) considerations for MAT program design in a CHC setting; (2) successes and facilitators for success; and (3) challenges and barriers to success.

CONSIDERATIONS FOR MAT PROGRAM DESIGN IN A CHC SETTING

New processes and systems are needed when developing and implementing a MAT program in the primary care setting. A critical element of these MAT programs is that patients receive their primary care from the FQHC that runs the MAT program. These programs are designed to treat the whole

person rather than treating addiction in isolation from the patient's other physical and mental health care needs. But the models for treating patients within the primary care setting are different from those needed to address the complexity of patients with OUD and the unique challenges of treating addiction. Thus, new systems, processes, and workflows need to be developed. These team-based programs require significant training not only of the MAT team members but also of other clinic staff who interact with MAT patients. These MAT programs also require regular communication between team members regarding the needs of specific patients as well as how best to schedule and structure the program in the context of other demands on providers and other staff. In every case, we heard that these were challenging systems to implement operationally.

Creating a multi-disciplinary team of medical providers, mental health providers/therapists, case managers, and others (e.g., alcohol and other drug (AOD) counselors, schedulers) who receive specialized training and meet regularly was a core element of all four MAT programs. Creating a team with a program manager, trainings, and regular meetings(some to discuss specific patients and others to address workflow issues and recurring challenges) were identified as an essential element of all four programs. Regular communication between team members and coordination between providers and case managers was a shared characteristic. All of the programs also conduct regular "huddles" between providers and case managers to discuss individual patients.

Relapse is a condition of the disease and needs to be addressed in a MAT program. This came up in multiple interviews in all four case-study CHCs. Respondents described the importance of providers and staff understanding that relapse is common and a symptom of the disease. The implications include that staff need a context for understanding no-shows and high attrition rates, support for dealing with the disappointment when a patient drops out, and systems (e.g., regular outreach to patients) for addressing the possibility of relapse. This is a significant shift for providers and staff who work in the CHC setting and requires flexibility in continuing to work with patients who relapse or do not show up for scheduled appointments. Although CHCs varied in their flexibility, all recognized to some degree that it was not helpful to terminate people with OUD from the program for missing appointments or relapsing, which are symptoms of the chronic condition of addiction. Each had some system for attempting to reach patients who missed appointments and to encourage them to reschedule, but sometimes it is difficult to locate and contact them.

Being flexible with patients with OUD is an essential element of a MAT program, but must be balanced against the practical needs of a health center operation. These agencies established requirements for participating in their MAT programs, such as attending refill groups (three agencies), having a toxicology screen before obtaining a refill during the initial period of participation in the

program (four agencies), and seeing a mental health provider at least annually (one agency). But each program also had to address when and whether they would remove someone from the program if they missed appointments, failed a toxicology screen, or relapsed and returned weeks or months later. Although each agency developed its own approach to these issues, they all addressed them in their team meetings. Making appointments can be very challenging for these patients. Being late for appointments, missing appointments, and relapsing are common occurrences that do not disappear the moment someone starts MAT; accommodating these patients can help build trust and a safe environment for them to return to. But the health centers also need to run an efficient health care operation (not just accept drop-ins whenever they show up) and need to establish some boundaries and expectations with patients. Each agency needs to determine the appropriate balance and these health centers continue to review these issues over time.

Although these programs share common elements, each FQHC developed a unique MAT program based on existing strengths of its organization. Some of the differences in these programs flow from the nature of the FQHCs—their size, expertise, populations, and organizational cultures. All four programs built on existing strengths of their organizations, such as experience with integrated care, complex care, case management, or an experienced provider champion. An important lesson from this is that it may not be necessary for a CHC to have developed specific expertise before implementing a MAT program, but it should build its MAT systems on something relevant, such as a provider champion or strong case management teams, that it already does well.

SUCCESSES AND FACILITATORS FOR SUCCESS

"Provider champions" are critical to the development and maintenance of these MAT programs. Staff throughout all four case-study CHCs described the importance of their lead buprenorphine-waivered providers to the success of their programs. Leaders, not just prescribers, are key to a successful MAT program. It is not enough to ensure that at least one physician obtains a waiver to prescribe MAT. It is far more than "checking off a box." These programs all have a provider champion, someone deeply committed to the program and its patients, who did the work necessary to understand the complexities and differences in treating people with OUD and who provides leadership and support to others in the organization.

The team-based approach to care, including especially the role of case managers, is essential to the success of these programs. Because of the complexity treating persons with OUD, it is particularly important for health centers to build relationships with patients, stay connected with them, and build trust. Over and over, we heard from all types of stakeholders (including physicians) about the

importance of case managers and the relationships they build with patients as being critical to the success of the MAT programs. The importance of these team members also required each agency to be creative in how it funds those positions because their services are not reimbursed by third-party payers.

Strong support from top leadership within the agency is important to the success of a MAT program. All four agencies had leadership who strongly supported development and growth of the MAT program. Because of the stigma associated with OUD and because of the need to financially support staff in the team model who are not covered through traditional reimbursement models, such support may be essential to the success of a MAT program. A committed provider champion may not be successful without the backing of agency leadership.

Integration of mental health services into the MAT program helps contribute to success, particularly because there are significant rates of mental health co-morbidities among those with OUD. Although there were differences in the extent to which licensed mental health providers (psychologists and licensed clinical social workers) provided individual therapy to participants in these MAT programs, all four agencies conducted mental health assessments and provided mental health treatment to at least some of their MAT patients.

Technical assistance, education around OUD, and peer supports are important for providers and other team members who lack significant (or sometimes any) experience treating people with OUD. Respondents reported that the technical assistance was helpful to get around barriers and to share solutions used by other clinics and providers to solve common problems. Successful MAT program implementation may also require training of staff beyond just those on the MAT team, such as front desk workers and other ancillary staff. The case-study CHCs benefited from hands-on expert technical assistance; the in-person conferences with experts and peers and site visits were especially effective.

Designated appointment slots for providers to meet with MAT patients helps support effective treatment of patients. Although they did not start with this model, each program created time slots for MAT patients to come to the health center to see their providers, meet with their case managers, or participate in a refill group. Medical providers had designated appointment times to see both new and existing patients. The regular scheduling of refill appointments was efficient and enabled the team to conduct huddles to discuss specific patients on a regular basis.

Use of group meetings to facilitate patient education, peer support, case manager communication with patients, and regular provider appointments have helped the CHCs implement their MAT programs. Three of the four case study CHCs use group meetings in their MAT programs and found them to be successful in developing trust with patients, providing education to patients, facilitating peer

support and identifying unique challenges each may be facing. These groups are structured differently (e.g., one developed a curriculum for new MAT patients; some use tiers, others do not), but all were viewed as a successful and efficient model by providers and staff.

Using an on-site or near-site pharmacy is critical to conducting on-site supervised inductions. Each FQHC had a pharmacy either on-site or within a short walk (e.g., across the street or next door) where staff could go to fill the initial buprenorphine prescription to facilitate the supervised induction for new MAT patients; staff (not patients) obtained the initial prescription for induction. Building a relationship with a pharmacy regarding the filling of buprenorphine prescriptions was identified as an important element of a successful MAT program.

It is helpful to ramp up a MAT program intentionally and carefully and not take too many patients or see MAT patients at multiple sites initially. Once systems and workflows are developed, however, more rapid growth is possible. Providers and staff need time to learn how to treat patients with OUD, address the challenges presented when patients are no shows or relapse, and develop internal processes that best meet the patients' needs while supporting an efficient, sustainable work flow. Although there may be best practices, they still need to be adapted to a health center and its team. Members of the team learn from experience working with patients with OUD and with each other. All four agencies initially see MAT patients at one clinic for induction and the initial months of participation but either already have or plan to have providers at other clinics who can prescribe buprenorphine for patients who are in a maintenance phase of treatment. The rate of growth of the MAT programs at these CHCs, however, varied considerably and was not related to the overall size of the health center or the number of patients seen at the CHC for primary care. It is not clear why some MAT programs expanded more quickly than others and whether the desire to build the program carefully and intentionally led to unnecessarily conservative decisions related to MAT program growth.

Partnerships and relationships with external organizations, including jails, social service providers, hospitals and other medical providers are helpful for referrals, retention, and continuity of care, but can be challenging to build and maintain. The four case-study CHCs had varying degrees of relationships with external organizations. All had some relationship with local hospital EDs, although with differing degrees of cooperation (e.g., one is training providers at a local ED to induce patients, while another is struggling with stigma at a local hospital). At least two agencies were building relationships with local jails, and case managers in all programs had some knowledge of local resources for their MAT patients. Relationships with local residential treatment providers also varied.

MAT program implementation may benefit from the use of "phases" or "tiers" to distinguish between patients requiring different levels of treatment intensity. Two of the four FQHCs have structured their MAT programs in such a way that the frequency of MAT patient visits and the amount of medication prescribed at each visit is dictated by the "phase" or "tier" that each patient occupies. Structuring a MAT program in such a way allows for a greater degree of consistency in MAT provision than would otherwise be possible; however, flexibility remains important in treating this patient population, and allowing for exceptions is sometimes necessary.

Medical providers and staff often experience great personal and professional satisfaction when they work with patients who do well in treatment. Many respondents talked about patient success stories, offering examples of patients who found and held down steady jobs or were reunited with their children, and found satisfaction in their family and other personal relationships. This was particularly striking among some of the primary care physicians who had not treated people for addiction before. One physician explained: "We see people get their lives back. I've been a primary care provider for 30 years. A lot of what I do is treat diabetes and hypertension and preventive care measures. Yes, I'm having an effect on their lives, but you can see it almost immediately with this population. They're not used to having people care about their lives. You can watch them sharpen up and get their minds back and restore their relationships with friends and family." Another primary care physician in a different CHC described being reticent about treating patients with addiction, worried that they would become a burden and a source of dissatisfaction and stress, but the opposite occurred: "I think you see the biggest/quickest change in addiction, in terms of how you see peoples' lives change. It's a dramatic difference when you see a patient struggling, and, all of a sudden, now they've got a job. That's one of the biggest thing we've seen with people with addiction: people getting jobs, housing, stability, their children back, etc. It's very gratifying. I sit in some of those group meetings where people share stories. It's very inspiring. That's why I do what I do. There's nothing like it in primary care, where you see a dramatic change that's so meaningful in peoples' lives."

CHALLENGES AND BARRIERS TO SUCCESS

Financial sustainability is a challenge. These MAT programs primarily served patients covered by Medi-Cal. Any reduction in Medicaid coverage for adults could therefore impact the ability to provide care to those people. Additionally, certain MAT services, such as case management or group sessions, are not currently reimbursed by Medi-Cal outside of special programs. In Medi-Cal, FQHCs have several limitations on what is reimbursed. They receive Prospective Payment System[15] rates from Medi-Cal that are only available for a visit to a provider or licensed therapist (e.g., psychologist or licensed clinical social worker). Medi-Cal does not cover group sessions or the considerable time spent by

alcohol or other drug counselors and case managers working with patients. In addition, FQHCs cannot bill for two visits on one day; even though it may be best for a patient to see a provider and therapist the same day, the FQHC cannot bill for both visits. These FQHCs have different strategies to work around these limitations, such as requiring patients to come in on separate days for provider and therapist visits and relying on additional (non-Medi-Cal) funding to help support case managers and counselors and for training providers and staff (e.g., HRSA funding and grants). The State of California is implementing a new "Drug Medi-Cal" waiver program to promote integrated care for OUD and other substance use disorders that may reimburse providers for some of these services, but representatives of one FQHC said that participating in their county's Drug Medi-Cal program would require them to change their prospective payment system reimbursement rates for all of their patients, something that would lead to financial losses overall. Reimbursement models, such as bundled payments, don't work as well in FQHCs, which must figure out creative ways to cover the costs of the program using a combination of federal grants and Medi-Cal reimbursement.

Continuity of care is a challenge for people who lose Medi-Cal eligibility or have other changes in insurance coverage. One FQHC reported that some of the MAT patients who had stabilized were able to find jobs that did not offer health insurance but that caused them to lose their Medi-Cal coverage (and therefore their coverage for MAT treatment) because they lost their Medi-Cal income eligibility. They also reported that private insurance may not cover their MAT program services or were unaffordable for these patients. Continuity of care is thus a challenge as people move in and out of different health insurance programs or lose coverage altogether.

Scheduling and no-shows are ongoing challenges when working with patients with OUD. It is important to develop policies, processes, and work flows that help address scheduling challenges and no-shows. The strategies used by these agencies include placing reminder calls before an appointment, making follow-up calls between appointments, and building relationship between patients and case managers who stay in touch between appointments and help trouble shoot external barriers, such as transportation.

High attrition rates among patients are a challenge not only for patient outcomes but also for staff morale. Like other chronic diseases, opioid addiction is a chronic relapsing condition, and MAT programs typically experience significant attrition. Sometimes patients simply disappear—they do not show up for appointments and cannot be reached by staff. At the urging of Camden, these agencies are starting to monitor attrition rates. Some also have developed specific protocols for how often they attempt to contact patients who miss appointments and by what method (e.g., phone or mail) and for how long. When patients completely lose contact with the program or relapse, staff often experience

disappointment. Over time, high attrition rates can lead to frustration and undermine employee morale. These MAT programs provide employee supports and help staff understand that experiencing no-shows and attrition is part of treating OUD. The success stories described above also help to counter these frustrating experiences.

Lack of sufficient space for appointments and group meetings are a challenge, particularly as these programs scale up. Limited space for inductions, groups, and appointments with additional MAT providers and therapists, case managers, and other program staff is a barrier to expanding these programs.

Lack of provider capacity (enough providers with the federal buprenorphine waiver) is a challenge and requires a commitment to obtain the license and participate in the MAT program. Some providers are reluctant to treat patients with OUD. Additionally, physicians must participate in eight hours of training before they can obtain a waiver to prescribe buprenorphine. Nurse practitioners and physician assistants must complete 24 hours of training.[16] For CHCs that depend on these providers seeing patients to meet their budgets, having some funds available to cover the time needed to study for and obtain the buprenorphine waiver and to attend in-person meetings with peers engaged in MAT programs can help build their capacity to develop these programs.

High staff turnover (including some provider turnover) is a challenge. There are many factors that contribute to high turnover. It is difficult to know, for example, if this is in part because they are FQHCs and may not be able to offer competitive salaries. There also may be a burnout factor. Case managers and alcohol and other drug counselors reportedly sometimes leave to obtain more training and skills to work in the field than their current positions require. Some respondents also reported that it is difficult (at least in rural communities) to find good case managers at the salaries offered (and that the CHCs can afford to pay) in these MAT programs.

Stigma around OUD is an ongoing challenge. Even within agencies that have strong leadership and provider support for the MAT program, there is still stigma associated with addiction and opioid use. Even within these agencies, training and education of those who do not work in the MAT program helped to overcome these internal barriers. Stigma in the broader community also remains a significant challenge, especially when trying to develop partnerships and collaborations with external community partners.

CHCs are not able to access all the encounter data needed to measure changes in health care utilization or potential cost savings from the MAT programs. It takes an investment of time (which means resources) and strong relationships with third-party payers to collaborate on such an analysis. It

may not be possible (without some external funding and support for such collaborations) when multiple health plans cover patients in a health center's MAT program.

Many communities do not have residential treatment programs, or if they do, the programs until recently were "abstinence" programs with no experience with MAT, and many of these programs reportedly stigmatize patients using medications. Some patients with OUD need more intensive treatment than a primary care health center can provide. Building a relationship with a residential program that supports MAT where providers can refer patients who need daily treatment helps increase treatment options for patients. In some communities, there are no such facilities. Also, many residential addiction treatment programs are or recently have been "abstinence only" programs where MAT is not allowed. This can be a barrier to effective treatment for some patients.

Quantitative Research Findings

Survey Results: Comparative Characteristics of the 10 Participating Provider Organizations

The web-based survey was fielded to the 10 health care provider organizations with a response rate of 100 percent. The survey contained questions on program characteristics, staff, buprenorphine prescribing patterns, potential to conduct a cost analysis on utilization reductions, care provided, and provider interactions with patients. The survey was administered in November 2017 and sought data as of August 2017.

PATIENT AND STAFF FINDINGS

The patient and staff characteristics varied across the health care provider organizations. Six health care organizations had 30 MAT patients or fewer during August 2017; the other three provider organizations had over 100 patients enrolled in MAT (the 10th program, an urgent care center, did not have any patients enrolled in a specific MAT program). Across the 10 organizations, 548 total patients were enrolled in MAT programs as of August 2017. We do not have accurate baseline information about number of patients in treatment before the initiative. Nearly all provider organizations expected most of the enrolled patients to remain in MAT treatment in the subsequent six-month period, and all but two of the programs (including all MAT programs with 30 patients or fewer) expected to more than double their number of enrolled patients in the next six-month period (figure 2). Patients were of mixed racial demographics across health care provider organizations. Five organizations reported that some

patients had Hepatitis C, six organizations reported that most or some patients were homeless, and six organizations reported that some patients were on parole, probation, or were incarcerated in the previous 12 months. Additionally, six organizations reported that all or most patients had incomes below the federal poverty level.

Number of Patients by Participating Provider Organization Grantee in the California Complex Care/MAT Pilot Program

■ Patients enrolled in the Camden-supported Complex Care/MAT pilot program during August 2017
■ Current patients expected to stay enrolled in the pilot program during the next 6-month period
■ Expected number of new patients to enroll in the pilot program during the next 6-month period
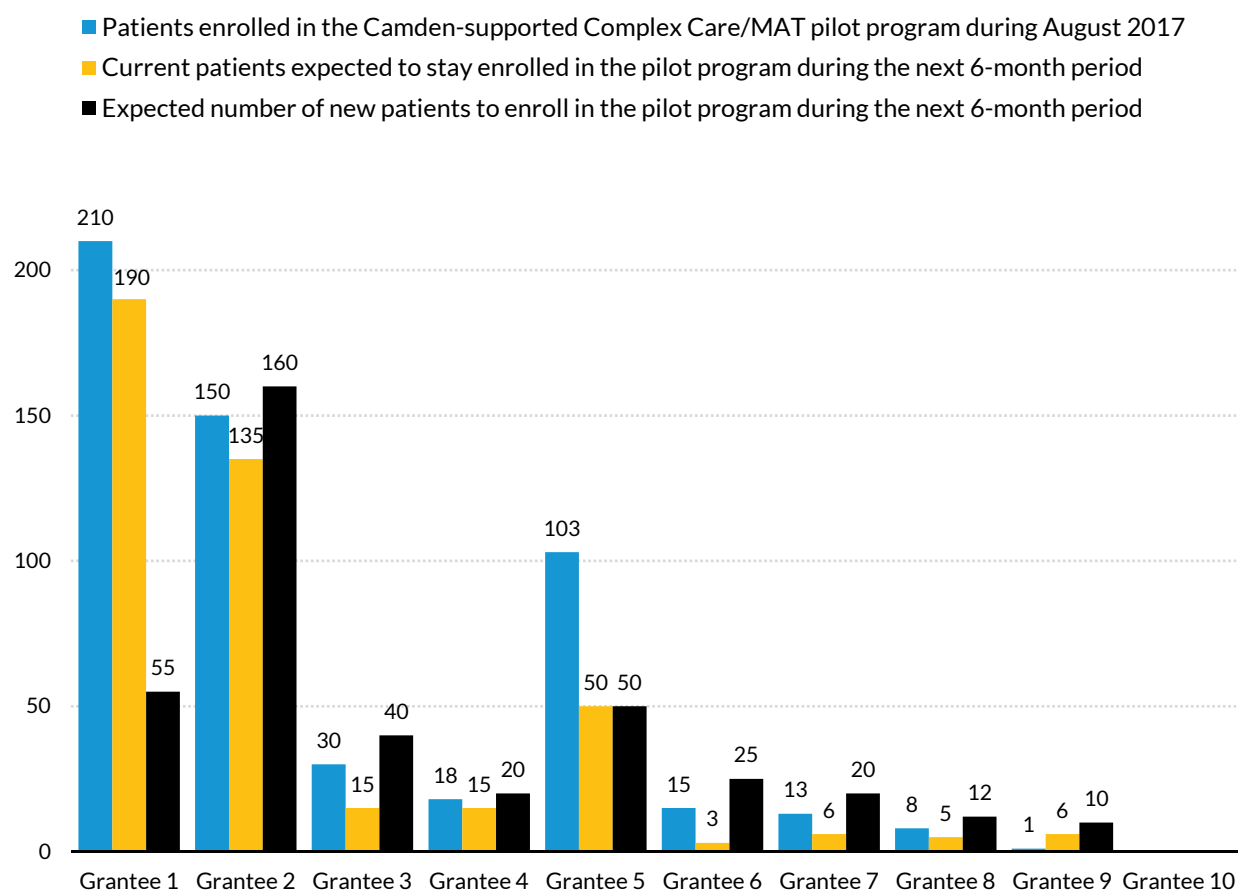
Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.
Note: Grantee 10 is missing data for all fields because they do not have any patients enrolled in a specific MAT program.

Baseline data collection of the number of buprenorphine-waivered prescribers on staff before implementation of the pilot program was limited, but a comparison of early program reports and later data collection show that approximately half of the sites had at least a part-time buprenorphine-waivered prescriber on staff before implementation. By August 2017, all sites reported having at least two buprenorphine-waivered prescribers on staff, and the sites that had reported having a prescriber

before the pilot program approximately doubled the number of waivered prescribers. Across the MAT programs, the number of prescribers with a waiver to prescribe buprenorphine ranged from 2 to 11 (figure 3), totaling 54 prescribers with a waiver to prescribe buprenorphine across the 10 grantees. Of note, the MAT programs with higher patient enrollment did not necessarily have more buprenorphine-waivered prescribers, meaning that the waived buprenorphine prescribers in the high-enrollment programs saw significantly more patients than prescribers in other programs. Although the sites with under 30 patients had a patient-to-waivered buprenorphine prescriber ratio of three to four patients per prescriber, the three provider organizations with over 100 patients had much higher ratios of 25 to 35 patients per prescriber. Nearly all provider organizations expected to add at least one new buprenorphine-waivered prescriber in the next year (appendix A). Most of the waivered buprenorphine prescribers across all provider organizations were physicians, and most waivered prescribers had a waiver limit of 30.

FIGURE 3

Number of Patients and Buprenorphine Prescribers by Participating Provider Organization Grantee in the California Complex Care/MAT Pilot Program

■ MAT patients per waivered buprenorphine prescriber
■ Number of prescribers with a waiver to prescribe buprenorphine
■ New prescribers expected to receive a waiver to prescribe buprenorphine in the next 12 months
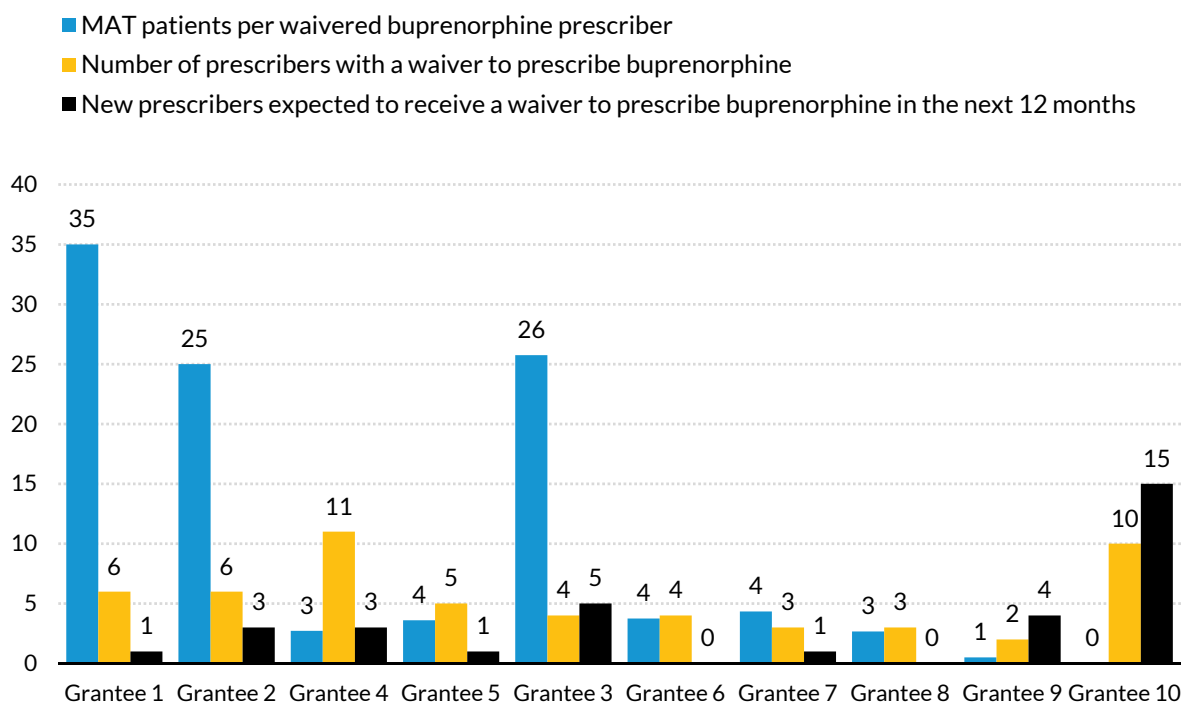
Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.
Note: Grantee 10 is missing data for the number of patients in the program because they do not have any patients enrolled in a specific MAT program. They do have buprenorphine-waivered prescribers as part of a larger program with related organizations.

To implement the pilot program, five provider organizations added new clinical staff, and four added new nonclinical staff. All provider organizations reported that issues of staff turnover and retention interfered with the workflow related to providing care to patients, with seven provider organizations responding that these issues "occasionally" interfered with providing care to patients and three provider organizations reporting that these issues "very often" interfered with providing care to patients. Provider organizations were split between listing physicians or doctoral-level counselors and midlevel clinical staff as the main point of contact for patients. Most provider organizations listed a physician as having the primary responsibility for prescription management. Other responsibilities were split between different provider types and varied by program.

HEALTH CARE PROVIDER ORGANIZATION CHARACTERISTICS

Eight of the participating health care provider organizations reported that their main clinic location had a primary focus of general health care or other integrated primary care; only two had a primary focus of substance use treatment services. Seven health care provider organizations had at least one satellite clinic location, and nearly all colocated clinical staff that focus on primary care, substance use treatment, and mental health care.

The most common goals specified by grantees, as chosen from a list of 11 options, were to reduce ED use (or "avoidable" ED use), to improve patient outcomes, to improve quality of patient care, to provide or expand integrated treatment for opioid dependence and primary and mental health care, and to strengthen community partnerships to integrate mental health, substance use disorder and primary care. The only eligibility criteria used by all provider organizations were that patients had to have opioid dependence or an OUD diagnosis; the clinics were otherwise given flexibility to choose a target population (clinics without sufficient volume of OUD patients were encouraged to broaden eligibility). Other eligibility criteria utilized by the programs for MAT included possession of a prescription for opioids (eight sites); receipt of a primary care recommendation for MAT (eight sites); and the expressed desire (i.e., by a patient) to stop using opioids or other drugs (seven sites).

Provider organizations used many different screening tools during the induction process (i.e., before a patient entering treatment; table 1), the most common being Patient Health Questionnaire 9 (PHQ9; nine sites), Generalized Anxiety Disorder-7 item (GAD 7; eight sites), and screening for Adverse Childhood Outcomes (ACEs; five sites). Most provider organizations used a screen or validated survey tool, either on its own or coupled with informal assessment, to assess the following during the induction process (table 2): illicit drug use (eight sites), stage of withdrawal (nine sites), alcohol use disorder (eight sites), and other mental health conditions (eight sites). Over half of the 10 sites also reported screening

for overall readiness for treatment, presence of chronic conditions, and history of adverse childhood events or trauma. Six sites reported that they "always," "very often," or "many times" used clinic-based induction, and four sites reported they "always," "very often," or "many times" use home-based induction. Only two sites reported that they "many times" or "occasionally" used ED-based induction.

Validated Screening Tools Utilized During the Induction Process for Patients Entering the Program for Grantees in the California Complex Care/MAT Pilot Program

Screening tool	Number of grantees (n=10)
Patient Health Questionnaire (PHQ-9)	9
Generalized Anxiety Disorder (GAD-7) screening	8
Adverse Childhood Experiences (ACEs) screening	5
Trauma history screening	4
Post-traumatic stress disorder (PTSD) screening	4
Stages of change screening	3
Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE) screening	2

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

Types of Assessments Used During the Induction Process for Patients Entering the Program for Grantees in the California Complex Care/MAT Pilot Program

Assessments	Number of Grantees (n=10)				
	Not assessed	Assessed informally	Assessed with a screen or validated survey tool	Assessed both informally and with a validated screening tool	Nonresponse
Illicit drug use	0	1	6	2	1
Stage of withdrawal	0	0	8	1	1
Level of support from family and friends	0	6	3	0	1
Overall readiness for treatment	0	3	6	0	1
Alcohol use disorder screening	0	1	7	1	1
Other mental health conditions	0	1	7	1	1
Presence of chronic conditions such as diabetes, heart disease, etc.	0	3	6	0	1
Stability of housing	0	4	4	1	1
Food security	1	3	4	1	1
Access to transportation	0	4	4	1	1
Employment status	0	7	2	0	1
History of adverse childhood events or trauma	1	2	6	0	1
Consultation with patient's other care providers	0	4	5	0	1

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

Provider organizations used a variety of MAT treatment approaches (table 3). Grantees reported using the following treatment approaches for most or all MAT patients: of the 10 sites, 6 used buprenorphine for OUD, 5 sites used substance use counseling, 6 used cognitive behavioral therapy, 9 used motivational interviewing, 7 used screening and brief intervention (e.g., SBIRT), and 5 used trauma-informed counseling. Half of the grantees reported that they never prescribed naltrexone, and only one site reported that they prescribed it "many times" (table A.6). Two provider organizations reported "always" prescribing naloxone, and three others reported "many times" or "very often" prescribing it. One provider organization never prescribed naloxone. All 10 provider organizations reported having a relationship with at least one pharmacist, and 6 of the 10 sites had a pharmacist on-site. Nine sites reported that patients occasionally had trouble filling buprenorphine prescriptions. Seven sites reported that they did not have a relationship with an opioid treatment program for methadone treatment. Nearly all provider organizations reported that patients with chronic pain on daily opioids, patients with OUD, and patients being treated with buprenorphine for OUD undergo urine toxicology screenings. Six provider organizations reported that these patients undergo urine toxicology screenings every visit.

TABLE 3

Frequency of MAT Treatment Approaches Used for Patients in the Program among Grantees in the California Complex Care/MAT Pilot Program

MAT treatment approach	Number of Grantees (n=10)				
	All patients	Most patients	Some patients	No patients	Non-response
Buprenorphine for opioid use disorder	2	4	3	1	0
Substance use counseling	3	2	3	1	1
Support groups	2	1	3	2	2
Cognitive behavioral therapy	3	3	2	1	1
Motivational interviewing	5	4	0	0	1
Anger management	0	0	4	4	2
Screening and brief intervention (e.g., SBIRT)	5	2	1	1	1
12-step program	0	1	5	2	2
Trauma-informed counseling	3	2	3	1	1
Contingency management/motivational incentives	1	2	2	3	2

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

The provider organizations reported a variety of changes as a result of the Camden-supported initiative (table 4). These include new or expanded treatment for opioid dependence integrated with primary care and mental health (nine provider organizations), improved patient outcomes (seven

provider organizations), improved quality of patient care (seven provider organizations), stronger community partnerships to strive to integrate mental health, substance use disorder and primary care treatment (seven provider organizations), and reduced emergency department use (six provider organizations). Most provider organizations reported that their clinicians and frontline, nonclinical staff favored incorporating buprenorphine into treatment for appropriate patients with OUD. Additionally, most provider organizations reported that clinicians favored engaging in the complex care integration program.

Provider organizations reported that the main factors that would increase their likelihood of hiring an additional buprenorphine-waivered prescriber were financial assistance for obtaining a waiver (seven provider organizations), being paired with an experienced prescriber (five provider organizations), and more Continuing Medical Education courses on this topic (five provider organizations). All provider organizations reported that they receive Medi-Cal reimbursement for MAT patient services. Most also receive Medicare reimbursement, and some receive reimbursement from private insurance, cash or patient self-pay, and other sources. Most provider organizations report that they do not anticipate changes in funding sources over the next 12 months. All provider organizations report that they plan to continue to provide the new services and procedures developed and implemented in the Complex Care/MAT pilot program over the next two to three years.

TABLE 4

Impact and Changes Due to the Camden-Supported Pilot Program for Grantees in the California Complex Care/MAT Pilot Program

Measure	Number of Grantees (n=10)
Areas in which staff increased expertise and knowledge	
Ways to improve interactions with patients that are opioid dependent	8
Increased knowledge of treatments for opioid dependence	9
Ways to integrate primary care and mental health care	7
Ways to identify complex patients	5
Knowledge about payment models to support new care or care delivery systems	2
Ways to improve patient's access to social service needs (housing, transportation, etc.)	3
Ways to improve interactions with community partner in mental health, substance use disorder and primary care treatment	5
Ways to improve communication across provider/facility types (e.g., communication with ED)	5
Ways in which clinicians learn from peers about treating complex patients	
Mentoring from a clinic provider	8
Mentoring from an off-site provider	2
Learning networks	6
PCSS-MAT (provides physician training and access to a national network of experts in MAT)	3
Project ECHO	4

Changes in cost or use of health care services	
Reduced cost of care	3
Reduced emergency department use or avoidable emergency department use	6
Reduced costs associated with inpatient utilization	2
Increased primary care utilization	5
None/not applicable	2
Changes in care, care delivery, and systems	
Improved patient outcomes	7
Improved quality of patient care	7
New or expanded treatment for opioid dependence integrated with primary care and mental health	9
Methodology developed to identify complex patients who are high-utilizers of care	4
Payment models developed to support new care or care delivery systems	1
Improved patient access to social service needs (housing, transportation, etc.)	3
Community partnerships strengthened to strive to integrate mental health, substance use disorder and primary care treatment	7
Improved communication across provider/facility types (e.g., communication with ED)	4

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

FEASIBILITY OF COST AND UTILIZATION ANALYSIS

One of the goals of this evaluation was to assess the feasibility of determining and analyzing the costs and savings related to the interventions or at least of understanding their impact on utilization. This would involve systematic collection, categorization, and analysis of a variety of intervention costs and of the estimated savings that can be attributed to the intervention. The provider organizations reported some ability to identify costs of individual categories specifically related to the Camden-supported Complex Care/MAT pilot program; very few could identify costs for multiple states of implementation across cost categories (table 5). Most sites reported the ability to track at least the ongoing operation, monitoring, and maintenance costs related to personnel, office and medical supplies, and training costs, but most could not capture other costs, such as those related to information systems and outreach and communication, and many could not capture costs related to implementation stages, such as planning and development.

The more difficult obstacle in understanding the program impact on cost and utilization is the lack of access to data—none of the clinics and plans had worked out consistent, reliable ways to share utilization data to identify and follow a target population of patients across health plans or to compare it to valid comparison groups, and thus an ROI analysis cannot be conducted. As seen in table 6, few of the 10 provider organizations reported the ability to access encounter data for all patients for categories other than individual reports in the Controlled Substance Utilization Review and Evaluation System, California's prescription drug monitoring program. The organizations with access to ED, urgent care, and hospitalization data appear to be largely limited to grantees in integrated county delivery systems (data not shown). In addition, one provider reported access to all psychiatric inpatient encounters, two

have access to prescription fills, six have access to physical health outpatient visits, and three have access to behavioral health outpatient visits. No provider has access to cost data for all categories of care. One provider worked with a payer to produce a sophisticated analysis of the impact of the intervention on health care cost, a substantial undertaking.

TABLE 5

Ability to Measure Costs Incurred at Different Stages of Implementing the Camden-Supported Complex Care/MAT Pilot Program for Grantees in the California Complex Care/MAT Pilot Program

Cost category	Ability to Measure Each Stage of Implementation (n=10)					
	Planning and development	Training stage	Startup	Ongoing operation, monitoring, and maintenance	Shutdown	Nonresponse
Personnel	4	5	5	6	2	3
Office and medical supplies	4	4	4	6	2	3
Medical equipment	2	1	2	2	0	6
Training costs	6	6	4	6	1	2
Information systems	3	3	4	2	1	5
Outreach and communication	3	2	2	2	1	6
External consultant costs	3	3	3	2	0	5

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

Overall, because of limited collection of program intervention costs and very limited access to health cost and encounter data, an ROI analysis is not likely to be feasible for these health care provider organizations at this point. To complete an ROI, the provider organizations would need to be able to identify a breakdown of cost data by cost category and stage of implementation (as specified in table 4), and payers would need to be engaged in analyzing administrative data including encounter and cost data by service utilization and outcome category (as specified in table 6), for the intervention group and a nonintervention comparison group. A comparison group is an essential part of rigorous evaluations that do not rely on a randomized controlled trial; comparison groups permit the estimation of cost and service use outcomes that would have occurred in the absence of the intervention. Given that the target population for this intervention has highly variable costs, is likely to have episodes of high and low health care costs even in the absence of intervention, and is the subject of many simultaneous policy changes, there is potential for spurious relationships to be identified in analyses that do not control for potentially confounding factors.

TABLE 6
Access to Encounter Data for Grantees in the California Complex Care/MAT Pilot Program

| Encounter data category	Number of Grantees (n=10)			
	Access to all encounter data for all patients	Access to all encounter data for most patients	No access to encounter data	Non-response
ED	3	4	2	1
Urgent care	4	2	3	1
Inpatient	4	3	2	1
Psychiatric inpatient	1	4	4	1
Prescription fills or claims	2	6	1	1
Physical health outpatient visits	6	2	1	1
Behavioral health outpatient visits	3	2	4	1
CURES	8	2	0	0

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

Exploratory Analysis of Program Data from Two Pilot Sites

The two case-study CHCs that provided some in-depth program data were able to share information on patient demographics, types of visits, prevalence of buprenorphine receipt, and average number of visits provided per patient (table 7). Patients from Site A (n=78, complete patient data) were split almost evenly between the genders with a greater share of younger patients. Estimates for Site B (n=20, sample of patients) may be imprecise because of small sample sizes, but the site appears to have had a higher share of female patients and older patients and a higher share who received buprenorphine in at least one quarter because their MAT program is specifically for patients on buprenorphine. Site A has an MAT program that includes patients who are not on buprenorphine; as such, only 60 percent of patients there received buprenorphine in at least one quarter. All patients in both provider organizations appear to have attended at least one outpatient visit. Only one-third of patients in Site A attended an individual counseling visit, and 1 percent attended a group counseling visit.

We analyzed the average number of visits per patient per quarter, centering patients by their buprenorphine start quarter or, for patients who never started buprenorphine from Site A, by their program start quarter. For buprenorphine patients, the maximum average number of visits per patient per quarter for outpatient, counseling, and group counseling visits occurred in the buprenorphine start quarter or the following quarter. The average number of visits per patient per quarter for the three types of visits decreased in the subsequent five quarters. The drop in average visits for buprenorphine patients may be caused by patients skipping their visits, but it could also reflect that patients became more stable and did not need as frequent visits. Small sample sizes may lead to imprecision around the estimates. For a description of further analysis, see appendix B.

TABLE 7

Demographics and Services Received by Patients from Two Pilot Sites that Provided In-Depth Program Data, March 2018

	Site A (complete patient data) n=76		Site B (sample of patients) n=20		Total n=96	
	n	%	n	%	n	%
Gender						
Female	35	46.1	13	65.0	48	50.0
Male	41	54.0	7	35.0	48	50.0
Age						
20–34	28	40.6	5	25.0	33	37.1
35–49	24	34.8	6	30.0	30	33.7
50–64	15	21.7	7	35.0	22	24.7
65+	2	2.9	2	10.0	4	4.5
Patients with at least one visit, by type of visit						
Outpatient	78	100.0	20	100.0	90	100.0
Counseling	29	37.2	20	100.0	49	50.0
Group counseling	1	1.3	19	95.0	20	20.4
Patients who receive buprenorphine in at least one quarter	47	60.3	20	100	67	68.4

Source: Exploratory analysis of program data from two pilot sites.
Note: Site B provided data for a random sample of 20 patients.

Conclusion

Primary care clinics are an important component of a comprehensive system of care for OUD, which also includes emergency departments, residential care programs, and opioid treatment programs. There is tremendous opportunity to increase access to OUD treatment in outpatient primary care settings using buprenorphine and naltrexone as part of an integrated MAT program. California has launched several statewide initiatives to expand MAT access, relying on primary care as one access point in a broader network. This project demonstrated that it takes time, funding, technical assistance, training, and leadership to help CHCs provide integrated MAT care, but such efforts can be successful at providing access to treatment for OUD in primary care settings. Respondents in the four case-study CHCs believe these programs are effective and that they benefited from the technical assistance offerings and the opportunity to learn from the other sites. All 10 provider organizations report that they plan to continue their MAT programs and remain committed to offering this service to their patients.

We found that FQHCs face cost barriers to implementation of team-based integrated care MAT programs in Medi-Cal, including their inability to obtain reimbursement for group meetings, case

management services (which can be an intensive need for these patients), or bill for appointments with both a medical provider and licensed mental health professional on the same day. FQHCs, however, also have some funding advantages that can help support team-based integrated care MAT programs, including specialized funding opportunities from HRSA and experience covering case management costs through their Medi-Cal prospective payment reimbursement rates. Although this project initially intended to test new reimbursement models, calculating program costs and determining changes in utilization proved too difficult. Nevertheless, each health center found a way to cover the costs of the program through a variety of funding sources.

To expand access to OUD treatment, some initial investments will likely be needed to help CHCs develop an integrated MAT program and adapt that program to their own systems, work processes, staffing, and patient populations. Medicaid officials and other policymakers could also explore ways to help ensure that CHCs and other primary care providers are able to obtain adequate reimbursement to provide the full set of services needed in a team-based integrated MAT program.

Appendix A: Additional Figures and Tables from the Web-Based Survey

Number of Waivered Prescribers by Profession Type among Grantees in the California Complex Care/MAT Pilot Program
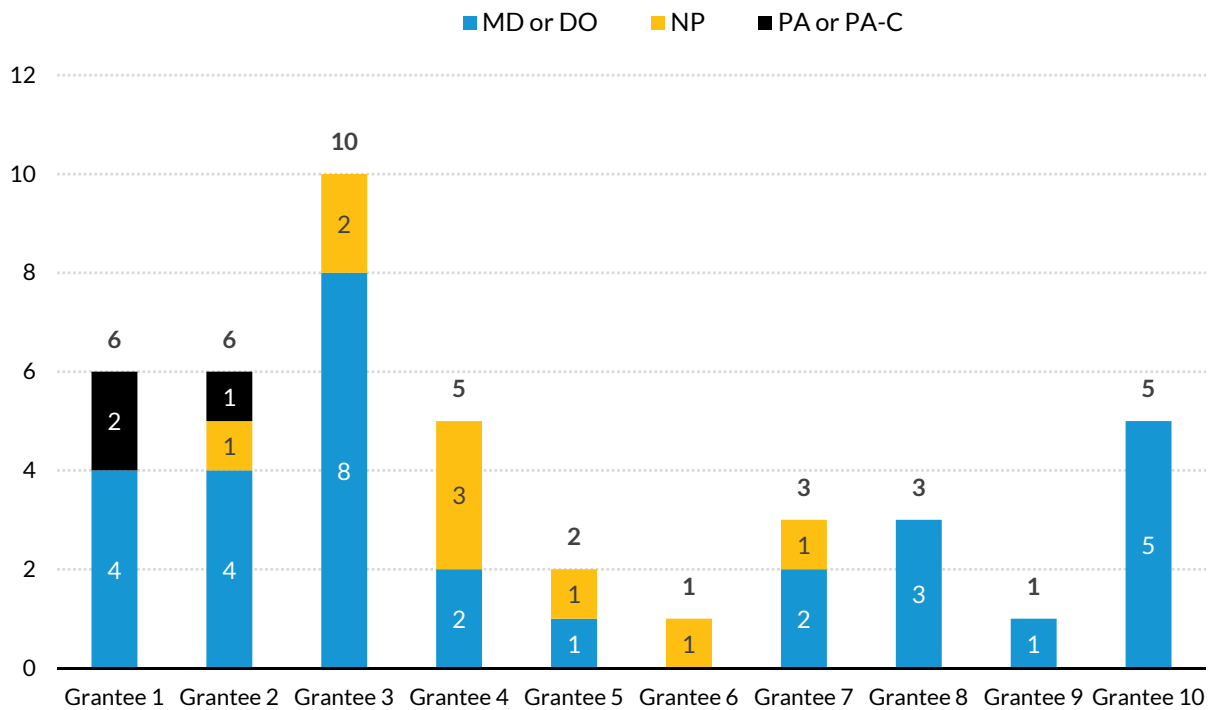
Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.
Note: DO = doctor of osteopathic medicine; MD = medical doctor; NP = nurse practitioner; PA = physician assistant; PA-C = physician assistant-certified.

Number of Waivered Prescribers by Number of Waiver Limits among Grantees in the California Complex Care/MAT Pilot Program
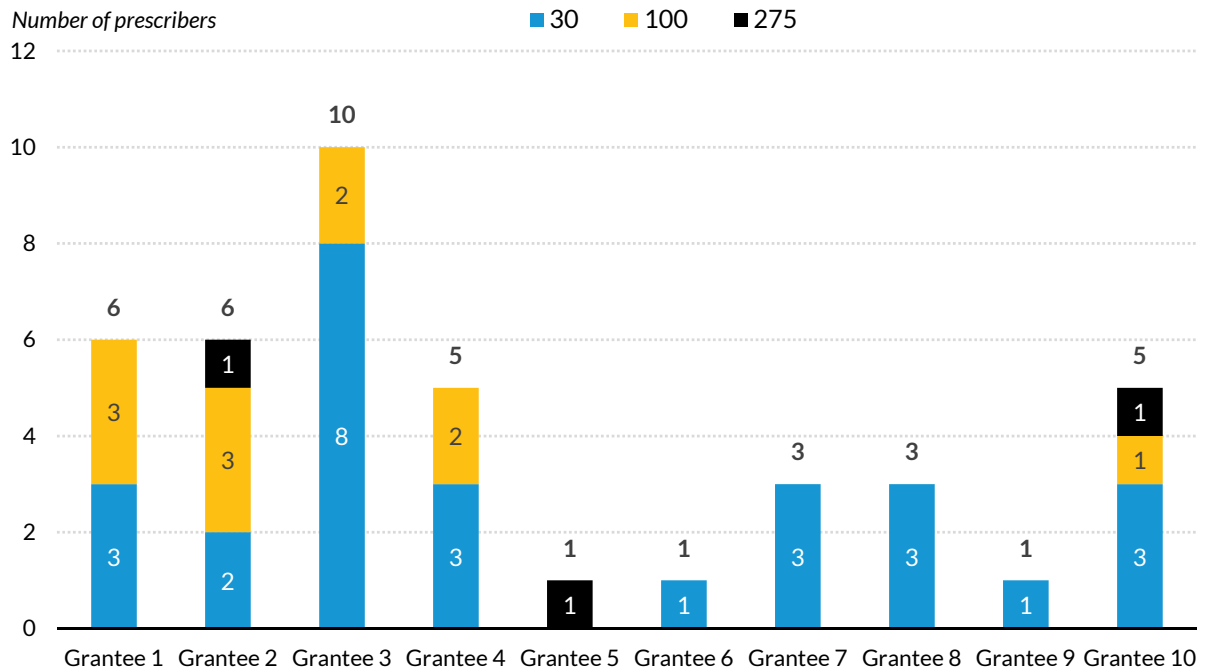
Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

TABLE A.1

New Staff Added and Issues with Staff Turnover for Grantees in the California Complex Care/MAT Pilot Program

Staff Measure	Number of Grantees (n=10)
New clinical staff added due to the Camden-supported Complex Care/MAT pilot program (as of September 1, 2017)	
0 new clinical staff added	5
1 new clinical staff added	3
2 new clinical staff added	0
3 new clinical staff added	0
4 new clinical staff added	2
New non-clinical staff added due to the Camden-supported Complex Care/MAT pilot program (as of September 1, 2017)	
0 non-clinical staff added	6
1 non-clinical staff added	3
2 non-clinical staff added	0
3 non-clinical staff added	1
4 non-clinical staff added	0
Issues of turnover/retention of clinic staff interfere with the workflow related to providing care to patients with complex needs	
Never	0

Occasionally	7
Many times	2
Very Often	1
Always	0

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

Site Characteristics for Grantees in the California Complex Care/MAT Pilot Program

Site Characteristic	Number of Grantees (n=10)
What is the primary focus at your organization's main clinic location?	
Substance use treatment services	2
General health care or other integrated primary care	7
Mental health services	1
How many satellite clinic sites does your organization operate that offer outpatient substance use services?	
0 satellite clinic sites	3
1 satellite clinic site	6
2 satellite clinic sites	1
Does your organization co-locate (i.e., at a single clinic location) clinical staff that focus on primary care, substance use treatment, and mental health care?	
Yes	9
No	1

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

Demographics Characteristics of MAT patients for Grantees in the California Complex Care/MAT Pilot Program

Demographic Characteristic	Number of Grantees That Report Each Demographic Frequency (n=10)				
	All patients	Most patients	Some patients	No patients	Non-response
White	1	4	4	0	1
Black/African-American	0	1	5	2	2
Hispanic/Latino/a	0	1	6	1	2
Asian or Pacific Islander	0	0	2	4	4
Other race	0	0	1	4	5
Male	0	5	4	0	1
Female	0	0	9	0	1
Other gender category	0	0	3	5	2
HIV/AIDS positive	0	0	3	4	3
Hepatitis C Virus (HCV)	0	0	5	2	3
Currently on probation or parole, or incarcerated in the last 12 months	0	0	6	3	1
Homeless	0	1	6	1	2
Income below the federal poverty level (FPL)	2	4	3	0	1

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

MAT Team Responsibilities among Grantees in the California Complex Care/MAT Pilot Program

	Physician or Doctoral level counselor (MD, Do, Psychiatrist, PhD Psychologist etc.)	Masters-level or BA/BS counselor (MSW, MS, MA Psychologist, etc.)	Mid-level clinical staff (RN, LPN, NP, PA) or Licensed Clinical Social Worker (LCSW)	Other care or staff manager	Non-response
Main point of contact and interactions with patient					
Primary responsibility	4	0	4	1	1
Secondary responsibility	2	1	3	3	1
Prescription management					
Primary responsibility	7	0	2	0	1
Secondary responsibility	3	0	4	1	2
Phone follow-up					
Primary responsibility	1	2	2	3	2
Secondary responsibility	2	1	3	2	2
Other virtual touch point					
Primary responsibility	2	2	2	2	2
Secondary responsibility	1	1	3	2	3
Periodic follow-up visits					
Primary responsibility	4	1	2	1	2
Secondary responsibility	2	2	2	2	2

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.
Note: No site reported that a Pharmacist, Advanced Practice Registered Nurse (APRN) or Health Educator had primary or secondary responsibilities for any of the listed services.

Camden Pilot Program Basics: Specifics of the Camden-Supported Complex Care/MAT Pilot Program for Grantees in the California Complex Care/MAT Pilot Program

Measure	Number of Grantees (n=10)
Which description best describes how your organization used the Camden/CHCF grant?	
To provide integrated care for a patient subgroup meeting specific program eligibility criteria.	4
For overall expansion of MAT or other new services to the broader clinic population (i.e., not to a patient subgroup meeting specific program eligibility criteria).	6
What are the main goals of the Camden-supported Complex Care/MAT pilot program, in terms of cost and use?	
Reduce cost of care	6

Reduce ED use or avoidable ED use	7
Reduce costs associated with inpatient utilization	6
Increasing primary care utilization	6
Other	2
None/not applicable	2

What are the main goals of the Camden-supported Complex Care/MAT pilot program, in terms of care, care delivery, and systems?

Improve patient outcomes	9
Improve quality of patient care	10
Provide/expand treatment for opioid dependence integrated with primary care and mental health care	10
Develop a methodology to identify complex patients who are high-utilizers of care	6
Develop payment models to support new care or care delivery systems	4
Improve patients' access to social service needs (housing, transportation, etc.)	2
Strengthen community partnerships to strive to integrate mental health, substance use disorder and primary care treatment	9
Improve communication across provider/facility types (e.g., communication with ED)	5
Other	1
Non-response	0

What are the eligibility criteria for patients receiving services in the Camden-supported Complex Care/MAT pilot program?

Opioid dependence or opioid use disorder diagnosis	10
Other substance use disorder diagnosis	5
Prescribed opioids	8
More than one prescription of opioids	6
Prescribed benzodiazepines and other prescribed opioids	5
Lab results	4
Doctor's orders	4
Violation of pain management agreement	3
High utilizers of emergency department (ED)	6
Screening tools for opioid misuse or illicit drug use	6
Primary care provider recommendation	8
Detox or addiction specialty provider recommendation	4
Justice system recommendation	2
Expressed desire to stop using opioids/drugs	7
Health plan recommendation	1
Other	7
Other free response	0

How are patients engaged in the Camden-Supported Complex Care/MAT Pilot Program?

Creating more time for clinicians to spend time with patients	5
Shared decision-making	7
Making it easier for patients to access relevant services	6
Working with health plans to provide incentives for patients to engage in care	2
Giving patients more information about their conditions	5
Creating more time for patients to talk with clinicians over the phone or email	0
Other	2
Non-response	1

Relationship with other providers

Relationship with one or more pharmacists for timely prescriptions?

Yes	10
No	0

Pharmacists on-site?

Yes	6
No	3
Non-response	1

Relationship with pharmacists for patient care partnerships?

Yes	9

No	1
Relationship with Opioid Treatment Program for methadone treatment?	
Yes	2
No	7
Non-response	1
Patients report any trouble filling buprenorphine prescriptions	
Never	1
Occasionally	9
Many times	0
Very Often	0
Always	0

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

TABLE A.6

MAT Program Treatment Characteristics for Grantees in the California Complex Care/MAT Pilot Program

Treatment Characteristic	Number of Grantees (n=10)
Can patients who refuse counseling, or who do not have access or capacity to attend counseling, get buprenorphine treatment for opioid use disorder?	
Yes	4
No	1
It depends	4
Non-response	1
Frequency of naltrexone prescriptions	
Always	0
Very often	0
Many times	1
Occasionally	4
Never	5
Frequency of naloxone prescriptions	
Always	2
Very often	1
Many times	2
Occasionally	3
Never	1
Non-response	1
Which patient groups undergo urine toxicology screens?	
Patients with chronic pain on daily opioids	10
Patients with opioid use disorder	9
Patients being treated with buprenorphine for opioid use disorder	10
Other	1
Urine toxicology screens are rarely used	2
How often are urine toxicology screens administered to each patient?	
Every visit	6
Every month	2
Every three months	1
Other (free text response)	
More intensive monitoring or frequency of provider engagement	5
No consequences	1
Motivational interviewing	2
Non-response	1

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

TABLE A.7

Frequency of Location of MAT Induction for Grantees in the California Complex Care/MAT Pilot Program

Frequency of types of induction	Number of Grantees (n=10)					
	Never	Occasionally	Many times	Very often	Always	Nonresponse
Clinic-based induction	2	0	1	4	1	2
Home-based induction	2	2	3	0	1	2
ED-based induction	6	1	1	0	0	2
Inpatient hospital-based induction	7	1	0	0	0	2
Specialty facility-based induction	8	0	0	0	0	2
Pharmacy-based induction	8	0	0	0	0	2

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

TABLE A.8

Staff Attitudes about Treatment Strategies for Grantees in the California Complex Care/MAT Pilot Program

Staff subset and treatment strategy	Number of Grantees (n=10)					
	Almost all oppose	Most oppose	Most are neutral	Most favor	Almost all favor	Unsure / don't know
Most clinicians' attitude about engaging in the complex care integration program	0	0	1	5	2	2
Most clinicians' attitude about incorporating buprenorphine into treatment for appropriate patients with opioid use disorder	0	0	1	5	3	1
Most front-line non-clinical staffs' attitude about incorporating buprenorphine into treatment for appropriate patients with opioid use disorder	0	0	2	4	2	2
Most clinicians' attitude about providing long-term buprenorphine maintenance treatment for appropriate patients with opioid use disorder	0	1	0	7	0	2

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

TABLE A.9

Gaps in Measurement Abilities for Grantees in the California Complex Care/MAT Pilot Program

Measurement Item	Number of Grantees (n=10)
Organization is prepared to compile reports from electronic health records in the event of an U.S. DEA site visit	
Yes	7
A plan to do this is in development	2
There is no plan to develop this ability	1
Organization is prepared to compile reports from logs maintained by a medical assistant or other staff in the event of an U.S. DEA site visit	
Yes	6

A plan to do this is in development	1
There is no plan to develop this ability	3
Patient engagement tracking strategies used	
Consumer Assessment of Healthcare providers and Systems (CAHPS®) surveys	1
Internal surveys of patients	4
Third-party surveys of patients	2
We do not measure patient engagement	4
Some other way	3
Other text	
It is possible to identify costs of different categories specifically related to the Camden-supported Complex Care/MAT pilot program, such as staff training time, staff program preparation time, materials, or additional time spent in providing pilot program services	
Yes	6
No	3
Non-response	1
How quickly do your providers learn when one of their patients has received care in the ED?	
Within 24 hours	1
Within 48 hours	4
Within 1 week	2
Within 2 weeks	0
After 2 weeks	0
Clinic staff usually never communicate with ED	2
Non-response	1

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

TABLE A.10

Program Sustainability for Grantees in the California Complex Care/MAT Pilot Program

Measure	Number of Grantees (n=10)
Resources that would increase the likelihood of hiring an additional a buprenorphine-waivered prescriber	
Being paired with an experienced provider	5
More CME courses on this topic	5
Financial assistance for obtaining a waiver	7
Information about meeting the regulatory requirements	2
Information about local resources related to MAT and counseling of these patients	3
Having buprenorphine inductions performed at a different location	2
Other	3
Funding sources used for administration, case management, counseling, care teams, and treatments	
Medi-Cal	10
Medicare	8
Private insurance	5
Cash or patient self-pay	4
SAMHSA funding	0
Other government funding, voucher, or insurance	2
Private grant funding	3
Other strategies, such as increasing the rate of reimbursed services	3
Changes anticipated in funding sources for administration, case management, counseling, care teams, and treatments over the next 12 months	
Yes	3
Enroll in Drug Medi-Cal	1
Developing a "case-rate" fiscal model designed to reimburse non-PPS costs	1
Termination of grant and federal funding	1

No	7
Plan to continue providing the new services and procedures developed and implemented in the Complex Care/MAT pilot program over the next 2-3 years	
Plan to continue all of the new services and procedures	10
Plan to continue some of the new services and procedures	0
Plan to continue none or few of the new services and procedures	0

Source: Web-based survey fielded to the 10 provider organization participants in CHCF's integrated care MAT grant initiative.

Appendix B: Additional Analysis from the Exploratory Analysis of Program Data from Two Pilot Sites

We analyzed the average number of visits per patient per quarter for the two case-study CHCs that provided some in-depth program. Patients were centered by their buprenorphine start quarter or, for patients who never started buprenorphine from Site A, by their program start quarter. Many patients had missing quarters of data after their program start date, which we attributed to patients temporarily or permanently dropping out of treatment. We counted missing quarters of data as 0 visits, which affected the average number of visits per quarter, rather than dropping missing quarters from the analysis.

For patients pooled across both provider organizations, when missing quarters after the program start quarter were treated as 0 visits, the average number of outpatient visits per patient in their start quarter was 14.6 for buprenorphine patients and 6.8 for nonbuprenorphine patients. This number dropped down quickly for buprenorphine patients, going down to 8.8 outpatient visits one quarter after the start quarter, 3.5 two quarters later, and continuing the drop to 1.5 five quarters later. Average outpatient visits for nonbuprenorphine patients also dropped after the program start quarter, but the drop was more gradual, to 6.0 one quarter later and a low of 3.5 four quarters later followed by an increase to 4.9 five quarters later. Beginning two quarters after the start quarter, the average number of visits was higher for the nonbuprenorphine patients.

For buprenorphine patients across both provider organizations, the average number of individual counseling visits increased from a steady low (0.1–0.3) in the five quarters before buprenorphine start to a maximum one quarter after buprenorphine start (1.1), and then dropped back down (0.3–0.5) to a range slightly higher than the prebuprenorphine range. The average number of individual counseling visits were higher for nonbuprenorphine patients in the comparative quarters beginning two quarters after their program start quarter.

As a sensitivity check, we analyzed the average number of visits when missing quarters of data were dropped from the analysis, meaning missing quarters did not contribute to the average. The patterns described above held true when missing quarters were not included in the average, with the exception that the average number of visits for nonbuprenorphine patients increased from the start quarter to the first quarter after, where it was equal to the average number of visits for buprenorphine patients in the

comparative quarter. The patterns also remained similar for the average visits per patient for just Site A buprenorphine patients, though the average number of visits for buprenorphine patients were higher.

TABLE B.1
Average Visits per Patient Per Quarter, by Visit Type for Two Grantees in the California Complex Care/MAT Pilot Program

Quarter, centered on buprenorphine or program start quarter	Buprenorphine Patients		Nonbuprenorphine Patients	
	n	Average visits	n	Average visits
Outpatient Visits				
5 quarters before start	14	3.4		
4 quarters before start	14	2.2		
3 quarters before start	17	2.4		
2 quarters before start	22	5.1		
1 quarter before start	26	7.2		
Buprenorphine/program start quarter	67	14.6	31	6.8
1 quarter after start	67	8.8	30	6.0
2 quarters after start	52	3.5	25	6.2
3 quarters after start	45	2.3	23	5.3
4 quarters after start	31	1.6	22	3.5
5 quarters after start	22	1.5	16	4.9
Counseling Visits				
5 quarters before start	14	0.2		
4 quarters before start	14	0.1		
3 quarters before start	17	0.1		
2 quarters before start	22	0.1		
1 quarter before start	26	0.3		
Buprenorphine/program start quarter	67	0.8	31	0.1
1 quarter after start	67	1.1	30	0.5
2 quarters after start	52	0.3	25	0.7
3 quarters after start	45	0.3	23	0.6
4 quarters after start	31	0.3	22	0.4
5 quarters after start	22	0.5	16	0.4
Group Counseling Visits				
5 quarters before start	14	0.0		
4 quarters before start	14	0.0		
3 quarters before start	17	0.0		
2 quarters before start	22	0.0		
1 quarter before start	26	0.0		
Buprenorphine/program start quarter	67	0.4	31	0.0
1 quarter after start	67	0.5	30	0.0
2 quarters after start	52	0.5	25	0.0
3 quarters after start	45	0.3	23	0.0
4 quarters after start	31	0.3	22	0.0
5 quarters after start	22	0.6	16	0.0

Source: Exploratory analysis of program data from two pilot sites.

Notes

1 "Behavioral Health Integration" California Health Care Foundation, accessed September 13, 2018, https://www.chcf.org/collection/behavioral-health-integration/.

2 "Behavioral Health Integration" California Health Care Foundation.

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7 "Helping Communities Improve Care for People with Complex Health and Social Needs," National Center for Complex Health and Social Needs, accessed September 13, 2018, https://www.complex.care/.

8 Qualtrics Survey Tool Homepage. See https://www.qualtrics.com/lp/survey-platform/.

9 "California Hub and Spoke System," California Department of Health Care Services, accessed September 13, 2018, http://www.dhcs.ca.gov/individuals/Pages/CA-Hub-and-Spoke-System.aspx.

10 "Drug Medi-Cal Organized Delivery System," California Department of Health Care Services, accessed September 13, 2018, http://www.dhcs.ca.gov/provgovpart/Pages/Drug-Medi-Cal-Organized-Delivery-System.aspx.

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12 "ED-Bridge: Emergency Buprenorphine Treatment." See https://ed-bridge.org/.

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