Case Study

Medication Assisted Treatment Program for Opioid Addiction

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EXECUTIVE SUMMARY

From 2000-2010, Vermont faced rising rates of opioid misuse and overdose. Research demonstrates that medication assisted treatment (MAT) is one of the most effective ways to treat opioid addiction. In Vermont in 2011, several individual MAT providers and one large MAT clinic closed within a short period of time. Additionally, there were few physicians seeking licensure to provide MAT, but the number of people seeking treatment continued to rise. As a result, waitlists for MAT were in excess of two years, leaving many Vermonters with no treatment options.

Leaders within three Vermont state government entities—the Vermont Blueprint for Health (a primary care-based payment and system reform program), the Department of Vermont Health Access' Medicaid Health Services and Managed Care Division, and the Vermont Department of Health's Division of Alcohol and Drug Abuse Programs (ADAP)—partnered to develop a solution to the growing opioid misuse and overdose crisis. They collaborated with local addiction specialists, primary care practitioners, substance abuse treatment providers, and community organizations to develop the Care Alliance for Opioid Addiction, more commonly known as the Hub and Spoke model, which attempts to comprehensively address opioid use disorders among Vermonters. Each of the three Vermont state government entities championed the effort, with ADAP serving as the "content expert" with knowledge of regulations and clinical services, as well as capitalizing on their partnerships with health systems.

The Hub and Spoke model integrates addiction treatment into Vermont's existing primary care framework. Hubs are regional specialty opioid addiction treatment centers, and Spokes are general medical and specialist settings, including primary care practices that are equipped to treat opioid use disorders and receive consultation and support from Hubs. All Medicaid beneficiaries receiving treatment in the Hub and Spoke model have a primary care patient-centered medical home and access to Medicaid health home services delivered by staff at the Hubs and Spokes. Through negotiations with the Centers for Medicare and Medicaid Services under section 2703 of the Affordable Care Act, Vermont obtained two health home state plan amendments that came with 90/10 matching federal funds for eight quarters to finance the implementation of health home services beginning in July 2013. The health home services at Hubs are paid for through a bundled rate and through a per-member-per-month payment in lieu of fee-for-service payments at Spokes.

Vermont designed a robust evaluation of the Hub and Spoke model, and early results are promising. One analysis estimated cost-savings for Medicaid due to reduction in the overuse of health services, such as emergency department visits. Although waitlists for treatment remain in some areas, the number of people served has more than doubled. Providers report that they can now provide the necessary wrap-around services needed to treat addiction.

The development and maintenance of strong relationships across state entities was critical to the successful development and implementation of this novel model of care. Other states can look to Vermont's experience to consider how to best address their state's healthcare needs. In particular, the Hub and Spoke model could be adapted to address other chronic diseases, better connect a state's mental health and primary care systems, or improve long-term care systems.

GLOSSARY OF ACRONYMS

ACA	Affordable Care Act
ADAP	Division of Alcohol and Drug Abuse Programs
AHS	Agency of Human Services
ASTHO	The Association of State and Territorial Health Officials
Blueprint	The Vermont Blueprint for Health
CHCS	Center for Health Care Strategies
CHTs	Community Health Teams
CMS	Centers for Medicare and Medicaid Services
DVHA	Department of Vermont Health Access
DEA	Drug Enforcement Administration
HSAs	Health Service Areas
MAT	Medication Assisted Treatment
OBOT	Office-Based Opioid Therapy
OTP	Opioid Treatment Programs
PCMH	Patient-Centered Medical Home
SPA	State Plan Amendment
SAMHSA	Substance Abuse and Mental Health Services Administration
TCC	Total Costs of Care
VDH	The Vermont Department of Health

INTRODUCTION

Project Overview

With support from the de Beaumont Foundation, ASTHO has created a series of six case studies designed to describe successful collaborations between state public health departments and Medicaid agencies in which a state implemented an innovative policy change. For the purpose of this series, success is defined as demonstration of—or evident promise of—improvements in population health, cost savings to Medicaid, or both.

ASTHO and the de Beaumont Foundation convened a diverse expert group in May 2014 and provided essential guidance in choosing the programs featured in the series of case studies. This Vermont case study describes the innovations undertaken in the state to expand treatment capacity and provide comprehensive coordinated care to individuals with opioid addiction.

The de Beaumont Foundation

The de Beaumont Foundation believes that a strong public health system is essential. The foundation works to transform the practice of public health through strategic and engaged grant-making. Programs funded by the foundation build the capacity and stature of the public health workforce, improve public health infrastructure, and advance the distribution and relevancy of information and data in the field. Please visit www.debeaumont.org for more information.

ASTHO

ASTHO is a 501(c)(3) nonprofit membership association serving the chiefs of state and territorial health agencies and the more than 100,000 public health staff that work in those agencies. Its mission, from which its organizational strategy flows, is to transform public health within states and territories to help members dramatically improve health and wellness. ASTHO tracks, evaluates, and advises members on the impact and formation of policy—public or private—pertaining to health that may affect state or territorial health agencies' administration and provides guidance and technical assistance to its members on improving the nation's health. ASTHO supports its members on a wide range of topics based on their needs, including, but not limited to, ASTHO's leadership role in promoting health equity, integrating public health and clinical medicine, responding to emergencies, and bringing voluntary national accreditation to fruition through the Public Health Accreditation Board. Please visit www.astho.org for more information.

METHODS

Interviews

The project team, consisting of Lisa Dulsky Watkins, Brian Costello, and Megan Miller, interviewed nine individuals involved in the development and implementation of Vermont's medication assisted treatment (MAT) program for opioid addiction:

- Five Vermont Medicaid senior leaders including representatives from the commissioner's office, the clinical services unit, and the Vermont Blueprint for Health.

- Three public health department senior leaders including one from the commissioner's office and two from the alcohol and drug abuse program.

- One chief executive of an area hospital and implementation site.

A project team member, Lisa Dulsky Watkins, led forty-five minute to one-hour phone interviews using identical questions from a standardized interview tool. Two additional team members served as note-takers, listening to and documenting each conversation. The interviews were recorded and, if necessary, transcribed for clarification. Data gathered from each interview was recorded into a data collection tool for analysis.

Document Review

With assistance from the interviewees and through independent research, the team collected government resources, news articles, and educational material on the case study topic. Project team members selected the most relevant documents for further review. All documents are listed in the references.

DATA MANAGEMENT

Data Synthesis

The project team developed three tools to facilitate data collection for the case studies: (1) the interview instrument, (2) the interview data collection tool, and (3) the document review data collection tool. These items are located in the appendices.

The interview instrument (see Appendix 2) included a structured set of questions designed to address the domains of interest suggested by the expert group (see Appendix 1), and focused on three primary domains: the interviewee's interaction with the policy change, the processes by which the policy change was implemented, and the impact of the policy change. Following each interview, the two note-takers entered their notes into the interview data collection tool (see Appendix 3), which designated where content from the interview fit best into the various coding categories. Next, the two note-takers collaborated to create a consensus document for each interview. To do this, they compared summary documents and reached agreement regarding any discrepancies in their accounts of the content of the interview and categorization of the content. The primary interviewer then reviewed the consensus document. The team created a similar tool to gather information from documents reviewed for each case study (see Appendix 4). The document was double-coded by two researchers and reviewed by a third, primary researcher.

Data Analysis

The project team entered interview content and consensus data collection tool documents into NVivo 10 (QSR International, Cambridge, MA), a qualitative research software, assigning codes and reviewing the content from the interviews and documents. These codes facilitated organization and analysis for each case study in the series and the cross-case study analysis. The team used a multiple-case replication approach to examine major points of interaction between Medicaid and public health, which resulted in (1) population health improvement or (2) Medicaid cost savings.[1] Additionally, the team analyzed interview and document review data to examine points of convergence and divergence, with respect to the processes and drivers of several significant policy changes at the state and local levels.

VERMONT BACKGROUND

Demographics

Vermont is one of the smallest states in the country, and as of 2013, only had 625,000 residents. The state also has one of the highest percentages of older adult populations: 16.4 percent of the state is 65 and older.[2] Geographically, the state covers less than 10,000 square miles of northern New England. It is largely rural and has several population centers, none with more than 50,000 people in a single city. Vermont has very little ethnic or racial diversity, with a non-Hispanic white population of 93.8 percent and an African-American population of 1.2 percent (versus 62.6 percent and 13.2 percent, respectively, in the United States at large).[3] As of 2014, 25 percent of Vermont's population was enrolled in Medicaid.[4]

Healthcare Reform in Vermont

For over a decade, Vermont has been at the national forefront of healthcare reform innovations. The state developed innovations that transpired in a bipartisan manner and were implemented by its General Assembly and several gubernatorial administrations. Perhaps due to the state's small size and its potential of bringing change to scale, Vermont has put into place numerous innovative approaches and programs.

Administrative Infrastructure Relevant to Treatment of Opioid Use Disorders

The Vermont Department of Health (VDH) and Department of Vermont Health Access (DVHA), Vermont's Medicaid and healthcare reform implementation entity, are both departments within the Vermont Agency of Human Services (AHS). They divide the state's regions into 12 "Health Service Areas" or HSAs. These are geographical areas that include a local community hospital and district health department office. These entities often administer public health and community services within the state.

Bifurcated Treatment System

MAT is defined as pharmacotherapy for opioid use disorders conducted in combination with behavioral therapy. It is recognized as one of the most effective forms of treatment for opioid addiction. Methadone and buprenorphine[i] are two options used for pharmacotherapy. They both work by suppressing cravings and preventing withdrawals to decrease rates of relapse.[5] Individuals with opioid use disorders can remain on these medications indefinitely.[6]

Despite the similar effects of—and indications for prescribing—buprenorphine and methadone, two different federal regulations govern their use. In Vermont, as in many other states, these different regulations led to distinct approaches for the two drugs prior to the formation of the state's Care Alliance for Opioid Addiction. Specialty Opioid Treatment Programs (OTP) administered by VDH's Division of Alcohol and Drug Abuse Programs (ADAP) provide methadone to treat opioid use disorders. Methadone is only available through specialty opioid treatment clinics, and staffing and geography further limit access to this treatment in Vermont.[7,8]

[i] Buprenorphine is an active ingredient in Suboxone and Subutex, and in other drugs.

On the other hand, any physician with an X-Drug Enforcement Administration (DEA) license[ii] can prescribe buprenorphine out of a general medical office that offers office-based opioid therapy (OBOT). For Medicaid beneficiaries, DVHA administers the buprenorphine program and pays related claims.[9] A hospital executive describes the challenging nature of care he faces in a typical office practice where buprenorphine is prescribed: "They tended to be small, independent offices that had trouble dealing with this population group."[10]

The Vermont Blueprint for Health (the Blueprint) sits within DVHA's Division of Health Care Reform, which also houses Vermont Medicaid. Specifically, DVHA's Medicaid Health Services and Managed Care Division is responsible for overseeing many activities related to quality, access to services, measurement and improvement standards, and utilization review, as well as medical management planning and budgeting. The Blueprint is a nationally recognized initiative that transformed the delivery of, and payment methods for, primary care and other comprehensive health services in Vermont. VDH's ADAP coordinates substance abuse treatment throughout the state.

Prior to the implementation of the policy change, there was a fine line that divided funding sources and administration of pharmacotherapy for opioid use disorders, with DVHA responsible for buprenorphine and ADAP responsible for methadone. Although the sister departments treat the same condition and were housed in the same agency, their funding and administrative activities were separate.

Primary Care Transformation

Vermont's primary care transformation program, the Blueprint, is working to lead sustainable health reform centered on the needs of patients and families. It brings order to the chaos of a system that is characterized by independent organizations, segregated services, poor communication within and across organizations, and funding streams that are often not aligned with individual and population health goals.

Guiding legislation calls for a highly coordinated statewide approach to health, wellness, and disease prevention. The Blueprint is leading this transformation with a statewide Advanced Model of Primary Care program, which includes nationally recognized patient-centered medical homes (PCMHs) supported by community health teams (CHTs), and a health information technology infrastructure that supports guideline-based care, population reporting, and health information exchange. Vermont Act 128 of 2010 called for full implementation of the Blueprint interventions in every willing primary care practice by October of 2013. Vermont Act 48 of 2011 echoed this commitment.

[ii]A physician must undergo 8-hours of addiction training (or already have certain credentials) to apply for a special DEA license that permits prescribing buprenorphine. Source: Substance Abuse and Mental Health Service Administration. "Frequently Asked Questions About Buprenorphine." Available at http://buprenorphine.samhsa.gov/faq.html. Accessed 2-14-2015.

Financial Reform

Financial reform is the underlying basis of the Blueprint model, which aligns fiscal incentives with healthcare goals. All major commercial insurers, Medicare, and Vermont Medicaid are participating in a new payment model that includes two major components. First, primary care practices receive an enhanced per-person-per-month payment based on the practices official National Committee for Quality Assurance's recognition program scores. This payment is in addition to their normal fee-for-service or other revenue streams, and provides an incentive for ongoing quality improvement. Second, Vermont's insurers—public and private—collectively pay the salaries of CHT members, proportional to the participating practices patient numbers.

Community Health Teams

Many patients and families have trouble finding adequate levels of services and care in primary care practices, either because they do not exist or they are not coordinated nor integrated with practice activities. This is especially true for patients with complex needs and multiple chronic conditions. However, CHTs can help address this need. CHTs are multi-disciplinary, community-based care coordination and support teams that are funded through the Blueprint's payment reform. Local HSA leadership convenes an ongoing multi-stakeholder planning group to determine the most appropriate use of funding for these positions, which can vary depending upon the demographics of the community and identified gaps in available services. CHTs are primarily staffed by nurse coordinators, health educators, nutritionists, and counselors. They provide support for and work closely with clinicians and patients at the community level and offer services including individual care coordination, outreach and population management, counseling, and close integration with other social and economic support services in the community. Linking CHTs to targeted services is essential to serve the needs of the spectrum of acuity and intensity in a local population.

THE CHALLENGE

Through the Care Alliance for Opioid Addiction, ADAP, the Blueprint, and Medicaid's Health Services and Managed Care Division successfully leveraged federal and state support to improve access to and coordination of MAT for patients with opioid dependence. The activities conducted in this partnership used and took advantage of existing local CHT infrastructure.
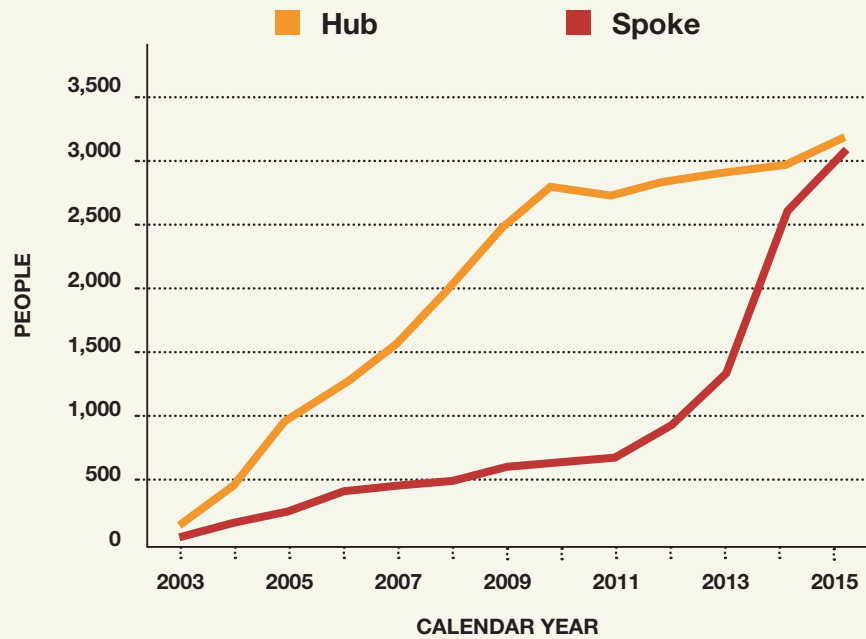
Opioid Use Disorders in Vermont

From 2000-2010, Vermont faced rising rates of prescription drug misuse and dependence. Rates began to rise with prescription opioids, recently transitioning to increased heroin use. The number of Vermonters seeking treatment rose steadily (Figure 1), taxing the treatment system beyond its capacity.[11] In 2011, waiting times for treatment were in excess of 1.5 to 2 years.[12]

The impact of opioid addiction among Vermont's Medicaid population was costly. In 2011, DVHA had Medicaid expenditures of just under $45 million for the 3,415 beneficiaries receiving treatment for opioid use disorders – over $13,000 per beneficiary.[13] These individuals had healthcare costs three times greater than the average per capita costs of the rest of the state's Medicaid beneficiaries (Figure 2).[14,15] The costs of treatment for opioid use disorders alone did not account for this discrepancy. Individuals with opioid use disorders have higher rates of emergency room use, inpatient discharges, pharmacy benefits, and co-occurring mental health diagnoses, and higher rates of using other healthcare services.[16]

Healthcare costs tell only part of the story; Medicaid beneficiaries receiving treatment for opioid use disorders have higher rates of incarceration and lower employment rates. Mothers with opioid use disorders frequently have newborns with costly neonatal abstinence syndrome.[17,18] Vermont's existing treatment services did not meet the widespread and increasing impact of this devastating illness.

FIGURE 1: Number of Vermonters Receiving Medication Assisted Treatment by Fiscal Year

YEAR	OPIOID TREATMENT PROGRAMS (HUB)	OFFICE-BASED OPIOID THERAPY (SPOKE)
2003	0	166
2004	113	498
2005	185	907
2006	389	1221
2007	438	1624
2008	485	2101
2009	654	2531
2010	677	2745
2011	710	2691
2012	947	2809
2013	1279	2875
2014	2642	3002
2015	3148	3249

Source: Vermont Agency of Human Services, Integrated Treatment Continuum for Substance Use Dependence "Hub/Spoke" Initiative—Phase 1: Opiate Dependence January 2012.

FIGURE 2: Cost of Treatment for Opioid Dependence

	MEDICAID POPULATION*	BUPRENORPHINE CLIENTS	METHADONE CLIENTS
TOTAL PEOPLE SERVED	146,030	2,801	614
ANNUAL PER CAPITA COST	$4,553	$12,985	$13,523
TOTAL EXPENDITURES	$561,221,169	$36,372,106	$8,303,369

*less top 5% high cost, maternity and neonate

Source: Vermont Agency of Human Services, Integrated Treatment Continuum for Substance Use Dependence "Hub/Spoke" Initiative-Phase 1: Opiate Dependence January 2012.

The Perfect Storm

According to a former high-level official at DVHA, a "perfect storm" of events transpired in 2011.[19] Several individual providers and one large clinic simultaneously closed for business in a short period of time; within a three-month period, 250 people previously receiving treatment for opioid use disorders were without a prescribing physician for MAT.[20,21] Many prescribers were unable to accept additional patients due to federal caps limiting the number of patients per physician for buprenorphine treatment. There was also a declining number of providers signing up for X-DEA licensing. Additionally, there were unacceptably long waiting lists for people seeking methadone treatment.

The bifurcated system of administering and providing needed pharmacotherapy led to multiple issues:[22]

- The methadone program provided comprehensive addiction services, but did not integrate other mental health and physical health services.

- The buprenorphine program did not provide direct access to addiction treatment or mental health services.

- Methadone and buprenorphine prescribers worked in isolation from one another, with little communication regarding shared patients.

This combination of factors quickly made the case to change the MAT policy.

DEVELOPMENT AND IMPLEMENTATION OF THE POLICY CHANGE

Development of the Model

The system failed to provide prompt and adequate services to the opioid dependent population, which caused a tipping point in 2011. Leaders at VDH and DVHA each had data indicating a skyrocketing demand for opioid dependence treatment that providers could not meet. The number of incarcerated individuals with opioid use disorders taxed the criminal justice system and physicians reached out to leaders at the Blueprint and VDH informing them of a need for change.[23,24] As a response to this information, in early to mid-2011 deputy commissioners from ADAP and DVHA and a high-level leader at the Blueprint came together to discuss the challenge of meeting opioid treatment demands.[25]

They sought to create a model that could:[26,27]

- Increase access to MAT.

- Strengthen the connection between specialty substance abuse treatment clinics and primary care medical practices.

- Enhance the services provided at methadone clinics and the general medical care at practices providing buprenorphine.

- Assure financial sustainability.

ADAP served as the "content expert" and was responsible for planning, coordinating, and supporting the substance use disorder services system.[28] Through its partnerships, ADAP had knowledge of the regulatory framework and professional community, as well as clinical expertise. As the organizer and developer of Vermont's primary care transformation, the Blueprint had experience with program development and strong relationships with primary care practices. DVHA's Medicaid Health Services and Managed Care Division had critical expertise in financial modeling.[29,30]

State leaders spent the majority of 2012 meeting with clinicians and content experts and engaged the state's largest methadone provider, the Burlington-based Howard Center.[31] They posed the question: "What would you put forth that is sustainable and effective?"[32] In an effort to develop the most sound and comprehensive model, state leaders completed an internal review of the pertinent addiction literature and reached out to primary care offices that provide MAT, substance abuse and mental health service providers, community organizations, police departments, the Vermont Department of Corrections, the Vermont Department for Children and Families, and other agencies. One person involved with the model's development described it as an "initiative of human services."[33]

Through these efforts, the state was able to develop the model's foundation, which contained a treatment framework, and then convened a multi-stakeholder group to further build and refine it. Medicaid analysts and consultants used various methodologies to estimate caseload and staffing needs.[34] Medicaid's chief financial officer began the process of budget modeling for the proposed policy, and the state used Medicaid data to determine where patients were already being served.[35, 36] State leaders agreed that they could develop a sustainable model by combining their traditionally separate (public health and Medicaid) financial resources.[37]

Engagement

At the federal, state, regional, and local levels, many entities were involved in developing and implementing the Care Alliance for Opioid Addiction, also known as the Hub and Spoke model.

Federal Level Governmental Partners

- Centers for Medicare and Medicaid Services
- Substance Abuse and Mental Health Services Administration

National Non-Governmental Partners

- Center for Health Care Strategies

State Governmental Partners

- Governor's office
- Vermont State Legislature
- Green Mountain Care Board
- Agency of Human Services (Figure 3)
  - Department of Vermont Health Access/Medicaid
    - Medicaid Health Services and Managed Care Division
    - Payment Reform and Reimbursement Unit
    - Finance Office
    - Policy Unit
    - Blueprint for Health
      - Community Health Teams
  - Vermont Department of Health
    - Alcohol and Drug Abuse Programs
    - Board of Medical Practice
  - Department of Mental Health
  - Department of Corrections
  - Department for Children and Families
  - Department of Disabilities, Aging and Independent Living

State Non-Governmental Partners

- Private insurers (Blue Cross and Blue Shield of Vermont)
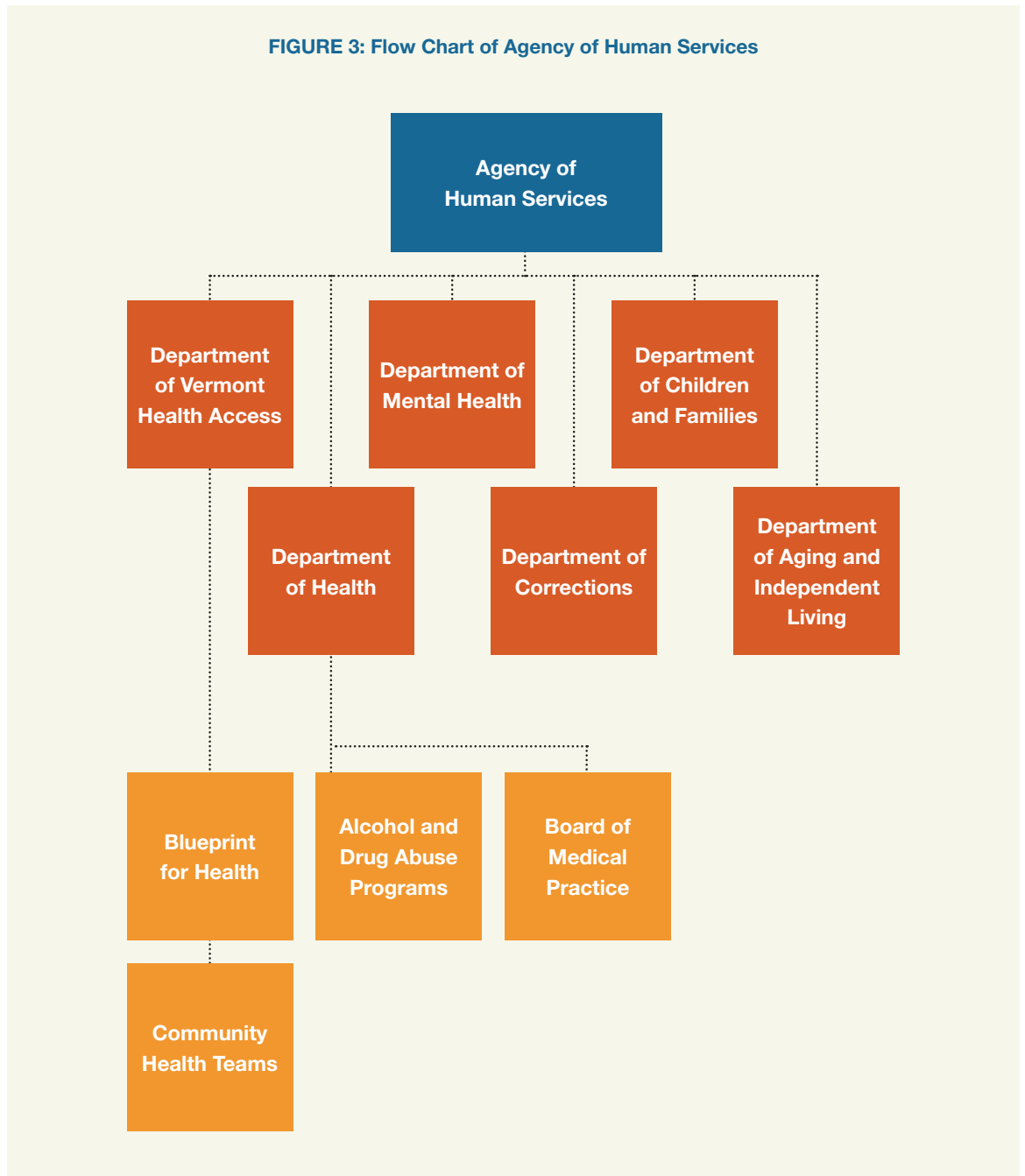
Higher Education Institutions

- Dartmouth College
- University of Vermont

Regional and Local Partners

- Methadone Clinics
- Primary Care Practices
- Federally Qualified Health Centers
- Mental Health Providers
- Housing Authorities
- Hospitals
- Police Agencies

Vermont Agency of Human Services Structure

The following is a flow chart of AHS, which is the umbrella agency that oversees many of the partnering entities involved with the Care Alliance for Opioid Addiction. The six departments that constitute AHS were involved to varying capacities with this initiative. This flow chart includes important partners under DVHA's Medicaid Health Services and Managed Care Division and VDH.

FIGURE 3: Flow Chart of Agency of Human Services

Source: Agency of Human Services: State of Vermont. "AHS Departments." Available at: http://humanservices.vermont.gov/departments. Accessed 3-31-2015.

THE HUB AND SPOKE MODEL

By collaborating with local substance use disorder specialists, primary care practitioners, mental health providers, and community organizations, DVHA and VDH came together to develop a model that comprehensively and systemically addressed the demand for treatment for opioid use disorders.[38] The three tenets of the Triple Aim—improving the health of the population, enhancing the quality of care and patient experience, and reducing per capita healthcare costs—remained central to the development of the Care Alliance for Opioid Addiction.[39]

The model consists of two distinct access points for MAT, the Hubs and the Spokes. Hubs are regional specialty substance use disorder treatment centers that provide intensive treatments to patients. Spokes are more general medical settings, including primary care practices that are provided enhanced staffing to treat opioid use disorders and receive consultation support from the Hubs.[40]

The Hub and Spoke model aims to:[41,42,43,44]

1. Expand availability of and access to opioid treatment programs (Hubs).

2. Enhance OTP services (Hubs) to include dispensed buprenorphine, consultation for complex patients within primary care offices prescribing buprenorphine, and the provision of health home services to improve the linkage to community services and primary care offices.

3. Embed support staff—a nurse and a licensed mental health and addiction counselor—within the care practices prescribing buprenorphine (Spokes) to provide health home services.

4. Finance health home services through bundled payment and joint funding between VDH and DVHA.
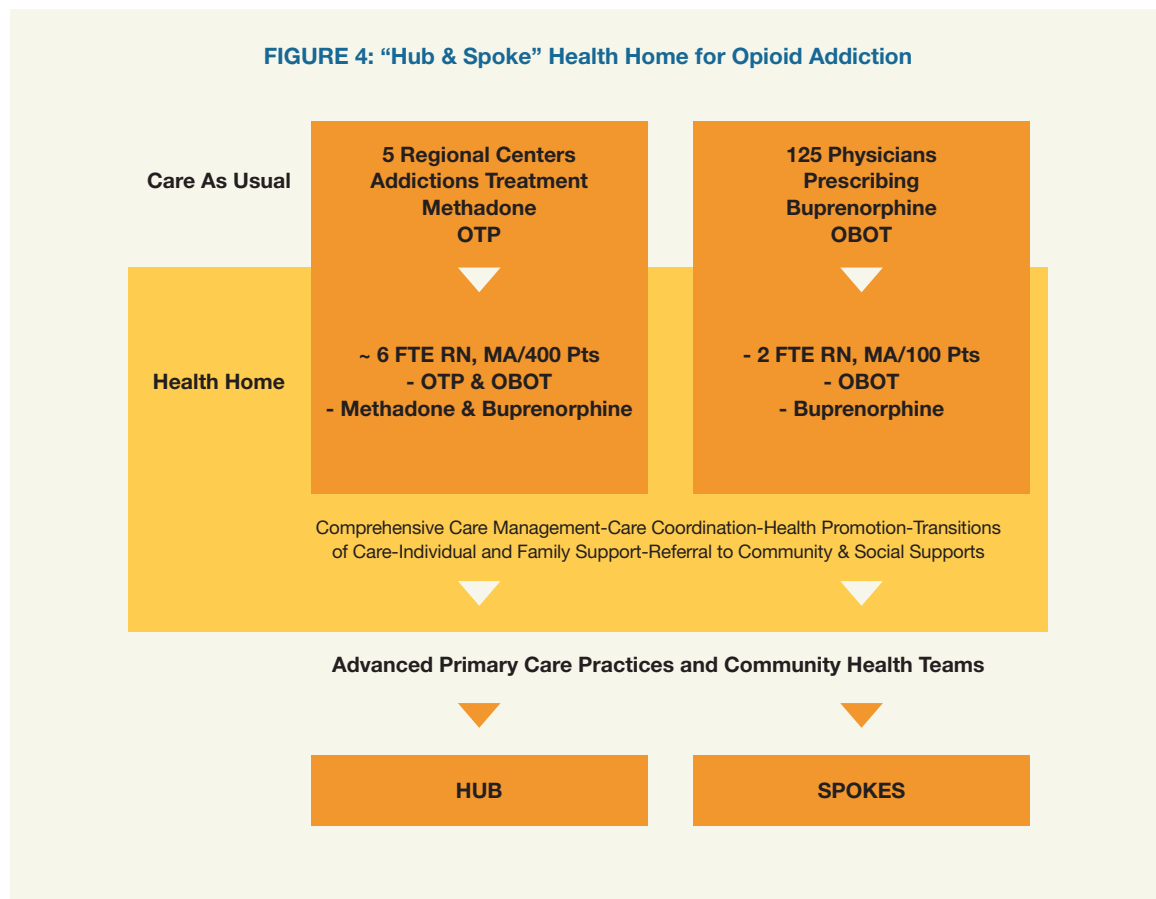
The Vermont Blueprint for Health 2013 Annual Report defines Hubs and Spokes as the following:

Hubs are "a regional specialty treatment center responsible for coordinating the care of individuals with complex addictions and co-occurring substance abuse and mental health conditions across the health and substance abuse treatment systems of care. In the case of MAT for opioid addiction, Hubs will initiate treatment, provide care through the period of initial stabilization, coordinate referrals to ongoing care, and provide consultation and support to ongoing care. All methadone treatment is provided in Hubs. A subset of buprenorphine treatment is also provided in Hubs, specifically for more clinically complex induction, prevention and treatment of relapse, and to provide support for tapering off MAT."[45] The Hubs provide the six health home services outlined in Section 2703 of the Affordable Care Act (ACA) and receive funding for an additional six full-time staff per 400 patients receiving MAT. This staffing increase is a 43 percent increase over typical methadone treatment.[46]

Spokes are "the ongoing care system comprised of a physician prescribing buprenorphine and the collaborating health and addictions professionals who monitor adherence to treatment, coordinate access to recovery supports and community services, and provide counseling, contingency management, care coordination, and case management services."[47] The Spokes are supported by additional staffing that was not in place at OBOT practices prior to the policy change implementation. For every 100 patients prescribed buprenorphine at Spokes, DVHA funds one full-time nurse and one full-time licensed, master's level clinical case manager to provide health home services. The nurse and clinical case manager document the services they provide in the clinical record of the Spoke.[48] The nurse and clinical case manager may split time between multiple practices depending on the number of MAT patients served where the patients are attributed. For example, if a Spoke serves 50 patients per month, then that practice would receive a 50 percent time nurse and clinical case manager. The local Blueprint entity collaborates with Spokes to best determine the division of time for nurses and clinical case managers.[49]

The Hubs and Spokes are integrated into Vermont's existing healthcare framework, building upon the Advanced Primary Care Practices (or PCMHs) that exist across the state and are supported by the Blueprint's CHTs. The Care Alliance for Opioid Addiction uses this infrastructure and enhances it to better serve opioid dependent individuals (Figure 4).

FIGURE 4: "Hub & Spoke" Health Home for Opioid Addiction

	Hub	Spokes
Care As Usual	**5 Regional Centers Addictions Treatment Methadone OTP**	**125 Physicians Prescribing Buprenorphine OBOT**
Health Home	**~ 6 FTE RN, MA/400 Pts** **- OTP & OBOT** **- Methadone & Buprenorphine**	**- 2 FTE RN, MA/100 Pts** **- OBOT** **- Buprenorphine**
	Comprehensive Care Management-Care Coordination-Health Promotion-Transitions of Care-Individual and Family Support-Referral to Community & Social Supports	
	Advanced Primary Care Practices and Community Health Teams	
	HUB	**SPOKES**

Source: Department of Vermont Health Access, Vermont Blueprint for Health 2013 Annual Report, January 2014.

In the Care Alliance for Opioid Addiction, each MAT patient has a designated medical home, a pharmacy home, a single buprenorphine or methadone prescriber, access to CHT support, and access to Hub or Spoke nurses or clinicians. The Hubs provide the Spokes with induction and stabilization services for initiation of buprenorphine, reassessment and treatment recommendations if a patient relapses, support for tapering off maintenance medication, comprehensive assessments and treatment recommendations, and support and consultation for recovery and rehabilitation services. Hubs help coordinate services with social services, housing, and employment.[50]

Policy Tools

The funding that made the policy change possible was inextricably tied to the innovative use of federal funds, for which there was precedent in Vermont. The Global Commitment for Health, an 1115 Medicaid waiver, had been in place since 2005.[iii] This had created an environment with expanded opportunities to use Medicaid funds beyond traditional fee-for-service medical interactions. This use of funds was foundational in supporting the creation and continued financial base of the Blueprint and other initiatives.

For what eventually became the Care Alliance for Opioid Addiction, Vermont officials were keenly interested in pursuing health homes through Section 2703 of the ACA, which would allow leveraging a 90/10 federal funds match.[51] The policy vehicle that enabled this is known as a state plan amendment (SPA). When a state would like to make significant changes to its Medicaid operations, it submits a SPA to the Centers for Medicare and Medicaid Services (CMS) for review and approval. A SPA is used to make changes to the state plan that describes how the state administers Medicaid programs and services.[52,53]

Vermont sought a particular type of SPA, known as a heath home SPA. Section 2703 of the ACA established the health home option allowing states to designate practices to manage and coordinate care for Medicaid recipients with chronic conditions. This designation and available funding comes with the requirement to provide the following health home services: comprehensive care management, care coordination, health promotion, comprehensive transitional care, individual and family support, and referral to community and social support services.[54,55]

The two key parts of the health home SPA include:[56,57,58,59]

1. Enhancing 90/10 federal funds for the first eight quarters following implementation (reduced to the state's standard rate for federal participation after those eight quarters have lapsed).

2. Enabling payment for the six health home services (see above) not typically covered by Medicaid.

[iii]An 1115 Medicaid waiver allows states to expand "eligibility to individuals who are not otherwise Medicaid or CHIP eligible," provide services not typically covered by Medicaid," and use "innovative service delivery systems that improve care, increase efficiency, and reduce costs." Source: Medicaid. "Medicaid: Section 1115 Demonstrations." Available at http://www.medicaid.gov/medicaid-chip-program-information/by-topics/waivers/1115/section-1115-demonstrations.html. Accessed 2-14-2015.

Obtaining the State Plan Amendment

A few months after VDH and DVHA convened to discuss solutions to the crisis facing Vermont, they developed a "straw man" model. It became clear that innovative funding would be necessary for success, and in fall 2011 the state turned to CMS and began conversations regarding a health home SPA that would make this possible.[60]

Under the ACA, states are required to consult with the Substance Abuse and Mental Health Services Administration (SAMHSA) prior to applying for health home SPAs. In preparation, states must consider how the management of the chronic health condition addressed in their particular health home proposal aligns with the activities of the state's mental health and substance abuse authorities. Coordination of addiction with health and mental health services is central to treatment, and precisely what the Hub and Spoke model set out to achieve.[61,62] In March 2012, DVHA consulted with SAMHSA for the first formal step in the process.[63] According to an interviewee directly involved in this consultation process, SAMHSA personnel were enthusiastic about Vermont's potential proposal and encouraged DVHA to approach CMS.[64]

The approval process with CMS was lengthy due to multiple factors. First, the health home SPA was new under the ACA, and therefore the process was untested. In fact, Vermont was the first state to submit a substance abuse related health home SPA.[65] Second, the bifurcated funding and administration of methadone and buprenorphine treatment created additional regulatory hurdles to the process. Finally, there was already a structure in place to pay for the Blueprint's CHTs that relied on the Global Commitment waiver. Although Vermont policymakers were already engaged in the innovative use of federal funds, CMS was concerned about paying for the Spoke staffing enhancements in a per-member per-month payment without a claim process. There was a protracted question and answer process, both formal and informal, during which state leaders had to invest a great deal of time working with CMS.[66,67,68]

The state achieved a breakthrough for obtaining the SPA through two separate actions. In October 2012, DVHA submitted a concept paper to CMS, which helped federal officials understand the reason for the model's structure and its genesis. Later on, an official at DVHA (not previously engaged directly, but in a position of authority) intervened in the negotiations with CMS. As a result, DVHA was able to engage a CMS staff person previously involved in approving Vermont's Global Commitment waiver who was well aware of Vermont's ongoing strong innovations. This meeting proved to be a turning point and, according to a DVHA employee present, CMS officials said that they would have one more meeting internally with the "right people" and make a final decision. Resolution ultimately occurred in 2013, a full year after the process began.[69]

Financial Risk Taking

Given the demand for treatment, Vermont leaders were willing to assume potential financial risk while awaiting CMS approval. Although CMS had verbally assured DVHA that, if approved, the SPAs would be retroactive, the state would have to shoulder all of the costs of a program that was already up and running in the event of rejection.[70] While difficult to exactly quantify the projected funding in the balance, Vermont policymakers developed a systemic response to the demand for treatment and supported the policy changes regardless of the SPA approval process.

Benefits of the SPA Process

Although the process with CMS was sometimes described as "cumbersome" and "burdensome," the SPA clearly enabled funding and changes in Medicaid reimbursements, making the program virtually cost-neutral in the first two years.[71] The collaborative time spent drafting the SPA and wading through the approval process forced DVHA, VDH, and their partners to be more forward thinking and comprehensive in the development of the model. For example, they had to consider how providers would collect data required by CMS for the evaluation of the model early on in development. This data collection process would allow for an accurate and comprehensive evaluation.[72]

Approval

CMS approved Vermont's first SPA in March 2014, and the second in April 2014.[73,74] The SPAs addressed services in two separate geographic regions of the state. They were also retroactively dated, the first SPA allowing for the 90/10 match funds to run for two years beginning on July 1, 2013 for one set of counties, and the second SPA beginning on Jan. 1, 2014 for another set of counties. This geographic distribution aligned with the rollout of the regional Hubs in Vermont.[75]

Legislative Process

The Vermont General Assembly empowered DVHA to begin planning work a year prior to federal approval of the SPA. Financing the program required moving funds across traditionally siloed departments and Vermont legislators encouraged this type of interdepartmental collaboration.[76]

It took three years for Vermont to go through the legislative processes to support the model.[77] VDH and DVHA drafted legislation regulating physicians who treat opioid use disorders. Legislation was enacted in Vermont to create rules governing MAT, the first state to do so in the nation.[78] Model developers had to describe a complex program in discrete actionable steps for program implementers and legislators.[79] They testified extensively in front of human services, judiciary, and appropriations legislative committees.[80] Their efforts paid off and in May 2012, the General Assembly passed a bill that authorized VDH to establish a regional system of opioid use disorder treatment, which became the Care Alliance for Opioid Addiction.[81]

Financing

DVHA's commissioner and AHS's secretary emphasized that state legislative approval would not be forthcoming unless the model was cost-neutral to Medicaid for the first few years, and not simply a budget-ask. Those involved assert that without providing a solid cost-plan: "It wouldn't have gotten off the ground."[82]

Leveraging matching funds available through the health homes SPA enabled cost-neutral financing for the state. As previously noted, for the first eight quarters a health homes SPA is in place—retroactive in this case—there is enhanced 90/10 federal matching of state funds. After the first two years, the match reduces to the state's established federal participation rate.[83,84] The limited time frame of the 90/10 match forced DVHA to make the decision to fast-track the rollout of Hubs in order to maximize federal funding.[85] The 90/10 match is limited to funding the health home services provided at the Hubs and Spokes, covering the costs only of the increased services and staffing. The rest of the implementation and support costs of the model required state funds. The legislature and administration were willing to pay these costs up front in order to improve substance use treatment for beneficiaries, with the underlying assumption that there would be cost savings to offset those investments in the future. Medicaid's chief financial officer stated that when "the 90/10 funding goes away, there will be an uptick of general funds needed. This is taken into account in our budget model and will come to fruition in the budget process."[86]

The SPA approval gave Vermont Medicaid federal authority to fund treatment and services for the population with opioid use disorders in a novel way.[87] Medicaid funds the Hub and Spoke staffing and services through "capacity-based payment," an alternative to the traditional fee-for-service model. Hubs and Spokes receive a set amount per individual receiving treatment each month.[88] This is in contrast to the historical way that Medicaid traditionally funded services, although recent policy initiatives are steadily moving in the direction of new models.[89]

An interviewee close to the process explained that the most difficult piece of the negotiation revolved around the bundled payment funding mechanism: "We had to have separate meetings for payment methodologies, for quality measures, to explain how we were going to implement the model."[90] CMS was concerned that this funding mechanism could make auditing more difficult. "The thing that was most difficult in terms of a state plan amendment with CMS was their willingness to support a capacity staffing model in the Spokes as opposed to a fee-for-service model," as Medicaid historically has paid for services rendered to an identified patient.[91] Vermont had experience with this type of funding through the Blueprint's Advanced Primary Care Practices and CHTs, and, once this was understood by CMS, the negotiations progressed more smoothly.

The Hubs and Spokes receive a bundled rate per patient for health home services provided in the following manner:[92]

- Hub programs make a monthly claim for each patient receiving one health home service and one face-to-face treatment. Health home services provided are documented in the clinical chart, which must be auditable.

- Spoke payments for health home services depend on the monthly average number of unique patients for whom there is a buprenorphine pharmacy claim in a given HSA. The patient count is in increments of 25 patients, and payment is based on the costs to employ one full-time nurse and one full-time clinical case manager for every 100 MAT patients. The services of these employees can be spread across multiple Spoke sites in a single HSA. Health home services are documented in the clinical record at the prescribing physician's practice, and this record must be auditable.

Spoke physicians are compensated for buprenorphine treatment with the fee-for-service model under the current Medicaid state plan.

A DVHA study presented to the legislature during the 2014 session demonstrated a projected $6.7 million reduction in Medicaid spending for acute care services over the following year for patients treated in the Care Alliance for Opioid Addiction system.[93,94] This represents potential success beyond cost-neutrality, and in fact was assumed to be cost savings for fiscal years 2014 and 2015. However, a high-level official at DVHA acknowledged that during the 2014 legislative session, "We struggled …to present the [budget] model in a cohesive manner."[95] This official emphasized the need for those involved in legislative discussions to present the budget model in a "unified fashion." In fiscal year 2016, the state will face a reduced match and there will be an increase in general funds required.[96]

Operationalizing the Model
After legislative approval, DVHA issued a request for proposals in August 2012 to become Hubs. The first Hub, located in Burlington, Vermont, opened on Jan. 1, 2013. The other four Hubs that serve the rest of the state came on board over the following 12 months, with two beginning on July 1, 2013, and the other two by Jan. 1, 2014.[97] As of January 2014, there were five Hubs serving 1,734 Medicaid beneficiaries. In one of the regional locations identified in the model there was not an existing opioid treatment program, so VDH worked extensively to recruit and support the local hospital to enable them to develop one. Vermont allocated additional state resources to help with development costs of this effort.

Blueprint staff recruited local primary care and other specialty practices to become Spokes. By January 2014, there were 57 Spoke practices serving 1,919 Medicaid beneficiaries across the state.

Learning Collaboratives

Once the first Hub was up and running, the Blueprint contracted with addiction treatment experts from Dartmouth Geisel School of Medicine to develop learning collaboratives for Hub and Spoke staff. The Vermont legislature allocated funds for these learning collaboratives to integrate substance abuse services into the Blueprint model. In 2013, DVHA and ADAP staff convened four learning collaboratives with a total of 150-200 participants.[98] These learning sessions took place over a 10-month time period and consisted of five one-hour webinars and five half-day, in-person sessions. Each session assessed opioid dependence, the appropriate dosage for buprenorphine, monitoring treatment, managing challenging behaviors, and coordinating with other care providers.[99,100] There is a Spoke staff learning community of 50 individuals that meets two to three times a year. The plan is for ongoing statewide learning opportunities to continue.[101]

Communication

"Getting everyone on the same foundational wavelength is critically important."[102]

–Deputy commissioner of one of the partnering entities

Development Phase

Due to co-location or nearby proximity of offices, leaders at partnering entities, VDH, and DVHA were able to have their initial meetings in-person, and after forming those involved preferred face-to-face communication whenever possible.[103] They enlisted many opioid dependence experts to help guide discussions for best practices of MAT with the provider community.[104] VDH and DVHA staff initially met with small focus groups and sometimes with single providers. Once partner staff established relationships with providers, they met with DVHA clinical partners and methadone treatment delivery partners every two weeks, face-to face for one year "trying to hammer it through."[105] During this phase of work, email and telephone communications were critical.[106]

VDH and DVHA staff leveraged their experience and background to take on different important roles of the communication process. The Blueprint staff had existing relationships with physicians and took the lead on communicating with this audience.[107,108] A leader at the Blueprint spent time observing a physician's practice to better understand its mechanics and to simply get a "concrete feeling of what was going on."[109] The same leader also recruited physicians to turn their offices into Spokes to serve those in need of treatment in their communities.[110] ADAP[iv] staff took advantage of their existing relationships with methadone clinics and led discussions regarding monthly compensation and their need for care coordinators.[111] The Vermont legislature (2013) authorized a new care alliance coordinator position to support the additional development work required. Taking advantage of its experience and deep institutional understanding of federal requirements, DVHA staff led communications and negotiations with SAMHSA and CMS. These communications consisted of email, conference calls, phone calls, and document exchanges.[112] Robust external communication was also important to a community hospital leader who advocated for the establishment of a Hub in his city, which was later accomplished through well-advertised public forums.

Implementation Phase

The first Hub was located close to state offices, so face-to-face meetings or discussions remained the preferred method of communication for state and Hub staff. Staff from the state entities and the new Hub also communicated through emails and conference calls.[113] In the initial months, once a methadone treatment provider had been designated a Hub, state staff met weekly with Hub staff, but had informal conversations daily. Once a Hub is up and running, ADAP's care alliance manager meets with staff in-person from each regional Hub individually, and informal regular phone conversations continue.[114] Regional Hub directors meet together monthly, and regular conference calls for the Spokes are held by practice facilitators.

Like many federally funded programs, the health homes initiative had to produce significant documentation and constantly share information. Internal and external communication with Vermont's state government can be quite challenging and can consume scarce time and resources. High-level direction from Medicaid leadership encouraged a data-driven approach with clear and tangible objectives, freeing normally separate parts of state government to communicate directly. A leader at DVHA described this critical collaboration by saying "It allowed us to tell the story of what we were trying to do."[115]

[iv]VDH/ADAP is the State Opiate Treatment Authority (SOTA), required by SAMHSA for each state.

OUTCOMES

Evaluation Methods

The final step of the process is data collection (in addition to the SAMHSA required client data) and analysis, which is still in progress. To measure the success of the program, DVHA and VDH/ADAP will monitor a number of outcomes including:[116,117,118,119,120]

- Per capita Medicaid expenditure
- Overall Medicaid expenditure
- Waitlists for treatment
- Retention in treatment
- In-patient addiction treatment
- Detox treatments
- Physician willingness to prescribe
- Emergency department utilization
- Pharmacy utilization
- Hospitalizations
- Rates of positive urine drug screens
- Rate of engaging in community self-management programs
- Smoking rates
- Rates of continuous health insurance

DVHA and VDH/ADAP are coordinating efforts across AHS, specifically with the department of corrections, department of labor, and the department for children and families to look at:

- Incarceration rates
- Unemployment rates

DVHA is responding to CMS SPA-based requirements and legislative requirements by analyzing Medicaid claims data to compare costs prior to and after entering treatment for beneficiaries. DVHA identified annual total costs of care (TCC)—including health, mental health, and substance abuse treatment—for beneficiaries receiving treatment for opioid addiction in fiscal years 2010, 2011, and 2012. The TCC are projected for subsequent years and are adjusted for inflation rates to determine the expected costs for beneficiaries without the Hub and Spoke model in place. This cost is compared to the costs for beneficiaries enrolled in the Hub and Spoke model. Cost savings is the difference between the projected cost and actual costs in the years following implementation. Vermont will use claims, encounter, and clinical registry data to monitor coordination of care among patients.[121,122,123,124,125]

The Blueprint supports an analytics advisory group that has wide stakeholder representation as outlined in statute.[126] This group is completing a regression analysis that can take into account multiple factors to identify the most salient changes to the Medicaid beneficiaries before and after the implementation of the Care Alliance for Opioid Addiction. The focus of the regression analysis is on service utilization and expenditures. The analysts are comparing costs among individuals with Vermont Medicaid and an opioid addiction not receiving treatment through a Hub and/or Spoke.[127]

DVHA and VDH are also monitoring the implementation process. They regularly meet with providers and patients for feedback on the effectiveness of the Hub and Spoke model and the services provided, and to monitor barriers to successful implementation.[128]

Funding for Evaluation
Program funding comes from the same pool that supports the evaluation of the Blueprint (Vermont's section 1115 waiver), with a dedicated $40,000 for fiscal year 2015. The Medicaid-specific evaluation is part of the overall DVHA data unit budget and has not been calculated specifically for the Hub and Spoke model.[129]

Results
The first year of data from 2013 reflects a period of development, and the state has not yet completed a robust analysis of 2014 data.[130]

Financial Impact
A DVHA study, presented to the legislature in the 2014 session, estimated that utilization changes would allow $6.7 million to be reinvested from services paid for by DVHA over the next year attributable to the Care Alliance for Opioid Addiction. To calculate these savings, DVHA analyzed claims for 490 patients who entered treatment at the first Hub. Staff analyzed two years of data preceding treatment at the Hub and one year following treatment. The analysis showed a reduction in Medicaid spending for services paid for out of DVHA's budget for these patients. Extrapolated to the 2,164 patients estimated to be served over the next year statewide, the reduction in cost was projected at $6.7 million.[131,132] These projected savings within DVHA are being reinvested to enhance creation of Hubs and Spokes.[133] The state continues to conduct its analysis and will release its findings to the public as results become available.

Population Health Impact

The Care Alliance for Opioid Addiction has improved access to MAT and has accounted for a 170 percent increase in MAT services provided between January 2013 and April 2015. VDH and the department of corrections reported internally that people in treatment are remaining in treatment and are not incurring new legal charges. The Hubs and Spokes reported internally that people are becoming healthier by being in a treatment center that meets behavioral and medical needs.[134] A public health official said that "People are becoming healthier… where behavioral and medical needs are being met; people are able to self-sustain better. We see this in our [health] status measures, we're hearing this from the field, and what we are collecting from data."[135]

Process Impact

The increased level of communication is changing the way that the various entities are doing business.[136] Clinical providers indicated that they can finally deliver appropriate services to those with opioid use disorders. For example, nurses who are skilled in case management, running parent groups, and family work are now compensated for these services. Clinical staff are reporting that for the first time they can perform the job the way they want to: "Physicians don't always feel comfortable in this area, so offering them specialty services is helpful. The learning collaborative and curriculum we developed are also useful."[137]

LESSONS LEARNED

Missteps and Course Corrections

Although the project was an overall success, the development and implementation processes did face some issues. Nonetheless, interviewees could not immediately think of any glaring examples that disrupted the process. However, upon further reflection following the interviews, they shared insights about what could have gone more smoothly. Most issues disclosed by interviewees were either overcome with common sense or through innovations, but some still pose potential problems.

Development Phase

- **Delayed Response:** The state lacked a broad understanding of the need for a comprehensive approach to substance use disorders as a chronic disease and did not act until there were data available that clearly identified an ongoing demand for MAT, which became clearer during the development and implementation phases. The state could have forecasted that it would not be able to meet the demands of the opioid use disorder population and supported the development of an improved system of care earlier.[138] Had it been addressed earlier, it may have required an investment upfront, but it also may have avoided delays that impacted other areas of state government such as mental health, disability services, and corrections.

- **Dedicated Staffing:** Vermont was fortunate to have participation from energetic and committed high-level staff in each of the partnering entities. One individual explained that model developers faced competing priorities during the development and implementation processes and said "If we weren't the people we were, then we may have not been able to do it. We were pretty passionate and in the same building."[139] Ultimately the state did respond with an innovative model; however, had the state allocated funding for a full-time dedicated project manager and team, they may have completed the process more quickly.[140]

- **Balancing Priorities:** The 2011 crisis necessitated a fast response, forcing the developers to simultaneously implement the model and negotiate with CMS. This did not allow adequate time for involvement in the SPA process for essential players who had to manage multiple professional obligations.[141]

- **Lengthy CMS Process:** The developers of the Hub and Spoke model of the Care Alliance for Opioid Addiction were surprised by the length of time that the SPA process required for completion.

Implementation Phase

- **Administration of the Hubs and Spokes:** Model developers did not anticipate all of the procedures and protocols needed to manage a statewide treatment system for specialized opioid use disorder treatment. Implementation was conducted through a sequential roll-out that took two years. Teams have run into difficulty transferring care of a patient from one Hub to another. The provision of health home services is new to some clinicians at OTP treatment facilities, so it would have been helpful if the state could have offered better training about how to provide the six services.[142] Finding the appropriate workforce proves to be difficult in many areas of the state. The staffing positions at the Hub can be rewarding, but there is a high burnout rate due to the stress of the job.[143] Improved protocols, procedures, and recruitment strategies can help to address these management issues and improve retention.

- **Comorbid Conditions:** A significant number of individuals with an opioid use disorder were also reported to be intravenous drug users, increasing their risk of Hepatitis C and HIV, or have co-occurring mental health or medical conditions. The Hubs have referred these individuals to the necessary treatment providers. However, one Hub did not anticipate this and had to develop protocols after encountering a known comorbid condition in this population. Protocols developed in advance would have better streamlined the treatment referral process.

- **Designating the Right Local Provider:** One of the provider organizations initially selected to be a Hub was unable to develop the program in a timely fashion. The local hospital was able instead to develop the Hub program, assuring needed services in the region. Implementers at the state level learned that the entity, which takes on the role of the Hub, needs to have experience managing a complex budget and be willing and able to take on financial risk.[144]

- **Staffing Estimates:** The developers of the model had to determine Hub and Spoke staffing estimates by examining best practices; however, they may have significantly underestimated those needs.[145] If the state demonstrates cost savings, consideration may be given to reinvesting the funds to hire more personnel.

- **Educating the Legislature:** The Care Alliance for Opioid Addiction complicated funding streams, which made it challenging to effectively educate legislators. Some of the legislators interpreted the reallocation of funds from one entity to another as budget cuts.[146] The representatives of the entities testifying before the legislature recognized the need for a clearer and more unified message regarding the budget, one that still presents a narrative that the legislature understands, but accurately conveys the numbers.[147]

Challenges Remaining

- **The Uninsured:** A significant number of people requiring treatment for opioid disorder lack health insurance. Some Medicaid funding is currently available for the uninsured population served in a Hub or OTP program, but the number of uninsured is greater than anticipated, which is straining the program's budget. The cost of buprenorphine is significantly more than methadone–approximately $10.00 per month for methadone versus $380.00 per month for buprenorphine. Compounding the issue in OTPs is the fact that Medicare does not cover treatment in specialty treatment facilities, so services to Medicare clients are paid for with the uninsured funding. It is difficult to quantify and cover MAT costs for uninsured patients. State leaders are unclear how long there will be available funds to pay for uninsured treatment.[148]

- **Insurers:** Since this was a Medicaid-specific model, private insurers and Medicare were not involved despite their active (and legislatively required in the case of commercial payers) engagement in the payment reforms of the Blueprint. Having them on board earlier would have enabled more funding for the Hubs and Spokes and allowed them to serve a greater number of people. However, private insurers needed to be assured of some initial success before participating. After seeing early trends, Blue Cross Blue Shield of Vermont, the dominant commercial carrier in the state, and MVP Health Care participated in the bundled payment to the Hubs; Medicare, a separate side of CMS, did not participate in the Hub and Spoke model at this time.

- **Building Capacity:** Some of the Hubs ran into unanticipated issues related to physical building structure capacity due to required fire code compliance.[149] At one point, three of the five regional Hubs were at physical capacity, and it was difficult to site new facilities in communities.

- **Recruiting Primary Care Physicians:** Access to Spokes in some areas of the state were not convenient for patients, forcing them to travel further to receive the frequency of care necessary to treat opioid dependence or to not engage in treatment. The partnering entities involved in the Hub and Spoke model remained diligent in their efforts to address regional needs, but this remains a challenge.[150] Certain areas struggle with finding physicians willing to start serving or increase the number of patients they treat with opioid use disorders. The federal policy of caseload caps (no more than 100 patients) and the limit of granting prescriptive authority only to medical doctors poses a challenge for maintaining adequate network capacity to meet demand.

  Like all states, Vermont faces a shortage of primary care providers. This growing workforce problem will inevitably affect the Spokes, which is where primary care practices take on the challenging and rewarding work of treating opioid use disorder.

- **Pay Scale Discrepancies:** The Hub and Spoke system created 49.5 full-time Spoke positions and has currently filled 45 of them. The compensation for these positions was set at market rate for experienced and licensed nurses and mental health clinicians in the northeastern United States; this rate is appreciably higher than what most existing specialty addiction treatment programs pay in Vermont. This resulted in an unanticipated transfer of staff into these positions, and created friction between existing substance abuse specialty providers and the Hubs and Spoke practices.[151]

Keys to Success

- **Relationships and Collaboration:** "I would call out the …partners–Medicaid and the Health Department–[who] have such great relationships."[152] The element cited most frequently by interviewees was the existence of good relationships and the collaboration which they enabled.[153,154,155,156] Each of the administrative entities involved with the Hub and Spoke model has its own "culture," and this innovation required "breaking out of silos" in order to work across departments and organizations.[157] Without establishing and maintaining healthy working relationships, it would have been difficult to develop a model of reform, and even more challenging and complicated to implement.[158]

- **Measuring Outcomes:** During the development phase, it is critical to think about evaluation of a model or policy change. When selecting what to measure, consider (1) what data can be collected, (2) what information is needed to determine success, (3) what information is needed to improve the model, and (4) what the legislature or other funders will want to know.[159,160]

- **The Model:** More data are needed to determine the ultimate efficacy of the Hub and Spoke model, but early results are promising. State leaders and stakeholders feel the lessons are transferable to other states or regions despite the unique circumstances present in Vermont. Moreover, this model may be able to be adapted to address other chronic diseases, to better connect a state's mental health system, or to improve long-term care and general care for seniors.[161]

- **Bundled Payment:** The bundled payment mechanism as part of the Blueprint interventions was essential for Vermont's success, and other states implementing this reform may consider using it. DVHA officials are not sure how transferable it will turn out to be.[162] In addition, an unintended consequence is a decrease in the Healthcare Effectiveness Data and Information Set rate, used to measure health plan performance for initiation and engagement of alcohol and other drug dependence treatment.

- **Using Evidence-Based Treatment:** As a high-level official at DVHA explained, in an ideal world there would be resources to do randomized controlled clinical trials to support assertions through hard evidence. Short of that, observational studies and a model development process that looks at existing evidence-based practices is critical.[163]

- **Communicating the Narrative:** SPAs can be difficult to obtain, and the process can be lengthy and consume resources. Though it is not required by CMS, creating a narrative style document helped federal officials understand Vermont's intentions, more so than the CMS online form currently used for such purposes.[164] The Center for Health Care Strategies (CHCS) recommended that Vermont submit a concept paper to CMS during its process of negotiations for a SPA, which proved to be highly beneficial. Anything that helps to facilitate communication and improve understanding is critical for success.

- **A Strong Ground Operation:** Vermont had already established its Blueprint CHTs throughout the state in 2011. This framework streamlined and facilitated implementation.[165] Without such a strong ground operation, states considering this type of payment and delivery system model may need to implement the reform gradually to create an underlying supportive infrastructure.

- **Ongoing Learning:** Vermont created multiple learning collaboratives for the provider community, and Hub and Spoke staff. These collaboratives were essential for teaching evidence-based models of care and explaining to those involved how disparate systems connect in the Hub and Spoke model.[166] Another state implementing a similar health home model might benefit from adopting a similar type of learning collaborative, and could use Vermont's materials as a guide.

- **Clinical Leadership:** It is imperative to have trustworthy and effective clinical leaders, preferably already living and working within the communities they serve.

CONCLUSION

The Care Alliance for Opioid Addiction, or the Hub and Spoke model, innovatively addressed Vermont's opioid use disorder crisis through the provision of wrap-around comprehensive treatment, not previously covered by Medicaid or other insurers. The policy tool employed, a health homes SPA, and other innovative financing mechanisms enabled the model's development and implementation. The model connected a previously fragmented system by integrating behavioral health services and primary care. Although more data and analysis is needed, initial results indicate success in the form of cost savings, greatly increasing access to quality treatment, and improved provider satisfaction with the quality of care.

A hallmark of the Care Alliance for Opioid Addiction is the collaboration of traditionally separate state governmental entities. Not only did those directly involved in healthcare work together, but once the model was developed, entities in sister agencies such as the department of corrections and the department for children and families became partners. This required each entity to develop and maintain strong relationships. The implementation and development of the model demonstrates how to successfully foster Medicaid and public health partnerships, and bodes well for the future in addressing the health needs of Vermonters.

The unique structure and development process of the Care Alliance for Opioid Addiction can serve as a model for other states. It may be adapted not only to serve a population with substance use disorders, but may also be able to address other chronic diseases, connect a state's mental health system internally and externally, or improve care for at-risk seniors.

Challenges still remain for Vermont as the state currently faces a large budget deficit, increasing pressure for the Care Alliance for Opioid Addiction to demonstrate success in the form of cost savings for Medicaid and eliminating the state's ability to pay for MAT for the uninsured. Primary care workforce shortages are also looming and will affect a system integrated with, and upon, which it depends.

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INTERVIEW INSTRUMENT

Thank you for talking with me today. This interview is being conducted as part of a series of case studies that will reflect collaboration between Medicaid and public health that have yielded (or promise to yield) cost savings to Medicaid and/or improvements to population health. Do you have any questions at this time?

I would like to read a brief disclosure statement to you. If it sounds good, we'll get started.

Disclosure statement: This interview will last for approximately an hour. As explained to you earlier, your participation is absolutely voluntary. You can decline to answer any question, and if you wish to discontinue your participation at any time during the interview process, please feel free to do so. With your permission, we would like to record this interview. This recording will only be used to confirm our notes, and will be deleted once the project is completed. Your identity will be confidential and any reports generated from this session will include only de-identified responses. Before verbally consenting to participate in this interview, I would like to make sure that you feel you understand the purpose of this project and have had the chance to ask any questions you'd like. If you do not have any questions, with your consent, we will begin the interview, and it will be recorded. (Consent)

In the course of this interview, we will be asking you several questions about [NAME OF POLICY CHANGE] which I'll call "policy change" for short. The questions will include how the policy change started, how implementation happened, and what the outcomes have been.

1. **What is your role in your agency, and how did you come to be aware of the policy change?**

2. **What was the problem the policy change sought to address?**

   a. (Identify vision, mission and values)

3. **In two or three sentences, could you summarize what the policy change was?**

4. **Thanks for the overview. As part of this case study, I'll be trying to figure out when the various stages of the policy change occurred.**

   a. Can you outline a timeline of the process?

   b. Were there any missteps identified during the implemetation process you've described?

      i. How were they identified?

      ii. How were they overcome?

5. **What were the mechanisms of the policy change's implementation? The 2 areas we have already identified are engagement of partners and types of tools. If there were other mechanisms, please share them.**

    a. Engagement of partners

    i. What external partners/stakeholders were engaged,and how? (Examples could include political, governmental and special interest groups, CMS,others.) Were they were key to the process?

    ii. What internal partners and staff were engaged andprimarily responsible? Were they co-located?

    b. Tools

    i. What methods of communication were used? Examples include face-to-face, conference calls, webinars, shared electronic files, public meetings

    ii. What kinds of policy tools were used?

1. Regulatory/statutory (State or local? Funded?)

2. CMS/Medicaid (Waiver, and what kind? State Plan Amendment? Other?)

3. Payer alignment

6. **There is commonly some kind of "course correction" over time in complex projects such as yours. Did this occur in your case?**

    a. Were the initial goals of the collaboration modified? If so, how?

    b. Were the original strategies significantly changed? If yes, describe.

7. **Evaluation**

    a. How did you measure outcomes of the policy change?

    b. Are there any outcomes attributable to that policy change?

    c. Is there funding dedicated to evaluation? If so, where does the funding come from (in-kind, etc.)?

8. **Sustainability**

   a. Is there a mechanism in place to address sustainability?

      i. If so, please describe. Has it been successful?

My final questions are about extrapolating from your experience with this policy change to others. I'm going to ask you to think about missteps, and how transferable you feel this policy change is to other locales.

9. **What from this process could be useful to other states or local entities considering similar approaches?**

10. **What was the impact of the type of policy vehicle on the implementation process?**

11. **In addition to the missteps identified earlier, if any, were there other things you might have done differently?**

   a. If so, how were they identified?

   b. How were these issues overcome?

Interview respondent name: **Case:**

Interview ID #:   **Date:**

State: **Note taker:**

Question number	Helpful hints Use semicolons to separate distinct concepts	Question Take full notes here	Summary Provide short summaries here, use quotation marks to indicate verbatim quotes, otherwise paraphrase.
1.		What is your role in your agency, and how did you come to be aware of the policy change?	Role
	Ignore role, focus on awareness		
2.		What was the problem the policy change sought to address?	Problem
	Identify vision, mission, values		
3.		In two or three sentences, could you summarize what the policy change was?	Summarize policy change
	Summarize policy change in as few distinct steps as possible		
4a.		Can you outline a timeline of the process?	Timeline
	Critical. Report each step by month and year, if possible. Use numbered list		
4b.		Were there any missteps identified during the implementation process you've described? How were they identified? How were they overcome?	Missteps
	Separate responses into distinct misstep identification and solution (use semicolons)		
5.		What were the mechanisms of the policy change's implementation?	Mechanisms of Implementation
	The 2 areas we have already identified are engagement of partners and types of tools (below). If there were other mechanisms, please share them.		

Question number	Helpful hints Use semicolons to separate distinct concepts	Question Take full notes here	Summary Provide short summaries here, use quotation marks to indicate verbatim quotes, otherwise paraphrase.
5ai.		What external partners/stakeholders were engaged, and how? (Examples could include political, governmental and special interest groups, CMS, others.) Were they were key to the process?	External engagement
	External to home agency (could include other governmental actors)		
5aii.		What internal partners and staff were engaged and primarily responsible? Were they co-located?	Internal engagement
	Internal to the home agency only		
5bi.		What methods of communication were used?	Communication methods
	Options include: face-to-face, conference calls, webinars, shared electronic files, public meetings		
5bii.		What kinds of policy tools were used?	Policy tools
	Options include: Regulatory/statutory (State or local? Funded?) CMS/Medicaid (Waiver, and what kind? State Plan Amendment? Other?) Payer alignment		
6.		Did course corrections occur? Were the initial goals of the collaboration modified? If so, how? Were the original strategies significantly changed? If yes, describe	Course corrections
	Modified goals, strategies, and tactics. Concise summaries		
7a.		How did you measure outcomes of the policy change?	Measure outcomes/Evaluation
	Separate concrete impact measures from process measures		

Question number	Helpful hints Use semicolons to separate distinct concepts	Question Take full notes here	Summary Provide short summaries here, use quotation marks to indicate verbatim quotes, otherwise paraphrase.
7b.		Are there any outcomes attributable to that policy change?	Attributable outcomes/Evaluation
	Yes/No, and what?		
7c.		Is there funding dedicated to evaluation? If so, where does the funding come from (in-kind, etc)?	Funding for Evaluation
	Yes/No, and what kind?		
8.		Is there a mechanism in place to address sustainability? If so, has it been successful?	Sustainability
	Yes/No, and what?		
9.		What from this process could be useful to other states or local entities considering similar approaches?	Transferability
	Focus on short phrases		
10.		What was the impact of the type of policy vehicle on the implementation process?	Impact of policy vehicle type
	Make sure it's attributable to vehicle specifically, otherwise "No Impact attributable" is OK		
11.		In addition to the missteps identified earlier, if any, were there other things you might have done differently? If so, how were they identified? How were these issues overcome?	Missteps
	Will be combined with codes above. Separate responses into distinct misstep identification and solution		

Document name: **Case:**

Document ID #:   **Date:**

State: **Note taker:**

Question number	Question Take full notes here	Summary Provide short summaries here, use quotation marks to indicate verbatim quotes, otherwise paraphrase.
1.	What was the problem the policy change sought to address?	Problem
2.	What was the policy change?	Summarize policy change
3.	What was the timeline of the process?	Timeline
4.	What were the mechanisms of the policy change's implementation?	Mechanisms of Implementation
5.	What external partners/stakeholders were engaged, and how? (Examples could include political, governmental and special interest groups, CMS, others.) Were they were key to the process?	External engagement
6.	What internal partners and staff were engaged and primarily responsible?	Internal engagement

Question number	Question Take full notes here	Summary Provide short summaries here, use quotation marks to indicate verbatim quotes, otherwise paraphrase.
7.	What kinds of policy tools were used?	Policy tools
8.	What was the impact of the type of policy vehicle on the implementation process?	Impact of policy vehicle type
9.	Is there a mechanism in place to address sustainability? If so, has it been successful?	Sustainability
10.	How are outcomes of the policy change measured?	Measure outcomes/Evaluation
11.	Are there any outcomes attributable to that policy change?	Attributable outcomes/Evaluation
12.	About this document Document format - Web, print, other?	
12a.	About this document. Publicly available?	
12b.	About this document. Working document?	
12c.	About this document. Publicity material? If so, target audience?	
12d.	About this document. Author and title?	
12e.	About this document. Other information?	

2005

- The Global Commitment for Health, an 1115 Medicaid waiver, went into effect in Vermont.

2008

- The Vermont Blueprint for Health Integrated Pilots are established, featuring multi-disciplinary Community Health Teams.

2010

- Vermont Act 128 of 2010 calls for statewide implementation of the Blueprint in every willing primary care practice by October 2013.

2011

- A total of 250 people previously receiving treatment for opiate dependency were suddenly without access following the departure of several physicians and the abrupt closure of a large clinic.

- In early to mid-2011, deputy commissioners from ADAP and DVHA, and a high-level leader at the Blueprint came together to discuss the challenge of meeting the demands of opiate treatment.

- ADAP, DVHA, and Blueprint leaders develop the basics of a model, which contained a treatment framework, and convened a multi-stakeholder group to further build and refine it.

- Medicaid analysts and consultants utilized various methodologies to estimate caseload and staffing needs.

- Medicaid CFO began the process of budget modeling for the proposed policy.

- State leaders enlisted many experts on opiate dependence to help guide the discussions for best practices of MAT with the provider community.

- Partnering entities initially met with small focus groups and sometimes with single providers.

- Through 2011, Spoke staff, MAT providers, DVHA clinical partners, and methadone treatment delivery partners met bi-weekly in-person.

- Through 2011, state leaders met with clinicians and content experts and engaged the state's largest methadone provider.

- Vermont Act 48 of 2011 echoed the commitment to implement the Advanced Model of Primary Care.

- Vermont achieved statewide implementation of Blueprint CHTs.

- In the fall, the state turned to CMS and began conversations regarding Health Home SPA that would make this possible. Vermont was among the first states to submit a substance abuse related Health Home SPA.

2012

- In March, DVHA consulted with SAMHSA in the first formal step in the approval process for its proposed Health Home SPA.

- In May, the General Assembly passed a bill that authorized VDH to establish a regional system of opioid addiction treatment, which became the Care Alliance for Opioid Addiction.

- In August, after legislative approval, DVHA issued a Request for Proposals for methadone treatment programs to become Hubs.

- In October, DVHA submitted a concept paper to CMS, which helped federal officials to understand the reasons for the model's structure and its genesis.

2013

- The first Hub opened on Jan. 1 in Burlington, Vermont.

- Blueprint staff contracted with experts from the Dartmouth Geisel School of Medicine to develop learning collaboratives to integrate substance abuse services into the Blueprint model. DVHA and ADAP staff convened four learning collaboratives for Hub and Spoke staff with a total of 150-200 participants.

- The second and third Hubs opened on July 1.

- The Vermont General Assembly empowered DVHA to begin the work prior to federal approval of the SPA.

- The Vermont legislature authorized a new care alliance coordinator position to support the additional development work required.

- Vermont leaders assumed potential financial risk while awaiting CMS approval.

2014

- The fourth and fifth Hubs opened in January.

- Also in January, implementation yielded 57 Spoke practices in place serving 1,919 Medicaid beneficiaries across the state.

- In March, CMS approved the first SPA. This allowed for the 90/10 match funds to run for two years beginning in July 1, 2013 for one set of counties (retroactive).

- In April, CMS approved the second SPA. This SPA allowed for the 90/10 match funds to run for two years beginning on Jan. 1, 2014 for another set of counties.

- A DVHA study presented to the legislature demonstrated a projected $6.7 million reduction in Medicaid spending over the following year for patients treated in the Care Alliance for Opioid Addiction system. Funds were reinvested into VDH-funded Hub and Spoke services based on utilization changes.

2015

- Initial data collection and analysis begins, and the 2013 data reflects a period of development in the first year.

- Ongoing data collection and analysis for 2014 data has not yet been completed.

2016

- In fiscal year 2016 the state will face a reduced match, and there will be an increase in general funds required.