Minnesota 1115(a) Substance Use Disorder System Reform Demonstration Project Evaluation

Provider Capacity Assessment: Baseline Assessment

DECEMBER 30, 2020

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Introduction

Among Minnesotans aged 12 or older, approximately 2.7 percent (about 149,000 people) reported having a substance use disorder (SUD) in 2019.[1] While all individuals with SUDs in need of treatment should have access to effective, patient-centered care, of significant concern in Minnesota and nationwide is the use of synthetic opioids, including fentanyl and fentanyl analogues. As of December 2020, preliminary statewide data indicate that, relative to the six-month period of January through June 2019, drug overdose deaths increased 31 percent during January through June 2020 (373 to 490 deaths), and all opioid-related deaths among Minnesota residents increased 55 percent over the same time periods (197 to 305 deaths).[2] Deaths involving synthetic opioids increased 74 percent (140 to 244 deaths) during this same period. This substantial increase may have been exacerbated by the social and economic strains individuals faced because of COVID-19, which also strained health care seeking and treatment.

As part of its comprehensive strategy to address SUD in the state, Minnesota is pursuing multiple approaches across its agencies to ensure people who need treatment get high-quality, effective services as quickly as possible across the state. In 2016, Minnesota enacted legislation that directed the Minnesota Department of Human Services (MN DHS) to seek all necessary federal authority to transform the Medicaid and publicly-funded delivery systems for SUD treatment to a system that is more accessible and integrated with the larger health care provider system. The MN DHS Behavioral Health Division supports access to a full continuum of treatment and care for Medicaid beneficiaries with SUD. Current services include a comprehensive assessment, Screening Brief Intervention and Referral to Treatment (SBIRT), treatment coordination, residential and outpatient treatment services, and peer recovery. MN DHS seeks to ensure that individuals are matched to an appropriate level of care.

As specified in the Standard Terms and Conditions of the Minnesota 1115(a) Substance Use Disorder System Reform Demonstration Project agreement with the Centers for Medicare & Medicaid Services (CMS), MN DHS will implement a plan to ensure sufficient provider capacity at each level of care including medication assisted treatment (MAT) for opioid use disorder (OUD). This report presents a baseline analysis of the provider capacity for SUD services for Minnesota Medicaid beneficiaries, offering a starting point for the state to understand how many providers (organizations) and services were available to Medicaid clients with SUD. This analysis does not

[1] SAMHSA, Center for Behavioral Health Statistics and Quality, 2018-2019 National Survey on Drug Use and Health: Model-Based Prevalence Estimates (50 States and the District of Columbia). Table 20. https://www.samhsa.gov/data/sites/default/files/reports/rpt32805/2019NSDUHsaeExcelPercents/2019NSDUHsaeExcelPercents/2019NSDUHsaePercents.pdf

[2] Giesel, S., DeLaquil, M., & Wright, N. (2020) Drug overdose deaths among Minnesota residents from January through June 2020: Drug overdose deaths during the emerging COVID-19 pandemic, Data Brief. Minnesota Department of Health. Retrieved from https://www.health.state.mn.us/communities/opioids/opioid-dashboard/resources.html#data

provide a comparison against a benchmark for ideal provider capacity for SUD services, as such guidelines are not available at this time.

As of the time of this report, MN DHS is still engaging providers (organizations and licensed professionals) to expand services to Medicaid clients. The primary data used for this baseline assessment are claims and encounter data, and reflect the number of providers who served Medicaid clients in the year prior to the launch of the Demonstration in July 2019. We also note that in Minnesota, apart from prescriptions for medications, provider *organizations* submit bills for services, and these organizations vary in the number and type of health care personnel who are employed.[3] Thus, although claims are useful for identifying how much and where clients are seeking care, they cannot be used to create ratios of clients per provider, since a provider is an organization with an unknown number of staff members that provide SUD services.

Background

In July 2019, the CMS approved Minnesota's SUD System Reform Demonstration, the state's Section 1115 demonstration project.[4] In this Demonstration, all Medicaid beneficiaries will continue to have access to all current mental health and SUD benefits. Approval of this Demonstration will allow Minnesota to test a new way to strengthen the state's behavioral health care system by incorporating the American Society of Addiction Medicine (ASAM) criteria and levels of care into the continuum of SUD treatment services. The state will do this through new federal Medicaid funding opportunities for SUD services provided to clients within intensive residential settings (i.e., Institutions for Mental Disease (IMDs)) that have established referral arrangements with other SUD providers to create a continuum of SUD, mental health, and primary care services. The Demonstration also seeks to increase the use of evidence-based placement assessment criteria and matching individual risk with the appropriate ASAM level of care to ensure beneficiaries receive the treatment they need (See Appendix I for details on the ASAM levels of care). During the study period, hospitals were providing withdrawal management but because hospitals were not considered licensed substance use disorder providers, these services were not considered withdrawal management as defined by the demonstration.[5] One of the

[3] MN DHS does allow for a licensed professional in private practice to deliver these services. However, this is fairly new to MN so the number of individual professionals submitting claims for services is very small.

[4] Section 1115 of the Social Security Act gives the Secretary of Health and Human Services authority to approve demonstration projects that are likely to promote the objectives of the Medicaid program.

[5] Prior to the demonstration start, hospitals in Minnesota provided withdrawal management services under Statute 245B but were not licensed SUD providers under Statute 245F, therefore these services are not considered withdrawal management as defined by 245F.

goals of the demonstration is increased access to services, including expanding the types of providers eligible to deliver withdrawal management services.[6,7]

This assessment primarily uses Medicaid claims data to report a baseline of the number of provider organizations and prescribers of buprenorphine and naltrexone, by type of organization and type of services, for Medicaid clients, during the period July 1, 2018 to June 30, 2019, the year before the Demonstration began on July 1, 2019, through June 30, 2024.[8] In addition, we use data from health professional licensing boards to examine the overall availability of health professionals who may work in SUD-related fields within the state. Apart from prescriptions for MAT at this time, data are not available to identify individual providers participating in the Demonstration or which of those individual providers accept Medicaid beneficiaries.

In addition to the statewide analysis, we also used examined capacity across seven Prevention Regions. Prevention Regions were established in 2005 in an effort to provide a coordinated approach to addressing SUD among Minnesotans. In each region, Minnesota Prevention Region Coordinators consist of a system of services for individuals and organizations to provide support in addressing substance use. The system is run by public health specialists and psychologists in an effort to build coalitions between addiction treatment resources, offer in-person support, information, data, and best practices in order to promote substance use prevention.[9] The coalitions consist of parents, youth, and representatives from schools, law enforcement, religious organizations, healthcare organizations, businesses, local government, media, youth-serving organizations, civic/volunteer organizations, legal professionals, and more. Exhibit 1 below depicts the seven Minnesota Prevention Regions.

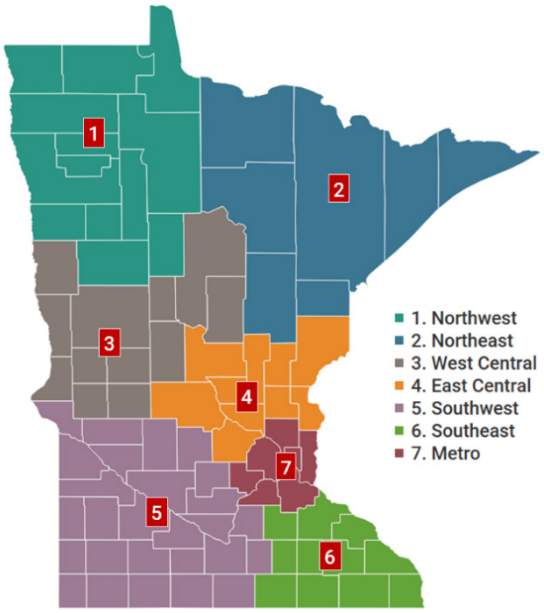
[6] As noted on this MN Minnesota Health Care Program Provider Manual for SUD services, detoxification services are not covered.

[7] The Demonstration authorizes expenditures to eligible Medicaid enrollees who are primarily receiving treatment and withdrawal management services for SUD who are short-term residents in facilities that meet the definition of an Institution for Mental Disease.

[8] Minnesota does allow for licensed professionals in private practice to bill for services outside of a licensed SUD facility. MN DHS claims and encounter data for SUD services are at the organizational NPI-level; claims/encounter data are not submitted by individual practitioners.

[9] Minnesota Regional ATOD Prevention Coordinators. (n.d.). Retrieved December 16, 2020, from https://rpcmn.org/about.php

Exhibit 1. Minnesota Prevention Region Coordinators



Source: Minnesota Regional ATOD Prevention Coordinators. https://rpcmn.org/about.php

Research Questions and Methods

The goals of this baseline provider capacity assessment are to determine the availability of provider organizations who have delivered over the time period July 1, 2018 to June 30, 2019 treatment for Medicaid enrollees, and examine the variation in the number of enrollees that they see. For purposes of this report, "providers" refers to organizations for all types of SUD services with the exception of buprenorphine and naltrexone prescriptions. In the latter cases, providers are defined by individual prescribers of buprenorphine and naltrexone.

Exhibit 2 below shows the assessment questions and measures in the following report. For this assessment, we developed measures that reflect the number of providers delivering SUD services, how frequently these providers were delivering care to Medicaid beneficiaries, and the number of beneficiaries they saw. We used claims and encounter data from the year prior to the Demonstration launch (i.e., July 1, 2018 to June 30, 2019), data from health professional licensing boards, and counts of detoxification facilities to develop the measures. This assessment will inform decisions around the implementation of activities to meet each of the eight Demonstration goals.[10] It will also assist MN DHS in meeting the Milestone 4 requirement of the

[10] See the CMS approval of Minnesota section 1115 Medicaid demonstration page 5-6, available at https://mn.gov/dhs/assets/Substance%20use%20disorder%20waiver%201115_tcm1053-410923.pdf

Demonstration.[11] In addition to this report, NORC developed a separate report that analyzed the number and type of Drug Addiction Treatment Act of 2000 (DATA-2000) waivered providers, active buprenorphine providers, and opioid treatment program (OTP) providers in the state.[12] See the Addendum of this report.

Exhibit 2. Assessment Questions and Measures for the Baseline Assessment

Assessment Question	Measures
1. What is the average number of Medicaid enrollees per health professionals of different credentials? 2. What is the total number of providers of SUD services? 3. How many SUD services did Medicaid clients receive? 4. How many SUD clients did Medicaid serve?	• Average number of enrollees per provider by type of professional, for 14 types of professionals, overall and by prevention region • Number of providers who have delivered SUD services, by type of provider, and type of service, and by prevention region • Total SUD services, by type of service, type of provider, and by prevention region • Average and range of services, by type of service, type of provider, and by prevention region • Total number of SUD clients that received SUD services by type of service, type of provider, and by prevention region • Average and range of SUD clients, by type of service, type of provider, and by prevention region

Data Sources

This analysis uses multiple data sources to assess capacity.

Medicaid claims/encounter data. Claims/encounter data for SUD services between July 1, 2018 and June 30, 2019 were used to compute the total number of providers for each type of service, and the number and range of clients and services, for each type of provider, for each service. These data include all claims for clients who received a prescription for buprenorphine or naltrexone, methadone treatment, and services rendered in an outpatient, and residential setting. Note that some providers that served Minnesota Medicaid beneficiaries were located out-of-state and are not excluded in this analysis since MN DHS allows this claims to be paid.

[11] Milestone 4 is "Sufficient Provider Capacity at Critical Levels of Care Including for Medication-Assisted Treatment for Opioid Use Disorder."

[12] In this report "MAT Buprenorphine" includes prescriptions for buprenorphine combined with naloxone. Naltrexone for the management of OUD does not require a DATA-2000 waiver to prescribe. The list of methadone providers by provider type is Appendix 3.

Health professionals (HP) data from the MN DHS Health Workforce Planning and Analysis Unit. This data set contains the number of licensed health professionals for 14 types of professionals, for each county in the state.[13] It does not indicate the number of health professionals who accept Medicaid patients, but can be used to estimate the potential capacity to provide services.

Medicaid beneficiary enrollment data. Enrollment data are used to construct the ratio of enrollees (total enrolled population who may be eligible for services) to health professionals.

The Drug and Alcohol Abuse Normative Evaluation System (DAANES) data. This database provides MN DHS with information about SUD treatment activities for all treatment providers throughout the state. It includes providers who serve enrollees with public and private coverage. The data used in this report do not distinguish between providers who do and do not accept Medicaid patients. Providers submit enrollee data to the DAANES system a scheduled basis during a treatment episode. However, for this report, DAANES data are used only to compute the number of detoxification providers, since these services were provided by counties.

Exhibit 3 summarizes the data sources and purpose of each.

Exhibit 3. Data Sources and Purpose

Data Source	Purpose
HP workforce data	To estimate the potential capacity to provide services from 14 types of health professionals
Medicaid beneficiary claims/encounter data	To construct the number of unique clients and services rendered, by type of services
Medicaid beneficiary enrollment data	To construct the numerator for the ratio of enrollees to health professionals
DAANES	To count the number of facilities providing detoxification services. This will provide the denominator for a ratio of facility-per-enrollee population

Methods

MN DHS provided claims and encounter data for SUD services at provider organizations (containing organizational National Provider Identification (NPI) numbers) and from MAT prescribers (individual NPIs). These

[13] The HP data set also contains counts of dentists, dental hygienists, and dental assistants, but these types of professionals are not eligible to provide SUD services.

were used to create counts of each type of provider, and counts of clients and services for each type of provider organization and service (services are listed in Exhibit 4 and providers are listed in Exhibit 5).[14] In the Appendix, we aggregated these results for each Prevention Region.

We also obtained data on the number of 14 types of health professionals (HP workforce data) from the MDH Workforce Unit, and linked the HP workforce data to enrollment data to determine the ratio of enrollees per health professional. We also used the DAANES data to count the number of detoxification providers, and for creating an enrollee-to-detoxification provider ratio.

Exhibit 4 shows the types of services classified from the data and brief description of the service.

Exhibit 4. Types of Services in Claims Data

Types of Services	Description
Assessment	A clinical encounter to provide a diagnosis and recommendations for the intensity and setting of treatment needed and any supportive services.
MAT: Any Buprenorphine	A prescription for buprenorphine, with or without naloxone.
MAT: Methadone	Methadone administered at a facility.
MAT: Naltrexone	A prescription for naltrexone.
MAT: Other Services	Counseling and behavioral health interventions provided alongside of medication for treating OUD.
Outpatient Treatment (group and individual)	Includes behavioral strategies to help motivate people to stay engaged in drug treatment, cope with drug cravings, teach ways to avoid drugs and prevent relapse, and help individuals deal with relapse if it occurs.[15]

[14] An NPI may be classified as more than one type of provider. For 1,262 services, the "probable provider type" differed from the "provider type". For these observations, the provider name was examined, and the probable provider type was used in analyses. In addition to the provider types listed, Home and Community Based Service providers had 2,586,485 claims, 98 percent of were for community living and supportive services or activity therapy.

[15] National Institute on Drug Abuse. Principles of Drug Addiction Treatment, January 2018. https://www.drugabuse.gov/download/675/principles-drug-addiction-treatment-research-based-guide-third-edition.pdf?v=74dad603627bab89b93193918330c223

Types of Services	Description
Peer Support	Former or current SUD clients who have been successful in the recovery process and can provide shared understanding and empowerment, to help clients become and stay engaged in the recovery process and reduce the likelihood of relapse.
Residential	Facilities that provide intensive therapeutic services and clinical supervision and monitoring by trained staff to individuals seeking treatment.
Treatment Coordination	A treatment service involving the deliberate, collaborative planning of SUD services with the client and other professionals involved in the client's care.[16]

Note: Sources for this table are provided inline above, as appropriate.

Exhibit 5 below shows the types of providers and example of the provider, per the claims/encounter data.

Exhibit 5. Types of provider organizations and examples

Types of Providers	Example
Hospital	Hennepin County Medical Center, UMMC Fairview, St Cloud Hospital
Community Mental Health Center	Hiawatha Valley Mental Health Center, Winona
Chemical Health	Includes residential and outpatient treatment providers that are licensed in Minnesota by MN DHS.).[17] Center for Alcohol and Drug Treatment, Park Avenue Center, Valhalla Place, Alliance Clinic.
Indian Health Service Program	Lower Sioux Health Care Center, Ne-Ia-Shing Clinic
Physician Group	Duluth Family Medicine Clinic, Allina Health Cambridge Clinic
Outpatient Claims for Methadone	Specialized Treatment Services Inc, Valhalla Place LLC

[16] MN DHS: https://mn.gov/dhs/assets/treatment-coordination_tcm1053-302097.pdf

[17] https://www.marrch.org/page/licensure

Types of Providers	Example
Consolidated Provider Organization	Associated Clinic Of Psychology, Hennepin County Medical Center
Home and Community Based	Day Training & Habilitation Centers (DT&H); housing support supplemental services; home care nurses (RN and LPN); Home Health agencies (HHA); Moving Home Minnesota (MHM) Personal care assistant (PCA); Waiver and Alternative Care (AC)
Other	Federally Qualified Health Centers, Rural Health Clinics, Nurse Practitioners, Other (United Community Services), Bill Entity For Physician Services (Recovering Hope Treatment Center, COR Counseling & Psychiatric Services)

Source: Medicaid claims and encounter data, July 1, 2018 to June 30, 2019.

Findings

The following section provides the findings of the baseline provider capacity assessment.

What is the average number of Medicaid enrollees to health professionals?

There were an average of 87 Medicaid enrollees per physician. Prevention Region 6 (Southeast) had the lowest ratio at an average of 34 enrollees per physician (likely reflecting Mayo Clinic) while Prevention Region 1 (Northwest, a largely rural area) had the highest ratio at an average of 241 enrollees per physician.[18]

Overall, there were more licensed social workers in the state than licensed psychologists. There were 138 enrollees per social worker and 400 enrollees per psychologist in the state, and this trend held within each Prevention Region. For example, in Region 7 where metro Minneapolis is located, there was an average of 124 enrollees per social worker, while there was an average of 313 enrollees per psychologist.

There was great variation in the availability of various nursing professionals as well. For example, the greatest ratio across any of the studied professional types was for licensed practical nurses and licensed professional clinical counselors combined. There were approximately 881 Medicaid enrollees per one of these licensed professionals across the state, and the access varied across regions from 724 enrollees (Prevention Region 5) up to 1,257 enrollees (Prevention Region 3). Exhibit 6 below provides more details on type of professionals and Prevention Regions.

[18] Data tables provided by region

Exhibit 6. Number of Medicaid Enrollees Per Health Professional, by Prevention Region

Type of Professional	Overall	Prevention Regions						
		1	2	3	4	5	6	7
Advanced Practice Registered Nurse [v]	246	349	661	396	421	204	112	243
Alcohol and Drug Counselors [ii]	626	704	470	795	435	621	705	676
Licensed Marriage and Family Therapists [i]	709	1020	1295	1197	889	739	1285	568
Licensed Practical Nurse and Licensed Professional Clinical Counselors [ii]	881	843	985	1257	1024	724	1003	836
Licensed Practical Nurse [iii]	72	53	55	48	47	53	54	110
Physician Assistant [ii]	657	742	775	946	741	747	387	655
Physician [iii]	87	241	96	201	157	173	34	82
Psychologists [ii]	400	651	525	776	695	593	454	313
Registered Nurse [iii]	18	26	17	23	18	22	11	18
Social Worker [iii]	138	182	158	187	173	160	125	124

Source: Health Workforce Planning and Analysis Unit and Medicaid enrollment data, July 1, 2018 to June 30th,2019.

Notes: Data are for the years shown, as maintained by licensing professional organizations. Counties with fewer than 5 professionals within each professional type are suppressed and given a value of 5. Ratios based on weighted average of county-level Medicaid enrollees per Professionals, aggregated to Prevention Regions. Data for levels of social work licensure are not available. 1=Northwest; 2=Northeast; 3=West Central; 4=East Central; 5=Southwest; 6=Southeast; 7=Metro.

[i] Most recent Health Professionals data available from 2015

[ii] Most recent Health Professionals data available from 2016

[iii] Most recent Health Professionals data available from 2017

[v] Most recent Health Professionals data available from 2019

Each of these types of health professionals may be able to provide SUD services, depending on their level of professional certification in behavioral health services. . These ratios help identify the variation in provider capacity by indicating which regions had fewer practitioners (or a higher ratio) than others, and therefore may have had less capacity to take on new patients than a region that had more practitioners (or a lower ratio).

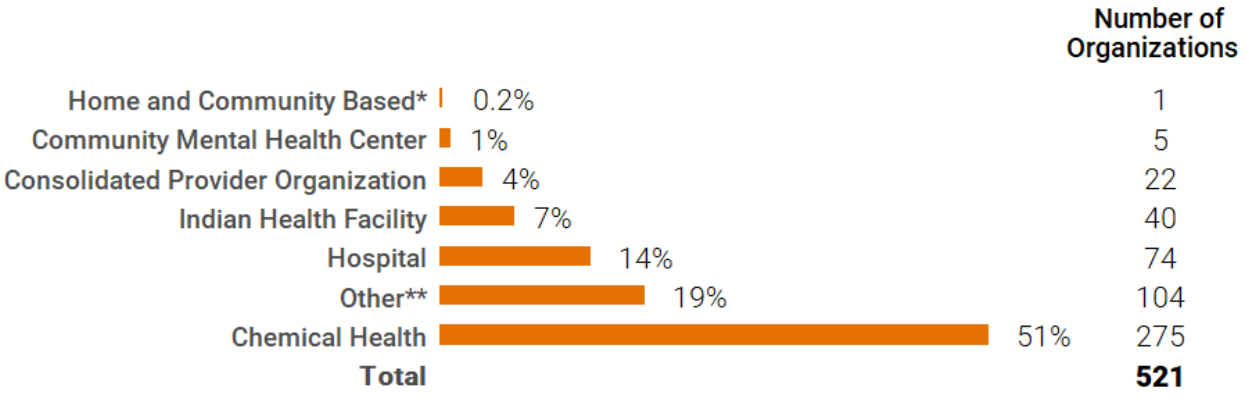
The number of health professionals was retrieved from the Health Workforce Planning and Analysis Unit, and this database does not specify whether the health professional accepts Medicaid patients. It is also assumed that these health professionals also provided services to clients with other types of health care coverage (Medicare beneficiaries, persons covered under private or employer-sponsored insurance (including military service veterans), and the uninsured). Therefore, we use the ratios only to understand the potential capacity to provide services in each Prevention Region.

What is the total number of providers of SUD services?

We observed a total of 521 providers that provided hospital, outpatient, or residential SUD services to Medicaid clients (excluding individuals who write prescriptions).[19] Of those organizations, about half are chemical health service providers, about 14 percent are hospitals, percent) were hospitals and 4 percent were consolidation provider organizations or chemical health providers, respectively.

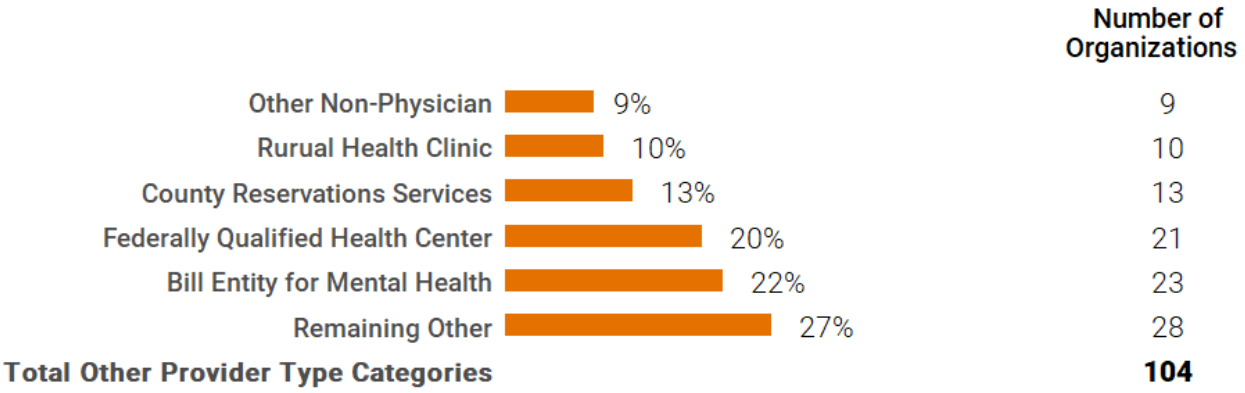
Exhibit 7. Number of Providers by Provider Type

Provider Types



[19] This number is different from the N-SSATS report, which reported a total of 403 substance use treatment facilities in the 2019 and 20,779 clients in substance use treatment on March 29, 2019. The survey response rate in Minnesota was 93.8 percent. The N-SSATS sampling frame is based off facilities that choose to provide contact information to the SAMHSA treatment locator tool. In the N-SSATS, a "facility" may be a program-level, clinic-level, or multi-site respondent.

Other Provider Type Categories



Source: MN Medicaid claims data, July 1, 2018 to June 30, 2019.

Note: We observed that the same NPI may be classified under more than one provider type; for example, a provider may be listed as a Community Mental Health Center on one claim, and a Chemical health provider on another. Thus, the total number of unique organizations when enumerating by NPI was less than the total organizations when enumerating by both NPI and type. *Home and community based service providers, which account for 18 percent of the total providers, submitted 2,586,485 claims over the study period, 98 percent of which were for community living and supportive services or activity therapy. As a result, we do not present this provider type in future tables as most of the types of services we analyzed are not applicable to this provider type. **The Other category includes a mixture of types of organizations some of which cannot be further clarified in the claims data. In addition to the other categories shown, the remaining other types each constitute less than five percent of the "Other" category (and less than one percent of all claims), and consist of the following types: Social Worker, Physician, Marriage And Family Therapist, Mental Health Rehab Professional, Dentist, Target Case Management, Intensive Residential Treatment Service, Public Health Nursing Organization, Licensed Professional Clinical Counselor, Other Non-Traditional providers, and a Medical Transportation Provider. See Appendix 5 for supporting data table.

Exhibit 8 below presents the number of providers by provider type and types of SUD services. Chemical health providers most often provided SUD services compared to other provider types. For example, there were 221 chemical health providers that rendered outpatient treatment for individuals compared to 14 hospital providers. Similarly, the majority of providers that rendered each level of residential treatment were chemical health providers.

Exhibit 8. Number of Providers, by Provider Type, and Type of Service

Type of Service	Provider Type					
	Hospital	Chemical Health	Consol. Prov. Org.	Indian Health Facility	Comm. Mental Health Center	Other
Assessment	15	175	65	4	11	72
Outpatient Treatment	14	232	88	18	11	27

Type of Service	Provider Type					
	Hospital	Chemical Health	Consol. Prov. Org.	Indian Health Facility	Comm. Mental Health Center	Other
Group	13	229	82	16	9	22
Individual	14	221	78	15	9	25
Residential						
Low	0	28	1	3	0	0
Medium	0	54	8	6	0	1
High	1	77	12	2	0	3
Treatment Coordination	0	49	7	2	1	4
Peer Support	0	28	10	2	1	3

Source: MN Medicaid claims data, July 1, 2018 to June 30, 2019.

Exhibit 9 shows the number of individuals (or organizations, in this case hospitals, Indian Health facilities, and some pharmacy claims) who prescribed buprenorphine and naltrexone, and the number of facilities that administered methadone. The majority of pharmacy claims were for prescriptions written by a physician, but it is not possible to identify the type of organization the provider worked for. In the tables that follow, "Pharmacy" refers to prescriptions written by a clinician and filled at a pharmacy.

Buprenorphine, an evidence-based treatment for OUD, requires a DATA-2000 waiver because it is an addictive substance and was prescribed far less frequently than naltrexone, which is not addictive and does not require a waiver. As of December 2020, there are 14 recognized Opioid Treatment Programs (OTPs) in Minnesota, thus the additional provider types may reflect former facilities that are no longer operational, as well as methadone provided in acute settings (such as a hospital), outside of a formal treatment program. The list of methadone providers is in Appendix 4. In separate and more detailed analyses (see Addendum of this report), we examined the number of individual prescribers of buprenorphine and OTPs in Minnesota using a combination of claims and encounter data, data from the Drug Enforcement Agency on DATA-2000 waivered prescribers, and the current list of OTP programs available from MN DHS.

Exhibit 9. Number of MAT Providers, by Provider Type, and Type of Service

Provider Type							
Type of Service	**Hospital**	**Chemical Health**	**Physician Group**	**Consol. Prov. Org.**	**Indian Health Facility**	**Pharmacy**	**Other**
Buprenorphine	28	0	0	0	14	564	6
Naltrexone	32	2	13	0	8	2,376	26
Methadone	6	14	2	1	0	1	3
MAT all other	1	14	1	0	0	1	0

Source: MN Medicaid claims data, July 1, 2018 to June 30, 2019.

How many SUD services did Medicaid clients receive?

There were nearly two million SUD services rendered (1,973,739) to Medicaid clients between July 1, 2018 and June 30, 2019. Of those services, 98 percent were non-MAT SUD services (1,942,328, see Exhibit 10 below) and 31,411 were MAT-related services (Exhibit 11).

As shown in Exhibit 10, most services were outpatient treatment. Of the 925,090 outpatient treatment services, over 75 percent were rendered by chemical health providers. Most outpatient treatment services were provided in a group setting (747,000 services) while approximately 19 percent of outpatient treatment services were provided in an individual setting (178,020 services). Indian Health Facilities rendered 21,027 outpatient treatments, 18,471 of which were in a group setting, compared to 12,262 outpatient treatment services rendered by community mental health centers, 8,777 of which were in a group setting.

Exhibit 10. Total Number of Services by Provider Type and Type of Service

Type of Service	Provider Type						
	Hospital	Chemical Health	Consol. Prov. Org	Indian Health Facility Prov.	Comm. Mental Health Center	Other	Total
Assessment	1,288	21,136	3,050	1,005	777	2,089	29,345
Outpatient Treatment	27,403	715,100	136,963	21,027	12,262	12,335	925,090
Group	19,414	579,846	111,401	18,471	8,777	9,161	747,000
Individual	7,989	135,254	25,562	2,556	3,485	3,174	178,020
Residential							
Low	0	4,600	4	103	0	0	4,707
Medium	0	16,188	536	990	0	5	17,719
High	5	30,664	1,810	533	0	150	33,162
Treatment Coordination	0	3,160	1,309	945	87	8	5,509
Peer Support	0	1,261	162	190	34	81	1,728

Source: MN Medicaid claims data, July 1, 2018 to June 30, 2019.

Exhibit 11 shows the total number of MAT-related services. About 91 percent of all buprenorphine prescriptions were filled at pharmacies, 7 percent were filled by an Indian Health Service (IHS) facility, and about 2 percent were filled at hospitals, with the remaining filled at other facilities, such as Rural Health Clinics and Federally Qualified Health Centers. While there were far few prescribers of buprenorphine compared to naltrexone, many more prescriptions for buprenorphine were written, suggesting its high utility in treatment. Pharmacy claims for methadone were for administration by one provider, Hennepin County Medical Center Outpatient Department, while methadone administered by a Consolidated Provider Organization was for one provider, St. David's Center for Child and Families. Chemical Health Providers include OTPs, which were the predominant provider of methadone treatment.

Exhibit 11. Total Number of MAT Services by Provider Type and Type of Service

Type of Service	Provider Type							
	Hospital	Chemical Health	Physician Group	Consol. Prov. Org	Indian Health Facility	Pharmacy	Other	Total
Buprenorphine	222	0	0	0	975	13041	47	14285
Naltrexone	353	13	48	0	25	7610	127	8176
Methadone	336	7653	5	6	NA	148	2	8150
MAT all other	16	774	4	0	0	6	0	800

Source: MN Medicaid claims data, July 1, 2018 to June 30, 2019.

What is the average number and range of substance use disorder services, for each provider and service type?

The range of services provided for each type of service varied among provider types (Exhibits 12 and 13). For example, with outpatient treatment services, hospital providers rendered between two and 11,915 services per provider, compared to chemical health providers, who rendered between one and 106,218 services per provider. The range was likely affected by the number of individual practitioners working for each provider, for which we do not have data.

Consolidated provider organizations provided considerably different number of outpatient treatment group services, with a range of one to 52,253 services per provider.

Exhibit 12. Average and Range of SUD Services per Provider, by Provider and Type of Service

Type of Service	Provider Type					
	Hospital		Chemical Health		Consolidated Provider Organization	
	Average	Range	Average	Range	Average	Range
Assessment	86	1-453	121	1-2,665	47	1-415
Outpatient Treatment	1,957	2-11,915	3,082	1-106,218	1,556	1-62,384
Group	1,493	1-6,679	2,532	2-88,997	1,359	1-52,253
Individual	571	1-5,236	612	1-17,266	328	1-10,131
Residential						
Low	NA	NA	164	1-620	4	NA
Medium	NA	NA	300	2-4,408	67	1-349
High	NA	NA	398	1-2,420	151	1-423
Treatment Coordination	0	0-0	65	1-762	187	1-714
Peer Support	0	0-0	45	1-453	16	1-101

Source: MN Medicaid claims data, July 1, 2018 to June 30, 2019.

Notes: There was one Home and Community Based provider who rendered seven assessments. NA indicates only one provider for that type, thus there is no range.

The range of services rendered by different Indian Health Facilities varied greatly across services. For example, there was an average of 95 peer support services rendered by Indian Health Facilities, but the range was from seven to 183 services per provider facility.

Exhibit 13. Average and Range of SUD Services per Provider, by Provider Type and Type of Service

Type of Service	Provider Type					
	Indian Health Facility		Community Mental Health Center		Other	
	Average	Range	Average	Range	Average	Range
Assessment	251	1-481	71	1-464	29	1-239
Outpatient Treatment	1168	1-6,836	1,115	1-6,921	457	3-4,092
Group	1154	11-5,673	975	1-4,418	416	3-3,203
Individual	170	1-1,163	387	3-2,503	127	1-889
Residential						
Low	34	19-50	0	0-0	0	0-0
Medium	165	47-471	0	0-0	5	5-5
High	267	161-372	0	0-0	50	3-77
Treatment Coordination	473	7-938	87	NA	2	1-3
Peer Support	95	7-183	34	NA	27	11-52

Source: MN Medicaid claims/encounter data, July 1, 2018 to June 30, 2019. "NA" indicates only one of that type of provider. NA indicates only one provider for that type, thus there is no range.

The average number of services per provider and the range for MAT-related services are shown in Exhibits 14 and 15. As with the previous exhibit, the ranges varied greatly, since a provider may have been a large organization with multiple practitioners, or treatment center with a small staff. For example, OTPs varied in size, with some larger facilities in metro areas, and small clinics in more rural counties. The average prescriber wrote about 23 prescriptions for buprenorphine in the one-year period, which is below the legal limit for even the most limited waiver type (which has a limit of 30). The maximum number of prescriptions written by one provider was 383, some of which we observe are for the same person (the patient limit for buprenorphine is 275 people). There was significant variation in the number of prescriptions written, reflecting the various patient limits and each prescriber's comfort level of providing oversight to patients using buprenorphine for OUD. As with non-MAT services in the previous tables, the range of prescriptions written by IHS facilities also varied

greatly, likely reflecting the number of DATA-2000 waivered practitioners at these facilities and patient preferences for treatment.

Exhibit 14. Average and Range of MAT Services per Provider, by Provider and Type of Service

Type of Service	Provider Type							
	Hospital		Chem. Health		Physician Group		Consolidated Provider Organization	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Buprenorphine	8	1-60	0	0-0	0	0-0	0	0-0
Naltrexone	11	1-171	7	2-11	4	1-16	0	0-0
Methadone	56	1-329	5467	4-1,449	3	1-4	6	NA
MAT all other	16	NA	55	1-267	4	NA	0	0-0

Source: MN Medicaid claims/encounter data, July 1, 2018 to June 30, 2019. Avg=Average. "NA" indicates only one of that type of provider.

Exhibit 15. Average and Range of MAT Services per Provider, by Provider and Type of Service

Type of Service	Provider Type					
	Indian Health Facility		Pharmacy		Other	
	Avg	Range	Avg	Range	Avg	Range
Buprenorphine	70	1-171	23	1-383	8	1-18
Naltrexone	3	1-7	3	1-108	5	1-28
Methadone	0	0-0	148	NA	1	NA
MAT all other	0	0-0	6	NA	0	0-0

Source: MN Medicaid claims/encounter data, July 1, 2018 to June 30, 2019. Avg=Average. "NA" indicates only one of that type of provider. Other for buprenorphine and naltrexone are from Federally Qualified Health Centers, Rural Health Centers, and one Nurse Practitioner. The "Other" category for Methadone are United Community Services and Hennepin County Medical Center Clinic.

How many Medicaid clients accessed substance use disorder services?

Exhibit 16 presents the number of Medicaid clients who received non-MAT SUD services between July 1, 2018 and June 30, 2019 (MAT services are presented in Exhibit 17). Across all types of services, chemical health providers treated the most Medicaid clients for all types of SUD services. For example, chemical health providers provided "high" level of residential services to 8,442 clients, followed by consolidated provider organizations, which provided these services to 963 clients.

Exhibit 16. Number of Medicaid Clients Who Accessed SUD Services, by Provider Type and Type of Service

Type of Service	Provider Type					
	Hospital	Chemical Health	Consolidated Provider Organization	Indian Health Facility	Community Mental Health Center	Other
Assessment	1,131	16,145	2,726	917	692	1,871
Outpatient Treatment	1,268	22,076	4,066	1,008	600	515
Group	1,141	20,586	3,738	959	503	389
Individual	960	19,194	3,557	619	552	459
Residential						
Low	0	1,090	4	31	0	0
Medium	0	3,425	272	255	0	1
High	4	8,442	963	241	0	54
Treatment Coordination	0	1,464	438	297	51	7
Peer Support	0	490	71	36	5	20

Source: MN Medicaid claims data, July 1, 2018 to June 30, 2019.

Notes: Persons who received both individual and group outpatient treatment were counted in each service. In addition, there was one Home and Community Based services provider who rendered seven assessments on seven unique clients.

Exhibit 17 shows the number of unique Medicaid clients provided with each type of MAT-related service. When comparing the total number of services to the total number of clients, most clients were receiving services once during the year. Because we do not have data on the unique number of individual providers at each organization, we are unable to calculate the client per unique provider to understand how patient panel size varied across these types of providers.

Exhibit 17. Number of Medicaid Clients by Provider Type and Type of MAT Service

Type of Service	Provider Type						
	Hospital	Chemical Health	Physician Group	Consolidated Prov. Org	Indian Health Facility	Pharmacy	Other
Buprenorphine	215	0	0	0	869	9766	47
Naltrexone	348	13	47	7	22	6784	125
Methadone	328	7061	5	0	0	148	3
MAT all other	15	703	4	0	0	6	0

Source: MN Medicaid claims data, July 1, 2018 to June 30, 2019. Reported averages are rounded to the nearest whole number.

What is the average number and range of Medicaid clients for each provider and service type?

Exhibits 18 and 19 show the average and range of clients per provider. Hospital providers provided no clients with treatment coordination or peer support services, while chemical health providers provided treatment coordination to an average of 31 clients each (ranging from one to 492 clients per provider) and an average of 19 clients for peer support (ranging from one to 134 clients per provider).

Exhibit 18. Average and Range of SUD Clients per Provider by Provider Type and Type of Service

Type of Service	Provider Type					
	Hospital		Chemical Health		Consolidated Provider Organization	
	Average	Range	Average	Range	Average	Range
Assessment	77	1-410	104	1-2,114	43	1-375
Outpatient Treatment	92	2-431	110	1-2,066	49	1-1,165
Group	89	1-414	102	1-2,016	48	1-1,142
Individual	69	1-378	99	1-2,006	48	1-1,121
Residential						
Low	0	0-0	40	1-210	4	NA
Medium	0	0-0	67	1-366	34	1-178
High	4	NA	119	1-513	83	1-256
Treatment Coordination	0	0-0	31	1-492	63	1-299
Peer Support	0	0-0	18	1-134	7	1-47

Source: MN Medicaid claims data, July 1, 2018 to June 30, 2019. Reported averages are rounded to the nearest whole number. NA indicates only 1 provider for that type, thus there is no range.

Exhibit 19. Average and Range of SUD Clients per Provider, by Provider Type and Type of Service

Type of Service	Provider Type					
	Indian Health Facility		Community Mental Health Center		Other	
	Average	Range	Average	Range	Average	Range
Assessment	229	1-442	63	1-408	26	1-194
Outpatient Treatment	56	1-288	55	1-291	19	1-128
Group	60	2-281	556	1-243	18	1-119
Individual	42	1-199	61	1-287	19	1-120
Residential						
Low	10	9-12	0	0-0	0	0-0
Medium	43	12-95	0	0-0	1	1-1
High	121	72-170	0	0-0	18	1-40
Treatment Coordination	149	2-295	51	NA	2	1-2
Peer Support	18	4-32	5	NA	7	2-11

Source: MN Medicaid claims data, July 1, 2018 to June 30, 2019. Reported averages are rounded to the nearest whole number. NA indicates only one provider for that type, thus there is no range.

The average and range of clients for MAT-related services is shown in Exhibits 20 and 21. The average number of clients per provider of buprenorphine was 17, with a maximum of 210. As with the average and range of services, this reflects variation in patient waiver limits, and presumably, in provider comfort and capacity in prescribing an addictive substance, as well as patient preferences. In contrast, IHS facilities provided prescriptions for 62 unique clients, possibly indicating a higher burden for these providers, although the number of individual practitioners working at these facilities cannot be ascertained with the data. OTPs served an

average of 504 clients in the study year, possibly reflecting the low number of such facilities in the state. We also observed that hospital and chemical health providers had relatively few clients who received MAT-related services, compared to the number who received methadone, possibly indicating the need to increase capacity at these facilities for support services for clients receiving methadone.

Exhibit 20. Average and Range of SUD Clients per Provider for MAT

MAT Service	Hospital		Chem. Health		Physician Group		Consolidated Provider Orgranization	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Buprenorphine	8	1-56	0	0-0	0	0-0	0	0-0
Naltrexone	11	1-168	7	2-11	4	1-16	0	0-0
Methadone	55	1-321	504	4-1449	3	1-4	6	NA
MAT all other	15	NA	50	1-238	4	NA	0	0-0

Source: MN Medicaid claims data, July 1, 2018 to June 30, 2019. Reported averages are rounded to the nearest whole number. NA indicates only one provider for that type, thus there is no range. Avg=Average.

Exhibit 21. Average and Range of SUD Clients per Provider for MAT

MAT Service	Indian Health Facility		Pharmacy		Other	
	Avg	Range	Avg	Range	Avg	Range
Buprenorphine	62	1-170	17	1-210	8	1-18
Naltrexone	3	1-7	3	1-94	5	1-26
Methadone	0	0-0	148	NA	1	NA
MAT all other	0	0-0	6	NA	0	0-0

Source: MN Medicaid claims data, July 1, 2018 to June 30, 2019. Reported averages are rounded to the nearest whole number. NA indicates only one provider for that type, thus there is no range. Avg=Average

Considerations and Potential Next Steps

In this baseline provider capacity assessment, we are able to identify the number of organizations and prescribers of buprenorphine and naltrexone that Medicaid clients utilized for SUD treatment, including MAT for OUD. However, an organization may be classified under more than one type of provider, for example, as both a Community Mental Health Center and as a Chemical Health provider, which can hamper efforts to describe the specific number of each type of provider. MN DHS may want to consider how to work with providers to improve the accuracy of classifications.

We are also limited in understanding the number of health care personnel of each credential type, for all types of providers and organizations that actively provided services to Medicaid clients. Without a comprehensive understanding of the number of personnel at each organization, it is not possible to describe and compare the variation in the number of services rendered or clients seen across providers of the same type and size, or to assess how various mixtures of service personnel delivered each type of care to individuals with SUD. If such information is collected and made available and can be linked to claims (via NPI or provider name), a more detailed analysis of provider capacity can be completed. This type of analysis could be useful to Minnesota as they develop recommendations on the number of services each provider should render.

Further, data on the unique number of persons delivering care would allow for more detailed analyses of the level and variation of services across providers of the same type. For example, MN DHS may want to examine providers that were either high or low outliers in the number of beneficiaries served. Studying high-volume providers can help MN DHS understand how many clients can be served by provider types and inform discussions with these stakeholders. In addition, data on the credentials of individuals could inform an assessment of the service delivery capacity across different types of organizations. Finally, having data on the unique number of providers would also enable a comparison of the ratios of clients to providers to the ratios developed from the Health Professionals data to assess where there may be potential to expand provider participation in service delivery to Medicaid clients.

As shown in this analysis and in the Addendum, there remain a limited number of DATA-2000 waivered prescribers who actively prescribed buprenorphine, and most prescribers appeared to be prescribing below the patient limit. Please see the Addendum for detailed findings and discussion about access to MAT services in Minnesota.

In addition to the suggestions related to the collection of individual provider data, there are additional measures that capture characteristics of the service delivery of providers participating in the Demonstration and which may be helpful to include in the midpoint provider capacity assessment. For example, pending availability of codes in claims data, assessments could be classified into screenings that occurred before a diagnosis of a disorder and are thus considered early intervention, versus follow-up assessments after a diagnosis.

MN DHS may also consider implementing a survey of organizations to capture additional measures to be included in a capacity assessment. This survey could capture other data that may inform MN DHS of treatment quality and adequacy, such as the following:

- Provider language other than English
- Accepting new patients
- Reasonable accommodation for disabilities
- Triage services
- Appointment scheduling (time to an appointment)
- Office wait times
- Telehealth services

Results from the provider capacity assessment can also be linked to other claims-based outcome measures, for example, the number of readmissions or emergency department visits, to understand where resources in the system may be particularly strained. A mid-point capacity assessment could also include claims for non-behavioral health care providers to understand how SUD clients obtain care from other types of providers in service delivery and which providers may be doing better care coordination. Future analyses may also examine population groups based on different patient subgroups, for example, for selected services or for those with multiple diagnoses. Population groups receiving care from a large numbers of providers, such as clients with an SUD and a chronic condition, may have significant needs or preferences for providers.

As Minnesota implements its comprehensive strategy to address SUD, of which its 1115(a) Substance Use Disorder System Reform Demonstration Project is a part, this baseline provider capacity assessment offers a starting point for the state to understand how many provider organizations and services were available to Medicaid clients with SUD. As the implementation of this Demonstration continues, the state should consider the collection of additional data elements to ensure a robust understanding of the impact of its policy changes on individuals with SUD.

Appendix 1: ASAM Levels of Care

ASAM levels of care describe a standard continuum of care delivery for individuals with SUD. Each level of care is important to offering clients a multidimensional assessment where clients can be matched with the appropriate intensity of treatment services. The levels of care are designed to explore a client's risks, needs, strengths, and resources.[20] In order to conduct a satisfactory evaluation of Minnesota's provider capacity, not only is a count of full time employees necessary, but also an assessment of health care personnel for each provider type identified within the levels of care.

Appendix Exhibit 1.1.ASAM Levels of Care and Health Care Personnel

Level	Description of Care Delivery	Provider Type
Opioid Treatment Program (OTP)	Public and private methadone clinics.	
Office-Based Opioid Treatment (OBOT)	Community Service Boards, FQHCs, outpatient clinics, and physician's offices.	
Level 0.5: Early Intervention	Primary care medical clinics, hospital emergency departments, community centers, worksites, home health, FQHCs, CSBs, health departments, pharmacies, etc. • Screening, Brief Intervention, and Referral to Treatment (SBIRT): primary care physician offices, mental health practices, trauma centers, emergency departments, school settings, or other non-addiction treatment environments	Addiction counselors, social workers, health educators, etc. • SBIRT protocols are administered by generalist health care professionals or addiction counselors with training in substance use and addiction disorders, motivational counseling, and impacts of high-risk behavior
Level 1: Outpatient Services	Offices, clinics, school-based clinics, primary care clinics, and other facilities offering additional treatment or mental health programs.	Counselors, social workers, psychologists, and physicians (either addiction credentialed or generalist).

[20] What are the ASAM Levels of Care? (n.d.). Retrieved December 24, 2020, from https://www.asamcontinuum.org/knowledgebase/what-are-the-asam-levels-of-care/

Level	Description of Care Delivery	Provider Type
Level 2.1: Intensive Outpatient and Partial Hospitalization Programs	Substance use disorder outpatient specialty providers or other community providers. Programs should be partnered with other programs offering wide-ranging care intensity and supportive housing.	Counselors, psychologists, social workers, physicians, and program staff.
Level 2.5: Partial Hospitalization Programs.	Appropriately licensed outpatient setting in health care facility or community provider with direct access to psychiatric, medical and laboratory services (hospitalization unit must be distinct from other programs). Programs should be partnered with other programs offering wide-ranging care intensity and supportive housing.	Same as Level 2.1 provider type with addition of ability to offer access to more/less-intensive programs and supportive housing. Qualified practitioners in partial hospitalization programs are required to provide medical, psychological, psychiatric, laboratory, toxicology and emergency services.
Level 3.1: Residential or Inpatient Programs	24-hour environment such as group home or halfway house offering both clinic-based and community based recovery services. • At least five hours of low-intensity treatment services per week • At least five additional hours of clinical services (onsite or in partnership)	Medical, addiction, and mental health professionals provide clinical services supported by allied health professional competent in the biological and psychosocial implications of SUD and psychiatric conditions who support recovery residences.
Level 3.3: Clinically Managed Population-Specific High-Intensity Residential Programs (specified for adults only)	Therapeutic rehabilitation facilities and traumatic brain injury programs in community settings, or in specialty units in licensed healthcare facilities with access to high-intensity clinical services. • Such programs offer access to programs with wide-ranging levels of intensity and social services	Treatment is administered under physicians, physician extenders, or mental health professionals under 24-hour supervision of allied health with access to clinicians knowledgeable in SUD. Clinical staff should be competent in the biological and psychosocial implications of SUD and psychiatric conditions and offer behavioral management. Patients have access to medical, laboratory, toxicology, psychiatric and psychological services through consultations and referrals.

Level	Description of Care Delivery	Provider Type
Level 3.5: Clinically Managed Residential Programs (high intensity for adults, medium intensity for adolescents)	Appropriately licensed, standalone facilities in a community setting, or a specialty unit within a licensed health care facility.	Clinical staff should include addiction counselors, social workers, and licensed professional counselors, and support from allied health professionals. Tele-visits or in-person consultations with a physician are required.
Level 3.7: Medically Monitored Inpatient Programs (intensive for adults, high-intensity for adolescents)	Appropriately licensed, standalone psychiatric facilities, a specialty unit in a general or psychiatric hospital, or other licensed health care facility.	Addiction-credentialed physicians available on-site 24 hours daily, registered nurses, and additional appropriately credentialed nurses, addiction counselors, behavioral health specialists, clinical staff with awareness of the biological and psychosocial dimensions of SUD and psychiatric conditions.
Level 4: Medically Managed Intensive Inpatient Programs	Services may be provided in an acute care general hospital, an acute psychiatric hospital, or a psychiatric unit within an acute care general hospital, or through a licensed addiction treatment specialty hospital.	Clinical staff should include addiction-credentialed physicians; available 24 hours daily, nurse practitioners, physicians' assistants, nurses, counselors, psychologists, and social workers.

Note: The content included in the table above is an abbreviated summarization of *The ASAM Criteria: Treatment Criteria for Addictive Substance-Related, and Co-Occurring Condition*[21] provided in the Medicaid Innovation Accelerator Program's Overview of Substance Use Disorder (SUD) Care Clinical Guidelines: A Resource for States Developing SUD Delivery System Reforms and the Medicaid Innovation Accelerator Program's *Assessing SUD Provider and Service Capacity* webinar.[22]

[21] Mee-Lee D, ed. The ASAM Criteria: Treatment Criteria for Addictive Substance-Related, and Co-Occurring Conditions. Chevy Chase, MD: American Society of Addiction Medicine; 2013. http://www.asam.org/quality-practice/guidelines-and-consensus-documents/the-asam-criteria/text. Accessed March 18, 2016.

[22] O'Brien, J., Johnson, K., Chvojka, P., Smith-Butterwick, A., Neuhausen, K., & Melanie, B. (2017, May 2). Assessing SUD Provider and Service Capacity. Retrieved from https://www.medicaid.gov/state-resource-center/innovation-accelerator-program/iap-downloads/reducing-substance-use-disorders/provider-capacity-webinar.pdf

Appendix 2: Data by Prevention Region

The tables below reflect MN Medicaid claims and encounter data for July 1, 2018 to June 30, 2019 and the current Prevention Regions from the Department of Human Services, Alcohol and Drug Abuse Division.

Appendix Exhibit 2.1. Providers by Prevention Region and Provider Type

Prevention Region	Service	Hospital	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
1	Assessment	1	2	1	14	2	6
2	Assessment	0	7	0	21	1	7
3	Assessment	2	3	0	9	1	14
4	Assessment	1	5	0	24	0	3
5	Assessment	3	6	0	17	1	17
6	Assessment	0	8	0	16	2	6
7	Assessment	7	32	1	82	4	19
Out of State	Assessment	1	2	0	3	0	0
1	OP Treatment	0	5	3	13	3	1
2	OP Treatment	0	8	0	22	2	3
3	OP Treatment	2	3	0	12	2	2
4	OP Treatment	1	5	0	33	0	1
5	OP Treatment	3	10	0	26	1	5
6	OP Treatment	0	8	0	19	2	2

Prevention Region	Service	Hospital	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
7	OP Treatment	4	47	3	114	2	13
Out of State	OP Treatment	2	2	0	5	0	0
1	OP Treatment Group	0	3	2	13	2	1
2	OP Treatment Group	0	8	0	22	2	3
3	OP Treatment Group	2	3	0	12	2	0
4	OP Treatment Group	1	5	0	33	0	1
5	OP Treatment Group	3	10	0	26	1	5
6	OP Treatment Group	0	7	0	17	1	0
7	OP Treatment Group	4	44	3	113	2	12
Out of State	OP Treatment Group	1	2	0	5	0	0
1	OP Treatment Individual	0	5	3	13	3	1
2	OP Treatment Individual	0	6	0	21	2	3
3	OP Treatment Individual	2	3	0	12	1	2

Prevention Region	Service	Hospital	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
4	OP Treatment Individual	1	5	0	31	0	1
5	OP Treatment Individual	3	8	0	25	0	3
6	OP Treatment Individual	0	7	0	19	2	2
7	OP Treatment Individual	4	42	3	108	2	13
Out of State	OP Treatment Individual	2	2	0	4	0	0
1	Peer Support	0	0	1	1	0	0
2	Peer Support	0	0	0	2	0	0
3	Peer Support	0	2	0	3	0	0
4	Peer Support	0	1	0	6	0	0
5	Peer Support	0	0	0	4	0	1
6	Peer Support	0	2	0	3	1	0
7	Peer Support	0	5	1	11	0	2
Out of State	Peer Support	0	0	0	0	0	0
1	Residential Low	0	0	0	1	0	0
2	Residential Low	0	1	0	3	0	0

Prevention Region	Service	Hospital	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
3	Residential Low	0	0	0	5	0	0
4	Residential Low	0	0	0	7	0	0
5	Residential Low	0	0	0	1	0	0
6	Residential Low	0	0	0	5	0	0
7	Residential Low	0	0	0	5	0	0
Out of State	Residential Low	0	0	0	2	0	0
1	Residential Medium	0	0	0	3	0	0
2	Residential Medium	0	0	0	8	0	0
3	Residential Medium	0	0	0	3	0	0
4	Residential Medium	0	0	0	6	0	0
5	Residential Medium	0	1	0	3	0	0
6	Residential Medium	0	0	0	6	0	0
7	Residential Medium	0	7	0	25	0	1
Out of State	Residential Medium	0	0	0	1	0	0

Prevention Region	Service	Hospital	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
1	Residential High	0	0	0	5	0	0
2	Residential High	0	0	0	8	0	0
3	Residential High	0	1	0	4	0	0
4	Residential High	0	1	0	8	0	0
5	Residential High	0	1	0	7	0	0
6	Residential High	0	2	0	5	0	0
7	Residential High	0	7	0	37	0	3
Out of State	Residential High	1	0	0	4	0	0
1	Treatment Coord.	0	0	1	5	0	0
2	Treatment Coord.	0	0	0	9	0	1
3	Treatment Coord.	0	1	0	2	0	0
4	Treatment Coord.	0	0	0	13	0	0
5	Treatment Coord.	0	0	0	1	0	0
6	Treatment Coord.	0	0	0	0	0	0
7	Treatment Coord.	0	6	0	26	1	3
Out of State	Treatment Coord.	0	0	0	0	0	0

Notes: OP = outpatient, coord = coordination

Appendix Exhibit 2.2. MAT Providers by Prevention Region and Provider Type

Prevention Region	Service	Hospital	Physician Group	Cons. Prov. Org	Indian Health Facility	Chem Health	Pharmacy	Other
1	Buprenorphine	2	0	0	6	0	8	0
2	Buprenorphine	6	0	0	3	0	47	0
3	Buprenorphine	1	0	0	0	0	14	0
4	Buprenorphine	5	0	0	1	0	47	0
5	Buprenorphine	0	0	0	1	0	20	0
6	Buprenorphine	2	0	0	0	0	28	0
7	Buprenorphine	11	0	0	4	0	355	6
Out of state	Buprenorphine	1	0	0	0	0	45	0
1	Naltrexone	3	0	0	2	0	57	0
2	Naltrexone	4	1	0	4	1	198	1
3	Naltrexone	1	0	0	1	0	94	1
4	Naltrexone	4	2	0	1	1	196	3
5	Naltrexone	4	0	0	1	0	140	0
6	Naltrexone	3	2	0	0	0	172	0
7	Naltrexone	9	7	0	1	0	1371	21
Out of state	Naltrexone	4	1	0	1	0	148	0

Prevention Region	Service	Hospital	Physician Group	Cons. Prov. Org	Indian Health Facility	Chem Health	Pharmacy	Other
1	Methadone	0	0	0	0	0	0	0
2	Methadone	1	0	0	0	1	0	0
3	Methadone	1	0	0	0	1	0	0
4	Methadone	0	0	0	0	1	0	0
5	Methadone	0	0	0	0	0	0	0
6	Methadone	2	0	0	0	1	0	0
7	Methadone	1	2	1	0	10	1	2
Out of state	Methadone	1	0	0	0	0	0	1
1	MAT (all other)	0	0	0	0	1	0	0
2	MAT (all other)	0	0	0	0	1	0	0
3	MAT (all other)	0	0	0	0	1	0	0
5	MAT (all other)	0	0	0	0	0	0	0
4	MAT (all other)	0	0	0	0	1	0	0
6	MAT (all other)	0	0	0	0	1	0	0
7	MAT (all other)	1	1	0	0	9	1	0
Out of state	MAT (all other)	0	0	0	0	0	0	0

Appendix Exhibit 2.3. Total Services, by Prevention Region and Provider Type

Prevention Region	Service	Hospitals	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
1	Assessment	4	119	480	608	29	41
2	Assessment	0	169	0	2,129	78	83
3	Assessment	5	131	0	386	1	431
4	Assessment	244	108	0	2,344	0	18
5	Assessment	53	170	0	438	3	545
6	Assessment	0	263	0	1,594	196	332
7	Assessment	981	2,056	1	13,442	470	639
Out of State	Assessment	1	34	0	195	0	0
1	OP Treatment	0	520	3,602	19,267	94	181
2	OP Treatment	0	5,727	3,011	53,785	1,761	2,507
3	OP Treatment	727	7,577	0	11,837	109	19
4	OP Treatment	1,952	3,720	0	77,673	2	67
5	OP Treatment	1,733	2,447	0	38,566	1	1,901
6	OP Treatment	563	8,248	0	38,051	2,807	595
7	OP Treatment	21,208	108,088	1,654	472,817	7,488	7,065
Out of State	OP Treatment	1,220	636	0	3,104	0	0

Prevention Region	Service	Hospitals	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
1	OP Treatment Group	0	176	3,396	13,914	63	112
2	OP Treatment Group	0	4,517	2,326	44,785	1,405	1,770
3	OP Treatment Group	494	6,723	0	10,063	97	0
4	OP Treatment Group	1,509	3,162	0	63,979	1	60
5	OP Treatment Group	1,536	2,141	0	32,860	1	1,573
6	OP Treatment Group	139	6,190	0	32,749	2,489	0
7	OP Treatment Group	14,640	87,951	1,429	378,925	4,721	5,646
Out of State	OP Treatment Group	1,096	541	0	2,571	0	0
1	OP Treatment Individual	0	344	206	5,353	31	69
2	OP Treatment Individual	0	1,210	685	9,000	356	737
3	OP Treatment Individual	233	854	0	1,774	12	19

Prevention Region	Service	Hospitals	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
4	OP Treatment Individual	443	558	0	13,694	1	7
5	OP Treatment Individual	197	306	0	5,706	0	328
6	OP Treatment Individual	424	2,058	0	5,302	318	595
7	OP Treatment Individual	6,568	20,137	225	93,892	2,767	1,419
Out of State	OP Treatment Individual	124	95	0	533	0	0
1	Peer Support	0	0	183	5	0	0
2	Peer Support	0	0	0	3	0	0
3	Peer Support	0	48	0	4	0	0
4	Peer Support	0	2	0	328	0	0
5	Peer Support	0	0	0	122	0	52
6	Peer Support	0	6	0	65	34	0
7	Peer Support	0	106	7	734	0	29
Out of State	Peer Support	0	0	0	0	0	0
1	Residential Low	0	0	0	4	0	0

Prevention Region	Service	Hospitals	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
2	Residential Low	0	4	0	183	0	0
3	Residential Low	0	0	0	1,124	0	0
4	Residential Low	0	0	0	628	0	0
5	Residential Low	0	0	0	267	0	0
6	Residential Low	0	0	0	1,716	0	0
7	Residential Low	0	0	0	102	0	0
Out of State	Residential Low	0	0	0	576	0	0
1	Residential Medium	0	0	0	265	0	0
2	Residential Medium	0	0	0	2,022	0	0
3	Residential Medium	0	0	0	167	0	0
4	Residential Medium	0	0	0	1,432	0	0

Prevention Region	Service	Hospitals	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
5	Residential Medium	0	45	0	869	0	0
6	Residential Medium	0	0	0	1,262	0	0
7	Residential Medium	0	491	0	9,863	0	5
Out of State	Residential Medium	0	0	0	308	0	0
1	Residential High	0	0	0	2,881	0	0
2	Residential High	0	0	0	1,887	0	0
3	Residential High	0	88	0	1,002	0	0
4	Residential High	0	169	0	3,823	0	0
5	Residential High	0	6	0	1,771	0	0
6	Residential High	0	211	0	3,533	0	0
7	Residential High	0	1,336	0	15,091	0	150

Prevention Region	Service	Hospitals	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
Out of State	Residential High	5	0	0	676	0	0
1	Treatment Coord.	0	0	933	137	0	0
2	Treatment Coord.	0	0	7	400	0	1
3	Treatment Coord.	0	29	0	16	0	0
4	Treatment Coord.	0	0	0	359	0	0
5	Treatment Coord.	0	0	0	3	0	0
6	Treatment Coord.	0	0	0	0	0	0
7	Treatment Coord.	0	1,280	0	2,245	87	7
Out of State	Treatment Coord.	0	0	0	0	0	0

Notes: OP = outpatient, coord = coordination, MGMT = management.

Appendix Exhibit 2.4. Total MAT Services, by Prevention Region and Provider Type

Prevention Region	Service	Hospital	Phys. Group	Cons. Prov. Org	Indian Health Facility	Chem. Health	Pharm.	Other
1	Buprenorphine	26	0	0	616	0	143	0
2	Buprenorphine	28	0	0	126	0	938	0
3	Buprenorphine	1	0	0	0	0	284	0
4	Buprenorphine	21	0	0	133	0	1321	0
5	Buprenorphine	0	0	0	1	0	230	0
6	Buprenorphine	2	0	0	0	0	434	0
7	Buprenorphine	143	0	0	193	0	9006	47
Out of state	Buprenorphine	1	0	0	0	0	685	1
1	Naltrexone	5	0	0	8	0	205	
2	Naltrexone	20	16	0	13	2	723	14
3	Naltrexone	2	0	0	7	0	228	3
4	Naltrexone	44	2	0	3	11	581	31
5	Naltrexone	5	0	0	1	0	324	0
6	Naltrexone	25	12	0	0	0	531	0
7	Naltrexone	243	16	0	7	0	4641	79
Out of state	Naltrexone	9	2	0	2	0	377	0

Prevention Region	Service	Hospital	Phys. Group	Cons. Prov. Org	Indian Health Facility	Chem. Health	Pharm.	Other
1	Methadone	0	0	0	0	0	0	0
2	Methadone	1	0	0	0	575	0	0
3	Methadone	1	0	0	0	473	0	0
4	Methadone	0	0	0	0	261	0	0
5	Methadone	0	0	0	0	0	0	0
6	Methadone	2	0	0	0	225	0	0
7	Methadone	329	5	6	0	6119	148	2
Out of state	Methadone	3	0	0	0	0	0	1
1	MAT (all other)	0	0	0	0	1	0	0
2	MAT (all other)	0	0	0	0	156	0	0
3	MAT (all other)	0	0	0	0	17	0	0
4	MAT (all other)	0	0	0	0	9	0	0
5	MAT (all other)	0	0	0	0	0	0	0
6	MAT (all other)	0	0	0	0	49	0	0
7	MAT (all other)	16	4	0	0	542	6	0
Out of state	MAT (all other)	0	0	0	0	0	0	0

Notes: Phys = physician; Cons. Prov. Org = Consolidated Provider Organization; Chem. Health = Chemical Health; Pharm. = Pharmacy

Appendix Exhibit 2.5. Average and Range of Services Provided by Hospital, Consolidated Provider Organization, and Indian Health Facilities, by Prevention Region and Type of Service

Prevention Region	Service	Hospital		Cons. Prov. Org		Indian Health Facility	
		Avg.	Range	Avg.	Range	Avg.	Range
1	Assessment	4	NA	60	26-93	480	NA
2	Assessment	0	0-0	24	1-75	0	0-0
3	Assessment	3	2-3	44	5-111	0	0-0
4	Assessment	244	NA	22	1-56	0	0-0
5	Assessment	18	1-45	28	1-109	0	0-0
6	Assessment	0	0-0	33	1-133	0	0-0
7	Assessment	140	1-453	64	1-415	1	1-1
Out of State	Assessment	1	1-1	17	17-17	0	0-0
1	OP Treatment	0	0-0	104	1-482	1,201	1-3,392
2	OP Treatment	0	0-0	716	8-2,041	0	0-0
3	OP Treatment	364	187-540	2526	105-7,073	0	0-0
4	OP Treatment	1,952	NA	744	15-1,577	0	0-0
5	OP Treatment	578	185-1,110	245	3-852	0	0-0
6	OP Treatment	0	0-0	1031	1-6,896	0	0-0
7	OP Treatment	5,302	1,178-11,915	2300	1-62,384	551	367-749
Out of State	OP Treatment	610	78-1,142	318	252-384	0	0-0

Prevention Region	Service	Hospital		Cons. Prov. Org		Indian Health Facility	
		Avg.	Range	Avg.	Range	Avg.	Range
1	OP Treatment Group	0	0-0	59	2-152	1,698	195-3,201
2	OP Treatment Group	0	0-0	565	8-1,701	0	0-0
3	OP Treatment Group	247	66-428	2241	79-6,274	0	0-0
4	OP Treatment Group	1,509	NA	632	13-1,322	0	0-0
5	OP Treatment Group	512	163-999	214	3-784	0	0-0
6	OP Treatment Group	0	0-0	884	1-5,158	0	0-0
7	OP Treatment Group	3,660	1121-6,679	1999	1-52,253	476	302-700
Out of State	OP Treatment Group	1,096	NA	271	207-334	0	0-0
1	OP Treatment Individual	0	0-0	69	1-330	69	1-191
2	OP Treatment Individual	0	0-0	202	31-453	0	0-0
3	OP Treatment Individual	117	112-121	285	26-799	0	0-0
4	OP Treatment Individual	443	NA	112	2-255	0	0-0

Prevention Region	Service	Hospital		Cons. Prov. Org		Indian Health Facility	
		Avg.	Range	Avg.	Range	Avg.	Range
5	OP Treatment Individual	66	22-111	38	3-140	0	0-0
6	OP Treatment Individual	0	0-0	294	11-1,738	0	0-0
7	OP Treatment Individual	1,642	57-5,236	479	1-10,131	75	49-111
Out of State	OP Treatment Individual	62	46-78	48	45-50	0	0-0
1	Peer Support	0	0-0	0	0-0	183	NA
2	Peer Support	0	0-0	0	0-0	0	0-0
3	Peer Support	0	0-0	24	16-32	0	0-0
4	Peer Support	0	0-0	2	2-2	0	0-0
5	Peer Support	0	0-0	0	0-0	0	0-0
6	Peer Support	0	0-0	3	2-4	0	0-0
7	Peer Support	0	0-0	21	1-101	7	NA
Out of State	Peer Support	0	0-0	0	0-0	0	0-0
1	Residential Low	0	0-0	0	0-0	0	0-0
2	Residential Low	0	0-0	4	4-4	0	0-0
3	Residential Low	0	0-0	0	0-0	0	0-0

Prevention Region	Service	Hospital		Cons. Prov. Org		Indian Health Facility	
		Avg.	Range	Avg.	Range	Avg.	Range
4	Residential Low	0	0-0	0	0-0	0	0-0
5	Residential Low	0	0-0	0	0-0	0	0-0
6	Residential Low	0	0-0	0	0-0	0	0-0
7	Residential Low	0	0-0	0	0-0	0	0-0
Out of State	Residential Low	0	0-0	0	0-0	0	0-0
1	Residential Medium	0	0-0	0	0-0	0	0-0
2	Residential Medium	0	0-0	0	0-0	0	0-0
3	Residential Medium	0	0-0	0	0-0	0	0-0
4	Residential Medium	0	0-0	0	0-0	0	0-0
5	Residential Medium	0	0-0	45	NA	0	0-0
6	Residential Medium	0	0-0	0	0-0	0	0-0
7	Residential Medium	0	0-0	70	1-349	0	0-0
Out of State	Residential Medium	0	0-0	0	0-0	0	0-0
1	Residential High	0	0-0	0	0-0	0	0-0

Prevention Region	Service	Hospital		Cons. Prov. Org		Indian Health Facility	
		Avg.	Range	Avg.	Range	Avg.	Range
2	Residential High	0	0-0	0	0-0	0	0-0
3	Residential High	0	0-0	88	NA	0	0-0
4	Residential High	0	0-0	169	NA	0	0-0
5	Residential High	0	0-0	6	NA	0	0-0
6	Residential High	0	0-0	106	18-193	0	0-0
7	Residential High	0	0-0	191	1-423	0	0-0
Out of State	Residential High	5	NA	0	0-0	0	0-0
1	Treatment Coord.	0	0-0	0	0-0	933	NA
2	Treatment Coord.	0	0-0	0	0-0	0	0-0
3	Treatment Coord.	0	0-0	29	NA	0	0-0
4	Treatment Coord.	0	0-0	0	0-0	0	0-0
5	Treatment Coord.	0	0-0	0	0-0	0	0-0
6	Treatment Coord.	0	0-0	0	0-0	0	0-0
7	Treatment Coord.	0	0-0	213	1-714	0	0-0
Out of State	Treatment Coord.	0	0-0	0	0-0	0	0-0

Notes: OP = outpatient, coord = coordination, MGMT = management. NA = there is only one provider, so the range is not applicable.

Appendix Exhibit 2.6. Average and Range of Services Provided by Chemical Health, Community Mental Health Center, and Other Facilities, by Prevention Region and Type of Service

Prevention Region	Service	Chem. Health		Comm. Mental Health Center		Other	
		Avg.	Range	Avg.	Range	Avg.	Range
1	Assessment	43	1-83	15	2-27	7	1-12
2	Assessment	101	1-1,364	78	NA	12	2-61
3	Assessment	43	3-285	1	NA	31	1-142
4	Assessment	98	1-399	0	0-0	6	1-13
5	Assessment	26	1-79	3	NA	32	1-183
6	Assessment	100	1-432	98	21-175	55	1-239
7	Assessment	164	1-2,572	118	1-464	34	1-231
Out of State	Assessment	65	32-101	0	0-0	0	0-0
1	OP Treatment	1,482	117-4,095	31	3-49	181	NA
2	OP Treatment	2,445	183-11,697	881	10-1,751	836	8-2,382
3	OP Treatment	986	7-3,560	55	2-107	10	3-16
4	OP Treatment	2,354	17-10,121	0	0-0	67	NA
5	OP Treatment	1,483	17-6,385	1	1-1	380	3-1,155
6	OP Treatment	2,003	7-10,805	1404	63-2,744	298	75-520
7	OP Treatment	4,148	1-106,218	3744	567-6,921	543	4-4,092

Prevention Region	Service	Chem. Health		Comm. Mental Health Center		Other	
		Avg.	Range	Avg.	Range	Avg.	Range
Out of State	OP Treatment	621	36-1,708	0	0-0	0	0-0
1	OP Treatment Group	1,070	36-2,896	32	20-43	112	NA
2	OP Treatment Group	2,036	183-9,803	703	4-1,401	590	7-1,738
3	OP Treatment Group	839	6-3,147	49	2-95	0	0-0
4	OP Treatment Group	1,939	11-6,845	0	0-0	60	NA
5	OP Treatment Group	1,264	12-5,128	1	1-1	315	3-925
6	OP Treatment Group	1,926	12-10,067	2489	NA	0	0-0
7	OP Treatment Group	3,353	2-88,997	2361	303-4,418	471	3-3,203
Out of State	OP Treatment Group	514	25-1,646	0	0-0	0	0-0
1	OP Treatment Individual	412	15-1,349	10	3-22	69	NA
2	OP Treatment Individual	429	31-1,894	178	6-350	246	1-644
3	OP Treatment Individual	148	1-413	12	NA	10	3-16
4	OP Treatment Individual	442	2-3,276	0	0-0	7	NA
5	OP Treatment Individual	228	2-1,677	0	0-0	109	48-230

Prevention Region	Service	Chem. Health		Comm. Mental Health Center		Other	
		Avg.	Range	Avg.	Range	Avg.	Range
6	OP Treatment Individual	279	4-863	159	63-255	298	75-520
7	OP Treatment Individual	869	1-17,266	1384	264-2,503	109	1-889
Out of State	OP Treatment Individual	133	6-454	0	0-0	0	0-0
1	Peer Support	5	NA	0	0-0	0	0-0
2	Peer Support	2	1-2	0	0-0	0	0-0
3	Peer Support	1	1-2	0	0-0	0	0-0
4	Peer Support	55	6-153	0	0-0	0	0-0
5	Peer Support	31	2-54	0	0-0	52	NA
6	Peer Support	22	4-51	34	NA	0	0-0
7	Peer Support	67	1-394	0	0-0	15	11-18
Out of State	Peer Support	0	0-0	0	0-0	0	0-0
1	Residential Low	4	4-4	0	0-0	0	0-0
2	Residential Low	61	4-171	0	0-0	0	0-0
3	Residential Low	225	9-563	0	0-0	0	0-0
4	Residential Low	90	3-487	0	0-0	0	0-0

Prevention Region	Service	Chem. Health		Comm. Mental Health Center		Other	
		Avg.	Range	Avg.	Range	Avg.	Range
5	Residential Low	267	NA	0	0-0	0	0-0
6	Residential Low	343	6-620	0	0-0	0	0-0
7	Residential Low	20	1-56	0	0-0	0	0-0
Out of State	Residential Low	288	9-567	0	0-0	0	0-0
1	Residential Medium	88	40-157	0	0-0	0	0-0
2	Residential Medium	253	62-1,050	0	0-0	0	0-0
3	Residential Medium	56	3-134	0	0-0	0	0-0
4	Residential Medium	239	24-748	0	0-0	0	0-0
5	Residential Medium	290	61-605	0	0-0	0	0-0
6	Residential Medium	210	4-669	0	0-0	0	0-0
7	Residential Medium	395	2-4,408	0	0-0	5	NA
Out of State	Residential Medium	308	NA	0	0-0	0	0-0
1	Residential High	576	28-2,315	0	0-0	0	0-0
2	Residential High	236	40-660	0	0-0	0	0-0
3	Residential High	251	39-399	0	0-0	0	0-0
4	Residential High	478	1-1,852	0	0-0	0	0-0

Prevention Region	Service	Chem. Health		Comm. Mental Health Center		Other	
		Avg.	Range	Avg.	Range	Avg.	Range
5	Residential High	253	11-989	0	0-0	0	0-0
6	Residential High	707	210-2,420	0	0-0	0	0-0
7	Residential High	408	2-2,002	0	0-0	50	3-77
Out of State	Residential High	169	1-314	0	0-0	0	0-0
1	Treatment Coord.	27	10-68	0	0-0	0	0-0
2	Treatment Coord.	44	1-264	0	0-0	1	NA
3	Treatment Coord.	8	7-9	0	0-0	0	0-0
4	Treatment Coord.	28	1-153	0	0-0	0	0-0
5	Treatment Coord.	3	3-3	0	0-0	0	0-0
6	Treatment Coord.	0	0-0	0	0-0	0	0-0
7	Treatment Coord.	86	1-762	87	NA	2	2-3
Out of State	Treatment Coord.	0	0-0	0	0-0	0	0-0

Notes: OP = outpatient, coord = coordination, MGMT = management. NA = there is only one provider, so the range is not applicable.

Appendix Exhibit 2.7. Average and Range of MAT Services, by Prevention Region and Provider Type

Prevention Region	Service	Hospital		Cons. Prov. Org		Indian Health Facility		Chem Health	
		Avg	Range	Avg	Range	Avg	Range	Avg	Range
1	Buprenorphine	13	3—23	0	0-0	102.7	58—171	0	0-0
2	Buprenorphine	4.7	1—20	0	0-0	42	11—94	0	0-0
3	Buprenorphine	1.0	NA	0	0-0	0	0-0	0	0-0
4	Buprenorphine	4.2	1—11	0	0-0	133	NA	0	0-0
5	Buprenorphine	0	0-0	0	0-0	1	NA	0	0-0
6	Buprenorphine	1.0	1—1	0	0-0	0	0-0	0	0-0
7	Buprenorphine	13.0	1—60	0	0-0	48.3	1—94	0	0-0
Out of state	Buprenorphine	1.0	NA	0	0-0	0	0-0	0	0-0
1	Naltrexone	1.7	1—2	0	0-0	4	2—6	0	0-0
2	Naltrexone	5.0	1—12	0	0-0	3.3	1—7	2	2—2
3	Naltrexone	2.0	NA	0	0-0	7	NA	0	0-0
4	Naltrexone	11.0	1—34	0	0-0	3	3—3	11	NA
5	Naltrexone	1.3	1—2	0	0-0	1	NA	0	0-0
6	Naltrexone	8.3	1—23	0	0-0	0	0-0	0	0-0
7	Naltrexone	27.0	1—171	0	0-0	7	NA	0	0-0
Out of state	Naltrexone	1.0	NA	0	0-0	2	NA	0	0-0
1	Methadone	0	0-0	0	0-0	0	0-0	0	0-0

Prevention Region	Service	Hospital		Cons. Prov. Org		Indian Health Facility		Chem Health	
		Avg	Range	Avg	Range	Avg	Range	Avg	Range
2	Methadone	1.0	NA	0	0-0	0	0-0	575	NA
3	Methadone	1.0	NA	0	0-0	0	0-0	473	NA
4	Methadone	0	0-0	0	0-0	0	0-0	261	NA
5	Methadone	0	0-0	0	0-0	0	0-0	0	0-0
6	Methadone	1.0	NA	0	0-0	0	0-0	225	NA
7	Methadone	329.0	NA	6	NA	0	0-0	611.9	4—1449
Out of state	Methadone	0	0-0	0	0-0	0	0-0	0	0-0
1	MAT (all other)	0	0-0	0	0-0	0	0-0	1	1—1
2	MAT (all other)	0	0-0	0	0-0	0	0-0	156	NA
3	MAT (all other)	0	0-0	0	0-0	0	0-0	17	NA
4	MAT (all other)	0	0-0	0	0-0	0	0-0	9	NA
5	MAT (all other)	0	0-0	0	0-0	0	0-0	0	0-0
6	MAT (all other)	0	0-0	0	0-0	0	0-0	49	NA
7	MAT (all other)	16.0	NA	0	0-0	0	0-0	60.2	4—267
Out of state	MAT (all other)	0	0-0	0	0-0	0	0-0	0	0-0

Notes: NA = there is only one provider, so the range is not applicable. Avg=Average

Appendix Exhibit 2.8. Average and Range of MAT Services, by Prevention Region and Provider Type, continued

Prevention Region	Service	Physician Group		Pharmacy		Other	
		Avg	Range	Avg	Range	Avg	Range
1	Buprenorphine	0	0-0	17.9	1—77	0	0-0
2	Buprenorphine	0	0-0	20	1—101	0	0-0
3	Buprenorphine	0	0-0	20.3	1—179	0	0-0
4	Buprenorphine	0	0-0	28.1	1—223	0	0-0
5	Buprenorphine	0	0-0	11.5	1—89	0	0-0
6	Buprenorphine	0	0-0	15.5	1—95	0	0-0
7	Buprenorphine	0	0-0	25.4	1—383	7.8	1—18
Out of state	Buprenorphine	0	0-0	1.7	1—4	0	0-0
1	Naltrexone	0	0-0	3.6	1—41	0	0-0
2	Naltrexone	16	NA	3.7	1—84	14	NA
3	Naltrexone	0	0-0	2.4	1—19	3	NA
4	Naltrexone	1	NA	3	1—86	10.3	1—28
5	Naltrexone	0	0-0	2.3	1—19	0	0-0
6	Naltrexone	6	3—9	3.1	1—104	0	0-0
7	Naltrexone	2.3	1—6	3.4	1—108	3.8	1—24
Out of state	Naltrexone	2	2—2	1.4	1—6	0	0-0
1	Methadone	0	0-0	0	0-0	0	0-0

Prevention Region	Service	Physician Group		Pharmacy		Other	
		Avg	Range	Avg	Range	Avg	Range
2	Methadone	0	0-0	0	0-0	0	0-0
3	Methadone	0	0-0	0	0-0	0	0-0
4	Methadone	0	0-0	0	0-0	0	0-0
5	Methadone	0	0-0	0	0-0	0	0-0
6	Methadone	0	0-0	0	0-0	0	0-0
7	Methadone	2.5	1—4	148	NA	1	NA
Out of state	Methadone	0	0-0	0	0-0	1	NA
1	MAT (all other)	0	0-0	0	0-0	0	0-0
2	MAT (all other)	0	0-0	0	0-0	0	0-0
3	MAT (all other)	0	0-0	0	0-0	0	0-0
4	MAT (all other)	0	0-0	0	0-0	0	0-0
5	MAT (all other)	0	0-0	0	0-0	0	0-0
6	MAT (all other)	0	0-0	0	0-0	0	0-0
7	MAT (all other)	4	NA	6	NA	0	0-0
Out of state	MAT (all other)	0	0-0	0	0-0	0	0-0

Notes: NA = there is only one provider, so the range is not applicable. Avg=Average

Appendix Exhibit 2.9. Total Clients, by Prevention Region and Provider Type

Prevention Region	Service	Hospital	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
1	Assessment	4	116	441	534	29	39
2	Assessment	0	162	0	1,636	68	76
3	Assessment	5	126	0	372	1	421
4	Assessment	210	100	0	1,888	0	16
5	Assessment	49	146	0	408	3	502
6	Assessment	0	241	0	1,336	178	281
7	Assessment	868	1,819	1	10,278	414	539
Out of State	Assessment	1	33	0	178	0	0
1	OP Treatment	0	68	221	926	18	9
2	OP Treatment	0	326	0	2,140	89	107
3	OP Treatment	52	274	0	704	10	2
4	OP Treatment	104	140	0	2,877	0	6
5	OP Treatment	114	161	0	1,615	1	106
6	OP Treatment	0	239	0	1,734	150	32
7	OP Treatment	888	2,869	56	12,835	331	255

Prevention Region	Service	Hospital	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
Out of State	OP Treatment	89	59	0	216	0	0
1	OP Treatment Group	0	38	215	757	12	8
2	OP Treatment Group	0	278	0	1,930	77	63
3	OP Treatment Group	46	256	0	640	8	0
4	OP Treatment Group	78	133	0	2,649	0	6
5	OP Treatment Group	98	147	0	1,500	1	89
6	OP Treatment Group	0	211	0	1,604	124	0
7	OP Treatment Group	829	2681	55	12,152	280	225
Out of State	OP Treatment Group	80	54	0	189	0	0
1	OP Treatment Individual	0	63	93	818	14	8
2	OP Treatment Individual	0	278	0	1,829	80	99
3	OP Treatment Individual	44	193	0	568	7	2
4	OP Treatment Individual	60	78	0	2,542	0	4
5	OP Treatment Individual	57	101	0	1,181	0	83

Prevention Region	Service	Hospital	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
6	OP Treatment Individual	0	189	0	1,442	124	32
7	OP Treatment Individual	767	2,662	42	11,522	326	232
Out of State	OP Treatment Individual	11	38	0	64	0	0
1	Peer Support	0	0	32	2	0	0
2	Peer Support	0	0	0	3	0	0
3	Peer Support	0	14	0	3	0	0
4	Peer Support	0	1	0	154	0	0
5	Peer Support	0	0	0	32	0	11
6	Peer Support	0	4	0	10	5	0
7	Peer Support	0	52	4	303	0	9
Out of State	Peer Support	0	0	0	0	0	0
1	Residential Low	0	0	0	1	0	0
2	Residential Low	0	4	0	75	0	0
3	Residential Low	0	0	0	238	0	0
4	Residential Low	0	0	0	174	0	0

Prevention Region	Service	Hospital	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
5	Residential Low	0	0	0	101	0	0
6	Residential Low	0	0	0	240	0	0
7	Residential Low	0	0	0	63	0	0
Out of State	Residential Low	0	0	0	213	0	0
1	Residential Medium	0	0	0	53	0	0
2	Residential Medium	0	0	0	588	0	0
3	Residential Medium	0	0	0	65	0	0
4	Residential Medium	0	0	0	310	0	0
5	Residential Medium	0	26	0	373	0	0
6	Residential Medium	0	0	0	227	0	0
7	Residential Medium	0	246	0	1,805	0	1
Out of State	Residential Medium	0	0	0	84	0	0
1	Residential High	0	0	0	655	0	0
2	Residential High	0	0	0	912	0	0
3	Residential High	0	55	0	366	0	0
4	Residential High	0	51	0	949	0	0

Prevention Region	Service	Hospital	Cons. Prov. Org	Indian Health Facility	Chem. Health	Comm. Mental Health Center	Other
5	Residential High	0	5	0	807	0	0
6	Residential High	0	119	0	970	0	0
7	Residential High	0	750	0	3,873	0	54
Out of State	Residential High	4	0	0	348	0	0
1	Treatment Coord.	0	0	290	21	0	0
2	Treatment Coord.	0	0	0	123	0	1
3	Treatment Coord.	0	9	0	7	0	0
4	Treatment Coord.	0	0	0	131	0	0
5	Treatment Coord.	0	0	0	3	0	0
6	Treatment Coord.	0	0	0	0	0	0
7	Treatment Coord.	0	429	0	1,185	51	6
Out of State	Treatment Coord.	0	0	0	0	0	0

Notes: OP = outpatient, coord = coordination, MGMT = management.

Appendix Exhibit 2.10. Total MAT Clients, by Prevention Region and Provider Type

Prevention Region	Service	Hospital	Physician Group	Cons. Prov. Org	Indian Health Facility	Chem Health	Pharmacy	Other
1	Buprenorphine	25	0	0	614	0	135	0
2	Buprenorphine	26	0	0	91	0	761	0
3	Buprenorphine	1	0	0	0	0	224	0
4	Buprenorphine	21	0	0	64	0	958	0
5	Buprenorphine	0	0	0	1	0	176	0
6	Buprenorphine	2	0	0	0	0	301	0
7	Buprenorphine	139	0	0	171	0	6687	47
Out of state	Buprenorphine	1	0	0	0	0	524	0
1	Naltrexone	4	0	0	8	0	194	0
2	Naltrexone	20	16	0	10	2	635	14
3	Naltrexone	2	0	0	7	0	206	3
4	Naltrexone	44	2	0	3	11	522	29
5	Naltrexone	5	0	0	1	0	298	0
6	Naltrexone	25	12	0	0	0	450	0
7	Naltrexone	239	15	0	7	0	4127	79
Out of state	Naltrexone	9	2	0	1	0	352	0

Prevention Region	Service	Hospital	Physician Group	Cons. Prov. Org	Indian Health Facility	Chem Health	Pharmacy	Other
1	Methadone	0	0	0	0	0	0	0
2	Methadone	1	0	0	0	513	0	0
3	Methadone	1	0	0	0	473	0	0
4	Methadone	0	0	0	0	261	0	0
5	Methadone	0	0	0	0	0	0	0
6	Methadone	2	0	0	0	225	0	0
7	Methadone	321	5	6	0	5589	148	2
Out of state	Methadone	3	0	0	0	0	0	1
1	MAT (all other)	0	0	0	0	1	0	0
2	MAT (all other)	0	0	0	0	137	0	0
3	MAT (all other)	0	0	0	0	17	0	0
4	MAT (all other)	0	0	0	0	9	0	0
5	MAT (all other)	0	0	0	0	0	0	0
6	MAT (all other)	0	0	0	0	49	0	0
7	MAT (all other)	15	4	0	0	490	6	
Out of state	MAT (all other)	0	0	0	0	1	0	0

Appendix Exhibit 2.11. Average and Range of Clients from Hospital, Consolidated Provider Organization, and Indian Health Facilities, by Prevention Region and Type of Service

Prevention Region	Service	Hospital		Cons. Prov. Org		Indian Health Facility	
		Avg.	Range	Avg.	Range	Avg.	Range
1	Assessment	4	NA	58	26-90	441	NA
2	Assessment	0	0-0	23	1-70	0	0-0
3	Assessment	3	2-3	42	5-106	0	0-0
4	Assessment	210	NA	20	1-50	0	0-0
5	Assessment	16	1-41	24	1-87	0	0-0
6	Assessment	0	0-0	31	1-123	0	0-0
7	Assessment	126	1-410	58	1-375	1	1-1
Out of State	Assessment	1	1-1	17	16-17	0	0-0
1	OP Treatment	0	0-0	14	1-57	74	1-211
2	OP Treatment	0	0-0	41	1-106	0	0-0
3	OP Treatment	26	16-36	91	9-231	0	0-0
4	OP Treatment	104	NA	36	1-60	0	0-0
5	OP Treatment	38	11-77	16	1-54	0	0-0
6	OP Treatment	0	0-0	31	1-129	0	0-0
7	OP Treatment	225	60-431	63	1-1,165	19	9-27
Out of State	OP Treatment	45	7-82	30	21-38	0	0-0

Prevention Region	Service	Hospital		Cons. Prov. Org		Indian Health Facility	
		Avg.	Range	Avg.	Range	Avg.	Range
1	OP Treatment Group	0	0-0	13	2-29	108	9-206
2	OP Treatment Group	0	0-0	35	1-84	0	0-0
3	OP Treatment Group	23	11-35	85	8-218	0	0-0
4	OP Treatment Group	78	NA	35	1-59	0	0-0
5	OP Treatment Group	33	9-64	15	1-47	0	0-0
6	OP Treatment Group	0	0-0	31	1-123	0	0-0
7	OP Treatment Group	210	55-414	63	1-1,142	18	9-27
Out of State	OP Treatment Group	80	NA	27	21-33	0	0-0
1	OP Treatment Individual	0	0-0	13	1-55	31	1-86
2	OP Treatment Individual	0	0-0	47	5-95	0	0-0
3	OP Treatment Individual	22	16-28	64	8-172	0	0-0
4	OP Treatment Individual	60	NA	24	1-55	0	0-0
5	OP Treatment Individual	19	8-26	13	1-43	0	0-0
6	OP Treatment Individual	0	0-0	28	6-107	0	0-0

Prevention Region	Service	Hospital		Cons. Prov. Org		Indian Health Facility	
		Avg.	Range	Avg.	Range	Avg.	Range
7	OP Treatment Individual	193	43-378	65	1-1,121	14	8-18
Out of State	OP Treatment Individual	6	4-7	19	14-24	0	0-0
1	Peer Support	0	0-0	0	0-0	32	NA
2	Peer Support	0	0-0	0	0-0	0	0-0
3	Peer Support	0	0-0	7	5-9	0	0-0
4	Peer Support	0	0-0	1	1-1	0	0-0
5	Peer Support	0	0-0	0	0-0	0	0-0
6	Peer Support	0	0-0	2	2-2	0	0-0
7	Peer Support	0	0-0	10	1-47	4	NA
Out of State	Peer Support	0	0-0	0	0-0	0	0-0
1	Residential Low	0	0-0	0	0-0	0	0-0
2	Residential Low	0	0-0	4	4-4	0	0-0
3	Residential Low	0	0-0	0	0-0	0	0-0
4	Residential Low	0	0-0	0	0-0	0	0-0
5	Residential Low	0	0-0	0	0-0	0	0-0
6	Residential Low	0	0-0	0	0-0	0	0-0

Prevention Region	Service	Hospital		Cons. Prov. Org		Indian Health Facility	
		Avg.	Range	Avg.	Range	Avg.	Range
7	Residential Low	0	0-0	0	0-0	0	0-0
Out of State	Residential Low	0	0-0	0	0-0	0	0-0
1	Residential Medium	0	0-0	0	0-0	0	0-0
2	Residential Medium	0	0-0	0	0-0	0	0-0
3	Residential Medium	0	0-0	0	0-0	0	0-0
4	Residential Medium	0	0-0	0	0-0	0	0-0
5	Residential Medium	0	0-0	26	NA	0	0-0
6	Residential Medium	0	0-0	0	0-0	0	0-0
7	Residential Medium	0	0-0	35	1-178	0	0-0
Out of State	Residential Medium	0	0-0	0	0-0	0	0-0
1	Residential High	0	0-0	0	0-0	0	0-0
2	Residential High	0	0-0	0	0-0	0	0-0
3	Residential High	0	0-0	55	NA	0	0-0
4	Residential High	0	0-0	51	NA	0	0-0
5	Residential High	0	0-0	5	5-5	0	0-0
6	Residential High	0	0-0	60	11-108	0	0-0
7	Residential High	0	0-0	109	1-256	0	0-0

Prevention Region	Service	Hospital		Cons. Prov. Org		Indian Health Facility	
		Avg.	Range	Avg.	Range	Avg.	Range
Out of State	Residential High	4	4-4	0	0-0	0	0-0
1	Treatment Coord.	0	0-0	0	0-0	290	NA
2	Treatment Coord.	0	0-0	0	0-0	0	0-0
3	Treatment Coord.	0	0-0	9	9-9	0	0-0
4	Treatment Coord.	0	0-0	0	0-0	0	0-0
5	Treatment Coord.	0	0-0	0	0-0	0	0-0
6	Treatment Coord.	0	0-0	0	0-0	0	0-0
7	Treatment Coord.	0	0-0	72	1-299	0	0-0
Out of State	Treatment Coord.	0	0-0	0	0-0	0	0-0

Notes: OP = outpatient, coord = coordination, MGMT = management. NA = there is only one provider, so the range is not applicable.

Appendix Exhibit 2.12. Average and Range of Clients from Chemical Health, Community Mental Health Centers, and Other Facilities, by Prevention Region and Type of Service

Prevention Region	Service	Chem. Health		Comm. Mental Health Center		Other	
		Avg.	Range	Avg.	Range	Avg.	Range
1	Assessment	40	1-71	15	2-27	7	1-11
2	Assessment	82	1-994	68	NA	11	2-54
3	Assessment	41	3-273	1	NA	30	1-140
4	Assessment	84	1-333	0	0-0	5	1-11
5	Assessment	25	1-76	3	NA	30	1-160
6	Assessment	89	1-359	89	19-159	47	1-194
7	Assessment	141	1-2,068	104	1-408	29	1-170
Out of State	Assessment	59	25-94	0	0-0	0	0-0
1	OP Treatment	77	22-188	6	1-9	9	9-9
2	OP Treatment	105	14-398	45	6-83	36	1-58
3	OP Treatment	60	2-166	5	2-8	1	NA
4	OP Treatment	99	1-453	0	0-0	6	NA
5	OP Treatment	65	1-239	1	1-1	22	3-56
6	OP Treatment	96	1-507	75	14-136	16	8-24
7	OP Treatment	128	1-2,066	166	40-291	20	1-128

Prevention Region	Service	Chem. Health		Comm. Mental Health Center		Other	
		Avg.	Range	Avg.	Range	Avg.	Range
Out of State	OP Treatment	43	3-118	0	0-0	0	0-0
1	OP Treatment Group	61	8-143	6	4-8	8	NA
2	OP Treatment Group	94	14-321	39	4-73	21	1-52
3	OP Treatment Group	55	2-159	4	2-6	0	0-0
4	OP Treatment Group	90	1-353	0	0-0	6	NA
5	OP Treatment Group	60	1-232	1	1-1	18	3-51
6	OP Treatment Group	99	2-472	124	NA	0	0-0
7	OP Treatment Group	121	1-2,016	140	37-243	19	1-119
Out of State	OP Treatment Group	38	3-116	0	0-0	0	0-0
1	OP Treatment Individual	67	7-185	5	1-9	8	NA
2	OP Treatment Individual	93	12-346	40	3-77	33	1-55
3	OP Treatment Individual	48	1-137	7	7-7	1	NA
4	OP Treatment Individual	92	1-423	0	0-0	4	NA
5	OP Treatment Individual	49	1-160	0	0-0	28	18-46

Prevention Region	Service	Chem. Health		Comm. Mental Health Center		Other	
		Avg.	Range	Avg.	Range	Avg.	Range
6	OP Treatment Individual	79	1-411	62	14-110	16	8-24
7	OP Treatment Individual	120	1-2,006	163	39-287	18	1-120
Out of State	OP Treatment Individual	16	5-34	0	0-0	0	0-0
1	Peer Support	2	NA	0	0-0	0	0-0
2	Peer Support	2	1-2	0	0-0	0	0-0
3	Peer Support	1	1-1	0	0-0	0	0-0
4	Peer Support	26	3-64	0	0-0	0	0-0
5	Peer Support	8	2-15	0	0-0	11	NA
6	Peer Support	4	1-7	5	5-5	0	0-0
7	Peer Support	28	1-134	0	0-0	5	2-7
Out of State	Peer Support	0	0-0	0	0-0	0	0-0
1	Residential Low	1	NA	0	0-0	0	0-0
2	Residential Low	25	2-68	0	0-0	0	0-0
3	Residential Low	49	4-156	0	0-0	0	0-0
4	Residential Low	25	2-112	0	0-0	0	0-0

Prevention Region	Service	Chem. Health		Comm. Mental Health Center		Other	
		Avg.	Range	Avg.	Range	Avg.	Range
5	Residential Low	101	NA	0	0-0	0	0-0
6	Residential Low	48	4-96	0	0-0	0	0-0
7	Residential Low	13	1-31	0	0-0	0	0-0
Out of State	Residential Low	107	3-210	0	0-0	0	0-0
1	Residential Medium	18	12-26	0	0-0	0	0-0
2	Residential Medium	75	28-233	0	0-0	0	0-0
3	Residential Medium	22	2-45	0	0-0	0	0-0
4	Residential Medium	53	13-112	0	0-0	0	0-0
5	Residential Medium	125	19-261	0	0-0	0	0-0
6	Residential Medium	38	3-65	0	0-0	0	0-0
7	Residential Medium	76	1-366	0	0-0	1	NA
Out of State	Residential Medium	84	NA	0	0-0	0	0-0
1	Residential High	132	10-390	0	0-0	0	0-0
2	Residential High	118	21-305	0	0-0	0	0-0
3	Residential High	92	18-137	0	0-0	0	0-0
4	Residential High	120	1-440	0	0-0	0	0-0

Prevention Region	Service	Chem. Health		Comm. Mental Health Center		Other	
		Avg.	Range	Avg.	Range	Avg.	Range
5	Residential High	117	3-513	0	0-0	0	0-0
6	Residential High	196	47-481	0	0-0	0	0-0
7	Residential High	111	2-376	0	0-0	18	1-40
Out of State	Residential High	87	1-166	0	0-0	0	0-0
1	Treatment Coord.	4	1-11	0	0-0	0	0-0
2	Treatment Coord.	14	1-72	0	0-0	1	NA
3	Treatment Coord.	4	3-4	0	0-0	0	0-0
4	Treatment Coord.	10	1-41	0	0-0	0	0-0
5	Treatment Coord.	3	3-3	0	0-0	0	0-0
6	Treatment Coord.	0	0-0	0	0-0	0	0-0
7	Treatment Coord.	47	1-492	51	NA	2	NA
Out of State	Treatment Coord.	0	0-0	0	0-0	0	0-0

Notes: OP = outpatient, coord = coordination, MGMT = management. NA = there is only one provider, so the range is not applicable.

Appendix Exhibit 2.13. Average and Range of MAT Clients, by Prevention Region and Provider Type

Prevention Region	Service	Hospital		Cons. Prov. Org		Ind Health Facility		Chem Health	
		Avg	Range	Avg	Range	Avg	Range	Avg	Range
1	Buprenorphine	13	3—22	0	0-0	102	58—170	0	0-0
2	Buprenorphine	4	1—18	0	0-0	30	6—72	0	0-0
3	Buprenorphine	1	NA	0	0-0	0	0-0	0	0-0
4	Buprenorphine	4	1—11	0	0-0	64	NA	0	0-0
5	Buprenorphine	0	0-0	0	0-0	1	NA	0	0-0
6	Buprenorphine	1	NA	0	0-0	0	0-0	0	0-0
7	Buprenorphine	13	1—56	0	0-0	43	1—73	0	0-0
Out of state	Buprenorphine	1	NA	0	0-0	0	0-0	0	0-0
1	Naltrexone	1	1—2	0	0-0	4	2—6	0	0-0
2	Naltrexone	5	1—12	0	0-0	3	1—7	2	NA
3	Naltrexone	2	NA	0	0-0	7	NA	0	0-0
4	Naltrexone	11	1—34	0	0-0	3	3—3	11	NA
5	Naltrexone	1	1—2	0	0-0	1	NA	0	0-0
6	Naltrexone	8	1—23	0	0-0	0	0-0	0	0-0
7	Naltrexone	27	1—168	0	0-0	7	NA	0	0-0

Prevention Region	Service	Hospital		Cons. Prov. Org		Ind Health Facility		Chem Health	
		Avg	Range	Avg	Range	Avg	Range	Avg	Range
Out of state	Naltrexone	2.3	1—5	0	0-0	1	NA	0	0-0
1	Methadone	0	0-0	0	0-0	0	0-0	0	0-0
2	Methadone	1	NA	0	0-0	0	0-0	513	NA
3	Methadone	1	NA	0	0-0	0	0-0	473	NA
4	Methadone	0	0-0	0	0-0	0	0-0	261	NA1
5	Methadone	0	0-0	0	0-0	0	0-0	0	0-0
6	Methadone	1	NA	0	0-0	0	0-0	225	NA
7	Methadone	321	NA	6	NA	0	0-0	559	4—1449
Out of state	Methadone	3	NA	0	0-0	0	0-0	0	0-0
1	MAT (all other)	0	0-0	0	0-0	0	0-0	1	NA
2	MAT (all other)	0	0-0	0	0-0	0	0-0	137	NA
3	MAT (all other)	0	0-0	0	0-0	0	0-0	17	NA
4	MAT (all other)	0	0-0	0	0-0	0	0-0	9	NA
5	MAT (all other)	0	0-0	0	0-0	0	0-0	0	0-0
6	MAT (all other)	0	0-0	0	0-0	0	0-0	49	NA

Prevention Region	Service	Hospital		Cons. Prov. Org		Ind Health Facility		Chem Health	
		Avg	Range	Avg	Range	Avg	Range	Avg	Range
7	MAT (all other)	15	NA	0	0-0	0	0-0	54	4—238
Out of state	MAT (all other)	0	0-0	0	0-0	0	0-0	0	0-0

Notes: NA = there is only one provider, so the range is not applicable. Avg=Average

Appendix Exhibit 2.14. Average and Range of MAT Clients, by Prevention Region and Provider Type, continued

Prevention Region	Service	Phys Prac		Pharmacy		Other	
		Avg	Range	Avg	Range	Avg	Range
1	Buprenorphine	0	0-0	17	1—75	0	0-0
2	Buprenorphine	0	0-0	16	1—92	0	0-0
3	Buprenorphine	0	0-0	16	1—135	0	0-0
4	Buprenorphine	0	0-0	20	1—158	0	0-0
5	Buprenorphine	0	0-0	9	1—60	0	0-0
6	Buprenorphine	0	0-0	11	1—64	0	0-0
7	Buprenorphine	0	0-0	19	1—210	8	1—18
Out of state	Buprenorphine	0	0-0	11.6	1—68	0	0-0
1	Naltrexone	0	0-0	3	1—40	0	0-0
2	Naltrexone	16	NA	3	1—69	14	NA
3	Naltrexone	0	0-0	2	1—19	3	NA

Prevention Region	Service	Phys Prac		Pharmacy		Other	
		Avg	Range	Avg	Range	Avg	Range
4	Naltrexone	1	NA	3	1—72	10	1—26
5	Naltrexone	0	0-0	2	1—16	0	0-0
6	Naltrexone	6	3—9	3	1—82	0	0-0
7	Naltrexone	2	1—5	3	1—94	4	1—24
Out of state	Naltrexone	2	NA	2.4	1—42	0	0-0
1	Methadone	0	0-0	0	0-0	0	0-0
2	Methadone	0	0-0	0	0-0	0	0-0
3	Methadone	0	0-0	0	0-0	0	0-0
4	Methadone	0	0-0	0	0-0	0	0-0
5	Methadone	0	0-0	0	0-0	0	0-0
6	Methadone	0	0-0	0	0-0	0	0-0
7	Methadone	3	1—4	148	NA	1	NA
Out of state	Methadone	0	0-0	0	0-0	1	NA
1	MAT (all other)	0	0-0	0	0-0	0	0-0
2	MAT (all other)	0	0-0	0	0-0	0	0-0
3	MAT (all other)	0	0-0	0	0-0	0	0-0
4	MAT (all other)	0	0-0	0	0-0	0	0-0

Prevention Region	Service	Phys Prac		Pharmacy		Other	
		Avg	Range	Avg	Range	Avg	Range
5	MAT (all other)	0	0-0	0	0-0	0	0-0
6	MAT (all other)	0	0-0	0	0-0	0	0-0
7	MAT (all other)	4	NA	6	NA	0	0-0
Out of state	MAT (all other)	0	0-0	0	0-0	0	0-0

Notes: NA = there is only one provider, so the range is not applicable. Avg=Average

Appendix 3: Methadone Providers, by Prevention Region

Appendix Exhibit 3.1. Methadone Providers, by Prevention Region

Provider type	Prevention Region
Hospitals	
Winona Health Services	6
Community Memorial Hospital	2
Hennepin County Medical Center	7
Glacial Ridge Hospital	3
Physician Group	
Interventional Spine & Pain Physicians	7
Consolidated Provider Org	
St David's Center For Child And Families	7
Chemical Health	
St Cloud Metro Treatment Center	4
Dakota Treatment Center	7
Specialized Treatment Services Inc.	7
St Paul Metro Treatment Center	7
Alliance Clinic LLC	7
Specialized Treatment Services Inc.	7

Provider type	Prevention Region
Specialized Treatment Services Inc.	7
CADT Residential Treatment Facility	2
Valhalla Place Brainerd	3
Valhalla Place LLC Brooklyn Park	7
Valhalla Place LLC Woodbury	7
Rochester Metro Treatment Center	6
Alliance Wellness Clinic Inc.	7
Pharmacy	
Hennepin County Medical Center Outpatient	7
Other	
HFA Addiction Medicine Program	7
United Community Services	NA (Iowa)
Hennepin County Medical Center Clinic	7

Appendix 4: Detoxification Facilities

In Minnesota, certain types of facilities provide detoxification and are reimbursed by the county, and therefore are not paid for by Medicaid. In the context of the SUD Section 1115(a) Demonstration, Level 3.7, Medically Monitored Withdrawal Management will be a covered service. Therefore, we used DAANES data to list the names of facilities that provide detoxification facilities (Appendix Exhibit 4.1), as a ratio of Medicaid enrollees per facility, in each Prevention Region (Appendix Exhibit 4.2).

Each Prevention Region has at least one facility. The metropolitan Prevention Region (7) has 3 facilities, which equate to one facility per about 266,000 Medicaid enrollees. The northeast Prevention Region (2) also has three facilities, translating to one detoxification facility per about 32,000 Medicaid enrollees, or eight times the enrollee capacity as the metropolitan Prevention Region.

Appendix Exhibit 4.1. Detoxification Facilities, by County and Region

Facility	County	Region	
AICDC Withdrawal Management	Hennepin	Metro	7
Brown County Evaluation Center Inc.	Brown	Southwest	5
Canvas Health	Chisago	East Central	4
Center for Alcohol and Drug Treatment - Duluth	St. Louis	Northeast	2
Central Minnesota Mental Health Center - St. Cloud	Stearns	East Central	4
Clay County Public Health Detox	Clay	West Central	3
Hazelden Recovery Services - Center City	Chisago	East Central	4
Mission Detox Center	Hennepin	Metro	7
New Life Treatment Center	Pipestone	Southwest	5
Northland Recovery Center	Itasca	Northeast	2
Pine Manor, Inc. Detox Services	Hubbard	Northwest	1

Facility	County	Region	
Project Turnabout - Granite Falls	Yellow Medicine	Southwest	5
Ramsey County Detox	Ramsey	Metro	7
Range Treatment Center	St. Louis	Northeast	2
Woodland Centers Detox	Kandiyohi	Southwest	5
Zumbro Valley Health Center	Olmsted	Southeast	6

Source: Data are from the Drug and Alcohol Abuse Normative Evaluation System (DAANES).

Appendix Exhibit 4.2. Number of Detoxification Facilities and Medicaid Enrollee to Facility Ratio

Prevention Region	Total Number of Facilities	Total Number of Enrollees	Ratio of Enrollees per Facility
1	1	68,304	68,304
2	3	94,526	31,509
3	1	99,312	99,312
4	3	155,633	51,878
5	4	144,147	36,037
6	1	123,382	123,382
7	3	796,840	265,613

Notes: Data are the Prevention Region average calculated from the weighted county-level ratios of enrollees to providers. County weights are the based on the percent of Medicaid enrollees that contribute to the overall PR enrollee total. Data are from the Drug and Alcohol Abuse Normative Evaluation System (DAANES). 74 counties do not have a detoxification facility that receives state or federal funds for SUD services and who reports to the DAANES data system.

Appendix 5: Provider Types

Appendix Exhibit 5.1. Number of Providers by Provider Type

Provider Type	**No. of providers**	**Percent of total providers**
Home and Community Based*	1	0.2%
Hospital	74	14%
Chemical Health	275	51%
Consolidated Provider Organization	22	4%
Indian Health Facility	40	7%
Community Mental Health Center	5	1%
Other**	104	19%
Total	**521**	100%
Other categories	**No. of providers**	***Percent of Other***
Rural Health Clinic	10	10%
Bill Entity for Mental Health	23	22%
Federally Qualified Health Center	21	20%
County Reservations Services	13	13%
Other Non-Physician	9	9%
Remaining other	28	27%

Source: MN Medicaid claims data, July 1, 2018 to June 30, 2019.

Note: We observed that the same NPI may be classified under more than one provider type; for example, a provider may be listed as a Community Mental Health Center on one claim, and a Chemical health provider on another. Thus, the total number of unique organizations when enumerating by NPI was less than the total organizations when enumerating by both NPI and type. *Home and community based service providers, which account for 18 percent of the total providers, submitted 2,586,485 claims over the study period, 98 percent of which were for community living and supportive services or activity therapy. As a result, we do not present this provider type in future tables as most of the types of services we analyzed are not applicable to this provider type. **The Other category includes a mixture of types of organizations some of which cannot be further clarified in the claims data. In addition to the other categories shown, the remaining other types each constitute less than five percent of the "Other" category (and less than one percent of all claims), and consist of the following types: Social Worker, Physician, Marriage And Family Therapist, Mental Health Rehab Professional, Dentist, Target Case Management, Intensive Residential Treatment Service, Public Health Nursing Organization, Licensed Professional Clinical Counselor, Other Non-Traditional providers, and a Medical Transportation Provider.

Addendum: Examining Potential Disparities in Medication-Assisted Treatment

Minnesota 1115(a) Substance Use Disorder System Reform Demonstration Project Evaluation

Examining Potential Disparities in Medication-Assisted Treatment

11/25/2020

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Introduction

In Minnesota, as in other states, there is concern about the disproportionate impact of substance use disorder (SUD), including opioids, on communities of color. The state's most recent Opioid Dashboard Report for 2018 illustrates that American Indian and Black Minnesotans are much more likely to suffer from fatal overdoses than their White peers.[1] Therefore, access to comprehensive SUD treatment, including medication-assisted treatment (MAT), is essential to addressing these community needs. Recent research has highlighted the inequities associated with access to MAT for treatment of opioid use disorders (OUD). This research was national in scope and found that the capacity to provide methadone was lower in counties with more racial segregation.[2] Given these findings, the Minnesota Behavioral Health Division, Department of Human Services (DHS), requested a state-based analysis of access to MAT services. This analysis will increase the Department's understanding of the role that MAT provider distribution may have on access to this service for Medicaid enrollees under the 1115 Substance Use Disorder (SUD) System Reform Demonstration.[3]

Background

Opioid Use Disorder in the United States

Prevalence. According to the National Survey on Drug Use and Health (NSDUH), in 2018, 3.7 percent of all Americans age 12 and older had misused opioids in the past year.[4] OUD is caused by the misuse and/or addiction to opioids, the class of drugs that includes prescription pain relievers, heroin, and synthetic opioids such as fentanyl. The associated national public health crisis emerged about 15 years after physicians increasingly prescribed prescription opioid pain relievers believing they were not addictive.[5] Almost a third of patients prescribed opioids misuse them and, of those who do, between 8 and 12 percent develop OUD.[6] The OUD crisis has led to a dramatic increase in overdose deaths over the past 10 years with a continued rise in

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[1] Minnesota Department of Health. Deaths by Race Opioids Overdose Dashboard Data, July 17, 2020, pp. 2-3. Accessed at https://www.health.state.mn.us/communities/opioids/documents/opioiddashboarddata.pdf

[2] Goedel WC, Shapiro A, Cerdá M, Tsai JW, Hadland SE, Marshall BDL. Association of racial/ethnic segregation with treatment capacity for opioid use disorder in counties in the United States. *JAMA Network Open*. 2020;3(4):e203711. doi:10.1001/jamanetworkopen.2020.3711

[3] See Appendix 1 for more details on the Minnesota 1115 Substance Use Disorder System Reform Demonstration.

[4] Center for Behavioral Health Statistics and Quality. National Survey on Drug Use and Health: Detailed Tables. Table 1.93B Misuse of Opioids in Past Year among Persons Aged 12 or Older. Rockville, MD: Substance Abuse and Mental Health Services Administration; June 2020.

[5] Van Zee A. The promotion and marketing of oxycontin: commercial triumph, public health tragedy. *American Journal of Public Health*. 2009;99(2):221-227. doi:10.2105/AJPH.2007.131714

[6] National Institute on Drug Abuse. Opioid Overdose Crisis. May 27, 2020. https://www.drugabuse.gov/drug-topics/opioids/opioid-overdose-crisis

overdose deaths involving synthetic opioids other than methadone (e.g., fentanyl). There was an increase of 10 percent nationally, from 9.0 in 2017 to 9.9 in 2018.[7]

Disparities. In 2018, disparities in drug overdose mortality in the United States were observed between American Indians, Blacks, and Whites. Although deaths attributable to synthetic opioids were the leading cause of overdose deaths from 2017-2019 across all races and ethnicities, more Blacks and American Indians died from synthetic opioids, at 64 percent of deaths, as compared to Whites at 53 percent.[22]

Federal Regulation of Opioid Use Disorder Treatment

Treatment for OUD is regulated by two major pieces of federal legislation:

- **Drug Addiction Treatment Act (DATA) of 2000.** This law allowed certain practitioners to apply for a waiver to prescribe buprenorphine for MAT (hereafter "prescribers"). Prescribers complete a training course (between 8 and 24 hours, depending on prescriber type), and submit an application with their credentials to the Drug Enforcement Administration. The number of these prescribers that prescribe buprenorphine has increased significantly, likely driven by state and federal policy changes created with this intention.[8]
- **Controlled Substances Act (CSA).** This law regulates the prescription and use of certain substances. There are three medications approved for MAT for opioid use disorder: methadone, buprenorphine, and naltrexone. Methadone is a Schedule II controlled substance under the CSA, a designation that indicates a high risk of abuse, and therefore its dispensation is generally limited to opioid treatment programs (OTP). Buprenorphine is a Schedule III controlled substance, considered to be a lower risk of abuse than methadone, and therefore can be administered within an OTP or prescribed by a prescriber with a DATA-2000 waiver and dispensed in a physician's office, clinic, or licensed pharmacy. Naltrexone is not a controlled substance under the CSA.
- **Use of MAT.** As noted under the CSA description above, there are three medications approved for MAT for OUD treatment: methadone, buprenorphine, and naltrexone, which vary in their regulatory oversight. Despite the recent increase in OUD, the number of OTPs in the United States has remained relatively stable since 2003. However, the number of prescribers with a DATA-2000 waiver that prescribe buprenorphine has increased significantly. This may be partly due to the lower risk of abuse with buprenorphine relative to methadone, and thus buprenorphine maintenance can be prescribed

[7] Hedegaard H, Minino A, Warner M. Drug Overdose Deaths in the United States, 1999–2018 National Center for Health Statistics Data Brief, No. 365, January 2020. https://www.cdc.gov/nchs/data/databriefs/db356-h.pdf

[8] Recent acts include the Substance Use Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities or SUPPORT for Patients and Communities Act of 2018 (SUPPORT Act) and the Comprehensive Addiction and Recovery Act of 2016 (CARA).

with fewer clinical visits, compared to methadone maintenance, which requires daily or near daily clinic visits.[9,10]

According to the 2019 NSDUH, only 18.1 percent of persons with an OUD received MAT for opioid addiction.[11] Nonetheless, during the opioid crisis of the last decade, the use of MAT for OUD among persons with Medicaid coverage has expanded rapidly. The number of Medicaid-covered prescriptions for buprenorphine prescriptions for OUD increased over five times between 2013 and 2018, from 1.8 million to 6.5 million.[12]

Opioid Use Disorder in Minnesota

Prevalence. As noted above, approximately 3.7 percent of the population in the United States is estimated to have an OUD.[13] If this trend holds in Minnesota, approximately 209,000 Minnesotans have an OUD. In addition, a recent analysis of several states Medicaid population estimates that the Medicaid population's OUD prevalence may be around 5 percent.[14] With approximately 1.1 million individuals enrolled in Minnesota's Medicaid program (about 20 percent of the state's total population), there may be about 55,000 Medicaid enrollees[15] in Minnesota who also have an OUD.[16]

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[9] United States Government Accountability Office. Opioid Addiction: Laws, Regulations, and Other Factors Can Affect Medication-Assisted Treatment Access. GAO-16-833, a report to the Majority Leader, U.S. Senate. September 2016.

[10] King JB, Sainski-Nguyen AM, Bellows BK. Office-based buprenorphine versus clinic-based methadone: a cost-effectiveness analysis. *Journal of Pain & Palliative Care Pharmacotherapy*. 2016;30(1):55-65. doi:10.3109/15360288.2015.1135847

[11] Substance Abuse and Mental Health Services Administration. Key Substance Use and Mental Health Indicators in the United States: Results from the 2019 National Survey on Drug Use and Health (HHS Publication No. PEP20-07-01-001, NSDUH Series H-55). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, 2020. p. 59. https://www.samhsa.gov/data/

[12] Urban Institute Health Policy Center. Tracking Medicaid-Covered Prescriptions to Treat Opioid Use Disorder. August 2020. https://www.urban.org/policy-centers/health-policy-center/projects/tracking-medicaid-covered-prescriptions-treat-opioid-use-disorder

[13] Center for Behavioral Health Statistics and Quality. National Survey on Drug Use and Health: Detailed Tables. Table 1.93B Misuse of Opioids in Past Year among Persons Aged 12 or Older. Rockville, MD: Substance Abuse and Mental Health Services Administration; June 2020.

[14] This was a study of six states and did not include Minnesota. Donohue J, Cunningham P, Walker L, Garfield R. Opioid Use Disorder among Medicaid Enrollees: Snapshot of the Epidemic and State Responses. November 2019. http://files.kff.org/attachment/Issue-Brief-Opioid-Use-Disorder-among-Medicaid-Enrollees

[15] This estimate only applies to the Medicaid population, and does include the Consolidated Chemical Dependency Treatment Fund.

[16] Minnesota Department of Human Services. Who Medicaid and MinnesotaCare Serve. https://mn.gov/dhs/medicaid-matters/who-medicaid-and-minnesotacare-serves/#:~:text=Average%20monthly%20enrollment%20in%20Minnesota's,a%20million%20children%20each%20year

Treatment. As described above, MAT with buprenorphine occurs mainly through office-based prescribing, while methadone treatment is given in an outpatient basis at clinics.[17] Results from the 2019 National Survey of Substance Abuse Treatment Services showed that 6,868 Minnesotans received outpatient methadone/buprenorphine maintenance or naltrexone treatment in 64 facilities providing this type of care, or about 16 percent of the 403 facilities in the state that completed the survey.[18]

In Minnesota, recent trends showed improvements in fatal drug overdoses, with deaths dropping 17 percent from 733 in 2017 to 607 in 2018. This decrease was primarily driven by decreases in deaths from both heroin and prescription opioids. However, overdose rates remained high, and between 2016 and 2019, the annual number of emergency room visits for opioid-involved overdoses increased from 1,618 to 2,823, a 74 percent increase over this three-year period.[19]

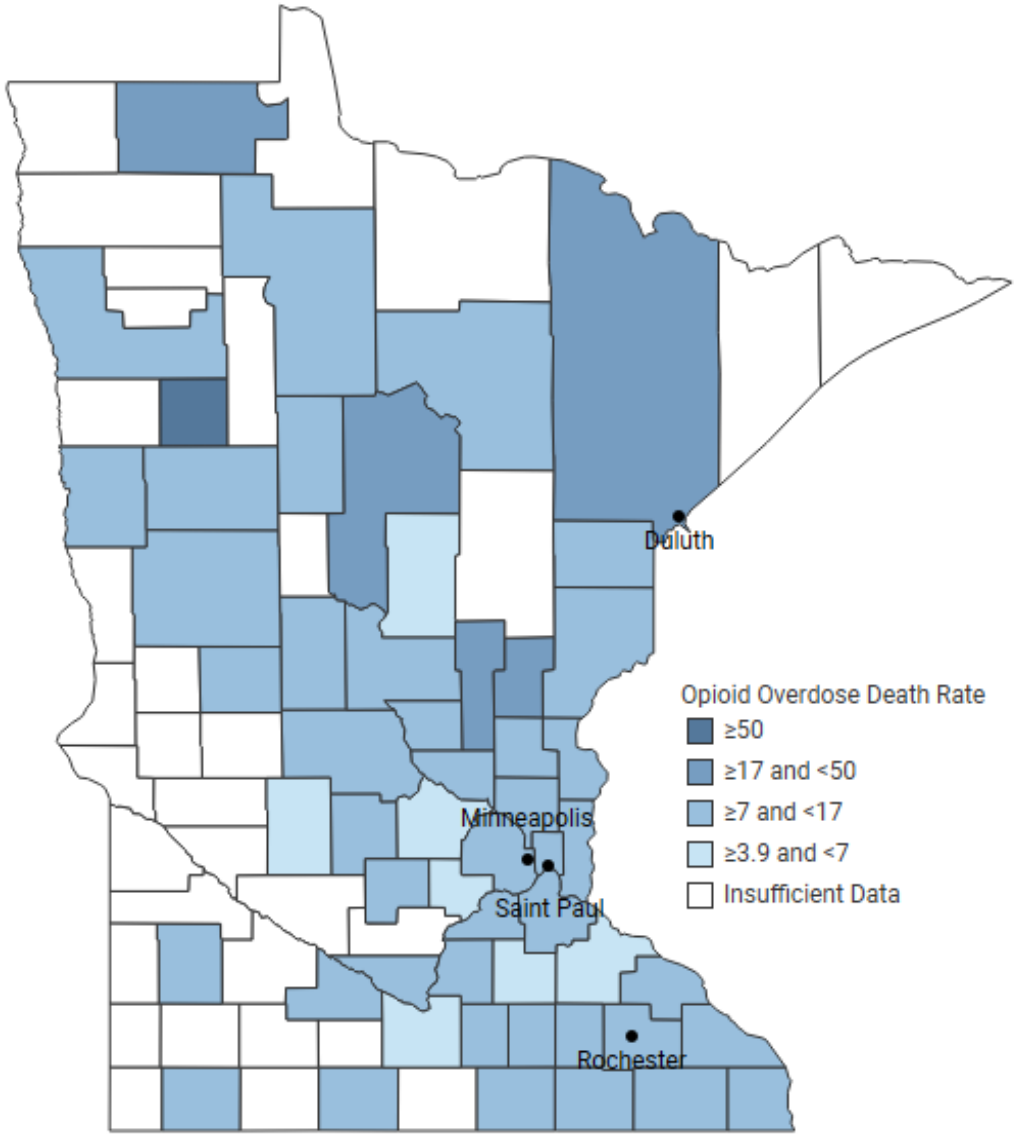
Exhibit 1 below shows the variation by county in the rate of opioid overdose deaths. The state average rate is 9.9 deaths per 100,000 across 54 reporting counties, with a range of 3.9 in Blue Earth County to 64.8 in Mahnomen County. As depicted on the map, there are 47 counties in Minnesota with opioid overdose death rates above 7 per 100,000 and 6 counties with rates above 17 per 100,000.

[17] The forthcoming Provider Capacity Assessment will examine the number of individuals treated, and the number of MAT services rendered in an office-based or outpatient setting.

[18] Data include all payers, not only Medicaid. National Survey of Substance Abuse Treatment Services (N-SSATS), published September 2020. N-SSATS Profile — Minnesota 2019. SAMHSA reports that 93.8 percent of Minnesota treatment providers responded to the survey. https://www.samhsa.gov/data/report/2019-n-ssats-state-profiles

[19] Minnesota Department of Health Opioids Overdose Dashboard Data. July 17, 2020. https://www.health.state.mn.us/opioiddashboard

Exhibit 1: Opioid Overdose Deaths in Minnesota



Notes: Death Rate per 100,000 population. Data are available for 53 out of 87 Counties. Source: CDC National Center for Health Statistics (NCHS) National Vital Statistics System (NVSS) Multiple Cause of Death File– Multiple cause of death data, 2014-2018. See Exhibit 3.10 for more information.

Disparities. Among White, Black, and American Indian populations, opioids are the leading cause of drug overdose death. Across all U.S. states, White Medicaid enrollees have the highest rate of OUD compared to other racial and ethnic groups, but they are also more likely to receive MAT.[20] In Minnesota, Black and American Indian populations are dying from drug overdose deaths at rates of two and seven times that of White Minnesotans, respectively.[21] In Minnesota, between 2004 and 2019, the rate of deaths per 100,000 population from synthetic opioids increased 11.4 times among Whites, 23 times among Blacks, and 29 times among American Indians.[22]

Use of MAT. In 2018, Minnesota's Opioid Action Plan acknowledged that access to OUD treatments in Minnesota—including MAT—has not kept up with the demand.[23] And the Plan articulated new investments through state monies and federal grants to expand access to MAT.[24] Minnesota is ranked 31st for OUD among its Medicaid population, and 35th among prescriptions for MAT per 1,000 Medicaid enrollees age 12 and over.[25,26,27]

The following sections illustrate that potential disparities in capacity to provide MAT services may exist in Minnesota.[28] This analysis identifies where providers that administer MAT are located in relation to the race and ethnicity of the populations that may need this treatment.[29] For a full list of research questions, see Appendix 1 at the end of this report.

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[20] Opioid Use Disorder among Medicaid Enrollees: Snapshot of the Epidemic and State Responses. Issue brief. Kaiser Family Foundation, 2019.

[21] The Black population includes U.S.-born and African-born decedents. https://www.health.state.mn.us/communities/opioids/data/racedisparity.html

[22] DeLaquil M. Differences in Rates of Drug Overdose Deaths by Race. Minnesota Department of Health, 2020. https://www.health.state.mn.us/communities/opioids/documents/raceratedisparity2019prelimfinal.pdf

[23] Minnesota Department of Human Services. Minnesota State Targeted Response to the Opioid Crisis. April 2017. https://mn.gov/dhs/assets/mn-opioid-str-project-narrative-april-2017_tcm1053-289624.pdf

[24] State of Minnesota. Minnesota Opioid Action Plan. 2018. https://www.mn.gov/gov-stat/pdf/2018_02_14_Minnesota_Opioid_Action_Plan.pdf

[25] Clemans-Cope L, et al. State Variation in Medicaid Prescriptions for Opioid Use Disorder from 2011 to 2018. August 2019. Accessed at: https://www.urban.org/sites/default/files/publication/100817/2019.08.19_av_state_medicaid_rx_oud_final_v3_1.pdf

[26] Medicaid. June 2020 Medicaid & CHIP Enrollment Data Highlights. https://www.medicaid.gov/medicaid/program-information/medicaid-and-chip-enrollment-data/report-highlights/index.html

[27] Substance Abuse and Mental Health Services Administration. 2017-2018 NSDUH Estimated Totals by State. February 2020. Accessed at: https://www.samhsa.gov/data/report/2017-2018-nsduh-estimated-totals-state

[28] This only includes any form of buprenorphine and naltrexone and methadone, not other types of services (e.g., counseling).

[29] Appendix 2 provides additional information on the research questions and data sources.

Methods

This analysis uses several analytic methods to examine the disparities in MAT prescribing and to understand where resources can be used to increase capacity for MAT services.

In order to ascertain how the populations of these geographic areas differ by race and ethnicity, we assess population variation at the census tract level. This paper builds on the method introduced by Goedel et al., by constructing measures of dissimilarity at the census tract level for the Black, Hispanic, and American Indian populations.[2,30] Dissimilarity measures, or the segregation index (SI), are the percentage of a group's population that would have to change residence for each neighborhood to have the same percentage of that group as the overall percentage in the county. The index ranges from 0.0 (complete integration) to 1.0 (complete segregation).[31] We use the term "segregation index" or "SI" when referring to dissimilarity in this analysis.

We then created quintiles by dividing the counties into five groups, according to the value of their SI. Counties were thus assigned to a quintile value of 1 to 5, where a "1" indicates the lowest 20 percent of all counties with respect to SI value, or the least amount of segregation, and "5" indicates that the county was in the top 20 percent of all counties with regard to segregation. See Appendix 2 for additional information on the methods used for this report.

Note that because the SI is constructed by comparing tracts *within* a county, counties that may have similar proportions of each race/ethnic group can have different SI scores. This outcome would occur because groups are distributed differently within each county. See Appendix Exhibit 3.6 for the proportion of each race/ethnicity, by SI quintile.

Data Sources

This analysis used Drug Enforcement Administration (DEA) data to identify all prescribers in Minnesota (i.e., all practitioners that had a DATA-2000 waiver).[32] The use of DEA data is preferable to the use of Substance Abuse and Mental Health Services Administration (SAMHSA) treatment locator data because prescribers do not always report their waiver status to SAMHSA, whereas DEA registration is mandatory.

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[30] In this report, NORC uses the term "American Indian," however Native American or Alaskan Native is the census categorization. Using census and enrollment data, it was not possible to use specific Tribal names, although we recognize distinct Tribes exist within this broad group.

[31] United States Census Bureau. Appendix B: Measures of Residential Segregation. December 2016. https://www.census.gov/topics/housing/housing-patterns/guidance/appendix-b.html

[32] Drug Enforcement Administration. DEA Registration Record Layout. October 2019. https://dea.ntis.gov/recordlayout.pdf

To identify *active* prescribers (those prescribers who are prescribing to Medicaid enrollees), we used two types of claims and encounter data:

1. prescription pharmacy and outpatient claims/encounter data for buprenorphine with or without naltrexone
2. outpatient claims/encounter data from OTP for methadone[33]

For the purposes of this paper, we refer to individuals found in the DEA data as "prescribers" and individuals found in the Minnesota DHS data as "active prescribers."

Medicaid enrollment data were used to determine the ratio of enrollees to the number of prescribers in each county, and the ratio of enrollees to the number of actual prescribers (in the claims data).[34] Note that in constructing the enrollee-to-provider ratios, counties where there are no prescribers cannot be included, since the ratio cannot be calculated. Using the inverse, the number of active prescribers per enrollees would prevent this, but could overstate the number of enrollees in a county.

The DEA data cover all prescribers with waivers as of March 30, 2020, whereas the Minnesota DHS data are from July 1, 2018 to June 30, 2019.[35] While there is a lag between the claims/encounter and DEA, the time gap is small, and valid comparisons between the two datasets can be made.[36]

As mentioned above, we used the most recent five-year average (2014-2018) census tract and county data from the American Community Survey to construct the SI.

Additional information on the data sources, as well as other potential limitations, can be found in Appendix 2.

Findings

The following sections describe the findings related to the capacity to provide MAT services in Minnesota. Findings include the number of prescribers available to prescribe MAT (active and not active), how the number corresponds with enrollees in Medicaid, how the number of prescribers varies by county-level segregation, and distance of Medicaid enrollees to a MAT prescriber.

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[33] There are 16 methadone providers in Minnesota, two of which (Mercy Hospital Unity Campus in Fridley and St. Joseph's Hospital Chemical Dependency Program in St. Paul) are residential programs in hospitals). This assessment did not include claims from these providers since these services would be part of per diem payments. The Minneapolis VA Health Care System also provides a Methadone Maintenance Program but does not serve Medicaid enrollees.

[34] Appendix 2 provides additional information on the methods used to conduct this analysis.

[35] Data reflect time July 1, 2018 through June 30, 2019. Since then, St. Joseph in Ramsey County has closed.

[36] Treatments provided by the Minneapolis VA Health Care System Addictive Disorders Services are not included in the claims data and are therefore excluded from the analysis.

All Minnesota Prescribers

The following section uses DEA data to identify how many prescribers in Minnesota obtained a DATA-2000 waiver.

Number and type of prescribers

There are 1,195 prescribers in Minnesota with a county average of one prescriber per 1,759 enrollees.[37] The two largest counties—Hennepin and Ramsey—account for over half of all prescribers in the state (676 prescribers). When those counties are removed, the average decreases to six prescribers per county. The majority of prescribers are medical doctors (73 percent), and nurse practitioners are the second most common (21 percent); the remaining prescribers are physician assistants.

Prescribers in Minnesota have the capacity to treat 60,875 Minnesotans.[38] Each prescriber is approved to treat 30 patients initially, and then certain practitioners can increase their capacity up to 100 or 275 patients, depending on their professional license. As shown in Exhibit 2, the majority of prescribers are limited to providing MAT to 30 patients. Exhibit 2 reports the total number, average, and range of prescribers in Minnesota with waivers of each capacity type. See Appendix 3 for county-specific details.

Exhibit 2: Number of Prescribers in Minnesota, by Patient Limit and Practitioner Type

	Total Number of Prescribers	Total Number of Counties with Prescribers*	County-Level Average Number of Prescribers	County-Level Range Number of Prescribers
Patient Limit Level				
Patient Limit = 30	945	55	10.9	0-371
Patient Limit = 100	207	27	2.4	0-93
Patient Limit = 275	43	12	0.5	0-19
Type of Prescriber				
Medical Doctor	877	54	10.1	0-378
Nurse Practitioner	252	41	2.9	0-82
Physician Assistant	66	15	0.8	0-23
Overall	1,195	57	13.7	0-483

Notes: DEA data as of March 2020. *Minnesota has 87 counties; 57 have at least one prescriber with DATA-2000 waiver. This table includes all counties, even those without a prescriber. The ratio of 1:1,240 is the total number of prescribers divided by the total number of Medicaid enrollees as of June 30, 2019. See Appendix 4 for county-specific totals of each type.

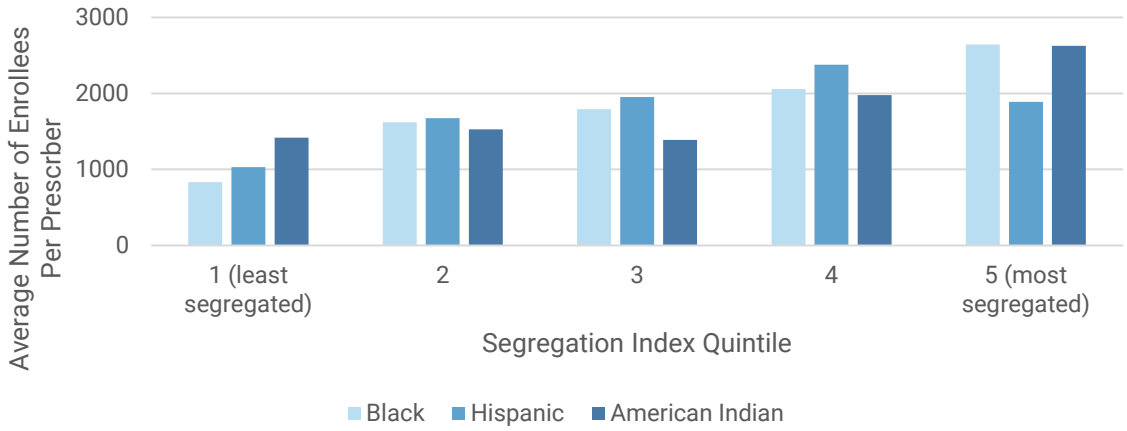
Counties with more segregation had larger enrollee-to-provider ratios when compared to less segregated counties. This outcome means there are fewer prescribers to serve enrollees in counties with more segregation.

[37] The average was calculated with all counties, including those counties without a prescriber. This calculation used the DATA-waived prescribers with data from the DEA. The term "prescriber" refers to DATA-waived practitioners.

[38] This is calculated by multiplying the number of practitioners with each patient limit by the maximum patient limit.

As described above, each of Minnesota's 87 counties was grouped into one of five groups (quintiles) depending on the county's level of segregation for three different groups—Black, Hispanic, and American Indian. Exhibit 3 depicts the number of Medicaid enrollees per provider by county-level segregation and racial and ethnic group. As shown below, counties with the highest level of Black and American Indian segregation had the largest number of enrollees per prescriber. This is significantly different from those counties with the lowest levels of segregation.[39]

Exhibit 3: Average Number of Medicaid Enrollees per Prescriber, by Level of Segregation



Note: Quintile 1 of the Segregation Index represents the least segregated while Quintile 5 represents the most segregated. Source: DEA data as of March 2020 includes all prescribers; Medicaid Enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

Prescribers working with a peer prescriber

Prescribers may be more likely to prescribe when they have mentorship or peer support in the provision of MAT, including a worksite colleague who also prescribes buprenorphine.[40,41] In this study, we refer to that prescriber as a "peer prescriber." Exhibit 4 below shows results from an analysis of DEA data on the average number of prescribers that work at the same facility.

Across all counties, the average number of prescribers that work at the same facility is 1.7, indicating that most prescribers work in a facility where there are less than two prescribers, i.e., the average prescriber lacks

[39] In Appendix 3, we show the county average percent of population for each race/ethnicity as well as the value of the segregation index for each quintile. Counties with greater segregation did not tend to have more or less of any type of prescriber (MD, NP, PA) or significant variation in practitioner with different patient limits.

[40] Haffajee RL, Bohnert AS, Lagisetty PA. Policy pathways to address provider workforce barriers to buprenorphine treatment. *American Journal of Preventive Medicine*, 2018;54(6):S230-S242.

[41] Madden EF. Intervention stigma: How medication-assisted treatment marginalizes patients and providers. *Social Science & Medicine*, 2019;232:324-331.

a peer prescriber. Counties that have a higher proportion of Black residents are more likely to have a peer prescriber. However, counties with a high proportion of Hispanic and American Indian populations tend to have prescribers who lack at least one peer prescriber. This finding suggests that practice patterns may also influence access to MAT at the county level. Further research should analyze individual prescribing patterns.

Exhibit 4: Average Number of Prescribers per Facility, Overall and by County

	Average Number of Prescribers per Facility	Standard Deviation of Prescribers per Facility	Range of Prescribers per Facility
Counties with Average Proportion, by subpopulation			
Black (N=76)	0.8	1.7	0-13
Hispanic (N=81)	1.9	5.4	0-39
American Indian (N=81)	1.8	5.4	0-39
Counties with Higher than Average Proportion, by subpopulation			
Black (N=11)	8.5	12.4	0-39
Hispanic (N=6)	0	NA	NA
American Indian (N=6)	0.8	1.2	0-3
Overall	1.7	5.2	0-39

Notes: **N = Number of applicable counties.** County-level number of prescribers registered with DEA, grouped by address. Source: DEA data as of March 2020; Medicaid Claims/encounter data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018. Counties are considered to have higher than average populations of marginalized groups if the group's population is greater than or equal to the average population of such groups plus 1 standard deviation.

Active Minnesota Medicaid Prescribers

The following section uses Medicaid claims/encounter, enrollment, and DEA data to identify how many prescribers in Minnesota are actively prescribing to Medicaid patients.

Number of active Medicaid prescribers

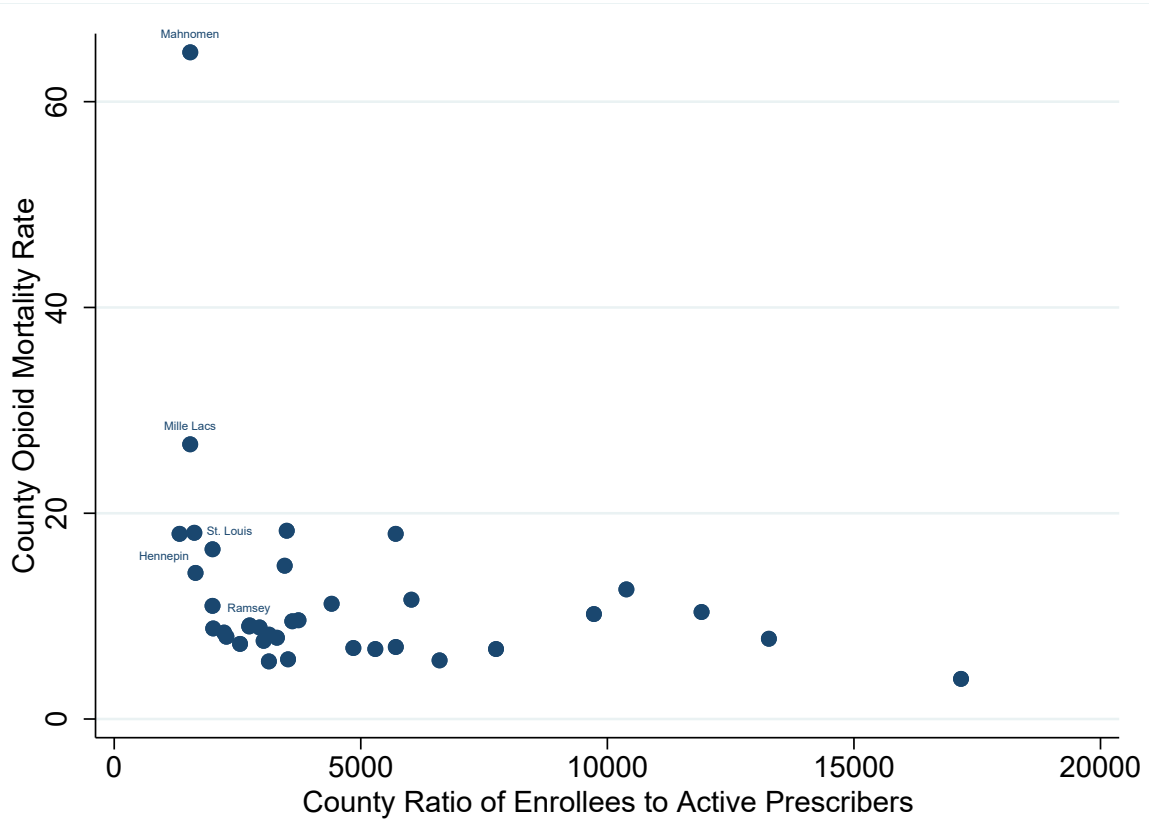
Of the 1,195 prescribers able to prescribe in Minnesota, less than half of prescribers (513) had prescribed MAT to Medicaid enrollees (between July 1, 2018 and June 30, 2019). This finding is consistent with prior national studies that have reported between 44 and 66 percent of registered prescribers actually prescribe buprenorphine.[42]

There is some observable positive correlation between active prescribers and opioid mortality rate, such that prescribers were more likely to be in counties with a higher opioid mortality rate. However, among counties

[42] Jones CM, Campopiano M, Baldwin G, McCance-Katz E. National and state treatment need and capacity for opioid agonist medication-assisted treatment, *American Journal of Public Health*. 2015 Aug;105(8):e55–e63. doi:10.2105/AJPH.2015.302664

with an active prescriber, there was no significant association between the opioid mortality rate and the enrollee-to-prescriber ratio (Exhibit 5).[43]

Exhibit 5: Opioid Overdose Death Rate and Ratio of Medicaid Enrollees per Active Prescriber



Notes: Medicaid Claims/encounter data July 1, 2018 to June 30, 2019; Death Rate per 100,000 population. Data are available for 54 out of 87 Counties. Source: CDC National Center for Health Statistics (NCHS) National Vital Statistics System (NVSS) Multiple Cause of Death File– Multiple cause of death data, 2014-2018.

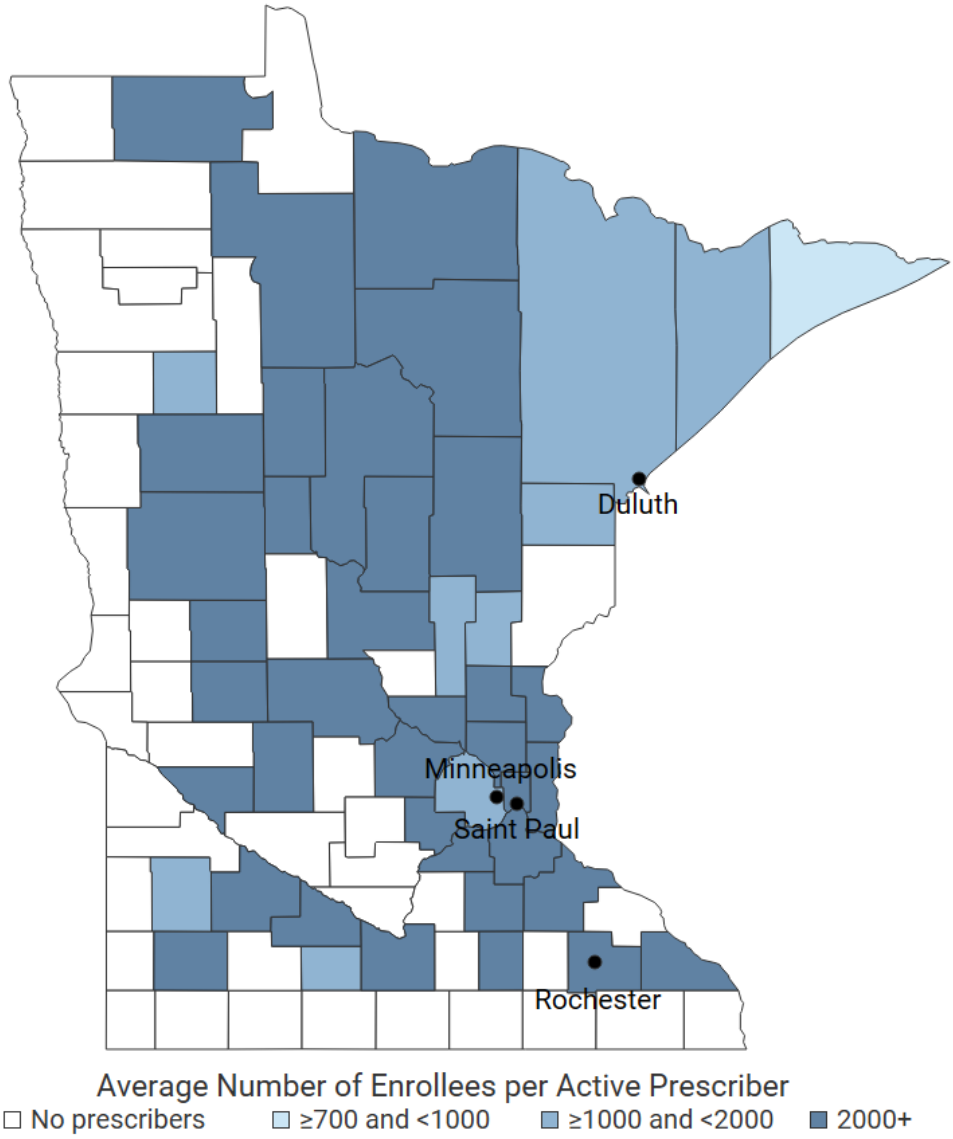
Variation in number of Medicaid enrollees per active prescribers

Of counties with active prescribers, there is an average of one active prescriber per 4,265 enrollees. In 30 out of Minnesota's 87 counties, there is no prescriber, and in an additional 11 counties, there is no active prescriber. In total, 41 counties do not have any capacity, and 200,000 Medicaid enrollees lack a prescriber in their home

[43] A bivariate regression of the opioid overdose mortality rate on the county-level active prescriber per 10,000 enrollees showed a significant positive association at p<.05, suggesting active prescribers are more likely to be in counties with higher overdose rates. However, the enrollee-to-prescriber ratio did not significantly vary (at p<.05) by opioid mortality rate.

county. Exhibit 6 shows the county-level variation in the ratio of active prescribers who have written prescriptions for buprenorphine. See Appendix Exhibit 3.3 for details.

Exhibit 6: Ratio of Medicaid Enrollees to Active Prescribers for Buprenorphine, by County



Source: Medicaid Claims/encounter and enrollment data July 1, 2018 to June 30, 2019. See Exhibit 3.10 for more information.

There was no significant difference in segregation index values between counties with or without an active prescriber. Said differently, counties that had at least one active prescriber had similar levels of segregation compared to counties without an active prescriber. This finding was true for Black, Hispanic, and American

Indian segregation indices, respectively.[44] Exhibit 7 below provides the SI values, with values closer to 0 being the most integrated, for counties with and without at least one active prescriber. For more information, see Appendix Exhibit 3.5.

Exhibit 7: County-Level Segregation Index, for Counties with No and Any Active Prescriber

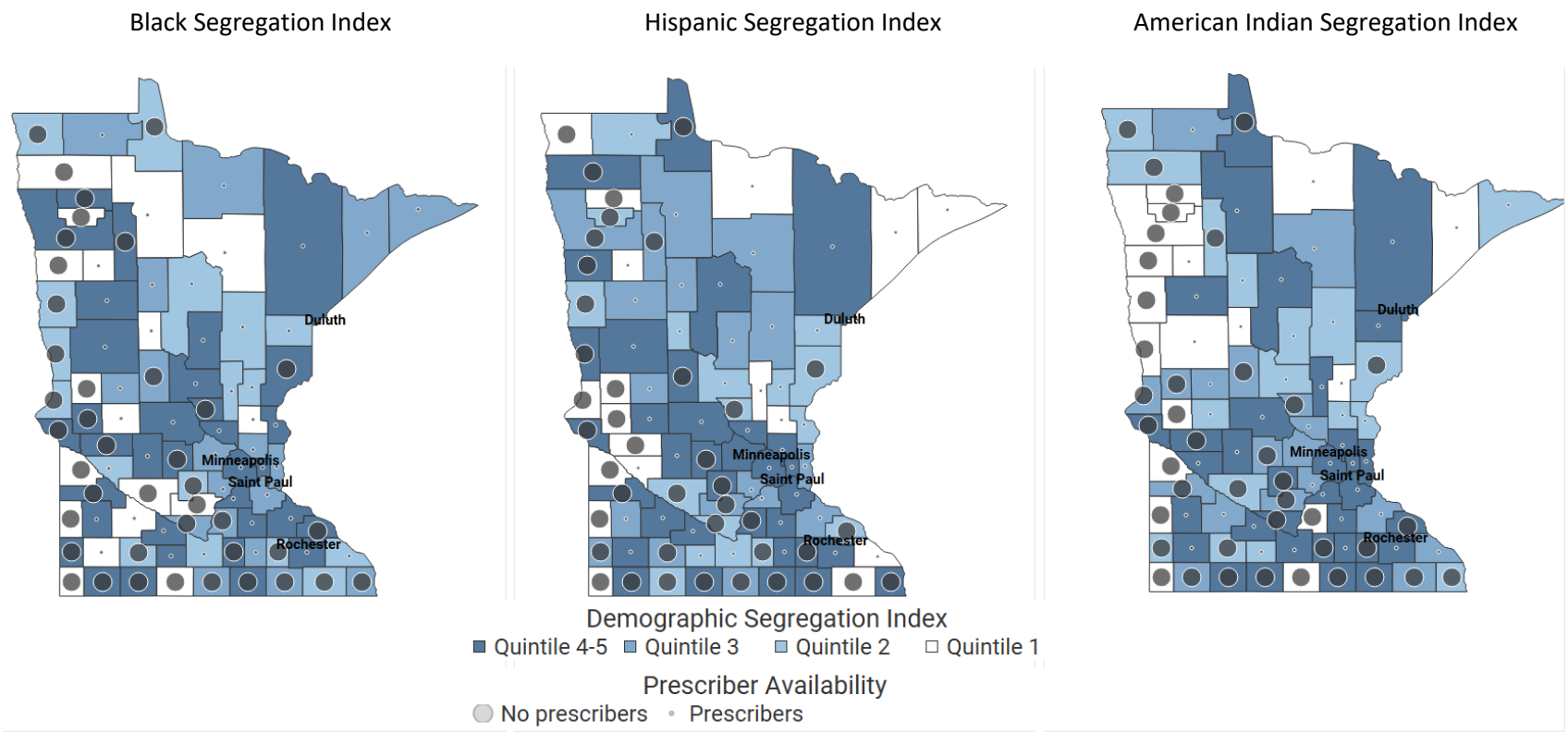
	Segregation Index Value		
County Category	Black	Hispanic	American Indian
No Prescribers (N=41)	0.420	0.300	0.445
Any Prescribers (N=46)	0.424	0.302	0.505
Overall County Average	0.422	0.301	0.477

Notes: Segregation Index values that are closer to 0 reflect that the census tracts in a county have proportions of each race/ethnic group that are about the same as the entire county (more integrated), while values that approach 1 indicate that tracts contain only members of 1 group. Source: Medicaid claims/encounter data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

As shown in Exhibit 8, counties with both high and low levels of segregation had similar numbers of prescribers. As a result, there appears to be no relationship between level of segregation and provider availability within a given county. In Exhibit 8, the SI (by quintile) for Black, Hispanic, and American Indian populations provides the backdrop for the dots indicating prescriber availability. Large dots correspond to counties that do not contain prescribers, small dots correspond to counties that do contain prescribers. When prescribers are not available, the dot is larger.

[44] At p<.05

Exhibit 8: Map of Prescriber Availability by Segregation Index

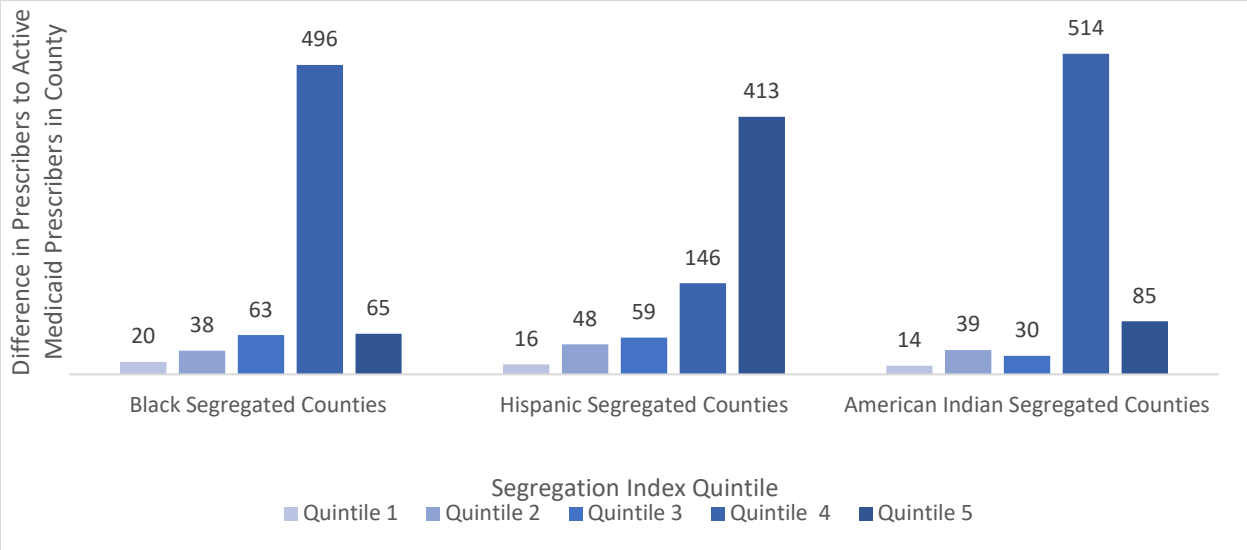


Notes: The Segregation Index (SI) is calculated as the proportion of Black, Hispanic, and American Indian residents who would need to move census tracts so that the county has a uniform distribution of the population by race/ethnicity (Goedel et al., 2020). Source: United States Census data, 2014-2018; Medicaid Claims/encounter data July 1, 2018 to June 30, 2019. See Exhibit 3.10 for more information.

Variation in inactive to active prescribers by segregation level

The difference between total prescribers and active Medicaid prescribers is larger in counties with greater segregation, suggesting there may be barriers to prescribing in these counties. Exhibit 9 shows the difference in the number of prescribers that are capable of prescribing, compared to the number of prescribers that actually prescribed to Medicaid enrollees, for each level of segregation. For example, in the least-segregated counties, the difference between inactive and active prescribers is between 14 (for American Indian least-segregated counties) and 20 (for Black least-segregated counties), while in the most-segregated counties, the difference is between 65 (for Black most-segregated counties) and 413 providers (for Hispanic most-segregated counties). Similarly, for each population there exists a larger difference in the number of prescribers (all and active Medicaid prescribers) for counties that are more segregated compared to less-segregated counties. For example, in American Indian counties, those with lower levels of segregation have a smaller difference in prescribers available than in counties with higher levels of segregation. The difference in Quintile 1 is 14 prescribers, while the difference in Quintile 5 is 85 prescribers. While the difference at the top quintile (most segregated) is lower than the fourth quintile for Black and American Indian populations, the difference is still larger than that of the lowest two quintiles.

Exhibit 9: Difference in the Number of Prescribers and the Number of Active Medicaid Prescribers, by Quintile of County-Level Segregation



Note: Quintile 1 of the segregation Index represents the least segregated while Quintile 5 represents the most segregated. Source: DEA data as of March 2020; Medicaid claims/encounter data July 1, 2018 to June 30, 2019; American Community Survey 2014-2018.

Distance from Medicaid enrollees to an active prescriber

The average distance to the nearest active prescriber is around six miles in a straight line, with a range up to 92.5 miles. This finding indicates that, in general, prescribers are not geographically far from where many enrollees live. There are significant differences in distances by race/ethnicity of the enrollees (Exhibit 10a). On

average, Black enrollees are located in neighborhoods closer to an active prescriber compared to all other race/ethnicities, while Hispanic enrollees are closer to an active prescriber compared to White and American Indian enrollees. American Indian enrollees live in zip codes farthest from an active prescriber compared to the average enrollee. See Appendix Exhibits 3.7-3.9 for additional results.

While the average distance to the nearest active prescriber varies by race/ethnicity, there is not a clear relationship between the SI and distance, meaning that distance is not greater with an increasing level of segregation (Exhibit 10b). For example, among Black and Hispanic enrollees, those in more-segregated neighborhoods are significantly closer to the nearest prescriber than those in least-segregated communities. The largest differences in distance are among the levels of the SI for American Indian enrollees, and communities where there is more segregation generally have shorter distances to the nearest active prescriber.

Exhibit 10a: Average Distance between Medicaid Enrollee and Nearest Buprenorphine Prescriber, Overall and by Enrollee Race/Ethnicity

	Overall County Average Distance	Standard Deviation in Distance	Range in Distance
Enrollee Race or Ethnicity	**Miles**	**Miles**	**Miles**
Black	1.8*	6.7	0 - 92.5
Hispanic	6.1*	12.1	0 - 92.5
American Indian	9.3*	13.1	0 - 88.6
White	7.8	12.1	0 - 92.5
Overall	5.8	11.1	0 - 92.5

Notes: This distance was calculated between enrollee ZIP code and the nearest active buprenorphine prescriber ZIP code centroids. The distance of 0 miles indicates both enrollee and prescriber are in the same ZIP code. Source: Medicaid enrollment data and prescribing physicians. * indicates significantly different from White enrollees at p<.05. Source: Medicaid claims/encounter and enrollment data July 1, 2018 to June 30, 2019

Exhibit 10b: Average Distance between Medicaid Enrollee and Nearest Buprenorphine Prescriber, by County Segregation Index Quintile

	Quintile 1 Average (SD)	Quintile 2 Average (SD)	Quintile 3 Average (SD)	Quintile 4 Average (SD)	Quintile 5 Average (SD)
Enrollee Race or Ethnicity	**Miles**	**Miles**	**Miles**	**Miles**	**Miles**
Black	13.4 (15.2)	14.2 (14.8)*	4.9 (8.7) *	3.3 (9.4) *	8.8 (10.5) *
Hispanic	14.9 (17.5)	12.9 (13.1)*	9.7 (14.1)*	4.5 (7.8)*	3.0 (8.5)*
American Indian	25.1 (19.4)	12.5 (14.1)*	8.5 (9.9)*	2.6 (6.6)*	5.2 (9.0)*

Notes: This distance was calculated between enrollee ZIP code and the nearest active buprenorphine prescriber ZIP code centroids. The distance of 0 miles indicates both enrollee and prescriber are in the same ZIP code. Source: Medicaid enrollment data and prescribing physicians. * indicates significantly different from the lowest quintile in each segregation index at p<.05. Source: Medicaid claims/encounter and enrollment data July 1, 2018 to June 30, 2019

Methadone Opioid Treatment Programs in Minnesota

Methadone can only be administered or dispensed at an OTP. **There are 16 OTPs in Minnesota, located in nine counties, and 78 counties do not have an OTP provider (Exhibit 11).** In addition, nine of the 16 OTPs are located in Hennepin and Ramsey counties. There is no consistent association between the number of OTPs and the proportion of each racial and ethnic groups' populations in the county. However, we do find that counties with an OTP have a significantly higher percentage of Black enrollees and a lower percentage of American Indian enrollees, compared to counties without an OTP.

Exhibit 11: Number of Methadone Programs by County, Ratio to Medicaid Enrollees, and County Demographics

	Number of OTPs		Percent of the County in Each Race/Ethnicity			
	Total	Enrollee-to-OTP Ratio	Black (%)	Hispanic (%)	American Indian (%)	White (%)
Anoka	1	83,763	5.8	4.4	0.6	82.0
Crow Wing	1	19,791	0.7	1.4	0.8	95.0
Dakota	1	45,552	5.8	7.0	0.3	79.0
Hennepin	6	57,426	12.9	6.9	0.6	69.2
Olmsted	1	35,633	5.8	4.8	0.2	80.6
Ramsey	3	97,175	11.5	7.5	0.5	62.4
St. Louis	1	56,842	1.5	1.6	1.8	91.2
Stearns	1	43,382	5.8	3.3	0.3	86.9
Washington	1	42,420	4.3	4.0	0.3	83.2
Overall	16	53,554	6.0	4.6	0.6	81.1
	Total Number of Providers					
Counties with an OTP (N=9)	16	53,554	6.0*	4.6	0.6	81.1
Counties without an OTP (N=78)	0	Not applicable	1.2	4.4	2.1	89.4

Notes: Distance was calculated between enrollee ZIP code and the nearest OTP ZIP code centroids. * Indicates significant differences between counties with and without an OTP at p<.05. Source: Medicaid Claims/Encounter and Enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

Distance from Medicaid enrollees to an Outpatient Treatment Program

The average distance to an OTP is 26 miles, but some enrollees would have to travel distances of over 220 miles. Over half of enrollees (55.9 percent) live within 10 miles of an OTP, while about 7 percent live over 100 miles from an OTP. American Indian enrollees live the farthest distance from an OTP, at an average of about 54 miles. Exhibit 12 below shows that the distances vary across enrollee subpopulations, and differences were significantly different (at p<.05). Compared to White enrollees, Black and Hispanic enrollees live in neighborhoods closer to an OTP, while American Indian enrollees live in communities further from an OTP. See Appendix Exhibit 3.8-3.9 for additional details.

Exhibit 12: Average Distance between Medicaid Enrollees and Nearest Opioid Treatment Program (Methadone) Provider, by Enrollee Race/Ethnicity

	Overall County Average Distance	Standard Deviation in Distance	Range in Distance
	Miles	Miles	Miles
Enrollee Race/Ethnicity			
Black	9.28*	22.1	0 - 213
Hispanic	25.7*	39.1	0 - 218
American Indian	53.7*	46.7	0 - 218
White	33.1	39.4	0 - 228
Overall	25.9	37.1	0 - 228

Notes: Distance was calculated between enrollee ZIP code and the nearest OTP ZIP code centroids. * Indicates significant differences between each race/ethnicity and White enrollees at p<.05. Source: Medicaid enrollment data and claims/encounter data July 1, 2018 to June 30, 2019.

Discussion

The findings in this report indicate that MAT availability and capacity in Minnesota are generally consistent with national trends. Our analysis suggests that if all Minnesota prescribers were prescribing to the top of their waiver, there is capacity to treat approximately 61,000 patients (Medicaid and non-Medicaid). The prevalence of OUD among the Medicaid population is estimated to be about 5 percent, which leads us to estimate that there are about 55,000 Medicaid enrollees in Minnesota who also have an OUD.[45] While there is capacity to provide MAT services to about 61,000 Minnesotans, as shown in our analysis, less than half of the eligible prescribers in Minnesota are actively prescribing to Medicaid enrollees. This suggests that the need for MAT services among Medicaid enrollees may exceed the availability of those services. This finding is also consistent with national trends. Additionally, with the exception of the two largest counties (Hennepin and Ramsey), there are few active buprenorphine prescribers in most Minnesota counties. In addition, there are 41 counties—home to about 200,000 Medicaid enrollees—that do not have a prescriber who is writing prescriptions for Medicaid enrollees for buprenorphine (as of June 30, 2019).

The Minnesota DHS has also noted that there may be limited capacity for buprenorphine-waivered prescribers to accept new patients.[46] This analysis found that 80 percent of all DATA-waived practitioners can only provide care for up to 30 patients, the lowest patient limit allowed by the DEA. In addition, there may be other barriers for prescribers to include MAT in their clinical care, such as the availability of a peer in their practice who is also

[45] Minnesota Department of Human Services. Who Medicaid and MinnesotaCare Serve. https://mn.gov/dhs/medicaid-matters/who-medicaid-and-minnesotacare-serves/#:~:text=Average%20monthly%20enrollment%20in%20Minnesota's,a%20million%20children%20each%20year

[46] Minnesota Department of Human Services. Minnesota State Targeted Response to the Opioid Crisis Project Narrative. April 2017. https://mn.gov/dhs/assets/mn-opioid-str-project-narrative-april-2017_tcm1053-289624.pdf

prescribing.[47] Our analysis also found that most facilities do not have at least two prescribers, leaving many prescribers without a peer prescriber in their workplace.

With regard to distance from a prescriber, our analysis found that, on average, enrollees lived about six miles from an active prescriber, indicating that enrollees and prescribers are generally within the same ZIP code. However, we found that there is substantial variation across the state and within communities of color. For example, American Indians tend to live in zip codes farthest from an active prescriber compared to the average enrollee.

The findings in this report do not explain the disparities in death rates among certain populations in Minnesota. We found that the level of segregation within a county is not directly correlated with the number of total prescribers available, the number of active Medicaid prescribers, or the number of enrollees per prescriber. Similarly, we found that while there are few OTPs for methadone administration, the availability of an OTP does not correlate with segregation. Despite this lack of correlation, access to methadone may be limited for some enrollees, with travel distances of over 200 miles to the nearest OTP.

A recent study from the U.S. Department of Health and Human Services Office of Inspector General identified only one county in Minnesota as "high-need" and which may lack adequate capacity.[48] While our analysis examined the number of enrollees per provider, we could not fully assess whether there is capacity at the county level in Minnesota for all persons who may seek treatment. The overall findings from our analysis—an average of one active prescriber for 4,265 Medicaid enrollees—and the county-specific ratios suggest potential areas for further examination of the resources available to encourage prescribing and address potential barriers.

In addition to having a peer prescriber in the same workplace, research suggests that other factors —such as individual training in managing complex patients, clinical staff training around OUD, allowing time to train clinical staff, and adequate reimbursement—can encourage prescribing.[49,50,51,52] A national survey of clinicians who recently obtained their DEA waiver found that many prescribers register with the DEA for a waiver but do

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[47] Jones CM, McCance-Katz EF. Characteristics and prescribing practices of clinicians recently waivered to prescribe buprenorphine for the treatment of opioid use disorder. *Addiction*, 2019;114(3):471-482.

[48] Geographic Disparities Affect Access to Buprenorphine Services for Opioid Use Disorder 10 OEI-12-17-00240 Office of Inspector General, January 2020. In the OIG report, there were three opioid misuse and abuse measures (i.e., drug overdose mortality, nonmedical use of pain relievers, and opioid prescribing). High need was determined based on the distribution of opioid misuse and the county-level patient capacity.

[49] Andrilla CHA, Moore TE, Patterson DG. Overcoming barriers to prescribing buprenorphine for the treatment of opioid use disorder: recommendations from rural physicians: rural physicians' buprenorphine recommendations. *Journal of Rural Health*. 2019;35(1):113-121. doi:10.1111/jrh.12328

[50] Haffajee RL, Bohnert ASB, Lagisetty PA. Policy Pathways to Address Provider Workforce Barriers to Buprenorphine Treatment. *American Journal of Preventive Medicine*. 2018;54(6):S230-S242. doi:10.1016/j.amepre.2017.12.022

[51] Hutchinson E, Catlin M, Andrilla CHA, Baldwin L-M, Rosenblatt RA. Barriers to primary care physicians prescribing buprenorphine. *Annals of Family Medicine*. 2014;12(2):128-133. doi:10.1370/afm.1595

[52] DeFlavio J, Rolin S, Nordstrom B. Analysis of barriers to adoption of buprenorphine maintenance therapy by family physicians. *Rural and Remote Health.* 2015(online);15:3019.

not register with the SAMHSA treatment locator. Failing to register with SAMHSA, a source of public information for MAT, could reduce the likelihood that patients seeking treatment would be able to find a provider. [53] Practitioners may also have concerns over diversion and misuse and the chronicity of patients' pain. [54]

This analysis did not find significant correlation between the location of MAT services and segregation in those areas, and questions remain about why Black and American Indian Minnesotans are dying from drug overdose deaths at rates of two and seven times that of White Minnesotans, respectively.[55] It may be beneficial to conduct further analysis in a number of areas, such as the type of MAT an enrollee is using, where an enrollee is living (level of segregation), if the distance to a MAT-waivered provider and OTP is the same, as well as considering whether there is evidence that certain populations are more likely to be using buprenorphine versus methadone.

As the state begins implementation under the new 1115 SUD System Reform Demonstration waiver, this paper can be instrumental in providing a baseline for MAT services in Minnesota. Understanding the capacity for and availability of MAT services will be crucial to supporting providers and clinics in implementing best practices around MAT for OUD and will also ensure that any disparities in access are identified and addressed. Potential future work should continue to monitor levels of, and barriers to care, across communities of color in the Medicaid program to ensure that the improvements to care and access intended under the Demonstration are experienced by all groups.

[53] Substance Abuse and Mental Health Services Administration. 2017-2018 NSDUH Estimated Totals by State. February 2020. Accessed at: https://www.samhsa.gov/data/report/2017-2018-nsduh-estimated-totals-state

[54] Medicaid. June 2020 Medicaid & CHIP Enrollment Data Highlights. https://www.medicaid.gov/medicaid/program-information/medicaid-and-chip-enrollment-data/report-highlights/index.html

[55] The Black population includes U.S.-born and African-born decedents. https://www.health.state.mn.us/communities/opioids/data/racedisparity.html

Appendix 1: Research Questions

The following research questions informed the analysis in this report and were developed in discussion with Minnesota DHS stakeholders.

Appendix Exhibit 1.1: Research Questions and Measures for Assessment

Assessment Question	Measures
Goal: Characterize the availability of buprenorphine and opioid treatment programs throughout the state and the variation in providers by county-level segregation	
Hypothesis: Segregation may be associated with fewer buprenorphine prescribers and OTPs per enrollee	

Question	Measures	Source
1. How many DATA-waived practitioners are in Minnesota? • How does the number vary by county and by county dissimilarity? • What is the variation in the number of providers with waivers at each patient limit level? (i.e., 30, 100, or 275 patients) • What is the number of providers with waivers by provider type (e.g., physician, nurse practitioner and physician assistant)?	■ Total number of practitioners with a DATA waiver, by county ■ Average number of practitioners with a DATA waiver by county-level of dissimilarity ■ Total number of each type of provider, as determined by the number of DATA-waived practitioners in DEA data ■ Total number of providers by license type as determined by the number of DATA-waived practitioners with each type of waiver in DEA data (DW-30, DW-100, or DW275)	■ DEA data
2. What is the variation in the ratio of Medicaid enrollees to DATA-waived practitioners across counties overall and by county, and by county quintile of dissimilarity index?	■ Ratio of enrollees to DATA-waived practitioners by county and county quintile of dissimilarity index	■ DEA data, ACS data, enrollment data
3. How many practitioners have written a prescription during the 2018-2019 period baseline year? • How does this vary by county, and by county quintile of dissimilarity index?	■ Ratio of enrollees to DATA-2000 waived practitioners who have written any prescription for buprenorphine or buprenorphine-naltrexone. ■ Comparison of the number of DATA-waived practitioners (from the DEA data) to the number who wrote any prescription for MAT between 2018-2019 (claims data).	■ DEA data; Claims/ encounter data on prescribers of buprenorphine; enrollment data; ACS data

Question	Measures	Source
4. How many DATA-waived practitioners work an organization where they have a peer prescriber? • How does this vary by county, and by county quintile of dissimilarity index?	■ Number of DATA-waived practitioners who work at the same facility location (using addresses in DEA data), overall and by county	■ DEA and ACS data
5. What is the average distance a Medicaid enrollee travels for a prescription for buprenorphine? • by county • by race/ethnicity	■ Average distance between Medicaid enrollee (mailing address ZIP) and prescribing provider ZIP ■ Average distance for Black, Hispanic, White, and American Indian enrollees	■ Claims/ encounter data on prescribers of buprenorphine; enrollment data
6. How many outpatient methadone providers are there in Minnesota? • How does the number vary by county, and by county quintile of dissimilarity index?	■ Number of outpatient methadone providers in each county and by county quintile of dissimilarity index	■ Claims/ encounter data on OTP providers; ACS data
7. What is the variation in the ratio of Medicaid enrollees to outpatient methadone treatment providers across counties, overall, and by county? • How does the ratio of Medicaid enrollees to the number outpatient methadone treatment providers vary by county quintile of dissimilarity index?	■ Ratio of enrollees to outpatient methadone treatment providers by, county and by county quintile of dissimilarity index	■ Claims/ encounter data on OTP providers, enrollees and ACS data
8. What is the average distance a Medicaid enrollee travels to visit an outpatient methadone treatment provider? • by county • by race/ethnicity	■ Average distance between Medicaid enrollee mailing address ZIP and OTP provider ■ Average distance between Medicaid enrollee mailing address ZIP the prescribing provider ZIP, for Black, Hispanic, White, and American Indian enrollees	■ Claims/ encounter data on OTP providers

Appendix 2: Data Sources, Methods, and Limitations

Data Sources

Data for this report come from four sources that are primarily linked through county Federal Information Processing Standard Publication codes. We analyzed prescription pharmacy claims (for the period July 1, 2018 to June 30, 2019) for buprenorphine and buprenorphine/naltrexone, and methadone, and DEA data from the first quarter of 2020 on the number of DATA-2000 waived practitioners. We developed measures that examined the number and type of DATA-2000 waived practitioners that are *capable* of prescribing in Minnesota, the number of practitioners who had *actually* prescribed, and the average distance between enrollee and the nearest active prescriber, as well as the nearest DATA-2000 waived practitioner. Please note that since the end of the data timeframe used for this analysis, St. Joseph in Ramsey County has closed. Furthermore, treatment provided by the Minneapolis VA Health Care System Addictive Disorders Services are not included in the claims data and are therefore excluded from the analysis. Exhibit 2 briefly summarizes the sources.

Appendix Exhibit 2.1: Data Sources for the Assessment of Provider Capacity for MAT

Data Source	Description	Purpose
Medicaid enrollee claims/encounter data	Claims/encounter data for all enrollees who received MAT medication services between July 1, 2018 and June 30, 2019 (the 12 month period before the demonstration began) were used to compute the total number of enrollees for each type of service (outpatient or independent pharmacy fill).[56]	To construct the numerator (number of unique enrollees) and the denominator (number of unique providers) for the ratios of enrollees to providers.
Medicaid enrollee enrollment data	Enrollment data are for all enrollees enrolled between July 1, 2018 and June 30, 2019 (the 12 month period before the demonstration began).	To construct the numerator for the ratios of eligible enrollees to practitioners or providers (total population enrolled who may be eligible for services. Enrollee ZIP codes will be used to determine the average county-level distance between enrollee to nearest MAT prescriber or methadone provider
Drug Enforcement Agency database of all practitioners with Drug Addiction and	Contains contact information for practitioners who register with DEA in order to prescribe, dispense, or administer controlled substances (e.g., buprenorphine) for maintenance or detoxification treatment in an office-based setting.[57] Practitioners may register to prescribe buprenorphine for 30, 100, or 275 patients. Data are for providers with waivers as	To count the number of practitioners with DATA-2000 waivers in each county, and to determine variation in patient limits (30, 100, or 275) and variation in types of providers (MD, PA, NP) in each county.

[56] Minnesota DHS claims and encounter data for SUD services are at the organizational NPI-level; claims/encounter data are not submitted by individual practitioners. Minnesota does allow for licensed professionals in private practice to bill for services outside of a licensed SUD facility.

[57] The database is available to the public for a fee.

Data Source	Description	Purpose
Treatment Act of 2000 waiver	of March 30th, 2020 for any level (30, 100, or 275) of patients.	
American Community Survey	Contains tract-level data on populations race ethnicity, ACS 2018 5-year estimates	To provide county-level data on the racial and ethnic makeup of counties and tracts to calculate the dissimilarity index.

Methods

Distance Calculations. We developed a measure for the distance between Medicaid enrollees and prescribers and providers from enrollee ZIP codes and the nearest prescriber from claims data. To do so we used a SAS command, which computes the straight line distance between two ZIP code centroids.

We also used enrollee and prescriber ZIP codes to determine the average travel distance between enrollees and prescribers. We used enrollment data, as we are interested in understanding availability for the Medicaid population, not only those who have used services.

Data Notes. We excluded 330 prescriptions that did not have a prescribing National Provider Identification (NPI) number. While these had a county and zip code where the prescription was filled, this analysis was focused on where they obtain prescriptions, and thus these prescriptions were excluded. Buprenorphine provided at Indian Health Service facilities is billed as an outpatient claim, but these were considered prescriptions (715 claims) since this is where the prescription is obtained and filled. In these cases, we used the facility ZIP code, state, and county to attribute the claim to a county for analysis. 15,613 enrollees had out-of-state ZIP codes, and 2,456 had no ZIP code. Out-of-state ZIP codes were excluded, while those without ZIP codes but with county identifers could only be included in the county-level analyses. We also computed the number of prescribers and providers in the states that border Minnesota, since Medicaid enrollees can seek care from providers participating in the Minnesota Medicaid program. There were 1,063 prescriptions written by 178 unique prescribers who were out of state for 874 Minnesota Medicaid enrollees. Among these 874 enrollees, 91 percent sought prescriptions from prescribers in border states; while 9 percent of these enrollees sought prescriptions from among 21 other states.

Appendix Exhibit 2.2: Types of Services and Providers Analyzed in Claims/Encounter Medication Data

Types of Services	Level of Provider
Buprenorphine, with or without Naltrexone	Prescribing Practitioner
Methadone	Opioid Treatment Program Outpatient Provider

Limitations

This analysis considers capacity, at a high level, using the number of providers and ratios of providers to enrollees. The analysis does not examine whether providers serve more or less of any enrollee race/ethnic group.

There is time difference in the DEA and claims data. The DEA data reflect the number of practitioners with a waiver as of March 2020, whereas the claims had service dates between July 1, 2018 and June 30, 2019. It is possible that in the nine-month period since the claims/encounter cut-off period, more DATA-2000 waived practitioners began prescribing.

To compare how many prescribers had a peer prescriber, we computed the number of prescribers in the DEA data that were working at the same facility (matched by work location name, address, city, and ZIP code). However, there was significant variation in how practitioners reported their addresses when registering.[58] Thus, although the matches went through two rounds of peer-review for quality checking and to ensure consistency in agreement, there may be some miscategorization as to whether the practitioner has a peer prescriber.

One limitation of this analysis is that we were not able to link DEA registered prescribers to Medicaid claims/encounter data to understand how many prescribers with a waiver actually prescribe.[59] We inferred the difference between active and inactive prescribers by comparing the number of prescribers in each county found in the two data sources (DEA versus claims/encounter data). That is, we compared the number of unique NPIs who wrote prescriptions for buprenorphine in the claims/encounter data in each county to the number of DATA-waived prescribers in the DEA data in each county.

While there is a benefit to looking at the distance to the nearest prescriber, there is some inherent inaccuracy in using straight line distance between ZIP code centroids, especially for large zip codes. A person may live on a border between ZIP code A and ZIP code B, and thus would travel to ZIP code B for services, but the calculation from mid-point of ZIP code A to a third ZIP code C is less. Straight lines do not also consider the existence of roads or traffic. Thus, distances are approximate and should be interpreted with these caveats in mind. The analysis does not include distances to prescribers who are out of state. Medicaid enrollees may seek care from prescribers out of state, and in this analysis, there were 178 prescribers in 21 other states from whom enrollees sought prescriptions. While these prescribers are valuable to providing care, they are excluded in order to examine more closely where access can be improved within Minnesota.

There are also unobserved reasons why an enrollee may seek care from a prescriber father away, such as the quality of care or the acceptability or cultural appropriateness of care received. Finally, it is beyond the scope to understand reasonable access to care among vulnerable populations. Other structural and individual-level factors —such as lack of access to transportation, acceptance of treatment modality, and cost (although Medicaid patients have no copays)—can still reduce care-seeking.[60] These barriers can deter entry into MAT.

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[58] For example, 3500 10th Avenue Suite 4 may be entered alternately as: 3500 Tenth Ave, Se 4; 3500 10TH AVE SUITE 4; 3500 Tenth Avenue, 4th Floor; and other variations.

[59] Linking these two sets requires a third-party set to match DEA numbers to NPI numbers. The DEA data lack the NPI number, which is generally how practitioners are uniquely identified in claims and encounter data.

[60] McLean K, Kavanaugh PR. "They're making it so hard for people to get help": motivations for non-prescribed buprenorphine use in a time of treatment expansion. *International Journal of Drug Policy*. 2019;71:118-124. doi:10.1016/j.drugpo.2019.06.019

Appendix 3: Additional Data Tables

This appendix contains tables with supplementary data referenced in the findings section above.

Appendix Exhibit 3.1: Number of Prescribers and Ratio to Medicaid Enrollees, Overall and by County-Level Segregation

	Total Number of DATA-waived providers	County-level range in waived providers	County-level average enrollee ratio
Black Segregation Index Quintile			
1	37	0-16	834.6
2	63	0-20	1,622.2
3	152	0-43	1,794.8
4	843	0-483	2,056.4
5	100	0-40	2,644.1
Hispanic Segregation Index			
1	36	0-10	1,032.0
2	68	0-20	1,676.9
3	108	0-28	1,952.3
4	280	0-81	2,379.8
5	703	0-483	1,890.3
American Indian Segregation index			
1	27	0-7	1,418.8
2	57	0-18	1,529.4
3	61	0-10	1,388.4
4	883	0-483	1978.0
5	167	0-50	2,627.0
Overall	1,195	0-483	1,759.3

Notes: Source: DEA data as of March 2020; Medicaid Enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018. 1 indicates low dissimilarity or low segregation, the 5th quintile has the highest segregation.

Appendix Exhibit 3.2: Total Number of Prescribers in Each County, by Type and Level of Prescriber

County Name	Patient Cap: 30	Patient Cap: 100	Patient Cap: 275	Nurse Practitioner	Physician Assistant	Medical Doctor	Number of prescribers	Number of active prescribers
Aitkin	2	0	0	0	0	2	2	1
Anoka	28	7	0	11	1	23	35	19
Becker	5	0	1	0	0	6	6	4
Beltrami	16	0	0	7	0	9	16	5
Benton	2	0	1	0	0	3	3	0
Big Stone	2	0	0	1	0	1	2	0
Blue Earth	13	7	0	6	0	14	20	1
Brown	3	0	0	0	0	3	3	1
Carlton	8	1	0	3	1	5	9	5
Carver	5	2	0	1	2	4	7	4
Cass	3	1	2	2	0	4	6	2
Chippewa	2	0	0	1	0	1	2	2
Chisago	10	5	2	6	0	11	17	1
Clay	3	0	0	3	0	0	3	0
Clearwater	0	0	0	0	0	0	0	0
Cook	2	0	0	0	0	2	2	2
Cottonwood	0	0	0	0	0	0	0	0
Crow Wing	18	0	0	4	2	12	18	3
Dakota	26	13	3	10	4	28	43	29
Dodge	0	0	0	0	0	0	0	0
Douglas	7	1	0	2	0	6	8	4
Faribault	0	0	0	0	0	0	0	0
Fillmore	0	0	0	0	0	0	0	0
Freeborn	0	0	2	0	0	2	2	0
Goodhue	3	0	0	0	0	3	3	2
Grant	0	0	0	0	0	0	0	0
Hennepin	371	93	19	82	23	378	483	209
Houston	0	0	0	0	0	0	0	0
Hubbard	3	0	0	1	1	1	3	2
Isanti	3	3	1	2	0	5	7	1
Itasca	4	0	0	1	1	2	4	4
Jackson	0	0	0	0	0	0	0	0
Kanabec	1	2	0	0	0	3	3	4
Kandiyohi	1	0	0	0	0	1	1	2
Kittson	0	0	0	0	0	0	0	0
Koochiching	2	1	0	1	0	2	3	1
Lac qui Parle	0	0	0	0	0	0	0	0
Lake	1	1	0	0	0	2	2	2
Lake of the Woods	0	0	0	0	0	0	0	0

County Name	Patient Cap: 30	Patient Cap: 100	Patient Cap: 275	Nurse Practitioner	Physician Assistant	Medical Doctor	Number of prescribers	Number of active prescribers
Le Sueur	0	0	0	0	0	0	0	0
Lincoln	0	0	0	0	0	0	0	0
Lyon	3	0	0	1	0	2	3	4
McLeod	1	0	0	0	0	1	1	0
Mahnomen	1	0	0	1	0	0	1	2
Marshall	0	0	0	0	0	0	0	0
Martin	0	0	0	0	0	0	0	0
Meeker	0	0	0	0	0	0	0	0
Mille Lacs	7	3	0	1	4	5	10	6
Morrison	1	2	0	1	0	2	3	5
Mower	2	0	0	1	0	1	2	0
Murray	0	0	0	0	0	0	0	1
Nicollet	0	0	0	0	0	0	0	0
Nobles	0	0	0	0	0	0	0	0
Norman	0	0	0	0	0	0	0	0
Olmsted	47	2	1	6	1	43	50	16
Otter Tail	7	0	0	1	0	6	7	3
Pennington	1	0	0	0	0	1	1	0
Pine	1	1	0	1	0	1	2	0
Pipestone	1	0	0	0	0	1	1	0
Polk	2	0	0	1	0	1	2	0
Pope	1	0	0	0	0	1	1	1
Ramsey	160	27	8	37	17	141	194	71
Red Lake	0	0	0	0	0	0	0	0
Redwood	3	0	0	1	0	2	3	2
Renville	0	0	0	0	0	0	0	0
Rice	1	2	0	2	0	1	3	3
Rock	0	0	0	0	0	0	0	0
Roseau	2	0	0	1	0	1	2	1
St. Louis	67	13	1	14	3	64	81	35
Scott	6	1	0	3	0	4	7	2
Sherburne	6	3	0	3	0	6	9	2
Sibley	0	0	0	0	0	0	0	0
Stearns	37	3	0	19	2	19	40	17
Steele	2	0	0	0	0	2	2	3
Stevens	0	0	0	0	0	0	0	0
Swift	1	0	0	1	0	0	1	0
Todd	5	0	0	2	0	3	5	0
Traverse	0	0	0	0	0	0	0	0
Wabasha	0	0	0	0	0	0	0	0
Wadena	5	0	0	1	0	4	5	1
Waseca	0	0	0	0	0	0	0	0

County Name	Patient Cap: 30	Patient Cap: 100	Patient Cap: 275	Nurse Practitioner	Physician Assistant	Medical Doctor	Number of prescribers	Number of active prescribers
Washington	18	8	2	6	3	19	28	14
Watonwan	0	1	0	0	0	1	1	2
Wilkin	0	0	0	0	0	0	0	0
Winona	5	2	0	2	1	4	7	4
Wright	8	2	0	2	0	8	10	8
Yellow Medicine	0	0	0	0	0	0	0	0
Total	945	207	43	252	66	877	1195	513

Source: DEA data as of March 2020.

Appendix Exhibit 3.3: Number of Active Prescribers and Ratio to Medicaid Enrollees, Overall and by Quintile of County-Level Segregation (for counties with at least one prescriber)

Segregation Index Quintile	Total number of active Medicaid prescribers	County-level range in prescribers	County-level enrollee to prescriber ratio
Black			
1	17	0 - 5	4030
2	25	0 - 6	4713
3	89	0 - 29	2980
4	347	0 - 209	4304
5	35	0 - 17	5933
Hispanic			
1	20	0 - 6	3030
2	20	0 - 5	5628
3	49	0 - 14	4540
4	134	0 - 35	4047
5	290	0 - 209	3992
American Indian			
1	13	0 - 4	3212
2	18	0 - 5	5005
3	13	0 - 8	3956
4	369	0 - 209	4762
5	82	0 - 29	3991
Overall	513	0 - 209	4265

Note: 41 counties do not have an active prescriber. Source: Medicaid claims/encounter and enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018. 1 indicates low dissimilarity or low segregation, the 5th quintile has the highest segregation.

Appendix Exhibit 3.4: Enrollees per Active Prescriber and Value of Segregation Index

Quantiles of Enrollee–to-Prescriber Ratio	Enrollee per Prescriber Ratio	Black Segregation Index	Hispanic Segregation Index	American Indian Segregation Index
1	1,539.6	0.416	0.237	0.430
2	2,330.5	0.419	0.323	0.546
3	3,235.4	0.404	0.311	0.551
4	4,686.3	0.354	0.309	0.490
5	9,838.2	0.527	0.335	0.515
Total	4,326.9	0.424	0.302	0.505

Source: Medicaid claims/encounter and enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

Appendix Exhibit 3.5: Average Segregation Index for Counties with Either No Prescriber or Any Prescriber

Segregation Index Quintile	Counties with No Prescriber			Counties with Any Prescriber		
Black	**Black SI**	**Hispanic SI**	**American Indian SI**	**Black SI**	**Hispanic SI**	**American Indian SI**
1	0.220	0.237	0.339	0.188	0.302	0.420
2	0.374	0.306	0.444	0.360	0.231	0.533
3	0.428	0.414	0.450	0.427	0.277	0.481
4	0.481	0.228	0.437	0.505	0.371	0.577
5	0.638	0.342	0.568	0.618	0.321	0.506
Hispanic						
1	0.325	0.126	0.385	0.354	0.150	0.372
2	0.459	0.231	0.489	0.444	0.224	0.411
3	0.449	0.279	0.389	0.417	0.301	0.530
4	0.456	0.366	0.481	0.478	0.361	0.591
5	0.441	0.507	0.479	0.406	0.471	0.584
American Indian						
1	0.347	0.257	0.229	0.326	0.230	0.205
2	0.435	0.265	0.404	0.459	0.249	0.387
3	0.420	0.309	0.500	0.408	0.306	0.498
4	0.440	0.38	0.584	0.471	0.322	0.587
5	0.528	0.336	0.710	0.413	0.359	0.687

Source: Medicaid claims/encounter and enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

Appendix Exhibit 3.6: Percent of Black, Hispanic, American Indian, and White Residents, by County Quintile of Segregation Index

Quintile of Segregation Index	County average percent of population for each race/ethnicity			
	Black (%)	Hispanic/ (%)	American Indian (%)	White (%)
Black				
1 (N=18)	0.6	3.6	4.2	89.0
2 (N=17)	1.0	3.2	2.1	90.8
3 (N=18)	1.9	4.1	1.1	89.3
4 (N=17)	3.2	4.7	1.4	86.0
5 (N=18)	2.0	6.8	0.8	87.6
Hispanic				
1 (N=18)	0.8	2.9	3.8	89.8
2 (N=17)	1.5	4.5	1.0	90.3
3 (N=18)	1.3	4.1	2.8	88.1
4 (N=17)	2.5	4.6	0.6	88.8
5 (N=18)	2.6	6.3	1.3	85.6
American Indian				
1 (N=18)	0.9	3.5	3.2	89.7
2 (N=17)	0.8	4.3	1.7	90.8
3 (N=18)	1.2	4.6	1.1	90.0
4 (N=17)	3.4	4.9	1.3	85.1
5 (N=18)	2.3	5.1	2.3	86.9

Notes: Total will not sum to 100 percent as data exclude other race/ethnicities. Source: Medicaid claims/encounter and enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

Appendix Exhibit 3.7: Average Distance between Medicaid Enrollees and Nearest Buprenorphine Prescriber, for All Counties

County Name	Average Distance	Standard Deviation	County Name	Average Distance	Standard Deviation	County Name	Average Distance	Standard Deviation
-	Miles	Miles	-	Miles	Miles	-	Miles	Miles
Overall	5.8	11						
Aitkin	18.4	10.4	Kandiyohi	2.3	4.8	Rock	29.9	9.7
Anoka	1.6	2.9	Kittson	62.6	17.9	Roseau	17.4	16.3
Becker	15.1	8.6	Koochiching	16.0	8.6	Scott	4.4	4.9
Beltrami	10.9	13.6	Lac qui Parle	21.1	10.1	Sherburne	3.4	3.9
Benton	6.5	4.3	Lake	8.6	13.1	Sibley	18.3	5.5
Big Stone	43.4	12.9	Lake of the Woods	33.2	14.1	St. Louis	6.5	9.2
Blue Earth	3.0	5.7	Le Sueur	13.5	5.9	Stearns	4.4	7.5
Brown	6.2	8.2	Lincoln	23.6	7.3	Steele	2.6	5.8
Carlton	7.6	9.8	Lyon	5.2	7.3	Stevens	25.2	8.1
Carver	4.1	3.7	Mahnomen	14.7	7.2	Swift	20.9	7.4
Cass	8.4	8.6	Marshall	67.6	21.6	Todd	18.4	6.2
Chippewa	5.7	7.5	Martin	22.3	6.6	Traverse	40.5	13.8
Chisago	10.2	5.8	McLeod	14.9	5.8	Wabasha	16.8	7.4
Clay	34.9	8.8	Meeker	14.0	5.7	Wadena	6.6	7.0
Clearwater	25.5	7.3	Mille Lacs	4.3	5.3	Waseca	14.3	4.4
Cook	7.0	11.1	Morrison	6.0	6.6	Washington	1.7	2.5
Cottonwood	21.2	7.5	Mower	29.5	7.3	Watonwan	2.0	4.9
Crow Wing	6.4	4.5	Murray	7.2	7	Wilkin	22.3	7.3
Dakota	1.7	2.7	Nicollet	7.5	5.3			
Dodge	15.0	5.2	Nobles	25.1	5.5			
Douglas	4.2	6.6	Norman	26.8	10.2			
Faribault	30.2	9.7	Olmsted	2.4	4.7			
Fillmore	24.0	9.1	Otter Tail	11.8	10.4			
Freeborn	28.9	7.7	Pennington	62.1	15.3			
Goodhue	7.7	8.1	Pine	15.9	8.4			
Grant	20.6	7.2	Pipestone	25.4	6.8			
Hennepin	0.5	2.1	Polk	51.9	20			
Houston	25	7.4	Pope	5.8	6.8			
Hubbard	5.5	7.3	Ramsey	0.2	1.5			
Isanti	4.0	4.5	Red Lake	50.4	12.7			
Itasca	5.0	8.2	Redwood	9.1	9.1			
Jackson	29.1	7.7	Renville	16.8	6.5			
Kanabec	4.9	6.3	Rice	3.3	5.2			

Appendix Exhibit 3.8: Average Distance between Medicaid Enrollees and Nearest OTP for Methadone, by ZIP Code Categories

Enrollee Race/Ethnicity	Overall County Average Distance	Standard Deviation in Distance	Range in Distance
Black	**Miles**	**Miles**	**Miles**
Hennepin	0.3	2.1	[0 - 74.2]
Ramsey	0.2	1.3	[0 - 74.2]
St. Louis	3.5	7.3	[0 - 38.3]
Hispanic			
Hennepin	0.3	1.3	[0 - 52.6]
Ramsey	0.2	1.4	[0 - 74.2]
St. Louis	5.3	8.2	[0 - 31.8]
American Indian			
Hennepin	0.6	3.1	[0 - 82.8]
Ramsey	0.3	2.4	[0 - 74.2]
St. Louis	6.9	9.6	[0 - 74.2]
White			
Hennepin	0.8	2.2	[0 - 74.2]
Ramsey	0.3	1.8	[0 - 74.2]
St. Louis	6.8	9.3	[0 - 82.8]
Overall	25.7	37	[0 – 228.0]

Appendix Exhibit 3.9: Average Distance between Medicaid enrollees and Nearest OTP for Methadone for All Counties

County Name	Average Distance	Standard Deviation	County Name	Average Distance	Standard Deviation	County Name	Average Distance	Standard Deviation
-	Miles	Miles	-	Miles	Miles	-	Miles	Miles
Overall	25.7	37.0						
Aitkin	34.1	14.9	Kandiyohi	49.0	12.4	Rock	152.0	43.1
Anoka	7.7	7.2	Kittson	193.0	49	Roseau	178.0	38.9
Becker	82.9	20.4	Koochiching	128.0	28.8	Scott	11.1	7.6
Beltrami	94.2	19.6	Lac qui Parle	94.5	26.4	Sherburne	20.2	9.7
Benton	9.1	9.7	Lake	34.2	18.5	Sibley	44.8	14.0
Big Stone	103.0	25.5	Lake of the Woods	164	33.7	St. Louis	26.6	27.9
Blue Earth	53.8	13.7	Le Sueur	33.6	10.7	Stearns	9.1	13.7
Brown	67.9	21.6	Lincoln	124.0	28.5	Steele	37.4	9.2
Carlton	23.6	11.8	Lyon	106.0	24	Stevens	79.2	19.1
Carver	19.2	8.0	Mahnomen	103.0	15.8	Swift	69.3	19.9
Cass	45.4	24.8	Marshall	168.0	39.2	Todd	37.3	10.5
Chippewa	78.6	19.6	Martin	93.0	20.4	Traverse	107.0	26.6
Chisago	29.3	10.5	McLeod	42.1	13.8	Wabasha	21.0	9.9
Clay	121.0	24.7	Meeker	32.3	11.3	Wadena	44.9	12.6

County Name	Average Distance	Standard Deviation	County Name	Average Distance	Standard Deviation	County Name	Average Distance	Standard Deviation
Clearwater	102.0	18.2	Mille Lacs	28.4	10	Waseca	48.4	9.9
Cook	104.0	28.8	Morrison	24.4	7.9	Washington	7.2	7.0
Cottonwood	103.0	23.7	Mower	36.0	8.6	Watonwan	80.2	17.9
Crow Wing	7.9	11.9	Murray	125.0	31.1	Wilkin	109.0	24.1
Dakota	5.6	5.7	Nicollet	48.3	13.9	Winona	34.2	9.9
Dodge	19.6	7.8	Nobles	137.0	24.0	Wright	22.6	8.4
Douglas	57.4	17.2	Norman	124.0	26.2	Yellow Medicine	93.5	25.3
Faribault	75.2	19	Olmsted	4.9	7			
Fillmore	31.3	11.1	Otter Tail	76.2	22.2			
Freeborn	51.6	12.4	Pennington	147.0	32.2			
Goodhue	25.1	8.9	Pine	53.4	13.3			
Grant	82.4	20.0	Pipestone	144.0	30.2			
Hennepin	4.0	6.1	Polk	142.0	39.5			
Houston	52.4	11.5	Pope	56.4	16.1			
Hubbard	60.4	15.4	Ramsey	3.2	4.9			
Isanti	30.1	9.3	Red Lake	135.0	29.5			
Itasca	67.9	16.7	Redwood	87.3	23.9			
Jackson	112.0	25.8	Renville	66.0	16.5			
Kanabec	49.2	12.8	Rice	28.6	8.5			

Appendix Exhibit 3.10: Minnesota Map-Supporting Data Table

County	Active Prescribers	Enrollee to Active Prescriber Ratio	Enrollee to Prescriber Ratio	Overdose Rate
Aitkin County	2	2594.0	5188.0	Insufficient Data
Anoka County	35	2393.2	4408.6	11.2
Becker County	6	1964.7	2947.0	8.9
Beltrami County	16	1167.4	3735.8	9.6
Benton County	3	3968.0	NA	10
Big Stone County	2	868.5	NA	Insufficient Data
Blue Earth County	20	858.6	17171.0	3.9
Brown County	3	2008.7	6026.0	11.6
Carlton County	9	1107.9	1994.2	16.5
Carver County	7	2014.4	3525.3	5.8
Cass County	6	1902.5	5707.5	18
Chippewa County	2	2034.0	2034.0	Insufficient Data
Chisago County	17	700.6	11910.0	10.4
Clay County	3	6183.3	NA	8.6
Clearwater County	0	NA	NA	Insufficient Data
Cook County	2	783.5	783.5	Insufficient Data
Cottonwood County	0	NA	NA	Insufficient Data
Crow Wing County	18	1099.5	6597.0	5.7

County	Active Prescribers	Enrollee to Active Prescriber Ratio	Enrollee to Prescriber Ratio	Overdose Rate
Dakota County	43	2118.7	3141.5	8.2
Dodge County	0	NA	NA	13.6
Douglas County	8	1137.3	2274.5	8
Faribault County	0	NA	NA	Insufficient Data
Fillmore County	0	NA	NA	14.6
Freeborn County	2	4801.0	NA	9.8
Goodhue County	3	3232.7	4849.0	6.9
Grant County	0	NA	NA	Insufficient Data
Hennepin County	483	713.4	1648.6	14.2
Houston County	0	NA	NA	15.6
Hubbard County	3	2304.7	3457.0	14.9
Isanti County	7	1483.7	10386.0	12.6
Itasca County	4	3610.8	3610.8	9.5
Jackson County	0	NA	NA	Insufficient Data
Kanabec County	3	1766.7	1325.0	18
Kandiyohi County	1	15484.0	7742.0	6.8
Kittson County	0	NA	NA	Insufficient Data
Koochiching County	3	1298.3	3895.0	Insufficient Data
Lac qui Parle County	0	NA	NA	Insufficient Data
Lake County	2	1310.0	1310.0	Insufficient Data
Lake of the Woods County	0	NA	NA	Insufficient Data
Le Sueur County	0	NA	NA	10.2
Lincoln County	0	NA	NA	Insufficient Data
Lyon County	3	2657.7	1993.3	11
McLeod County	1	8637.0	NA	8
Mahnomen County	1	3085.0	1542.5	64.8
Marshall County	0	NA	NA	Insufficient Data
Martin County	0	NA	NA	15.1
Meeker County	0	NA	NA	12.8
Mille Lacs County	10	924.6	1541.0	26.7
Morrison County	3	3345.7	2007.4	8.8
Mower County	2	6678.5	NA	10.8
Murray County	0	NA	2156.0	Insufficient Data
Nicollet County	0	NA	NA	8
Nobles County	0	NA	NA	13.4
Norman County	0	NA	NA	Insufficient Data
Olmsted County	50	712.7	2227.1	8.4
Otter Tail County	7	2447.0	5709.7	7
Pennington County	1	3174.0	NA	Insufficient Data
Pine County	2	4462.5	NA	12.8
Pipestone County	1	2873.0	NA	Insufficient Data
Polk County	2	5177.0	NA	12.1
Pope County	1	3085.0	3085.0	Insufficient Data

County	Active Prescribers	Enrollee to Active Prescriber Ratio	Enrollee to Prescriber Ratio	Overdose Rate
Ramsey County	194	1001.8	2737.3	9
Red Lake County	0	NA	NA	Insufficient Data
Redwood County	3	1493.3	2240.0	Insufficient Data
Renville County	0	NA	NA	Insufficient Data
Rice County	3	5294.7	5294.7	6.8
Rock County	0	NA	NA	Insufficient Data
Roseau County	2	1749.0	3498.0	18.3
St. Louis County	81	701.8	1624.1	18.1
Scott County	7	3792.9	13275.0	7.8
Sherburne County	9	2161.6	9727.0	10.2
Sibley County	0	NA	NA	Insufficient Data
Stearns County	40	1084.6	2551.9	7.3
Steele County	2	4948.5	3299.0	7.9
Stevens County	0	NA	NA	Insufficient Data
Swift County	1	2913.0	NA	Insufficient Data
Todd County	5	1546.6	NA	12.3
Traverse County	0	NA	NA	Insufficient Data
Wabasha County	0	NA	NA	13.6
Wadena County	5	1097.4	5487.0	Insufficient Data
Waseca County	0	NA	NA	15
Washington County	28	1515.0	3030.0	7.6
Watonwan County	1	3268.0	1634.0	Insufficient Data
Wilkin County	0	NA	NA	Insufficient Data
Winona County	7	1569.1	2746.0	9.1
Wright County	10	2508.9	3136.1	5.6
Yellow Medicine County	0	NA	NA	Insufficient Data

Appendix 4: ZIP Code Analyses for Three Counties

The following analysis presents ZIP code level analyses for three counties. ZIP codes show a more granular level of detail, and can be used to examine variation within counties. In looking at three areas with the largest number of prescribers, we find that the availability of buprenorphine is uneven, but it is not clear who is most disaffected. Less segregated areas may have less need for treatment, but OUD prevalence data are not available at the ZIP code level.

Appendix Exhibit 4.1: Category of Number of Active Prescribers, Ratio to Enrollees, and Race/Ethnicity for ZIP Codes in Hennepin, Ramsey, and St. Louis County

Total number of prescribers	Average Number of Prescribers Per 10K Enrollees	Number of Prescribers Per 10K Enrollees SD	Percent of Enrollees by Race/Ethnicity			
			Black	Hispanic	American Indian	White
0	0	0	11.1%	3.3%	4.5%	58.9%
1 to 2	3.6	3.6	22.9%	6.8%	2.1%	36.7%
More than 2	49.6	108.9	28.2%	7.3%	3.1%	31.9%
Average	10.8	51.8	17.4%	5.0%	3.7%	48.1%

Source: Medicaid Enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

Appendix Exhibit 4.2: Average Number of Active Prescribers, for ZIP Codes with Average and Higher than Average Proportions of Race/Ethnicity in Hennepin, Ramsey, and St. Louis County

	Average Number of Active Prescribers	Standard Deviation	Range
ZIP Codes with Average Proportion of Racial/Ethnic Groups			
Black	1.4	2.8	0 -17
Hispanic	2.1	4.5	0 -29
American Indian	2.0	4.3	0 -29
White	2.6	5	0 -29
ZIP Codes with Higher than Average Proportion of Racial/Ethnic Groups			
Black	7.0	8.9	0 -29
Hispanic	3.8	6.2	0 -20
American Indian	5.2	7.6	0 -18
White	0.4	0.7	0 -2
Hennepin County Average	2.8	5.4	0 -29
Ramsey County Average	3.2	3.9	0 -15
St. Louis county Average	0.7	3.1	0 -20

Source: Medicaid Enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

Appendix Exhibit 4.3: Average Distance between Medicaid Enrollees and Nearest Buprenorphine Prescriber, for Select Counties

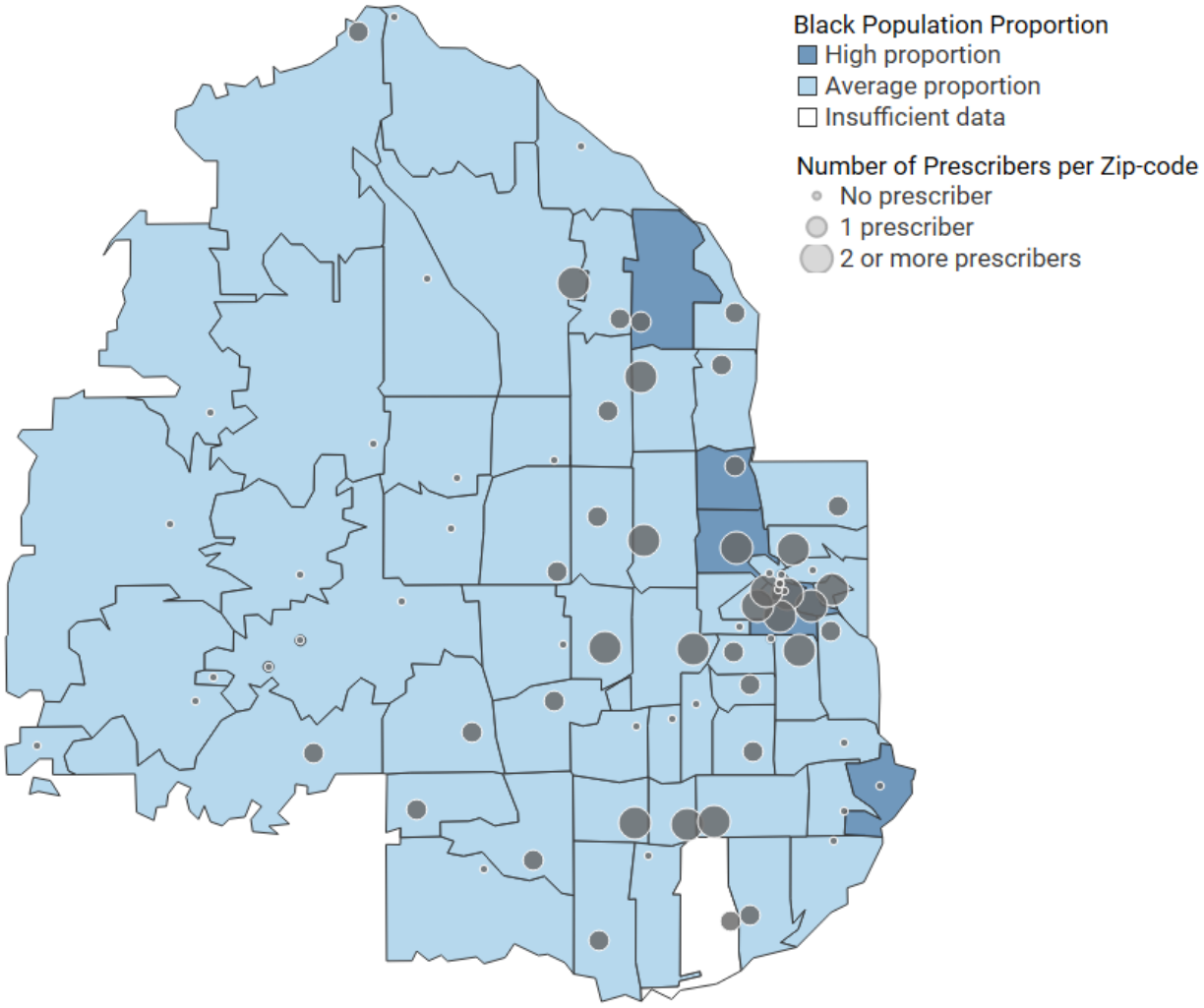
	Overall County Average Distance	Standard Deviation in Distance	Range in Distance
	Miles	Miles	Miles
Black			
Hennepin	0.3	2.1	[0-74.2]
Ramsey	0.1	1.3	[0-74.2]
St. Louis	3.5	7.3	[0-38.3]
Hispanic			
Hennepin	0.3	1.3	[0-52.6]
Ramsey	0.2	1.4	[0-74.2]
St. Louis	5.3	8.2	[0-31.8]
American Indian			
Hennepin	0.6	3.1	[0-82.8]
Ramsey	0.3	2.4	[0-74.2]
St. Louis	6.9	9.6	[0-74.2]
White			
Hennepin	0.8	2.16	[0-74.2]
Ramsey	0.3	1.8	[0-74.2]
St. Louis	6.8	9.3	[0-82.8]
Overall	5.8	11.0	[0-92.5]

Notes: County average distance to nearest buprenorphine prescriber. Source: Medicaid enrollment data and prescribing physicians.
Source: Medicaid claims/encounter and enrollment data July 1, 2018 to June 30, 2019

Appendix Exhibit 4.4: Methadone Providers in Each County, Enrollee to OTP Ratio, and Race/Ethnicity of ZIP Code

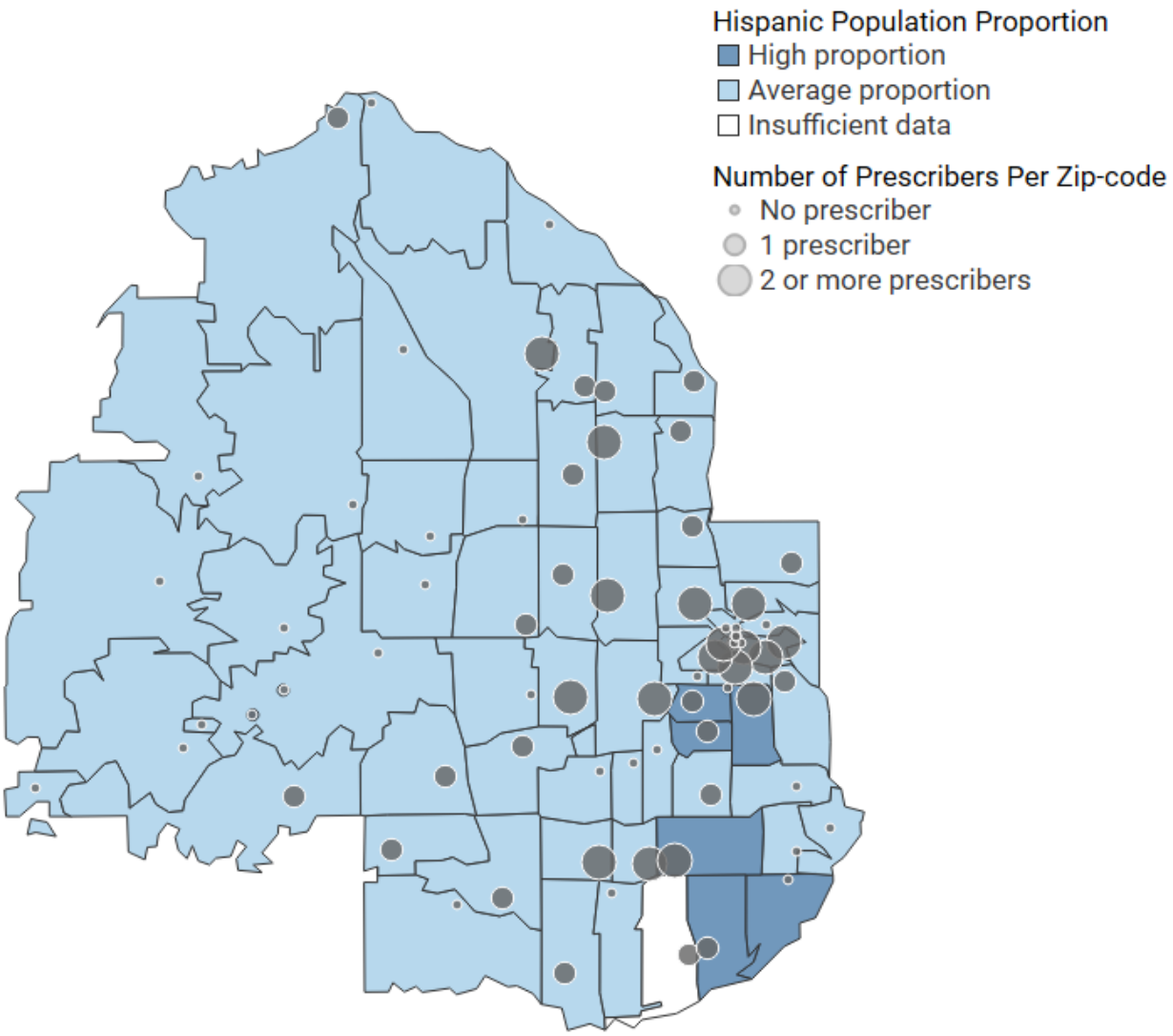
County	ZIP Code	Enrollee to OTP Ratio	Percent of Each Race/Ethnicity in ZIP Code			
			Black	Hispanic	American Indian	White
Ramsey	55101	4,402	42.8	5.0	3.4	28.7
Ramsey	55102	6,040	26.5	6.2	2.6	42.1
Ramsey	55113	9,352	22.1	6.3	1.1	32.8
Washington	55125	6,321	18.0	5.0	0.8	36.8
Dakota	55337	13,945	27.1	10.5	1.0	25.4
Hennepin	55413	3,723	25.0	9.7	3.1	38.3
Hennepin	55414	5,219	29.0	4.6	2.3	38.8
Hennepin	55415	1,368	45.0	5.3	6.5	17.5
Hennepin	55425	3,655	24.6	23.9	1.6	21.3
Hennepin	55428	11,647	37.2	9.5	1.2	21.2
Anoka	55432	10,893	25.7	10.1	1.5	31.8
Hennepin	55444	6,232	28.9	6.5	1.0	15.4
St. Louis	55805	3,906	14.9	2.4	11.1	51.9
Olmstead	55906	3,810	14.2	7.3	0.9	43.8
Stearns	56303	9,397	23.5	4.4	1.6	45.0
Crow Wing	56401	10,548	2.6	1.8	2.9	64.2
Average		**6904**	**25.4**	**7.4**	**2.7**	**34.7**

Appendix Exhibit 4.5a: Hennepin County, Number of Providers and ZIP Codes with High Proportion of Black Enrollees



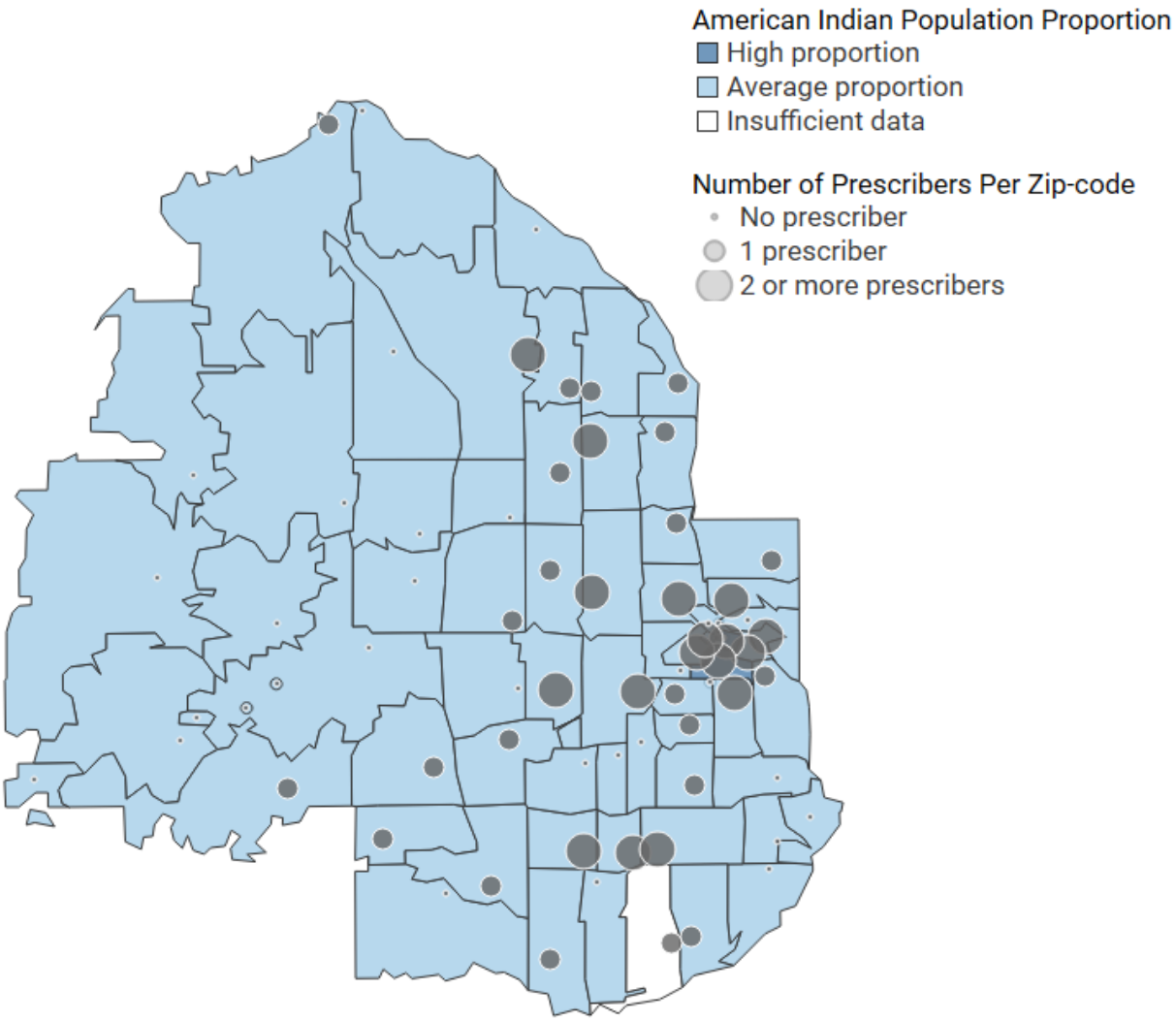
Source: Medicaid claims/encounter and enrollment data July 1, 2018 to June 30, 2019; American Community Survey data, 2014-2018.

Appendix Exhibit 4.5b: Hennepin County, Number of Providers and ZIP Codes with High Proportion of Hispanic Enrollees



Source: Medicaid claims/encounter and enrollment data July 1, 2018 to June 30, 2019; American Community Survey data, 2014-2018.

Appendix Exhibit 4.5c: Hennepin County, Number of Providers and ZIP Codes with High Proportion of American Indian Enrollees



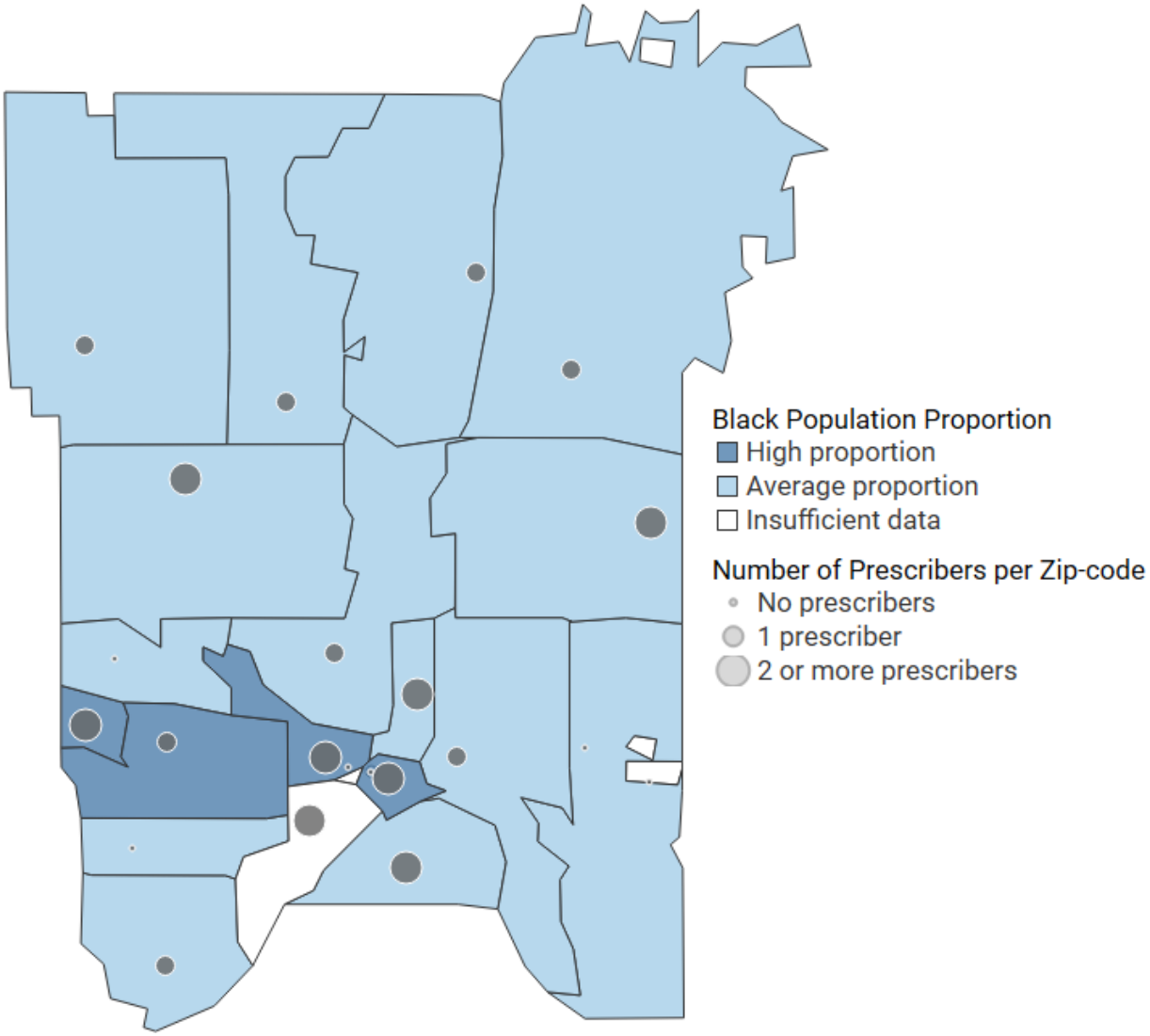
Source: Medicaid claims/encounter and enrollment data July 1, 2018 to June 30, 2019; American Community Survey data, 2014-2018. .

Appendix Exhibit 4.5d: Hennepin County, Map-Supporting Data Table

Zip-code	Number of Prescribers per Zip-code	Proportion Black	Proportion Hispanic	Proportion American Indian
55111	0	High	Average	Average
55305	0	Average	Average	Average
55311	0	Average	Average	Average
55316	0	Average	Average	Average
55323	0	Average	Average	Average
55327	0	Average	Average	Average
55331	1	Average	Average	Average
55340	0	Average	Average	Average
55343	1	Average	Average	Average
55344	1	Average	Average	Average
55345	1	Average	Average	Average
55346	1	Average	Average	Average
55347	0	Average	Average	Average
55356	0	Average	Average	Average
55357	0	Average	Average	Average
55359	0	Average	Average	Average
55361	0	Average	High	Average
55364	0	Average	Average	Average
55369	2+	Average	Average	Average
55374	1	Average	Average	Average
55375	0	Average	Average	Average
55384	0	Average	Average	Average
55391	0	Average	Average	Average
55401	0	Average	Average	Average
55402	2+	Average	Average	Average
55403	2+	Average	Average	Average
55404	2+	High	Average	High
55405	0	Average	Average	Average
55406	1	Average	Average	Average
55407	2+	Average	High	Average
55408	1	Average	High	Average
55409	1	Average	High	Average
55410	0	Average	Average	Average
55411	2+	High	Average	Average
55412	1	High	Average	Average
55413	2+	Average	Average	Average
55414	0	Average	Average	Average
55415	2+	High	Average	High
55416	2+	Average	Average	Average
55417	0	Average	Average	Average
55418	1	Average	Average	Average
55419	1	Average	Average	Average

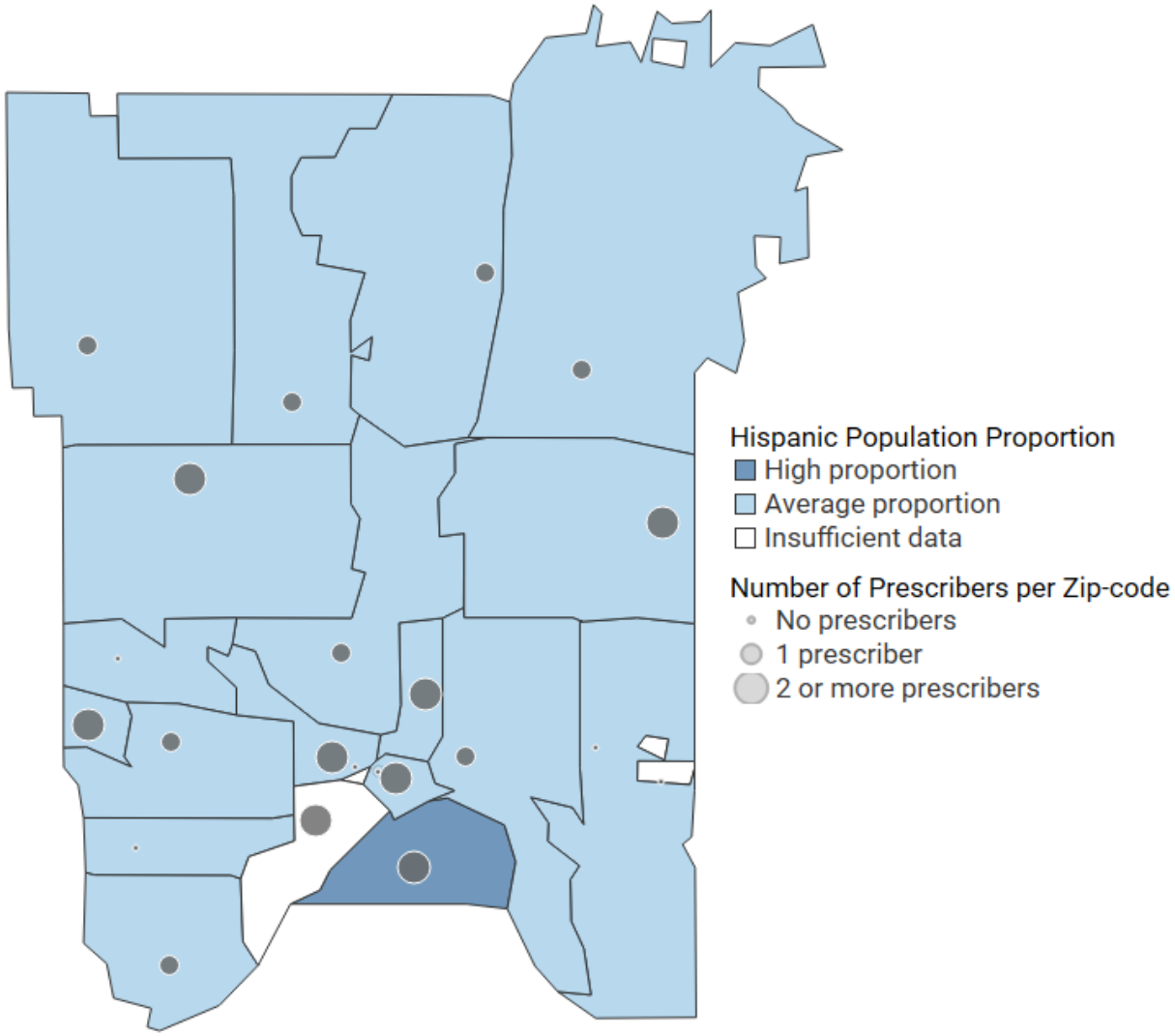
Zip-code	Number of Prescribers per Zip-code	Proportion Black	Proportion Hispanic	Proportion American Indian
55420	1	Average	High	Average
55422	2+	Average	Average	Average
55423	2+	Average	High	Average
55424	0	Average	Average	Average
55425	0	Average	High	Average
55426	2+	Average	Average	Average
55427	1	Average	Average	Average
55428	1	Average	Average	Average
55429	2+	Average	Average	Average
55430	1	Average	Average	Average
55431	1	Insufficient data	Insufficient data	Insufficient data
55435	2+	Average	Average	Average
55436	0	Average	Average	Average
55437	0	Average	Average	Average
55438	1	Average	Average	Average
55439	2+	Average	Average	Average
55440	0	High	Average	High
55441	1	Average	Average	Average
55442	0	Average	Average	Average
55443	1	High	Average	Average
55444	1	Average	Average	Average
55445	1	Average	Average	Average
55446	0	Average	Average	Average
55447	0	Average	Average	Average
55450	0	Average	Average	Average
55454	2+	High	Average	Average
55455	2+	Average	Average	Average
55458	0	High	Average	Average
55467	0	Insufficient data	Insufficient data	Insufficient data
55474	0	Insufficient data	Insufficient data	Insufficient data
55479	0	Insufficient data	Insufficient data	Insufficient data
55480	0	High	Average	Average
55487	0	High	Average	High
55488	0	Insufficient data	Insufficient data	Insufficient data

Appendix Exhibit 4.6a: Ramsey County, Number of Providers and ZIP Codes with High Proportion of Black Enrollees



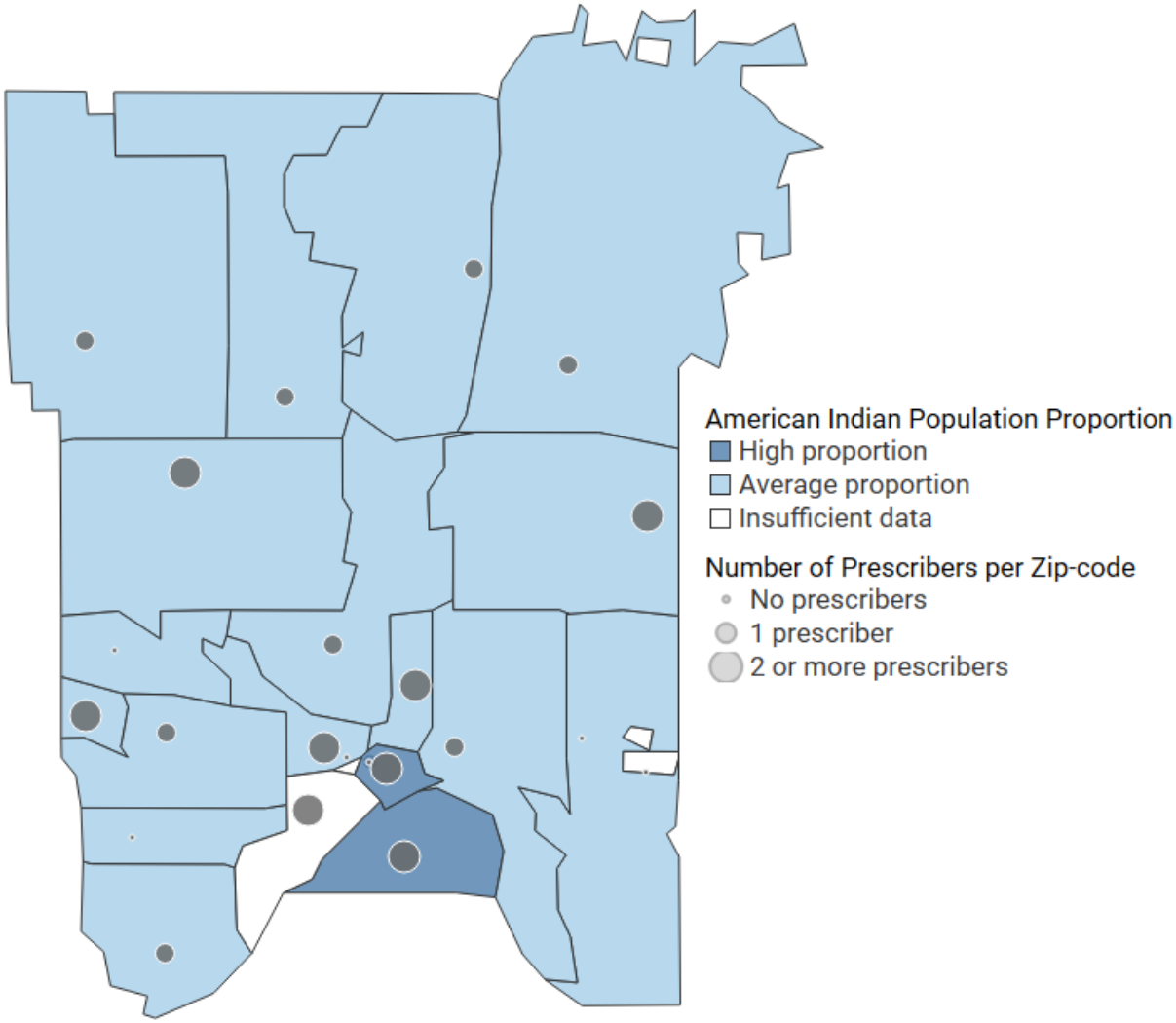
Source: Medicaid Enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

Appendix Exhibit 4.6b: Ramsey County, Number of Providers and ZIP Codes with High Proportion of Hispanic Enrollees



Source: Medicaid Enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

Appendix Exhibit 4.6c: Ramsey County, Number of Providers and ZIP Codes with High Proportion of American Indian Enrollees

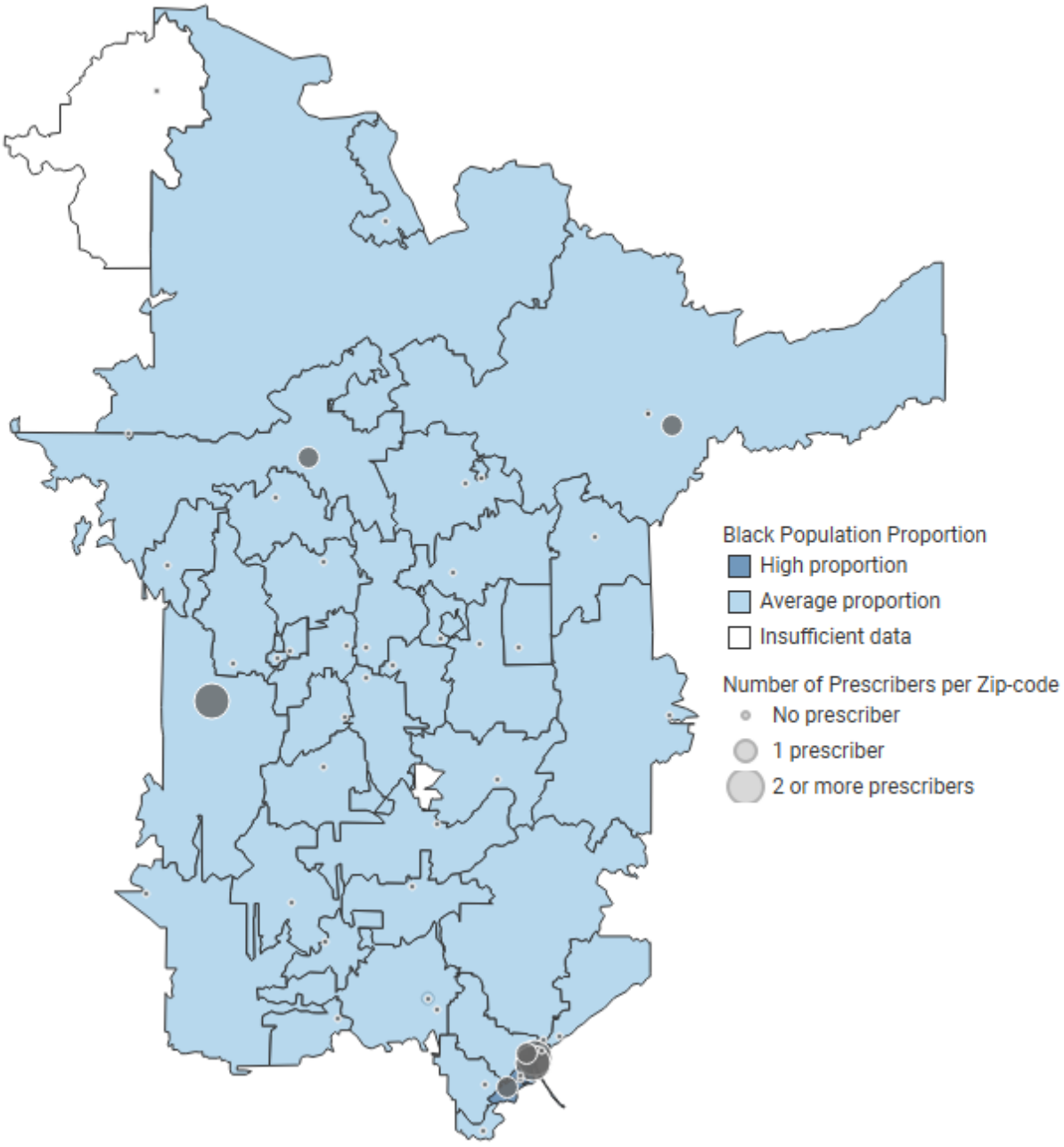


Source: Medicaid Enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

Appendix Exhibit 4.6d: Ramsey County, Map-Supporting Data Table

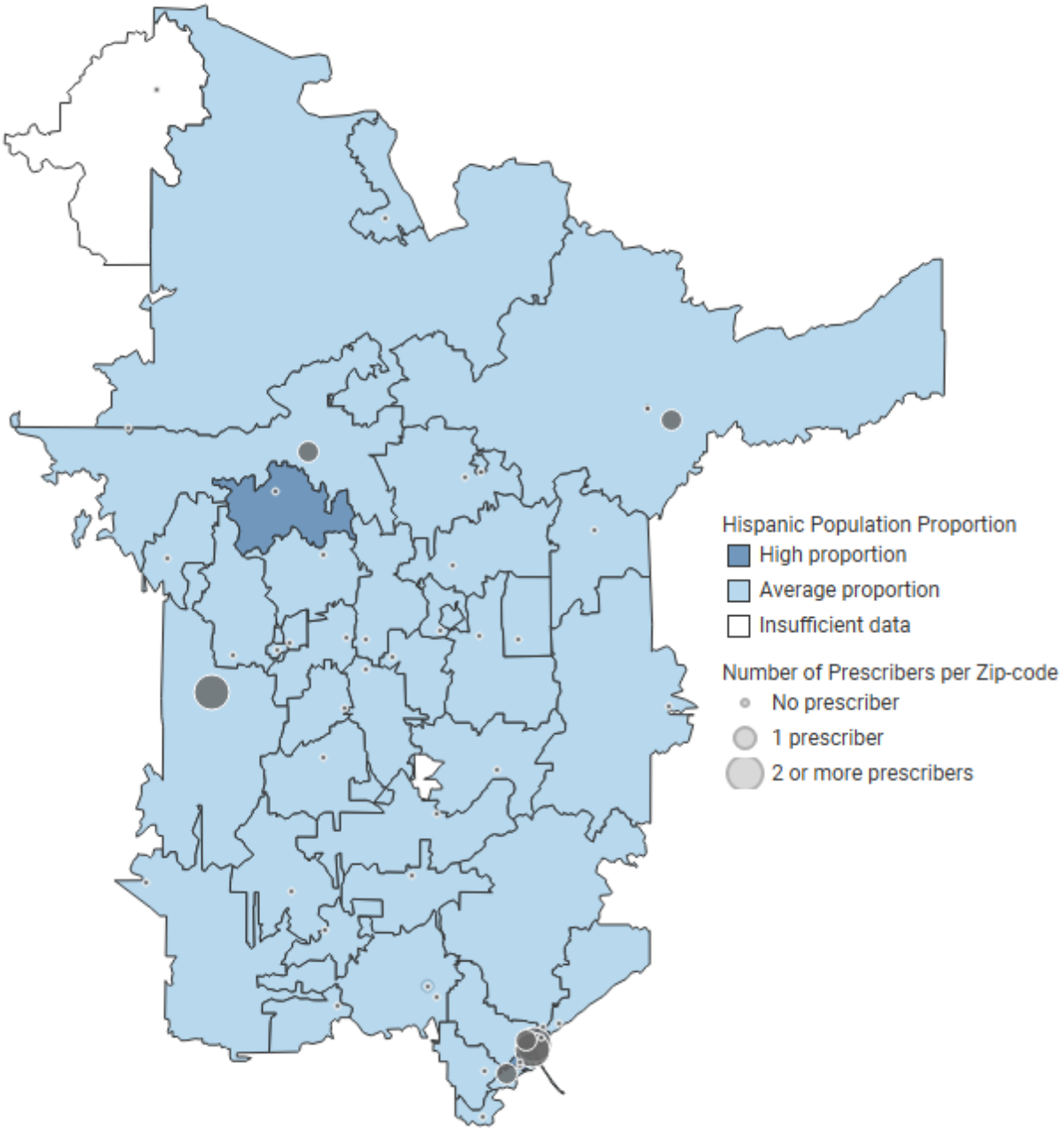
Zip-code	Number of Prescribers per Zip-code	Proportion Black	Proportion Hispanic	Proportion American Indian
55101	2+	High	Average	High
55102	2+	Insufficient data	Insufficient data	Insufficient data
55103	2+	High	Average	Average
55104	1	High	Average	Average
55105	0	Average	Average	Average
55106	1	Average	Average	Average
55107	2+	Average	High	High
55108	0	Average	Average	Average
55109	2+	Average	Average	Average
55110	1	Average	Average	Average
55112	1	Average	Average	Average
55113	2+	Average	Average	Average
55114	2+	High	Average	Average
55116	1	Average	Average	Average
55117	1	Average	Average	Average
55119	0	Average	Average	Average
55126	1	Average	Average	Average
55127	1	Average	Average	Average
55130	2+	Average	Average	Average
55144	0	Insufficient data	Insufficient data	Insufficient data
55146	0	Insufficient data	Insufficient data	Insufficient data
55155	0	Insufficient data	Insufficient data	Insufficient data

Appendix Exhibit 4.7a: St. Louis County, Number of Providers and ZIP Codes with High Proportion of Black Enrollees



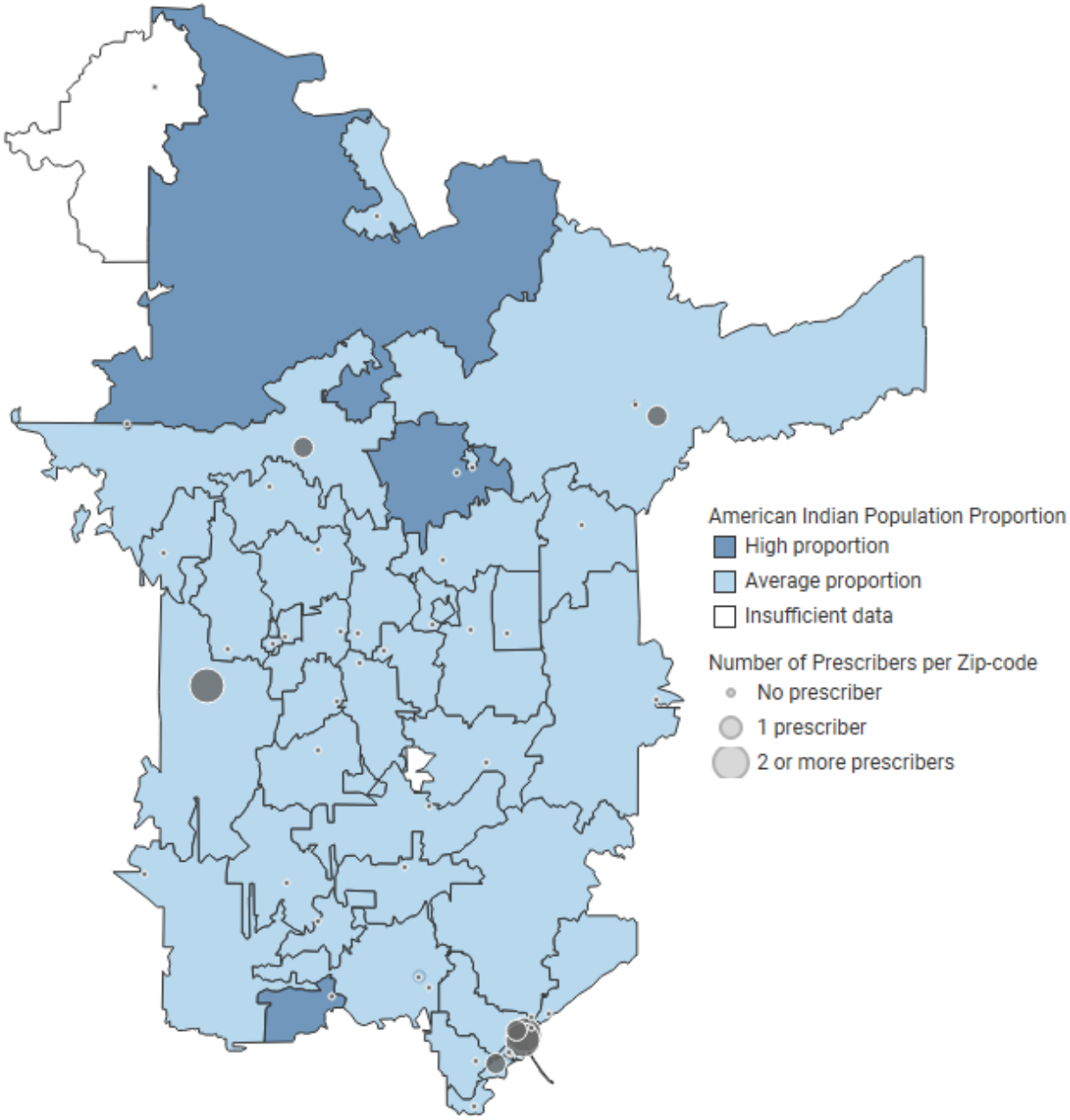
Source: Medicaid Enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

Appendix Exhibit 4.7b: St. Louis County, Number of Providers and ZIP Codes with High Proportion of Hispanic Enrollees



Source: Medicaid Enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

Appendix Exhibit 4.7c: St. Louis County, Number of Providers and ZIP Codes with High Proportion of American Indian Enrollees



Source: Medicaid Enrollment data July 1, 2018 to June 30, 2019; United States Census data, 2014-2018.

Appendix Exhibit 4.7d: St. Louis County, Map-Supporting Data Table

Zip-code	Number of Prescribers per Zip-code	Proportion Black	Proportion Hispanic	Proportion American Indian
55602	0	Average	Average	Average
55702	0	Average	Average	Average
55703	0	Average	High	Average
55705	0	Average	Average	Average
55706	0	Average	Average	Average
55708	0	Average	Average	Average
55710	0	Average	Average	Average
55711	0	Average	Average	High
55713	0	Average	Average	Average
55717	0	Average	Average	Average
55719	0	Average	Average	Average
55723	1	Average	Average	Average
55724	0	Average	Average	Average
55725	0	Average	Average	Average
55731	1	Average	Average	Average
55732	0	Average	Average	Average
55734	0	Average	Average	Average
55736	0	Average	Average	Average
55738	0	Average	Average	Average
55741	0	Average	Average	Average
55746	2+	Average	Average	Average
55750	0	Average	Average	Average
55751	0	Average	Average	Average
55758	0	Average	Average	Average
55763	0	Average	Average	Average
55765	0	Average	Average	Average
55768	0	Average	Average	Average
55771	0	Average	Average	High
55779	0	Average	Average	Average
55781	0	Average	Average	Average
55782	0	Average	Average	Average
55790	0	Average	Average	High
55791	0	Average	Average	High
55792	0	Average	Average	Average
55796	0	Average	Average	Average
55802	2+	High	Average	Average
55803	0	Average	Average	Average
55804	0	Average	Average	Average
55805	2+	High	High	Average
55806	0	High	High	Average
55807	1	High	Average	Average
55808	0	Average	Average	Average

Zip-code	Number of Prescribers per Zip-code	Proportion Black	Proportion Hispanic	Proportion American Indian
55810	0	Average	Average	Average
55811	1	Average	Average	Average
55812	0	Average	High	Average
55816	0	High	Average	Average
56669	0	Insufficient Data	Insufficient Data	Insufficient Data