University of California Los Angeles
Integrated Substance Abuse Programs

California Hub and Spoke Medication Assisted Treatment Expansion Program
Year 1 Evaluation Report

Prepared for the California Department of Health Care Services

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About This Report

This report was prepared by the UCLA Integrated Substance Abuse Programs (ISAP) for the California Department of Health Care Services (DHCS) in October 2018. All data reported cover the first year of implementation efforts of the Hub and Spoke program, a component of the California State Targeted Response (STR) to the Opioid Crisis.

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The authors would also like to acknowledge that the Hub and Spoke program and its evaluation have been carried out on the traditional lands of more than 154 indigenous nations.

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List of Acronyms

CDPH – California Department of Public Health
CHCF – California Health Care Foundation
CSAM – California Society of Addiction Medicine
DATA 2000 – Drug Addiction Treatment Act of 2000
DHCS – Department of Health Care Services
FQHC – Federally Qualified Health Center
H&SS – Hub and Spoke System
ISAP – Integrated Substance Abuse Programs
MAT – Medication Assisted Treatment
NIDA – National Institute on Drug Abuse
NTP – Narcotics Treatment Program
OBOT – Office Based Treatment
OSI – OBOT Stability Index
OTP – Opioid Treatment Program
OUD – Opioid Use Disorder
SAMHSA – Substance Abuse and Mental Health Administration
STR – State Targeted Response
TNQ – Treatment Needs Questionnaire
UCLA – University of California Los Angeles
USC – University of Southern California

Goals of the Hub and Spoke Program

The goals of the California Hub and Spoke program, as outlined in the Strategic Plan, include:

Implement Hub and Spoke model in various areas throughout California to improve access to Opioid Treatment Programs (OTPs)

The primary aim of the MAT Expansion program is to implement the Hub and Spoke model to increase access to OUD treatment. This includes developing OTPs as regional subject matter experts and referral resources. Treatment expansion efforts focus on MAT, but also include counseling and other supportive recovery resources through case management.

Increase availability of buprenorphine and naloxone statewide

The goal of the Hub and Spoke program is to start 20,000 new patients on MAT. MAT expansion efforts focus primarily on buprenorphine, but also include naloxone, as these medications can be prescribed by any provider (MD, DO, PA, NP) with a (Drug Addiction Treatment Act) DATA of 2000 waiver. Waivered providers working in primary care settings, such as Federally Qualified Health Centers (FQHCs), are an important target of expansion efforts. Increasing the availability of buprenorphine in medically underserved areas, particularly among persons covered by Medi-Cal, is an important sub-goal of the program.

Increase number of waivered providers that can prescribe MAT

In order to enhance the statewide infrastructure for MAT availability, it is critical to increase both the number of providers waivered to prescribe buprenorphine as well as the number of patients per provider. At the time that the Strategic Plan was written, California waivered providers managed an average of five OUD patients at a time. Increasing the number of prescribers applies to all types of allowable providers.

Develop prevention and recovery activities

Prevention and recovery activities to support MAT expansion include providing naloxone, coordinating with local opioid coalitions, reducing stigma among the public as well as providers, developing physician MAT champions, promoting use of the California Substance Use Warmline, and providing education and technical assistance to all types of treatment providers (e.g., counselors, peer support workers, nurses) throughout the state.

Establish Learning Collaboratives and provide trainings

Learning Collaboratives are a key component of the Hub and Spoke model. They serve as a forum for didactic education about addiction medication and other evidence based practices, allow for regional relationship building among providers and administrators, and offer opportunities to discuss barriers and facilitators to program implementation.

Improve MAT access for tribal communities

In 2017, the opioid overdose death rate for American Indian/Alaska Natives was 17.76 per 100,000 persons, over three times the state average of 5.23 per 100,000 (CDPH 2018). Assessing both the OUD treatment and prevention needs as well as existing resources in tribal and urban indigenous communities is essential to developing culturally relevant treatment expansion efforts. A team of experts at the University of Southern California (USC), led by Claradina Soto, PhD, is conducting a needs assessment of MAT and other culturally relevant treatments, including traditional healing practices, for OUD in indigenous communities in California. UCLA works closely with this team, but the two groups have determined that it is most appropriate for the research to be designed and carried out by those with the expertise and

cultural knowledge needed to best serve the communities. A separate report will be submitted to the Department of Health Care Services by USC detailing the outcomes of the needs assessment and recommended future directions for treatment expansion efforts.

Conduct program evaluation of H&SS Project

UCLA is conducting the evaluation of the Hub and Spoke MAT Expansion program. The evaluation includes regular reports on SAMHSA-determined performance measures, creation of a data reporting structure for all Hub and Spoke Systems, surveys of providers, patient interviews, and qualitative site visits to a selection of programs. This report includes the outcomes of the first year of evaluation efforts.

Executive Summary

Although California has seen lower overall opioid overdose death rates than other states affected by the crisis, rates vary greatly by county, with many counties exceeding the national average. The California Hub and Spoke program is a component of the California Medication Assisted Treatment (MAT) Expansion State Targeted Response (STR) to the Opioid Crisis. Funded through a SAMHSA award to the California Department of Health Care Services (DHCS), the program is a means to expand access to MAT services throughout the state, especially in counties with the highest overdose rates. The California Hub and Spoke program aims to expand the availability of MAT in health care settings, increase the number of buprenorphine prescribers in those settings, and create a network of referral resources and MAT expertise. The program is modeled after the Vermont Hub and Spoke system, which demonstrated great success in increasing the availability of MAT in the state. In the model, opioid treatment programs (OTPs), or "Hubs" serve as experts in treating opioid use disorders (OUDs). They connect with office-based treatment (OBOT) settings, or "Spokes" to build a network of referral resources and knowledge sharing. Patients who are mostly stable on MAT are treated in Spokes, while those with more complex OUD are served in Hubs. Spoke providers are also supported, through the Hub, by MAT Teams offering counseling and care coordination services. The Hub and Spoke model has been adapted to fit the California context. This evaluation report is an assessment of the first year (August 2017 – July 2018) of adoption, implementation and reach of the California Hub and Spoke program.

Over the first year of the Hub and Spoke program, the network of Hubs and Spokes expanded from 18 Hubs and 57 Spokes to include 129 Spoke treatment locations. Thirty-seven of these Spokes started prescribing MAT for the first time upon joining the program. MAT availability was also expanded in medically underserved areas and counties with high overdose rates. Nearly half (42%) of Spokes were FQHCs, and 27% were rural-serving. Among the counties with the ten highest 2017 overdose death rates, only Modoc and Ventura lacked Hub and Spoke coverage. In addition, by the close of the first year, there were 246 waivered providers in Spokes, a 54.7% increase over the first month of program implementation.

A key indicator of the program's success is the number of new patients starting MAT (i.e., methadone, buprenorphine, extended-release naltrexone). One of the program's targets is to serve 20,000 new patients over two years. As of the end of the first year of implementation activities, 7,047 new patients had started methadone, buprenorphine or extended-release naltrexone in Hub and Spoke settings. Although some of these patients might have received MAT (primarily methadone) in the absence of the program, there was steep growth over baseline in the number of new patients starting buprenorphine in Hubs (261.9% increase) as well as Spokes (93.0% increase). If growth in the number of new patients entering these programs continues at the same rate it has in the first year of implementation activities, by July 2019, it is anticipated that 19,688 patients will have started MAT. However, there are several areas for improvement in implementation efforts that can be addressed to help the program meet or exceed its target.

Network building efforts could be concentrated in health care settings, particularly those without MAT currently in place, to increase fidelity to the program model. One-fifth (20.3%) of Spokes

in the network, to date, were substance use disorder (SUD) treatment programs. Although the connections built in these settings are important, they do not reflect the goal of integrating MAT into primary care. In addition, Spokes that joined the Hub and Spoke program in the first year that had not yet adopted MAT (n = 37) had the largest growth (153.8% increase) in the number of new buprenorphine patients over the first month of implementation. Increasing MAT availability in more such settings could play a critical role in addressing unmet treatment need, especially in medically underserved areas. It is possible that Spokes in these regions, especially in rural settings, may need to function like Hubs, due to the widespread geography of the state. Long distances between Hubs and Spokes have made care coordination difficult in the first year of the program. Formalizing communication and coordination efforts are a critical piece of success in these system relationships. It is also important, in future implementation efforts of the Hub and Spoke program, to tailor training and technical assistance efforts to settings that have seen little growth in the number of new patients. These include Spokes that had already adopted MAT prior to joining the program, as well as large organizations that might have more administrative barriers to assimilating innovations.

In addition to continuing to increase the number of waivered providers in Hub and Spoke settings, closing the gap in the number who are actively prescribing is an essential means to expanding MAT access. Consistently throughout the first year, only about 60% of waivered Spoke providers were actively prescribing. Moreover, only 85.7% endorsed providing any form of buprenorphine induction. The reasons for these gaps are still being evaluated. However, there are training and technical assistance needs that may have played a role in non-prescribing that will be addressed in the future of the program. In response to provider surveys, waivered providers who had never prescribed buprenorphine expressed lower confidence and less necessary mentorship than those who had ever prescribed. Provider stigma toward MAT and OUD were also factors in non-prescribing. Of all respondents, 15.7% did not equally comfortable working with patients with OUD as they did working with other patient groups. Knowledge and attitudes about MAT were also more negative among providers in primary care settings. In addition to ongoing clinical skills trainings and Learning Collaboratives, UCLA is hosting a stigma and MAT webinar in the second year of the program. In collaboration with Mark McGovern, PhD, UCLA is also developing a Provider Facilitator program, to provide enhanced assistance to providers in clinical settings.

Regulatory barriers may have also played a role in non-prescribing. Numerous waivered providers and clinic administrators mentioned worries over Drug Enforcement Agency (DEA) site inspections in Hub and Spoke Steering Committee meetings and Learning Collaboratives, and 10.1% of surveyed providers agreed that they were fearful of the legal consequences of prescribing buprenorphine. Providers and administrators also expressed worry over listing themselves publicly as prescribers, making it more difficult for patients and referring clinics to locate them. About 39% of all waivered Spoke providers involved in the program are not currently listed on SAMHSA's Buprenorphine Treatment Practitioner Locator website. When this data was presented to the Hub and Spoke Steering Committee, it was noted that some administrators had asked providers to remove themselves from website due to concerns over becoming subject to 42 CFR Part 2 regulations. This is unfortunate, given that Hub and Spoke providers who list themselves have significantly more patients than those who do not. Providers

and administrators have both indicated that increased guidance from enforcing agencies would help to calm their fears.

The requirement to become waivered to prescribe buprenorphine, more broadly, also emerged as a barrier to reaching new patients. In Learning Collaborative, the time and cost of provider time away from clinics to attend waiver trainings, dosing restrictions, and take-home regulations were all discussed as challenges to helping providers get waivered and start prescribing. Waiver limits were also a barrier. Spokes with any patients that had at least one provider at or near a limit (i.e., 30, 100 or 275 patients) in July started 3.0 fewer patients on buprenorphine in July than they did in May, while those that didn't have any providers nearing limits saw only 0.6 fewer patients ($p < .05$).

MAT Teams are also a component of the program that have room for improvement in the second year of the grant. Almost one-quarter (23%) of MAT Team members had no professional certification or licensure, and many served in administrative roles. These instances, in which there may have been a misunderstanding about the role of MAT Teams, represented missed opportunities for patients to receive counseling and care coordination services. In addition to variance in the types of providers staffing MAT Teams, there was also low fidelity to the Hub and Spoke model in MAT Teams' work locations. One-third (33.3%) of MAT Team members who responded to surveys indicated that they worked only in a Hub, which is not the intention of the Teams. UCLA introduced building effective MAT Teams as a Learning Collaborative topic in the fourth quarter of the program. MAT Team members also had poorer knowledge and attitudes toward MAT and patients with OUD than expected, indicating that they would also benefit from attending stigma webinars.

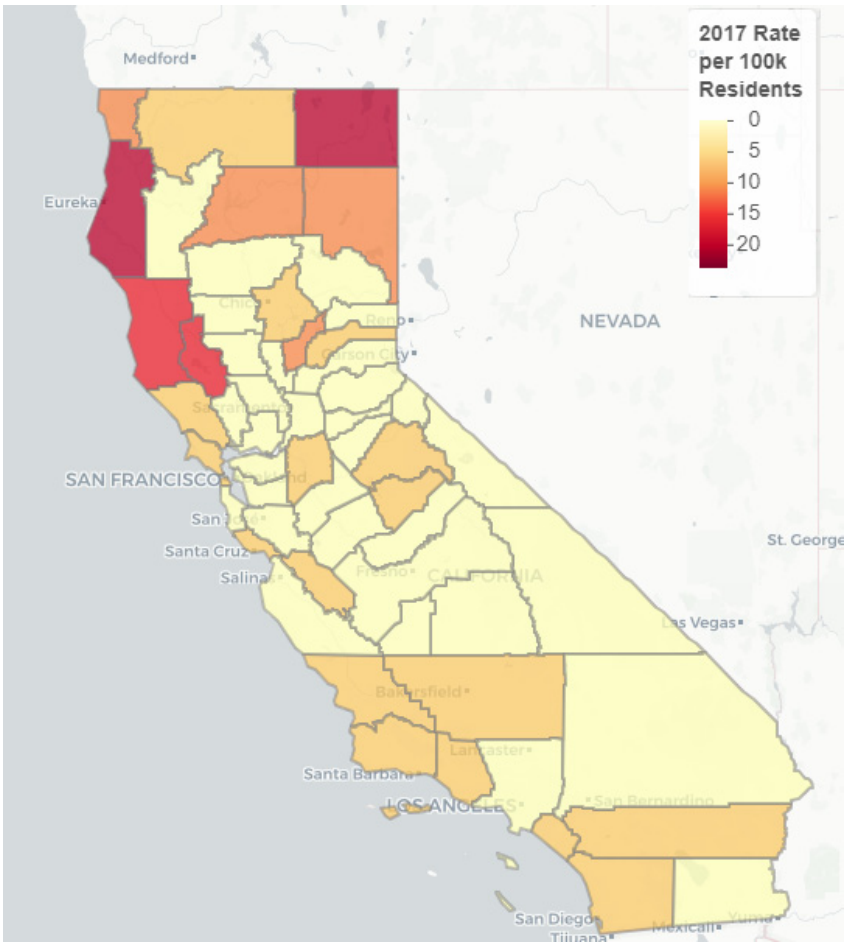
In general, the California Hub and Spoke program has made strong progress toward meeting its goals over the first year of implementation activities. Growth in the number of program sites and waivered providers have been robust, which are positive indicators toward sustaining a new system of care. Hubs and Spokes are treating new MAT patients under this system, and not surprisingly the rate at which sites are initiating new MAT patients is slower among the spokes. This is expected as many of these spokes are rolling out a new program and service, which takes time to operationalize. Effective mentorship and support from the Hubs has been challenging to navigate, and the needs at each Spoke vary based on the type of Spoke, provider availability, and where they are in the development of their MAT program. Moving forward, it recommended that the program continues its current MAT expansion efforts, but also increases fidelity to the Hub and Spoke model, and tailors training and technical assistance efforts toward the types of Spokes and providers involved.

Introduction

Opioid Use Disorders and Existing Treatment Access in California

Although California as a whole has as a lower opioid overdose death rate than most other states (4.9 deaths per 100,000 residents compared to 13.3 nationally), there is wide variation within the state. In six California counties (Modoc, Humboldt, Mendocino, Lake, Shasta, and Lassen) opioid overdose rates actually exceed the national average (NIDA 2018a). In 2017, these counties averaged 18.2 opioid overdose deaths per 100,000 residents, which is similar to the rate in Pennsylvania (18.5; NIDA 2018b). These counties tend to be in predominantly rural counties in the northern part of the state, as shown in Image 1.

Image 1. **Map of age-adjusted opioid overdose death rate per 100k by county (2017)**



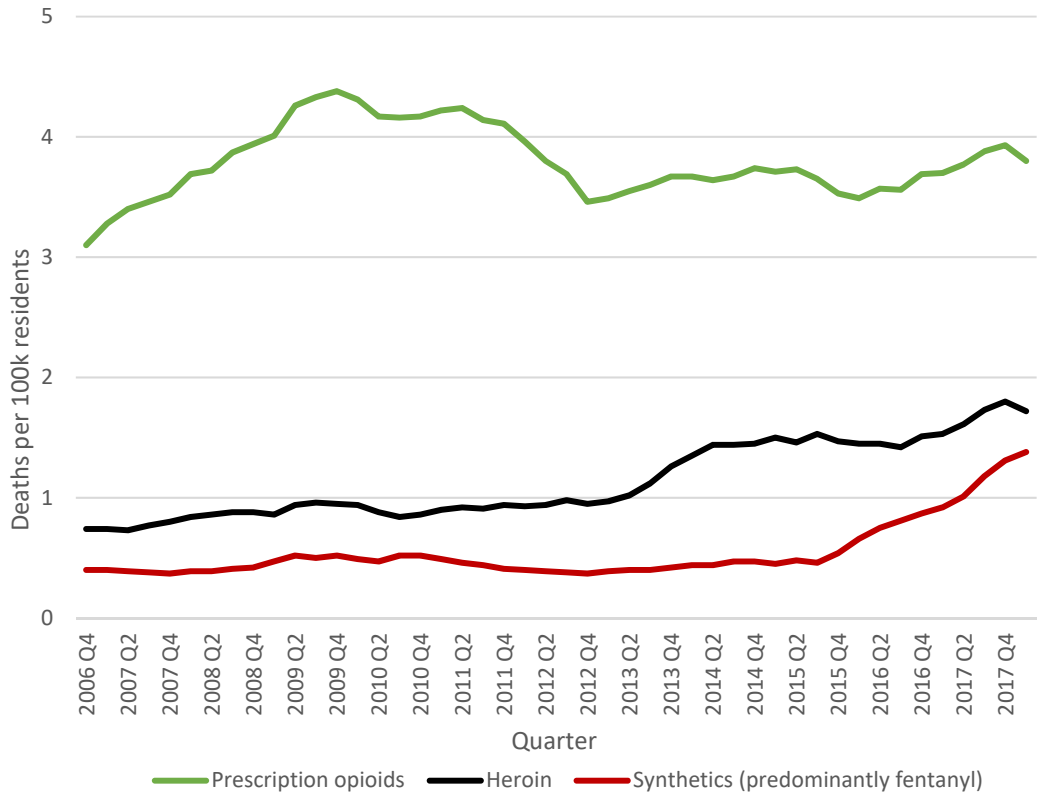
Over time, the overall opioid overdose death rate in the state has been driven time by three underlying trends (see Chart 1).

- Prescription opioid overdose deaths peaked in 2009 before decreasing then leveling off. They remain the most common source of overdose deaths, however.

- Heroin overdose deaths accelerated starting in 2013.
- Overdose deaths from synthetics (excludes methadone, predominantly fentanyl) accelerated in 2015.

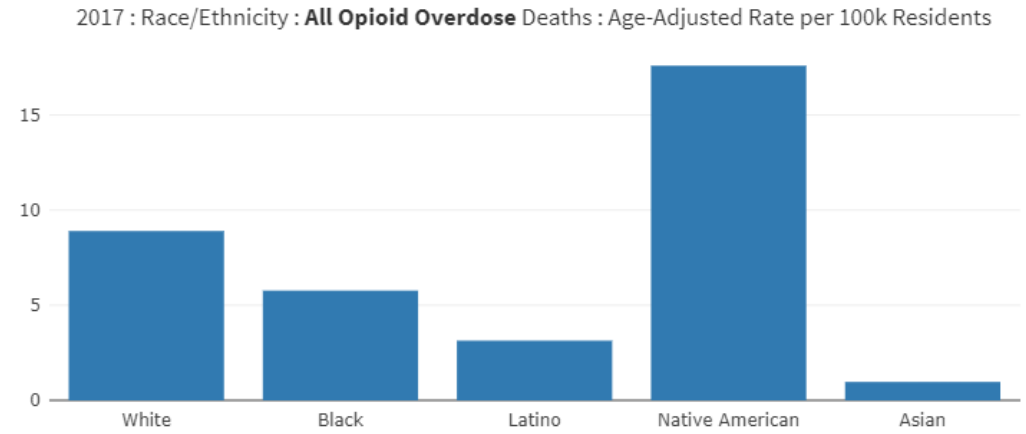
Notably, the heroin and synthetics trends both occurred two to three years after the same increases occurred nationally, suggesting national trends may be predictive of California trends. If so, California should anticipate a continuing increase in overdoses from synthetic opioids such as fentanyl, from opioids in combination with cocaine, from opioids in combination with benzodiazepines, and an uptick in prescription drug deaths, based on recent national trends.[1]

Chart 1. **California opioid overdose death per 100k residents rate by type of opioid 2006-2017 (Source: CDPH Vital Statistics via California Opioid Overdose Surveillance Dashboard).**



[1] https://www.drugabuse.gov/related-topics/trends-statistics/overdose-death-rates

Image 2. **Age-adjusted opioid overdose death rates per 100k residents by race/ethnicity (2017)**



Although the national conversation about opioids typically points to the high overdose death rates among white Americans (Kaiser Family Foundation 2018), in California, death rates are highest among American Indians/Alaska Natives. The 2017 age-adjusted death rate per 100k was 17.6 for American Indian/Alaska Natives, while it was 8.9 for Whites, 5.8 for Black/African Americans, 3.1 for Latinx, and 1.0 for Asian/Pacific Islanders (California Department of Public Health 2018).

Death rates by race/ethnicity are also variable by county. As shown in Table 1, among the top ten California counties with the highest 2017 overdose death rates, four have higher death rates among American Indians/Alaska Natives than among whites (Humboldt, Mendocino, Del Norte, Ventura), and four have higher rates among those who are Latinx (Modoc, Siskiyou, Humboldt, Shasta). In addition, the death rates among African Americans are 3.5 times higher in San Francisco County and 2.1 times higher in San Joaquin County than for whites (44.8 vs. 12.9 and 28.4 vs. 13.7, respectively).

Table 1. **Overdose death rates (per 100k) by race/ethnicity in California counties with the top 10 overall death rates (2017)**

	Overall	Black/ African American	White	American Indian/ Alaska Native	Latinx	Asian
Modoc	**23.6**	0	20.5	0	69.2	0
Humboldt	**21.0**	0	17.3	73.5	20.2	0
Mendocino	**19.3**	0	18.2	53.6	13.2	0
Lake	**17.0**	0	21.6	0	8.7	0
Shasta	**14.0**	0	14.7	0	19.7	0
Lassen	**13.9**	0	20.6	0	0	0
Yuba	**13.2**	0	21.3	0	0	0
Del Norte	**12.6**	0	12.6	52.4	0	0
Siskiyou	**10.0**	0	6.4	0	40.6	0
Ventura	**9.8**	9.1	14.3	71.3	6.0	2.79

Treatment access

The counties with high overdoses tend not to have access to MAT through NTPs (See Image 3).

Image 3. **Map of California counties with and without Narcotics Treatment Programs (NTP) Data source: Department of Health Care Services, July 2018.**

MAT access through buprenorphine prescriptions has increased statewide over time, but a treatment gap of between 165,977 and 245,093 people with OUD needing treatment but not having access to MAT remains (Clemans-Cope, Epstein, & Wissoker 2018).

The Hub and Spoke Model is designed to reach people who may not have local access to an NTP or who would not otherwise enter specialty care by engaging them through non-specialty care sites (spokes) such as primary care providers. This requires building relationships and coordination between NTPs and primary care where generally none previously existed. This is challenging, but builds on the Vermont Hub and Spoke Model where it has been successful.

Vermont Hub and Spoke Model

The Hub and Spoke model for expanding access to medication assisted treatment (MAT) for opioid use disorders (OUD), first developed in Vermont, centers on building a network of expertise and referral resources between specialty and office-based treatment settings (Brooklyn & Sigmon 2017). In the model,[2] opioid treatment programs (OTPs), licensed to provide methadone and buprenorphine, serve as "Hubs," or centers of care for patients with complex OUD. When patients become more stable on MAT, they are referred to primary care providers with waivers to prescribe buprenorphine, or "Spokes," for long-term, office-based opioid treatment (OBOT). Long-term care in to the OBOT setting integrates treatment for OUD into the primary care practice. Hubs also offer buprenorphine inductions to patients entering the system of care through Spokes in which providers might be less confident starting patients on MAT. In addition, Hubs provide Spokes with guidance in buprenorphine prescribing best practices. Relationships between Hubs and Spokes are bi-directional, sharing expertise about co-occurring health conditions, and allowing patients to transfer between programs depending on their treatment needs. Patients' treatment needs are assessed using two clinical decision support tools, the Treatment Needs Questionnaire (TNQ) and the OBOT Stability Index (Brooklyn & Sigmon 2015), which measure psychosocial functioning and patients' stability on MAT. Hubs also provide staffing support to Spoke prescribers in the form of MAT teams, which include nurses and behavioral health providers. MAT teams travel between Spokes to manage up to 100 patients with OUD. They provide counseling, care navigation, and administrative support, as well as outreach to new patients. Hub and Spoke providers and administrators are supported by Learning Collaboratives, which serve as a forum for both didactic training as well as knowledge sharing around implementation barriers and facilitators. Implementation of the model in Vermont was associated with a 64% increase in the number of providers waivered to prescribe buprenorphine, and a 50% increase in the number of patients served by each provider (Brooklyn & Sigmon 2017). Vermont now has the largest OUD treatment capacity in the country. The success of the Hub and Spoke program in Vermont led the California Department of Health Care Services (DHCS) to select it as the model for expanding statewide access to OUD treatment services.

California Hub and Spoke MAT Expansion Program

The California Hub and Spoke System (H&SS) is an important component of the California Medication Assisted Treatment (MAT) Expansion Opioid State Targeted Response (STR) grant program awarded to the CA Department of Health Care Services (DHCS). It is being implemented as a way to improve, expand, and increase access to MAT services throughout the state, especially in counties with the highest overdose rates. The implementation of the CA H&SS will increase the total number of physicians, physician assistants and nurse practitioners prescribing buprenorphine, thereby increasing the availability of MAT for patients with OUD. The project design is an adaptation of the Vermont Hub and Spoke model, applied to the state of California.

[2] For a breakdown of all key elements of the Hub and Spoke model, see Table 3

The California Hub and Spoke Model

The California Department of Health Care Services (DHCS) reviewed multiple applications and awarded 19 agencies (Hubs) across the state to partner with community health providers (Spokes) to build a OUD and MAT treatment network that meets community needs. Hubs consisted of existing licensed Narcotic Treatment Programs (NTPs) or Medication Units (MUs) who would serve as the regional consultants and subject matter experts to spokes on opioid dependence and treatment. They are tasked to work closely with their spokes to support the prescriber, build capacity and promote the broader public health mission.

Spokes consist of a DATA 2000 waivered provider, who prescribes and/or administers buprenorphine, or one or a clinic with one or more waivered providers, and a MAT team. Spokes can be an FQHC, mental health center, private practice or community clinic where a buprenorphine prescriber or potential prescriber is available. Spokes provide ongoing care for patients with more stable OUD (managing both induction and maintenance). Spokes receive a variety of support services from the Hubs, including the ability to refer complex patients for stabilization and access to a MAT Team, consisting of a nurse and behavioral health specialist to coordinate care. MAT teams are essential to the success and effectiveness of spokes. DHCS contracted with UCLA to conduct the evaluation of the project as well as provide the implementation support and training needed to adapt the model, facilitate the statewide strategy, and maximize the impact of the hub and spoke systems.

The Hub and Spoke Networks

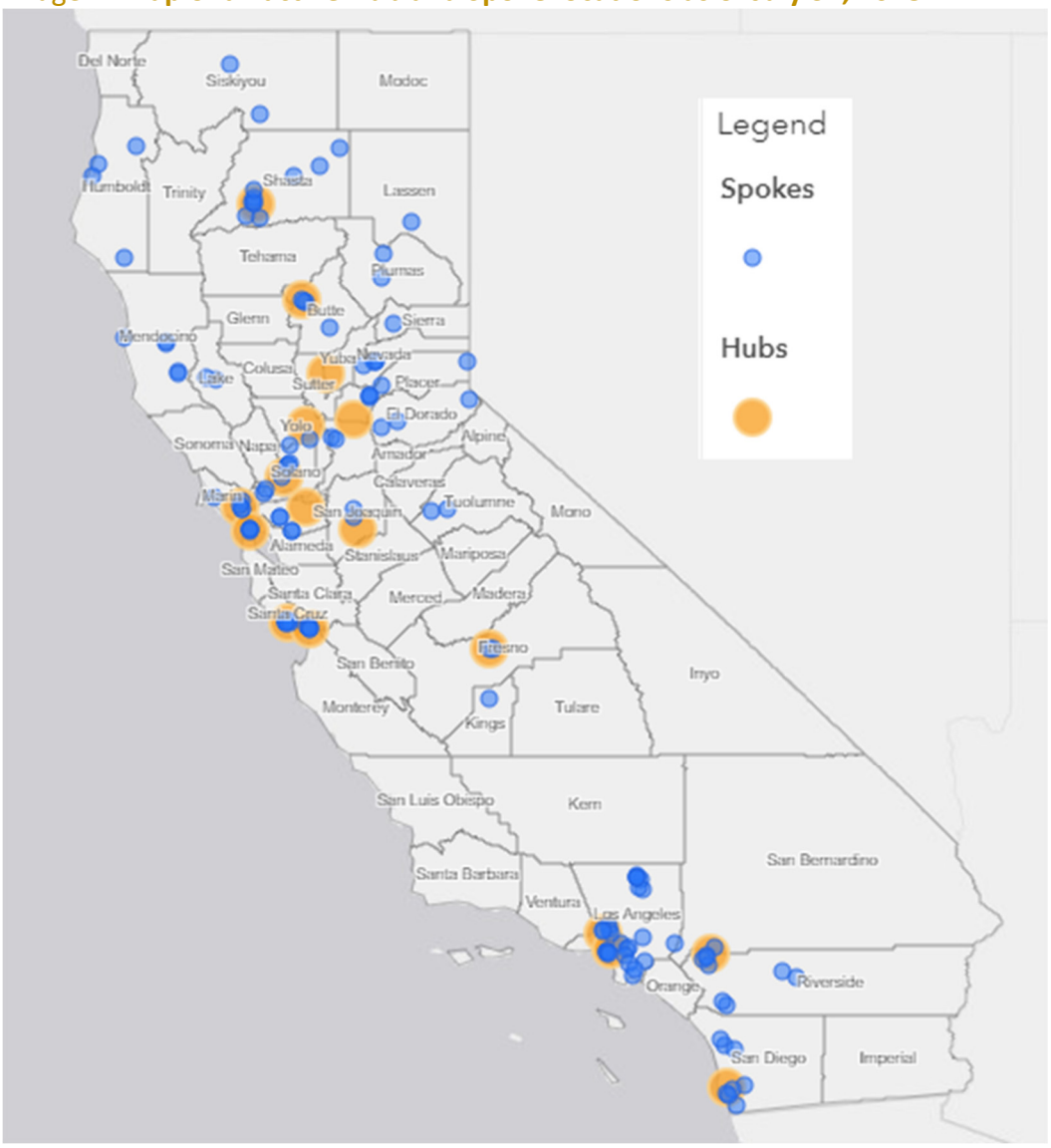
At the start of program implementation, in August 2017, the network included 19 Hub and Spoke Systems, located throughout the state. Among these Systems, there were 18 active Hub programs and 57 Spoke clinic locations (see Image 4). By the end of the first year (July 31, 2018), the network had expanded to include 129 active Spoke locations. The Hub agencies, currently 18, are listed below (for a list of all Hubs and Spokes, see Appendix I):

- Acadia Healthcare – Fashion Valley Comprehensive Treatment Center, San Diego
- Acadia Healthcare – Riverside Treatment Center, Riverside
- BAART Behavioral Health Services – Contra Costa
- MedMark Treatment Centers - Fresno
- BAART Behavioral Health Services – San Francisco
- MedMark Treatment Centers - Solano
- Aegis Treatment Centers - Chico
- Aegis Treatment Centers – Humboldt/Eureka
- Aegis Treatment Centers - Manteca
- Aegis Treatment Centers - Marysville
- Aegis Treatment Centers - Redding
- Aegis Treatment Centers - Roseville
- Tarzana Treatment Centers – Los Angeles
- Marin Treatment Center - Marin
- Janus of Santa Cruz - North – Santa Cruz

- Janus of Santa Cruz – South – Santa Cruz
- CommuniCare Health Centers - Sacramento
- Matrix Institute on Addictions – Los Angeles

These Hub and Spoke Systems cover 32 of 58 counties, seven of which are in the top 10 counties with the highest opioid overdose rates. The 18 Systems are broken up into six regions, which are used to separate Learning Collaboratives and create smaller networks of more localized resources. Detailed descriptions of each region are provided in the "Adoption and Implementation" section of this report.

Image 4. **Map of all active Hub and Spoke locations as of July 31, 2018**



Training and Technical Assistance

Ongoing training and technical assistance is a key component to the implementation plan of the Hub and Spoke program. Utilizing the experience of Vermont, UCLA's leadership team, with consult from Mark McGovern, PhD, and other key leaders from the Vermont experience, designed the training and technical assistance to incorporate regional in-person learning collaboratives and clinical skills trainings, as well as statewide best practices trainings, practice facilitation and prescriber support/mentorship, and web-based MAT trainings, and Project ECHO clinics. To encourage participation and assure high quality training, CEs and CMEs are made available for certified and licensed participants as much as possible. (For a full list of Training and Technical Assistance activities in Year 1, see Appendix II).

Quarterly Learning Collaboratives

The purpose of the Learning Collaboratives is to engage Hub and Spoke provider and physician participants in the process of shared learning and experiences to facilitate implementation of services, assist with procedural changes, and provide opportunities for interactive problem solving. The LC is a critical component to creating a network who meet on a quarterly basis. These meetings are half-day sessions (typically in person) and include CME presentation, practice presentation and discussion/review of quality indicators among represented networks. Suggested attendees include physicians, practice administrators, nurses, and/or behavioral health counselors from each spoke and designated personnel from the hubs. The goals of the LCs are to discuss practice policies and exchange workflow information and resources. In addition, these in-person meetings facilitate and foster these newly established relationships between local clinical-scientific leadership team plus content and implementation "experts."

To kick off the CA H&SS Learning Collaborative program, UCLA conducted a full-day orientation/best practices event to all hub and spoke network leaders. The purpose of this event was to orient the newly identified hub agencies to the hub and spoke model, discuss outcomes from the Vermont experience, review the adapted implementation plan for CA, and inform on the training and technical assistance activities in place to support the initiative. In addition to the UCLA training and implementation leads, the session featured Vermont experts, John Brooklyn and Tony Folland, as well as local experts Jean Masters (CSAM) and Kelly Pfeiffer (CHCF). Key elements included insights and guidance from the Vermont Learning Collaborative experience, discussions of suggested tools such as Treatment Needs Questionnaire (TNQ) and the OBOT Stability Index, referral and consent form templates, as well as best practices related to sharing information and privacy regulations. Information and materials from this event can be found here: http://www.uclaisap.org/ca-hubandspoke/html/materials.html#BEST.

Following this orientation, six regional Learning Collaborative groups were established, based on geographic convenience and participation size. Topics and quality improvement measures have been carefully selected by the CA H&SS Advisory Group to promote improved access to MAT and monitor the data quality indicators. In Year 1, the following topic areas/sessions have been conducted within each region. Information and materials from each event can be found here: http://www.uclaisap.org/ca-hubandspoke/html/materials.html#LCQ1

- Quarter 1, Session 1: Introduction to the Learning Collaborative
- Quarter 2, Session 2: Building a System of Care for Persons with OUD
- Quarter 3, Session 3: Talking to Patients about MAT
- Quarter 4, Session 4: Effective Implementation of the Hub and Spoke Model: Prescribers and MAT Teams

In Year 2, the first quarter LC topic will focus on best practices to create a multidisciplinary team to treat OUD.

Clinical Skills Trainings

The Clinical Skills Trainings are delivered twice annually (typically in-person) in each of the six CA H&SS regions to be attended by the hub and spoke personnel of each network. These sessions are designed to: 1) review most significant clinical challenges faced in the specified region; 2) present evidence based/best practices that are known to be useful to address these challenges; and 3) provide practice and role playing of clinical skills to promote use of the techniques presented. In Year 1, the following topic areas/sessions have been conducted within each region. Information and materials from each event can be found here: http://www.uclaisap.org/ca-hubandspoke/html/calendar-of-events.html#clinicalSkills

- Motivational Interviewing (online and self-paced)
- Enhancing Client Interactions Through Use of Motivational Interviewing
- Science and Practice of Treating Patients with Pain and Opioid Use Disorders

Continuing into Year 2, the next set of clinical skills trainings will incorporate the topic of delivering MAT to patients who are pregnant and struggling with OUD or other substance use.

Practice facilitation and prescriber support/mentorship

More recently rolled out toward the end of Year 1 is a program focused specifically on prescriber mentorship and practice facilitation. As the project evolved, a need emerged to additionally support the hub and their spoke networks with augmented physician leadership and expertise. Physician to physician or peer to peer communication between the hubs and spokes is a critical component to building relationships between providers. Hubs have physicians, but the availability to provide the support needed to build capacity and mentor new prescribers at their spokes is challenging. Having physicians (MDs) to partner with the Hub coordinators and serve as specialty care supports and back-up to the spoke practices would overcome many existing barriers to network development. Through recommendations from CHCF, CSAM, hub and spoke practice, a cohort of 19 MD Practice Facilitators has been identified and matched to each hub. The hub coordinator will work closely with their assigned to facilitator/champion and together they will form a "dyad" to navigate through the needs of their H&SS network. Each facilitator and hub coordinator will receive a training in "Practice Facilitation"—an evidence-based manual-guided implementation strategy – to build upon their expertise to thrive as a champion for MAT and develop the skills as a practice facilitator. The implementation support activities of the practice facilitation dyad will be tailored to the needs of the spoke practices, and the needs of the network. Options may include: onsite, video- or teleconference coaching on:

initial inductions, tapering, addiction medications and compliance or patient complexity issues, and patient transitions from spoke-to-hub-to-spoke-to-spoke; selecting and developing nursing, behavioral health and/or care coordinator skills; working with other health care and social service providers; developing a functional network; and addressing negative attitudes and stigma in a spoke organization. A variety of options, to interact with individual spokes, assemble groups of spokes, either virtually or in person, are at the disposal of the paired dyad.

In addition to the UCLA Practice Facilitator program, additional mentorship has been offered by CSAM, through the MERF scholarship program (Medical Education and Research Foundation for the Treatment of Addiction). In August 2018, fifty (50) scholarships were awarded for mentored learning experiences at the 2018 State of the Art in Addiction Medicine Conference as part of the CA Hub & Spoke System: Medication Assisted Treatment (MAT) Expansion Project with ongoing support to be delivered over the year.

Statewide Quarterly MAT trainings

The Statewide MAT trainings are delivered quarterly as free webinars, intended for a public audience, including community members, stakeholders, SUD and other health care providers and other entities. The purpose of these trainings is to provide up to date information about medication-assisted treatment approaches for opioid use disorders and emerging trends. The intent is to expand training and education beyond the H&SS network and make it accessible across disciplines and public care systems. In Year 1, the following topic areas/sessions have been conducted. Information and materials from each event can be found here: http://www.uclaisap.org/ca-hubandspoke/html/materials.html#STIGMA

- MAT 101: An Overview of Medication Assisted Treatment (MAT) (conducted on two occasions)
- Providing Medication-Assisted Treatment in Integrated Settings: Coordinating Care with a MAT Team; Featuring experts from a Vermont MAT Team

Continuing into Year 2, the next statewide MAT webinars will address stigma and MAT, and the emerging trend of stimulant and opioid use.

Project ECHO clinics

As an extension of the Learning Collaboratives and trainings, ongoing technical assistance is provided through the Project ECHO web-based case consultation mechanism. Project ECHO is a lifelong learning and guided practice model that revolutionizes medical education and exponentially increases workforce capacity to provide best-practice specialty care and reduce health disparities. The heart of the ECHO model™ is its hub-and-spoke knowledge-sharing networks, led by expert teams who use multi-point videoconferencing to conduct virtual clinics with community providers. In this way, primary care doctors, nurses, and other clinicians learn to provide excellent specialty care to patients in their own communities. For the CA H&SS project, 1-hour sessions are conducted on a regular basis, led by medical and addiction experts with a curriculum specific to the needs of the Hub and Spoke program and providers. To date, four sessions occurred in which the following topic areas/sessions have been conducted, followed by

a specific case consultation and clinical discussion. Information and materials from each event can be found here: http://www.uclaisap.org/ca-hubandspoke/html/materials.html#ECHO4

- Introduction to Project ECHO© and to Opioid Use Disorder, Session 1
- Treatment of Opioid Use Disorders, Session 2
- Risk Reduction: Overdose Prevention and Management of Prescribed Opioids, Session 3
- Hepatitis C Virus (HCV) & Infectious Disease 101 for Hubs & Spokes, Session 4

Cross-Agency Partnerships

As part of the implementation strategy, DHCS has called on several organizations to contribute to this statewide initiative as an "all hands on deck" approach to address the opioid crisis in California. Quarterly Steering Committee meetings are convened to create and maintain synergy across the several moving parts of the health care delivery system and other statewide efforts responding to the opioid epidemic. Representatives from many leading organizations and champions in the field are invited to the table to provide various perspectives and updates on programs in which to inform on best practices, networking opportunities, and technical assistance for the CA Hub and Spoke networks. For example, California Society of Addiction Medicine (CSAM), California Health Care Foundation (CHCF), and California Primary Care Association (CPCA) are frequently consulted to provide feedback, expertise, partnerships, and resources to maximize expansion efforts. In addition, collaboration and commitment have also been yielded from local Opioid Coalitions, UC San Francisco's Clinical Consultation Warmline, California Department of Public Health (CDPH) Harm Reduction and Office of Viral Hepatitis Prevention units. It is anticipated with additional funds and initiatives coming through SAMHSA will add more opportunity for cross-agency partnerships in which to leverage resources and enhance the impact of the multiple efforts combatting the opioid crisis.

Methods

The data presented in this report focus on the first year of program implementation activities. Although SAMHSA's State Targeted Response (STR) to the Opioid Crisis grant to the California Department of Health Care Services (DHCS) began in April 2017, Hub agencies received their program awards in August 2017. Because the main focus of the evaluation is on the implementation and outcomes of the Hub and Spoke program activities, data presented here focus on the period of August 2017 to July 2018 (hereafter referred to as "Year 1").

Patient and Provider Counts

All data on patient medication initiations, cumulative patient censuses, number of waivered providers and number of patients per prescriber are collected through monthly reports completed by the Hubs and Spokes themselves (see Appendix III). UCLA ISAP developed and maintains a web reporting system, which serves as a portal for standardized data entry. Coordinators hired as part of the Hub and Spoke grants input monthly counts, drawn from their programs' health records. All coordinators received training in data collection methods and data entry at the start of the program. In addition, UCLA audits and delivers ongoing feedback to coordinators to ensure data quality. However, because data is reported by coordinators, rather drawn directly from health records, it is possible that reports contain errors (see Limitations). The data presented in this report reflect the first year of implementation activities in the Hub and Spoke settings, which began in August 2017. However, as a result of the nature of the program, a goal of which was to expand the number of settings involved in the network, not all Spokes began implementation during the same month.

Provider Surveys

As part of the evaluation's baseline data collection, UCLA conducted three online surveys of service providers working in Hub and Spoke locations. The three surveys were tailored and administrated based on providers' roles in the Hub and Spoke Program as either: (1) DATA 2000 waivered providers, (2) supportive MAT Team staff (e.g., nurses, counselors, care navigators), or (3) Hub Leadership (see Appendix IV). Each survey addressed provider knowledge and attitudes about OUD and medication assisted treatment (MAT), perceptions of the Hub and Spoke model, barriers and facilitators to successful implementation at the clinic and community level, and training/technical assistance needs.

UCLA developed the three surveys internally with feedback from DHCS, several Hub and Spoke providers, and consultants with expertise in the Vermont Hub and Spoke model, Mark McGovern, PhD and Richard Rawson, PhD. The content of the surveys was drawn from issues arising during Hub and Spoke Steering Committee meetings, Hub and Spoke Kick-Off meetings, and Learning Collaboratives, as well as from the themes of the AHRQ (2017) "Implementing Medication-Assisted Treatment for Opioid Use Disorder in Rural Primary Care: Environmental Scan Volume 1," and the Center for Advancing Health Policy and Practice (2017) "Integrating Buprenorphine Treatment for Opioid Use Disorder in Primary Care" manual. Items were developed based on several existing tools including the Criminal Justice Drug Abuse Treatment Studies (CJ-DATS) Baseline Survey of Organizational Characteristics (Welsh, et al. 2016), the Drug and Drug Problems Perceptions Questionnaire (DDPPQ; Watson, Maclaren & Kerr 2007),

and the SAMHSA Opioid State Targeted Response (STR) Evaluation Community/Program Director Baseline Interview Protocol, and were modified for relevance to the Hub and Spoke project. Item content, scales, wording and order was reviewed on an item-by-item basis by the UCLA evaluation team, with consultation from Mark McGovern. The three surveys were approved by the California Office of Statewide Health Planning and Development (OSHPD) Committee for the Protection of Human Subjects. The surveys were distributed online via SurveyMonkey. UCLA invited all known providers in the Hub and Spoke System as of May 2, 2018 to participate, by email. Respondents were offered a $30 electronic gift card incentive for completion of the survey.

From May 2, 2018 through June 29, 2018, UCLA received 149 completed responses, in total. Response rates per survey were as follows: waivered provider survey, 58.5% (n = 72); MAT team survey, 85.0% (n = 51); and Hub leadership, 93.1% (n = 27). The three surveys were analyzed separately. Because each survey had a relatively low sample size, results should be interpreted carefully.

Administrative Data Review

Statewide and county-by-count numbers and rates of opioid overdose-related deaths are already The numbers and rates of deaths are based on death certificate data from the CDPH vital statistics Multiple Cause of Death file. Rates are calculated by dividing the number of deaths by population estimates from the U.S. Census Bureau or CDC WONDER. Numbers and rates can be reported at the state and local levels for all opioids, heroin, prescription opioids, prescription opioids without synthetics, natural and semi-synthetic opioids, methadone, and synthetic opioids. Estimates of the number of persons with OUD were abstracted from the *County-Level Estimates of Opioid Use Disorder and Treatment Needs in California* fact sheets (Clemans-Cope, Epstein, & Wissoker 2018). These estimates were based on 2016 National Survey on Drug Use and Health (NSDUH) data.collected by the California Department of Public Health (CDPH) and reported via the existing California Opioid Overdose Surveillance Dashboard (https://pdop.shinyapps.io/ODdash_v1/).

Demographic data for Hubs were estimated based on aggregate 2017 California Outcomes Measurement System, Treatment (CalOMS-Tx) data. CalOMS-Tx collects admission and discharge data in compliance with SAMHSA's requirements for the Treatment Episode Data Set. NTPs and other providers are already required to submit this data, and report on the type of medication being used, which will enables the program to quantify the number of people receiving MAT in the form of methadone. Demographic data for Spokes were estimated based on aggregate 2017 Medi-Cal managed care claims data.

Evaluation Framework

This evaluation report follows the RE-AIM framework (Glasgow, Vogt & Boles 1999; Gaglio, Shoup, & Glasxgow 2013; http://www.re-aim.org/about/) to assess the quality and public health impact of the Hub and Spoke model. RE-AIM examines programs along five dimensions—Reach, Effectiveness, Adoption, Implementation, Maintenance—to systematically and

comprehensively evaluate the real-world impacts of program implementation, highlight program strengths, and identify areas where program implementation could be improved. Table 2 includes an overview of RE-AIM constructs and how they are being utilized to inform the design of the evaluation.

Table 2. **RE-AIM framework for evaluating the hub and spoke model in California**

RE-AIM Dimension	Questions Being Asked In Evaluation
Reach: Number and representativeness of individuals participating in or impacted by program	• How many patients are impacted by the Hub and Spoke program? • What are the demographic characteristics of patients being served by the Hub and Spoke program?
Efficacy: The impact of the intervention on important outcomes	• How many patients gain access to buprenorphine treatment under the Hub and Spoke initiative? • What impact does receiving Hub and Spoke services have on patient's opioid use, health, and health-related quality of life?
Adoption: Number and representativeness of organizations participating in the program	• How many healthcare organizations are participating in the Hub and Spoke Initiative? • How many healthcare providers are participating in the Hub and Spoke Initiative? • Are there disparities in terms of types of organizations, geographic regions, or populations served among the organizations participating in the Hub and Spoke?
Implementation: Consistency of delivery as intended, variation in implementation of various components, adaptations to facilitate implementation	• How consistently are various aspects of the Hub and Spoke model (e.g. linkage between Hubs and Spokes, OUD screening, use of MAT Teams) being implemented? • Are there factors that promote or inhibit the implementation of Hub and Spoke services? • What adaptations have been made or could be made to facilitate improved implementation?
Maintenance: The extent to which a program or policy becomes institutionalized or part of routine organizational practice	• Do Hub and Spoke policies and procedures become part of routine practice for participating organizations? • What factors promote or inhibit the continued delivery of Hub and Spoke services? • To what degree will Hub and Spoke relationships between organizations and shifts in provider behavior (e.g. changes in buprenorphine prescribing) be maintained once external funding and supports are no longer available?

Each of these topics will be addressed, to the extent possible given the current status of the evaluation, in the "Adoption and Implementation" and "Reach" sections of this report. Assessments of efficacy and maintenance will be conducted throughout the second year of the program, as patient interviews are completed, and administrative data becomes available for the program timeframe.

Limitations

All data presented in this report, except when otherwise stated, were abstracted and provided in aggregate by coordinators in the Hub and Spoke clinics. Data were reported monthly via an online system hosted by the UCLA ISAP Data Management Center. Due to the scope of the project, it was not practical for UCLA to draw data directly from each participating program's health record. It is therefore possible that data are inaccurate due to data entry errors, misreporting, or limitations of health record systems. In order to standardize data reporting and minimize errors, UCLA conducted three data reporting training webinars during the first year of the project, and developed a handbook with written guidelines. To determine the accuracy of data reporting, UCLA will match reported data with CalOMS-Tx and Medi-Cal claims data. This will be completed in the second year of the evaluation, as data for the grant period become available.

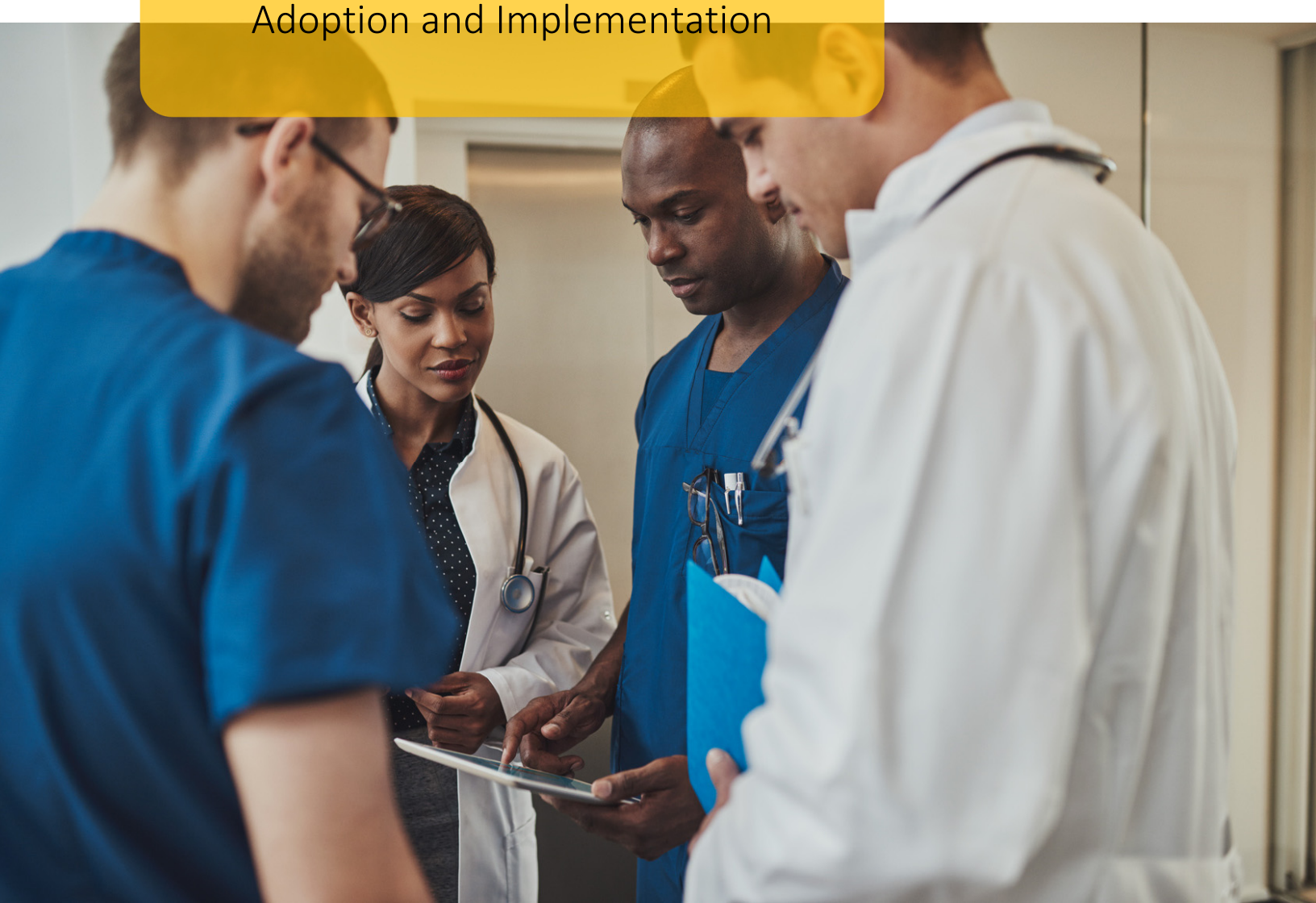
Some of the patient and provider data presented in this report may represent underestimates. Several Spoke organizations were missing reports in several months. Data for months missing reports were adjusted using mean imputation (Engels & Diehr 2003). Fifteen Spokes also had not submitted any data at the time of this report. These Spokes have been excluded from analyses. Later submission of data reports may cause increases in numbers of patients starting MAT or numbers of waivered providers.

In order to estimate the number of persons with an opioid use disorder (OUD) in each county served by a Hub and Spoke System, data were abstracted from the *County-Level Estimates of Opioid Use Disorder and Treatment Needs in California* fact sheets (Clemans-Cope, Epstein, & Wissoker 2018). Fact sheet OUD estimates were based on NSDUH data, and may represent underestimates, as household surveys do not capture persons experiencing homelessness.

In addition, numerous additional efforts to address the OUD crisis in the state of California were taking place simultaneously with the Hub and Spoke program. In 2015, California received federal permission to improve and expand treatment and recovery services for substance use disorders (SUD) through its Medi-Cal Section 1115 waiver authority. The Drug Medi-Cal Organized Delivery System (DMC-ODS) waiver requires that counties offer a continuum of care modeled after the American Society of Addiction Medicine (ASAM) Criteria for SUD treatment services, and expands the availability of MAT in NTP and other treatment settings. Eight counties opted into and began implementation of the waiver in 2017. Also in 2015, the California Department of Public Health (CDPH) was awarded a four-year grant from the Centers for Disease Control and Prevention (CDC) to address opioid overdose in counties with the highest death rates. In addition to these programs, the California Health Care Foundation (CHCF), in partnership with the California Society of Addiction Medicine (CSAM) and DHCS, is supporting the integration of MAT into California community health centers, using a learning collaborative

model. The Hub and Spoke program worked in conjunction with and was enhanced by these efforts. Any data presented on statewide or county-level outcomes should not be interpreted as solely due to the Hub and Spoke program.

Adoption and Implementation



System Level Adoption and Implementation

While the California Hub and Spoke program was modeled after the Vermont program (Brooklyn & Sigmon 2017), its implementation has deviated from the original model in several ways, primarily via adaptation to suit the needs of the state. Geographically, California is 17 times the size of Vermont. Its population is 63 times larger, and is much more racially, ethnically, economically and linguistically diverse.[3] In addition, at the outset of Hub and Spoke implementation, Vermont had the highest per capita number of waivered providers in the US (Brooklyn & Sigmon 2017). California was ranked 24th in the number of prescribers and, when implementation began, the state lacked prescribers altogether in several of its rural northern counties, which had among the highest overdose death rates (Knudsen 2015, Rosenblatt et al. 2015; SAMHSA 2018). A major challenge of implementation efforts in California was therefore tailoring the program to fit the state's widely varying landscape of OUD epidemiology and existing treatment services. To address these variations, the network was broken up into six regions, each encompassing 2-5 Hub and Spoke systems. The regions were used to organize trainings and Learning Collaborative activities, to ensure that discussions focused on local issues and resources. Implementation efforts were not standardized across regions, or across systems. However all systems were required, as part of their award from DHCS, to adhere to the program theory of the Hub and Spoke model.

Because adoption and implementation efforts were tailored to the unique circumstances of each system, evaluating fidelity to the Hub and Spoke model requires a practical approach. As Mowbray, et al. (2003) discuss, model adaptation is acceptable, as long as the overall "cognitive blueprint" of a program innovation remains intact. When innovations are less structured, it is most appropriate to identify key ingredients that are essential to the expected outcomes of the model and evaluate fidelity to each element. In the case of the California Hub and Spoke

[3] Vermont's population is 92.9% White (not Hispanic or Latinx), 1.8% Asian, 1.9% Hispanic or Latinx, 1.4% Black or African American, 0.4% American Indian or Alaska Native, and 1.9% two or more races. California's population is 39.1% Hispanic or Latinx, 37.2% White (not Hispanic or Latinx), 15.2% Asian, 6.5% Black or African American, 1.6% American Indian or Alaska Native, 0.5% Native Hawaiian or Pacific Islander, and 3.9% two or more races. 44.0% of California's population speaks a language other than English at home, versus 5.6% of Vermont's population. Retrieved from https://www.census.gov/quickfacts/ California also has among the highest rates of homelessness in the nation, with 34 in every 10,000 people experiencing homelessness (Vermont rate was 20 per 10,000; HUD 2017). Moreover, 27% of the California population under age 65 was enrolled in Medi-Cal in 2016 (Vermont rate was 23%; Kaiser Family Foundation 2017).

program, several key elements have been identified, based on the core aspects of the original Vermont model as well as the required scope of work outlined by DHCS, for the California context. Table 3 outlines these key elements, and the specific activities required in each.

Table 3. **Hub and Spoke model key elements and activities**

Key Element of Hub and Spoke Model	Required activities
Medication assisted treatment	• Hubs provide methadone, buprenorphine, and any other FDA-approved medications for addiction treatment (e.g., extended-release naltrexone) • Spokes provide buprenorphine and any other FDA-approved medications
Network of expertise and referral resources	• OTP Hubs serve as subject matter experts and referral resources for patients with complex OUD • OBOT Spokes serve as referral resources for patients with more stable OUD
Supportive MAT Teams	• MAT Teams offer counseling, case management, peer support, and referral to community recovery resources • MAT Teams support waivered providers in Spokes • MAT Teams manage up to 100 patients
Learning Collaboratives	• Learning Collaboratives offer didactic training in evidence based practices, as well as forums for discussion about implementation successes and challenges • Hub and Spoke providers and administrators participate in quarterly Learning Collaboratives
OUD screening and severity assessments	• Assessment and diagnosis of OUD • Use of the Treatment Needs Questionnaire (TNQ) and OBOT Stability Index

The Hub and Spoke systems' successes and challenges in adopting MAT, building networks of referral resources and OUD treatment expertise, providing MAT team support to prescribers, participating in Learning Collaboratives, and offering screening and OUD severity assessments are described below.

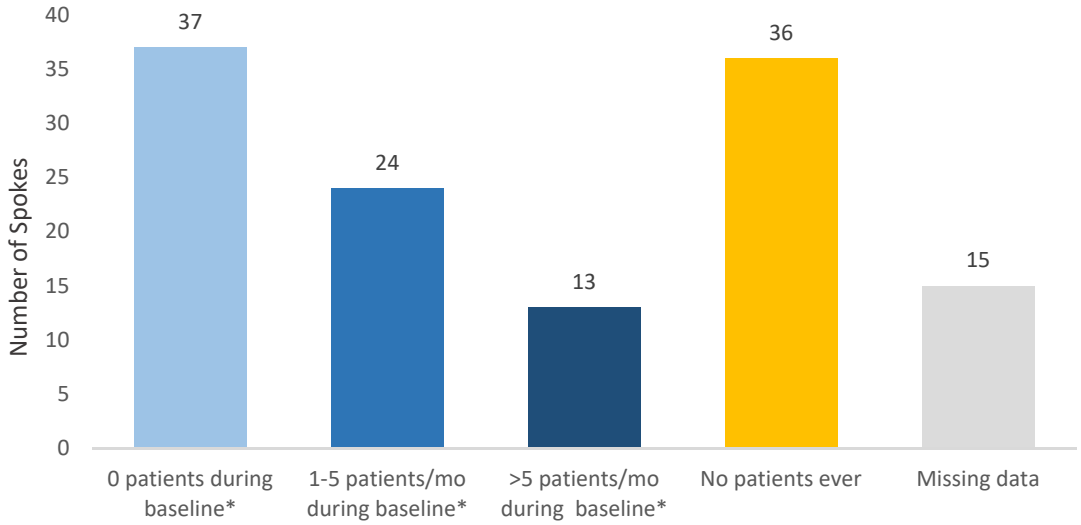
MAT Adoption

Overall, there were high rates of MAT adoption in Hub and Spoke systems. All Hubs and 67.2% (n = 74) of Spokes had adopted MAT as of the close of the first year of implementation activities. Nearly two-thirds (66.4%, n = 73) of all reporting Spokes did not offer MAT when the program started. Among these, 37 started prescribing during the first year (see Chart 2).[4] Despite

[4] Outcomes by Spoke MAT adoption status at baseline are discussed further in the "Reach" section of this report

successful MAT expansion efforts in these settings, 36 Spokes had not yet started prescribing. These Spokes serve as important sites of continued MAT expansion.

Chart 2. **Spokes by number of patients per month prior to Hub and Spoke (baseline)**



* Had any patients during the grant period

Seventeen Hubs provided all FDA-approved medications for addiction treatment. One Hub, CommuniCare, did not offer methadone directly through their Hub clinic. As an FQHC, rather than an OTP, CommuniCare was not licensed to prescribe methadone. However, methadone was offered to their Hub and Spoke system through their Spoke clinic, CORE. In the Spokes, by the end of Year 1, there were 246 providers waivered to prescribe buprenorphine, 60.2% (n = 148) of whom were actively seeing OUD patients. This gap in the number of waivered providers actually prescribing MAT is described further in the "Provider Level Adoption and Implementation" section of this report.

Network Characteristics and Expansion

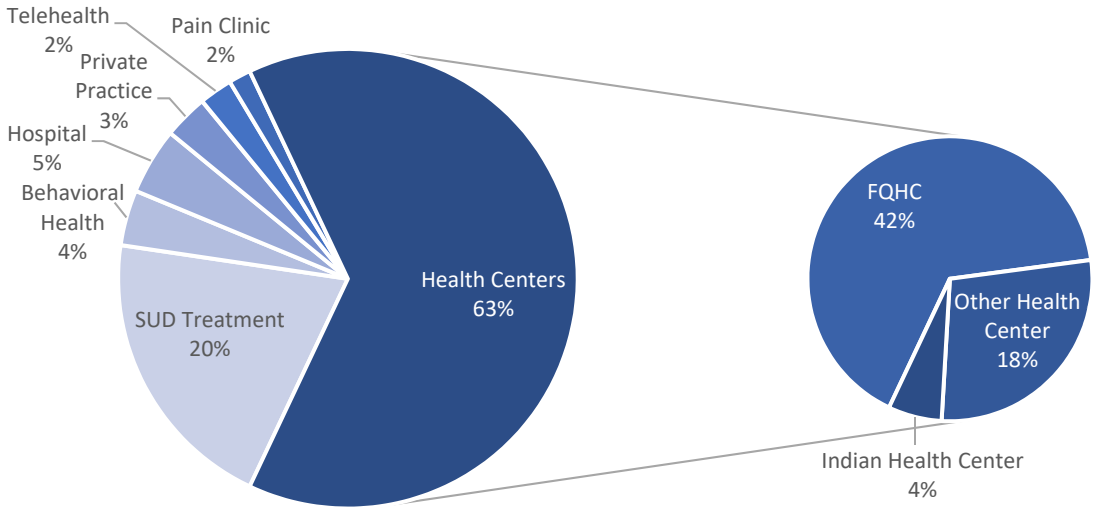
In the first year of implementation efforts, the primary focus of the California Hub and Spoke network was on building the network. In Year 1, the network expanded from 18 Hubs with 57 Spokes, to include 129 Spoke treatment locations. These Systems were broken up between six regions, which were used to organize Learning Collaboratives and share local resources. Among the counties with the ten highest 2017 overdose death rates, only Modoc and Ventura lacked Hub and Spoke coverage. Network expansion occurred primarily in the rural northern counties (see description of Regions 1 and 2).

<u>Hub and Spoke Program Types</u>

All Hubs except CommuniCare were opioid treatment programs (OTPs). The majority of Spokes (n = 82) were health centers, among which 54 were Federally Qualified Health Centers (FQHCs) and six were Indian Health Centers (one was both an FQHC and an Indian Health Center). These Spokes most closely fit the Hub and Spoke model, which aims to expand MAT into office-based treatment settings. The FQHCs and Indian Health Centers in particular are seen as successful

implementations of the model, as they expand MAT to medically underserved populations and indigenous communities, who have the highest opioid overdose death rates. Private practices, hospitals pain clinics, and telehealth programs, which comprise an additional 12% of Spokes, are also within the scope of the Hub and Spoke framework. SUD treatment programs (n = 26) and behavioral health centers (n = 5) represent a deviation from the model. Although their connections into the network create valuable referral resources, a primary objective of expanding MAT into OBOT settings is to provide long-term treatment in settings that patients frequent for their primary health care. Outcomes by Spoke type are described under "Reach."

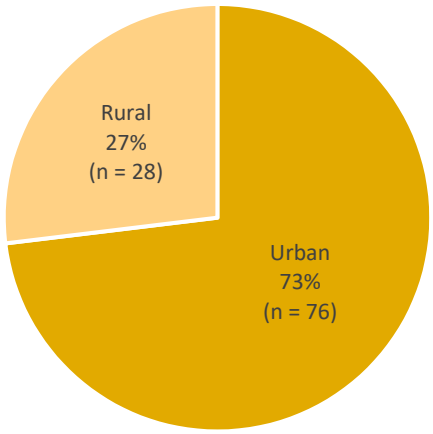
Chart 3. **Spoke sites by type of clinic/program**



Rural vs. Urban Spokes

Twenty-three Spokes were located in OMB-defined non-metro counties, and 10 were in census blocks with population densities of less than 2,500 (USDA Economic Research Service). For the purposes of analyses, all 28 Spokes falling into either or both types of location have been categorized as rural-serving (see Chart 4). The majority (82.1%) of these rural Spokes were located in Regions 1 and 2 (see Regions below). The remaining 76 Spoke locations have been categorized as urban.

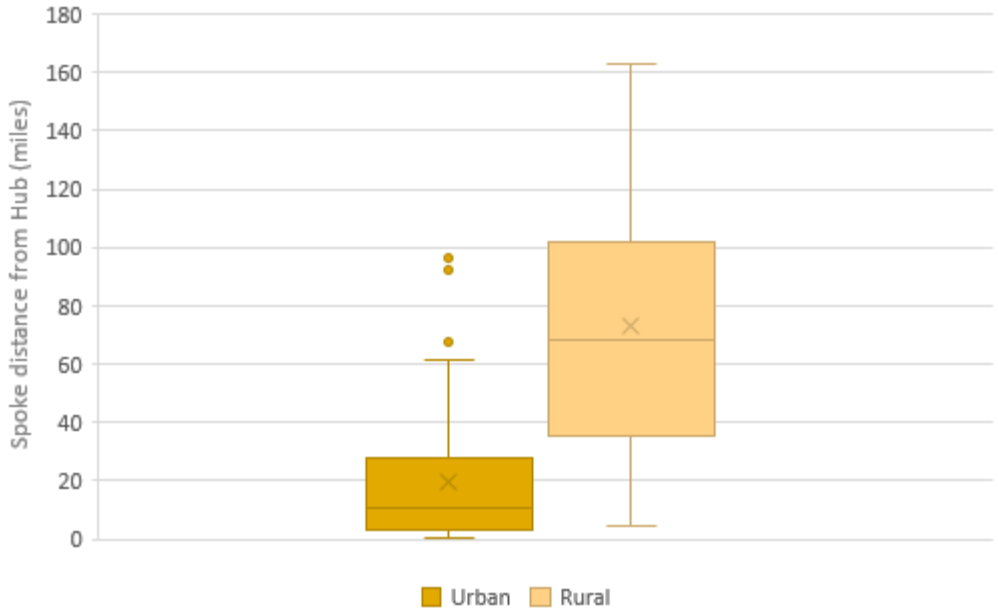
Chart 4. **Spoke sites – urban vs. rural serving**



Distance between Spokes and their Hubs

Referrals between Hubs and their Spokes were made challenging by the large distances between sites. The mean driving distance between Spokes from their respective Hubs was 31.9 miles (*SD* = 35.9), with a maximum of 163 miles (Chart 5). These distances were even more pronounced for rural Spokes, which were located a mean distance of 72.7 miles (*SD* = 42.0) from their Hubs.

Chart 5. **Spoke distance from Hub (urban vs. rural)**

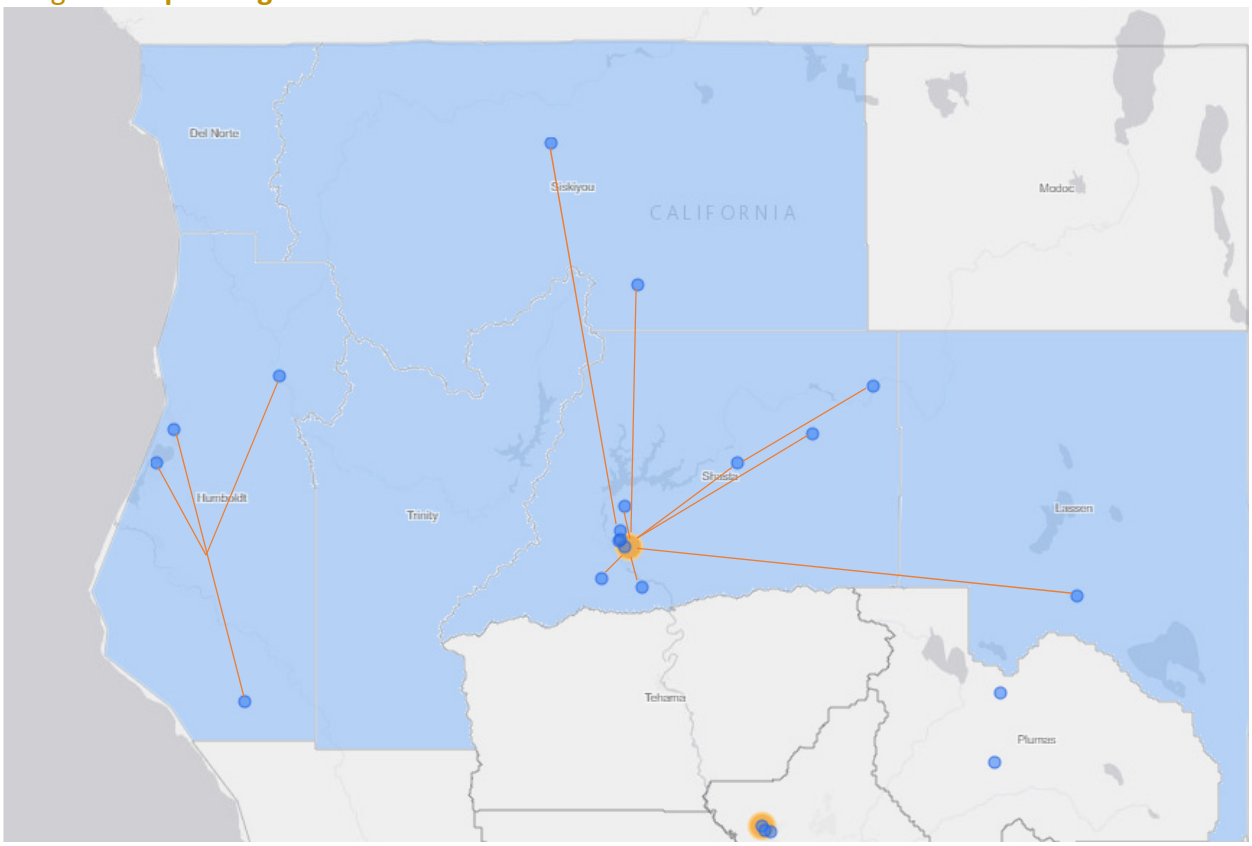


These long distances in rural areas, while expected, made care coordination between Hubs and Spokes more difficult than in urban settings. As a result, many rural Spokes were required to function like Hubs, starting patients on buprenorphine and serving the treatment needs of those who might be less stable on MAT. In response to the Year 1 provider survey, one waivered Spoke physician noted, "Our 'hub' is a fair distance physically from us, decreasing likelihood patients in our area would be able to get to the hub for induction and stabilization. We do most of our own inductions." This adaptation of the model to fit the California context places the emphasis of the program more on building a network of knowledge sharing than on transferring patients based on their treatment needs. However, each Hub and Spoke region varied widely in its characteristics and resources.

Region 1

Region 1, the northernmost region in the state, included two Hub and Spoke systems: Aegis Redding and Aegis Eureka (see Image 5). These systems served the counties of Del Norte, Siskiyou, Humboldt, Trinity, Shasta and Lassen, and included a total of 16 Spokes. Nearly one-third (32.1%) of all rural Spokes in the Hub and Spoke program were located in Region 1. All counties except Shasta were OMB-defined non-metro areas (USDA ERS), and five Spokes were located in rural areas with census block populations of less than 2,500 people. The rural northern areas served by Region 1 Systems have seen among the highest overdose rates in the state, from year to year, and only Shasta county had an NTP. The Hub clinic for Aegis Eureka was still in development as of the close of Year 1, but its Spokes maintained connections as a system.

Image 5. **Map of Region 1**



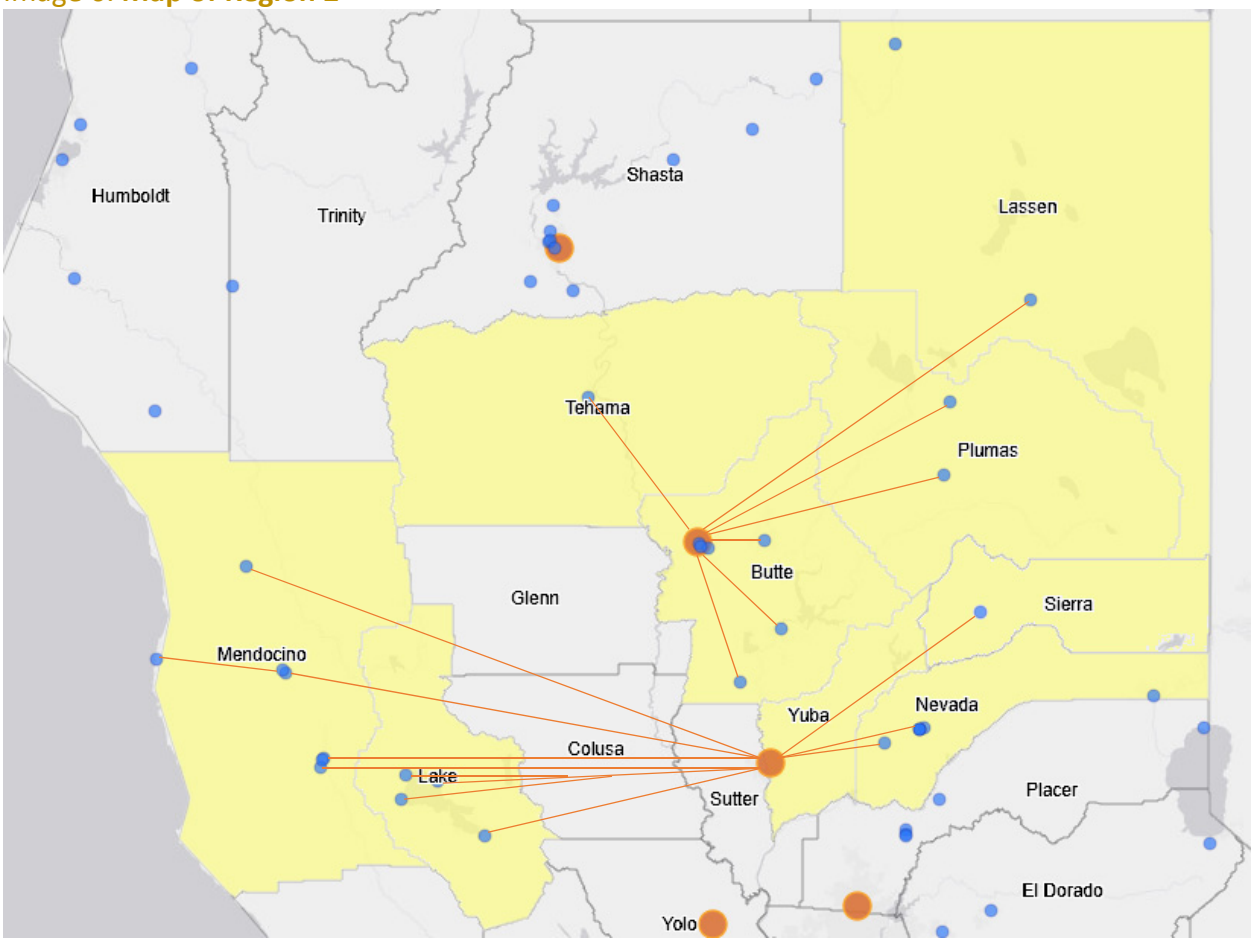
The Spokes in Region 1 included 21 health centers, 2 private practitioners, and 2 SUD treatment centers. One Spoke served as an Indian Health Center. Among the 11 Spokes in the Aegis Redding system, the average driving distance from the Hub was 32.8 miles, with the furthest Spoke 98.3 miles away, requiring many Spokes to manage inductions and patient outreach with limited referrals from the Hub. Ten Spokes in the region did not offer MAT prior to the grant's implementation, six of which had started prescribing buprenorphine by the close of the first year.

Region 2

Region 2 encompassed the remaining counties of the rural north including Lassen, Tehama, Plumas, Mendocino, Butte, Sierra, Lake, Yuba and Nevada (see Image 6). These counties were

covered by the Aegis Marysville and Aegis Chico Hub and Spoke systems, which included a total of 18 Spokes. Only Butte and Yuba Counties had NTPs in place. Half (50.0%) of all rural Spokes in the program were located in Region 2, which also had the largest geographical spread of any region. The average distance between Spokes and their respective Hubs was 81.9 driving miles (maximum 163 miles). The Spokes included 12 health centers, 5 county behavioral health service locations, 4 hospitals, and 2 SUD treatment centers. Two Spokes were Indian Health Centers. Ten Region 2 Spokes did not provide MAT prior to implementing the Hub and Spoke program, and eight of these had started by the close of Year 1.

Image 6. **Map of Region 2**

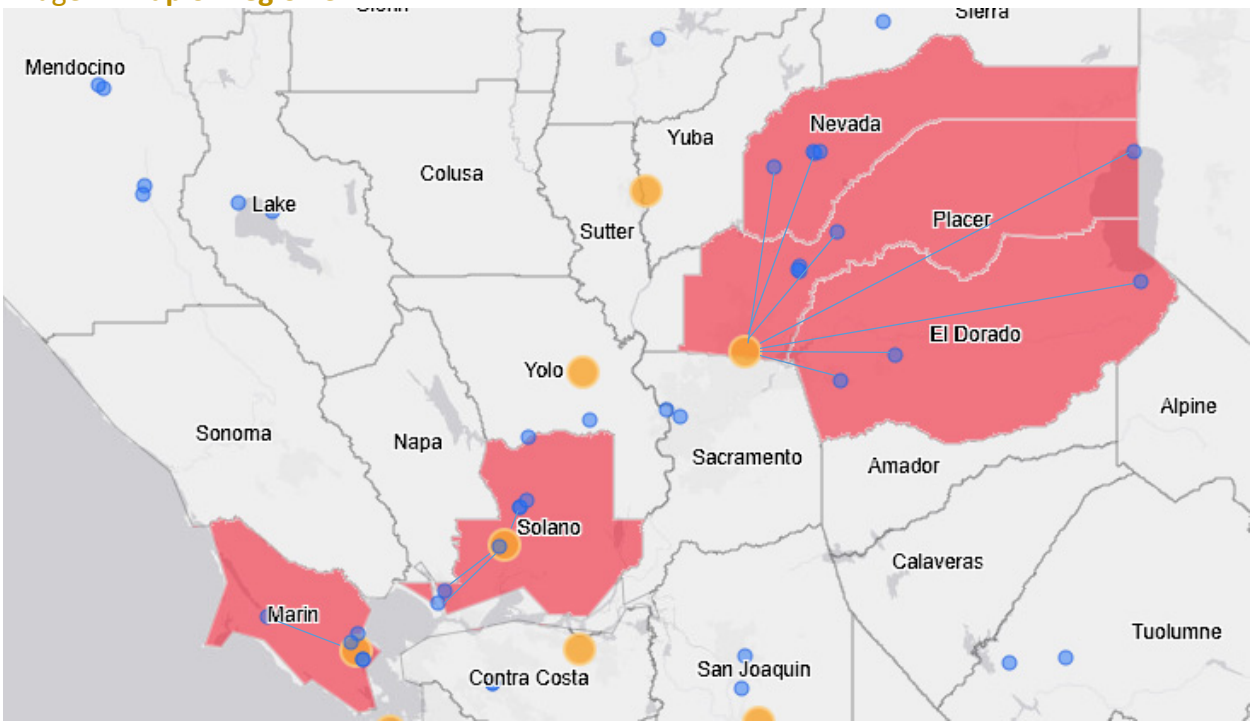


Region 3

Region 3 included three Hub and Spoke Systems: Aegis Roseville, MedMark Solano, and Marin Treatment Center, with 23 total Spokes (Image 7). These systems served Nevada, Placer, El Dorado, Solano and Marin Counties. All Region 3 counties except Nevada and El Dorado had NTPs. On average, the Spokes were located 24.6 driving miles from their Hubs, and the furthest Spoke was 96.6 miles away. The Spokes included 13 health centers (one of which was an Indian Health Center), two hospitals, four mental/behavioral health programs, one detox center, and one telehealth organization. Seventeen Spokes in this region had never prescribed MAT prior to grant implementation, among which seven had started prescribing by the end of the first year. An

important target for the next year of activity is improving the number of Spokes that are actively prescribing.

Image 7. **Map of Region 3**

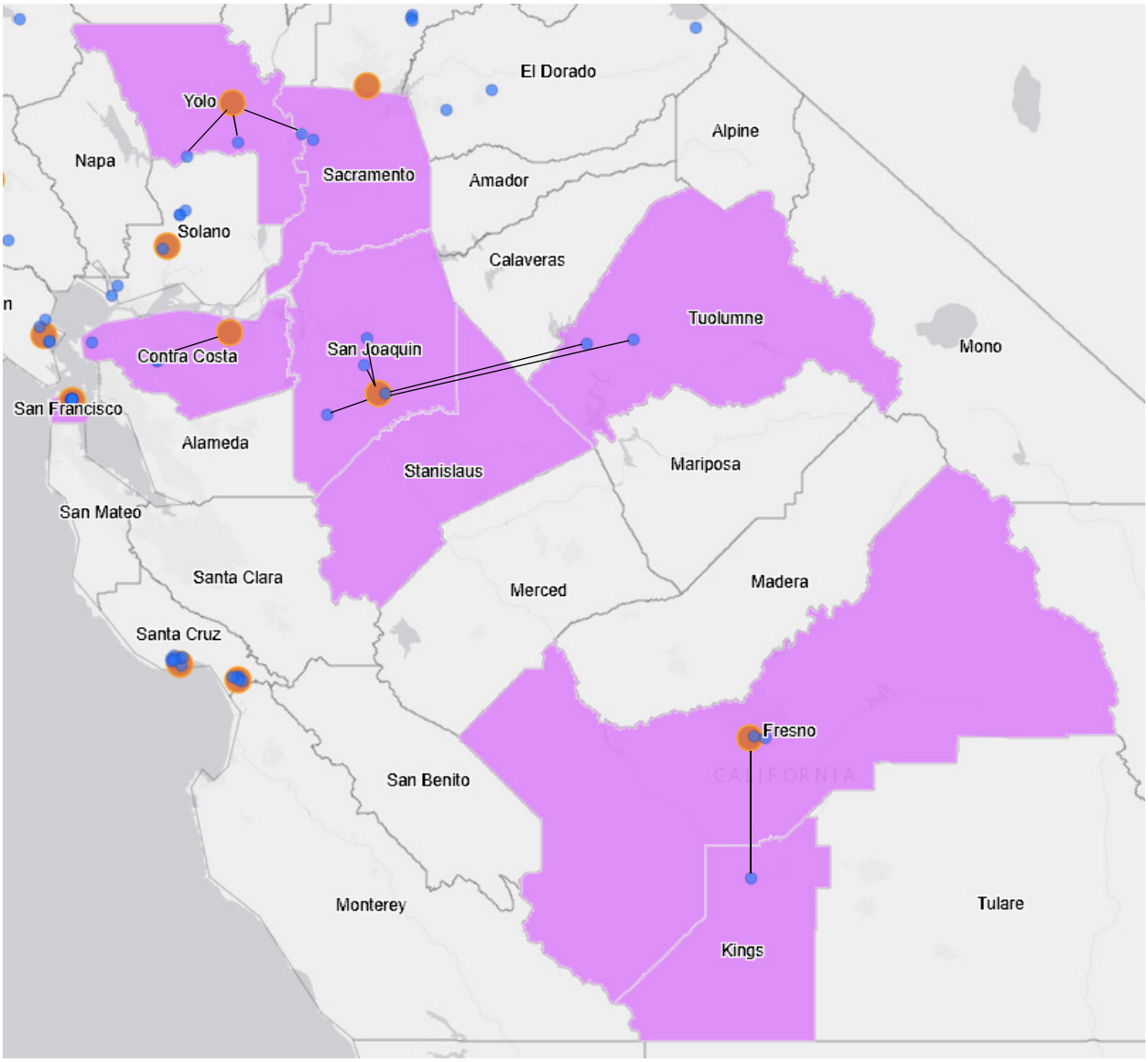


Region 4

Region 4 covered portions of the Bay Area and the Central Valley, and was composed of four Hub and Spoke Systems: CommuniCare, BAART San Francisco, BAART Contra Costa, Aegis Manteca, and MedMark Fresno (Image 8). The region included San Francisco, Contra Costa, Yolo, Sacramento, San Joaquin, Stanislaus, Tuolumne, Fresno and Kings Counties. All of these counties except Yolo, Tuolumne and Kings had NTP services available. The 15 Spokes in Region 4 included five FQHCs, two Indian Health Centers, five other health centers, one private practitioner, and two SUD treatment programs. The Spokes were also located much closer to their respective Hubs than Spokes in the northern regions, with an average of distance of 20.5 driving miles, and a maximum of 64.4 miles. Only four Spokes had not started prescribing MAT prior to program implementation, among which all but one began prescribing by July 2018.[5] Despite these resources, this Region had the slowest growth in new patient numbers (see "Reach").

[5] Region 4 was missing data for eight Spokes at the time of this report.

Image 8. **Map of Region 4**

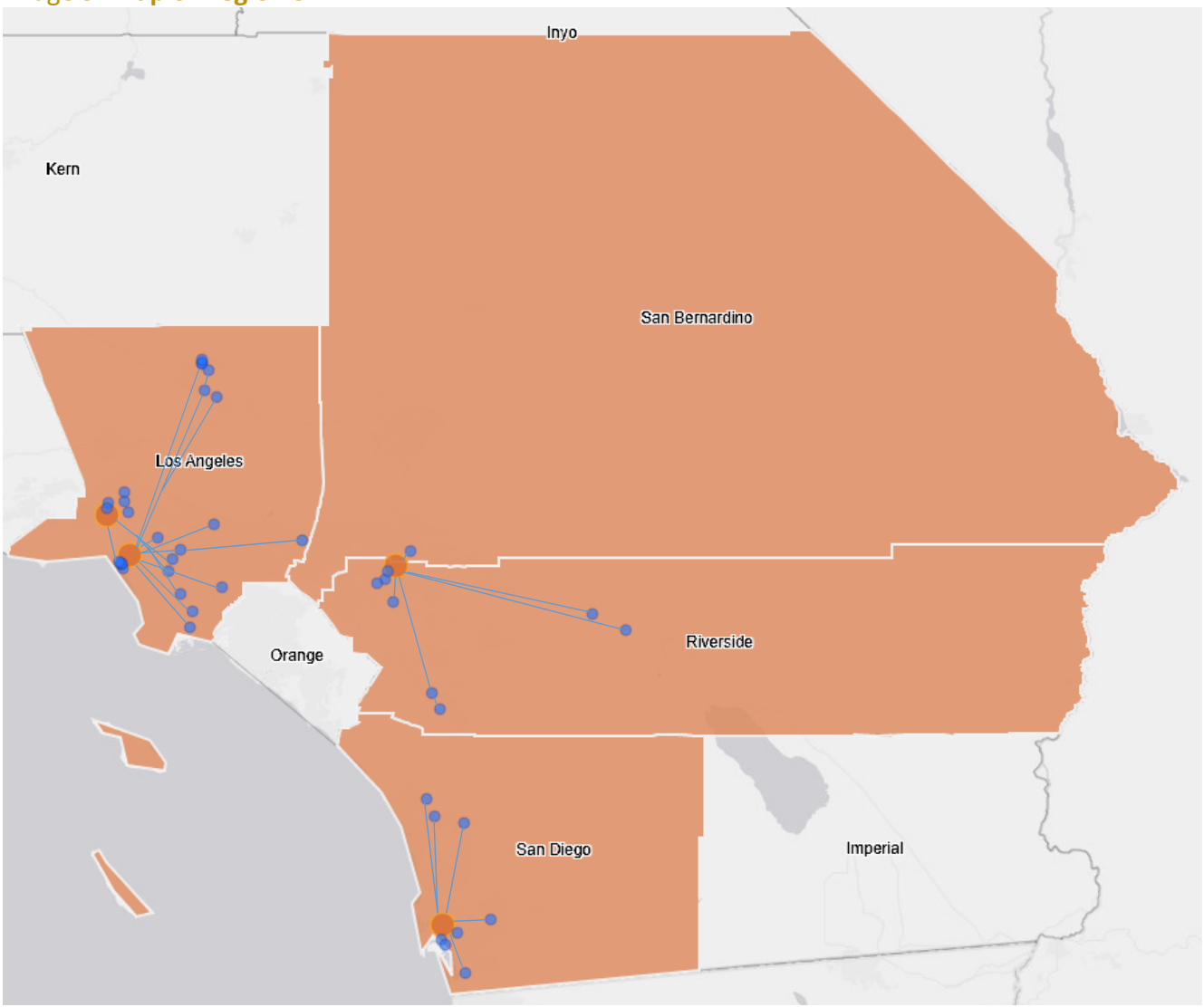


Although Year 1 growth in the number of Spokes and the number of new MAT patients was slow, Region 4 had great potential for improvement, particularly in addressing the treatment needs of underserved communities. In 2017, San Francisco County had an opioid overdose death rate of 44.8 per 100k and San Joaquin County had a death rate of 28.4 per 100k among African Americans. San Joaquin also had among the highest overdose death rates for American Indians/Alaska Natives (47.0 per 100k) in the state, as did Tuolumne County (42.8 per 100k). This indicates that there may be a treatment gap in communities of color in this Region, and it is recommended that Hub and Spoke systems expand their efforts within these communities.

Region 5

Region 5, encompassing Southern California, included four Hub and Spoke Systems: Matrix Institute, Tarzana Treatment Centers, Acadia San Diego and Acadia Riverside (Image 9). Its programs served Los Angeles, Riverside, San Diego, and San Bernardino Counties. However, there was only one Spoke located in San Bernardino, near the border of Riverside County. Region 5 included the largest number of Spokes, with 44 locations. Among the Spoke organizations were twelve FQHCs, ten SUD treatment programs, one behavioral health center, and one pain clinic. They were located an average of 26.0 driving miles from their Hubs, with the furthest Spoke located 67.8 miles from its Hub. Nine of the Region 5 Spokes were not prescribing MAT prior to the introduction of the program, and all but one had started prescribing by the close of Year 1.

Image 9. **Map of Region 5**



Region 6

Region 6 included only Santa Cruz County, and was covered by two Janus of Santa Cruz systems: Janus North and Janus South (Image 10). As one organization, these systems worked very closely with one another, and were approved to form their own Learning Collaborative. The 12 Spoke locations in Region 6 were a part of three FQHC organizations, three other health centers, one hospital and one SUD treatment program. The Spokes were within much closer proximity to their Hubs than in other regions, with an average of 3.3 driving miles' distance. The most distantly located Spoke location was a Spoke of Janus North located in the southern county, at 16.3 miles away, allowing for a level of care coordination much more similar to that of the original Vermont model. Four Spokes were not prescribing MAT prior to joining the Hub and Spoke program, and all but one started prescribing during the first year.

Image 10. **Map of Region 6**

Coordination and Communication within Systems

Numerous providers who responded to Year 1 surveys cited limited coordination and communication between the Hubs and Spokes as barriers to successful implementation of the Hub and Spoke program. Although Hub Leadership rated care coordination and communication well (see Table 4), several respondents described communication challenges on an administrative level within their networks, in survey comments. One Hub leader noted, "Communication and collaboration between Hubs is low. As well, Spokes are [siloed]. We are starting [an] All Spoke meeting to address this problem and I am petitioning to look at staffing structures at other Hub[s] who are successful." This Hub leader recognized that collaboration efforts had room for improvement, but also understood this work as a responsibility of the Hubs. Care providers themselves echoed the need for enhanced administrative leadership in coordination efforts between sites. One MAT Team member noted, "We need our Hub to convene more programmatic meetings to discuss issues and concerns that come up with successfully launching a MAT program. We can learn a lot from the other spokes but we have yet to come together as a Hub and Spoke team. We only met once in the beginning. This kind of collaboration on an administrative level would be much appreciated." Regular meetings and formalized communications within systems could serve as a critical means of enhancing implementation efforts.

Table 4. **Hub leadership "Communication" and "Coordination" survey responses (5-point Likert scale, strongly disagree – strongly agree)**

	N	Min	Max	Mean	Std. Deviation
Care coordination between the Hub and Spokes is effective.	26	.00	5.00	3.9231	1.05539
Practitioners in the Spokes are well connected to the Hub.	26	.00	5.00	3.6154	1.16883
Communication between medical and behavioral health staff in my Hub and Spoke system is good.	26	.00	5.00	4.0385	1.14824
The Hub service has had a positive impact on the primary care practice of the Spokes.	26	.00	5.00	3.9615	1.31090

Although administrative communication was more prominently cited as a barrier across surveys, care coordination also presented a challenge for some providers. On a 5-point Likert scale of strongly disagree to strongly agree, waivered providers tended to rate the effectiveness of care coordination between the Hubs and Spokes low (see Table 5). In addition, Spoke providers gave coordination efforts lower ratings than Hub providers ($p < .05$). Both waivered providers and MAT Team members generally felt the criteria for transferring patients between the Spokes and the Hub were unclear (mean scores 2.7 and 2.9, respectively). One waivered provider, commenting on transfer criteria explained, "Criteria are tough; [patients] change so quickly. In my experience so far, those [patients] I have transferred even to MYSELF from my hub to my spoke at another location - 2 of 3 have decompensated. [One] has been successful."

Table 5. **MAT Team "Communication" and "Coordination" survey responses (5-point Likert scale, strongly disagree – strongly agree)**

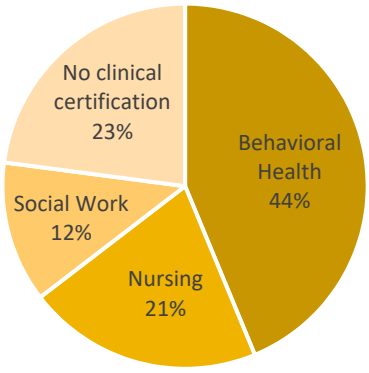
	N	Min	Max	Mean	Std. Deviation
Care coordination between the Hub and Spoke(s) is effective.	51	.00	5.00	3.5882	1.49902
Generally speaking, the locations where I work are well connected to the Hub and other Spokes in our network.	51	.00	5.00	3.6667	1.36626
Hub services are useful to practitioners in the Spoke(s).	51	.00	5.00	3.6667	1.64520
I feel the criteria for transferring patients between Spokes and the Hub are clear.	51	.00	5.00	2.9020	1.59066
I have good working relationships with buprenorphine prescribers in the Hub and Spoke system.	51	.00	5.00	3.8039	1.34193
I have a satisfactory level of communication with buprenorphine prescribers in my Hub and Spoke system.	51	.00	5.00	3.5294	1.44711
Clinical staff in this location have the referral resources they need for patients with opioid use disorders.	50	2.00	5.00	4.0800	1.00691

MAT Teams

In the Hub and Spoke model, MAT Team members include nurses and licensed behavioral health providers, who support waivered Spoke providers by offering patients counseling and care navigation services (Brooklyn & Sigmon 2017). Each team provides support for up to 100 patients and, if Spoke clinics do not have large enough caseloads, teams travel between Spokes with smaller numbers of patients.

In the first year of California Hub and Spoke implementation activities, MAT Teams were not yet operating as envisioned across the entire network. In response to the Year 1 provider survey, MAT Team members (n = 51) identified mostly as behavioral health providers (43.8%, n = 21). Only 20.8% (n = 10) were nurses, and 12.5% (n = 6) were social workers. An additional 22.9% (n = 11) lacked any clinical certification (see Chart 6). While peer support specialists without certifications can serve as important sources of support for MAT patients, most identified MAT Team members without certification served in administrative roles. In these instances, there were missed opportunities for patients to receive counseling and coordination services that are part of the full continuum of SUD care. These gaps in supportive services were also reflected in survey responses. Only 76.5% of MAT Team members (n = 39) endorsed providing behavioral interventions, 41.2% (n = 21) said they provided trauma-informed care, and 68.6% provided culturally competent care.

Chart 6. **MAT Team member professional certifications**



In addition to variance in the types of providers staffing MAT Teams, there was also low fidelity to the Hub and Spoke model in MAT Teams' work locations. On average, MAT Team members worked in 2.1 Hub and Spoke locations. While just over half (52.1%) named their primary location as a Spoke, one-third (33.3%) indicated that they worked only in a Hub. In addition, only 15.7% (n = 8) served a rural area (population less than 2,500). This represents a major deviation from the model, in which MAT Teams are intended to support waivered Spoke providers, particularly by traveling between multiple medically underserved rural settings. As a result, some waivered providers likely lacked the support they needed. Only 78.8% (n = 52) of waivered providers agreed that their MAT Teams were effective, and 77.6% (n = 52) felt they had a satisfactory level of communication with their MAT Teams. Four providers responded "Don't Know" to both items, one of whom commented, "I'm not sure who the MAT team is." This may have resulted from a misunderstanding of the purpose of MAT Teams on the part of system leadership. These survey results were offered as feedback to DHCS and the UCLA training and technical assistance team. In the fourth quarter of the program, UCLA introduced building MAT Teams reflective of the Hub and Spoke model as a Learning Collaborative topic (see "Learning Collaboratives").

Some MAT Team members also had poor knowledge and attitudes towards MAT and patients with OUD, and these attitudes were slightly worse in primary care settings than in other types of programs. 17.7% (n = 9) of MAT Team members agreed or strongly agreed that, "Methadone is just substituting one addiction for another." MAT Team members who indicated that their main Hub and Spoke location was primary care were significantly more likely to agree with this statement than those working in other settings ($p < .05$). They were also more likely to agree that patients with urine drug tests demonstrating opioid or other substance use should be reprimanded or discharged from treatment ($p < .05$). UCLA began organizing trainings on stigma and MAT for the first quarter of Year 2.

Learning Collaboratives

Hub and Spoke Learning Collaboratives serve as a space for both clinicians and administrators to learn about best practices in treating OUD, as well as to share barriers, facilitators and resources with others in their local regions. Learning Collaboratives had strong attendance and received generally positive feedback from providers. Over 100 Hub and Spoke providers and administrators attended Learning Collaboratives in each quarter, with representation from

all five regions, which each had separate meetings[6] (see Table 6).

Among providers who attended Learning Collaboratives 80% of MAT Team members and 72% of waivered providers agreed or strongly agreed that participating had been helpful. However, waivered providers working in Spokes were less likely to agree that than those working in Hubs ($p < .05$).

Table 6. **Year 1 Learning Collaborative attendance**

	Learning Collaborative 1: Introduction to the Learning Collaborative	Learning Collaborative 2: Building a System of Care for Persons with OUD	Learning Collaborative 3: Talking to Patients About MAT	Learning Collaborative 4: Effective Implementation of Hub and Spoke
Regions 1 & 2	20	19	22	39
Region 3	15	13	19	36
Region 4	28	31	27	43
Region 5	43	46	38	38
Total[8]	106	109	106	156

In the second quarter's Learning Collaborative, which were the first face-to-face meetings, participants discussed potential implementation barriers. The most common was stigma, both in the broader communities surrounding their clinics and in the clinics themselves, among providers. Concerns about stigma were brought up by participants in all regions. DATA 2000 waivers also emerged as a barrier in all Collaborative discussions. The need for providers in OBOT settings to get a waiver to prescribe buprenorphine (including the cost of provider time away from clinics needed to attend trainings), dose restrictions and take-home regulations were all seen as challenges to MAT expansion efforts by participants. Transportation issues for patients in distant rural settings were also a frequently discussed barrier, particularly for referrals between Hubs and Spokes. Each of these challenges has been further highlighted in the data gathered in this report. In the Learning Collaboratives, local solutions and best practices to work within restrictions were shared among attendees.

OUD Screening and Treatment Needs Assessments

MAT Team members, who likely had the most realistic perception of common clinical practices of all survey respondents, generally agreed that clinical staff in their primary Hub and Spoke sites regularly screened patients for opioid use disorders (mean score 4.6). However, those who indicated their main HSS location was primary care were less likely to agree than those who worked in other settings ($p < .05$). There were also gaps in prenatal screening for SUDs. When asked whether their Hub and Spoke systems offered universal prenatal screening for drug and alcohol use, 85.2% of Hub Leadership said yes, but one respondent said no and three (11.5%)

[6] Region 6 (Janus of Santa Cruz – North and South) was approved to hold its own Learning Collaboratives. Attendance sheets for these sessions were still being processed at the time of this report.

responded, "Don't know." Prenatal screening and referral to a local delivery facility were requirements of the DHCS grants to Hub and Spoke Systems, and will likely need to be addressed in the second year of implementation activities.

Use of the Hub and Spoke treatment needs assessment tools were also low. Learning Collaborative 1 addressed use of the Treatment Needs Questionnaire (TNQ) and OBOT Stability Index (OSI), which were developed as part of the Vermont Hub and Spoke model (Brooklyn & Sigmon 2017). UCLA developed guidance documents to aid clinician in using the tools, adapted the assessments to the California context, and translated them into Spanish (see Appendix V). However, based on informal feedback, many Hub and Spoke coordinators found them redundant with tools they were already using, and DHCS removed their use as a requirement of the grant.

Other Community Resources

MAT Team members generally agreed (M = 4.3; Likert-scale of 1-5) that the Hub and Spoke project had a positive impact on the availability of resources to treat opioid use disorders in their communities. However, 51.0% of MAT Team respondents and 42.4% of Hub Leadership agreed or strongly agreed that individuals in their communities had difficulty accessing OUD services. Several domains of access were asked about directly in the surveys, but there is a need for further research to describe in detail where access is lacking. Among access-related issues, the ability of community members to search for providers stood out, with 24% of Hub Leadership and 23.5% of MAT Team members disagreeing/strongly disagreeing that individuals in their communities who were interested in buprenorphine could easily find their Hubs, Spokes and/or providers in online directories. Three Hub Leadership and five MAT Team respondents also commented on the need for more transportation resources, particularly in medically underserved and rural areas.

Behavioral health resources

Over one-quarter (26.9%) of Hub Leadership disagreed that there was an adequate number of behavioral health care providers in the communities served by their Hub and Spoke systems to provide OUD services. In addition, 23% of Hub Leadership and 56.9% of MAT Team members agreed or strongly agreed that behavioral health care providers and/or mutual support groups (e.g., AA, NA) in their communities were reluctant to provide services to patients receiving MAT. Engaging in collaborations with behavioral health and peer support providers in the communities surrounding Hubs and Spokes may improve these perceptions.

Naloxone

Only 29.4% of MAT Team members agreed or strongly agreed that there was an adequate supply of naloxone (Narcan) in the communities served by their Hub and Spoke systems. While the reasons for low perceptions of naloxone's availability will be the subject of ongoing evaluation work, one remedy may include Hubs and Spokes distributing more into their communities. As of the end of the first year, only an estimated 1,597 naloxone kits had been invoiced for.[7] Hubs and Spokes can use their current funding to purchase more naloxone, and may also be able to take advantage of new state efforts to expand its availability.

[7] Five systems' invoices were not available at the time of this report.

Pharmacies

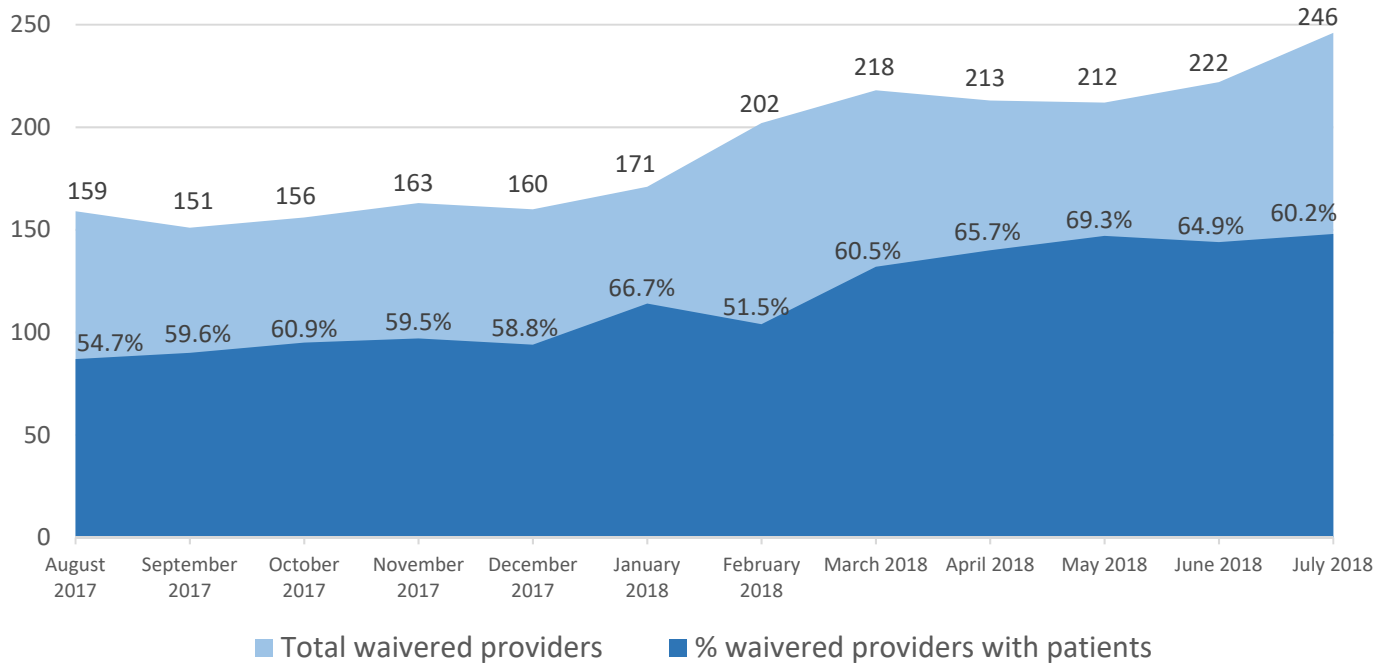
Hub Leadership tended to disagree (*M* = 2.9) that pharmacies in the community were effective in serving the needs of patients with OUD. Although waivered providers averaged a more neutral score (*M* = 3.6), they were asked to evaluate the statement, "*Onsite* or community pharmacies are effective in serving the needs of our patients with OUD." They may have responded with higher scores because they were evaluating onsite pharmacies. However, four providers commented on the effectiveness of pharmacies. One waivered provider noted, "Pharmacy quality is variable. Variability is present amongst staff." Another, commenting on the lack of pharmacies, explained, "We have one community pharmacy for the entire greater San Diego area and one in the northern aspect of the county. That isn't sufficient and people shouldn't have to drive 18 miles to get to a pharmacy." Working with pharmacies to make buprenorphine and naloxone more readily available may be important next steps for the state.

Provider Level Adoption and Implementation

By the close of the first year of the Hub and Spoke program, there were 246 waivered providers in Spokes, a 54.7% increase over the first month of implementation. Based on the Year 1 provider survey[8] (n = 70), the majority of waivered Hub and Spoke providers worked in Spokes (73.5%) and were certified MDs (71.4%). An additional 12.9% were PAs (n = 9), 10% were DOs (n = 7), and 5.7% were NPs (n = 4). On average, respondents had been waivered to prescribe buprenorphine for 3.6 years, and 22.7% (n = 15) had been waivered for less than one year at the time of the survey. 14.3% of respondents (n = 10) had never prescribed buprenorphine to any patients.[9] Most waivered providers' professional specialization was primary care (68.4%). An additional 24.6% were addiction specialists, and 7.0% named another specialization (e.g., pain management, infectious disease).

As Chart 7 demonstrates, based on data reported by the programs, the proportion of waivered Spoke providers who are actively prescribing to any patients has consistently remained at about only 60%. Although the growth in the overall number of providers is a success of the program, the gap in the number who actually prescribe remains an implementation challenge.

Chart 7. **Waivered providers in Spokes over time (and % with patients)**



[8] Year 1 provider surveys were delivered in May and June 2018

[9] The number of survey respondents who had never prescribed buprenorphine was an underrepresentation, based on available data about the percentage of actively prescribing waivered providers (see Chart 7). These providers may have been less likely to respond because they might have been less engaged overall.

Most respondents to the waivered provider survey (91.3%, n = 63)[10] reported providing buprenorphine maintenance. Fewer (85.7%, n = 60) endorsed providing any form of buprenorphine induction (58% offered office-based and 60.9% offered home induction). Induction has proven to be a concern for many waivered providers. As one Spoke survey respondent commented:

> *I feel that we have some resources available at our hub but no providers in our office that have done induction. We need to observe some inductions and we [need] some staff from a hub to look at our clinic setup and help advise us on scheduling and infrastructure for inductions, and/or work with us in clinic for several patients so we can directly observe some proper inductions and dose adjustments.*

A Hub Leadership survey respondent expressed similar concerns, stating, "[There is] reticence to do inductions at Spokes. Our Hub director does not offer to handle inductions prior to [referral] to Spokes – this request has been unmet." While these data likely under-represent those who have never prescribed before,[6] they show that service gaps exist even among those who are actively prescribing, particularly in Spokes. These data have been provided as feedback to the UCLA training and technical assistance team, and have informed the provider facilitator program to help new prescribers become more comfortable with buprenorphine inductions and prescribing in general.

Non-prescribing Waivered Providers

Reasons for the gap in the number of actively prescribing waivered providers, beyond induction anxiety, were also explored in the Year 1 provider survey. A lack of confidence and a need for increased mentorship were both important factors in not prescribing. Those who had never prescribed buprenorphine were less likely to feel confident prescribing than those who had ($p < .001$). They were also less likely to agree that they had the mentorship they needed to effectively treat patients with OUD ($p < .05$).

Another major potential barrier to prescribing was stigma. Waivered providers' attitudes about MAT and OUD were poorer than anticipated. Of all waivered providers responding to the survey (n = 70), 15.7% (n = 11) disagreed or strongly disagreed with the statement, "I feel equally comfortable working with patients with OUD as I do working with other patient groups." Illustrating the stigma held by some of these providers, one respondent noted:

> *This is fairly new. I am not sure if people [with] possible gang affiliation or other issues will become angry as we stop supplying them [with] methadone or other pills as we tighten up our system. Perhaps people in the waiting room will be nervous seeing homeless or opioid addicted patients in the waiting room.*

Addressing stigma among providers, as well as in the general population, is a key goal of training and technical assistance efforts in the second year of implementation activities. A

[10] Three survey respondents who had never prescribed buprenorphine endorsed providing maintenance. These respondents most likely offered the service, but had not yet begun prescribing.

training to reduce provider stigma will be held by UCLA in September 2018. This will also be an important component of Provider Facilitator activities.

Knowledge and attitudes were also lower among providers who worked in primary care settings (n = 46) than for others (n = 23).[11] Those in primary care settings felt less comfortable working with OUD patients than those in other settings ($p < .05$). They were also less likely to agree that they felt confident prescribing buprenorphine ($p < .001$). Moreover, among all waivered providers, 35.3% (n = 24) agreed or strongly agreed that treating patients with OUD in primary care settings could negatively impact the workload of clinic staff, and 19.1% (n = 13) agreed or strongly agreed that treating patients with OUD might drive away other primary care patients.

Never prescribing to any patients also had negative implications for providers' future prescribing practices. Non-prescribing waivered providers agreed more than those who had prescribed with the statement, "All patients should be tapered off of buprenorphine as soon as possible" ($p < .05$). Tapering patients off of buprenorphine before they want or need to is not considered a clinical best practice.

In addition, providers may be hesitant to prescribe buprenorphine due to fears of legal ramifications. Numerous waivered providers and clinic administrators mentioned worries over Drug Enforcement Agency (DEA) site inspections in Hub and Spoke Steering Committee meetings and Learning Collaboratives. When asked about these concerns in the surveys, 10.1% (n = 7) of waivered providers agreed or strongly agreed with the statement, "I am fearful of potential legal consequences when it comes to prescribing buprenorphine." An additional 17.4% (n =12) neither agreed nor disagreed. Although not statistically significant, those who had never prescribed were slightly more fearful (mean score 2.6) than those who had (mean score 2.1). Providers and administrators suggested that one way to quell these fears would be to disseminate more information about what DEA visits look like and how their clinics might be impacted.

Patient Outreach: SAMHSA Treatment Locator

Beyond providers' knowledge and attitudes about MAT and patients with OUD, an additional reason for the gap in the number of waivered providers who are actively prescribing is low patient outreach. It is possible that patients, or their referring programs/clinics, do not know where to find treatment because many waivered providers have not publicly listed themselves. 39% of all waivered Spoke providers involved in the program are not currently listed on SAMHSA's Buprenorphine Treatment Practitioner Locator website. Spoke providers who have listed their names on the treatment locator website have an average of 14 patients, while those who do not have an average of 5.5 ($p < .005$).[12] The website itself is likely a useful tool for both patients and providers. However, use of the site may also indicate a broader provider- or clinic-level emphasis on new patient outreach.

All Hub and Spoke providers have been encouraged to add themselves to the practitioner list. However, anecdotally, it was reported by several Spoke administrators that they had asked their

[11] One respondent did not provide the primary nature of their main Hub and Spoke setting
[12] This difference remains nearly the same when excluding prescribers who have 0 patients (19 vs. 9.3; remains significant at $p < .005$).

providers to remove themselves from the SAMHSA website due to fears over 42 CFR Part 2 regulations. Administrators were concerned that, if their providers listed themselves on the website, their organizations would meet the definition of an entity that is "federally assisted and *holds itself out* as providing, and provides, alcohol or drug abuse diagnosis, treatment or referral for treatment" (42 CFR § 2.11, emphasis added), and would become subject to 42 CFR compliance.

Providers Trained

When surveyed about which OUD patient populations waivered providers felt they needed the most training and technical assistance to serve the needs of, they most commonly endorsed OUD patients who: use multiple substance, have co-occurring mental health conditions, and have chronic pain were the most common (responses were not exclusive of each other). However, providers endorsed the need for further training in all areas (see Table 7).

Table 7. **Waivered provider training needs**

Patients with OUD Who:	% Endorsed
Use multiple substances	62.9%
Have co-occurring psychiatric disorders	61.4%
Have chronic pain	58.6%
Are pregnant/nursing	55.7%
Are homeless	44.3%
Have HIV/AIDS and/or HCV	42.9%
Are uninsured/underinsured	37.1%

To assist prescribers and MAT Teams in providing OUD treatment, UCLA held a series of clinical skills trainings, in addition to Learning Collaboratives. Trainings included the following topics:

- Community-wide MAT
- Motivational interviewing
- Pain and OUD
- MAT ECHO

As of the close of the first year of implementation activities, 620 providers had been trained in these topics (see Table 8).

Table 8. **Providers trained by clinical skills topic**

	Motivational Interviewing*	Pain and OUD	Community-wide MAT	MAT/Project ECHO	**TOTAL by Discipline**
Physicians	3	30	10	20	**63**
Physician Assistants	2	6	0	3	**11**
Nurse Practictioners	2	8	1	1	**12**
Registered Nurses	9	4	27	11	**51**

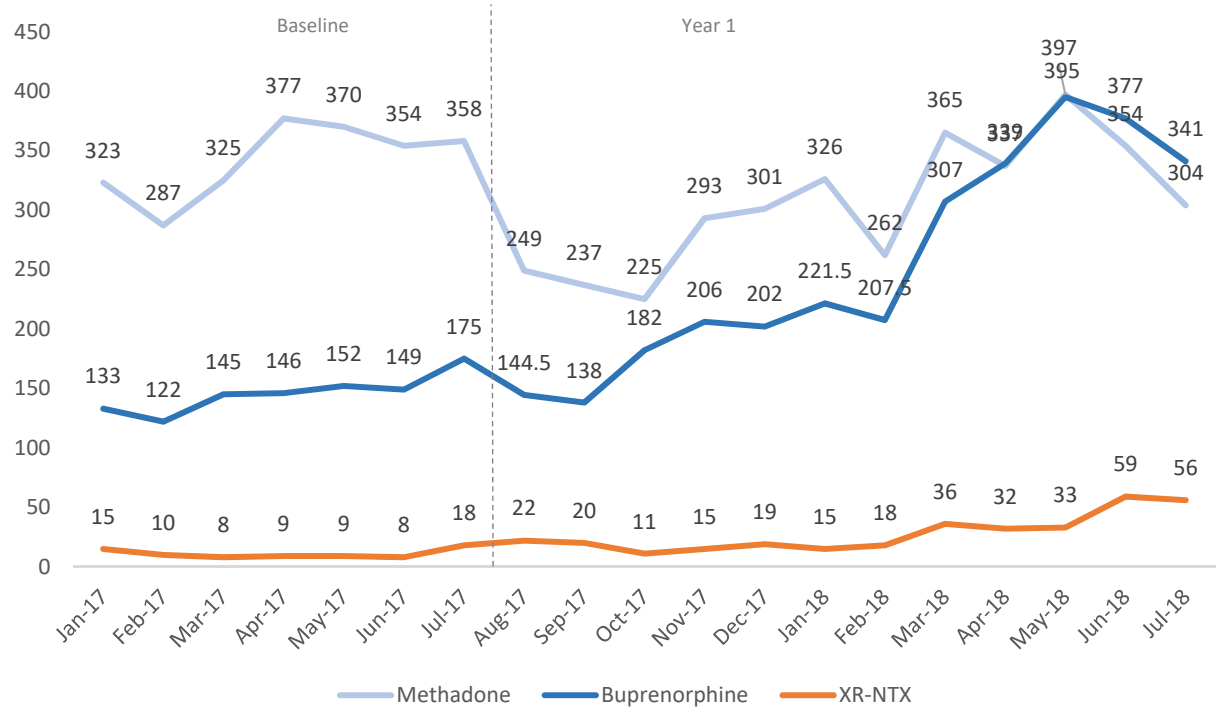
Social Workers	7	3	29	6	**45**
Addiction Counselors	12	4	88	12	**116**
Peer Recovery Specialists	1	0	0	0	**1**
Prevention Specialists	1	1	3	0	**5**
Other: Psychologist, LMFT, MFT	4	11	14	2	**31**
Other: Admin & unknown	46	12	178	49	**285**
TOTAL	**87**	**79**	**350**	**104**	**620**
X-Waivered prescribers	5	33		29	**67**
***Self-paced "Tour of Motiviational Interviewing" completion reports are currently being counted**					

Reach of the Hub and Spoke Program

Patients Served by the Hub and Spoke Program

During Year 1, a total of 7,047 new patients[13] started MAT (i.e., methadone, buprenorphine, or extended-release naltrexone) in all Hub and Spoke Systems (18 Hubs and 125 reporting Spokes). As Chart 8 demonstrates, the number of new patients starting buprenorphine per month has surpassed that of patients starting methadone. This was expected, given that buprenorphine is the primary medication used in OBOT settings (i.e., Spokes), while methadone is more commonly used in OTPs (i.e., Hubs). When comparing the baseline seven months (Jan – July) to the same months post-implementation, there was a slight (2.0%) decrease in the mean monthly number of new patients starting methadone, as well as a 114.1% increase in the number starting buprenorphine, and a 223.4% increase in the number starting extended-release naltrexone, over baseline.

Chart 8. **Total Hub and Spoke patients initiating MAT per month by medication**



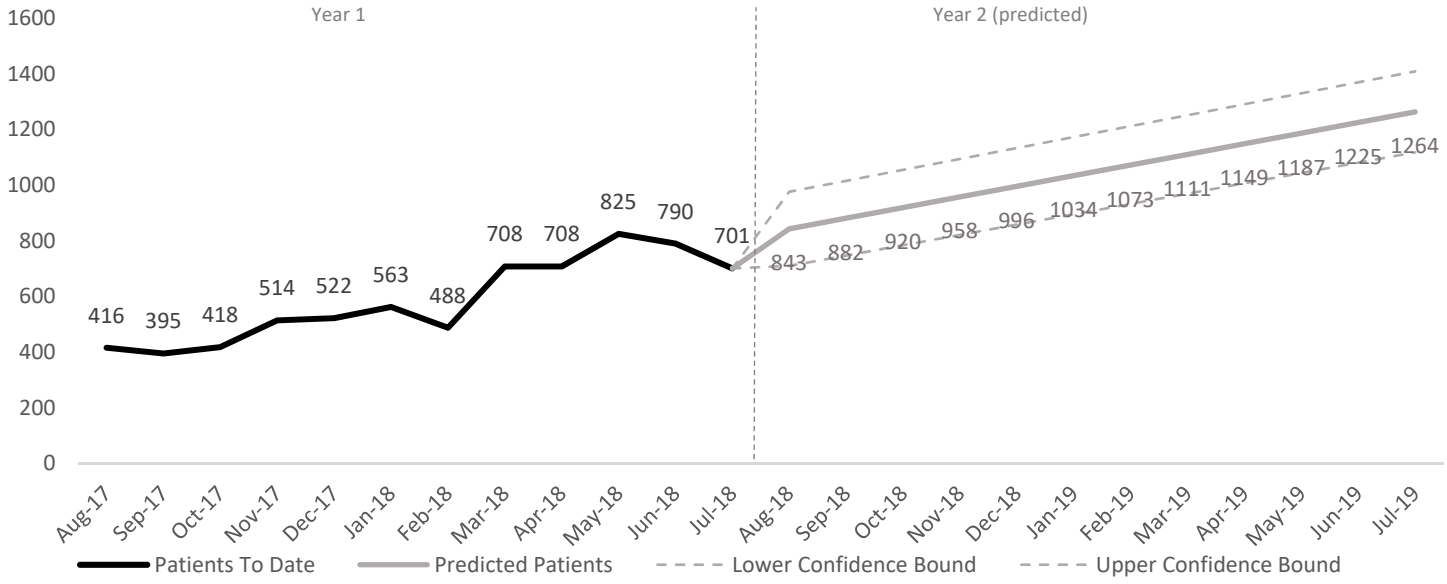
A key target of the Hub and Spoke program is to reach 20,000 new[14] patients with MAT by the close of the second year of program implementation activities (July 2019). Although the Year 1 total number of new patients is less than half of the target, if growth continues at its current rate,

[13] Includes mean imputation for missing data. For further information, see "Limitations"

[14] "New" patients are defined as patients starting a new buprenorphine, methadone or extended-release naltrexone prescription. New patients include: 1) those who have never used MAT before and started a prescription for the first time, 2) those who have never visited the clinic/program before and started a new prescription, or 3) those who have been discharged from the clinic/program in the past and have returned to start a new prescription. Patients in opioid treatment programs (OTP; most hubs) are considered discharged if they have gone 15 or more days without medication. Patients in office based treatment (OBOT; most spokes) are considered discharged if they have not started a new MAT prescription or refilled an existing MAT prescription within the past 90 days.

the program will have served 19,688 (95% CI, 18017, 21360)[15] total new MAT patients by the end of the second year of implementation activities (see Chart 9).

Chart 9. **Predicted monthly new MAT patients (aggregate) in Hubs and Spoke by July 2019**



Although this represents promising growth, there are several areas for improvement in implementation activities that could help the program meet or exceed its target number of patients. In addition, there are important differences between Hubs and Spokes as treatment settings, and the reach of the program has varied between the two.

[15] Predicted value calculated using exponential triple smoothing based on Year 1 total new MAT patient data

As shown in Images 11 and 12, there were more new patients in Hubs than in Spokes. This was primarily the result of the large numbers of methadone patients initiated in Hubs. However, this trend varied by region, with Regions 1 and 2, in the north, seeing greater numbers of Spoke patients. Region 4, which encompassed the Bay Area, Sacramento and parts of the Central Valley, had the lowest ratio of Spoke to Hub patients. The Hubs in this Region experienced high staff turnover in the first year of the program, and may have experienced challenges in implementation as a result. It is also possible that patients seeking MAT in this region tend to prefer methadone, as a result of the established network of NTP Hubs. However, given that there were an estimated 51,268 persons with OUD in the counties served by this region in 2016, it is likely that the number of patients initiating MAT in Spokes could be increased (Clemans-Cope, Epstein & Wissoker 2018). Region 6 also had low numbers of patients, overall. This region had the smallest number of Spokes (n = 12, *M* = 21), and also experienced some staff turnover. The reasons for slower growth in Regions 4 and 6 will be the subject of further examination in the future of this evaluation.

Image 11. **New Hub patients by region**

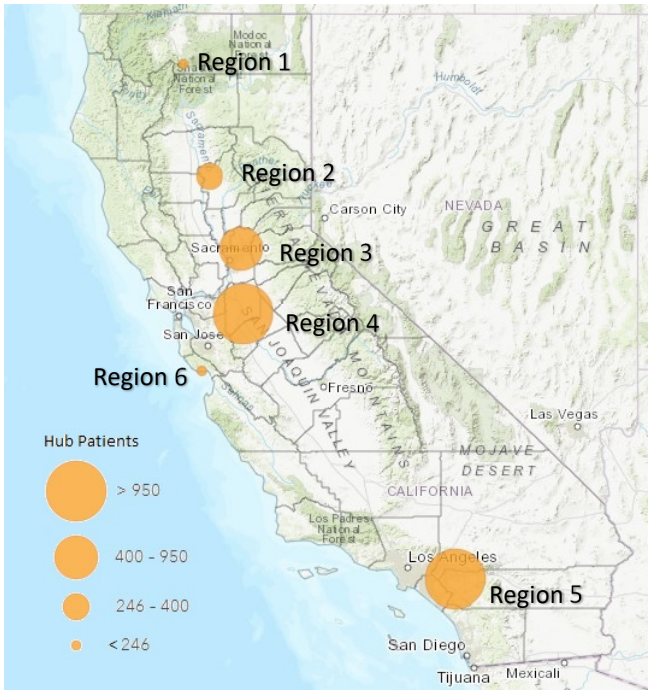
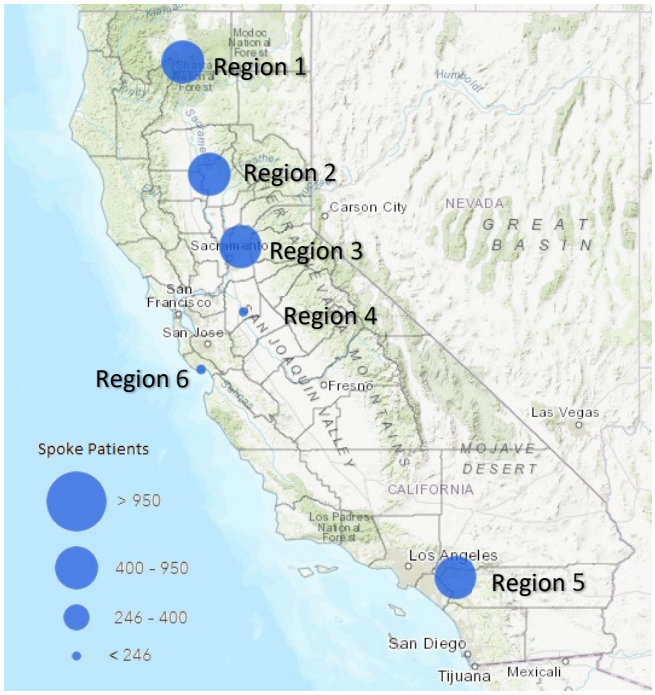


Image 12. **New Spoke patients by region**



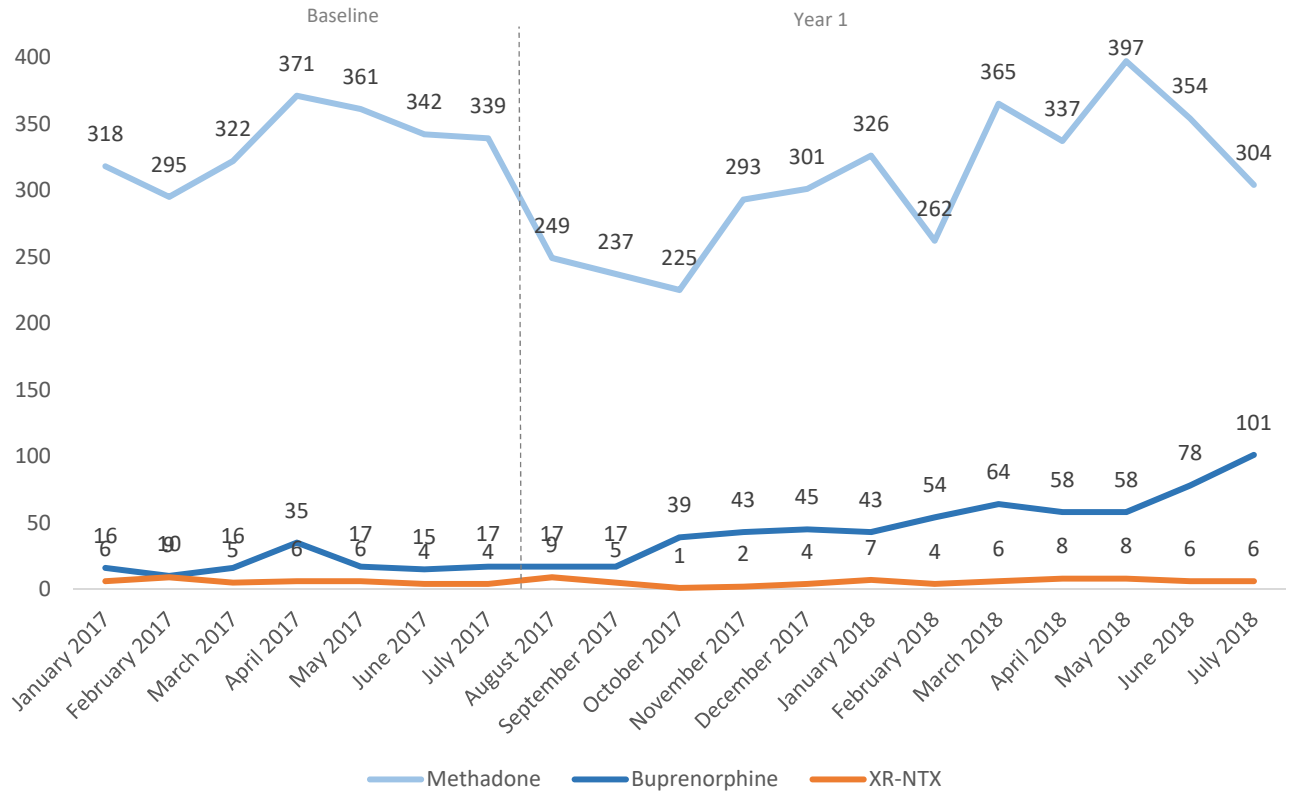
Systems included in each region are as follows – **Region 1**: Aegis Humboldt, Aegis Redding; **Region 2**: Aegis Chico, Aegis Marysville; **Region 3:** Aegis Roseville, Marin, MedMark Solano; **Region 4:** CommuniCare, BAART Contra Costa, BAART San Francisco, Aegis Manteca, MedMark Fresno; **Region 5:** Acadia San Diego, Acadia Riverside, Matrix, Tarzana; **Region 6:** Janus North, Janus South

Because Hubs and Spokes differ by program design and type of medication offered, the remaining analyses of patient numbers in this report have been broken up by Hubs and Spokes. The emphasis of the reported numbers is on growth in Spokes, as expanding MAT into new treatment locations is a primary aim of the program.

Hub Patients Reached

In the first year of the program, all Hubs (n = 17)[16] started a total of 4,333 new patients on MAT (see Chart 10). The majority of these patients (84.2%, n = 3,650) started methadone. Although the number of buprenorphine initiations in Hubs was lower (n = 617), there was a 261.9% increase in the mean monthly number of new buprenorphine patients over baseline.[17] This growth in patients starting buprenorphine in OTP settings, although not a formal goal of the grant, is an important element of expanding MAT access, in that patients are offered more choices in the medications available.

Chart 10. **Total Hub Patients Initiating MAT per month by medication**

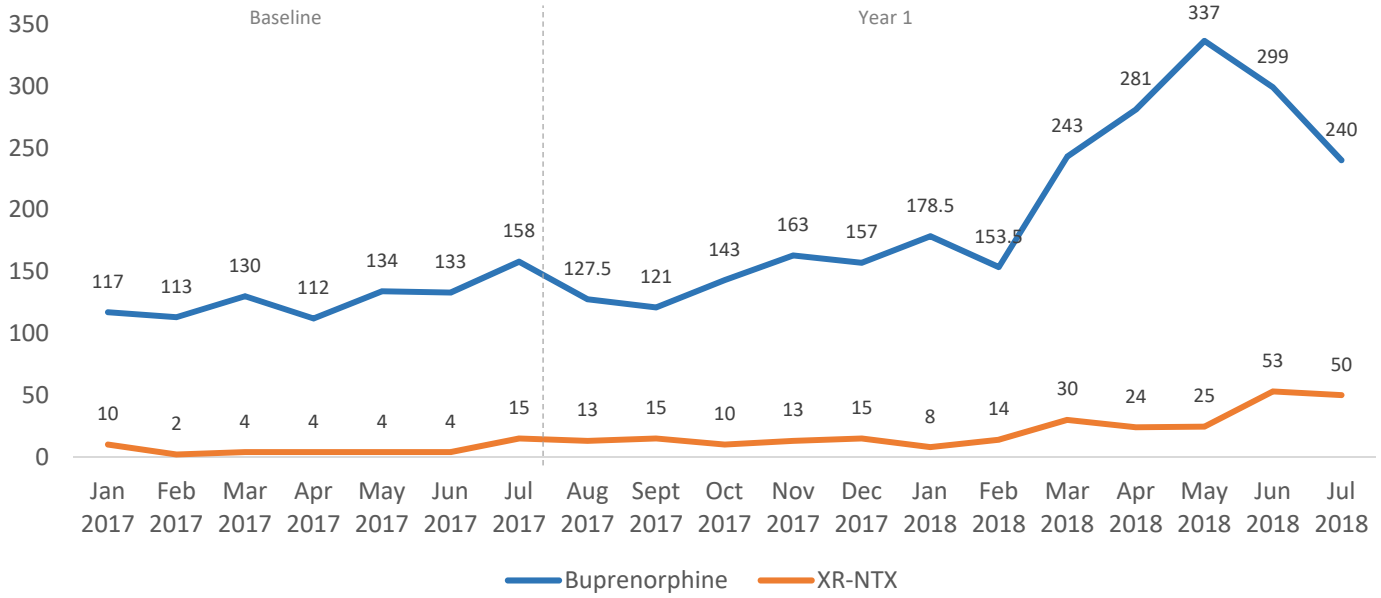


[16] At the time of this report, the Hub clinic for the Aegis Humboldt system had not yet been established.
[17] Comparison of mean monthly number of patients Jan – July 2017 to Jan – July 2018

Spoke Patients Reached

In the first year of the program, a total of 2,713 patients initiated MAT in Spokes (n = 110)[18], the majority of whom (90.1%, n = 2,443) started buprenorphine (see Chart 11). There was a 93.0% increase in the mean monthly number of patients starting buprenorphine in all Spokes over the baseline period. The average number of total new buprenorphine patients per Spoke was 30.4 (*SD* = 51.5), with the highest performing Spoke, Venice Family Clinic (Spoke of Matrix), inducting 257 total patients over the first 12 months of the program. Two additional Spokes, El Dorado Community Health Center and Stallant Health (both Spokes of Aegis Roseville), also started over 200 patients on buprenorphine. Although these Spokes had the highest overall numbers of patients, they were already well-established in implementing MAT prior to the start of the Hub and Spoke program. Further analyses of Spoke performance by type of Spoke can be found in "Patients by Spoke Type." As described in the "Adoption" section of this report, 28.8% of Spokes (n = 36) had no patients as of the close of the first year of implementation activities.

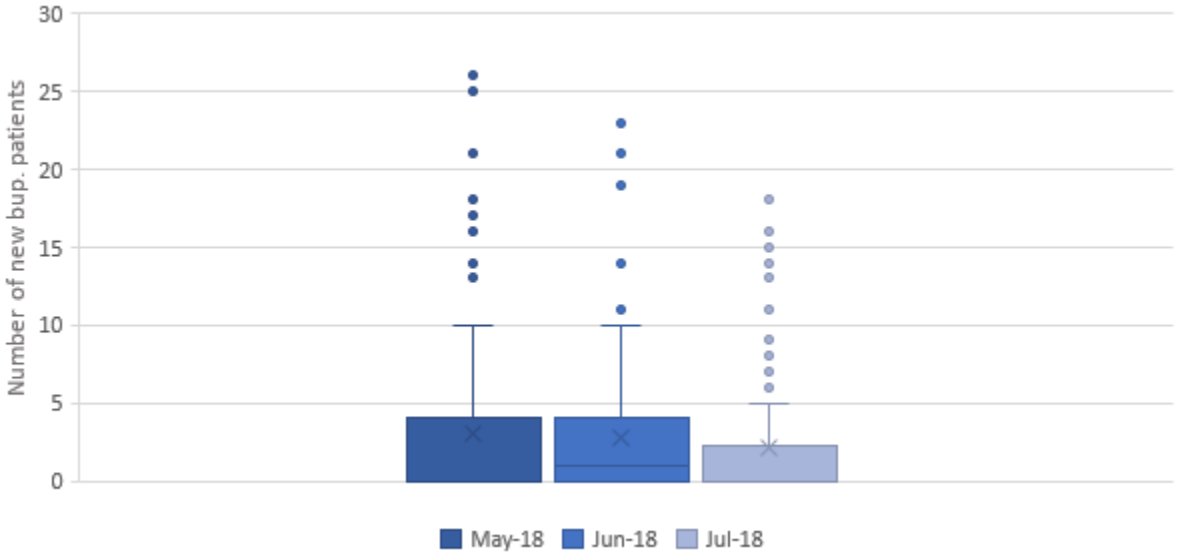
Chart 11. **Spoke patients initiating MAT per month by medication**



Although the overall trend in new patient numbers was positive, there was an observable drop in the number of new patients starting buprenorphine between May and July 2018 (see Chart 12). This drop occurred across 34 Spokes, and resulted in a mean decrease of 0.78 new patients per Spoke (*SD* = 3.1) between the two months.

[18] At the time of this report, 110 of 125 Spokes had submitted their required reports. Spokes missing all reports (n = 15) were excluded from analyses.

Chart 12. **Decrease in new buprenorphine patients in Spokes (May – July 2018)**



The reason for this decrease will be the subject of further examination in the future of the evaluation, and the trend will be tracked as the subsequent months' data are received. In an initial exploration, it was found that the drop might have been the result of providers nearing their DATA 2000 waiver limits.[19] Spokes with any patients that had at least one provider at or near a limit (i.e., 30, 100 or 275 patients) in July started 3.0 fewer patients on buprenorphine in July than they did in May, while those that didn't have any providers nearing limits saw only 0.6 fewer patients ($p < .05$; see Table 9). However, only 16 Spokes with any patients had a provider at or near a limit, so the strength of this association may be limited. Further exploration will be conducted as the evaluation progresses.

Table 9. **Decrease in monthly new buprenorphine patients in Spokes with providers at or near waiver limits**

	Spokes (N)	Mean decrease (May-Jul 2018)	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)[20]
Any provider at or near a waiver limit	16	-3.0313	3.82304	.95576	-2.383	81	.019
No providers at or near a waiver limit	67	-.5970	3.63510	.44410			

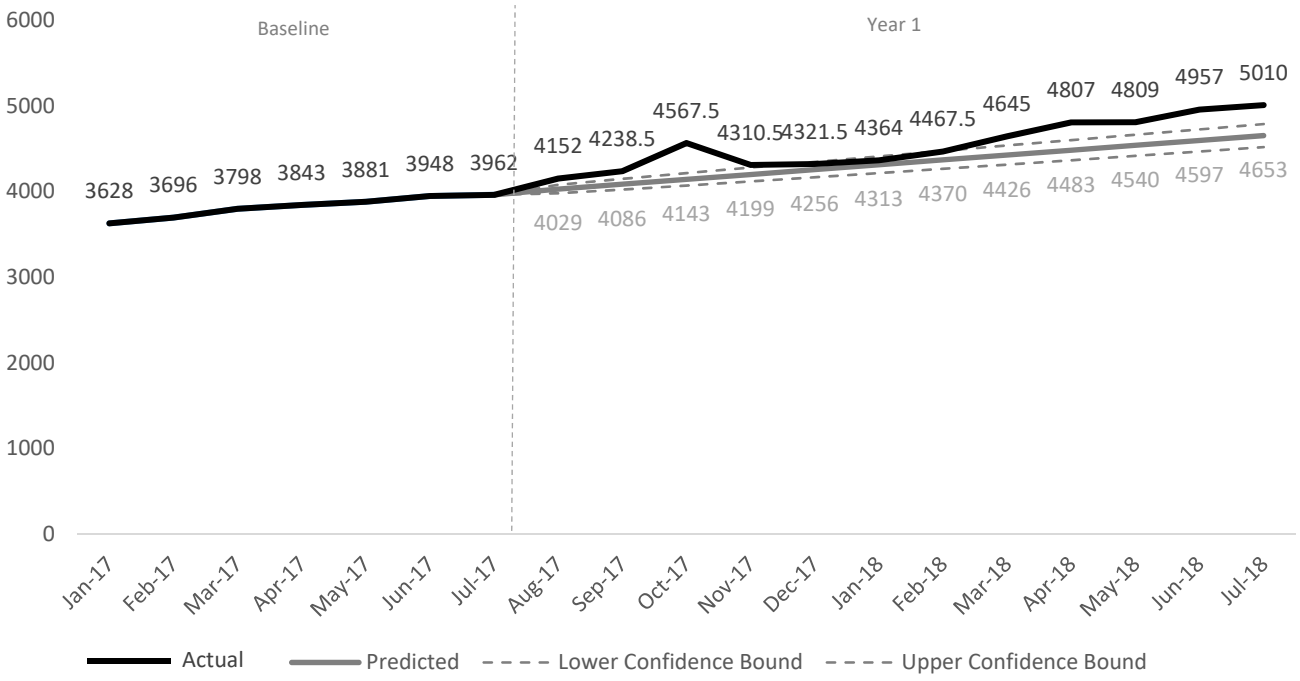
In addition to growth in the number of new patients starting MAT, the program also likely had a positive impact on the total census of patients with OUD in Spokes. Between July 2017 and July

[19] The Drug Addiction Treatment Act of 2000 (DATA 2000) allows physicians to treat OUD using buprenorphine, but limits newly waivered physicians to a total of 30 patients for the first year. Waivered providers can then apply to increase their limit to 100 patients and, after prescribing to 100 for at least one year, can apply to increase their limit to 275.

[20] Equal variances assumed

2018, the number of all OUD patients, new or existing, receiving care in all Spokes increased by 26.5%, to 5,010 patients (Chart 13). It is possible that some growth would have occurred whether the Hub and Spoke program were in place or not. However, based on the rate of growth during baseline, it is predicted that the patient census would have increased by only 17.4%, to 4,653 patients in July 2018 (95% CI, 4519, 4788) without the Hub and Spoke program.

Chart 13. **OUD patient census in all Spokes (predicted vs. actual)**



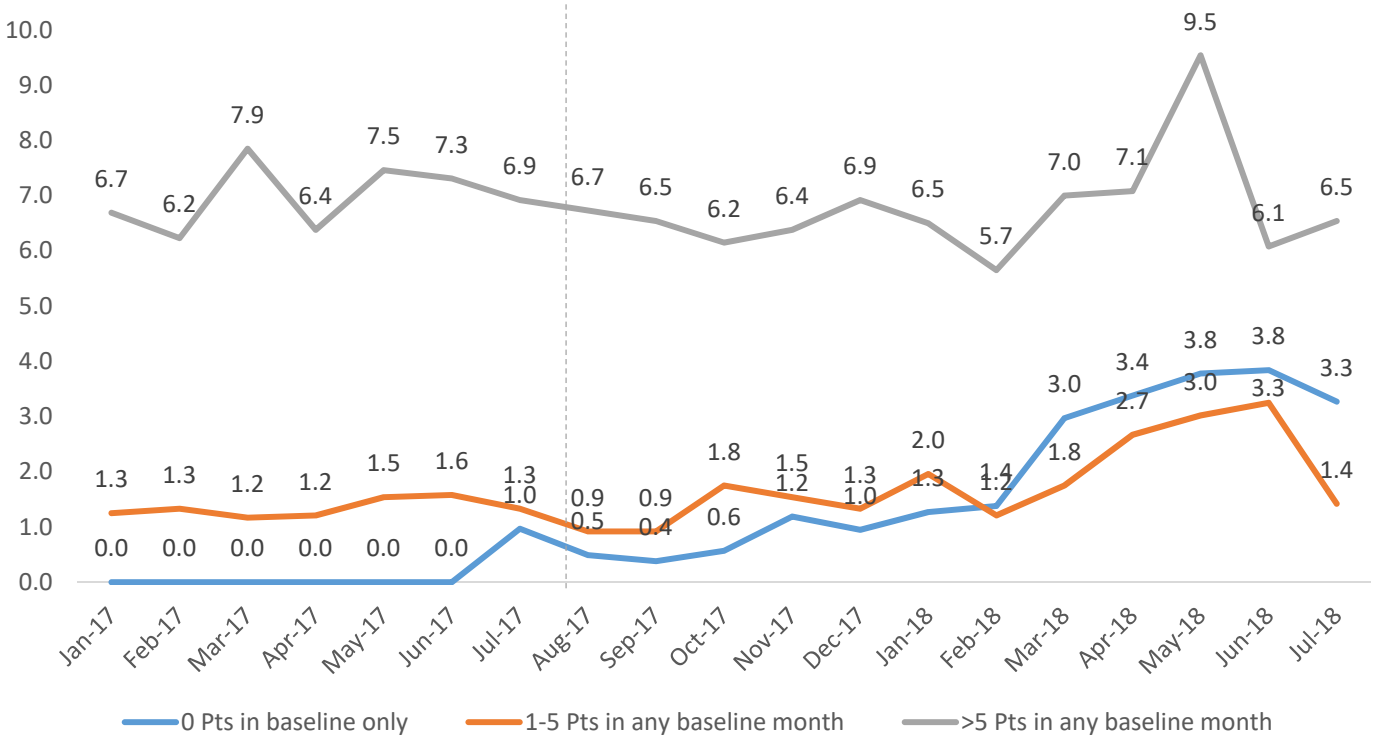
Although the Hub and Spoke program had a positive impact on the number of patients starting MAT in Spokes, outcomes varied by the characteristics of the Spokes, including their MAT adoption status at baseline (i.e., prior to program implementation), organization size and whether they were rural- or urban-serving.

Patients by Spoke Type

Spoke Patients by MAT Adoption Status at Baseline

Spokes that joined the program without any MAT in place (n = 37) had the largest growth (153.8% increase)[21] in the mean monthly number of new buprenorphine patients per Spoke (Chart 14). Those that were already prescribing buprenorphine, but only to a small number of patients (1-5 per month) prior to the grant (n = 24) also saw a small increase in new patients (40%). While those that already had higher numbers of MAT patients (>5 per month) prior to the grant (n = 36) continued to see about the same number of patients (slight, 5.8% decrease).

Chart 14. **Mean number of new buprenorphine patients per month by baseline MAT adoption**



The reasons behind the differences in growth in the number of new patients are a topic for further exploration in the future of the evaluation. It is possible that Spokes starting without any MAT in place, prior to the grant, were more committed to making a major shift in clinical and administrative practices when they signed on. Hub and Spoke efforts moving forward, such as the Provider Facilitator program, will be tailored to the type of Spoke involved.

Rural vs. Urban Spokes

There was no significant difference in the mean total number of buprenorphine patients between urban- and rural-serving Spokes (M = 26.1 and M = 28.0, respectively). However, as seen in

[21] Between July 2017 and July 2018

Table 10, half (50.0%, n = 13) of rural Spokes were not prescribing buprenorphine prior to program implementation but started prescribing once they were connected into a Hub and Spoke System. The same was true for about one-third (33.8%, n = 22) of urban Spokes, indicating that the program may have contributed more strongly to an increase in MAT availability in rural areas.

Table 10. **MAT adoption in rural vs. urban Spokes**

	Total	0 patients ever	0 patients during baseline, any patients post-implement	1-5 patients/mo during baseline	>5 patients/mo during baseline
Urban Spokes (N)	65	14	22	20	9
Rural Spokes (N)	26	5	13	4	4

Organization Size

There was no significant difference in the mean total number of patients starting buprenorphine in health centers, the ideal type of Spoke in the program model, compared to other types of Spoke settings ($M = 28.1$, $M = 24.3$). There was also no significant difference between FQHCs, specifically, and other settings ($M = 24.5$, $M = 28.3$). However, there were differences based on organization size among FQHCs. As shown in Table 11, there was a significant difference in the mean number of patients between medium and small FQHCs ($p < .05$).

Table 11. **Mean number of new buprenorphine patients by FQHC Spoke size**

	Spokes (N)	Mean number of patients (total)	Std. Deviation
Small FQHC (<10,000 patients)	18	6.9	13.0
Medium FQHC (10-30,000 patients)	15	57.9	79.3
Large FQHC (>30,000 patients)	18	25.0	50.5

In addition, among all FQHC Spokes that had any buprenorphine patients during the first year of program activities, the majority of small (37.5%, n =6) and medium (46.7%, n = 7) FQHCs did not have any patients prior to the grant, indicating that these smaller organizations saw higher rates of growth over the course of the grant, per Table 12.

Moreover, the majority (54.5%) of FQHC Spokes that had already adopted MAT prior to the grant, but in small amounts (1-5 patients per month), were large FQHCs, suggesting that larger organizations were not as impacted by the program as smaller ones. It is possible that this is because the program was not as impactful for them, or because they did not embrace the program as readily as smaller Spokes. This outcome would conflict with existing literature, which indicates that larger organizations assimilate to innovation more easily than smaller ones (Greenhalgh et al. 2004). This will be a topic of further examination as the evaluation progresses, and during the conduct of Spoke visits.

Table 12. **Spoke MAT adoption at baseline by FQHC size**

		0 patients during baseline	1-5 patients/mo during baseline	>5 patients/mo during baseline	No patients ever
FQHC patient pop size (2017)[22]	Small Spokes (<10,000 patients)	6	2	1	7
	Medium Spokes (10-30,000 patients)	7	3	3	2
	Large Spokes (>30,000 patients)	4	6	2	6

[22] Data retrieved from HRSA 2017 Health Center Profiles: https://bphc.hrsa.gov/uds/datacenter.aspx?q=d&year=2017&state=CA#glist

Hub and Spoke Patient Demographics

When compared to Hubs, a greater proportion of Spoke patients were Black or African American (13.8% vs. 4.1%), Asian or Pacific Islander (5.2% vs. 1.1%), and American Indian or Alaska Native (1.3% vs. 0.7%; Charts 15 and 16). This suggests that expanding MAT beyond OTPs, into Spoke settings may help to serve more marginalized populations. However, it is worth noting that, of the ten counties with the highest 2017 overdose death rates for African Americans (see "Introduction"), Hub and Spoke systems were only available in two (San Francisco and San Diego). Expanding Hub and Spoke networks into additional, underserved communities could be an important next step for the program.

Chart 15. **Hub Patient Demographics**

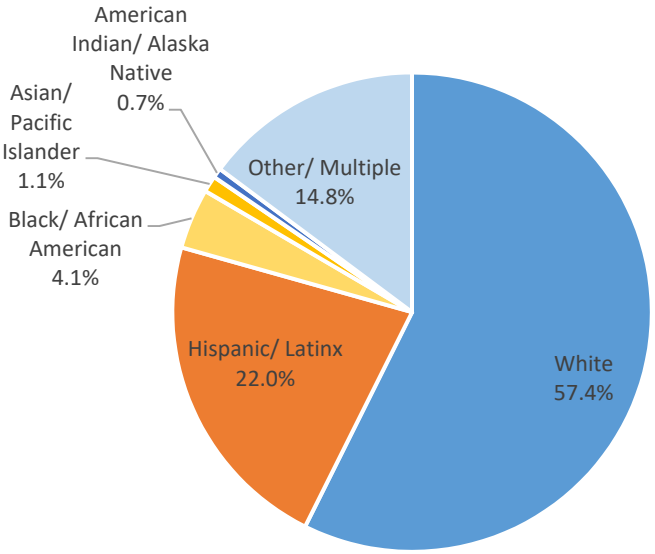
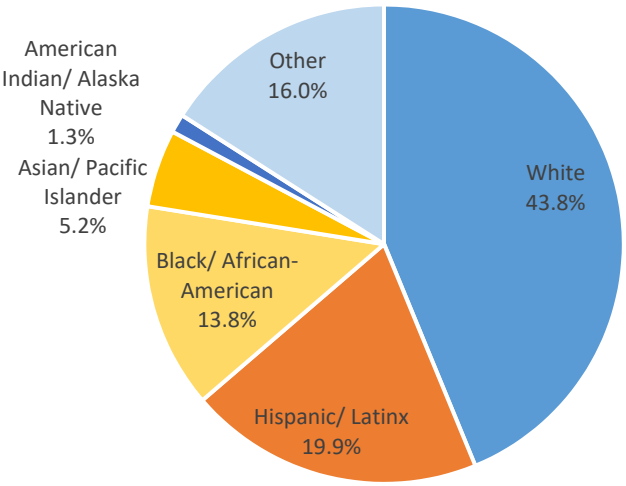


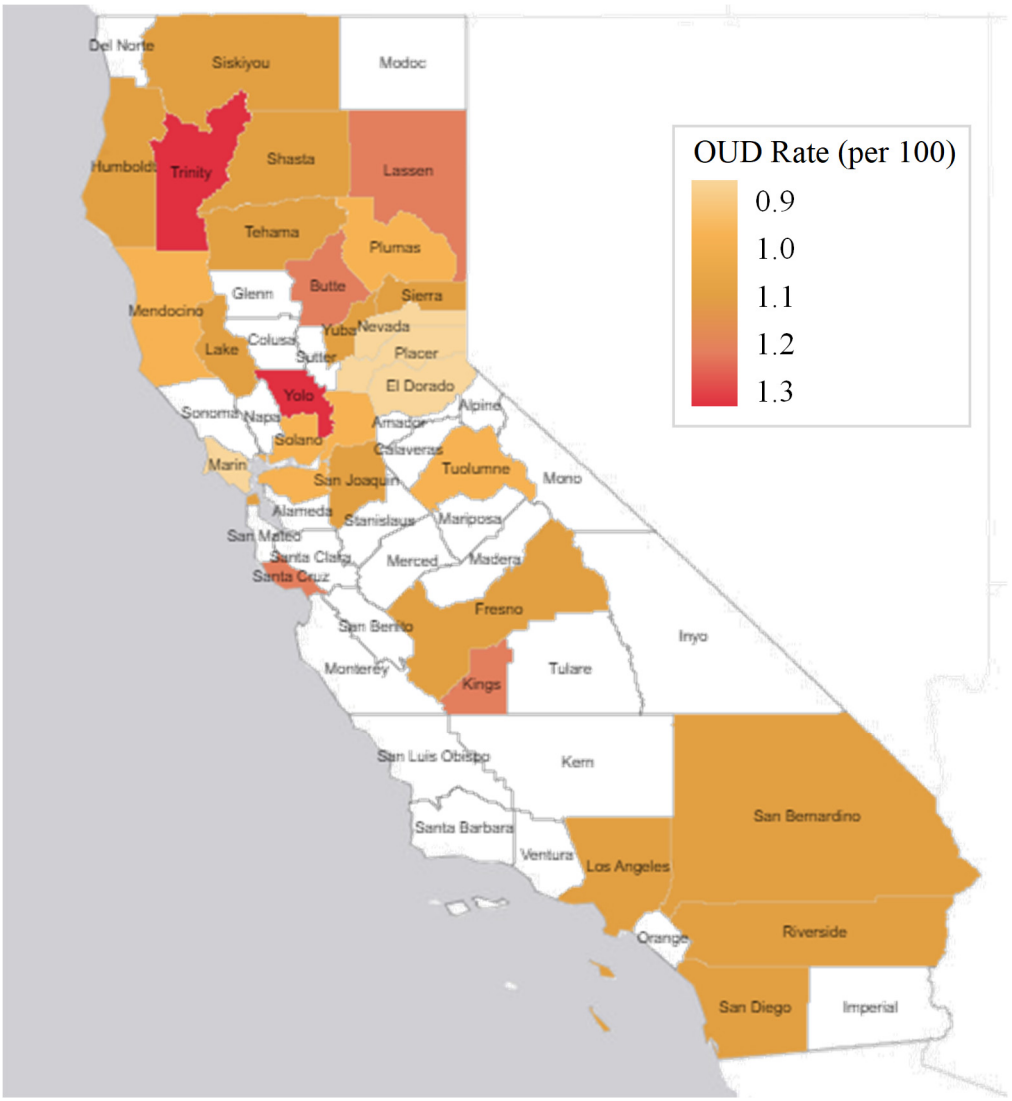
Chart 16. **Spoke Patient Demographics**



Proportion of Population with OUD Reached

Among all counties served by Hub and Spoke systems, there were an estimated 235,613 persons with opioid use disorders (OUD) in 2016 (Clemans-Cope, Epstein, & Wissoker 2018). There was variation by county, with many counties in the rural north having higher OUD rates than counties in Southern California (see Image 13). These OUD rates map closely with overdose death rates.

Image 13. **Map of 2016 OUD rates (per 100 persons) in counties served by Hubs and Spokes**



Data source: Clemans-Cope, Epstein, & Wissoker (2018).

Several Hub and Spoke counties with lower overdose death rates had among the highest OUD rates. These included Kings, Yolo and Santa Cruz counties. Overdose prevention efforts in these counties may be responsible for the lower death rates. For example, the Janus of Santa Cruz system administers the Santa Cruz Overdose Prevention & Education program (SCOPE), to provider prevention kits and education to the surrounding community. Yolo County also received a California Department of Public Health grant for naloxone distribution.

Table 13. **OUD and overdose death rates in counties served by Hubs and Spokes**

County	Estimated OUD Count	Estimated OUD Rate (per 100)	Overdose Deaths Count	Overdose Deaths Rate (per 100,000)
Butte	2,501	1.2	16	7.1
Contra Costa	9,700	1.0	50	4.4
El Dorado	1,656	0.9	7	3.8
Fresno	8,918	1.1	62	6.3
Humboldt	1,372	1.1	26	19.0
Kings	1,373	1.2	6	4.0
Lake	646	1.1	9	14.0
Lassen	350	1.2	4	13.0
Los Angeles	89,257	1.1	368	3.7
Marin	2,129	0.9	12	4.6
Mendocino	751	1.0	14	16.0
Nevada	910	0.9	6	6.0
Placer	3436	0.9	14	3.7
Plumas	169	1.0	0	0.0
Riverside	21,128	1.1	106	4.4
Sacramento	13,439	1.0	48	3.2
San Bernardino	18,690	1.1	32	1.5
San Diego	30,787	1.1	238	7.2
San Francisco	8,284	1.1	91	10.4
San Joaquin	6,305	1.1	52	7.1
Santa Cruz	2,829	1.2	34	12.4
Shasta	1,812	1.1	15	8.3
Sierra	31	1.1	0	0.0
Siskiyou	449	1.1	7	16.1
Solano	3,980	1.0	14	3.2
Tehama	585	1.1	2	3.2
Trinity	149	1.3	2	15.6
Tuolumne	464	1.0	7	13.0
Yolo	2,785	1.3	8	3.7
Yuba	728	1.1	4	5.4
TOTAL	235,613	1.1	1,254	7.3

Data source: Clemans-Cope, Epstein, & Wissoker (2018).

In the next year of evaluation activities, the proportion of the population with OUD reached by the Hub and Spoke program will be estimated using a combination of monthly data reports by Hubs and Spokes, and California Department of Justice (DOJ) Controlled Utilization Review and Evaluation System (CURES) prescription data monitoring program. The CURES 2.0 system collects the number of buprenorphine prescriptions, and the number of unique patients receiving these prescriptions.

Recommendations and Next Steps

Future of the Evaluation

The second year of evaluation efforts will continue to include the data sources used in this report, as well as new data sources aimed at further assessing the reach, efficacy and maintenance of the California Hub and Spoke program.

Efficacy

The second year of the evaluation will include patient interviews, to help evaluate the efficacy of the program. Patient interviews started in Year 1, but analyses required more data. Over the course of 18 months, an estimated 437 patients will be interviewed about their treatment outcomes and experiences in Hub and Spoke clinics. Patients will all be interviewed twice, once at baseline and once at a 3-month follow up point, to evaluate treatment retention and outcomes over time. Interview results will be analyzed by Hub and Spoke system.

To further assess barriers and facilitators to implementation, interviews and/or focus groups will be conducted with providers, to gain more in-depth insight on the issues raised by the provider surveys. In addition, follow up surveys will be conducted in May-June 2019, to determine whether the Hub and Spoke program has had an impact on service availability, barriers and facilitators, or provider knowledge and attitudes. All known providers in the Hub and Spoke System will also be surveyed at this point.

In addition, the efficacy of the program for the state overall will be analyzed using administrative data sources. Currently, administrative data sources are only available through 2017. As data for the program period become available, changes in overdose death rates, buprenorphine prescribing rates, and naloxone distribution will be analyzed.

Maintenance

To evaluate the sustainability of the Hub and Spoke program, the second year of evaluation activities will include site visits to a selection of Hub and Spoke sites. Visits will be qualitative in nature, and will include observations as well as open-ended interviews with providers and administrators. Maintenance will also be examined further using Hub and Spoke invoices.

Other Evaluation Activities

In the second year of the evaluation, as a sub-project of the Hub and Spoke program, UCLA will also conduct an evaluation of the Emergency Department (ED) Bridge project. ED Bridge adds emergency rooms as referral resources to Hubs and Spokes, as well as other long-term treatment settings. In addition, UCLA will continue to work with USC on the Tribal MAT expansion project. A report on the outcomes of the Year 1 Tribal MAT Needs Assessment is forthcoming.

Recommendations for the Future of Hub and Spoke

The evaluation of the first year of California Hub and Spoke program activities found promising increases in MAT availability. The number of OBOT programs connected into the network more than doubled, and Hubs and Spokes saw growth in both the number of waivered providers and the number of new patients starting MAT. There was room for improvement in several areas of program adoption and implementation that could help to improve its reach.

To strengthen the Hub and Spoke network:

- Encourage Hub leadership to build formalized communication mechanisms with their Spoke providers and administrators.
- Offer more support to Spokes, which may have to function like Hubs, to provide inductions and to treat patients with complex OUD.
- Improve resources for transportation and/or telehealth in rural communities, where Spokes are located far away from Hubs and may have difficulty with referrals.
- Network expansion efforts should focus primarily on health care settings.

To improve waivered providers' prescribing rates:

- Increase OUD screening, particularly in primary care Spokes.
- Facilitate mentor linkage. Providers, especially waivered providers who are not prescribing, indicated a need for further mentorship. Two-thirds of waivered Hub and Spoke providers who are prescribing are willing to mentor others. Comments suggest a desire for on-site mentoring related to clinical skills.
- Provide training and technical assistance around buprenorphine induction. More providers offer maintenance than do induction, and Hub leaders have described a reticence, especially on the part of Spoke providers to induct.
- Continue trainings to address OUD- and MAT-related stigma and misconceptions, especially among providers in primary care settings.
- Continue to increase the availability of naloxone.

To improve the effectiveness of MAT Teams:

- Situate MAT Teams in more Spokes. One-third of MAT Team members indicated they worked only in a Hub, deviating from the model, which intends to provide support to Spoke prescribers.
- Encourage Hubs and Spokes to hire more clinical staff with counseling and care management expertise.
- Provide ongoing stigma trainings targeted toward MAT Team staff.

Other Recommendations

Although not part of the formal goals of the Hub and Spoke program, several additional barriers to MAT expansion in the state of California arose from the evaluation. These included regulatory obstacles, such as fears over DEA inspections and 42 CFR Part 2 regulations, as well as limited community resources, like pharmacies that offered buprenorphine and naloxone availability.

Recommendations to address regulatory barriers:

- The Drug Enforcement Agency (DEA) could release guidance about what to expect from a site inspection. Waivered providers and administrators were fearful of the legal consequences of these visits, and often expressed a desire for more information about them at program meetings.
- SAMHSA could release guidance on the 42 CFR related implications of providers listing themselves on the Buprenorphine Treatment Practitioner Locator website. Some clinics disallowed providers from listing themselves due to concerns over becoming subject to 42 CFR Part 2. This is unfortunate, given that Hub and Spoke prescribers who listed themselves on the SAMHSA Treatment Locator website had more MAT patients than those who chose not to.
- Waiver requirements to prescribe buprenorphine could be loosened or eliminated. The time and cost burden on providers and clinics to attend waiver trainings, as well as dosing restrictions, and take-home regulations were all challenges Hubs and Spokes faced. Waiver patient limits were also a barrier. In the last month of the first year, Spokes that had at least one provider at or near a waiver limit (i.e., 30, 100 or 275 patients) started fewer new patients on buprenorphine than those that did not have any providers approaching limits.

Recommendations to address community resources:

- Continuing to increase the availability of naloxone. More naloxone kits can be purchased by Hubs and Spokes through their grants, but they can also apply to the DHCS Naloxone Distribution Program. Other, non-Hub and Spoke, California organizations are also welcome to apply.
- Facilitating pharmacies willingness to deliver buprenorphine. Pharmacies were poorly rated in their effectiveness in providing MAT to Hub and Spoke patients. Collaborations with pharmacists, and stigma trainings may facilitate these relationships.
- Stigma among behavioral health and peer support providers in communities surrounding Hubs and Spokes was also a concern. Ongoing trainings and collaborations with these providers may improve these resources as well.

References

Brooklyn, J. R., & Sigmon, S. C. (2017). Vermont hub-and-spoke model of care for opioid use disorder: development, implementation, and impact. *Journal of addiction medicine*, *11*(4), 286.

California Department of Public Health (CDPH), Safe and Active Communities Branch. (2018). *California Opioid Overdose Surveillance Dashboard*. Available at: https://discovery.cdph.ca.gov/CDIC/ODdash/

Clemans-Cope, L., Epstein, M., and Wissoker, D. (2018). *County-Level Estimates of Opioid Use Disorder and Treatment Needs in California*. The Urban Institute.

USDA Economic Research Service. *California - Rural Definitions: State-Level M*aps. Retrieved from: https://www.ers.usda.gov/webdocs/DataFiles/53180/25559_CA.pdf?v=39329

Engels, J. M., & Diehr, P. (2003). Imputation of missing longitudinal data: a comparison of methods. *Journal of clinical epidemiology*, *56*(10), 968-976.

Gaglio, B., Shoup, J. A., & Glasgow, R. E. (2013). The RE-AIM framework: a systematic review of use over time. *American journal of public health*, *103*(6), e38-e46.

Glasgow, R. E., Vogt, T. M., & Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *American journal of public health*, *89*(9), 1322-1327. www.RE-AIM.org

Kaiser Family Foundation State Health Facts. Data Source: The Centers for Disease Control and Prevention (CDC), National Vital Statistics Reports (NVSR), Vol. 66, No. 1: Births: Final Data for 2015, January 5, 2017. Retrieved from: https://www.kff.org/statedata/

Kaiser Family Foundation (2018). Data Source: Centers for Disease Control and Prevention (CDC), National Center for Health Statistics. Multiple Cause of Death 1999-2016 on CDC WONDER Online Database, released 2017. Retrieved from: https://www.kff.org/state-category/health-status/opioids/

Knudsen, H. K. (2015). The supply of physicians waivered to prescribe buprenorphine for opioid use disorders in the United States: a state-level analysis. *Journal of studies on alcohol and drugs*, *76*(4), 644-654.

Mowbray, C. T., Holter, M. C., Teague, G. B., & Bybee, D. (2003). Fidelity criteria: Development, measurement, and validation. *American journal of evaluation*, *24*(3), 315-340.

National Institute on Drug Abuse (2018a). National Overdose Deaths from Select Prescription and Illicit Drugs. Retrieved from: https://www.drugabuse.gov/sites/default/files/overdose-data.xls

National Institute on Drug Abuse (2018b). Opioid Summaries by State. Retrieved from: https://www.drugabuse.gov/drugs-abuse/opioids/opioid-summaries-by-state
Rosenblatt, R. A., Andrilla, C. H. A., Catlin, M., & Larson, E. H. (2015). Geographic and specialty distribution of US physicians trained to treat opioid use disorder. *The Annals of Family Medicine*, *13*(1), 23-26.

Substance Abuse and Mental Health Services Administration (2018). *Buprenorphine Treatment Practitioner Locator*. Retrieved from: https://www.samhsa.gov/medication-assisted-treatment/physician-program-data/treatment-physician-locator

US Department of Housing and Urban Development. (2017). The 2017 Annual Homeless Assessment Report (AHAR) to Congress. Authors: Meghan Henry, Rian Watt, Lily Rosenthal, and Azim Shivji, Abt Associates. Available at: https://www.hudexchange.info/resources/documents/2017-AHAR-Part-1.pdf

Appendix I. List of Hubs and Spokes

Program/Clinic Name	Address
ACADIA SAN DIEGO (STR-01) (Fashion Valley)	7545 Metropolitan Dr., San Diego, CA 92108
El Cajon Comprehensive Treatment Center	234 Magnolia Avenue, El Cajon, CA 92020
Family Health Centers of San Diego	140 Elm Street, San Diego, CA 92103
St. Vincent de Paul	1501 Imperial Avenue, San Diego, CA 92101
Vista Community Clinic	1000 Vale Terrace Drive, Vista, CA 92084
Neighborhood Healthcare	425 North Date Street, Escondido, CA 92025
Chula Vista Comprehensive Treatment Center	1161 Third Avenue, Chula Vista, CA 91911
La Maestra Community Clinic	4060 Fairmount Avenue, San Diego, CA 92105
Capalina Comprehensive Treatment Center	1560 Capalina Road, San Marcos, CA 92069
ACADIA RIVERSIDE (STR-02)	1021 W. La Cadena Drive, Riverside, CA 92501
MFI Recovery - Arlington	5870 Arlington Ave., Riverside, CA 92504
MFI Recovery - University	4440 University Ave, Riverside, CA 92501
MFI Recovery - Van Buren	17130 Van Buren Blvd., Riverside, CA 92504
Temecula Valley Comprehensive Treatment Services	40700 California Oaks Road, Murrieta, CA 92562
Desert Clinic Pain Institute	36101 Bob Hope Dr., Suite B-2, Rancho Mirage, CA 92270
Desert Treatment Clinic	1330 North Indian Canyon Drive, Palm Springs, CA 92262
Colton Clinical Services	2275 E. Cooley, Colton, CA 92324
Neighborhood Healthcare	41840 Enterprise Circle North, Temecula, CA 92590
Pacific Grove Hospital	5900 Brockton Avenue, Riverside, CA 92506
BAART CONTRA COSTA (STR-04)	3707 & 3711 Sunset Lane, Suites A & B, Antioch, CA 94509
Bright Heart Health	2603 Camino Ramon, San Ramon, CA 94583
Workit Health	2910 Camino Diablo, Ste 130, Walnut Creek, 94597
MEDMARK FRESNO (STR-05)	1310 M Street. Fresno, CA 93721
Aria Community Health Center	140 C St, Lemoore, California
Kings Winery Medical	4929 E Kings Canyon Rd, Fresno, CA 93727
Private Practice: Dr. Lalaine Tiu	3069 E Tulare Ave, Fresno, CA 93701
BAART SAN FRANCISCO (STR-08)	1145 Market St., San Francisco, CA 94103
HealthRIGHT 360	1563 Mission Street, San Francisco, CA
API Wellness	730 Polk St, San Francisco, CA 94109
Curry Senior Center Clinic	333 Turk St, San Francisco, CA 94102
Tom Waddell Health Center	230 Golden Gate Ave, San Francisco, CA 94102
MEDMARK SOLANO (STR-10)	1143 Missouri St., Fairfield, CA 94533
ANKA Behavioral Health	251 Georgia St. Vallejo, CA 94590
Advanced Pain Management Institute	200 Butcher Rd Vacaville CA 95687
La Clinica	220 Hospital Dr. Vallejo, CA 94589
Healthy Partnerships (A Division of Caminar) - Callen	1286 Callen St. Vacaville CA 95688
Healthy Partnerships (A Division of Caminar) - Enterprise	1735 Enterprise Drive Fairfield CA 94533
Bright Heart Health	2960 Camino Diablo, Walnut Creek, CA 94597
Solano Care Inc.	171 Butcher Rd, Vacaville, CA 95687
AEGIS MARYSVILLE (STR-12)	201 D Street, Marysville, CA 95901
Western Sierra Medical Center - Grass Valley	844 Old Tunnel Road, Grass Valley, CA 95945
Western Sierra Medical Center - Penn Valley	10544 Spenceville Road, Penn Valley, CA 95946
Western Sierra Medical Clinic - Downieville	209 Nevada St, Downieville, CA 95936
Community Recovery Resources (CoRR)	180 Sierra College Drive, Grass Valley, CA 95945
Adventist Health- Willits	3 Marcela Drive Suite C Willits, CA 95490
Chapa De	1350 E Main St, Grass Valley, CA 95945
Mendocino Coast Clinics	205 South St, Fort Bragg, CA 95437
Lucerne Community Clinic	6300 State Hwy 20, Lucerne, CA 95458
MCHC - Hillside Health Center	333 Laws Ave, Ukiah, CA 95482

MCHC - Lake View Center	45 Hazel Street, Willits, CA, 95490
MCHC - Little Lake Center	5335 Lakeshore Blvd, Lakeport, CA, 95453
Groups - Ukiah	189 South School St., Ukiah, CA 95482
AEGIS ROSEVILLE (STR-14)	1133 Coloma Way, Roseville, CA 95661
Western Sierra Medical Center - Auburn Locksley	12183 Locksley Ln, Auburn, CA 95602
Western Sierra Medical Center - Auburn Professional	3111 Professional Dr, Auburn, CA 95603
Western Sierra Medical Center - Kings Beach	8665 Salmon Ave, Kings Beach, CA 96143
Barton Health	2170 South Ave, South Lake Tahoe, CA 96150
Stallant Health	20601 W Paoli Ln, Weimar, CA 95736
Community Recovery Resources (CoRR)	180 Sierra College Drive, Grass Valley, CA 95945
Chapa De	11670 Atwood Rd, Auburn, CA 95603
El Dorado Community Health Center	3104 Ponte Morino Dr, Cameron Park, CA 95682
Marshall Medical Center	1100 Marshall Way, Placerville, CA 95667
AEGIS REDDING (STR-15)	1145 Hartnell Ave, Redding, CA 96002
Fairchild Medical Center	444 Bruce Street, Yreka, CA, 96097
Mountain Valleys Health Center - Burney	37497 Enterprise Dr, Burney, CA 96013
Mountain Valleys Health Center-Fall River Mills	43563 Highway 299, Fall River Mills, CA, 96028
Hill Country Community Clinic- Gold Street	1401 Gold St. Suite A Redding, CA 96001
Hill Country Health and Wellness Center - Redding	317 Lake Boulevard, Redding, CA, 96003
Hill Country Health and Wellness Center - Round Mountain	29632 Highway 299 East, Round Mountain, CA, 96008
Private Practive - Dr. Staszel	822 Pine St, Mt Shasta, CA 96067
Shasta Community Health Center-Anderson	2801 Silver Street, Anderson, CA, 96007
Shasta Community Health Center-Happy Valley	16300 Cloverdale Road, Happy Valley, CA, 96007
Shasta Community Health Center-Redding	1035 Placer Street Redding, CA, 96001
Shasta Community Health Center-Shasta Lake	4215 Front Street, Shasta Lake City, CA, 96019
Groups - Redding	376 Hartnell Ave Suite A Redding, CA 96002
AEGIS CHICO (STR-50)	590 Rio Lindo Avenue, Chico, CA 95926
Banner Lassen Medical Center- Susanville	1680 Paul Bunyan Rd Susanville, CA 96130
Butte County Behavioral Health-Chico	560 Cohasset Rd Suite 175, Chico, CA 95926
Butte County Behavioral Health-Oroville	2430 Bird St, Oroville, CA 95965
Plumas District Hospital - Greenville	176 Hot Springs Road Greenville, CA 95971
Plumas District Hospital - Quincy	1065 Bucks Lake Rd, Quincy, CA 95971
Groups - Chico	1550 Humboldt Rd Ste 3 Chico CA 95926
Mangrove Medical Group - Chico	1040 Manrgove Ave, Chico, CA 95926
AEGIS EUREKA (STR-51)	
K'ima:w Medical Center	535 Airport Rd, Hoopa, CA 95546
Full Circle Center for Integrative Medicine	4641 Valley E Blvd, Arcata, CA 95521
Redwoods Rural Health Center	101 West Coast Road, Redway, CA, 95560
Waterfront Recovery Services	2413 2nd St, Eureka, CA 95501
AEGIS MANTECA (STR-52)	955 W. Center Street, Manteca, CA 95337
Community Medical Centers- Stockton	1031 Waterloo Road Stockon, CA 95205
Me-Wuk Indian Health Center	18880 Cherry Valley Blvd N, Tuolumne, CA 95379
Mathiesen Memorial Health Clinic (Indian Health Center)	18144 Seco St, Jamestown, CA 95327
TARZANA TREATMENT CENTERS INC. (STR-53)	18646 Oxnard St., Tarzana, CA 91356
Antelope Valley Community Clinic - location 1	45104 10th Street, West Lancaster, CA 93534
Antelope Valley Community Clinic - location 2	2151 East Palmdale Boulevard, Palmdale, CA 93550
Bartz Altadonna Community Health Center	43322 Gingham Avenue, Lancaster, CA 93535
Los Angeles Centers for Alcohol and Drug Abuse	11015 Bloomfield Avenue, Santa Fe Springs, CA 90670
Los Angeles LGBT Center	1625 Schrader Boulevard, Los Angeles, CA 90028
Mission City Community Network - location 1	8527 Sepulveda Boulevard, North Hills, CA 91343
Mission City Community Network - location 2	10200 Sepulveda Boulevard, Mission Hills, CA 91345

Northeast Valley Health Corporation	6551 Van Nuys Boulevard, Van Nuys, CA 91401
Prototypes - location 1	845 East Arrow Highway, Pomona, CA 91767
Prototypes - location 2	1000 North Alameda Street, Los Angeles, CA 90012
Prototypes - location 3	2555 East Colorado Boulevard, Pasadena, CA 91107
Tarzana Treatment Centers, Inc. - location 1	2101 Magnolia Avenue, Long Beach, CA 90806
Tarzana Treatment Centers, Inc. - location 2	5190 Atlantic Avenue, Long Beach, CA 90805
Tarzana Treatment Centers, Inc. - location 3	422 West Avenue P, Palmdale, CA 93551
Tarzana Treatment Centers, Inc. - location 4	907 West Lancaster Boulevard, Lancaster, CA 93534
Tarzana Treatment Centers, Inc. - location 5	44447 North 10th Street, West Lancaster, CA 93534
Tarzana Treatment Centers, Inc. - location 6	44443 North 10th Street, West Lancaster, CA 93534
Tarzana Treatment Centers, Inc. - location 7	8330 Reseda Boulevard, Northridge, CA 91324
Tarzana Treatment Centers, Inc. - location 8	7101 Baird Ave, Reseda, CA 91335
MARIN TREATMENT CENTER (STR-55)	1466 Lincoln Ave., San Rafael, CA 94901
Behavioral Health & Recovery Services (BHRS)	3230 Kerner Boulevard, San Rafael, CA 94901
Coastal Health Alliance	3 Sixth Street, Point Reyes Station, CA 94956
Helen Vine Detox Center	301 Smith Ranch Rd, San Rafael, CA 94903
Marin Community Clinic	3110 Kerner Boulevard, San Rafael, CA 94901
Bright Heart Health	2603 Camino Ramon, San Ramon, CA 94583
Prima Medical	4000 Civic Center Dr, Suite 200b, San Rafael, CA. 94903
JANUS NORTH (STR-56)	200 7th Ave., Santa Cruz, CA 95060
County of Santa Cruz Health Service Agency - Homeless Pers	115-A Coral Street, Santa Cruz, CA 95060
County of Santa Cruz Health Service Agency - Santa Cruz He	1020 Emeline Avenue, Santa Cruz, CA 95060
County of Santa Cruz Health Service Agency - Watsonville H	1430 Freedom Boulevard, Watsonville, CA 95076
Dignity Health – Dominican Hospital	1555 Soquel Drive, Santa Cruz, CA 95065
Encompass Community Services	716 Ocean Street, Santa Cruz, CA 95060
Palo Alto Medical Foundation	2025 Soquel Avenue, Santa Cruz,CA 95060
Santa Cruz Community Health Centers - East Cliff Family Hea	21507 East Cliff Drive, Santa Cruz, CA 95062
Santa Cruz Community Health Centers - Women's Health Cli	250 Locust Street, Santa Cruz, CA 95060
JANUS SOUTH (STR-57)	284 Pennsylvania Dr., Suite 1, Watsonville, CA 95076
Palo Alto Medical Foundation	550 South Green Valley Road, Watsonville, CA 95076
Clinica Del Valle Del Pajaro	45 Nielson Street, Watsonville, CA 95076
Plazita Medical Clinic	1150 Main Street, Watsonville, CA 95076
Salud Para La Gente	204 East Beach Street, Watsonville, CA 95076
COMMUNICARE HEALTH CENTERS (STR-58)	215 West Beamer Street, Woodland, CA 95695
CommuniCare – Davis Clinic	2051 John Jones Road, Davis, CA 95616
CommuniCare – Salud Clinic	500 Jefferson Boulevard, West Sacramento, CA 95605
CORE Medical clinics	2100 Capitol Avenue, Sacramento, CA 95816
Winters Healthcare	23 Main Street, Winters, CA 95694
MATRIX INSTITUTE ON ADDICTIONS (STR-61)	5220 W. Washington Blvd, Suites 101 & 102, Los Angeles, CA 9
CLARE Foundation	909 Pico Boulevard, Santa Moinca, CA, 90405
CLARE Foundation Conscious Recovery	1334 Lincoln Blvd, Santa Monica, CA 90403
CLARE Foundation Outpatient Clinic	1020 Pico Boulevard, Santa Monica, CA 90405
St. John's Well Child and Family Center-Compton	2115 North Wilmington Avenue, Compton, CA 90222
St. John's Well Child and Family Center-Trayhan	326 West 23rd Street, Los Angeles, CA 90007
St. John's Well Child and Family Center-Williams	808 W. 58th St, Los Angeles, CA 90037
Venice Family - Clinic Common Ground	2401 Lincoln Boulevard, Santa Monica, CA, 90405
Venice Family Clinic	604 Rose Avenue, Venice, CA 90291

Appendix II. Year 1 Training and Technical Assistance Activities

TABLE 1		**Learning Collaborative Activities**	**Training Activities**		
		Quarterly LC sessions per H&SS network/region*	**Statewide Best Practices** Bi-annual-full day	**Statewide MAT** Quarterly	**Clinical Skills Trainings** Bi-annual-full day (6 hour) per H&SS network/region*
Year 1	**Q1:** July Aug Sept **2017**	Session #1 x 19 H&SS network	1 LC Orientation	1	Training #1 x 19 H&SS network
	Q2: Oct Nov Dec **2017**	Session #2 x 19 H&SS network		2	
	Q3: Jan Feb Mar **2018**	Session # 3x 19 H&SS network	2	3	Training #2 x 19 H&SS network
	Q4: Apr May June **2018**	Session #4 x 19 H&SS network		4	
Year 2	**Q5:** July Aug Sept **2018**	Session #5 x 19 H&SS network	3	5	Training #3 x 19 H&SS network
	Q6: Oct Nov Dec **2018**	Session #6 x 19 H&SS network		6	
	Q7: Jan Feb Mar **2019**	Session #7 x 19 H&SS network	4	7	Training #4 x 19 H&SS network
	Q8: Apr May June **2019**	Session #8 x 19 H&SS network		8	

* = the H&SS networks will be regionalized into ~ 6 groups; Activities will be scheduled to target the regional areas, and will assure participation of all H&SS networks for each required activity in the timeline as described above

Appendix III. Monthly Data Reporting Forms

Date of report

3/26/2018

Monthly Reporting Form—Hub

Name of individual completing report

Report status

New Report | Revised Report

A. Data below is for the month of:

B. Data below is for the year of:

C. Hub Name

C. Hub Name

- Aegis Redding (STR-15)
- Aegis Eureka/Humboldt (STR-51)
- Aegis Marysville (STR-12)
- Aegis Chico (STR-50)
- Aegis Roseville (STR-14)
- Aegis Manteca (STR-52)
- Bright Heart Health (STR-33)
- Marin Treatment Center (STR-55)
- MedMark Solano (STR-10)
- MedMark Fresno (STR-05)
- BAART San Francisco (STR-08)
- BAART Contra Costa (STR-04)
- CommuniCare (STR-58)
- Janus North (STR-56)
- Janus South (STR-57)
- Acadia San Diego (Fashion Valley Clinic) (STR-01)
- Acadia Riverside (Riverside Treatment Center) (STR-02)

Matrix (STR-61)

Tarzana Treatment Centers (STR-53)

1. Patients** INITIATING methadone for OUD during the month at the hub. (total N)

2. Patients** INITIATING buprenorphine (including Suboxone, Subutex, Probuphine) for OUD during the month at the hub. (total N)

3. Patients** INITIATING XR-naltrexone ("Vivitrol") for OUD during the month at the hub. (total N)

4. Of patients initiating any of the above medications at the hub (1 + 3 + 2 above), number who also received counseling or other OUD recovery services*** from either the spoke or the hub. (total N)

5. Active**** OUD patients (census) as of the last day of the month at the hub. (total N)

6. MAT patients who initiated treatment in remaining in treatment uninterrupted as of the last day of , at the hub.

Below, name each spoke. After entering the name of a spoke, enter the number of patients REFERRED TO the hub from that spoke who initiated MAT (methadone, buprenorphine, or XR-naltrexone). Subsequent fields will appear for additional spokes upon entry. Please enter this data for each spoke. If a spoke has not referred any patients who initiated MAT at the hub, enter "0." Do not leave the field blank.

7. Spoke Name

A. Patients referred to hub from the spoke named above who initiated MAT (total N)

8. Spoke Name

A. Patients referred to hub from the spoke named above who initiated MAT (total N)

Additional comments or clarifications:

If your organization has more than one grant, please submit a separate data reporting form packet for each CA H&SS.

*** Choose a descriptive name (e.g. organization, location). Please use the same hub and spoke names consistently over the duration project. Patients served at Medication Units (if any) should be included in Hub counts.**

**** Count all patients initiating MAT who interact with the Hub and Spoke System (e.g., through meetings with MAT Team, referral via Treatment Needs Questionnaire, receipt of transportation tokens), including those whose service costs are covered by Medi-Cal, private insurance, or self-pay. Initiating patients are those who started a NEW prescription during the reporting month. This could include: a patient who has never taken MAT before who started a MAT prescription this month, a patient who has never visited your program/clinic before and has just started a new MAT prescription, a patient who has been discharged from your program/clinic in the past who has returned and started a new prescription. Please do not count patients who have been in treatment with MAT continuously, but whose medication costs are now being covered by the grant. Please also do not count courtesy dosing. Patients in the opioid treatment program (OTP; most hubs) setting are considered active if they have gone no more than 14 days withot medication (i.e., they have not been discharged). Patients in the office based treatment (OBOT; most spokes) setting are considered active if they have a new MAT prescription or refill of a MAT prescription within the past 90 days.**

*** Recovery support services help people enter into and navigate systems of care, remove barriers to recovery, stay engaged in the recovery process, and live full lives in communities of their choice. Some examples include: supported employment, education, and housing; assertive community treatment; illness management; and peer-operated services. For more see: https://www.samhsa.gov/recovery

**** Patients in the opioid treatment program (OTP; most hubs) setting are considered active if they have gone no more than 14 days without medication (i.e., they have not been discharged). Patients in the office based treatment (OBOT; most spokes) setting are considered active if they have a new MAT prescription or refill of a MAT prescription within the past 90 days.

Continue

For questions or concerns, please contact Hub and Spoke Evaluation Coordinator, Kendall Darfler at kdarfler@mednet.ucla.edu or (310) 267-5417.

Date of report

3/26/2018

Monthly Reporting Form—Spoke

Name of individual completing report

Report status

New Report | Revised Report

Spoke Name

Spoke Address

Hub Name

- Aegis Redding (STR-15)
- Aegis Eureka/Humboldt (STR-51)
- Aegis Marysville (STR-12)
- Aegis Chico (STR-50)
- Aegis Roseville (STR-14)
- Aegis Manteca (STR-52)
- Bright Heart Health (STR-33)
- Marin Treatment Center (STR-55)
- MedMark Solano (STR-10)
- MedMark Fresno (STR-05)
- BAART San Francisco (STR-08)
- BAART Contra Costa (STR-04)
- CommuniCare (STR-58)
- Janus North (STR-56)
- Janus South (STR-57)
- Acadia San Diego (Fashion Valley Clinic) (STR-01)
- Acadia Riverside (Riverside Treatment Center) (STR-02)

Matrix (STR-61)

Tarzana Treatment Centers (STR-53)

A. Data below is for the month of:

B. Data below is for the year of:

1. Patients INITIATING methadone for OUD during the month at the spoke**

2. Patients INITIATING buprenorphine (including Suboxone, Subutex, Probuphine) for OUD during the month at the spoke.**

3. Patients INITIATING XR-naltrexone ("Vivitrol") for OUD during the month at the spoke.**

4. Total patients REFERRED TO the hub.

5. Total patients REFERRED FROM the hub.

6. Patients REFERRED FROM the hub who initiated buprenorphine or XR-naltrexone at the spoke.

7. Of patients initiating buprenorphine or XR-naltrexone at the spoke (1 + 2 above), number who also received counseling or other OUD recovery services* from either the spoke or the hub.**

8. Active** OUD patients (census) as of the last day of the month at the spoke.**

9. MAT patients who initiated treatment in remaining in treatment uninterrupted as of the last day of , at the spoke.

10. Total providers with DATA 2000 waiver at the spoke.

For the below items, enter the full name (first and last) of the first prescriber. Please use prescriber names consistently over the duration of the project. Then, for the prescriber named above, enter the number of active MAT patients served by the provider you named in the corresponding "Prescriber name" field. After you enter this number, subsequent fields will appear for additional prescribers. Please complete this item for each prescriber, even if the answer is "0." Do not leave the field blank.

11. Prescriber Name

A. For the prescriber named above, list the number of active OUD patients

Additional comments or clarifications:

PLEASE SUBMIT ONE RECORD PER SPOKE.

*** Choose a descriptive name (e.g. organization, location). Please use the same hub and spoke names consistently over the duration project. Patients served at Medication Units (if any) should be included in Hub counts.**

**** Count all patients initiating MAT who interact with the Hub and Spoke System (e.g., through meetings with MAT Team, referral via Treatment Needs Questionnaire, receipt of transportation tokens), including those whose service costs are covered by Medi-Cal, private insurance, or self-pay. Initiating patients are those who started a NEW prescription during the reporting month. This could include: a patient who has never taken MAT before who started a MAT prescription this month, a patient who has never visited your program/clinic before and has just started a new MAT prescription, a patient who has been discharged from your program/clinic in the past who has returned and started a new prescription. Please do not count patients who have been in treatment with MAT continuously, but whose medication costs are now being covered by the grant. Please also do not count courtesy dosing.**

***** Recovery support services help people enter into and navigate systems of care, remove barriers to recovery, stay engaged in the recovery process, and live full lives in communities of their choice. Some examples include: supported employment, education, and housing; assertive community treatment; illness management; and peer-operated services. For more see: https://www.samhsa.gov/recovery**

****** Patients in the opioid treatment program (OTP; most hubs) setting are considered active if they have gone no more than 14 days without medication (i.e., they have not been discharged). Patients in the office based treatment (OBOT; most spokes) setting are considered active if they have a new MAT prescription or refill of a MAT prescription within the past 90 days.**

Continue

For questions or concerns, please contact Hub and Spoke Evaluation Coordinator, Kendall Darfler at kdarfler@mednet.ucla.edu or (310) 267-5417.

CA Hub and Spoke Evaluation: Waivered Provider Survey

1. Location name

2. How long have you worked at this location?

3. Position Title

4. Professional license/certification title

5. Professional specialization (if applicable)

6. Which category best describes the primary setting or service of this location? (choose all that apply)

- [ ] Hospital
- [ ] Primary care clinic (e.g. FQHC, other community health clinic)
- [ ] Mental/behavioral health center
- [ ] Other (please specify)
- [ ] Alcohol/drug treatment program
- [ ] Private practice
- [ ] Telehealth program

7. Which category best describes the communities that this location serves? (choose all that apply)

- [ ] Large urban area (population of more than 50,000)
- [ ] Smaller urban area (population of 2,500-50,000)
- [ ] Rural (population of less than 2,500)

8. When did you obtain your waiver to prescribe buprenorphine (MM/YYYY)?

9. About how many patients have you ever prescribed buprenorphine to? (If you are unsure, please estimate).

10. For the following questions, mark the answer that comes closest to how you feel. Don't spend too long on any single item. If you don't know, select the "DK" option.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	DK
I have the resources I need to effectively treat patients with opioid use disorders.	○	○	○	○	○	○
I have the mentorship I need to effectively treat patients with opioid use disorders.	○	○	○	○	○	○
I feel confident prescribing buprenorphine.	○	○	○	○	○	○
I am fearful of potential legal consequences when it comes to prescribing buprenorphine.	○	○	○	○	○	○
Checking the CURES database is an important part of working with patients taking opioids.	○	○	○	○	○	○
I feel confident addressing opioid use disorders among patients with chronic pain.	○	○	○	○	○	○
Patients who continually abuse opioids are not committed to treatment.	○	○	○	○	○	○
Patients who divert buprenorphine or other opioids should be discharged from care immediately.	○	○	○	○	○	○
I feel confident in my ability to detect diversion behaviors in patients.	○	○	○	○	○	○
I feel comfortable prescribing naloxone (Narcan) to patients taking opioids.	○	○	○	○	○	○
I feel equally comfortable working with patients with opioid use disorders as I do working with other patient groups.	○	○	○	○	○	○

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	DK
I always create a treatment agreement with patients with opioid use disorders describing the goals, risks and benefits of treatment.	○	○	○	○	○	○
Patients with urine drug tests demonstrating ongoing opioid or other substance use should be reprimanded or discharged from treatment.	○	○	○	○	○	○
All patients should be tapered off of buprenorphine as soon as possible.	○	○	○	○	○	○

Please elaborate on your responses to any of the questions above. (Optional)

11. For the following questions, mark the answer that comes closest to how you feel. Don't spend too long on any single item. If you don't know, select the "DK" option.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	DK
It is useful to treat patients with opioid use disorders in primary care settings.	○	○	○	○	○	○
Treating patients with opioid use disorders in primary care settings can negatively impact the workload of clinic staff.	○	○	○	○	○	○
Treating patients with opioid use disorders in primary care settings can be detrimental to the safety of other patients and clinic staff.	○	○	○	○	○	○
Treating patients with opioid use disorders in primary care settings might drive away other primary care patients.	○	○	○	○	○	○

Please elaborate on your responses to any of the questions above. (Optional)

12. For the following questions, mark the answer that comes closest to how you feel. Don't spend too long on any single item. If you don't know, select the "DK" option.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	DK
I am familiar with my clinic/location's involvement in the Hub and Spoke project.	○	○	○	○	○	○
The Hub and Spoke model is useful.	○	○	○	○	○	○
Care coordination between the Hub and Spoke(s) is effective.	○	○	○	○	○	○
Communication between medical and behavioral health staff at my location is good.	○	○	○	○	○	○
The Hub service has a positive impact on the primary care practice of this location.	○	○	○	○	○	○
If I felt the need, I could easily find someone to help me formulate the best approach to addressing a patient's opioid use disorder.	○	○	○	○	○	○
Participating in the Hub and Spoke Learning Collaborative(s) has been helpful.	○	○	○	○	○	○
Onsite or community pharmacies are effective in serving the needs of our patients with opioid use disorders.	○	○	○	○	○	○
The MAT team in my location is effective.	○	○	○	○	○	○
I have a satisfactory level of communication with the MAT team in my location.	○	○	○	○	○	○

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	DK
I feel the criteria for transferring patients between Spoke(s) and the Hub are clear.	○	○	○	○	○	○

If you have any additional thoughts about the impact of the Hub and Spoke model, please elaborate here. (Optional)

13. I provide the following types of services to patients with opioid use disorders:

- [ ] Buprenorphine office-based induction
- [ ] Buprenorphine home induction
- [ ] Buprenorphine maintenance
- [ ] Buprenorphine standing orders
- [ ] Behavioral interventions (e.g., motivational interviewing, cognitive behavioral therapy)
- [ ] Trauma-informed care
- [ ] Culturally competent care
- [ ] Other (please specify)

14. Have you ever attended a training covering culturally informed practice or competencies specific to American Indians/Alaska Natives?

- ( ) Yes
- ( ) No

15. Would you be interested in attending such a training if it were offered?

- ( ) Yes
- ( ) No

16. I feel that I need more training and technical assistance in serving the needs of patients with opioid use disorders who:

- [ ] Are uninsured/underinsured
- [ ] Are homeless
- [ ] Have chronic pain
- [ ] Are pregnant/nursing
- [ ] Have co-occurring psychiatric disorders
- [ ] Use multiple substances
- [ ] Have HIV/AIDS and/or HCV

17. Is there any additional training that would help you in serving the needs of the patients you see with opioid use disorders? (please describe)

18. Would you be interested in providing peer support to other DATA 2000 waivered providers?

- ( ) Yes
- ( ) No

19. Age

20. Gender

- ◯ Man
- ◯ Woman
- ◯ Non-binary
- ◯ Prefer not to say
- ◯ Prefer to self-describe

21. Race/Ethnicity (choose all that apply)

- ☐ American Indian or Alaska Native
- ☐ Asian or Pacific Islander
- ☐ Black or African American
- ☐ Hispanic or Latinx
- ☐ Middle Eastern or Arab American
- ☐ White or Caucasian
- ☐ Prefer not to say
- ☐ Prefer to self-describe

CA Hub and Spoke Evaluation: MAT Team Survey

1. Position title

2. Professional license/certification title

3. Are you waivered to prescribe buprenorphine (Suboxone, Subutex, Probuphine)

4. If yes, when did you obtain your waiver (MM/YYYY)?

5. How many locations (total) do you work in as part of the Hub and Spoke project?

6. Which category best describes the communities that you serve in your work on the Hub and Spoke project? (choose all that apply)

- [ ] Large urban area (population of more than 50,000)
- [ ] Smaller urban area (population of 2,500-50,000)
- [ ] Rural (population of less than 2,500)

7. For the following questions, mark the answer that comes closest to how you feel. Don't spend too long on any single item. If you don't know, select the "DK" option.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	DK
Some patients with opioid use disorders need medication assisted treatment for years, or even for life.	○	○	○	○	○	○
Methadone is just substituting one addiction for another.	○	○	○	○	○	○
Patients who divert buprenorphine or other opioids should be discharged from care immediately.	○	○	○	○	○	○
Buprenorphine reduces opioid misuse.	○	○	○	○	○	○
Checking the CURES database is an important part of working with patients taking opioids.	○	○	○	○	○	○
Patients with urine drug tests demonstrating ongoing opioid or other substance use should be reprimanded or discharged from treatment.	○	○	○	○	○	○
All patients should be tapered off of buprenorphine as soon as possible.	○	○	○	○	○	○

Please elaborate on your responses to any of the questions above. (Optional)

8. Have you attended any Hub and Spoke Learning Collaborative sessions?

9. For the following questions, mark the answer that comes closest to how you feel about your experience with the Hub and Spoke project. Don't spend too long on any single item. If you don't know, select the "DK" option.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	DK
The Hub and Spoke project has had a positive impact on the availability of resources to treat opioid use disorders in my community.	○	○	○	○	○	○
Participating in the Hub and Spoke Learning Collaborative(s) has been helpful.	○	○	○	○	○	○
Care coordination between the Hub and Spoke(s) is effective.	○	○	○	○	○	○
Generally speaking, the locations where I work are well connected to the Hub and other Spokes in our network.	○	○	○	○	○	○
Hub services are useful to practitioners in the Spoke(s).	○	○	○	○	○	○
I feel the criteria for transferring patients between Spokes and the Hub are clear.	○	○	○	○	○	○
I have good working relationships with buprenorphine prescribers in the Hub and Spoke system.	○	○	○	○	○	○

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	DK
I feel that I am an integral part of the team for treating opioid use disorders in this Hub and Spoke system.	○	○	○	○	○	○
I have a satisfactory level of communication with buprenorphine prescribers in my Hub and Spoke system.	○	○	○	○	○	○

If you have any additional thoughts about the impact of the Hub and Spoke model, please elaborate here. (Optional)

10. For the following questions, please mark the answer that comes closest to how you feel. If you don't know, select the "DK" option.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
Behavioral health care providers and mutual support groups (e.g, AA, NA) in my community are reluctant to provide services to patients receiving medication assisted treatment.	○	○	○	○	○	○
There is an adequate supply of naloxone (Narcan) in my community.	○	○	○	○	○	○
Individuals in my community have difficulty accessing opioid use disorder services.	○	○	○	○	○	○
Individuals in my community who are interested in buprenorphine can easily find Hub and Spoke clinics and their providers in online directories.	○	○	○	○	○	○

Please describe any additional barriers or facilitators to treating/preventing opioid use disorders in your community not named above. (Optional)

11. I provide the following types of services to patients with opioid use disorders:

- [ ] Buprenorphine office-based induction
- [ ] Buprenorphine home induction
- [ ] Buprenorphine maintenance
- [ ] Buprenorphine standing orders
- [ ] Behavioral interventions (e.g., motivational interviewing, cognitive behavioral therapy)
- [ ] Trauma-informed care
- [ ] Culturally competent care
- [ ] Other (please specify)

12. I feel that I need more training and technical assistance in serving the needs of patients with opioid use disorders who:

- [ ] Are uninsured/underinsured
- [ ] Are homeless
- [ ] Have chronic pain
- [ ] Are pregnant/nursing
- [ ] Have co-occurring psychiatric disorders
- [ ] Use multiple substances
- [ ] Have HIV/AIDS and/or HCV

13. Have you ever attended a training covering culturally informed practice or competencies specific to American Indians/Alaska Natives?

- ◯ Yes
- ◯ No

14. Would you be interested in attended such a training if it were offered?

- ◯ Yes
- ◯ No

15. Is there any additional training that would help you in serving the needs of the patients you see with opioid use disorders? (please describe)

16. Do you offer outreach and education materials related to opioid use disorders in the languages (other than English) spoken by the community you serve?

- ◯ Yes
- ◯ No

If you provide materials in some, but not all, languages spoken by the community you serve, please specify which additional languages it would be most helpful to have materials available in.

17. Name of Hub and Spoke location where you work most often

18. About what percentage of your time on the Hub and Spoke project do you spend working in this location? (If you aren't sure how much of your time is dedicated to the Hub and Spoke project, please estimate based on your total hours worked).

19. How long have you worked at this location? (# years, # months)

20. Which category best describes the primary setting or service of this location? (choose all that apply)

- [ ] Hospital
- [ ] Alcohol/drug treatment program
- [ ] Primary care clinic (e.g. FQHC, other community health clinic)
- [ ] Private/sole provider practice
- [ ] Mental Health/Behavioral Health center
- [ ] Telehealth program
- [ ] Other (please specify)

21. For the following questions, please mark the answer that comes closest to how you feel. If you don't know, select the "DK" option. If you work in multiple locations, please think about the location where you work most often. You will be prompted to answer these questions for additional locations at the end of the question set.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
Clinical staff in this location regularly screen patients for opioid use disorders.	○	○	○	○	○	○

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
Clinical staff in this location have the referral resources they need for patients with opioid use disorders.	○	○	○	○	○	○
Staff in this location have adequate training to implement the Hub and Spoke model.	○	○	○	○	○	○
Staff in this location are confident about implementing the Hub and Spoke model.	○	○	○	○	○	○
Senior management in this location support the implementation of the Hub and Spoke model.	○	○	○	○	○	○
Communication between medical and behavioral health staff in this location is good.	○	○	○	○	○	○
Clinical staff in this location often deliver telehealth services.	○	○	○	○	○	○
This location offers adequate transportation resources for patients.	○	○	○	○	○	○
This location offers adequate housing support to patients who are homeless or experiencing domestic violence.	○	○	○	○	○	○
This location offers adequate reentry services for patients leaving correctional facilities.	○	○	○	○	○	○
This location offers adequate family support services to patients with children or other dependents.	○	○	○	○	○	○

Please elaborate on your responses to any of the questions above, or describe any other services you find critical to the success of the Hub and Spoke model at this location. (Optional)

22. Do you work in another location as part of the Hub and Spoke project?

23. Name of second Hub and Spoke location

24. About what percentage of your time on the Hub and Spoke project do you spend working in this location? (If you aren't sure how much of your time is dedicated to the Hub and Spoke project, please estimate based on your total hours worked).

25. For the following questions, please mark the answer that comes closest to how you feel. If you don't know, select the "DK" option. Please think about the location that you named in Question 23 above.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
Clinical staff in this location regularly screen patients for opioid use disorders.	○	○	○	○	○	○
Clinical staff in this location have the referral resources they need for patients with opioid use disorders.	○	○	○	○	○	○
Staff in this location have adequate training to implement the Hub and Spoke model.	○	○	○	○	○	○
Staff in this location are confident about implementing the Hub and Spoke model.	○	○	○	○	○	○
Senior management in this location support the implementation of the Hub and Spoke model.	○	○	○	○	○	○
Communication between medical and behavioral health staff in this location is good.	○	○	○	○	○	○
Clinical staff in this location often deliver telehealth services.	○	○	○	○	○	○

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
This location offers adequate transportation resources for patients.	○	○	○	○	○	○
This location offers adequate housing support to patients who are homeless or experiencing domestic violence.	○	○	○	○	○	○
This location offers adequate reentry services for patients leaving correctional facilities.	○	○	○	○	○	○
This location offers adequate family support services to patients with children or other dependents.	○	○	○	○	○	○

Please elaborate on your responses to any of the questions above, or describe any other services you find critical to the success of the Hub and Spoke model at this location. (Optional)

26. Do you work in another location as part of the Hub and Spoke project?

27. Name of third Hub and Spoke location

28. About what percentage of your time on the Hub and Spoke project do you spend working in this location? (If you aren't sure how much of your time is dedicated to the Hub and Spoke project, please estimate based on your total hours worked).

29. For the following questions, please mark the answer that comes closest to how you feel. If you don't know, select the "DK" option. Please think about the location that you named in Question 27 above.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
Clinical staff in this location regularly screen patients for opioid use disorders.	○	○	○	○	○	○
Clinical staff in this location have the referral resources they need for patients with opioid use disorders.	○	○	○	○	○	○
Staff in this location have adequate training to implement the Hub and Spoke model.	○	○	○	○	○	○
Staff in this location are confident about implementing the Hub and Spoke model.	○	○	○	○	○	○
Senior management in this location support the implementation of the Hub and Spoke model.	○	○	○	○	○	○
Communication between medical and behavioral health staff in this location is good.	○	○	○	○	○	○
Clinical staff in this location often deliver telehealth services.	○	○	○	○	○	○

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
This location offers adequate transportation resources for patients.	○	○	○	○	○	○
This location offers adequate housing support to patients who are homeless or experiencing domestic violence.	○	○	○	○	○	○
This location offers adequate reentry services for patients leaving correctional facilities.	○	○	○	○	○	○
This location offers adequate family support services to patients with children or other dependents.	○	○	○	○	○	○

Please elaborate on your responses to any of the questions above, or describe any other services you find critical to the success of the Hub and Spoke model at this location. (Optional)

30. Do you work in another location as part of the Hub and Spoke project?

31. Name of fourth Hub and Spoke location

32. About what percentage of your time on the Hub and Spoke project do you spend working in this location? (If you aren't sure how much of your time is dedicated to the Hub and Spoke project, please estimate based on your total hours worked).

33. For the following questions, please mark the answer that comes closest to how you feel. If you don't know, select the "DK" option. Please think about the location that you named in Question 31 above.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
Clinical staff in this location regularly screen patients for opioid use disorders.	○	○	○	○	○	○
Clinical staff in this location have the referral resources they need for patients with opioid use disorders.	○	○	○	○	○	○
Staff in this location have adequate training to implement the Hub and Spoke model.	○	○	○	○	○	○
Staff in this location are confident about implementing the Hub and Spoke model.	○	○	○	○	○	○
Senior management in this location support the implementation of the Hub and Spoke model.	○	○	○	○	○	○
Communication between medical and behavioral health staff in this location is good.	○	○	○	○	○	○
Clinical staff in this location often deliver telehealth services.	○	○	○	○	○	○

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
This location offers adequate transportation resources for patients.	○	○	○	○	○	○
This location offers adequate housing support to patients who are homeless or experiencing domestic violence.	○	○	○	○	○	○
This location offers adequate reentry services for patients leaving correctional facilities.	○	○	○	○	○	○
This location offers adequate family support services to patients with children or other dependents.	○	○	○	○	○	○

Please elaborate on your responses to any of the questions above, or describe any other services you find critical to the success of the Hub and Spoke model at this location. (Optional)

34. Do you work in another location as part of the Hub and Spoke project?

Barriers and Facilitators (continued)

35. Name of fifth Hub and Spoke location

36. About what percentage of your time on the Hub and Spoke project do you spend working in this location? (If you aren't sure how much of your time is dedicated to the Hub and Spoke project, please estimate based on your total hours worked).

37. For the following questions, please mark the answer that comes closest to how you feel. If you don't know, select the "DK" option. Please think about the location that you named in Question 35 above.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
Clinical staff in this location regularly screen patients for opioid use disorders.	○	○	○	○	○	○
Clinical staff in this location have the referral resources they need for patients with opioid use disorders.	○	○	○	○	○	○
Staff in this location have adequate training to implement the Hub and Spoke model.	○	○	○	○	○	○
Staff in this location are confident about implementing the Hub and Spoke model.	○	○	○	○	○	○
Senior management in this location support the implementation of the Hub and Spoke model.	○	○	○	○	○	○
Communication between medical and behavioral health staff in this location is good.	○	○	○	○	○	○
Clinical staff in this location often deliver telehealth services.	○	○	○	○	○	○

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
This location offers adequate transportation resources for patients.	○	○	○	○	○	○
This location offers adequate housing support to patients who are homeless or experiencing domestic violence.	○	○	○	○	○	○
This location offers adequate reentry services for patients leaving correctional facilities.	○	○	○	○	○	○
This location offers adequate family support services to patients with children or other dependents.	○	○	○	○	○	○

Please elaborate on your responses to any of the questions above, or describe any other services you find critical to the success of the Hub and Spoke model at this location. (Optional)

38. Do you work in another location as part of the Hub and Spoke project?

Barriers and Facilitators (continued)

39. Name of sixth Hub and Spoke location

40. About what percentage of your time on the Hub and Spoke project do you spend working in this location? (If you aren't sure how much of your time is dedicated to the Hub and Spoke project, please estimate based on your total hours worked).

41. For the following questions, please mark the answer that comes closest to how you feel. If you don't know, select the "DK" option. Please think about the location that you named in Question 39 above.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
Clinical staff in this location regularly screen patients for opioid use disorders.	○	○	○	○	○	○
Clinical staff in this location have the referral resources they need for patients with opioid use disorders.	○	○	○	○	○	○
Staff in this location have adequate training to implement the Hub and Spoke model.	○	○	○	○	○	○
Staff in this location are confident about implementing the Hub and Spoke model.	○	○	○	○	○	○
Senior management in this location support the implementation of the Hub and Spoke model.	○	○	○	○	○	○
Communication between medical and behavioral health staff in this location is good.	○	○	○	○	○	○
Clinical staff in this location often deliver telehealth services.	○	○	○	○	○	○

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
This location offers adequate transportation resources for patients.	○	○	○	○	○	○
This location offers adequate housing support to patients who are homeless or experiencing domestic violence.	○	○	○	○	○	○
This location offers adequate reentry services for patients leaving correctional facilities.	○	○	○	○	○	○
This location offers adequate family support services to patients with children or other dependents.	○	○	○	○	○	○

Please elaborate on your responses to any of the questions above, or describe any other services you find critical to the success of the Hub and Spoke model at this location. (Optional)

42. Age

43. Gender

- ◯ Man
- ◯ Woman
- ◯ Non-binary
- ◯ Prefer not to say
- ◯ Prefer to self-describe

44. Race/Ethnicity (choose all that apply)

- ☐ American Indian or Alaska Native
- ☐ Asian or Pacific Islander
- ☐ Black or African American
- ☐ Hispanic or Latinx
- ☐ Middle Eastern or Arab American
- ☐ White or Caucasian
- ☐ Prefer not to say
- ☐ Prefer to self-describe

CA Hub and Spoke Evaluation: Hub Leadership Survey

1. Hub location name

2. How long have you worked at the Hub location?

3. Position Title

4. Professional license/certification title

5. Professional specialization (if applicable)

6. Which category best describes the primary setting or service of the Hub location? (choose all that apply)

- [ ] Hospital
- [ ] Primary care clinic (e.g. FQHC, other community health clinic)
- [ ] Mental/behavioral health center
- [ ] Other (please specify)
- [ ] Alcohol/drug treatment program
- [ ] Private practice
- [ ] Telehealth program

7. Which category best describes the communities that this Hub and Spoke system serves? (choose all that apply)

- [ ] Large urban area (population of more than 50,000)
- [ ] Smaller urban area (population of 2,500-50,000)
- [ ] Rural (population of less than 2,500)

8. Are you waivered to prescribe buprenorphine (Suboxone, Subutex, Probuphine)

9. If yes, when did you obtain your waiver (MM/YYYY)?

10. For the following questions, mark the answer that comes closest to how you feel. Don't spend too long on any single item. If you don't know, select the "DK" option.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	DK
Participating in the Learning Collaborative(s) has been helpful	○	○	○	○	○	○
The Hub service has had a positive impact on the primary care practice of the Spokes.	○	○	○	○	○	○
Care coordination between the Hub and Spokes is effective.	○	○	○	○	○	○
The MAT team(s) in this Hub and Spoke system are effective.	○	○	○	○	○	○
Practitioners in the Spokes are well connected to the Hub.	○	○	○	○	○	○
Communication between medical and behavioral health staff in my Hub and Spoke system is good.	○	○	○	○	○	○

If you have any additional thoughts about the impact of the Hub and Spoke model, please elaborate here. (Optional)

11. For the following questions, please mark the answer that comes closest to how you feel. If you work in multiple locations, please note any significant differences between locations in the comments section. If you don't know, select the "DK" option.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
There is an adequate number of behavioral health care providers in the community served by this Hub and Spoke system to provide opioid use disorder services.	○	○	○	○	○	○
Behavioral health care providers in this community are unwilling or reluctant to provide therapy to patients receiving medication assisted treatment.	○	○	○	○	○	○
The pharmacies in the community are effective in serving the needs of patients with opioid use disorders.	○	○	○	○	○	○
There is an adequate supply of naloxone (Narcan) in the community served by this Hub and Spoke system.	○	○	○	○	○	○
We often deliver telehealth services.	○	○	○	○	○	○
Individuals in the community served by this Hub and Spoke system have difficulty accessing opioid use disorder services.	○	○	○	○	○	○

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
Individuals in this community who are interested in buprenorphine can easily find our Spokes and their providers in online directories.	○	○	○	○	○	○
Staff in this Hub and Spoke system are enthusiastic about implementing the Hub and Spoke model.	○	○	○	○	○	○
Staff members in Spokes seem confused about the goals of the Hub and Spoke model.	○	○	○	○	○	○
Senior management in Spokes support the implementation of the Hub and Spoke model.	○	○	○	○	○	○
Staff in my Hub and Spoke system have the training they need to address opioid use disorders.	○	○	○	○	○	○
Staff in my Hub and Spoke system have the peer mentorship they need to address opioid use disorders.	○	○	○	○	○	○

Please list any additional barriers/facilitators to the success of the Hub and Spoke model not named above, or describe any significant differences between Hub and Spoke sites. (Optional)

12. For the following questions, mark the answer that comes closest to how you feel about the resources of your Hub and Spoke system. Don't spend too long on any single item. If you don't know, select the "DK" option.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
My Hub and Spoke system has the resources it needs to provide opioid use disorder services to uninsured/underinsured patients.	○	○	○	○	○	○
Staff in my Hub and Spoke system consider health disparities when providing opioid use disorder services.	○	○	○	○	○	○
My Hub and Spoke system provides patients with culturally competent care.	○	○	○	○	○	○
Staff in my Hub and Spoke system have experience providing trauma-informed care.	○	○	○	○	○	○
Staff in my Hub and Spoke system have the appropriate level of experience to deliver opioid use disorder services to patients with chronic pain.	○	○	○	○	○	○
My Hub and Spoke system provides universal prenatal screening for drug and alcohol use.	○	○	○	○	○	○
My Hub and Spoke system collaborates with a local delivery facility capable of treating infants with neonatal abstinence syndrome	○	○	○	○	○	○

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	DK
Staff in my Hub and Spoke system have the resources they need to make referrals for or provide opioid use disorder services to patients with co-occurring psychiatric disorders.	○	○	○	○	○	○
This Hub and Spoke system offers adequate transportation resources for patients.	○	○	○	○	○	○
This Hub and Spoke system offers adequate housing supports and other resources to patients who are homeless or experiencing domestic violence.	○	○	○	○	○	○
This Hub and Spoke system offers adequate reentry services for patients leaving correctional facilities.	○	○	○	○	○	○
This Hub and Spoke system offers adequate family support services to patients with children or other dependents.	○	○	○	○	○	○

Please describe any other services you find critical to addressing the needs of the populations your Hub and Spoke System serves. (Optional)

13. Do you offer outreach and education materials related to opioid use disorders in the languages (other than English) spoken by the community you serve?

○ Yes

○ No

If you provide materials in some, but not all, languages spoken by the community you serve, please specify which additional languages it would be most helpful to have materials available in.

14. Have staff in your Hub and Spoke system ever attended a training covering culturally informed practice or competencies?

- ◯ Yes
- ◯ No
- ◯ Don't know

15. If yes, did it cover American Indians/Alaska Natives?

- ◯ Yes
- ◯ No
- ◯ Don't know
- ◯ N/A

16. Age

17. Gender

- ◯ Man
- ◯ Woman
- ◯ Non-binary
- ◯ Prefer not to say
- ◯ Prefer to self-describe

18. Race/Ethnicity (choose all that apply)

- ☐ American Indian or Alaska Native
- ☐ Asian or Pacific Islander
- ☐ Black or African American
- ☐ Hispanic or Latinx
- ☐ Middle Eastern or Arab American
- ☐ White or Caucasian
- ☐ Prefer not to say
- ☐ Prefer to self-describe

Appendix V. TNQ, OBOT Stability Index and Guidelines

TREATMENT NEEDS QUESTIONNAIRE

Patient Name/ID: _____ Date: . Staff Name/ID: ____

Ask patient each question, circle answer for each	Yes	No
Have you ever used a drug intravenously?	2	0
If you have ever been on medication-assisted treatment (e.g. methadone, buprenorphine) before, were you successful? (If never in treatment before, leave answer blank)	0	2
Do you have a chronic pain issue that needs treatment?	2	0
Do you have any significant medical problems (e.g. hepatitis, HIV, diabetes)?	1	0
Do you ever use stimulants (cocaine, methamphetamines), even occasionally?	2	0
Do you ever use benzodiazepines, even occasionally?	2	0
Do you have a problem with alcohol, have you ever been told that you have a problem with alcohol or have you ever gotten a DWI/DUI?	2	0
Do you have any psychiatric problems (e.g. major depression, bipolar, severe anxiety, PTSD, schizophrenia, personality subtype of antisocial, borderline, or sociopathy)?	1	0
Are you currently going to any counseling, AA or NA?	0	1
Are you motivated for treatment?	0	1
Do you have a partner that uses drugs or alcohol?	1	0
Do you have 2 or more close friends or family members who do not use alcohol or drugs?	0	1
Is your housing stable?	0	1
Do you have access to reliable transportation?	0	1
Do you have a reliable phone number?	0	1
Did you receive a high school diploma or equivalent (e.g. did you complete > 12 years of education)?	0	1
Are you employed?	0	1
Do you have any legal issues (e.g. charges pending, probation/parole, etc)?	1	0
Are you currently on probation?	1	0
Have you ever been charged (not necessarily convicted) with drug dealing?	1	0

Totals _____ + _____

Total possible points is 26
Scores 0-5 excellent candidate for office based treatment
Scores 6-10 good candidate for office based treatment with tightly structured program and on site counseling
Scores 11-15 candidate for office based treatment by board certified addiction physician in a tightly structured program or HUB induction with follow up by office based provider or continued HUB status
Scores above 16 candidate for HUB (Opioid Treatment Program-OTP) only

OBOT Stability Index

1) Was the patient's previous urine drug screen positive for illicit substances? ☐Yes ☐No
2) If YES to #1 or if the patient was recently started on buprenorphine, does the patient have fewer than four consecutive weekly drug-free urine drug screens? ☐Yes ☐No
3) Is the patient using sedative-hypnotic drugs (e.g. benzodiazepines) or admitting to alcohol use? ☐Yes ☐No
4) Does the patient report drug craving that is difficult to control? ☐Yes ☐No
5) Does the patient endorse having used illicit substances in the past month? ☐Yes ☐No
6) Does the query of the Controlled Substance Utilization Review and Evaluation System (CURES) show evidence of the unexplained, unadmitted, or otherwise concerning provision of controlled substances? ☐Yes ☐No
7) Did the patient report their last prescription as being lost or stolen? ☐Yes ☐No
8) Did the patient run out of medication early from his/ her last prescription? ☐Yes ☐No

SCORING:
If NO to all, the patient is "stable" can be seen monthly for prescriptions and urine drug screens.

If YES to any of the above, the patient is "unstable" and needs to be seen weekly for prescriptions and urine drug screens.

Additionally, if YES to 1-6, the patient should be referred for addiction services.

CLINICAL DECISION-SUPPORT TOOLS FOR ADDICTION MEDICATION TREATMENT
CALIFORNIA HUB AND SPOKE SYSTEM

This is a brief explanation of the purpose, intention and clinical use of the Office-Based Opioid Treatment (OBOT) Stability Index and the Treatment Needs Questionnaire [TNQ].

Both were developed by practicing addiction treatment clinicians and experienced addiction services researchers [OSI @ Dartmouth School of Medicine and the Dartmouth-Hitchcock Medical Center Addiction Treatment Program; TNQ @ University of Vermont Medical School and University of Vermont Medical Center Chittenden Clinic Opioid Treatment Program). These tools have been used within the Vermont hub and spoke model over the past five years and have been adapted for the California hub and spoke system. Addiction medicine and addiction treatment lacks simple standardized measures that enable consistent practice within and across agencies. Common "yardsticks" with which to communicate about patient functioning are needed. The OBOT Stability Index and TNQ are completed by clinicians and provide simple common metrics and language.

The OBOT Stability Index and TNQ are instruments to guide patient placement together with clinical judgement and common sense. They are not intended to be used as rigid algorithms to dictate treatment placement. Patient preference, travel distances, prescriber experience and other clinical/logistical issues are also factors that impact placement decision-making.

OBOT Stability Index

The *purpose* of the OBOT Stability Index is to assist OBOT treatment providers in determining patient severity and treatment response within an OBOT setting (e.g. primary care practice). Rather than the status quo of prescribing a one-month supply of medication such as buprenorphine and having the patient receive counseling on a monthly basis, the *intent* of the OBOT Stability Index is to provide a **checklist** to guide prescribing and visit frequency. The OBOT Stability Index reinforces guideline adherence and higher quality addiction medicine practice by including the use of urine drug screen and prescription drug monitoring system (CURES) checks. Integrated with urine drug screen results, visit attendance, and compliance with medication, the OBOT Stability Index is *clinically useful* in adjusting visit frequency within an OBOT practice (scores of 0-5), and, if there are consistently high scores (6+), using good clinical judgment in considering patient benefit in a higher level of care: specialty addiction intensive outpatient, residential or hub [NTP-OTP] setting.

The OBOT Stability Index can be completed by a clinician at initial visit, monthly, and at potential transition points.

Treatment Needs Questionnaire

The *purpose* of the TNQ is to assist OBOT (spoke) and OTP (hub) providers in determining patient severity, complexity and treatment response within either setting type. Rather than communicating clinical material in a highly variable way, the TNQ enables consistency and standardization in assessment information. The *intent* of TNQ standardized information is for clarity and consistency of communicating patient needs across OBOT and OTP settings. This information is particularly useful when transferring patients from OTP to OBOT, OBOT to OTP, or between OTPs with varying levels of program structure and expertise. The TNQ is a **patient stratification** algorithm that provides guidance and common language for providers AND patients at initial evaluation and transition points. It should augment existing diagnostic assessment, treatment monitoring and care transition practices. The TNQ should not be used in an orthodox way, and is not intended for use to determine medication type (e.g. methadone versus buprenorphine). The TNQ cutoff scores (0-5; 6-10; 11-15; 16+) are *clinically useful* as guides to determine patient benefit for a therapeutic structure of greater--daily observed dosing and/or toxicology monitoring--or lesser--weekly or monthly dosing, random toxicology monitoring—intensity.

The TNQ can be completed by a clinician at the initial visit, routine treatment planning, and at potential transition points.