Altarum

MICHIGAN HEALTH ENDOWMENT FUND

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Access to Behavioral Health Care in Michigan, 2022 Data Update

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Preface

The Michigan Health Endowment Fund contracted with Altarum to update the previous comprehensive assessments of access to behavioral health care in Michigan. The original study used data for calendar year 2016, a subsequent study used data for calendar year 2019, and this study uses data for calendar year 2022.

The final report documents our findings and examines progress on policies and initiatives first identified in the original study. The findings discuss access to mental health and substance use disorder treatment in 2022, providing an updated picture of access after the pandemic.

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1. Summary of Key Findings

In 2020, the world faced unprecedented challenges due to the COVID-19 pandemic. The uncertainties, prolonged stay-at-home orders, and loss of in-person connection deeply affected both the mental and physical health of Michigan residents. By 2022, the prevalence of mental illness in Michigan continued to increase while access to care improved very slightly. Among the more than 2 million Michiganders living with any mental illness (AMI) in 2022, approximately 69% received at least one treatment, leaving 31%—over 670,000 individuals—without care. This demonstrates a positive shift from previous years: in 2016, 38% of those with AMI were untreated, and in 2019, 32% were untreated. However, in general, young people remain a particularly vulnerable group.

Despite these advancements, substantial gaps persist—particularly for those with substance use disorders (SUD). While the majority of Michiganders with SUD remain untreated, access to these services showed slight improvement between 2019 and 2022. Of the 595,000 residents affected in 2022, 28% received treatment; however, 72%—or 430,600 people—still went without care. This is similar to 2019, when 72% of the 581,200 individuals with SUD went untreated, and a modest improvement from 2016, when 80% of the 638,400 individuals with SUD did not receive treatment. The relatively stable rates of treatment during the pandemic, despite extraordinary challenges, reflect a commendable effort across the state.

Consistent with findings from both 2016 data and 2019 data, anxiety disorders and depressive episodes were both the most prevalent mental health conditions and the most likely to go untreated in Michigan for 2022. Likewise, alcohol use disorder continued to be the leading substance use disorder and remained the most likely to be untreated.

Insurance status played a critical role in access to behavioral health services. Among those with insurance, Medicaid enrollees experiencing AMI increased in population prevalence and were also the most likely to remain untreated for mental illness, with 42% not receiving care, compared to 26% of the privately insured and 8% of Medicare enrollees. For substance use disorders, the privately insured were least likely to receive treatment, with 84% untreated, followed by 58% of Medicaid enrollees and 59% of Medicare recipients. Notably, the proportion of untreated Medicaid enrollees with SUD rose from 46% in 2019 to 58% in

2022—likely reflecting heightened challenges for this group during the pandemic, increased SUD prevalence, and limited treatment utilization.

For Medicaid enrollees, where data on race and ethnicity is most comprehensive, the rate of untreated need was generally consistent across racial and ethnic groups. However, American Indian Medicaid enrollees and those classified as Other/Unknown ethnicity exhibited slightly higher unmet needs for AMI and the highest rates for SUD. Service utilization remained lower among populations of color, but their lower prevalence rates led to comparable shares of untreated individuals. It is important to emphasize that this study measures access to any behavioral health treatment over the year and does not assess differences in the quality or duration of care, areas where disparities may be even greater. Other research has highlighted substantial racial gaps in treatment quality within Michigan.

While access to AMI and SUD treatment has historically varied widely across Michigan, 2022 saw improvement in many metropolitan areas. Nevertheless, sizeable disparities remain between regions with the best and worst access, and provider capacity—especially for SUD care in non-metropolitan areas—continues to be a major barrier. If all regions could achieve the rates of care seen in the state's best-performing areas, an additional 437,900 people with mental illness and 65,800 with SUD would receive treatment, raising statewide rates of treatment to 89% for mental illness and 39% for SUD.

This study introduces new analyses of telemedicine and school-based behavioral health services, and revisited policy recommendations from 2019 to evaluate progress and identify ongoing needs. These findings underscore both the resilience and the persistent challenges within Michigan's behavioral health system, highlighting areas for continued improvement and targeted action.

2. Background & Approach

In 2019, the Michigan Health Endowment Fund contracted with Altarum to produce an assessment of access to mental health and substance use disorder care in Michigan. The study was based on 2016 population, prevalence, and utilization data, and provided a baseline against which trends in access could be tracked. The Health Fund again partnered with Altarum to update the assessment of access to 2019 data, providing a picture of access just prior to the COVID-19 pandemic. For the current study, the Health Fund once again partnered with Altarum to update the assessment of access to 2022 data comparing access pre- and post-pandemic.

Behavioral health care in this study includes services to treat mild to moderate mental illness, serious mental illness, SUD, and co-occurring conditions. Intellectual or developmental disabilities are outside the scope of the study. The analysis considers behavioral health care provided in outpatient, intensive outpatient, and residential care settings, coupled with a separate look at school-based settings.

We quantify gaps in access to care by comparing the underlying need for behavioral health care to the services being received. We estimate underlying need in 2022 by applying prevalence rates of mental illness and SUD by age, sex, and insurance type, with Michigan-specific adjustments, to Michigan population counts by age, sex, insurance type, and geographic location. Prevalence rates are from the National Survey on Drug Use and Health (NSDUH) and the National Survey on Children's Health. Michigan population data by age, sex, insurance status, and location are from the U.S. Census Bureau's American Community Survey. We estimate services received using 2022 administrative claims data. We use the Merative *MarketScan Research Database* for commercial claims on the individual, employer and Medicare Advantage segments; complete Medicaid claims data for Michigan; and Medicare Limited Data Set professionals and outpatient facilities' claims on the traditional fee-for-service Medicare population to identify the share of individuals covered by each of these insurance types in Michigan who received behavioral health care services. Finally, for the uninsured and the small share of the population with coverage through the Veterans Administration, Military Health System, Indian Health Service, or other source not reflected in our combined claims data, we used data from the NSDUH to estimate the share untreated. A more detailed description of our data sources and methods

is presented in Appendix A.

Our measure of access quantifies the share of those with a behavioral health condition who receive any behavioral health care, compared to the share that remains untreated. It represents a minimum standard for access and does not indicate whether the appropriate type and volume of care was provided.

In addition to replicating the 2019-based measures of access and comparing them to access in 2022, this study examined several additional dimensions and populations of interest. We examine place of service for care delivery including use of telehealth, and school-based settings in 2022. To remain consistent with the approach used in 2016 and 2019, we did not include medication-assisted treatment (MAT) procedures in our SUD treatment analyses (although members that received MAT alongside other types of SUD treatment would still be included in our "received care" data). This choice was made in 2016 due to other MAT studies that were already underway in Michigan, and while we are consistent in the top-level findings in this report, we show separately MAT utilization as a new section to quantify use of MAT for treatment of opioid use disorder. We also provide descriptive analyses of behavioral health care use by fee-for-service Medicaid beneficiaries as compared to those covered under Medicaid managed care. Finally, we re-examine policy recommendations provided in the 2016 report to determine progress on implementation.

In March 2020, the COVID-19 pandemic triggered a global public health emergency, leading to various executive orders from governors across the United States, including Michigan. These orders restricted gatherings, mandated face masks, and altered social interactions. Educational institutions from preschools to universities transitioned to virtual learning, and sporting events were either canceled or held without spectators. In Michigan, the Governor declared a public emergency and issued the "Stay Home, Stay Safe" order in March 2020. Although the Stay Home Order was lifted by June 2020, other restrictions remained in place until all executive orders related to COVID-19 were lifted on June 17, 2021.[1]

During this period, the entire country experienced significant increases in behavioral health and substance use disorders. In 2019, 1 in 10 American adults reported symptoms of anxiety or depression. This figure increased to 4 in 10 adults by early 2021 and settled to 3

[1] MDHHS. (2021). Rescission of emergency orders. Rescission of Emergency Orders

in 10 adults as the pandemic continued.[2] Survey research in 2020 revealed substantial increases in behavioral health diagnoses compared to 2019, with 26% of respondents meeting clinical cutoff scores for generalized anxiety disorder, three times higher than 2019. Additionally, 24% of respondents were symptomatic for depressive disorder, four times higher than 2019.[3] By June 2020, 13% of Americans reported starting or increasing substance use as a way of coping with stress related to COVID-19.[4] The impact of COVID-19 on mental health and substance use disorder was profound across the United States, and Michigan was no exception.

[2] Panchal, N., Saunders, H., Rudowitz, R., & Cox, C. (2023). The implications of COVID-19 for mental health and substance use. *KFF*. The Implications of COVID-19 for Mental Health and Substance Use | KFF

[3] SAMHSA. (2021). A preliminary look at the mental health and substance use-related effects of the COVID-19 pandemic. *Disaster Technical Assistance Center Supplemental Research Bulletin*. *Supplemental Research Bulletin: A Preliminary Look at the Mental Health and Substance Use-related Effects of the COVID-19 Pandemic*

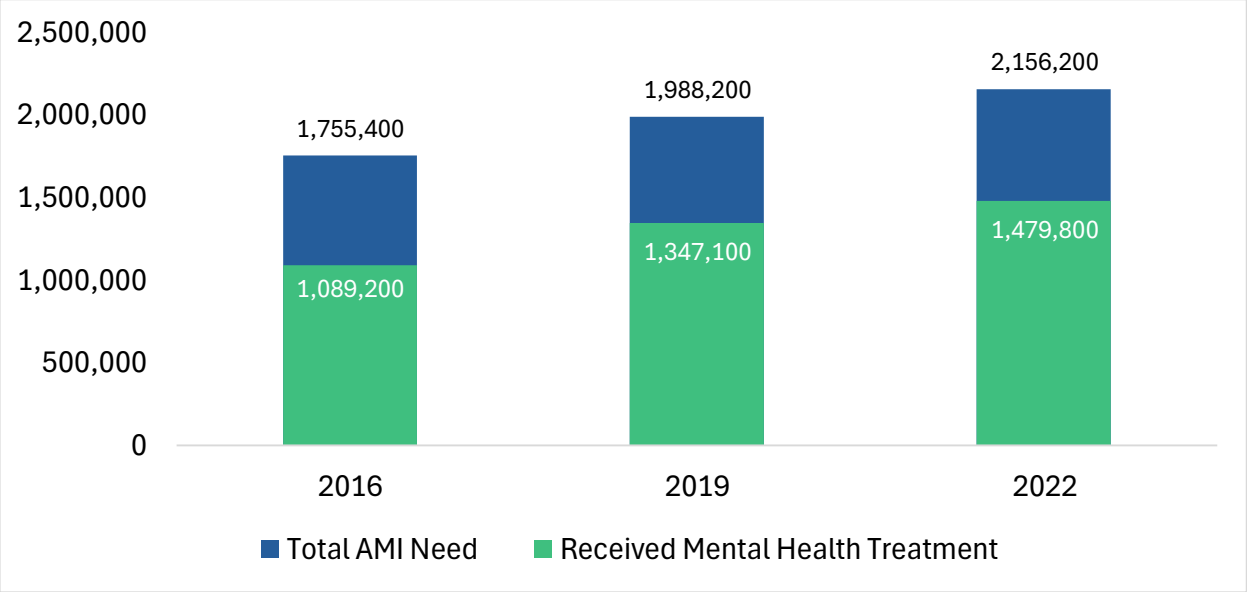
[4] Abramson, A. (2021). Substance use during the pandemic. *American Psychological Association*. Substance use during the pandemic

3. Overall Access to Behavioral Health Care

3.1 OVERALL ACCESS FOR TOTAL MICHIGAN POPULATION

Of a total Michigan population of 10.5 million people, we estimate over 2.15 million experienced any mental illness (AMI) in 2022, an increase over our estimate of 1.99 million people experiencing AMI in 2019 and 1.76 million in 2016. While the number of people with AMI increased, we find that access to AMI care has remained relatively flat with some groups experiencing improvements to access and others falling back. We estimate that 31% of those with AMI, or 676,400 people, went untreated for AMI in 2022, compared to 32% (641,100 people) untreated in 2019 and 38% (666,200 people) in 2016 (Figure 1).

FIGURE 1: Unmet Need for Any Mental Illness (AMI) Care in Michigan, 2022, 2019 and 2016

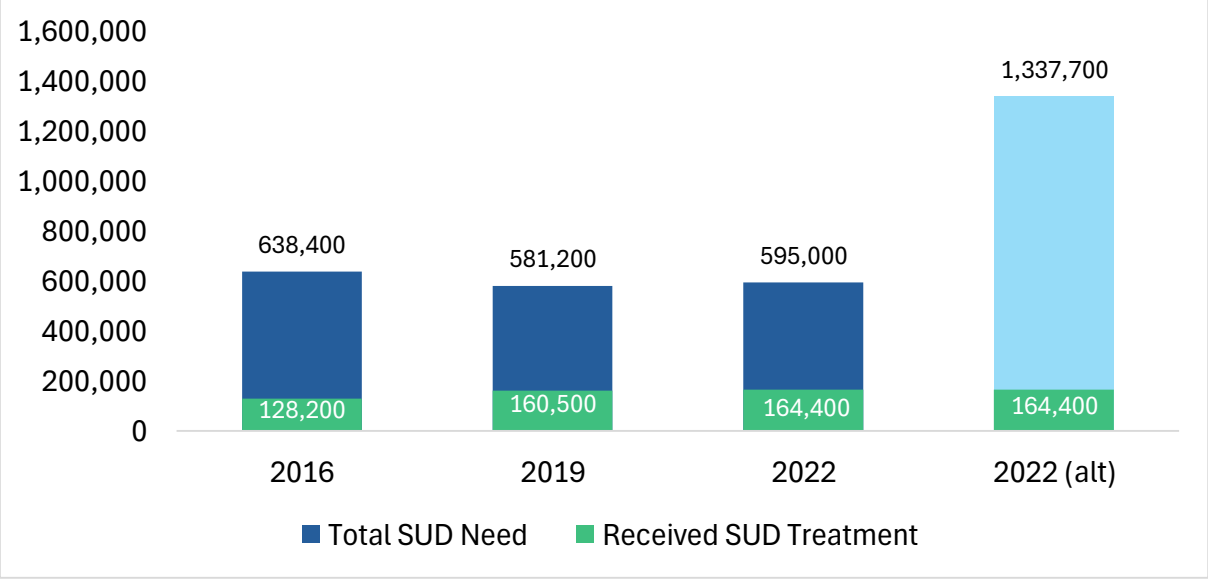


Access to care for substance use disorder (SUD) continues to present challenges in Michigan. Recent changes to the methodology and structure of the National Survey on Drug Use and Health, which since the last study has split SUD into mild, moderate, and severe

levels, have resulted in higher reported rates of SUD within the state[5,6,7]. To maintain continuity with previous reports, we analyze moderate and severe SUD rates from 2022 throughout this study. Nevertheless, in this section, we also present findings based on the updated SUD definitions to establish a new baseline for future comparisons. This approach allows for both consistency with prior analyses and an informed understanding of trends moving forward.

We find that 595,000 Michiganders experienced SUD in 2022, a slight increase over the 581,200 with SUD in 2019, but a decrease from the 638,400 in 2016. SUD treatment remained relatively flat between 2019 and 2022 with 73%, or 430,600 people untreated in 2022 and 72%, or 420,700 people untreated in 2019. Yet both years revealed better access to treatment compared to 2016 with 80%, or 510,000 people untreated (Figure 2). Note the updated SUD definition which now includes mild, moderate, and severe SUD shows a much higher portion of Michiganders experiencing SUD (1.33 million) and a much higher rate of untreated status at 78%, or 1.17 million people.

FIGURE 2: Unmet Need for Substance Use Disorder (SUD) Care in Michigan, 2022, 2019 and 2016



[5] Substance Abuse and Mental Health Services Administration. (2016). Impact of the DSM-IV to DSM-5 Changes on the National Survey on Drug Use and Health [Internet]. Rockville (MD): Substance Abuse and Mental Health Services Administration (US); 2016 Jun. 2, Substance Use Disorders. Available from: https://www.ncbi.nlm.nih.gov/books/NBK519702

[6] Compton, W., Einstein, E., & Han. B. (2024). 12-month prevalence estimates of substance use disorders using DSM-5 versus DSM-IV criteria among U.S. nonelderly adults with substance use. *American Journal of Psychiatry*, 181(11). 12-month Prevalence Estimates of Substance Use Disorders Using DSM-5 Versus DSM-IV Criteria Among U.S. Nonelderly Adults With Substance Use | American Journal of Psychiatry

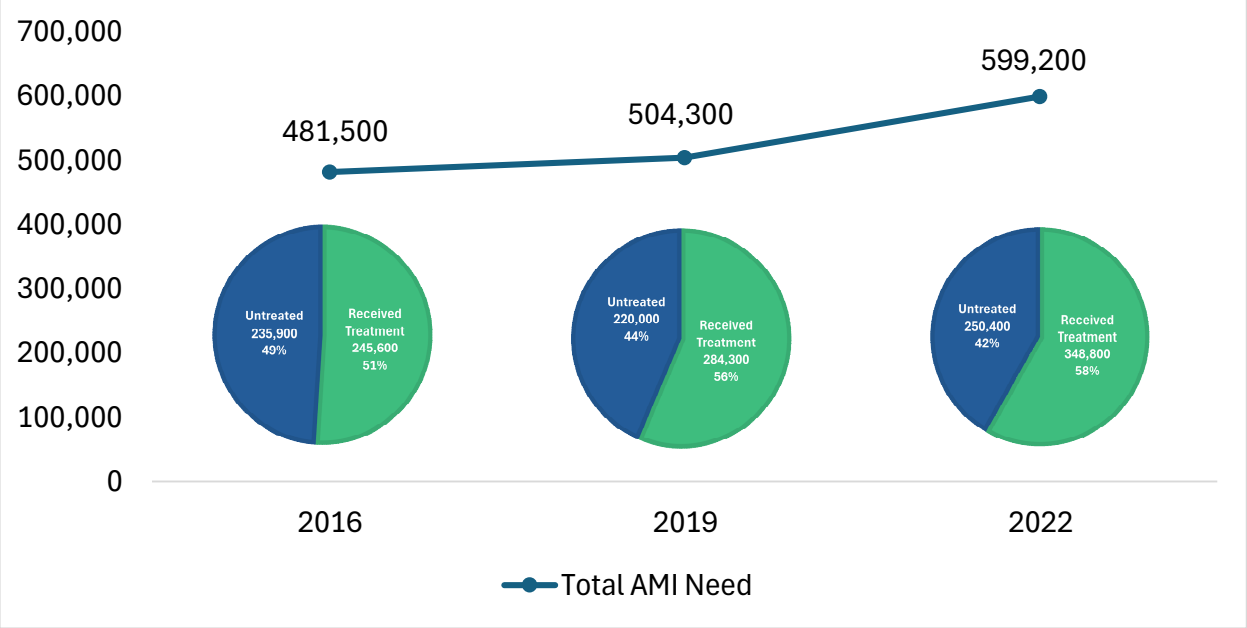
[7] SAMHSA. (2022). 2022 National survey on drug use and health (NSHDUH) releases. 2022 National Survey on Drug Use and Health (NSDUH) Releases | CBHSQ Data

3.2 OVERALL ACCESS FOR MEDICAID ENROLLEES IN MICHIGAN

Of the 2.08 million Michiganders covered under the Medicaid program in 2022, we estimate 599,200 experienced AMI, indicating an increase in population prevalence as our estimates of the Medicaid population with AMI were lower in 2019 (504,000) and 2016 (481,500).

We find that access to care under Medicaid stayed relatively consistent, yet increased in absolute numbers, with 42%, or 250,400 Medicaid enrollees with AMI not receiving care, compared to 44%, or 220,000 in 2019 and nearly half of Medicaid enrollees with AMI (49% or 236,000 people) in 2016 (Figure 3.)

FIGURE 3: Percent and Absolute Number of Unmet Need for AMI Care, Medicaid Enrollees in Michigan



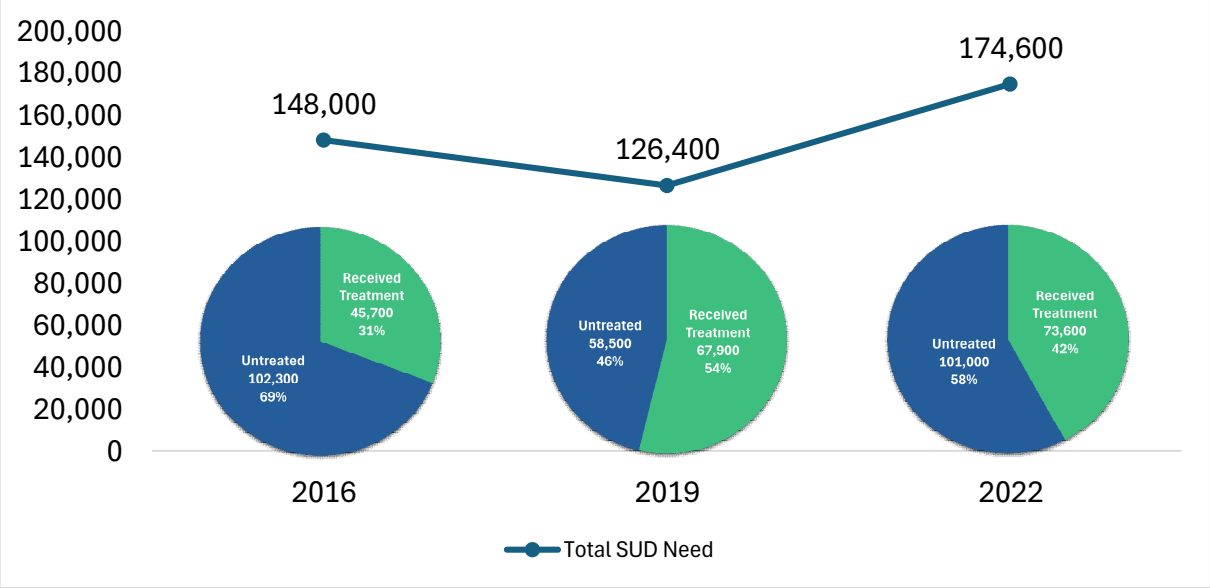
For SUD care, there was a large increase in the access gap to 58% (101,000 Medicaid enrollees) with SUD untreated in 2022 compared with 46% (58,500 enrollees) in 2019 and 69% (102,300 enrollees) in 2016 (Figure 4). The magnitude of the gap in the share of Medicaid enrollees untreated is driven by several factors, and it is important to note that because SUD prevalence stated as a percent of the total population is small, relatively small changes in both utilization and prevalence data can have a large impact on the treatment gap calculation. Our data show that an estimated 42,500 more Medicaid enrollees were "untreated" for a SUD in 2022 relative to 2019. This increase is caused by two factors: first, the overall need for SUD care increased by an estimated 48,200 Medicaid enrollees

between 2019 and 2022, and second, the rate receiving treatment fell slightly in the most recent period. We discuss these trends and other data on SUD treatment prevalence below.

The estimated prevalence of SUD for Medicaid enrollees increased in 2022 as measured by the NSDUH, rising from 6.9% to 8.8%, the largest share of Medicaid enrollees since our access studies began. Even with the same level of utilization, if expected need increases, the share receiving care will decrease. This prevalence increase incorporates changes in the NSDUH survey definitions and methodology made between 2019 and 2022 but is likely a reflection of ongoing changes in drug use and SUD prevalence that occurred during the COVID-19 pandemic.[8]

Second, in the Medicaid claims data, while the rate of Medicaid enrollees receiving SUD care for Medicaid increased from 2.3% in 2016 to 3.7% in 2019 this rate did not increase in 2022, holding at 3.7%. With a larger overall Medicaid population, the same rate of care led to more patients receiving SUD treatment from Medicaid (73,600 vs 67,900), yet this was not a sufficient increase to account for the higher levels of SUD need seen between 2019 and 2022.

FIGURE 4: Percent and Absolute Number of Unmet Need for SUD Care, Medicaid Enrollees in Michigan



[8] Vo, A., Patton, T., Peacock, A. Larney, S., Borques, A. (2022). Illicit substance use and the COVID-19 pandemic in the United States: A scoping review and characterization of research evidence in unprecedented times. *In J Environ Res Public Health, 19*(14), 8883. Doi: 10.3390/ijerph19148883.

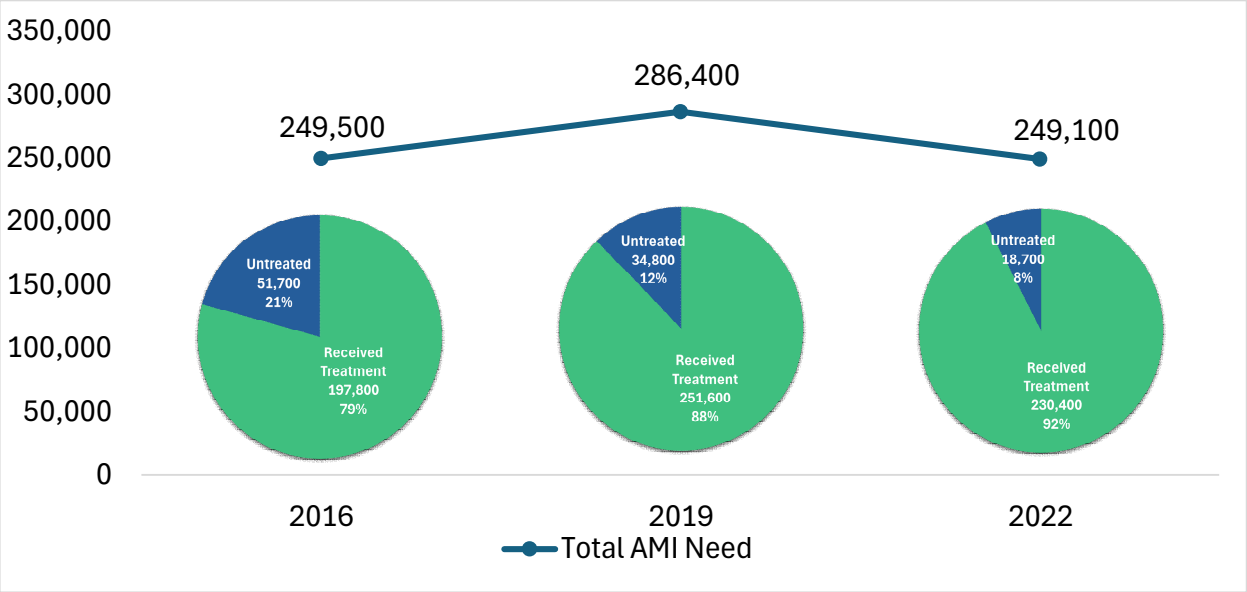
It is very important to note our definition of "receiving any care" is classified as any *one* instance of either SUD-specific outpatient treatment or an office visit for the primary purpose of treating a SUD diagnosis. As a result, we expect that even among the 52% receiving care in this analysis there remain very significant gaps and additional needed services to reach complete and robust treatment quality to achieve patient recovery. For example, some claims in our Medicaid data include procedures such as "drug tests to monitor substance use disorders" in our treatment set, that while important as a part of a suite of SUD care, would be far from sufficient to be "quality" care for SUD by themselves.

While the percentage of Medicaid enrollees in Michigan receiving SUD-related outpatient or office visits dropped from 54% in 2019 to 52% in 2022, the total number needing services rose during this period. As a result, more people were treated for SUD despite the slight percentage decline. In 2022, 96.7% of Medicaid enrollees who had an SUD screening code on their claims also had at least one follow-up claim for non-screening services within the year. Although it remains unclear whether these follow-up claims reflect appropriate or high-quality treatment, the claims data indicate that screening was typically followed by additional treatment activity.

3.3 OVERALL ACCESS FOR MEDICARE ENROLLEES IN MICHIGAN

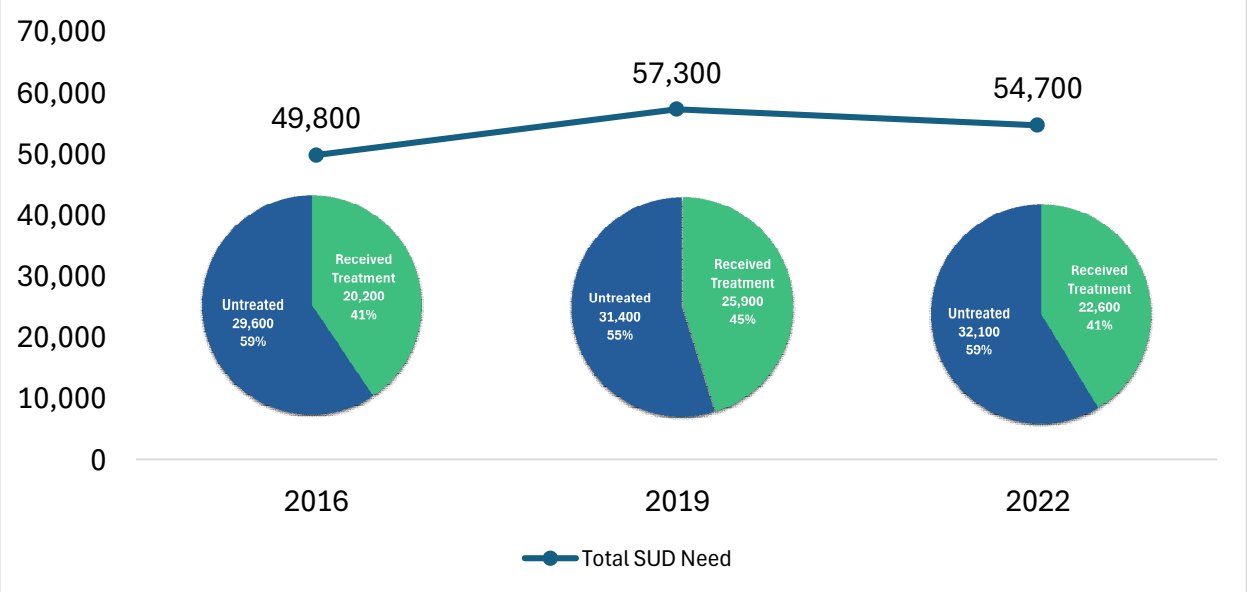
Of the 1.83 million Michiganders in 2022 covered under the Medicare program, we estimate about 249,100 experienced AMI and about 54,700 experienced SUD in 2022. We find that 8% of Medicare enrollees with AMI, about 18,700 people, went untreated in 2022 (Figure 5), an increase in access from 2019, when 12% or about 34,800 Michigan Medicare enrollees went untreated. Data from 2022 continues to show improvements from the 21%, or about 51,700 Medicare enrollees, that went untreated in 2016.

FIGURE 5: Percent and Absolute Number of Unmet Need for AMI Care, Medicare Enrollees in Michigan



Access to SUD care for Medicare enrollees was little changed between 2019 and 2022, with slightly lower prevalence of SUD in Medicare in 2022 equating to 59% (about 32,100 people) untreated in 2022, compared to 55% (31,400 people) in 2019 and 59% (29,600 people) in 2016 (Figure 6).

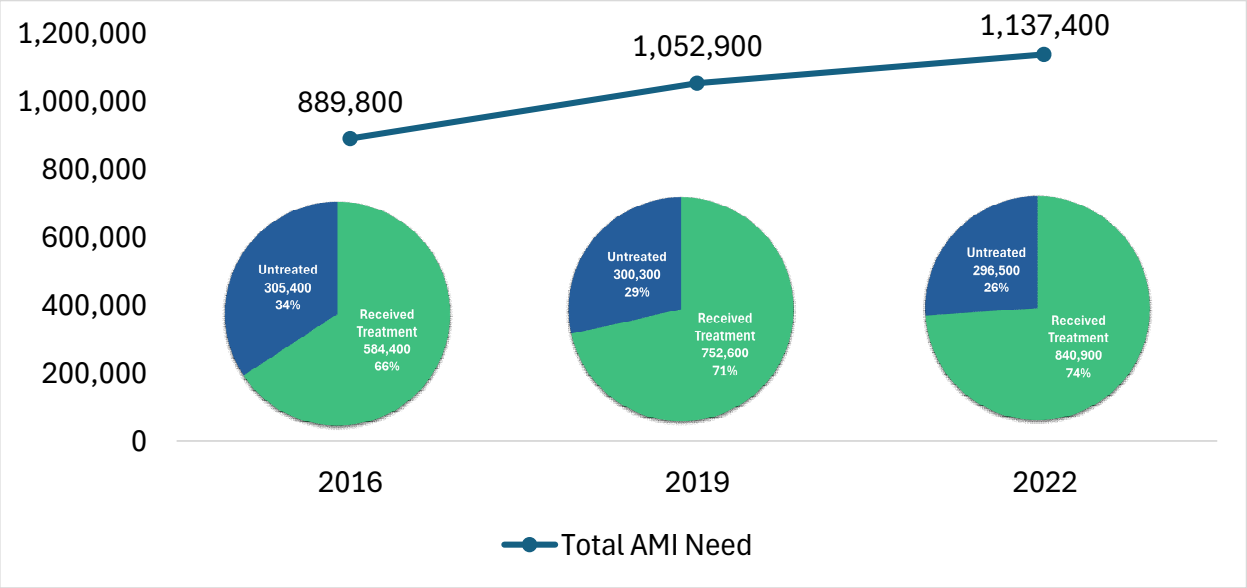
FIGURE 6: Percent and Absolute Number of Unmet Need for SUD Care, Medicare Enrollees in Michigan



3.4 OVERALL ACCESS FOR PRIVATELY INSURED IN MICHIGAN

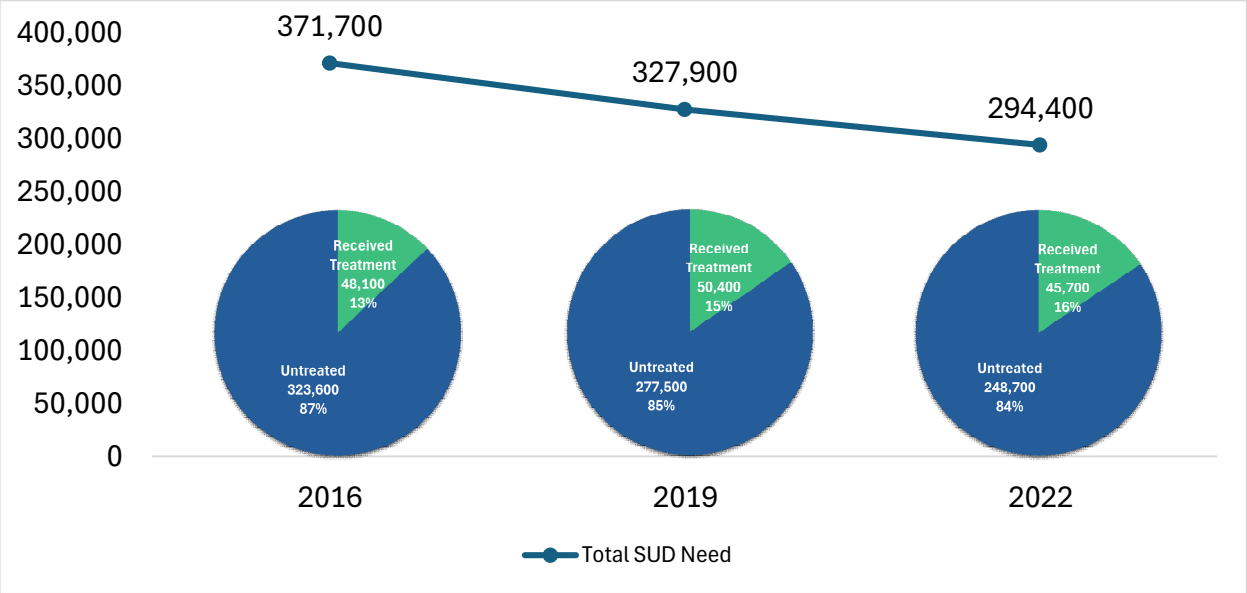
In 2022, of the roughly 5.4 million Michiganders with private health insurance, we estimate approximately 1.1 million people experienced AMI, an increase from the 1.05 million we estimated in 2019, and higher than the 890,000 we estimated for 2016. With the higher prevalence, we find that access to AMI care for the privately insured also improved between 2019 and 2022, with the share going untreated dropping to 26%, or 296,500 people, compared to over 300,000 people, 29% in 2019, and 34%, or more than 305,000 people, in 2016 (Figure 7). Because the prevalence of AMI for the privately insured increased in 2022, the lower share untreated is an even greater accomplishment for Michigan.

FIGURE 7: Percent and Absolute Number of Unmet Need for AMI Care, Privately Insured in Michigan



In 2022, an estimated 294,400 privately insured Michiganders experienced SUD, a decrease from 327,900 in 2019 and 371,700 in 2016. The proportion of privately insured individuals with SUD who remained untreated was relatively stable, with 84% untreated in 2022, 85% in 2019, and 87% in 2016. Despite the consistently high percentage, the absolute number of untreated individuals with SUD has declined since 2016 (see Figure 8).

FIGURE 8: Percent and Absolute Number of Unmet Need for SUD Care, Privately Insured in Michigan

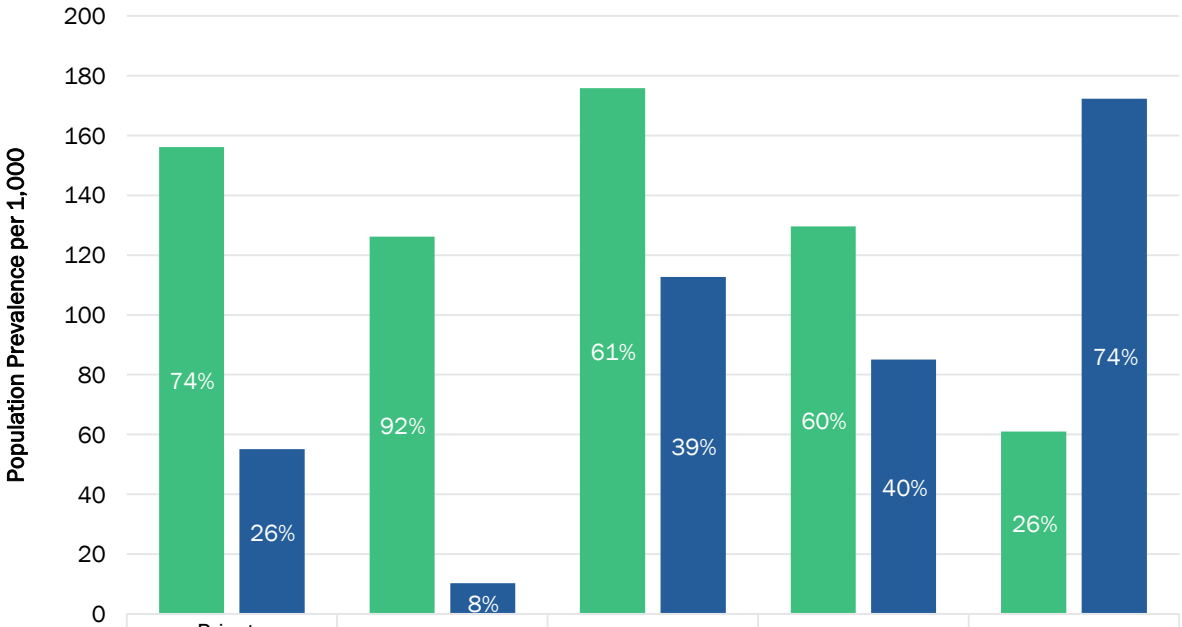


4. Comparison Across Payer Type

4.1 OVERALL COMPARISONS BY PAYER TYPE

In 2022, Medicaid enrollees demonstrated a higher prevalence of AMI than individuals with other forms of coverage in Michigan, at approximately 288 per 1,000 individuals (see Figure 9). Figure 9 illustrates disease prevalence by the height of each bar representing the number of cases per 1,000 people; shaded sections indicate the proportions treated and untreated, while the legend provides further details on treatment status per 1,000 individuals. Among payer types, the uninsured exhibited the next-highest prevalence at 233 per 1,000, followed by those with private insurance and other insurance at roughly 211 and 215 per 1,000, respectively. Medicare enrollees reported the lowest rate at about 136 per 1,000. Between 2016 and 2022, AMI prevalence increased across all payer types except for Medicare. For comparison, comparable rates in 2019 ranged from 165 per 1,000 for Medicare to 275 per 1,000 for Medicaid, whereas in 2016, the range extended from 150 per 1,000 for Medicare to 250 per 1,000 for Medicaid.

FIGURE 9: Unmet Need for AMI in Michigan by Payer Type, per 1,000 individuals, 2022

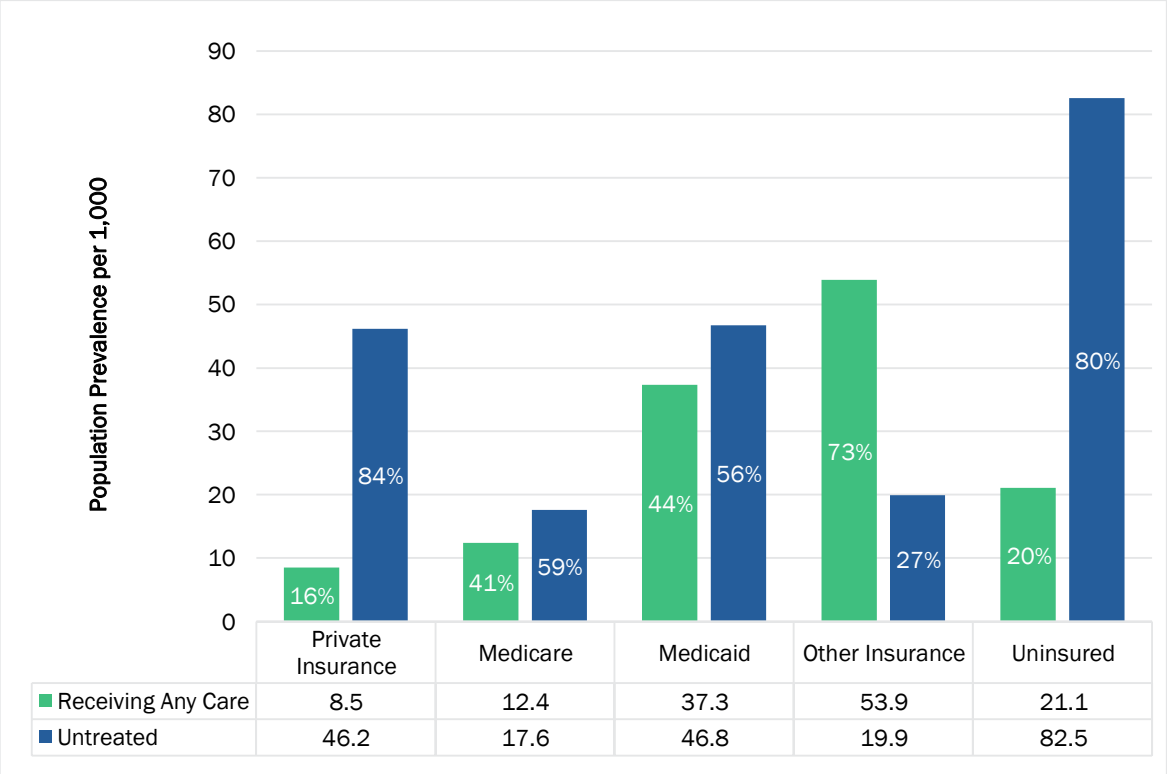


	Private Insurance	Medicare	Medicaid	Other Insurance	Uninsured
Receiving Any Care	156	126	176	130	61
Untreated	55	10	113	85	172

Not surprisingly, the uninsured had the highest share untreated in 2022, at 74% (Figure 9). Among those with insurance, Medicaid enrollees had the largest share untreated for AMI, at 42%. About 26% of the privately insured with AMI and 8% of those with Medicare (a combination of Medicare Advantage and Fee-for-Service enrollees) were untreated. Of note, the prevalence of AMI in the Medicare population decreased from 2019 when it was 165 per 1,000 to 136 per 1,000 in 2022, while the number of people with AMI in the Medicare population receiving any care increased from 88% in 2019 to 92% in 2022.

In Michigan, the uninsured had the highest rates of SUD, followed by Medicaid recipients and those with other coverage. The privately-insured had the largest proportion untreated at 84%, while untreated rates for Medicaid, Medicare, the uninsured, and other insurance ranged from 58% to 80%. Access to SUD care was best for those with "Other Insurance" (VA, MHS, IHS) at 27% untreated. Compared to previous years, 2022 saw 58% of Medicaid enrollees untreated for SUD, up from 46% in 2019 and down from 70% in 2016, a trend likely impacted by the COVID-19 pandemic.

FIGURE 10: Unmet Need for SUD in Michigan by Payer Type, per 1,000 individuals, 2022



	Private Insurance	Medicare	Medicaid	Other Insurance	Uninsured
Receiving Any Care	8.5	12.4	37.3	53.9	21.1
Untreated	46.2	17.6	46.8	19.9	82.5

4.2 PRIVATE INSURANCE, MEDICAID, AND MEDICARE PAYER SUBTYPE COMPARISONS

In addition to computing the percentage of those with AMI/SUD conditions receiving treatment by major insurance category, we use the available claims data to assess differences in utilization of behavioral health care by different insurance subtype categories. The necessary prevalence data from NSDUH is unfortunately not available for specific insurance subtypes or plan types; therefore, these analyses are limited to differences in the percentages receiving any service. In these analyses differing rates in utilization across different insurance subtypes within each category are likely driven both by differences in the way plan subtypes impact access, but also due to health differences in the populations across subtypes. For example, we might expect that those enrolled in a Medicare Advantage plan would have on average, a lower prevalence of behavioral health conditions compared to those in the Medicare FFS population, and similarly those enrolled in a Michigan Medicaid managed care organization (MCO) Health Plan may look healthier than those that are excluded from this managed care population. Despite the limitation in not having insurance

subtype specific prevalence estimates, these analyses reveal interesting findings on how different insurance specifications can impact the use of behavioral health care services.

Figure 11 shows the rate per 1,000 enrollees receiving care for any mental illness across the available payer subtypes. In private insurance, we find that utilization was slightly higher in High-Deductible/Consumer-Directed plans than it was in HMO and PPO and "Other/Unlisted" plans. For Medicare, we find that utilization was higher among those enrolled in "traditional" fee-for-service Medicare than those in Medicare Advantage, a fact likely driven both by wider networks for fee-for-service enrollees, but also potentially a sicker population. For Medicaid, we find that utilization of AMI treatment was very slightly higher among those with enrollment in a Medicaid Health Plan (MHP) compared to those without enrollment in a managed care plan. Some of these findings were similar to 2019 findings with the exception of enrollees of High-Deductible/Consumer-Directed plans or "Other/Unlisted" having higher utilization than those in HMO and PPO plans. Contrary to research that shows High-Deductible/Consumer-Directed health plans result in a decrease in services, these data show an uptick in utilization from 2019 for this group. This could be a signal that people are prioritizing mental health treatment regardless of their insurance plans, especially during major events such as the COVID-19 pandemic, or could signal greater sorting of those with higher behavioral health care needs into HDHPs between 2019 and 2022.

FIGURE 11: Utilization of AMI Care by Insurance Subtypes, per 1,000 individuals, 2022

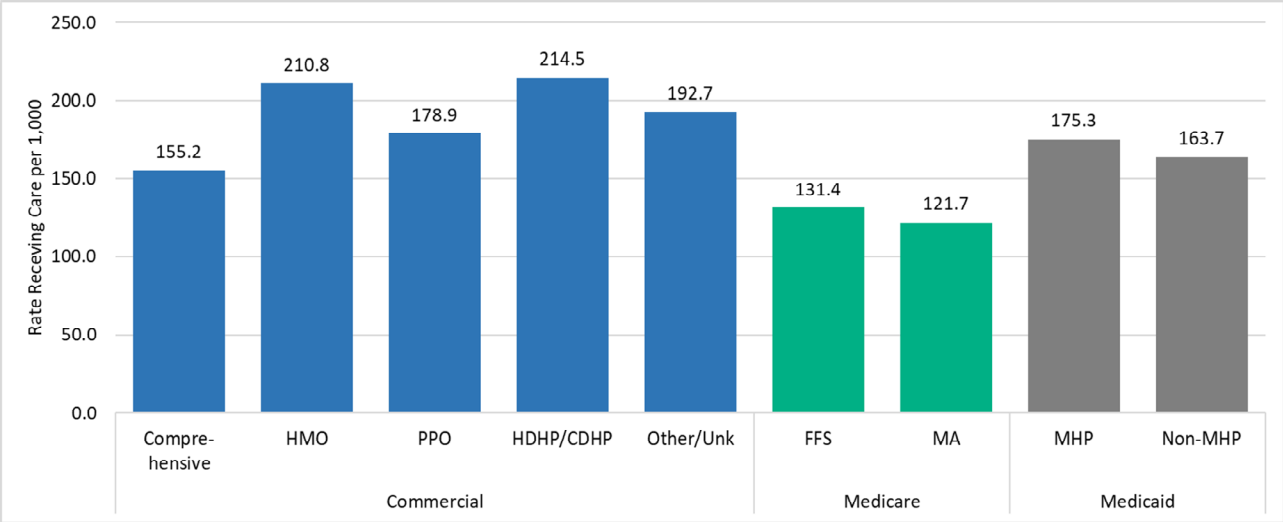
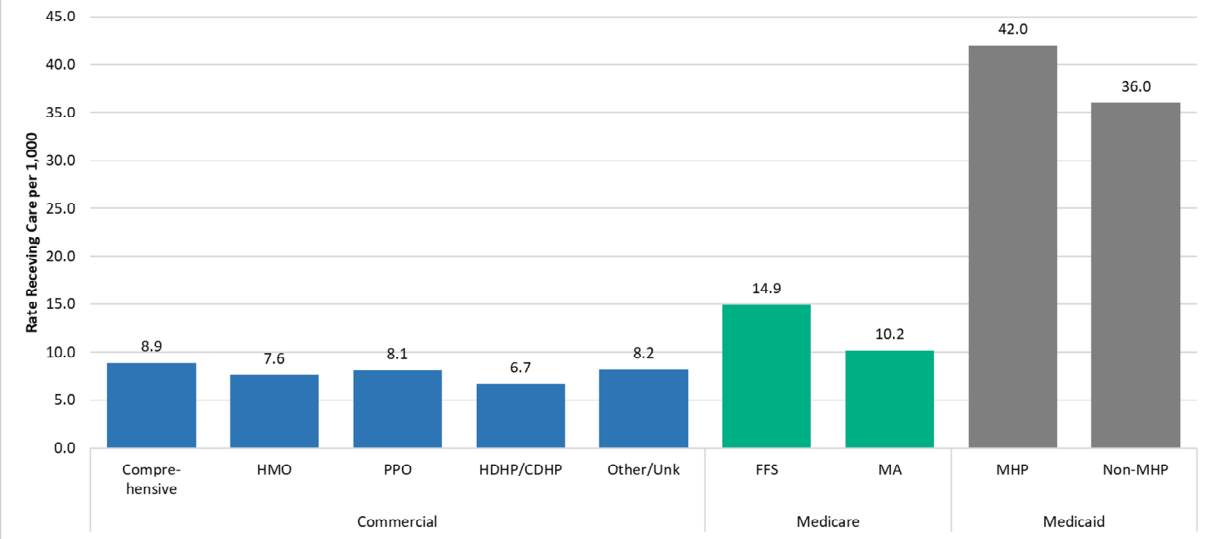


Figure 12 presents a comparison of utilization rates across payer subtypes for SUD treatment, revealing patterns relatively consistent with those observed for AMI. The Medicaid treatment rate for SUD remains substantially higher than that of Medicare or major private insurance categories. In 2022, HDHP/CDHP plans exhibit lower utilization rates for SUD treatment compared to other private insurance subtypes, while Medicare Advantage enrollees demonstrate lower utilization than their counterparts in the Medicare FFS population. Within Medicaid, individuals with an MHP enrollment identifier experience slightly higher rates of SUD treatment relative to those not enrolled in a plan. Note that enrollment in an MHP does not necessarily mean the managed care plan paid for the entirety of the BH treatment (as other payment, such as Fee-for-Service Medicaid or the Prepaid Inpatient Health Plans may cover some of the services—more detail on this in the following paragraph).

FIGURE 12: Utilization of SUD Care by Insurance Subtypes, per 1,000 individuals, 2022



Within the Michigan Medicaid program, there are three primary payer subtypes that can be assigned to cover behavioral health treatment: (1) Traditional Medicaid Health Plans (MHPs); (2) Prepaid Inpatient Health Plans (PIHPs); and (3) Fee-for-service claims (FFS). While payment for claims within each mental illness condition and SUD category are split among all three payer types, the traditional MHPs tend to cover less severe instances of mental illness treatment while PIHPs are required to cover severe mental illness and all of SUD treatment. FFS payments cover care not provided by either of the other two options.

In Figure 13, we show the split of AMI and SUD care paid for under each of the three major Medicaid payer types. We show the percentage of enrollees with an MHP assignment based on their enrollment identifiers vs. those without an MHP assignment who had care paid for by each Medicaid payer subtype, and the comparable proportions of total claims paid. In general, the percentage of those with a claim and total claims paid for mental health are more likely to be higher for the traditional MHP payers, especially those with MHP assignments. For those without MHP enrollment, FFS/unknown payers were the most common payers for mental health care. Comparatively, care for SUD treatment, and particularly those without an MHP enrollment identifier is more often paid through the PIHPs. Analyses from prior studies have found that care for behavioral health conditions that are more likely to be moderate or severe (rather than mild) are paid for at a higher rate by the PIHPs, while diagnoses that are more likely to be mild are paid for at higher rates by the MHPs.

FIGURE 13: Percent of Members and Proportion of Claims Paid by Medicaid Plans, 2022

(columns may not add to 100% due to rounding and/or overlap)	Percent of Those with any Claim from each Payer Subtype	Percent of All Claims Paid
Treatment for Any Mental Health Condition		
Percent of Enrollees with an MHP Assignment	77.8%	82.3%
and had claims from an MHP	82%	66%
and had claims from an PIHP	14%	17%
and had claims from FFS/Unknown Payer	21%	17%
Precent without an MHP Assignment	22.2%	17.7%
and had claims from an MHP	24%	18%
and had claims from an PIHP	18%	22%
and had claims from FFS/Unknown Payer	72%	60%
Treatment for Any Substance Use Disorder		
Percent of Enrollees with an MHP Assignment	79.2%	83.5%
and had claims from an MHP	60%	30%
and had claims from an PIHP	44%	57%
and had claims from FFS/Unknown Payer	25%	12%
Precent without an MHP Assignment	20.8%	16.5%
and had claims from an MHP	19%	10%
and had claims from an PIHP	46%	57%
and had claims from FFS/Unknown Payer	55%	33%

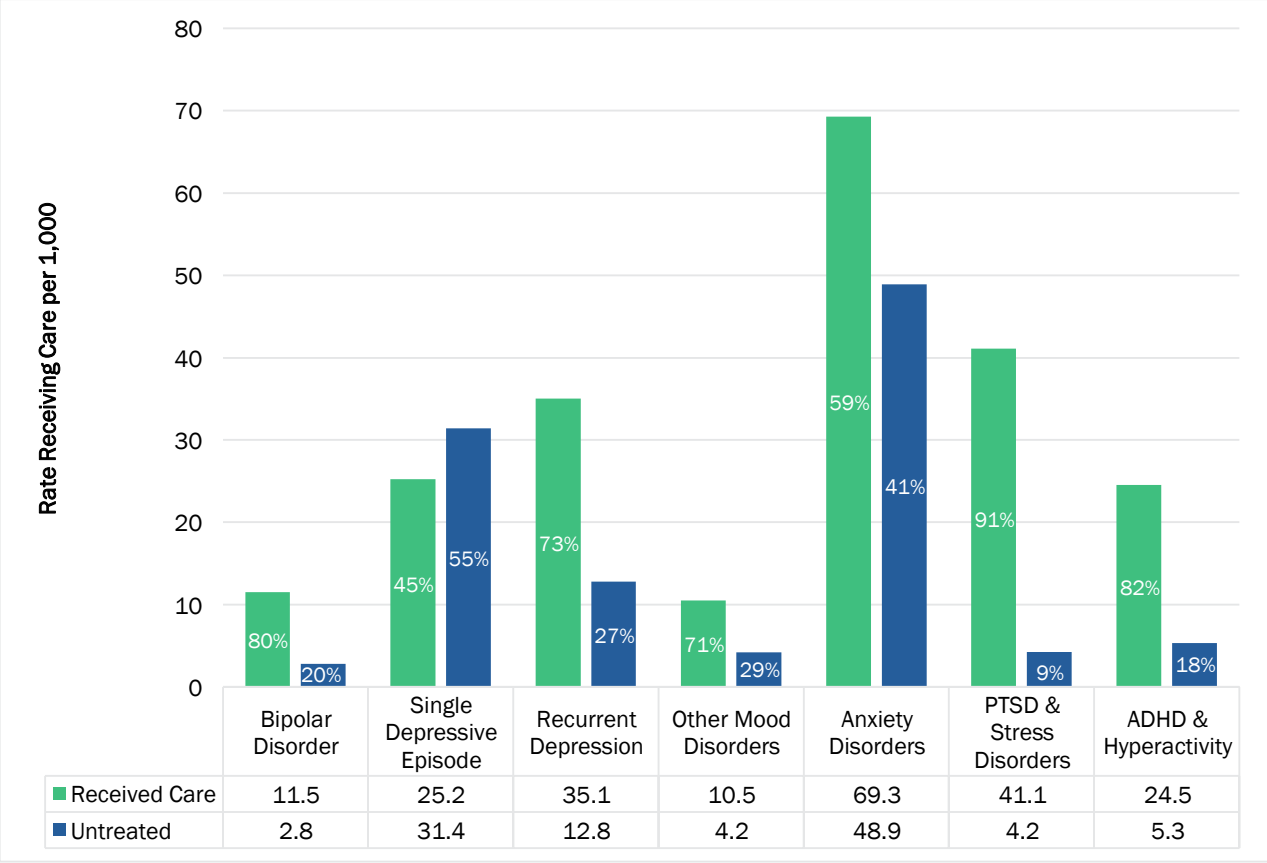
5. Results for Common Conditions

We examined results by common AMI and SUD conditions for the Medicaid, Medicare, and privately insured populations in Michigan.

5.1 COMMON MENTAL HEALTH CONDITIONS

In Michigan, unmet mental health needs in 2022 were highest for mild-to-moderate conditions (Figure 14). As in previous years, single depressive episodes (55% untreated) and anxiety disorders (41% untreated) had the most untreated cases. Untreated rates for severe conditions remained similar from 2019 to 2022: bipolar disorder fell from 22% to 20%, recurrent depression was up 26% to 27%, other mood disorders went up from 26% to 29%, ADHD went down from 20% to 18%, and PTSD untreated went from 10% to 9%. Where improvements were seen, they may be linked to increased telehealth access which will be discussed later in the report.

FIGURE 14: Prevalence and Unmet Need for AMI Care in Michigan by Common Condition, per 1,000 individuals, 2022

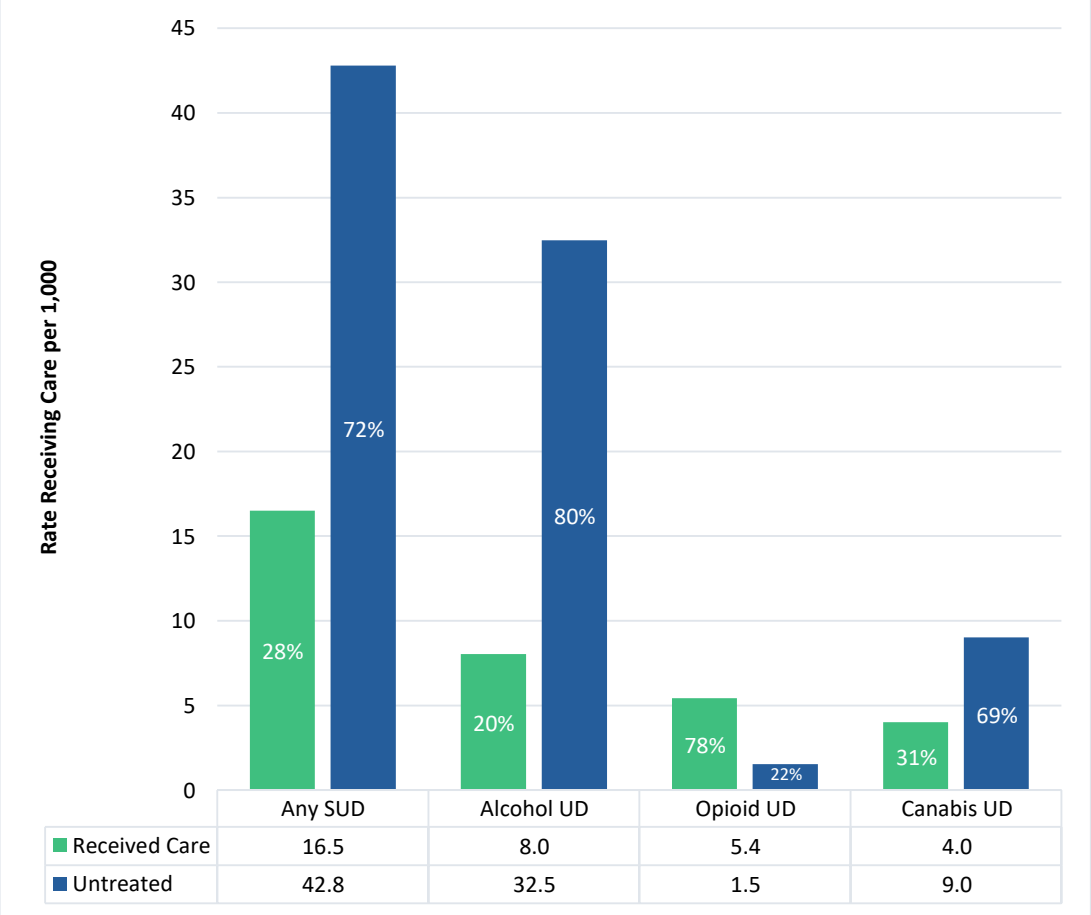


	Bipolar Disorder	Single Depressive Episode	Recurrent Depression	Other Mood Disorders	Anxiety Disorders	PTSD & Stress Disorders	ADHD & Hyperactivity
Received Care	11.5	25.2	35.1	10.5	69.3	41.1	24.5
Untreated	2.8	31.4	12.8	4.2	48.9	4.2	5.3

5.2 COMMON SUBSTANCE USE DISORDERS

As we saw in 2016 and 2019, among common SUDs in Michigan in 2022, prevalence and the unmet need was greatest for alcohol use disorder (Figure 15). Michiganders experienced alcohol use disorder at about four times the rate as cannabis use disorder or opioid use disorder, and 81% of those with alcohol use disorder went untreated. While lower in prevalence, unmet need was high for cannabis use disorder, with 70% going untreated. Finally, 23% of those with an opioid use disorder went untreated in 2022, the same as in 2019, a notable increase in access from 2016, when the share untreated was 33%.

Figure 15: Prevalence and Unmet Need for SUD Care in Michigan, by Common Disorders, per 1,000 individuals, 2022



	Any SUD	Alcohol UD	Opioid UD	Canabis UD
Received Care	16.5	8.0	5.4	4.0
Untreated	42.8	32.5	1.5	9.0

Our original study excluded medication-assisted treatment (MAT) and in comparing 2016 to 2019 access we also exclude MAT for consistency (although any individual who received both MAT procedures alongside other types of SUD treatment would still be included in our definition of "received care").

However, in this updated study, we added a separate analysis of the use of MAT for SUD

treatment. In that analysis we were able to identify substantial use of MAT for Medicaid enrollees being treated for opioid use disorder. We find that of 45,200 Medicaid members treated for opioid use disorder, 10,900, or 24%, received MAT. This is down slightly from 31% of the Medicaid opioid use disorder population receiving MAT in 2019. Our analyses of MAT services among the privately insured and Medicare populations revealed trivial counts of enrollees receiving opioid use disorder care that included MAT procedures or services (less than 5%). While we might expect MAT utilization to be highest amongst the Medicaid population, these rates in the commercial and Medicare population are quite low and may be more indicative of differences in claims or billing procedures related to MAT with these insurers, such that this care is less visible in the claims data.

6. Variation by Age and Sex

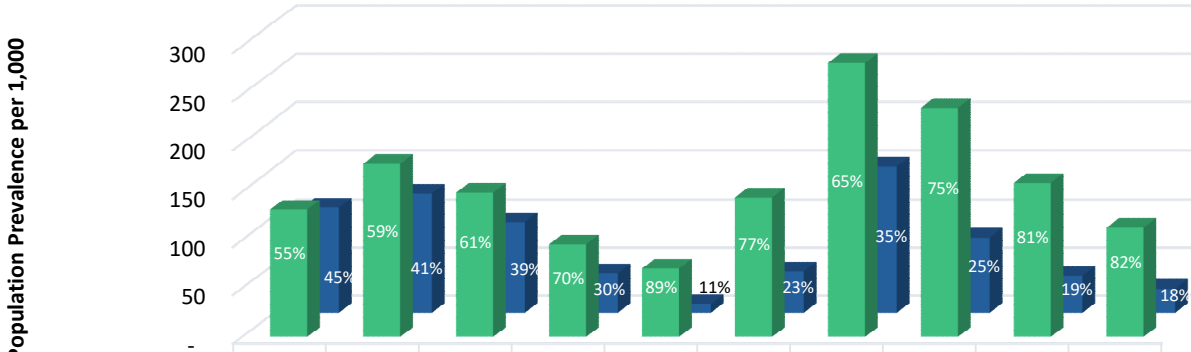
6.1 MENTAL HEALTH CONDITIONS BY AGE AND SEX

Prevalence of AMI in Michigan increased in nearly every age and sex category, but so did access in 2022. Male children (age 0 to 17) had a higher prevalence of AMI than female children (also age 0 to 17) in 2022 (Figure 16). For every other age group, females had a higher prevalence of AMI than males. This pattern was seen in 2016 and 2019 as well.

For males, the share untreated for AMI in 2019 was similar across the age groups through age 64, ranging from 30% to 37%, in 2022 the share untreated for AMI increased across the age groups through age 64 ranging from 30% to 45%. Female children had among the second lowest unmet need, with 17% untreated in 2019 and in 2022 that increased to 23%. Young adult females, ages 18 to 24, had the highest unmet need, at 43% untreated in 2019 and in 2022 that decreased to 35% (the lowest unmet need was for women over 65 in both 2019 and 2022).

Note that the prevalence of AMI and the profile of underlying conditions vary by age and gender, so that large differences in the share untreated are not unexpected. Michiganders aged 65 and older had lower prevalence and better access than most of the other age groups, with only 18% of women and 11% of men in this age group going untreated for AMI.

FIGURE 16: Prevalence and Unmet Need for AMI Care in Michigan, by Age & Sex, per 1,000 individuals, 2022



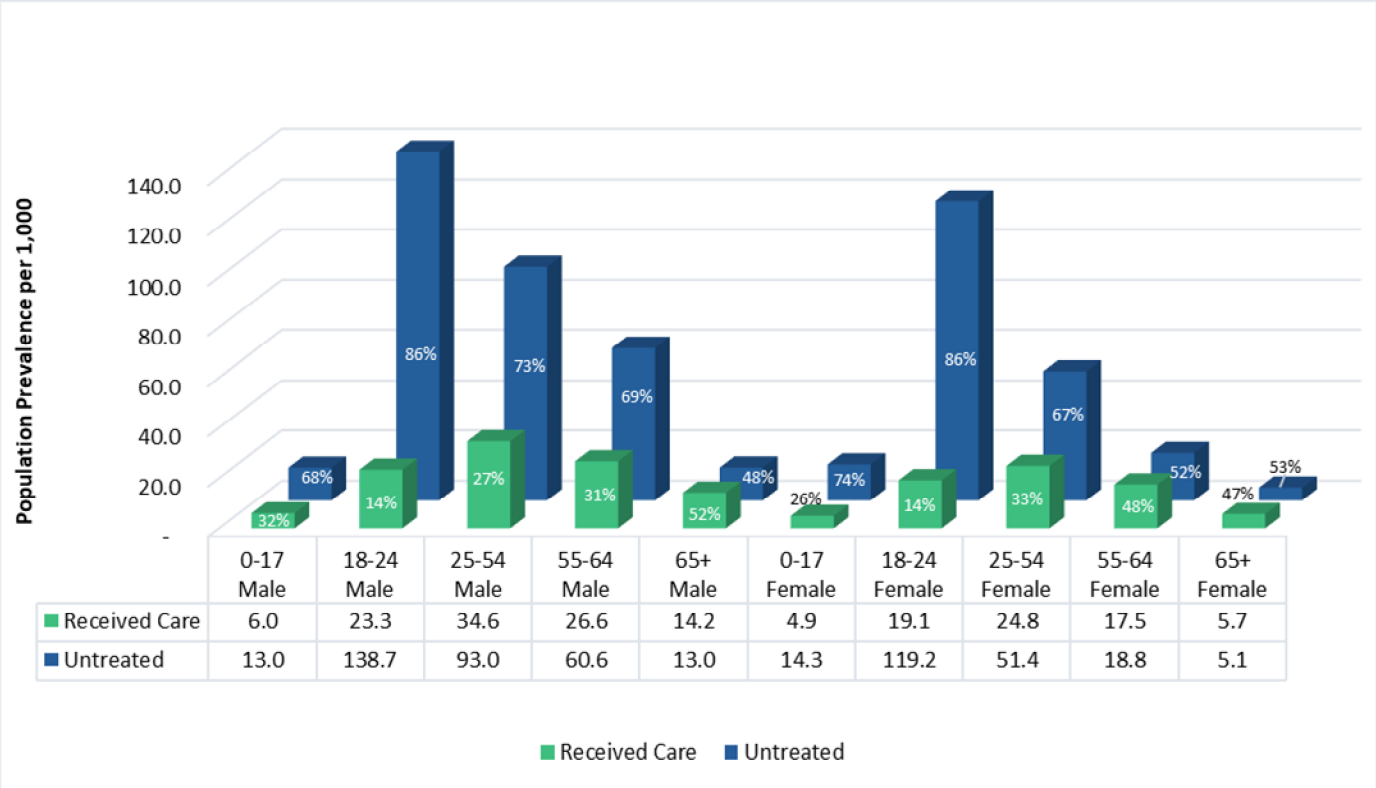
	0-17 Male	18-24 Male	25-54 Male	55-64 Male	65+ Male	0-17 Female	18-24 Female	25-54 Female	55-64 Female	65+ Female
Received Care	132	178	149	95	71	144	283	236	159	112
Untreated	109.1	123.4	93.5	40.9	8.7	42.9	150.9	77.6	38.3	24.4

6.2 SUBSTANCE USE DISORDERS BY AGE AND SEX

In Michigan, SUD prevalence was highest among men aged 18–24, followed by women in the same age group, and then men aged 25–54 in 2022 (Figure 17). Rates dropped sharply among those 65 and older.

Across all years, unmet SUD care needs remained much higher than for AMI, with most individuals in all age groups not receiving treatment. In 2022, 48% to 86% did not get SUD care—an overall decrease from 70%–90% in 2016, though some age/sex groups saw increases compared to 2019's 69%–85%.

FIGURE 17: Prevalence and Unmet Need for SUD Care in Michigan, by Age & Sex, per 1,000 individuals, 2022



	0-17 Male	18-24 Male	25-54 Male	55-64 Male	65+ Male	0-17 Female	18-24 Female	25-54 Female	55-64 Female	65+ Female
Received Care	6.0	23.3	34.6	26.6	14.2	4.9	19.1	24.8	17.5	5.7
Untreated	13.0	138.7	93.0	60.6	13.0	14.3	119.2	51.4	18.8	5.1

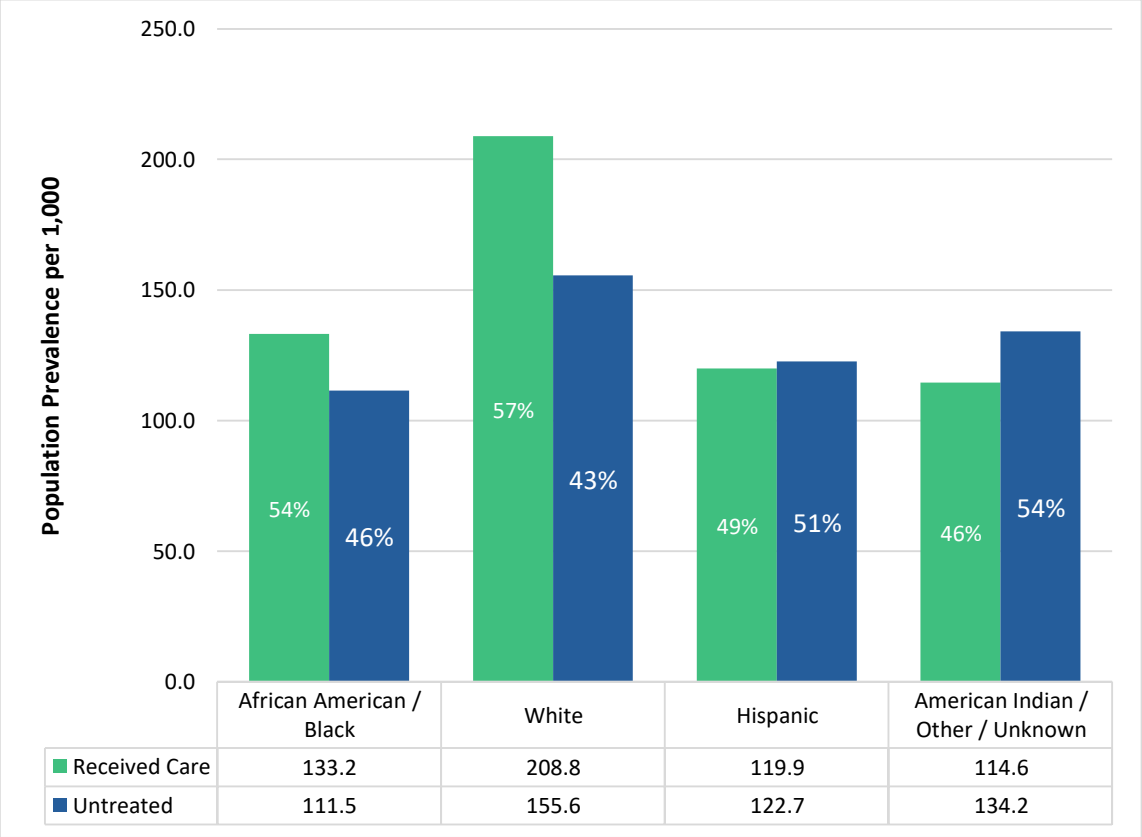
7. Variation by Race

Reliable demographic data was available in the Medicaid claims data allowing comparison of access by race and ethnicity. In 2022, as in 2019, populations of color had lower rates of prevalence of AMI than the non-Hispanic White population (Figure 18).

While the rate of receiving care was lower for the non-White groups in both 2019 and 2022, the overall percent of those with AMI who were untreated in 2019 for all four demographic groups were broadly similar, ranging from 46% for African Americans/Blacks with Medicaid to 59% for Hispanics with Medicaid. Again in 2022, all four demographic groups were similar, ranging from 46% for African Americans/Black with Medicaid to 54% for American Indian/Other/Unknown group with Medicaid. It is important to note that despite a similar untreated proportion, the absolute percentage of the population receiving any mental health services is far greater for Whites than Non-Whites, and this trend holds across all major mental illness conditions detailed in this study (Figure 20). The reason for a similar gap in access across all race categories in Medicaid is due to a much higher estimated prevalence of AMI among white Medicaid enrollees from the NSDUH dataset.

Nationally in 2022, the NSDUH estimates that 38.7% of Non-Hispanic White Medicaid enrollees had AMI in the past year, higher than rates for Hispanic Medicaid enrollees (26.6%) and Non-Hispanic Black enrollees (22.8%).[9] More research is needed to understand this very large gap in prevalence of mental health conditions across different race and demographic Medicaid enrollees and if some of this variation may be the result of survey response bias.

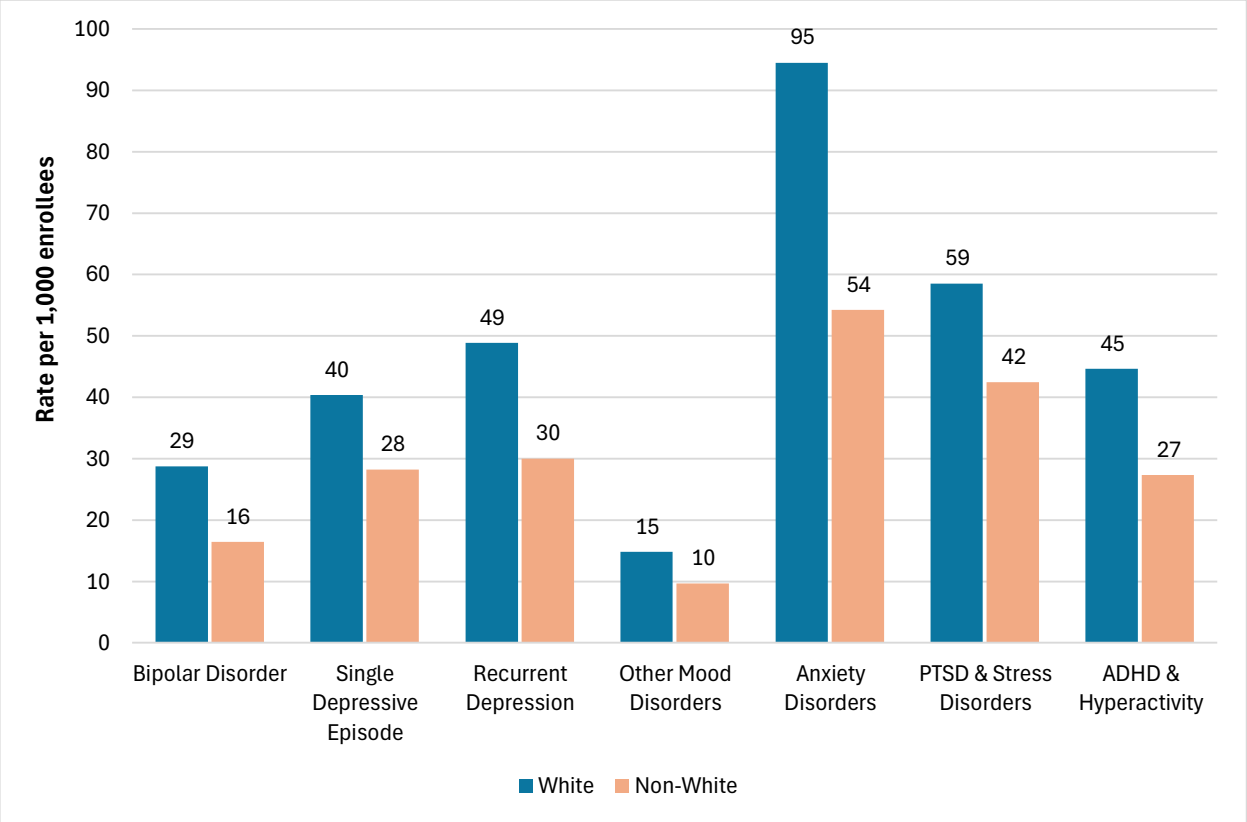
FIGURE 18: Prevalence and Unmet Need by Race for Medicaid Enrollees with AMI, per 1,000 individuals, 2022



	African American / Black	White	Hispanic	American Indian / Other / Unknown
Received Care	133.2	208.8	119.9	114.6
Untreated	111.5	155.6	122.7	134.2

[9] SAMHSA Data Tools. (2022). Crosstabs results. Crosstab | SAMHSA DAS

FIGURE 19: Rate of Utilization for Medicaid Enrollees with AMI, by Race and Disorder, per 1,000 individuals, 2022

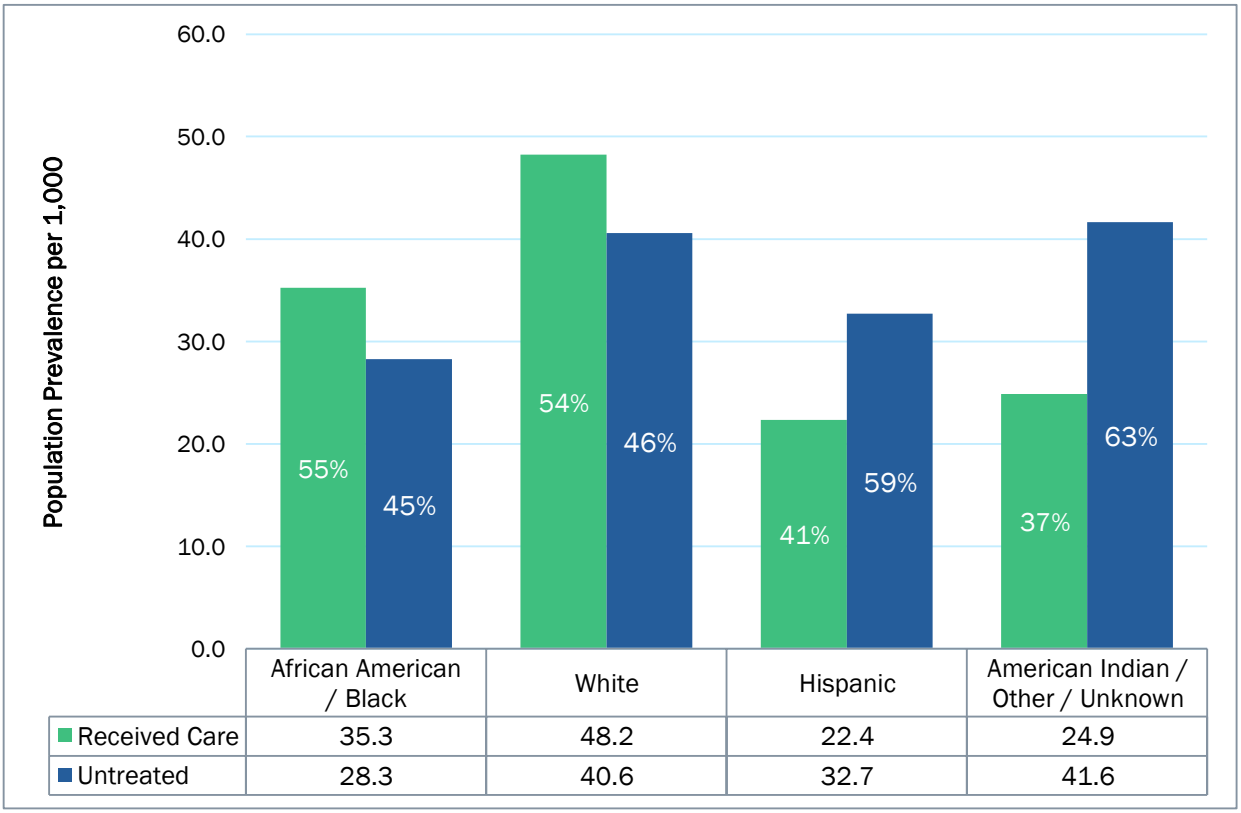


As in 2019, in 2022 the prevalence of SUD was highest for White Medicaid enrollees and the share untreated did not vary significantly across race/ethnicity (Figure 20). Much of the greater prevalence of SUD for Whites comes from the rate of alcohol use disorder (data not shown) and like Medicaid service utilization for AMI, Whites had greater overall rates of receiving SUD care across a variety of SUD types compared to non-Whites (Figure 21). Hispanics had the lowest prevalence of SUDs, and American Indians/Other Races had the highest rate of unmet need, at 63% going untreated.

It is important to note that our study measures access to any behavioral health treatment during the year and does not reflect any differences in the course or quality of treatment, where disparities may be greater. Other research that has included more targeted metrics of behavioral health care quality—such as the rate of follow-up care after an AMI or SUD emergency visit—has found significant racial disparities for Michigan Medicaid enrollees. For

example, the rate of follow-up care for alcohol and other drug use dependence had a double-digit gap between Black and White patients and only two measures of mental health emergency department follow-ups showed equity in the quality of care for Black patients.[10]

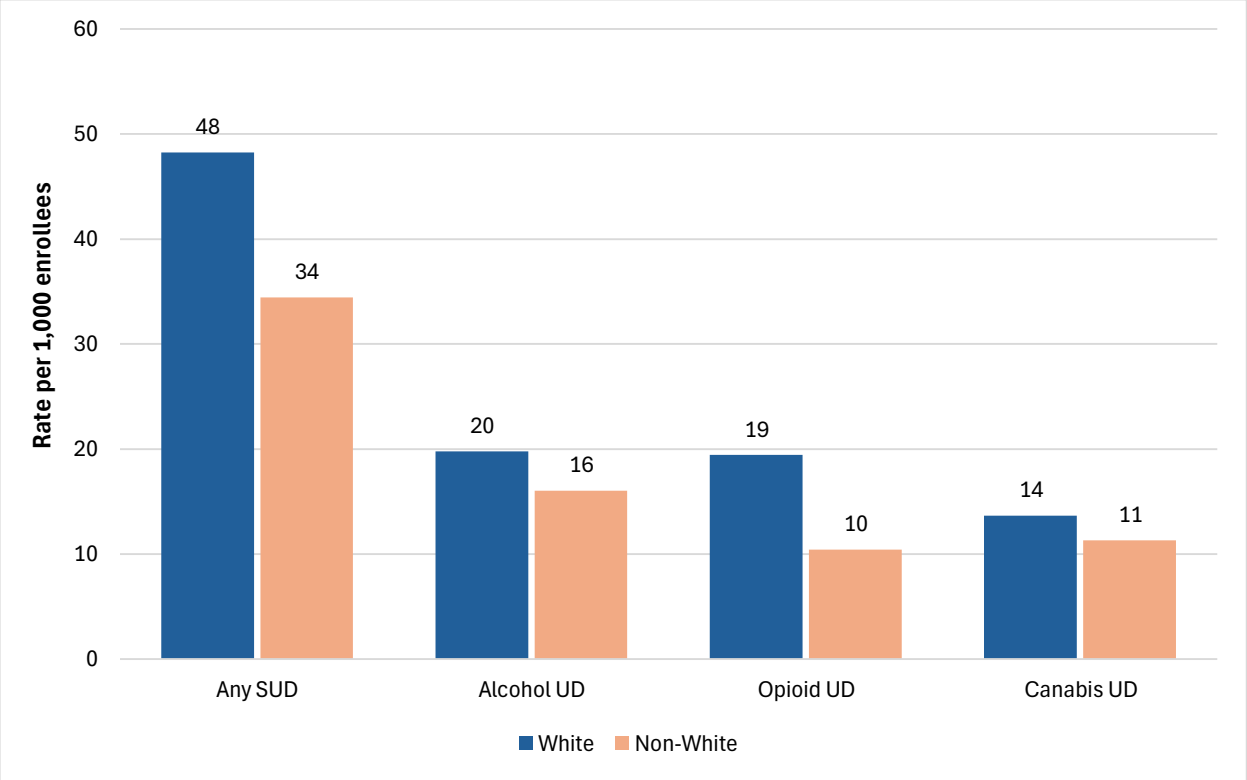
FIGURE 20: Prevalence and Unmet Need by Race for Medicaid Enrollees with SUD, per 1,000 individuals, 2022



	African American / Black	White	Hispanic	American Indian / Other / Unknown
Received Care	35.3	48.2	22.4	24.9
Untreated	28.3	40.6	32.7	41.6

[10] MPHI. (2021). Racial/ethnic and geographical disparities in behavioral healthcare in Michigan Medicaid. *MPHI*. Link

FIGURE 21: Rate of Utilization for Medicaid Enrollees with SUD, by Race and Disorder, per 1,000 individuals, 2022



8. Geographic Variation

8.1 VARIATION BY METROPOLITAN STATISTICAL AREA

Access to mental health and SUD treatment services continues to vary by geographic area across the state of Michigan with some improvements noted in several areas and some areas showing less progress. Among the 17 regions defined by the 16 Metropolitan Statistical Areas (MSAs) and the single combined non-MSA area, the percentage of individuals with AMI not receiving care ranges from 11% in the Ann Arbor MSA to 47% in Detroit-Dearborn-Livonia MSA (Figure 22).

There is over a two-fold difference between the best and worst MSA regions for mental health care access gaps in the state. While the gaps in access for SUD care are on average much higher, the variation in gaps in access across the state MSA regions for SUD are somewhat tighter than AMI care. The gap between the best and worst MSA regions in the state for SUD care access ranged from 61% not receiving care (Battle Creek) to 78% (South

Bend-Mishawaka, IN-MI) (Figure 23). In the 2022 data, we continue to see the same trend from 2019 in that the non-MSA regions look similar or even slightly better than the rest of the state with regard to gaps in access to both mental illness and SUD treatment, while the Detroit population center ranks near the bottom for access to both types of care. This results in a large number of Michiganders not receiving mental health services and SUD care in the most densely populated region of the state.

FIGURE 22: Prevalence and Unmet Need by MSA for Any Mental Illness by Geographic Area, per 1,000 Individuals, 2022

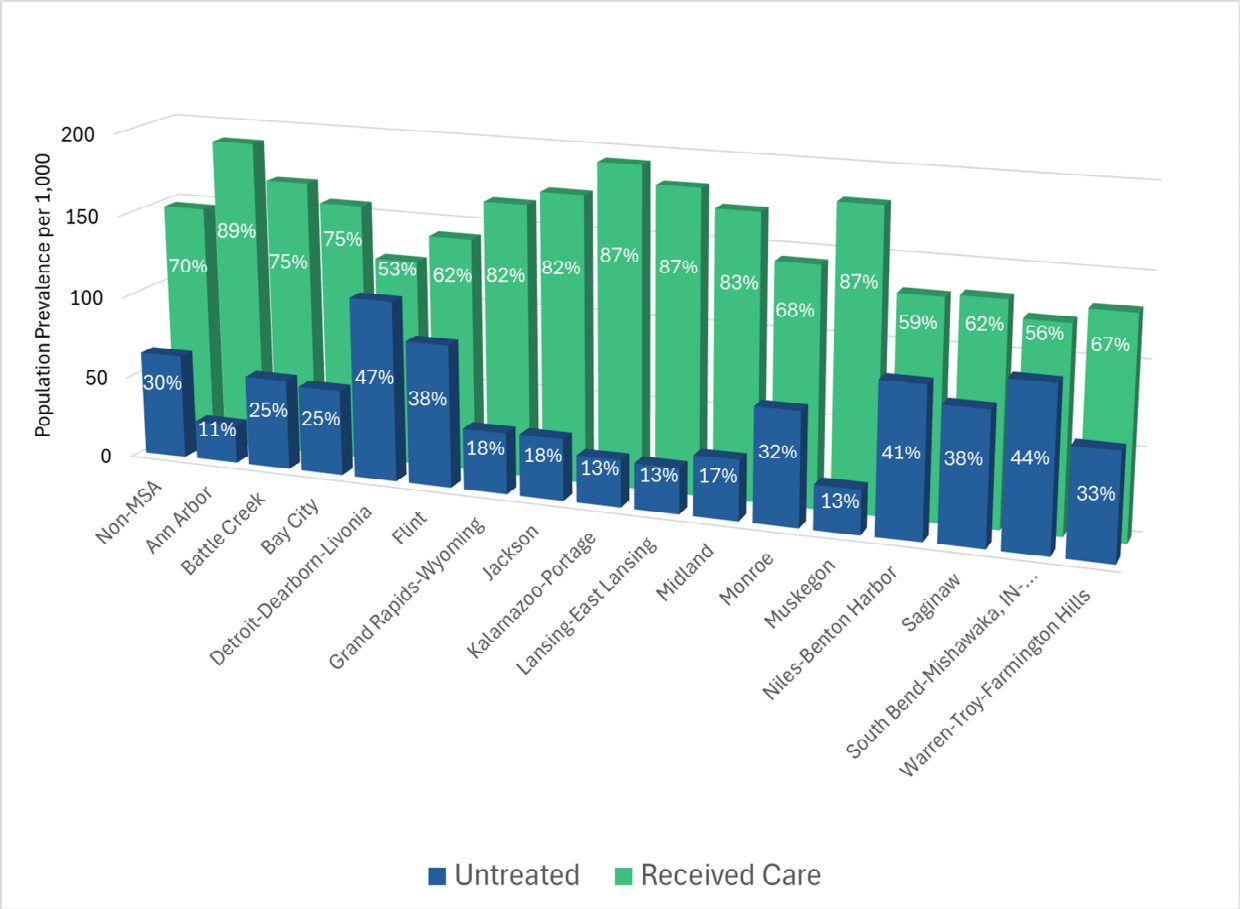
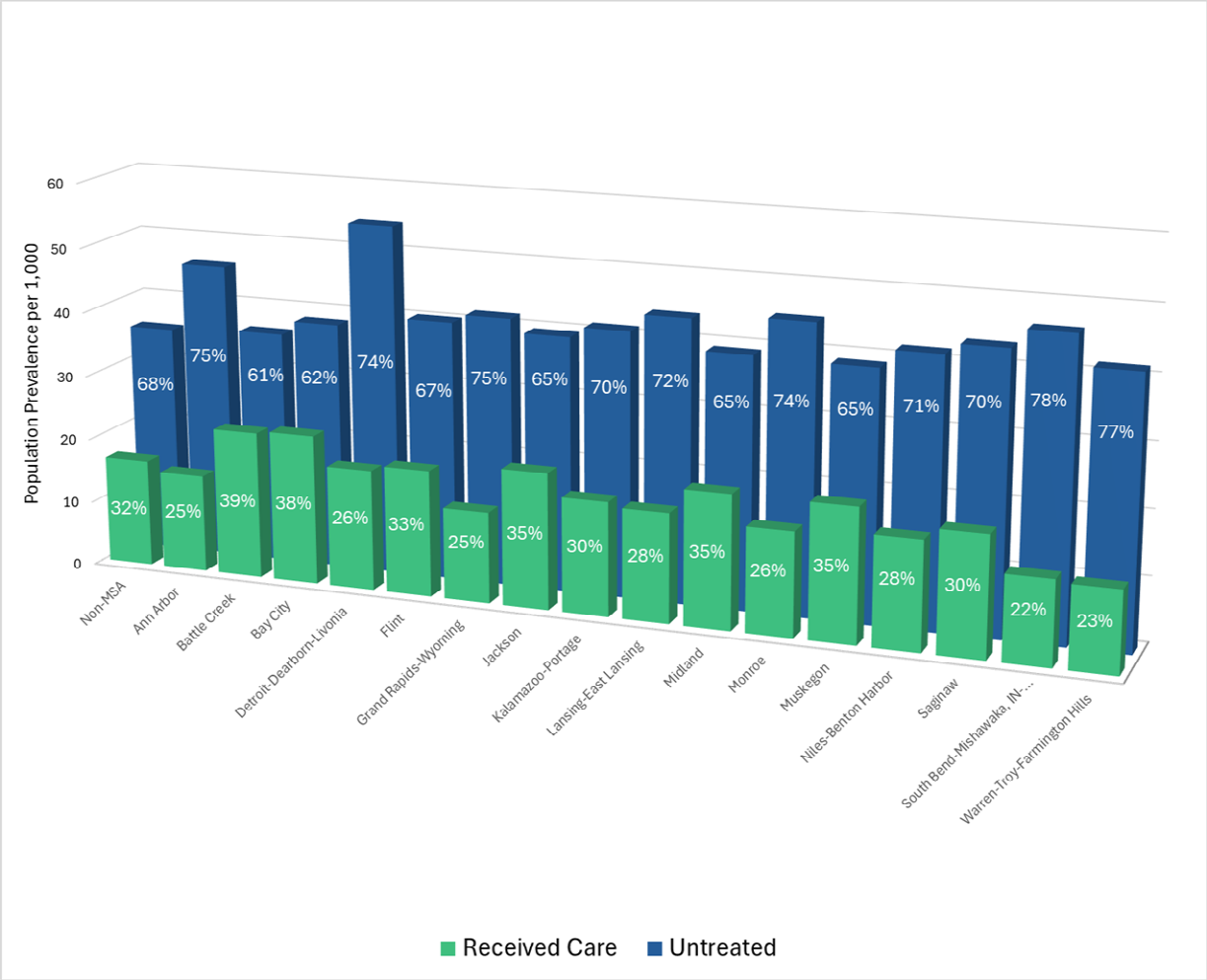


FIGURE 23: Prevalence and Unmet Need by MSA for Substance Use Disorder by Geographic Area, per 1,000 Individuals, 2022



In comparing the results of the MSA data from 2016 to 2022, we find that most MSAs improved in access to mental illness and SUD treatment care. The region with the greatest improvement for AMI care was Grand Rapids, falling from 42% untreated in 2016 (data not shown) to 20% in 2019 and then to 18% in 2022. The only MSA regions worsening over this period for AMI care was Detroit-Dearborn-Livonia, which showed an increase from 45% untreated in 2019 to 47% in 2022, and South Bend-Mishawaka IN-MI, which showed an increase from 43% in 2019 to 44% in 2022. Notably, the non-MSA regions of the state regressed in their treatment gaps, averaging 27% untreated for AMI care in 2019 compared to 30% untreated in 2022.

A similar story is true for SUD treatment care in that most of the 17 MSA regions improved from 2016 to 2022. A few regions had a greater than 75% access gap (South Bend-Mishawaka, Warren-Troy-Farmington Hills) but this still represented an improvement as each had a gap of over 80% in 2016.

8.2 VARIATION BY REGION

Among the 10 Michigan Prosperity Regions, the percentage of individuals with AMI not receiving care ranged from 13% in Region 7 (Central Michigan/Lansing region) to 40% in Region 6 (East Michigan region) (Figure 25). The access gaps for SUD treatment across Prosperity Regions ranged from 62% in Region 3 to 74% in Regions 4, 9, and 10 (Figure 26). The range of access gaps for both AMI and SUD are somewhat tighter using the Michigan Prosperity Region definitions as compared to MSAs. Of particular note, in 2022 it appears the gaps in access for AMI and SUD care for some of the most rural and northern parts of the state are moving closer to the state average than they were in 2016. Regions 1, 2, and 3, have become stronger performers in access in 2022 compared to 2019. Figure 24 is provided as reference for the Region geographies.

FIGURE 24: Map of Michigan Prosperity Regions

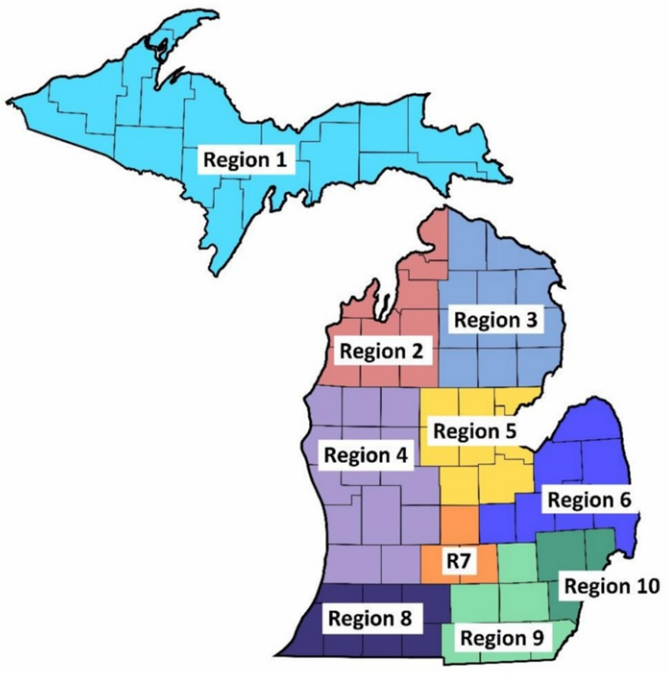


FIGURE 25: Prevalence and Unmet Need for AMI Care by Michigan Prosperity Region, per 1,000 Individuals, 2022

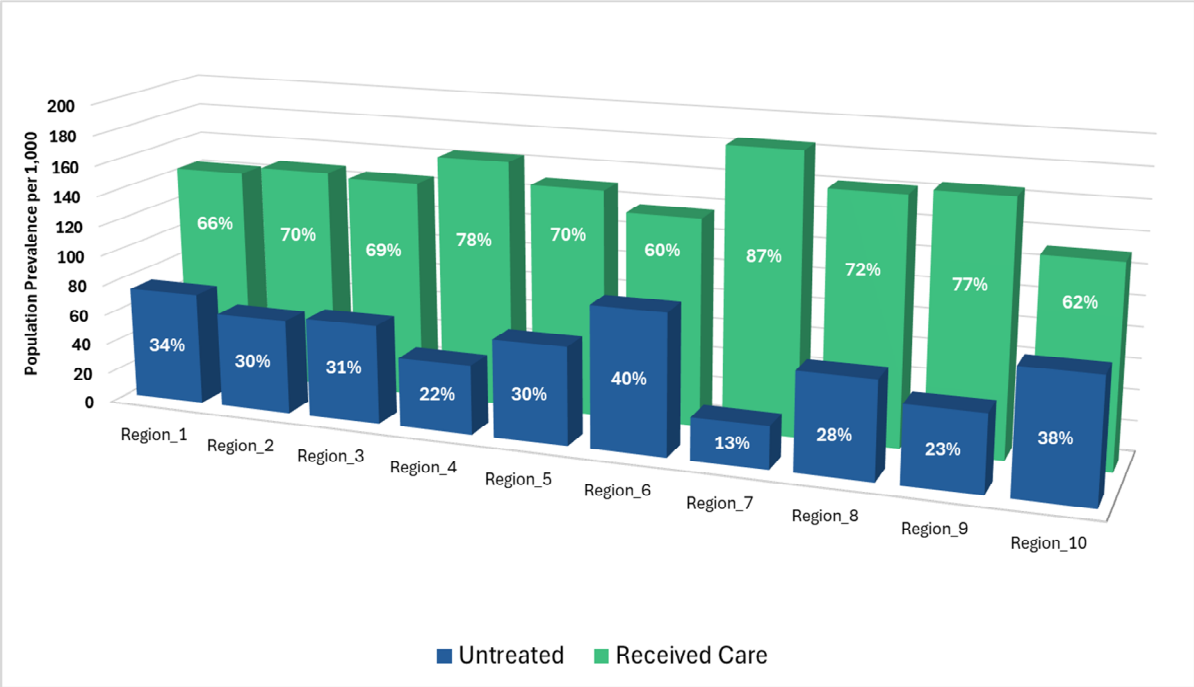
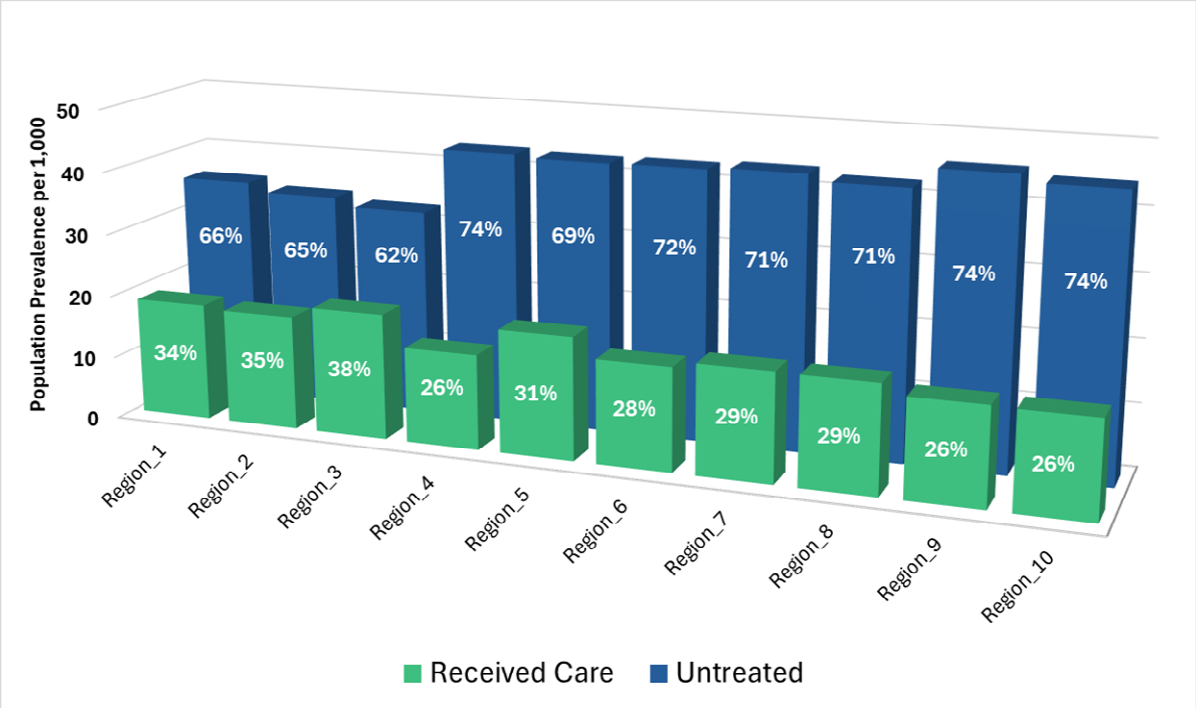


FIGURE 26: Prevalence and Unmet Need for SUD Care by Michigan Prosperity Region, per 1,000 Individuals, 2022



9. Place of Service

Using a combination of the place of service code and claims modifiers identifying telehealth services, we computed the distribution of services provided by place of service for each payer type (Figures 27 and 28). The office setting was the dominant setting of care for AMI under all payers, but the distribution varied by payer type. Some settings are mostly relevant to one payer type. For example, 6.9% of AMI care for Medicaid enrollees was provided in group homes, while care under private insurance was more likely to be provided as telehealth (19.9%).

Telehealth services saw a dramatic increase in utilization between 2019 and 2022, underscoring their growing significance in mental health and SUD treatment access. In 2019, telehealth comprised only a minimal portion of service delivery, with its share for AMI care ranging from 0.4% to 0.9%, and the highest usage under Medicaid. SUD care followed a similar trend, with telehealth accounting for just 0.1% to 0.4% of services. However, by 2022, telehealth adoption surged substantially—largely propelled by the COVID-19 pandemic, with services provided by telehealth in general ranging from 0.0% to 4% in 2019 to between 6.9% and 45.9% in 2022. The largest utilizers of telehealth were Medicaid enrollees in both 2019 and 2022 (Figure 29). For AMI care, telehealth utilization expanded to between 4.6% and 25.6%, with private insurance (19.9%) and Medicaid (25.6%) enrollees making the most frequent use of these services. Similarly, for SUD treatment, telehealth accounted for 2.0% to 15.4% of all services, with private insurance (8.5%) and Medicaid (15.4%) again leading in utilization.

This marked increase in telehealth use has contributed to the rise in the number of individuals accessing AMI treatment, even as overall AMI prevalence has grown. The evidence suggests that telehealth has become a critical means of delivering care, particularly for individuals in remote or underserved regions of Michigan. Moving forward, telehealth is poised to remain an essential pathway for both AMI and SUD treatment, helping to bridge access gaps across the state and ensure continuity of care for those who need it most.

FIGURE 27: Place of Service for AMI Treatment by Payer Type, 2022

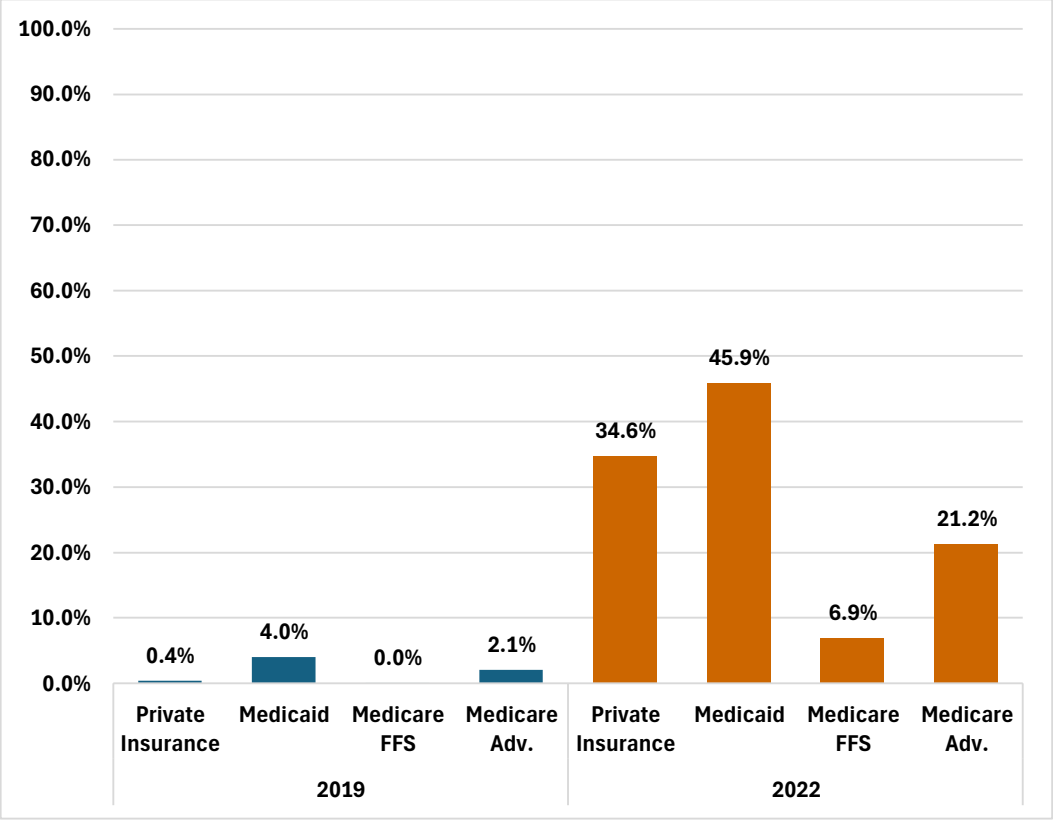
Place of Service	Private Insurance	Medicare	Medicare Advantage	Medicaid
Office	57.0%	27.1%	37.0%	39.7%
Hospital Outpatient	15.2%	40.5%	30.1%	3.1%
Hospital Inpatient/Psychiatric Hospital Inpatient	0.1%	5.6%	0.6%	0.0%
Hospital Emergency	0.8%	0.5%	1.0%	1.0%
Federally Qualified Health Center	0.1%	2.8%	0.7%	0.2%
Rural Health Clinic	0.1%	2.5%	1.5%	0.0%
Nursing Facility/SNF/Assisted Living	0.1%	9.5%	5.4%	0.7%
Home	0.5%	1.7%	9.4%	12.2%
Group Home	0.0%	0.1%	0.1%	6.9%
Residential Treatment Center/SUD Treatment Center	2.5%	0.0%	0.0%	0.9%
Non-Residential Treatment Center/SUD Treatment Center	0.0%	0.0%	0.0%	0.2%
School	0.0%	0.0%	0.0%	1.9%
Independent Laboratory	1.8%	2.3%	4.5%	1.5%
Telehealth	19.9%	4.6%	7.4%	25.6%
Other	1.8%	3.0%	2.3%	6.1%
	100.0%	100.0%	100.0%	100.0%

FIGURE 28: Place of Service for SUD Treatment by Payer Type, 2022

Place of Service	Private Insurance	Medicare	Medicare Advantage	Medicaid
Office	29.0%	28.5%	31.8%	38.6%
Hospital Outpatient	41.7%	40.7%	36.2%	1.9%
Hospital Inpatient/Psychiatric Hospital Inpatient	0.6%	9.1%	1.2%	0.0%
Hospital Emergency	4.9%	1.5%	3.0%	2.8%
Federally Qualified Health Center	2.6%	1.6%	0.7%	3.6%
Rural Health Clinic	0.0%	1.8%	1.0%	0.0%
Nursing Facility/SNF/Assisted Living	0.2%	2.5%	2.5%	0.1%
Home	0.6%	0.5%	5.9%	2.6%
Group Home	0.0%	0.0%	0.0%	1.5%
Residential Treatment Center/SUD Treatment Center	1.6%	0.0%	0.0%	10.4%
Non-Residential Treatment Center/SUD Treatment Center	1.6%	4.9%	1.8%	9.3%
School	0.0%	0.0%	0.0%	0.0%

Independent Laboratory	6.1%	5.8%	9.8%	8.3%
Telehealth	8.5%	2.0%	4.4%	15.4%
Other	2.5%	1.2%	1.6%	5.4%
	100.0%	100.0%	100.0%	100.0%

Figure 29: Telehealth Visit Percentages Between 2019 and 2022 by Payer Type, 2022



10. Behavioral Health Care for Special Populations

In our examination of behavioral health care, we provide additional data on care being received by two populations of interest: persons with autism and those receiving care through school-based services. While not all data used in other sections of this report are available for these groups (e.g., prevalence data for particular conditions like autism are not tracked in the NSDUH and our school-based care dataset is not available at the individual level such that it could be linked to Medicaid or commercial claims), we provide an initial look at the care observed in our Medicaid, commercial, and Medicare claims data to assess an estimate of need and rates of care across different groups and geographies.

A more in-depth study that developed prevalence rates specific to these special populations,

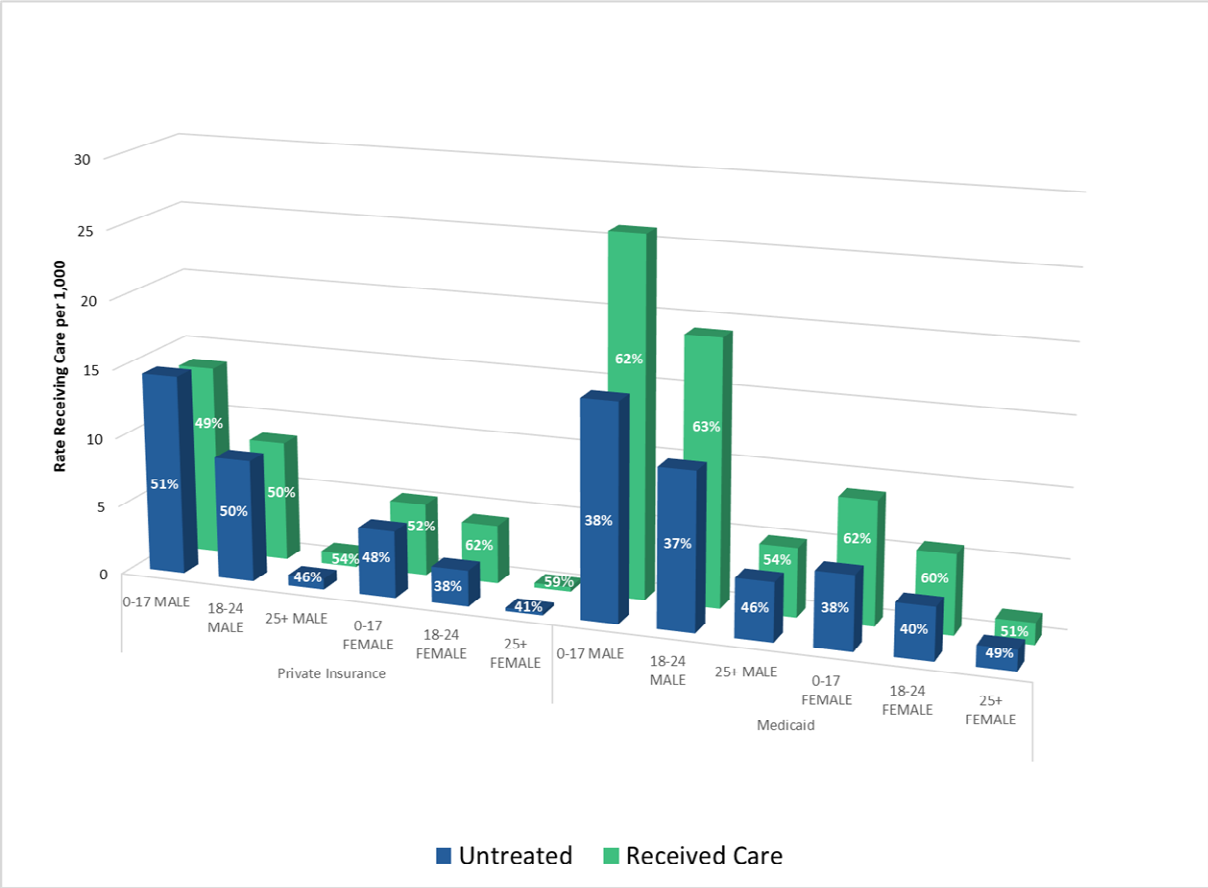
by age, sex, insurance and geography could allow for comparisons to be performed in the future to take the next step and compare access measures more closely to other metrics shown in this report.

10.1 CARE FOR INDIVIDUALS WITH AUTISM SPECTRUM DISORDERS (ASDs)

Care for those with Autism Spectrum Disorders (ASDs) shows the condition is most commonly diagnosed in younger individuals and occurs more frequently in young men compared to women. We use data from commercial and Medicaid claims to estimate the underlying need for ASD behavioral health treatment and observed rates of care between private insurance and Medicaid-enrolled individuals (Figure 30). Due to the fact that these prevalence rates are derived directly from claims, we believe these data undercount the true prevalence of ASDs in the 25+ age groups below.

The overall need for care appears greater in Medicaid, but rates of treatment per 1,000 individuals are also higher in Medicaid enrollees. Young men between ages 0 and 17 in Medicaid have an estimated total need for ASD treatment of 42 per 1,000 children, compared to 28.3 per 1,000 aged 0-17 males in the private insurance population. At the same time, the rate of those receiving any behavioral healthcare services in Medicaid was nearly twice the rate of those in private insurance (a relative difference that is seen in most of the age-sex categories). As a result, using these claims-based estimates of unmet need, we find that the share of those not receiving treatment for an ASD is actually higher as a percentage of those with the condition in private insurance relative to the Medicaid population. Compared to other conditions that commonly impact younger individuals, such as ADHD and hyperactivity disorders (Figure 15 above), we see that ASDs have higher shares of unmet need in Michigan.

Figure 30: Behavioral Healthcare for ASDs by Insurance and Age/Sex per 1,000 Individuals, 2022



When examining the rate of care received across all ages in the Medicaid population by race, non-Hispanic white individuals with ASD show the highest rates of care across all categories (see Figure 31). This mirrors the findings in Figures 20 and 22 above, where white individuals in Michigan appear to receive behavioral health services for a wide range of conditions at higher rates in Medicaid compared to non-white groups. Of note, the relative gap in treatment between White and Non-White individuals in Medicaid appears smaller for ASD compared to other conditions, with the exception of care for Hispanic Medicaid enrollees that receive care at less than half the frequency of white Michiganders.

Figure 31: Medicaid Behavioral Healthcare for ASDs by Race per 1,000 Individuals, 2022

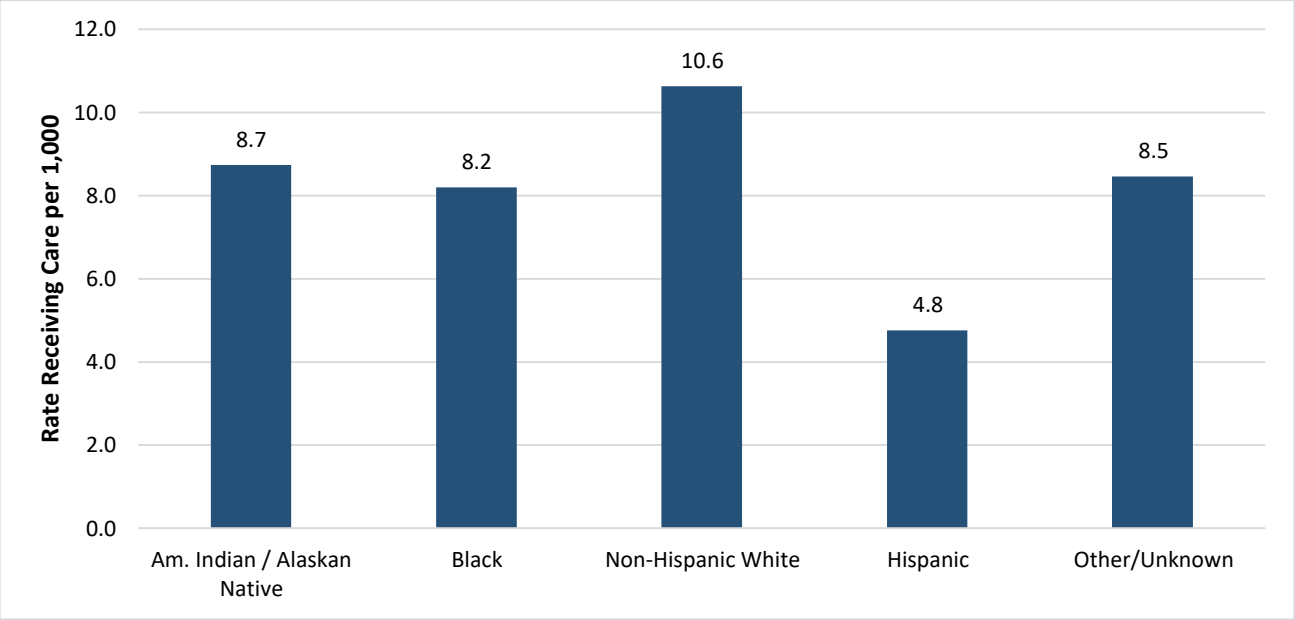
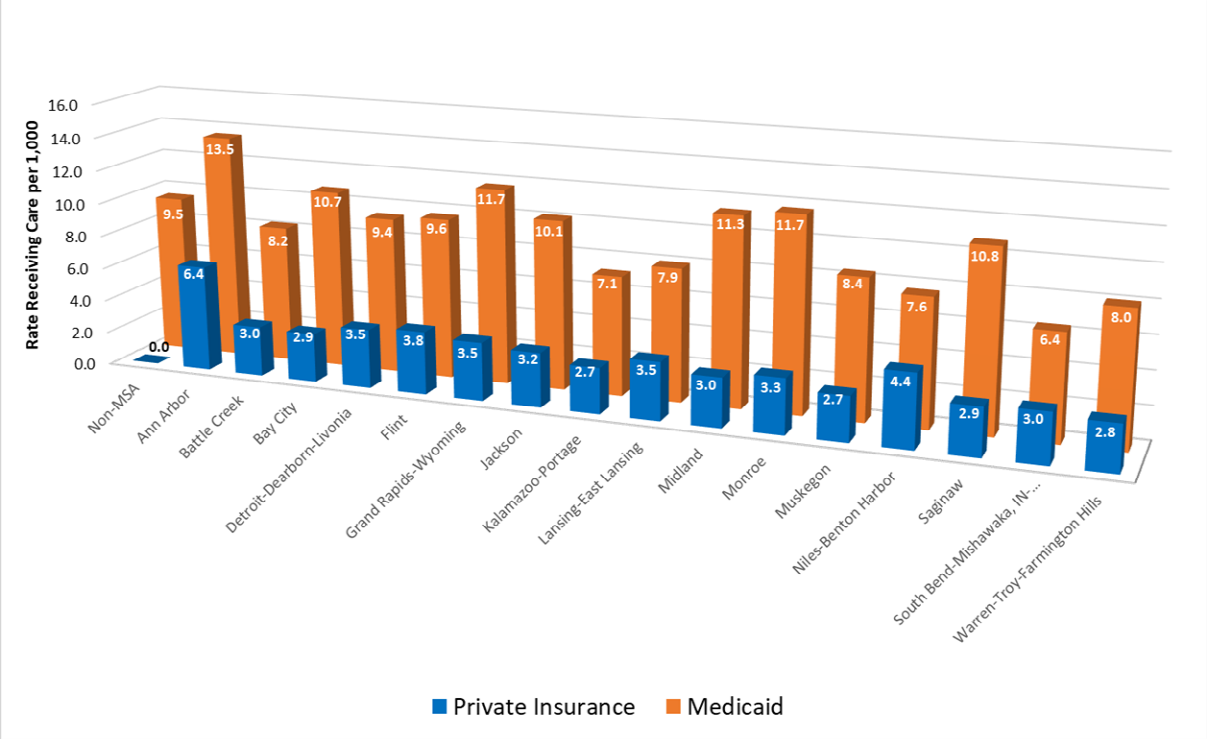


Figure 32 shows the rates of care for ASDs in Michigan by MSA regions, including rates of care in Medicaid and private insurance. Across all regions, rates of care are higher in Medicaid, in part due to higher rates of care in each age group (Figure 31 above), but also due to a greater share of children in the Medicaid population compared to private insurance. Similarly, due to different population profiles in each MSA, a region may have higher or lower expected rates of care due to the share of children and young adults in that region.

Figure 32: Private Insurance and Medicaid Behavioral Healthcare for ASDs by MSA per 1,000 Individuals, 2022



Comparing the differences in disparities across regions for Medicaid and private insurance, we see a greater relative gap in treatment for ASDs in private insurance compared to Medicaid. This again could be due to differences in population profiles in insurance types or due to higher barriers to care for those needing ASD treatment in the private insurance population. Greater investigation into the underlying population-based prevalence from non-claims-based sources of these conditions in future work could provide greater detail on the drivers of disparities in care received and the factors contributing to the unmet need for ASD behavioral healthcare services and treatment.

10.2 CARE FOR THOSE RECEIVING CARE FROM SCHOOL-BASED SERVICES

Michigan's school-based mental health services reveal varied patterns in depression screening, diagnosis, and mental health visits across counties and service models. Smaller counties tend to have higher screening rates but lower diagnosis percentages, while larger counties show lower screening and visit rates, indicating disparities in mental health service access and identification. These insights are important for targeting interventions and resource allocation. A more detailed accounting of school-based services can be found in Appendix C.

11. Behavioral Health Care Provider Supply

We present updated estimates of provider supply in Michigan, understanding that the presence of providers is only one type of constraint on access to behavioral health care services. Even in counties with providers, there may be difficulties finding providers accepting patients, providers who align with the types of care required, or providers who accept the patient's insurance type and coverage (or even whether any health insurance is accepted). Nevertheless, a necessary if not sufficient component of access is simply the physical presence of providers in the area.

Michigan has improved the number of behavioral health professionals in the state from 2016 to 2022 (Figure 33). Conversely, it has seen a reduction in the number of people per provider which indicates there is a better population to provider ratio in 2022 than there was in 2016 (Figure 34). While Michigan has made progress, there is still a shortage of psychiatrists and other behavioral health care providers in the state. According to *County Health Rankings* data, there was a range of one mental health provider per 2,950 people to one provider per 130 people across the counties in Michigan (Figure 35).[11]

As of March 2025, Michigan continues to face significant challenges with mental health provider availability, with 233 designated mental health provider shortage areas and only nine counties not classified as shortage areas. Persistent job vacancies for psychologists, social workers, and professional counselors, along with high rates of staff turnover, continue

[11] County Health Rankings (2025). Michigan. Mental Health Providers. *County Health Rankings & Roadmaps*. Michigan | County Health Rankings & Roadmaps

to limit access to essential mental health services for Michigan residents.[12]

Figure 33: Number of Behavioral Health Providers in Michigan, 2016 – 2022

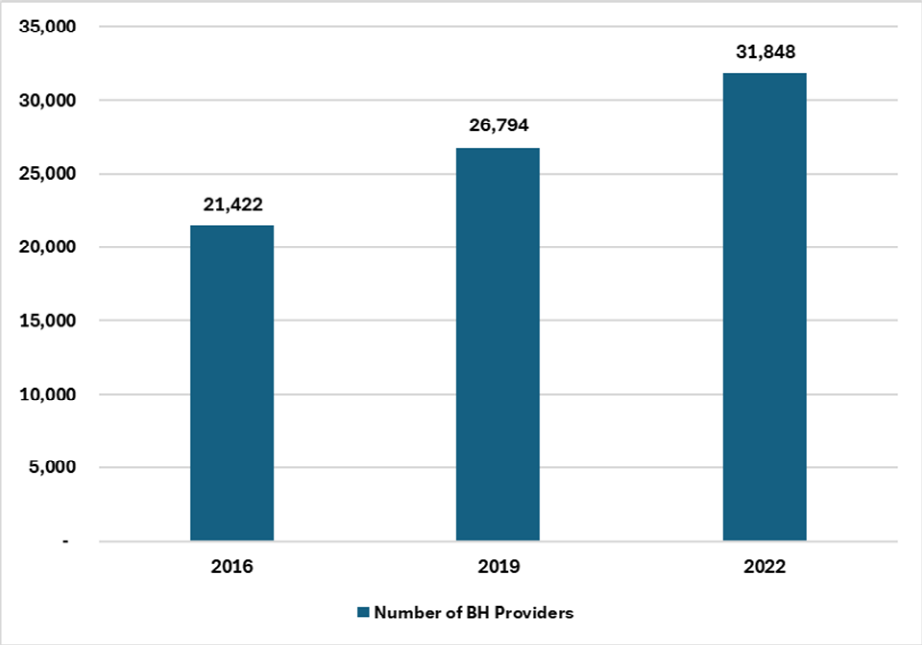
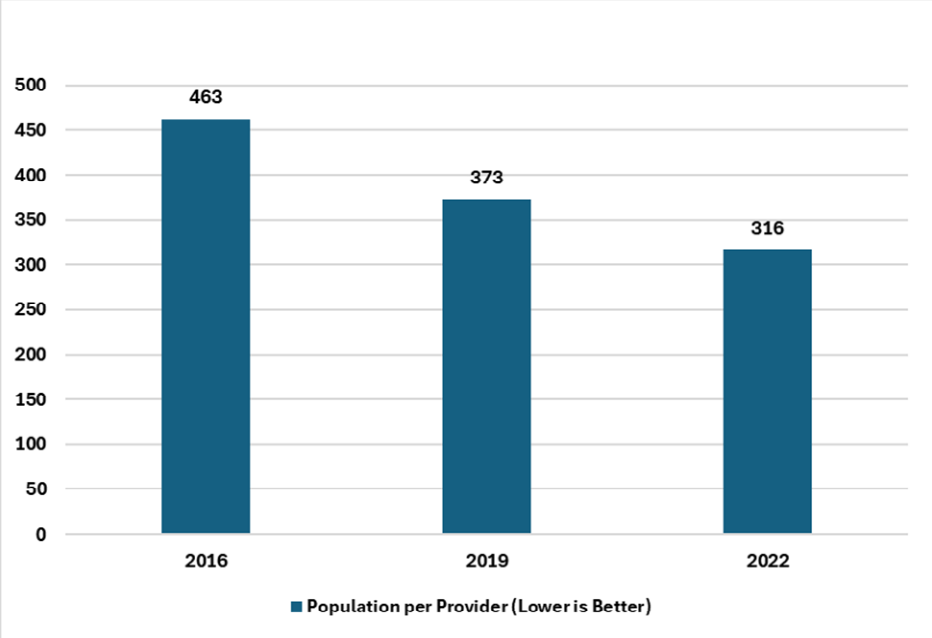


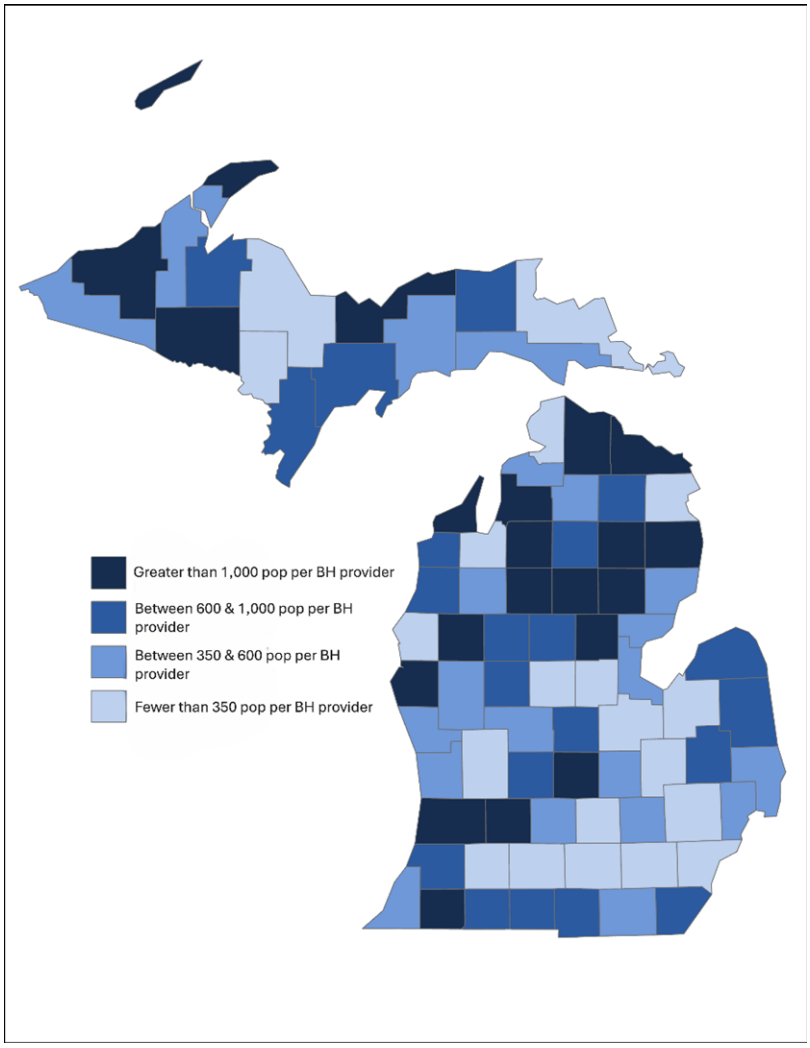
Figure 34: Population per Provider, 2016-2022



[12] MHC Insight. (2025). Michigan healthcare workforce index. *MHC Insight.* Michigan Healthcare Workforce Index | MHC

Figure 35 shows Michigan counties by quartile per capita supply; the darker the shading, the more people per provider, and thus the sparser the supply. While the data is slightly better than 2019, when translating that to quartiles, most counties stayed the same with nearly three times the number of people per provider in the low supply counties compared to the counties with the most plentiful provider supply. Areas in the central and northern section of the lower peninsula tend to have the lowest supply of behavioral health providers per capita. As in 2019, the 2022 data found these are also the counties that tend to have a greater share of the population going untreated. Conversely, counties in the more populated areas of the state, such as southeast Michigan, have the greatest supply of providers and tend to have lower shares untreated in 2022.

Figure 35: Map of Michigan Counties and Ratio of Mental Health Providers to Population, 2022.



12. Initial Access Targets for Michigan

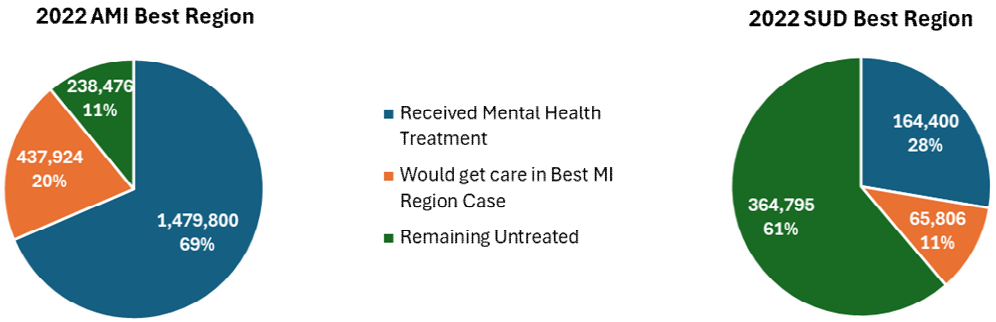
In prior reports we argued that shifting our capacity and our culture to fully meet Michigan's behavioral health needs is likely a long-term process. Therefore, we provided a more feasible near-term goal of striving to achieve the state's best levels of access in all parts of Michigan. We defined "best access" as having the smallest share currently untreated.

In 2019 we estimated that if all areas of the state achieved the current best access for Michigan, computed as the average of the top quintile of MSAs, an additional 336,000 Michiganders would receive mental health services each year, and an additional 85,100 would receive treatment for SUDs. Achieving this goal would increase the share of Michiganders with AMI receiving care from 68% to 85%. The share receiving care for SUDs would increase from 27% to 42%.

Using that same definition and same methodology for 2022 we estimate that if all areas of the state achieved the current best access for Michigan an additional 437,900 Michiganders would receive mental health services each year, and an additional 65,800 would receive treatment for SUDs (Figure 36). Achieving this goal would increase the share of Michiganders with AMI receiving care from 69% to 89%, and the share receiving care for SUDs from 28% to 39%.

There has been progress in reducing the access gap between the top and bottom quintiles of MSAs in Michigan. The relatively smaller number of Michiganders that would receive mental health services or treatment for SUDs when achieving the current best access for Michigan in 2022 compared to 2019 may speak to the degree to which these areas have benefited from policies aimed at increasing behavioral health access across the state. However, the increased need and only modest improvement in access may also signal the need to continue policies that improve access to behavioral health care providers.

FIGURE 36: Unmet Need and Remaining Untreated Under "Best MI Regions" Scenario, Any Mental Illness and Substance Use Disorder



13. Limitations

Efforts have been made to minimize methodological inconsistencies; however, certain limitations should be acknowledged in this study. The National Survey on Drug Use and Health, which forms the basis for determining the need for substance use disorder services in Michigan, has experienced several methodological and questionnaire revisions. Particularly significant changes occurred in 2020 and 2021 that impact comparability across years. Notably, data collection methodology shifted from exclusively in-person interviews to a multi-mode approach now incorporating web-based collection. Further, variations in survey questions and in those used to construct aggregate variables assessing substance use disorder severity have complicated direct comparisons between the 2016 and 2019 data and the current 2022 dataset. This report presents information for comparison with preceding reports while also identifying data points suitable for future comparative analyses.

14. Policy Initiatives and Recommendations

The 2019 report identified policy strategies to improve access in three areas: Provider Availability, Patient Affordability, and Willingness to Seek Care (see Appendix B). We review several policy strategies in these focus areas to assess progress in Michigan.

Provider Availability

Approaches to Expanding Provider Capacity

The 2019 report recommended addressing provider shortages by increasing the number of behavioral health professionals, improving the distribution of providers to better match areas of need, and enhancing workforce productivity and effectiveness through changes in practice or technology. At that time, Michigan required 167 more psychiatrists in underserved regions to eliminate federally designated mental health professional shortage areas. While progress has been made, the state still needs 144 additional psychiatrists to fully address these shortage areas.

Expand Behavioral Health Programs

In 2019, a key recommendation was to expand programs designed to train behavioral health clinicians in Michigan, such as increasing graduate medical education (GME) residencies in psychiatry and offering specialized psychiatric training for nurse practitioners and physician assistants. At that time, Michigan had one mental health provider for every 400 registered residents, though this ratio varied widely across counties, from 1:4,260 to 1:200. By 2025, access improved to one provider per 280 residents, with county ratios ranging from 1:2,950 to 1:130.

Michigan previously exceeded the national average for medical school slots per capita (52 per 100,000) and had double the average number of GME slots (57 per 100,000) compared to other states. As of 2023, the state experienced a 6.3% increase over five years in specialty care GME residents and fellows, and a 5.6% increase in primary care GME residents and fellows. By 2025, Michigan offered 12 psychiatry residency programs with 87 residency slots, an increase from 69 slots in 2019.

Expand Training for Non-Clinical Behavioral Health Workers

In December 2024, the Michigan Department of Health and Human Services (MDHHS) introduced the Capacity Building Center to enhance training opportunities for public mental and behavioral health providers, specifically peer support specialists and coaches, who are contracted through Community Mental Health Service Programs and PIHPs. The Center's training initiatives are designed to strengthen providers' expertise in children's behavioral health services. Research indicates that peer recovery support services and recovery coaching for substance use disorders contribute significantly to treatment engagement and retention. Furthermore, the Michigan Health & Hospital Association has awarded grants to seven organizations to establish or expand hospital-based peer recovery coaching programs, resulting in the addition of 18 new hospital-based peer recovery coaches and increased treatment options for individuals with substance use disorders.[13]

Increase Retention of Behavioral Health Providers and Incentivize Providers from Rural and Underserved Communities

The 2019 report recommended several strategies to increase the number of behavioral health providers from rural and underserved communities. These included: a) developing initiatives to recruit candidates from these areas who are more likely to return and serve their communities, b) providing early exposure to health careers for children in underserved regions through school-based or other targeted programs, and c) offering scholarships or loan repayment incentives to encourage and support individuals from underserved backgrounds in pursuing behavioral health training.

In 2024, Michigan introduced the Bachelor of Social Work to Master of Social Work Program, allocating $5 million to 12 universities across the state to boost the number of master's-level social workers. This initiative offers one-time $30,000 stipends to bachelor's-level social workers who commit to enrolling in an advanced standing Master of Social Work program and to providing at least two years of full-time behavioral health service in the Michigan public sector.

The Michigan Behavioral Health Internship Stipend Program further supports workforce development by awarding up to $15,000 to eligible student interns who are completing

[13] MHA. (2025). MHA awards peer recovery coach grants. *Michigan Health & Hospital Association*. MHA Awards Peer Recovery Coach Grants

bachelor's or graduate-level degrees in behavioral health professions focused on serving children.

Additionally, the Behavioral Health Loan Repayment Program incentivizes qualified behavioral health providers to practice in underserved areas by offering student loan repayment for those who commit to two years of service in eligible nonprofit, outpatient, or school-based settings.

In 2025, the Michigan Department of Labor and Economic Opportunity awarded grants to two universities to expand and launch school psychologist training programs, including a new program at Western Michigan University. With this expansion, Michigan now has six school psychology training programs, increasing the annual number of school psychologists graduating in the state by an estimated 35–50%.

Expand School-Based Mental Health Providers

The Section 31N School Mental Health and Support Services program was established with $31 million to enhance school-based behavioral health services, allowing for Medicaid billing after two years. In 2019, Michigan further expanded these services by leveraging Medicaid funding and investing an additional $16 million to launch the Caring 4 Students (C4S) program. This initiative strengthened collaboration among the Medicaid agency, healthcare providers, and educational institutions, while streamlining Medicaid billing processes. The C4S program also broadened the range of eligible providers, enabling physician assistants, nurse practitioners, behavior analysts, and marriage and family therapists to offer reimbursable services to Medicaid-enrolled students. This expansion has helped address provider shortages, particularly in rural communities. Additionally, the 2026 Michigan Executive Budget Recommendations include $258 million in ongoing funding to support the mental health and safety of 1.4 million students by continuing mental health and safety grants for school districts.

Advance the use of Telemedicine in Behavioral Health

Recommendations from the 2019 report to advance telemedicine included aligning payment policies to support access in underserved areas, addressing broadband and technology gaps—particularly in rural communities—and sustaining teleconsultation programs such as the Michigan Consultation & Care (MC3) program, which connects

Michigan primary care providers with behavioral health specialists.

In 2024, Michigan enacted Public Acts 51 through 54 to require insurance parity between telemedicine and in-person services and expanded telehealth coverage under Medicare and Medicaid. In 2021, the state established the High-Speed Internet Office with the goal of providing universal access to high-speed internet, aiming for 95% of Michigan households to have home internet connections. Additionally, the Broadband Expansion Act of Michigan and the Building Michigan Together plan were signed into law, delivering grant funding to communities to help build the necessary infrastructure for broadband services.

The MC3 program continues to play a vital role by providing consultation, education, and connections to community resources, thereby enhancing the capacity of Michigan's primary care providers to address the behavioral health needs of pediatric and perinatal patients.

The findings in this report show clearly that telemedicine is essential to accessing behavioral health services in Michigan. Continuing to remove barriers and increase opportunities for Michiganders to utilize telemedicine for behavioral health services will be important to address the continued gap in access to services in Michigan.

Integrating Delivery of Behavioral Health Care with Primary Health Care

As of the 2019 report, Michigan was leading in the integration of behavioral health care with primary health care, with 663 different integration efforts underway statewide. While local initiatives have continued to expand, a comprehensive, statewide financial integration strategy for physical and behavioral health services within Michigan's Medicaid program has not yet been implemented.

Over the past five years, Michigan has implemented the Collaborative Care Model (CoCM), which brings together primary care providers, psychiatric consultants, and behavioral health care managers to support patients and families within primary care settings. This team-based approach uses a patient registry to monitor progress, enabling early identification of mental health needs, delivery of evidence-based interventions, and ongoing measurement of treatment outcomes to adjust plans as necessary. While CoCM adoption has increased across Michigan, challenges persist, including concerns about financial sustainability,

workforce shortages, and other external factors.[14]

In October 2021, Michigan received approval to establish Certified Community Behavioral Health Clinics (CCBHCs). These clinics aim to enhance behavioral health outcomes by improving access to quality care, integrating behavioral and physical health services, utilizing evidence-based practices, and applying standardized criteria across all certified sites. Currently, 34 CCBHCs are operating in Michigan, primarily in the lower half of the lower peninsula, providing coordinated behavioral and physical health care.

Additionally, the MI-SMART Psychiatric Medical Clearance initiative was launched in 2020 to standardize communication among Emergency Departments, Community Mental Health Service Providers, and Psychiatric Hospitals. This tool helps rule out physical health issues during behavioral health emergencies and determines when patients are medically stable for transfer to psychiatric care. The initiative has led to more thorough screenings and reduced unnecessary testing. Presently, 31 psychiatric hospitals, 59 emergency departments, and 21 community mental health providers participate in the MI-SMART Medical Clearance program.

Other Important Workforce Shortage Considerations

Mental health provider shortages have a significant impact on Michigan's entire health care system. One major issue is Emergency Department Boarding (“ED boarding”), where patients must remain in the emergency department while waiting for admission to an inpatient bed. This practice poses safety risks and ideally should not last more than four hours. ED boarding can occur not only for medical beds—such as those needed during the COVID-19 pandemic when ICU and other rooms were in high demand—but also for behavioral health evaluations and placement in behavioral health inpatient beds.

Data from the Michigan Health and Hospital Association highlights the severity of the situation: every day, more than 155 patients, including 17 children, wait in Michigan emergency departments for appropriate behavioral health services. Among Medicaid patients, one in three will spend over 48 hours waiting for behavioral health care in the ED. Often, these departments lack the necessary providers, services, or infrastructure to deliver

[14] Meadows Health Institute. (2025). Expanding the Collaborative Care Model in Michigan: Overcoming Barriers and Enhancing Sustainability. Final Report

adequate behavioral health care. Extended stays for behavioral health patients in the ED lead to substantial costs for Michigan hospitals, consuming millions of dollars in staff and facility resources and ultimately diminishing the ability to serve other patients requiring emergency care.

To address these challenges, several legislative measures were enacted (Public Acts 658 of 2018, 12 of 2020, and 166 of 2020), resulting in the creation of the Psychiatric Bed Treatment Registry. This electronic registry tracks available psychiatric beds, crisis residential services, and substance use disorder residential services, helping streamline referrals and optimize the use of open beds to better meet Michigan's needs.

Patient Affordability

Strategies to Address Affordability

In the 2019 report, it was recommended that Michigan uphold and actively enforce existing policies for financial coverage of behavioral health services. Additionally, insurance plans should be designed to reduce the financial burden on patients seeking behavioral health care.

In 2024, Governor Whitmer enacted legislation to improve both access and affordability of mental health and substance use disorder services. Key provisions include:

- Senate Bill 27: Requires insurance providers to offer coverage for mental health and substance use disorder treatments equivalent to coverage for physical health services.
- House Bill 4579: Mandates that insurers provide the same level of coverage for services delivered via telemedicine as they would for in-person consultations between providers and patients.
- House Bill 4580: Ensures that telemedicine services are covered under Medicaid and the Healthy Michigan Program if performed at, or contracted through, an authorized distant site as outlined in the Medicaid provider manual.

Michigan continues to prioritize patient affordability in behavioral health care by enforcing coverage provisions and reducing cost barriers. Recent legislative actions promote parity in coverage for MH and SUD treatments, but enforcement of these laws remains a challenge.

They additionally have the potential to expand insurance coverage for telemedicine and ensure these services are accessible through Medicaid programs.

Patient Willingness to Seek Treatment

Strategies to Increase Willingness to Seek Treatment

Recommendations were made to enhance public awareness about available local behavioral health resources, improve access to non-emergency medical transportation, and expand opportunities for self-monitoring and treatment through tools such as Internet-Based Cognitive Behavioral Therapy and the development of mobile applications or computer-based programs to support patient education, practice, and monitoring.

Since then, Michigan has initiated several programs to increase public awareness and access to mental health and substance use disorder services:

- 988 Suicide & Crisis Lifeline: Launched in 2022, this 24/7 toll-free, nationwide hotline offers support via call, chat, or text for individuals experiencing behavioral ealth-related distress, including suicidal thoughts, mental health or substance use crises, or other emotional distress. Michigan-specific calls are answered by the Michigan Crisis and Access Line (MiCAL).
- Michigan Peer Warmline: This service connects individuals with certified peer support specialists who have lived experience with behavioral health challenges, trauma, or personal crises, and are trained to provide support and empowerment.
- Frontline Strong Together (FST5) Crisis Line: A statewide initiative dedicated to promoting the health and resilience of first responders and their families through training, peer support, mental health services, and additional resources.
- Community Mental Health Service Provider (CMHSP) Crisis Line: Each CMHSP operates its own crisis and access lines, working in partnership with the 988 and MiCAL lines to coordinate services for those in need.
- Mobile Crisis Intervention Services: The Michigan Department of Health and Human Services (MDHHS) has provided $7.5 million in grants to communities to support proactive mobile crisis response services that address situations before they escalate.
- Crisis Stabilization Units (CSUs): In 2020, Public Act 402 authorized the creation of

CSUs as a short-term alternative to emergency departments and psychiatric inpatient admission for individuals who can be stabilized within 72 hours. Currently, Michigan has two CSUs, and as of April 2025 the state has allocated $56 million to establish 13 additional CSUs across nine counties in the lower peninsula.

Michigan has responded to previous recommendations by implementing a variety of programs aimed at increasing public awareness of mental health resources and improving access to care. Key initiatives include the launch of crisis hotlines, peer support services, mobile crisis intervention, and the establishment of Crisis Stabilization Units. These efforts collectively aim to provide timely support, reduce barriers to care, and offer alternatives to emergency departments for individuals experiencing behavioral health crises.

Future Recommendations

The 2022 study demonstrates a growing demand for behavioral health and substance use disorder services across Michigan. Remarkably, the state has managed to sustain—and in some cases slightly improve—its treatment levels compared to 2019, even throughout the challenges presented by the COVID-19 pandemic. This accomplishment reflects Michigan's ongoing commitment to supporting residents' behavioral health needs. However, the levels of AMI continue to increase despite Michigan's ability to maintain or increase the provision of behavioral health services compared to 2019. Furthermore, the data highlights that young males and females remain a particularly vulnerable group, underscoring the importance of continued focus on behavioral health and substance use disorder initiatives tailored to these populations.

- Reduce administrative barriers within schools to enable expansion of school-based mental health services.
- Specifically address the behavioral health needs of young males and females.
- Strengthen workforce development efforts, including tuition assistance and loan forgiveness programs for behavioral health professionals.
- Implement a statewide data system to monitor the long-term impact of mental health programs on student academic performance, attendance, and emotional well-being.
- Michigan may wish to explore ways to broaden the scope of practice for nurse

practitioners, including those specializing in behavioral health, as the state continues to face primary care workforce shortages. While Michigan currently does not offer full practice authority to nurse practitioners, this topic is receiving increased attention.

- Enhance care coordination between physical health providers and behavioral health professionals, utilizing approaches such as the Collaborative Care Model for improved integration and patient outcomes.
- Advance financial integration of physical and behavioral health care within the Medicaid population.

While Michigan has made meaningful progress in maintaining and enhancing behavioral health service delivery, ongoing attention to the needs of young people and strategic policy development will be essential for future success. By prioritizing these recommendations, Michigan can continue to build a more accessible, responsive, and integrated system of behavioral health care for all its residents.

Appendix A: Data and Methods

In this appendix, we describe the data sources, processes, and methodological decisions we applied to complete the following key analytical tasks under this study:

1. Estimating population counts and demographic characteristics
2. Constructing the claims data research file
3. Developing mental illness and substance use disorder prevalence estimates
4. Estimating unmet need for behavioral health care
5. Measuring the behavioral health provider supply in Michigan.

A1. POPULATION COUNTS AND DEMOGRAPHIC CHARACTERISTICS

To estimate the number of residents in Michigan by sex, age group categories, health insurance status, and geographic location, we used data from American Community Survey (ACS) produced by the US Census Bureau and available through microdata downloads and the American Fact Finder website data portal. We used a mix of the most currently available "5-year" estimates (2018-2022) and "1-year" estimates from the year 2022 to estimate the population in each Michigan county by age, sex, and health insurance status.

Calculations of the Medicaid and uninsured populations were estimated using the 2022 "1-year" estimates and the other insurance categories were estimated using the "5-year" estimates. The "5-year" estimates were required to generate estimates for the smaller Michigan counties, as only the largest counties have population counts for some of the required categories in the "1-year" estimates. To break the Medicare population into the Traditional (Fee-for-Service) and capitated Medicare Advantage populations, we used data for the year 2022 for the State of Michigan from the Medicare Enrollment Dashboard. This approach requires the assumption that the split between Medicare Advantage and Traditional Medicare is constant in all Michigan counties. The county-level estimates by age group, sex, and insurance status are then combined into the required geographic groups of Metropolitan Statistical Areas (MSAs), Michigan PIHP Regions, and Michigan Prosperity Regions by adding up the results from each underlying county.

To avoid double-counting individuals with multiple health insurance sources (either due to

switching insurance during the year or because of individuals holding multiple types of insurance at one time), an estimate is derived from the underlying microdata of the number of individuals in each category with multiple insurance types and splitting counts across the associated categories. For example, an individual with dual coverage in Medicare and Medicaid for the entire year would count in the totals as 0.5 persons in each insurance category. This results in the sum of each underlying category adding to the total Michigan population in 2022, a total of 10,034,118 people.

We benchmarked all subsequent analyses and claims dataset utilization measurements around these Michigan population data.

A2. CLAIMS DATA PROCESSING

To estimate observed utilization of behavioral health care in Michigan, we designed and constructed unduplicated research files using commercial claims datasets from IBM's *MarketScan* data, the Michigan Medicaid claims dataset, and the Carrier claims and Outpatient Facility claims datasets from Traditional Medicare FFS data.

Enrollees by Benefit Type/Insurance Category, State of Michigan 2022

Health Insurance Category	Estimated Effective Michigan Enrollment (2022)	Number of Enrollees in Analytical Dataset (2022)
Private Insurance	5,121,594	682,674
Medicaid	1,975,217	3,219,082
Medicare Advantage	925,987	293,729
Medicare Fee-for-Service	810,254	Carrier & OP Claims (53,977)
Uninsured	515,011	Claims data not analyzed
Other Health Insurance (VA, MHS, IHS)	195,864	Claims data not analyzed

The general approach to these analyses is to define the potential population covered by each claims dataset by analyzing each enrollment file, then measuring the percentage of each potential population receiving behavioral health services in the claims utilization files during a specific year. For all datasets, we measured 2022 utilization. Utilization was

measured by combining all relevant outpatient claims datasets, limiting the outpatient claims to those relevant to any mental health or substance use disorder condition, and finally by assessing the number of individuals receiving specific procedures for those mental health or substance use disorder diagnoses. The same set of diagnosis and procedure codes are applied to all datasets, with the only variations including some code sets that are specific to certain insurance types, for example the inclusion of Healthcare Common Procedure Coding (HCPC) procedure codes for the Medicare claims.

The diagnosis codes used to define potential behavioral health services are primarily the "F" category of codes in the ICD-10 diagnosis set. Because each analysis is limited to the year 2019, all diagnosis codes are in the ICD-10 format (as opposed to the ICD-9 format used in some years prior). A table of each category of diagnosis codes used is included at the end of this section, with the rightmost columns showing the first 2 or 3 digits of the ICD-10 code used to define each behavioral health diagnosis category.

The procedure codes used to define behavioral health services provided were curated from a variety of sources for physicians billing for behavioral health care and through searches of the CPT and HCPCs code sets for behavioral health service types. The codes used in identifying behavioral health utilization are included at the end of this section. These procedure codes were categorized into the following categories: Any Mental Illness (AMI) / Substance Use Disorder (SUD) specific outpatient services, MH/SUD specific intensive outpatient services, MH/SUD specific residential services, and generic office visit services. "Access to care" was computed as a flag for each enrollee and defined as positive for any individual who received either: (1) a MH/SUD specific service or (2) a generic office visit, when the primary diagnosis for that office visit was one of the above MH or SUD conditions.

This definition of behavioral health services represents a middle-ground assessment of potential behavioral health utilization. Counting the "generic office visits" only when the primary reason for that visit is a mental health or behavioral health diagnosis allows the inclusion of provider visits that do not code specifically for mental health visit but do focus on addressing a behavioral health need. Requiring the "generic office visits" to have a primary diagnosis of a behavioral health condition avoids creating an overly broad definition of behavioral health care received, as many generic visits will include a mental health condition as a secondary or tertiary purpose. If an individual received only generic office

visits with mental health/substance use disorder diagnosis outside the primary diagnosis throughout the year, they would not be included as receiving behavioral health care services in our access measure.

The other set of codes used in the analyses of the Commercial Claims and Medicaid claims are National Drug Codes (NDCs) for pharmaceutical drugs to treat mental illness and substance use disorders. These codes were collected from a variety of sources defining prescriptions specific to mental illness and substance use disorders and are numerous: over 8,000 codes for mental health conditions and 200 for substance use disorder conditions. A table of these codes is available upon request.

Tables of Diagnosis and Procedures Codes

Mental Health and Substance Use Disorder ICD-10 Diagnosis Code Definitions and Categories

Mental Health or SUD Code	Disease Category Label	Disease Full Name	ICD-10 Categories Substring
MH	Oth_Organic	Mental Health Caused by Physical Disease and Organic Disorders	F04
MH	Oth_Organic	Mental Health Caused by Physical Disease and Organic Disorders	F05
MH	Oth_Organic	Mental Health Caused by Physical Disease and Organic Disorders	F06
MH	Oth_Organic	Mental Health Caused by Physical Disease and Organic Disorders	F07

MH	Oth_Organic	Mental Health Caused by Physical Disease and Organic Disorders	F08
MH	Oth_Organic	Mental Health Caused by Physical Disease and Organic Disorders	F09
SUD	Alc_UD	Alcohol Use Disorder	F10
SUD	Opioid_UD	Opioid Use Disorder	F11
SUD	Cannabis_UD	Cannabis Use Disorder	F12
SUD	Sedative_UD	Sedative Use Disorder	F13
SUD	Cocaine_UD	Cocaine Use Disorder	F14
SUD	Stimulant_UD	Stimulant Use Disorder	F15
SUD	Hallucigen_UD	Hallucigen Use Disorder	F16
SUD	Inhalent_UD	Inhalent Use Disorder	F18
SUD	OtherDrug_UD	Other Psychoactive Drug Use Disorder	F19
MH	Schiz_NonMood_Psych	Schizophrenia and Non-Mood Psychotic Disorder	F2
MH	Manic_Epi	Manic Episode	F30
MH	Bipolar_Dis	Bipolar Disorder	F31
MH	Depressive_Epi	Depressive Episode	F32
MH	Recurr_Depre	Recurrent Depressive Disorder	F33

MH	Other_Mood	Other Mood Disorders	F34
MH	Other_Mood	Other Mood Disorders	F35
MH	Other_Mood	Other Mood Disorders	F36
MH	Other_Mood	Other Mood Disorders	F37
MH	Other_Mood	Other Mood Disorders	F38
MH	Other_Mood	Other Mood Disorders	F39
MH	Phobias	Phobic Anxiety Disorders	F40
MH	Anxiety_Dis	Other Anxiety Disorders	F41
MH	OCD_Dis	Obsessive Compulsive Disorder	F42
MH	PTSD_Stress	Post-Traumatic Stress Disorder	F43
MH	Dissociative_Dis	Dissociative (Conversion) Disorders	F44
MH	Somatoform	Somatoform Disorders	F45
MH	Other_Neur	Other Neurotic Disorders	F48
MH	Eating_Dis	Eating Disorders	F50
MH	Sleep_Dis	Sleep Disorders	F51
MH	Sex_Dis	Sexual Dysfunction, not caused by Disease	F52
MH	Postpartum_Depress	Postpartum Mental Health Conditions	F53
MH	Postpartum_Depress	Postpartum Mental Health Conditions	O906
MH	Other_Diseases_Connect	Mental Health Associated with	F54

		Other Diseases	
MH	Unspec_Dis	Unspecified Mental Health Disorders	F56
MH	Personality_Dis	Personality Disorders	F6
MH	Hyperkinetic_ADHD	Hyperkinetic and ADHD Disorders	F90
MH	Conduct_Dis	Conduct Disorders	F91
MH	Conduct_Dis	Conduct Disorders	F92
MH	Other_Child	Other Mental Health Commonly Occurring in Children	F93
MH	Other_Child	Other Mental Health Commonly Occurring in Children	F94
MH	Other_Child	Other Mental Health Commonly Occurring in Children	F95
MH	Other_Child	Other Mental Health Commonly Occurring in Children	F96
MH	Other_Child	Other Mental Health Commonly Occurring in Children	F97
MH	Other_Child	Other Mental Health Commonly Occurring in Children	F98

MH	Unspec_Dis	Unspecified Mental Health Disorders	F99

Mental Health and Substance Use Disorder Procedure Code Definitions and Categories

Generic Office Visit Codes (requires primary diagnosis of MH/SUD condition to count as service)	
99213	Office/outpatient visit est
99214	Office/outpatient visit est
99396	Prev visit est age 40-64
99215	Office/outpatient visit est
99284	Emergency dept visit
99285	Emergency dept visit
99212	Office/outpatient visit est
99395	Prev visit est age 18-39
99204	Office/outpatient visit new
99283	Emergency dept visit
99203	Office/outpatient visit new
99205	Office/outpatient visit new
99282	Emergency dept visit

Residential Care-Specific Codes	
HCPC/CPT Codes	
H0010	Sub-acute detox, residential
H0011	Alc Detox, Residential
H0017	Behavioral Health, Residential, Hospital
H0018	Behavioral Health, Residential, Non-Hospital
Revenue Codes	
1001	Residential Treatment-Psych
1002	Residential Treatment-Chemical Dependence
0190	Subacute Care General
0191	Subacute Care Level1

Intensive Outpatient-Specific Codes	
HCPC/CPT Codes	
H0015	Alcohol and/or drug services; intensive outpatient treatment
S9480	Intensive outpatient psychiatric services, per diem
Revenue Codes	
0905	Behavioral health treatment services; intensive outpatient
0906	Behavioral health treatment services; intensive outpatient, chemical dependency

Behavioral Health Specific Outpatient Procedure Codes	
CPT Codes	
90785	Use the add-on code with 90791 or 90792 for interactive psychiatric diagnostic interview examination using play equipment, physical devices, language interpreter, or other mechanisms of communication
90801	Psych Diagnostic Interview
90802	Psych Diagnostic Interview
90804	(individual psychotherapy 20-30 minutes, with medical evaluation and management services.)
90805	(individual psychotherapy 20-30 minutes, with medical evaluation and management services.)
90806	(individual psychotherapy 45-50 minutes, with medical evaluation and management services.)
90807	(individual psychotherapy 45-50 minutes, with medical evaluation and management services.)
90808	(individual psychotherapy 75-80, with medical evaluation and management services.)
90809	(individual psychotherapy 75-80, with medical evaluation and management services.)
90810	(individual psychotherapy 20-30 minutes, with medical evaluation and management services.)
90811	(individual psychotherapy 20-30 minutes, with medical evaluation and management services.)
90812	(individual psychotherapy 45-50 minutes, with medical evaluation and management services.)
90813	(individual psychotherapy 45-50 minutes, with medical evaluation and management services.)
90814	(individual psychotherapy 75-80, with medical evaluation and management services.)

90815	(individual psychotherapy 75-80, with medical evaluation and management services.)
90791	PSYCHIATRIC DIAGNOSTIC EVALUATION
90792	PSYCHIATRIC DIAGNOSTIC EVALUATION WITH MEDICAL SERVICES
90832	PSYCHOTHERAPY, 30 MINUTES WITH PATIENT AND/OR FAMILY MEMBER
90833	PSYCHOTHERAPY, 30 MINUTES WITH PATIENT AND/OR FAMILY MEMBER WHEN PERFORMED WITH AN EVALUATION AND MANAGEMENT SERVICE (LIST SEPARATELY IN ADDITION TO THE CODE FOR PRIMARY PROCEDURE)
90834	PSYCHOTHERAPY, 45 MINUTES WITH PATIENT AND/OR FAMILY MEMBER
90836	PSYCHOTHERAPY, 45 MINUTES WITH PATIENT AND/OR FAMILY MEMBER WHEN PERFORMED WITH AN EVALUATION AND MANAGEMENT SERVICE (LIST SEPARATELY IN ADDITION TO THE CODE FOR PRIMARY PROCEDURE)
90837	PSYCHOTHERAPY, 60 MINUTES WITH PATIENT AND/OR FAMILY MEMBER
90838	PSYCHOTHERAPY, 60 MINUTES WITH PATIENT AND/OR FAMILY MEMBER WHEN PERFORMED WITH AN EVALUATION AND MANAGEMENT SERVICE (LIST SEPARATELY IN ADDITION TO THE CODE FOR PRIMARY PROCEDURE)
90839	PSYCHOTHERAPY FOR CRISIS; FIRST 60 MINUTES
90840	PSYCHOTHERAPY FOR CRISIS; EACH ADDITIONAL 30 MINUTES (LIST SEPARATELY IN ADDITION TO CODE FOR PRIMARY SERVICE)
90845	PSYCHOANALYSIS
90846	FAMILY PSYCHOTHERAPY (WITHOUT THE PATIENT PRESENT)
90847	FAMILY PSYCHOTHERAPY (CONJOINT PSYCHOTHERAPY) (WITH PATIENT PRESENT)
90849	MULTIPLE-FAMILY GROUP PSYCHOTHERAPY
90853	GROUP PSYCHOTHERAPY (OTHER THAN OF A MULTIPLE-FAMILY GROUP)
90862	Pharma management
90863	Pharma management
90865	NARCOSYNTHESIS FOR PSYCHIATRIC DIAGNOSTIC AND THERAPEUTIC PURPOSES (EG, SODIUM AMOBARBITAL (AMYTAL) INTERVIEW)
90867	THERAPEUTIC REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION (TMS) TREATMENT; INITIAL, INCLUDING CORTICAL MAPPING, MOTOR

	THRESHOLD DETERMINATION, DELIVERY AND MANAGEMENT
90868	THERAPEUTIC REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION (TMS) TREATMENT; SUBSEQUENT DELIVERY AND MANAGEMENT, PER SESSION
90869	THERAPEUTIC REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION (TMS) TREATMENT; SUBSEQUENT MOTOR THRESHOLD RE-DETERMINATION WITH DELIVERY AND MANAGEMENT
90870	ELECTROCONVULSIVE THERAPY (INCLUDES NECESSARY MONITORING)
90875	INDIVIDUAL PSYCHOPHYSIOLOGICAL THERAPY INCORPORATING BIOFEEDBACK TRAINING BY ANY MODALITY (FACE-TO-FACE WITH THE PATIENT), WITH PSYCHOTHERAPY (EG, INSIGHT ORIENTED, BEHAVIOR MODIFYING OR SUPPORTIVE PSYCHOTHERAPY); 30 MINUTES
90876	INDIVIDUAL PSYCHOPHYSIOLOGICAL THERAPY INCORPORATING BIOFEEDBACK TRAINING BY ANY MODALITY (FACE-TO-FACE WITH THE PATIENT), WITH PSYCHOTHERAPY (EG, INSIGHT ORIENTED, BEHAVIOR MODIFYING OR SUPPORTIVE PSYCHOTHERAPY); 45 MINUTES
90880	HYPNOTHERAPY
90882	Environmental intervention for medical management purposes on a psychiatric patient's behalf with agencies, employers, or institutions
90901	Biofeedback therapy
90911	Biofeedback therapy
96101	Psychological testing, interpretation and reporting per hour by a psychologist (per hour)
96102	Psychological testing per hour by a technician (per hour)
96103	Psychological testing by a computer, including time for the psychologist's interpretation and reporting (per hour)
96105	Assessment of Aphasia
96111	Developmental Testing, Extended
96116	Neurobehavioral Status Exam (per hour)
96118	Neuropsychological testing, interpretation and reporting by a psychologist (per hour)
96119	Neuropsychological testing per hour by a technician
96120	Neuropsychological testing by a computer, including time for the psychologist's interpretation and reporting
96150	Health & Behavioral Assessment – Initial (each 15 mins) Non-facility: 21.49 / Facility: 21.14

96151	Reassessment (each 15 mins) Non-facility: 20.78 / Facility: 20.42
96152	Health & Behavior Intervention – Individual (each 15 mins)
96153	Health & Behavior Intervention – Group (each 15 mins)
96154	Health & Behavior Intervention – Family with Patient (each 15 mins)
96155	Health & Behavior Intervention – Family without Patient (each 15 mins)
98968	Telehealth
99443	Telehealth
80301	Drug screen class list a
80354	Drug screening fentanyl
80349	Cannabinoids natural
80348	Drug screening buprenorphine
80320	Drug screen quantalcohols
80346	Benzodiazepines1-12
80365	Drug screening oxycodone
80324	Drug screen amphetamines 1/2
80361	Opiates 1 or more
80356	Heroin metabolite
80353	Drug screening cocaine
80336	Antidepressant tricyclic 3-5
80364	Opioid &opiate analog 5/more
80350	Cannabinoids synthetic 1-3
80357	Ketamine and norketamine
80347	Benzodiazepines 13 or more
80321	Alcohols biomarkers 1or 2
80323	Alkaloids nos
80329	Analgesics non-opioid 1 or 2
80344	Antipsychotics nos 7/more
80333	Antidepressants class 3-5
80325	Amphetamines 3or 4
80375	Drug/substance nos 1-3
80352	Cannabinoid synthetic 7/more

80335	Antidepressant tricyclic 1/2
HCPCS Codes	
G0176	Activity therapy, such as music, dance, art or play therapies not for recreation, related to the care and treatment of patient's disabling mental health problems, per session (45 min. or more)
G0177	Training and educational services related to the care and treatment of patient's disabling mental health problems per session (45 min. or more)
H0001	Alcohol and/or drug assessment
H0002	Behavioral health screening to determine eligibility for admission to treatment program
H0003	Alcohol and/or drug screening; laboratory analysis of specimens for
H0004	Behavioral health counseling and therapy, per 15 min.
H0005	Alcohol and/or drug services; group counseling by a clinician
H0006	Alcohol and/or drug services; case management
H0007	Alcohol and/or drug services; crisis intervention (outpatient)
H0010	Sub-acute detox, residential
H0011	Alc Detox, Residential
H0012	Alcohol and/or drug services; sub-acute Residential OP)
H0013	Alcohol and/or drug services (Residential Addiction Program OP)
H0014	Alcohol and/or drug services; ambulatory detoxification
H0015	Alcohol and/or drug services; intensive outpatient treatment
H0016	ALCOHOL AND/OR DRUG SERVICES; MEDICAL/SOMATIC (MEDICAL INTERVENTION IN AMBULATORY SETTING)
H0017	Behavioral Health, Residential, Hospital
H0018	Behavioral Health, Residential, Non-Hospital
H0022	ALCOHOL AND/OR DRUG INTERVENTION SERVICE (PLANNED FACILITATION)
H0031	MENTAL HEALTH ASSESSMENT, BY NON-PHYSICIAN
H0036	COMMUNITY PSYCHIATRIC SUPPORTIVE TREATMENT, FACE-TO-FACE, PER 15 MINUTES
H0037	COMMUNITY PSYCHIATRIC SUPPORTIVE TREATMENT PROGRAM, PER DIEM
H0038	SELF-HELP/PEER SERVICES, PER 15 MINUTES
H0046	MENTAL HEALTH SERVICES, NOT OTHERWISE SPECIFIED

H0047	ALCOHOL AND/OR OTHER DRUG ABUSE SERVICES, NOT OTHERWISE SPECIFIED
H0048	ALCOHOL AND/OR OTHER DRUG TESTING: COLLECTION AND HANDLING ONLY, SPECIMENS OTHER THAN BLOOD
H0049	ALCOHOL AND/OR DRUG SCREENING
H0050	ALCOHOL AND/OR DRUG SERVICES, BRIEF INTERVENTION, PER 15 MINUTES
H2001	REHABILITATION PROGRAM, PER 1/2 DAY
H2010	COMPREHENSIVE MEDICATION SERVICES, PER 15 MINUTES
H2011	CRISIS INTERVENTION SERVICE, PER 15 MINUTES
H2012	BEHAVIORAL HEALTH DAY TREATMENT, PER HOUR
H2013	PSYCHIATRIC HEALTH FACILITY SERVICE, PER DIEM
H2017	PSYCHOSOCIAL REHABILITATION SERVICES, PER 15 MINUTES
H2018	PSYCHOSOCIAL REHABILITATION SERVICES, PER DIEM
H2019	THERAPEUTIC BEHAVIORAL SERVICES, PER 15 MINUTES
H2020	THERAPEUTIC BEHAVIORAL SERVICES, PER DIEM
H2030	MENTAL HEALTH CLUBHOUSE SERVICES, PER 15 MINUTES
H2031	MENTAL HEALTH CLUBHOUSE SERVICES, PER DIEM
H2034	ALCOHOL AND/OR DRUG ABUSE HALFWAY HOUSE SERVICES, PER DIEM
H2035	ALCOHOL AND/OR OTHER DRUG TREATMENT PROGRAM, PER HOUR
H2036	ALCOHOL AND/OR OTHER DRUG TREATMENT PROGRAM, PER DIEM
0064	Brief office visit for the sole purpose of monitoring or changing drug prescriptions used in the treatment of mental psychoneurotic and personality disorders
S9475	Ambulatory setting substance abuse treatment or detoxification services, per diem
S9480	Intensive outpatient psychiatric services, per diem
S9484	Crisis intervention mental health services, per hour
S9485	Crisis intervention, mental health services,
T1006	ALCOHOL AND/OR SUBSTANCE ABUSE SERVICES, FAMILY/COUPLE COUNSELING
T1007	ALCOHOL AND/OR SUBSTANCE ABUSE SERVICES, TREATMENT PLAN DEVELOPMENT AND/OR MODIFICATION
T1010	MEALS FOR INDIVIDUALS RECEIVING ALCOHOL AND/OR SUBSTANCE ABUSE SERVICES (WHEN MEALS NOT INCLUDED IN THE PROGRAM)

T1012	ALCOHOL AND/OR SUBSTANCE ABUSE SERVICES, SKILLS DEVELOPMENT
T1025	INTENSIVE, EXTENDED MULTIDISCIPLINARY SERVICES IN A CLINIC SETTING TO CHILDREN WITH COMPLEX MEDICAL, PHYSICAL, MENTAL AND PSYCHOSOCIAL IMPAIRMENTS, PER DIEM
T1026	INTENSIVE, EXTENDED MULTIDISCIPLINARY SERVICES IN A CLINIC SETTING TO CHILDREN W/ COMPLEX MEDICAL, PHYSICAL, MENTAL AND PSYCHOSOCIAL IMPAIRMENTS, PER HOUR
G0480	Drug test def 1-7 classes
H0025	Alcohol and/or drug prevention
J2315	Naltrexone, depot form
H0018	Alcohol and/or drug services
G0463	Hospital outpt clinic visit
G0478	Drug test presump opt inst
Revenue Codes	
0513	Psych Clinic
0900	Behavioral Health Treatment Services, general classification
0901	Behavioral health treatment services; electroshock
0902	Behavioral health treatment services; milieu treatment
0903	Behavioral health treatment services; play therapy
0904	Behavioral health treatment services; active therapy
0905	Behavioral health treatment services; intensive outpatient
0906	Behavioral health treatment services; intensive outpatient, chemical dependency
0907	behavioral health treatment services; community behavioral health
0909	Behavioral health treatment services; other behavioral health treatment
0914	Individual Therapy
0915	Group Therapy
0916	Family Therapy
0944	Drug Rehab
0945	Alcohol Rehab
1001	Residential Treatment-Psych
1002	Residential Treatment-Chemical Dependence
0190	Subacute Care General

0191	Subacute Care Level1

A3. ADDITIONAL INFORMATION ON CLAIMS DATA RESEARCH FILES

The following paragraphs define the steps taken for each claims dataset to ensure the correct population is defined to compare with the prevalence data by insurance category and demographic subpopulation.

Privately-Insured Population (Merative Commercial Claims)

The Merative MarketScan dataset is provided in two pieces: claims for the commercially-insured and Medicare-eligible populations. The privately-insured population is defined as those individuals for which it is expected that private insurance is the enrollee's primary payer. We include all individuals under the age of 65, as well as all individuals over the age of 65 who are currently working full-time, as most of those individuals, while eligible for Medicare, will have their group plan as the primary payer. Within the *MarketScan* datasets, we limit the potential population to those without the flag for "identifies whether or not mental health/substance abuse claims for covered individuals are included for the current year of data" marked as "not covered/claims not present." This eliminates less than 10% of the potential population but removes the possibility we undercount the percentage of individuals receiving behavioral health care services.

The *MarketScan* data include geographic information only for Metropolitan Statistical Areas, defined by the primary address of the enrollee. All enrollees in MSAs not in the state of Michigan are eliminated from the analysis, and all enrollees marked as "Non-MSA," indicating they live in a rural area, are combined in a single Non-MSA category. To compute utilization measures for the Michigan Prosperity regions and PIHP regions, we generate a weighted average of the utilization from each underlying MSA that is included in each region, weighted by the percentage of the privately-insured population each region covered by the underlying MSA/Non-MSA areas. These populations are estimated from the health insurance counts from the ACS data.

The health plan definitions are taken from the Merative data categories. Consumer-directed health plans (CDHPs) are combined with high-deductible health plans (HDHPs), and unmarked plans are combined with exclusive provider organizations (EPO) and point of

service (POS) plans in a mixed category.

Medicare Advantage Population (Merative Medicare Claims)

The Merative claims include commercial claims submitted for the Medicare eligible population from health plans and commercial employers for the purposes of coordination of benefits (COB) and supplemental insurance. These claims include both the Medicare submitted claims and commercial claims. To limit the population to the likely Medicare Advantage plans within this dataset, we include those in the Medicare Advantage analysis dataset who are retired (for which Medicare is likely the primary payer) and those plans not labeled as "Comprehensive," which are likely supplemental plans for the Medicare Fee-for-Service population. This was determined by analyzing the percentage of claims for which Medicare vs. the employer was the primary payer. The same process to compute geographic categories from the MSA data variables for the privately-insured population is applied to the Medicare Advantage data.

Medicare Fee-for-Service Population

The following claims datasets are using the measurement of the Medicare Fee-for-Service population utilization, the Medicare Master Beneficiary Summary File (MBSF), the 5% Medicare Carrier Claims dataset and the 100% Medicare Outpatient Facility Claims. We limit each of these files to enrollees with primary addresses in the state of Michigan. The MBSF is the enrollment file, used to compute the total number of enrollees potentially receiving behavioral health services, and the two claims files are combined to produce a comprehensive picture of behavioral health service utilization during the year 2022 for those enrollees. To match up the 5% sample of carrier claims to the 100% sample of outpatient claims, we use the MBSF to identify the Medicare beneficiaries in the 5% sample by enrollee id. To ensure the 5% sample of outpatient claims is representative, we compared the utilization findings from the total 100% outpatient set to the generated 5% subset of facility claims and found no appreciable difference in the results.

Unlike the *MarketScan* data, we have county-level data for the Medicare enrollees, allowing a simple summing of the county-level findings to produce the larger geographic category estimates. Also included in the Medicare data are race/ethnicity data, which are used to estimate utilization by race. All categories not "White" or "Black/African-American" are

combined into a single "Other/Not Listed" race definition as there are too few of the other individual categories to produce a reliable estimate.

A4 PREVALENCE OF MENTAL ILLNESS AND SUBSTANCE USE DISORDER

We estimated the prevalence of specific behavioral health needs by applying data from population-based surveys of mental health and substance use disorder conditions. We used this method, rather than estimating condition prevalence directly from the claims datasets, because population-based surveys best capture all individuals with particular behavioral health conditions compared to what is reported on claims. For example, estimates made directly from claims data undercount the population demand, such as for those who may need care but may not receive it and thus no healthcare claim is generated. Given the purpose of this study was to measure access to care, it was necessary to use population-based surveys to provide a measurement definition of total need. We used three primary surveys to complete these estimates. To estimate the prevalence of Any Mental Illness, Any Substance Use Disorder, and specific types of substance use disorders for adults (ages 18 and older), we used the National Survey on Drug Use and Health (NSDUH). To estimate the prevalence of specific mental illness categories, we used the National Co-Morbidity Survey. For children (under the age of 18), we used a single survey, the National Survey on Children's Health. To compute aggregate estimates, the prevalence results from these surveys were mixed with the ACS population data for population counts.

We analyzed the NSDUH for 2022, using the available microdata dataset to estimate the prevalence of any mental illness, any substance use disorder and specific substance use disorder categories for the entire United States by age group, sex, and insurance category. Specific survey questions ask if an individual has "any mental illness" and "any substance use disorder." The survey also includes insurance status, age and race for each respondent. Individuals are included in an insurance category if they responded "yes" to that insurance category question; for those who selected multiple insurance types, their population prevalence was included simultaneously in both categories. To ensure prevalence estimates are representative, respondent weights were used in the estimate computations.

These analyses resulted in population prevalence for conditions as a percentage of the total population, which are multiplied by the estimates of each population's total size in the ACS

results to compute the number of individuals with each condition in the State of Michigan for each subgroup. Differences between the expected population counts of condition prevalence and observed utilization are then measured as gaps in access.

A5 State and Sub-State Regions, Adults

To create a national-level prevalence by subpopulation category for adults, we used the NSDUH. However, the NSDUH microdata do not include geographic details to protect respondent privacy. To adjust the national-level prevalence data in this survey to a Michigan-specific estimate we used the Substance Abuse and Mental Health Services Administration (SAMHSA) aggregated estimates for geographic regions from publicly-available tables of averages of state and sub-state data. These tables are produced by averaging the results of multiple years of the NSDUH survey—we use the most current versions of these publicly-available tables.

To compute statewide estimates, each of the required national statistics by age group, sex, and insurance status were adjusted using the ratio of the State of Michigan to national average for the combined 2021-2022 results for "any mental illness" or "substance-use disorder" prevalence. For the sub-state estimates of each condition, the ratio of the Michigan specific estimates were further refined using the ratio of the sub-state region to the Michigan average from the 2018-2020 NSDUH tables. Overall, these adjustments from national data to Michigan-specific results were minor, as Michigan's prevalence of mental health and substance use disorder conditions is near the US average.

Further, there is only limited variation across the Michigan sub-state regions. The sub-state region estimates in the NSDUH results are for the Michigan PIHP regions, meaning that for other region definitions (the prosperity regions and MSA regions), it is required that the NSDUH region results are remapped onto the alternative region definitions, by remapping each PIHP region's data that has the largest intersection of each required alternative sub-state category.

A6 State and Sub-State Regions, Children

To create a national-level prevalence by subpopulation category for children under the age of 18, we used data from the National Survey on Children's Health (NSCH). Survey questions asked the parent if a selected child respondent "had ever been told they had" a particular

behavioral health condition and "if they currently had that condition." Any mental illness was defined as responding yes to the "Anxiety," "Depression," "Behavioral Problems," or "Attention-Deficit/Hyperactivity Disorder (ADHD)." Substance use disorders were defined by a parallel question on any substance use disorder. Insurance categories were used: "insurance provided by employer" and "insurance provided by insurance company." While the NSCH includes state flags, the results by insurance category result in populations too small for a single state to produce stable estimates. Thus, to create the state level estimates we instead used a similar approach to the NSDUH computations for estimating national-level prevalence by subpopulation category and adjusted based on the ratio of the Michigan averages to national averages. Respondent weights were used to ensure prevalence estimates were representative of the average population.

A7. UNMET NEED FOR BEHAVIORAL HEALTH CARE

We measure unmet need for behavioral health care by comparing the expected need for care with the observed utilization. We computed unmet need separately for each benefit type/insurance category and then combined these to produce aggregate estimates for the state. Using the claims analyses to estimate the percentage of each insurance group population that received a behavioral health service in 2022, we computed the share untreated for each insurance and demographic subpopulation by comparing the condition prevalence (as a percentage of the total population) for that subpopulation with the percentage of the claims data population that received a behavioral health service (defined above). We define the unmet need as the difference between these two percentages. For some of the findings, we denoted when an individual received only a single instance of a behavioral health service during the year, which could be alternatively defined as "limited access to care." When specific geographic groupings were able to be produced directly in the claims data (such as the *MarketScan* data MSA categories), the available geographic categories were mixed using the population data from the ACS results to produce aggregate estimates. Finally, when necessary, we rescaled these weighted results for some categories to ensure that the total gap and prevalence data were equal to the sum of each underlying category. This was done by multiplying the weighted results by the ratio of the population total to the weighted total and has very minor impacts on each region's results, but was necessary to ensure each geographic, sex, and age group subpopulation categories could be

combined to produce aggregate estimates that match the Michigan population totals.

For the less common health insurance subtype populations where claims data were not available to us to compute utilization estimates of behavioral health services, we relied on estimates from national surveys, which ask if individuals got access to care in addition to the condition prevalence questions. For example, the Uninsured and Other Health Insurance (VA, MHS, and IHS) population estimates are derived by computing access directly in NSDUH, using results of the percentage of individuals who "received outpatient treatment for mental health in the past year" for any mental illness and who "received Alcohol or Drug Treatment in the past 12 months" for substance use disorder care. These findings are computed for the relevant subpopulations of individuals to allow for complete totals of condition prevalence, utilization, and gaps for the entire Michigan population.

Last, after we measured "absolute" gaps in access to care by subtracting the expected population prevalence by the observed percentage of enrollees receiving care, we computed "relative" gaps in access by creating a threshold of the best access areas in Michigan for each condition category. We set the benchmark to the top quintile (top 20%) of all regions for each subgroup and relative access was computed against this benchmark. We computed the number of individuals who would receive care if the entire state resembled the top quintile by setting all the gaps to that top quintile's average and then compared the findings to the absolute gap results to estimate how many individuals would have received care if the state uniformly looked like the best quintile.

A8 BEHAVIORAL HEALTH PROVIDER SUPPLY

We used data for behavioral health providers (physicians, counsellors, and related medical professions) to compare the availability of certain provider types with estimated gaps in access. These results help define the potential impacts limited provider availability has on the gaps in use in behavioral health services and allow us to identify and create maps of provider "deserts," or areas with notable lack of specific behavioral health medical providers. We assembled data on mental health practitioners by county and as population-to-provider ratio by county from the County Health Rankings program of the University of Wisconsin. We used data from the 2022 County Health Rankings dataset.

A9 ADDITIONAL ANALYSES

Place of Service

All analyses regarding place of service were carried out using codes supplied in claims data following the table below, supplied by the Centers for Medicare & Medicaid Services:

Place of Service Codes with Descriptions		
01	Pharmacy	A facility or location where drugs and other medically related items and services are sold, dispensed, or otherwise provided directly to patients. (Effective October 1, 2003) (Revised, effective October 1, 2005)
02	Telehealth Provided Other than in Patient's Home	The location where health services and health related services are provided or received, through telecommunication technology. Patient is not located in their home when receiving health services or health related services through telecommunication technology. (Effective January 1, 2017) (Description change effective January 1, 2022, and applicable for Medicare April 1, 2022.)
03	School	A facility whose primary purpose is education. (Effective January 1, 2003)
04	Homeless Shelter	A facility or location whose primary purpose is to provide temporary housing to homeless individuals (e.g., emergency shelters, individual or family shelters). (Effective January 1, 2003)
05	Indian Health Service Free-standing Facility	A facility or location, owned and operated by the Indian Health Service, which provides diagnostic, therapeutic (surgical and non-surgical), and rehabilitation services to American Indians and Alaska Natives who do not require hospitalization. (Effective January 1, 2003)
06	Indian Health Service Provider-based Facility	A facility or location, owned and operated by the Indian Health Service, which provides diagnostic, therapeutic (surgical and non-surgical), and rehabilitation services rendered by, or under the supervision of, physicians to American Indians and Alaska Natives admitted as inpatients or

		outpatients. (Effective January 1, 2003)
07	Tribal 638 Free-standing Facility	A facility or location owned and operated by a federally recognized American Indian or Alaska Native tribe or tribal organization under a 638 agreement, which provides diagnostic, therapeutic (surgical and non-surgical), and rehabilitation services to tribal members who do not require hospitalization. (Effective January 1, 2003)
08	Tribal 638 Provider-based Facility	A facility or location owned and operated by a federally recognized American Indian or Alaska Native tribe or tribal organization under a 638 agreement, which provides diagnostic, therapeutic (surgical and non-surgical), and rehabilitation services to tribal members admitted as inpatients or outpatients. (Effective January 1, 2003)
09	Prison/ Correctional Facility	A prison, jail, reformatory, work farm, detention center, or any other similar facility maintained by either Federal, State or local authorities for the purpose of confinement or rehabilitation of adult or juvenile criminal offenders. (Effective July 1, 2006)
10	Telehealth Provided in Patient's Home	The location where health services and health related services are provided or received, through telecommunication technology. Patient is located in their home (which is a location other than a hospital or other facility where the patient receives care in a private residence) when receiving health services or health related services through telecommunication technology. (This code is effective January 1, 2022, and available to Medicare April 1, 2022.)
11	Office	Location, other than a hospital, skilled nursing facility (SNF), military treatment facility, community health center, State or local public health clinic, or intermediate care facility (ICF), where the health professional routinely provides health examinations, diagnosis, and treatment of illness or injury on an ambulatory basis.
12	Home	Location, other than a hospital or other facility, where the patient receives care in a private

		residence.
13	Assisted Living Facility	Congregate residential facility with self-contained living units providing assessment of each resident's needs and on-site support 24 hours a day, 7 days a week, with the capacity to deliver or arrange for services including some health care and other services. (Effective October 1, 2003)
14	Group Home	A residence, with shared living areas, where clients receive supervision and other services such as social and/or behavioral services, custodial service, and minimal services (e.g., medication administration). (Effective October 1, 2003) (Revised, effective April 1, 2004)
15	Mobile Unit	A facility/unit that moves from place-to-place equipped to provide preventive, screening, diagnostic, and/or treatment services. (Effective January 1, 2003)
16	Temporary Lodging	A short term accommodation such as a hotel, camp ground, hostel, cruise ship or resort where the patient receives care, and which is not identified by any other POS code. (Effective January 1, 2008)
17	Walk-in Retail Health Clinic	A walk-in health clinic, other than an office, urgent care facility, pharmacy or independent clinic and not described by any other Place of Service code, that is located within a retail operation and provides, on an ambulatory basis, preventive and primary care services. (This code is available for use immediately with a final effective date of May 1, 2010)
18	Place of Employment-Worksite	A location, not described by any other POS code, owned or operated by a public or private entity where the patient is employed, and where a health professional provides on-going or episodic occupational medical, therapeutic or rehabilitative services to the individual. (This code is available for use effective January 1, 2013 but no later than May 1, 2013)
19	Off Campus-Outpatient Hospital	A portion of an off-campus hospital provider based department which provides diagnostic, therapeutic (both surgical and nonsurgical), and rehabilitation

		services to sick or injured persons who do not require hospitalization or institutionalization. (Effective January 1, 2016)
20	Urgent Care Facility	Location, distinct from a hospital emergency room, an office, or a clinic, whose purpose is to diagnose and treat illness or injury for unscheduled, ambulatory patients seeking immediate medical attention. (Effective January 1, 2003)
21	Inpatient Hospital	A facility, other than psychiatric, which primarily provides diagnostic, therapeutic (both surgical and nonsurgical), and rehabilitation services by, or under, the supervision of physicians to patients admitted for a variety of medical conditions.
22	On Campus-Outpatient Hospital	A portion of a hospital's main campus which provides diagnostic, therapeutic (both surgical and nonsurgical), and rehabilitation services to sick or injured persons who do not require hospitalization or institutionalization. (Description change effective January 1, 2016)
23	Emergency Room – Hospital	A portion of a hospital where emergency diagnosis and treatment of illness or injury is provided.
24	Ambulatory Surgical Center	A freestanding facility, other than a physician's office, where surgical and diagnostic services are provided on an ambulatory basis.
25	Birthing Center	A facility, other than a hospital's maternity facilities or a physician's office, which provides a setting for labor, delivery, and immediate post-partum care as well as immediate care of new born infants.
26	Military Treatment Facility	A medical facility operated by one or more of the Uniformed Services. Military Treatment Facility (MTF) also refers to certain former U.S. Public Health Service (USPHS) facilities now designated as Uniformed Service Treatment Facilities (USTF).
27	Outreach Site/ Street	A non-permanent location on the street or found environment, not described by any other POS code, where health professionals provide preventive, screening, diagnostic, and/or treatment services to unsheltered homeless individuals. (Effective October 1, 2023)
28-30	Unassigned	N/A

31	Skilled Nursing Facility	A facility which primarily provides inpatient skilled nursing care and related services to patients who require medical, nursing, or rehabilitative services but does not provide the level of care or treatment available in a hospital.
32	Nursing Facility	A facility which primarily provides to residents skilled nursing care and related services for the rehabilitation of injured, disabled, or sick persons, or, on a regular basis, health-related care services above the level of custodial care to other than individuals with intellectual disabilities.
33	Custodial Care Facility	A facility which provides room, board and other personal assistance services, generally on a long-term basis, and which does not include a medical component.
34	Hospice	A facility, other than a patient's home, in which palliative and supportive care for terminally ill patients and their families are provided.
35-40	Unassigned	N/A
41	Ambulance - Land	A land vehicle specifically designed, equipped and staffed for lifesaving and transporting the sick or injured.
42	Ambulance – Air or Water	An air or water vehicle specifically designed, equipped and staffed for lifesaving and transporting the sick or injured.
43-48	Unassigned	N/A
49	Independent Clinic	A location, not part of a hospital and not described by any other Place of Service code, that is organized and operated to provide preventive, diagnostic, therapeutic, rehabilitative, or palliative services to outpatients only. (Effective October 1, 2023)
50	Federally Qualified Health Center	A facility located in a medically underserved area that provides Medicare beneficiaries preventive primary medical care under the general direction of a physician.
51	Inpatient Psychiatric Facility	A facility that provides inpatient psychiatric services for the diagnosis and treatment of mental illness on a 24-hour basis, by or under the supervision of a physician.
52	Psychiatric Facility-Partial Hospitalization	A facility for the diagnosis and treatment of mental illness that provides a planned therapeutic program for patients who do not require full time

		hospitalization, but who need broader programs than are possible from outpatient visits to a hospital-based or hospital-affiliated facility.
53	Community Mental Health Center	A facility that provides the following services: outpatient services, including specialized outpatient services for children, the elderly, individuals who are chronically ill, and residents of the CMHC's mental health services area who have been discharged from inpatient treatment at a mental health facility; 24 hour a day emergency care services; day treatment, other partial hospitalization services, or psychosocial rehabilitation services; screening for patients being considered for admission to State mental health facilities to determine the appropriateness of such admission; and consultation and education services.
54	Intermediate Care Facility/ Individuals with Intellectual Disabilities	A facility which primarily provides health-related care and services above the level of custodial care to individuals but does not provide the level of care or treatment available in a hospital or SNF.
55	Residential Substance Abuse Treatment Facility	A facility which provides treatment for substance (alcohol and drug) abuse to live-in residents who do not require acute medical care. Services include individual and group therapy and counseling, family counseling, laboratory tests, drugs and supplies, psychological testing, and room and board.
56	Psychiatric Residential Treatment Center	A facility or distinct part of a facility for psychiatric care which provides a total 24-hour therapeutically planned and professionally staffed group living and learning environment.
57	Non-residential Substance Abuse Treatment Facility	A location which provides treatment for substance (alcohol and drug) abuse on an ambulatory basis. Services include individual and group therapy and counseling, family counseling, laboratory tests, drugs and supplies, and psychological testing. (Effective October 1, 2023)
58	Non-residential Opioid Treatment Facility	A location that provides treatment for opioid use disorder on an ambulatory basis. Services include methadone and other forms of Medication Assisted Treatment (MAT). (Effective January 1, 2020)
59	Unassigned	N/A
60	Mass Immunization	A location where providers administer pneumococcal pneumonia and influenza virus

	Center	vaccinations and submit these services as electronic media claims, paper claims, or using the roster billing method. This generally takes place in a mass immunization setting, such as, a public health center, pharmacy, or mall but may include a physician office setting.
61	Comprehensive Inpatient Rehabilitation Facility	A facility that provides comprehensive rehabilitation services under the supervision of a physician to inpatients with physical disabilities. Services include physical therapy, occupational therapy, speech pathology, social or psychological services, and orthotics and prosthetics services.
62	Comprehensive Outpatient Rehabilitation Facility	A facility that provides comprehensive rehabilitation services under the supervision of a physician to outpatients with physical disabilities. Services include physical therapy, occupational therapy, and speech pathology services.
63-64	Unassigned	N/A
65	End-Stage Renal Disease Treatment Facility	A facility other than a hospital, which provides dialysis treatment, maintenance, and/or training to patients or caregivers on an ambulatory or home-care basis.
66	Programs of All-Inclusive Care for the Elderly (PACE) Center*	A facility or location providing comprehensive medical and social services as part of the Programs of All-Inclusive Care for the Elderly (PACE). This includes, but is not limited to, primary care; social work services; restorative therapies, including physical and occupational therapy; personal care and supportive services; nutritional counseling; recreational therapy; and meals when the individual is enrolled in PACE. (Effective August 1, 2024)
67-70	Unassigned	N/A
71	Public Health Clinic	A facility maintained by either State or local health departments that provides ambulatory primary medical care under the general direction of a physician.
72	Rural Health Clinic	A certified facility which is located in a rural medically underserved area that provides ambulatory primary medical care under the general direction of a physician.
73-80	Unassigned	N/A
81	Independent	A laboratory certified to perform diagnostic and/or

	Laboratory	clinical tests independent of an institution or a physician's office.
82-98	Unassigned	N/A
99	Other Place of Service	Other place of service not identified above.

Telehealth

For each dataset we identified telehealth claims using an applicable place of service code from the table given in the place of service table above (codes 02 and 10). In addition, some claims that might not necessarily have had such a place of service code had procedure code modifiers that nevertheless indicate a telehealth claim. These modifiers are:

GT – Real-time audio/video interactive telecommunications

95 – Similar to GT, used over a limited set of procedure codes

FQ – Similar to GT, but audio communication only

GQ - Asynchronous telemedicine: medical care that was provided by video or images, not in real-time.

Medication-assisted Treatment (MAT)

Analyses based on the occurrence of Medication-assisted Treatment (MAT) were based on the presence of certain procedure codes found in the claims data:

MAT Code	Description
G2067	Methadone
G2068	Buprenorphine oral
G2069	Buprenorphine injectable
G2070	Buprenorphine implants insertion
G2071	Buprenorphine implants removal
G2072	Buprenorphine implants insertion/removal
G2073	Extended-release, injectable naltrexone
G2074	Non-drug bundle
G2075	Medication not otherwise specified
G2078	Take-home supplies of methadone

G2079	Take-home supplies of oral buprenorphine
G2080	Additional counseling furnished
H0020	Alcohol and/or drug services; methadone administration and/or service
H0033	Oral medication administration, with extended direct observation up to 2.5 hours
J0571	Buprenorphine, oral, 1 mg
J0572	Buprenorphine/naloxone, oral, less than or equal to 3 mg; max of one unit per day
J0573	Buprenorphine/naloxone, oral, 3.1-6 mg; max 1 unit (film or pill) per day
J0574	Buprenorphine/naloxone, oral, 6.1-10 mg; max 4 units (film or pill) per day
J0575	Buprenorphine/naloxone, oral, greater than 10 mg; max 2 units (film or pill) per day
J1230	Injection, methadone HCL; up to 10 mg
J2315	Injection, naltrexone, depot form, 1 mg (max 380 mg per month)
J3490	Unclassified drugs (Naltrexone, oral); 50 mg tablet
S0109	Methadone, oral, 5 mg

Appendix B – Strategies Identified in 2022, by Focus Area

Strategy		Provider Availability	Patient Affordability	Willingness to Seek Care
1	Expand programs to train behavioral clinicians	X		
2	Expand programs to train behavioral health non-clinician providers	X		
3	Recruit and support applicants for workforce training from underserved areas	X		X
4	Increase retention of behavioral health providers in Michigan	X		
5	Train more providers in needed behavioral health competencies	X		
6	Expand provider scopes of practice to top of training	X	X	
7	Promote effective use of trained lay providers	X	X	X
8	Advance the use of telemedicine	X	X	X
9	Expand school-based behavioral health care	X	X	X
10	Integrate primary care and behavioral health care delivery	X	X	X
11	Maintain and enforce recent gains in coverage and parity		X	
12	Encourage coverage design that reduces patient cost burden for BH		X	
13	Increase public awareness of resources and paths to care			X
14	Improve access to non-emergency medical transportation			X
15	Support patient self-care and technology-assisted care		X	X

Appendix C – School-based Behavioral Health Care

This section provides further details on data obtained from the Michigan DHHS pertaining to school-based behavioral health (BH) care. While not as wide in scope or as detailed as the claims data analyzed in the main body of this study, this data has nevertheless allowed for some observations regarding BH care delivered by primary and secondary schools in Michigan.

Description of Statewide Behavioral Health Delivery Models

The data includes observations from seven different BH delivery models. These are:

- **Full Clinical Model**: these sites operate year-round, five days (30 hours) per week. Most are located within school buildings and are referred to as School-Based Health Centers; while others, School-linked Health Centers, are in freestanding sites near one or several schools within a geographic area. These sites provide BH care by licensed mental health providers (DO, MD, NP, PA).
- **Alternative Clinical Model**: the same as full clinical model described above, but these sites operate only three days (24 hours) per week.
- **Network Hub Model**: clinical model sites that serve multiple schools.
- **School Wellness Program (SWP) Model:** these sites pair a registered nurse with a licensed mental health professional to provide clinical services and referrals. They are located in school buildings and operate during the school year.
- **Flint School Nursing Model**: offshoot of the Flint water settlement and grouped with the SWP in practice, though reporting requirements differ. These sites offer RN-level care at mostly (if not entirely) elementary schools.
- **Enhancing, Expanding Emotional Health (E3) Model**: these sites provide full-time BH services in school buildings by a licensed mental health provider at the master's degree level.
- **Network Behavior Health (NBH) Model**: a precursor to the E3 model that has been phased out statewide except for certain sites that have been grandfathered in. The primary distinction between this model and the E3 lies in reporting requirements.

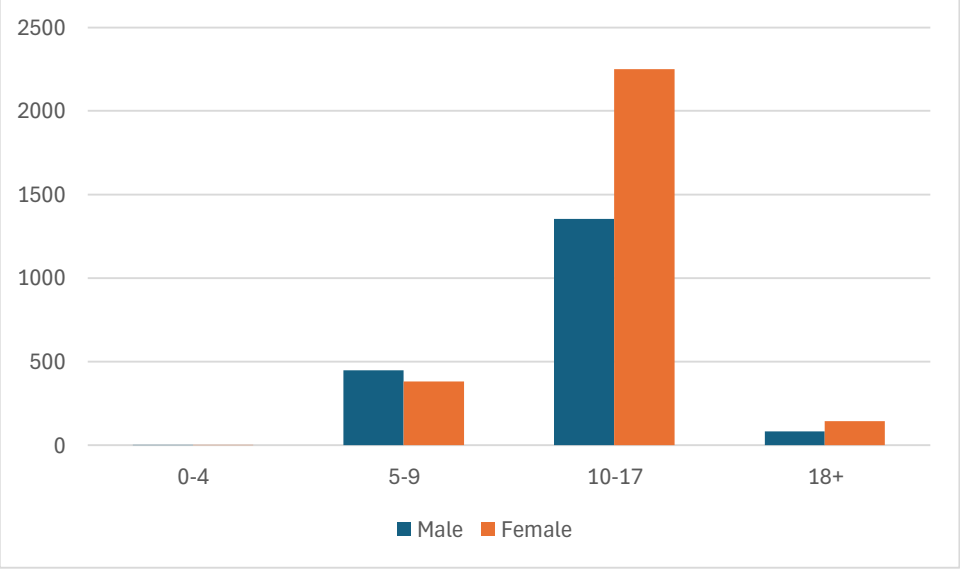
Statewide Demographic Data

In the school data, age and sex information for students who used BH services was available only for the E3 and NBH models (95% were E3). At those sites, approximately 60% of unique users were female, but users below the age of 10 were majority-male (54%). By far, most users overall were in the 10-17 age range. See figures C1 and C2.

Figure C1: Statewide school BH users by age and sex

Age	Male	Male Age %	Overall %		Female	Female Age %	Overall %		%Female
0-4	2	0.1%	0.0%		1	0.0%	0.0%		33.3%
5-9	449	23.8%	9.6%		382	13.8%	8.2%		46.0%
10-17	1354	71.7%	29.0%		2250	81.0%	48.2%		62.4%
18+	84	4.4%	1.8%		144	5.2%	3.1%		63.2%
Total	**1889**				**2777**				**59.5%**

Figure C2: Statewide school BH users by age and sex



Among Michigan counties and the city of Detroit, BH visits per NH user varied from 4.1 to 14.4 per year. Generally, there is a mild trend showing that as the percentage of male users rises, the number of repeat users rises, implying that male users probably tend to be more likely to have repeat visits when dealing with a BH issue (at least at E3 and NBH sites). Unfortunately, it is not possible to separate out the male vs female repeat visits in the data

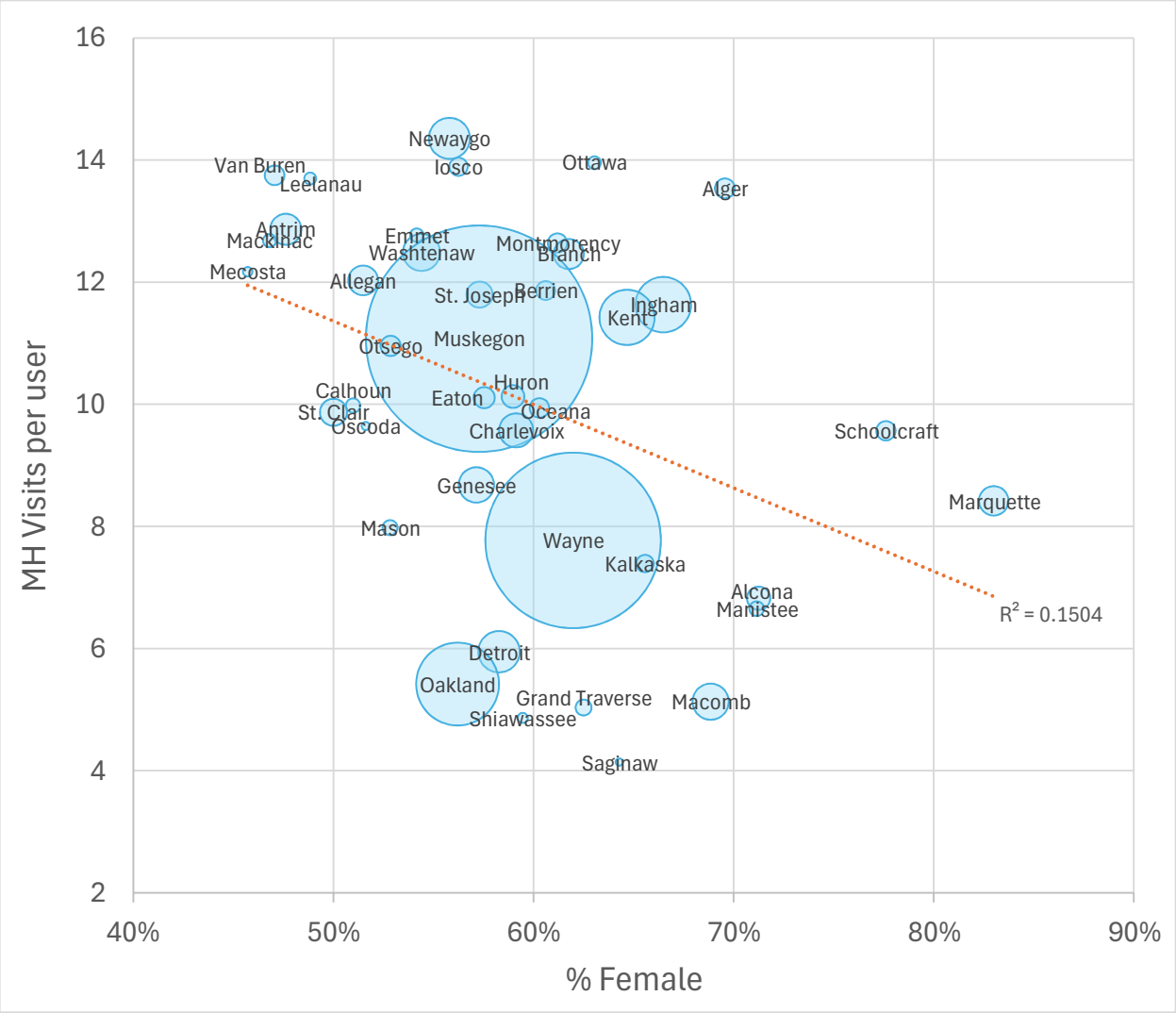
to give a definitive statement on the matter. See figures C3 and C4.

Figure C3: BH visits per user by location

Location	Total Males	Total Females	Total Students	% Female	MH Visits	BH visits per user
Newaygo	61	77	138	56%	1,981	14.4
Ottawa	17	29	46	63%	642	14.0
Iosco	28	36	64	56%	889	13.9
Van Buren	36	32	68	47%	935	13.8
Leelanau	22	21	43	49%	589	13.7
Alger	21	48	69	70%	934	13.5
Antrim	55	50	105	48%	1,351	12.9
Emmet	22	26	48	54%	613	12.8
Mackinac	25	22	47	47%	596	12.7
Montmorency	26	41	67	61%	847	12.6
Washtenaw	57	68	125	54%	1,561	12.5
Branch	39	63	102	62%	1,271	12.5
Mecosta	19	16	35	46%	426	12.2
Allegan	49	52	101	51%	1,215	12.0
Berrien	26	40	66	61%	783	11.9
St. Joseph	38	51	89	57%	1,050	11.8
Ingham	62	123	185	66%	2,152	11.6
Kent	65	119	184	65%	2,102	11.4
Muskegon	317	425	742	57%	8,218	11.1
Otsego	33	37	70	53%	767	11.0
Huron	32	46	78	59%	790	10.1
Eaton	31	42	73	58%	738	10.1
Calhoun	25	26	51	51%	509	10.0
Oceana	27	41	68	60%	676	9.9
St. Clair	46	46	92	50%	908	9.9
Oscoda	15	16	31	52%	299	9.6
Charlevoix	47	68	115	59%	1,101	9.6
Schoolcraft	15	52	67	78%	641	9.6
Genesee	51	68	119	57%	1,033	8.7
Marquette	17	83	100	83%	842	8.4

Mason	25	28	53	53%	423	8.0
Wayne	219	357	576	62%	4,477	7.8
Kalkaska	21	40	61	66%	451	7.4
Alcona	23	57	80	71%	546	6.8
Manistee	15	37	52	71%	346	6.7
Detroit	58	81	139	58%	827	5.9
Oakland	120	154	274	56%	1,485	5.4
Macomb	38	84	122	69%	626	5.1
Grand Traverse	21	35	56	63%	282	5.0
Shiawassee	15	22	37	59%	180	4.9
Saginaw	10	18	28	64%	116	4.1

Figure C4: BH visits per user vs. female percentage, by location, bubble width corresponding to number of total users



Mental Health Quality Measures

Depression Screening, Diagnosis, and Follow-up

There appear to be significant differences in depression screening by both school-based behavioral health delivery model and by location. The E3 Emotional Health model diagnosed 34% of students with depression screening with depression, a significantly higher percentage than the most common model (Full clinical, 12%). Figure C5 shows the models sorted by diagnosis-to-screening ratio with a column showing the statistical significance of a ratio different from the full clinical model. Alternative clinical (10%) appears to have a lower

rate, significant at the P<0.1 level. Full clinical has a poor follow-up percentage (73%) vs. most of the other models (80-100%).

Figure C5: Depression screening by model

Model	#Depression Screens	Depression Dxs Ages 12+	Dx/Scren Ratio	Depression Follow-ups	Follow-up %	P-value for ratio = Full clinical ratio
E3 emotional health	3,405	1,149	34%	1003	87%	0.000 ***
School wellness program	2,586	347	13%	304	88%	0.651
Full clinical	20,512	2,524	12%	1853	73%	[Ref. Model]
Alternative clinical	4,478	435	10%	346	80%	0.067 *
Network behavioral health	114	7	6%	5	71%	0.882
Network school wellness program	281	17	6%	17	100%	0.703
Network hub	1,211	64	5%	62	97%	0.898
Flint school nursing	106	0	0%	0	-	0.374

*** P < 0.01
** P < 0.05,
* P < 0.1
Controlled for location

Among locations, the mean diagnosis/screening ratio is 14%. Using Allegan County (whose rate is 14%) as a reference location, via linear regression we find that even after controlling for model, several counties reported a higher diagnosis rate, Washtenaw and Oakland Counties among them. Of the counties that show a lower percentage, none of the values are statistically significant. See Figure C6, again sorted by diagnosis-to-screening ratio.

Figure C6: Depression screening by location

Location	# Depression Screens	Depression Diagnoses Ages 12+	Dxs/Screens Ratio*	Depression Follow-up	Follow-up %	P value for ratio = Allegan County ratio
Gladwin	5	5	100%	4	80%	0.133
Shiawassee	160	115	72%	115	100%	0.000 ***
Manistee	119	75	63%	49	65%	0.002 ***
Schoolcraft	67	32	48%	32	100%	0.172
Alger	65	27	42%	27	100%	0.268

Branch	340	125	37%	125	100%	0.041 **
Montmorency	50	18	36%	16	89%	0.414
Alcona	258	79	31%	28	35%	0.082 *
Montcalm	518	157	30%	147	94%	0.010 **
Washtenaw	1483	445	30%	123	28%	0.015 **
Oakland	2601	694	27%	608	88%	0.039 **
Mackinac	34	9	26%	9	100%	0.683
Lake	253	65	26%	65	100%	0.066 *
Antrim	231	54	23%	54	100%	0.199
Newaygo	1050	235	22%	235	100%	0.085 *
Leelanau	36	8	22%	8	100%	0.782
Calhoun	827	164	20%	96	59%	0.077 *
Oscoda	110	20	18%	16	80%	0.361
Marquette	727	121	17%	121	100%	0.181
Mason	133	22	17%	17	77%	0.288
Chippewa	286	47	16%	47	100%	0.196
Macomb	1199	192	16%	179	93%	0.157
Eaton	72	11	15%	6	55%	0.952
Iosco	140	21	15%	9	43%	0.371
Otsego	837	117	14%	117	100%	0.211
Genesee	1423	197	14%	109	55%	0.165
Allegan	94	13	14%	8	62%	[Ref. Loc.]
Cheboygan	688	92	13%	73	79%	0.190
Charlevoix	313	40	13%	40	100%	0.447
Clare	452	57	13%	56	98%	0.218
Presque Isle	305	38	12%	33	87%	0.239
Detroit	1780	193	11%	172	89%	0.211
Van Buren	296	32	11%	32	100%	0.287
St. Joseph	841	88	10%	77	88%	0.221
Grand Traverse	464	47	10%	47	100%	0.273
Wayne	4031	378	9%	305	81%	0.323
Missaukee	183	14	8%	14	100%	0.236
Berrien	681	52	8%	33	63%	0.390

Muskegon	2269	168	7%	147	88%	0.435
Ottawa	46	3	7%	3	100%	0.793
St. Clair	874	53	6%	27	51%	0.419
Luce	184	11	6%	11	100%	0.269
Emmet	448	26	6%	26	100%	0.530
Wexford	465	25	5%	15	60%	0.423
Huron	250	13	5%	12	92%	0.632
Kent	1128	57	5%	57	100%	0.334
Kalkaska	624	19	3%	17	89%	0.472
Mecosta	33	1	3%	1	100%	0.730
Crawford	138	4	3%	3	75%	0.365
Ingham	1474	41	3%	2	5%	0.541
Saginaw	435	12	3%	8	67%	0.540
Oceana	469	6	1%	4	67%	0.657
Roscommon	704	5	1%	5	100%	0.444

*** P < 0.01
** P < 0.05,
* P < 0.1
Controlled for model

Looking at depression screening over time, we see that while by far most screens occurred in the first quarter, the highest rate of subsequent diagnoses occurred in the second quarter (Figure C7). Possibly this is because of lagged diagnoses bridging those two quarters.

Figure C7: Depression screening and diagnosis by quarter

Quarter	Screens	Dxs	Ratio
1	12,624	1,953	15%
2	6,763	1,289	19%
3	4,652	576	12%
4	8,654	725	8%

While the school data does include risk assessments and behavior health screens in addition to depression screening, the lack of diagnosis or follow-up data limits their

usefulness for this study. Figure C8 shows the number of screenings (risk assessments, depression screenings, and BH screenings) at different locations along with a measure of how up-to-date the corresponding records are (with each record measured from 0 – 100%).

Figure C8: Screenings and up-to-date status by location

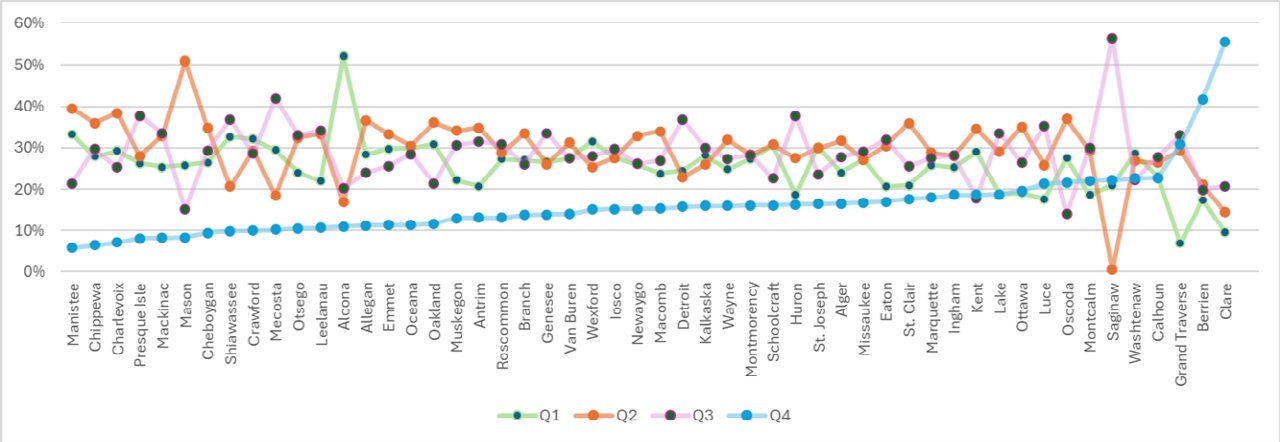
Location	Risk Assessments	Risk assesment records up-to-date %	Depression Screens	Depression records up-to-date %	BH screens	BH records up-to-date %
Alcona	367	68%	258	69%	80	100%
Alger	0		65	99%	68	99%
Allegan	0		94	96%	95	94%
Antrim	253	57%	231	57%	22	21%
Berrien	623	59%	681	67%	1	2%
Branch	340	66%	340	66%	0	
Calhoun	845	60%	827	62%	42	82%
Charlevoix	525	99%	313	99%	216	52%
Cheboygan	820	91%	688	97%	0	
Chippewa	326	65%	286	79%	0	
Clare	273	53%	452	99%	0	
Crawford	138	70%	138	78%	0	
Detroit	2,085	76%	1,780	80%	66	60%
Eaton	0		72	100%	73	100%
Emmet	609	96%	448	97%	129	21%
Genesee	1,801	80%	1,423	81%	35	40%
Gladwin	10	91%	5	100%	0	
Grand Traverse	439	87%	464	85%	31	55%
Huron	370	94%	250	98%	32	41%
Ingham	1,273	60%	1,474	72%	43	25%
Iosco	242	31%	140	36%	43	67%
Kalkaska	626	87%	624	95%	0	
Kent	1,068	93%	1,128	94%	31	89%
Lake	366	97%	253	100%	0	
Leelanau	43	100%	36	100%	7	16%
Luce	186	89%	184	100%	0	

Mackinac	0		34	100%	46	98%
Macomb	1,103	93%	1,199	99%	47	33%
Manistee	206	81%	119	60%	43	83%
Marquette	745	95%	727	96%	0	
Mason	133	79%	133	86%	0	
Mecosta	7	20%	33	100%	33	94%
Missaukee	183	79%	183	84%	0	
Montcalm	513	60%	518	60%	0	
Montmorency	0		50	96%	47	70%
Muskegon	2,611	89%	2,269	94%	0	
Newaygo	1,115	98%	1,050	98%	137	99%
Oakland	2,434	89%	2,601	95%	78	81%
Oceana	469	74%	469	76%	57	84%
Oscoda	34	10%	110	50%	17	55%
Otsego	837	100%	837	100%	0	
Ottawa	0		46	100%	46	100%
Presque Isle	406	97%	305	95%	0	
Roscommon	728	92%	704	95%	0	
Saginaw	372	63%	435	72%	20	80%
Schoolcraft	0		67	100%	67	100%
Shiawassee	160	69%	160	69%	37	100%
St. Clair	903	92%	874	91%	92	100%
St. Joseph	878	88%	841	89%	89	100%
Van Buren	291	75%	296	76%	67	99%
Washtenaw	1,730	72%	1,483	70%	68	52%
Wayne	4,045	95%	4,031	96%	222	100%
Wexford	465	79%	465	79%	0	

BH Visits and Screenings by Quarter

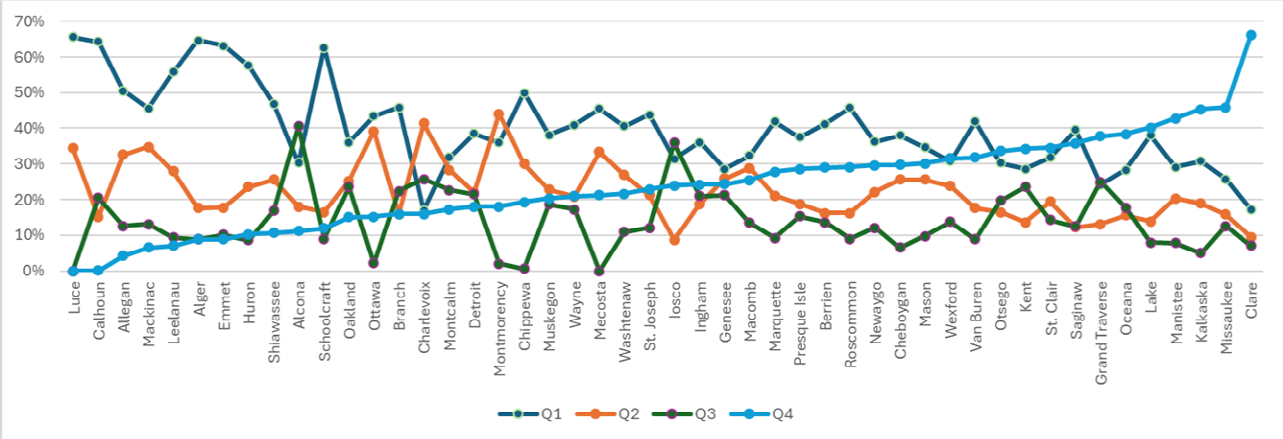
BH visits overall do not appear to be especially biased in favor of any quarter among the counties, with the exception that Q4 is usually lowest (which is to be expected, since two of its months are summer months). See Figure C9.

Figure C9: MH Visits by location and by quarter, sorted by Q4%



When looking at screenings over the quarters, however, the Q4 deficiency disappears (see figure C10). Possibly, some locations may have a policy of boosting screenings very early in the school year, which would be included in Q4, or students may have access to BH services during the summer months which would also be included in Q4.

Figure C10: Risk assessment, depression, and BH screening by location and by quarter, sorted by Q4%



Acronyms

ADHD	Attention-Deficit Hyperactivity Disorder
AMI	Any Mental Illness
CDHP	Consumer Driven Health Plan
FFS	Fee-for-Service
GME	Graduate Medical Education
HDHP	High Deductive Health Plan
HMO	Health Maintenance Organization
IHS	Indian Health Service
MA	Medicare Advantage
MAT	Medication Assisted Treatment
MCO	Managed Care Organization
MHS	Military Health Service
MI	Michigan
MSA	Metropolitan Statistical Area
NEMT	Non-Emergency Medical Transportation
NSDUH	National Survey on Drug Use and Health
PIHP	Prepaid Inpatient Health Plan
PPO	Preferred Provider Organization
PTSD	Post-Traumatic Stress Disorder
SAMHSA	Substance Abuse and Mental Health Services Administration
SNF	Skilled Nursing Facility
SUD	Substance Use Disorder
UD	Use Disorder
UME	Undergraduate Medical Education
VA	Veterans Administration