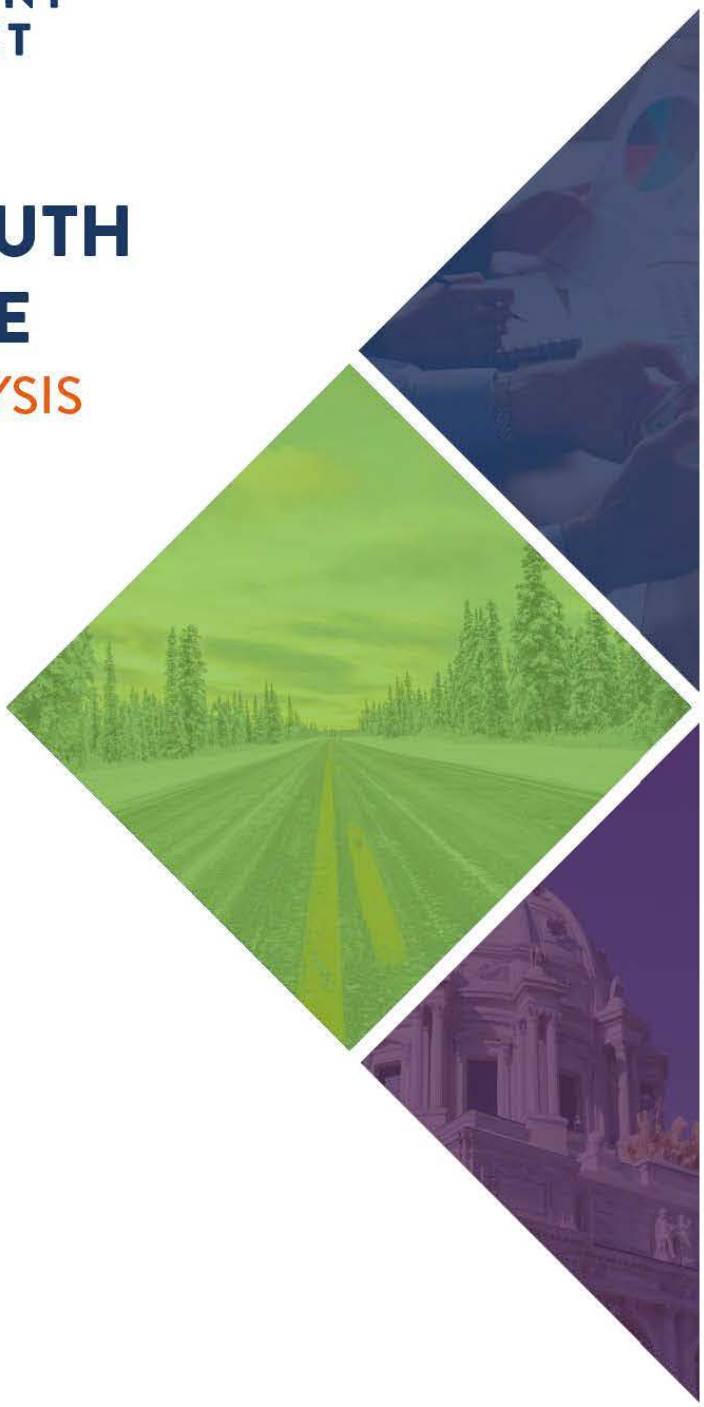
MANAGEMENT AND BUDGET

ADULT AND YOUTH SUBSTANCE USE

BENEFIT-COST ANALYSIS



RESULTS FIRST

SEPTEMBER 2017

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Acknowledgments

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The 2015 Minnesota Legislature instructed Minnesota Management & Budget to conduct benefit-cost analyses for state investments, using the Pew-MacArthur Results First framework. This framework allows Minnesota to estimate the cost-effectiveness of services using the best national evidence. Under this initiative, we do not evaluate the impact of services as currently implemented in Minnesota. Rather, we estimate the benefits we expect if our outcomes resemble those found in previous evaluations. Insights generated from the work help inform state and local decision-makers on evidence-based policy and program choices.

Results First Substance Use Analysis - Executive summary

This report examines benefits and costs associated with substance use prevention, treatment, and recovery offerings. State agencies and counties support a broad, decentralized network of educators, health care practitioners, and specialty treatment providers that administer a range of programs designed to promote wellness. These activities have the potential to reduce substance use, improve health, enhance public safety, and increase employment, thereby generating benefits to participants and taxpayers.

Substance use disorder is a preventable and treatable disease. When effective treatment practices are applied, recovery rates are comparable to rates of recovery for other chronic diseases, like diabetes or hypertension. In fact, an estimated 25 million American adults are in remission from substance use disorder. Our inventory and benefit-cost analysis highlight a range of services proven to reduce the prevalence of and promote recovery from substance use disorder. Federal, state, local, and private investments already support a number of these prevention and treatment services, but opportunities exist to deepen their use and increase access. For example, there are differences in the availability of treatment services across the state. These gaps are especially acute for special populations and residents in rural areas.

Some of these service gaps are structural and related to the historical stigma around substance use disorder. These systemic factors can hinder the use of proven practices and could contribute to the perception that substance use disorder is not treatable. They are not, however, immutable features of the system. Thoughtful policy and practice changes can increase access to and adoption of programs that work. Our analysis also reveals a need to improve the implementation of evidence-based practices. If we fail to deliver services to the right person, at the right intensity, and at the right time, we may not experience the anticipated returns.

To assist in estimating the cost-effectiveness of services, we conducted literature reviews, surveys, and interviews with providers, agencies, and counties. Through this process, 118 prevention, treatment, and recovery services for alcohol, tobacco and other drugs were found in the state; of which more than half, have high-quality evidence to support their efficacy. We conducted a full benefit-cost analysis for 16 of these services. Of those, 15 have overall benefits to Minnesotans that exceed their cost. Five also have taxpayer benefits that exceed the investment.

To estimate the benefit-cost ratios, we use a statistical model that assigns dollar values to the benefits of decreasing disordered use of alcohol, drug, and tobacco use. These benefits include reductions in health care use, crime, and death, as well as increases in earnings from employment. Benefit-cost analysis is a valuable tool for informing decisions about how to deploy public resources, but cost-effectiveness is only one factor to consider when evaluating public investments. Equity, innovation, and the well-being of clients and communities are other key factors policy makers weigh when deciding how to allocate limited resources.

Figure 1: Comparison of benefit-cost ratios for prevention and early intervention services

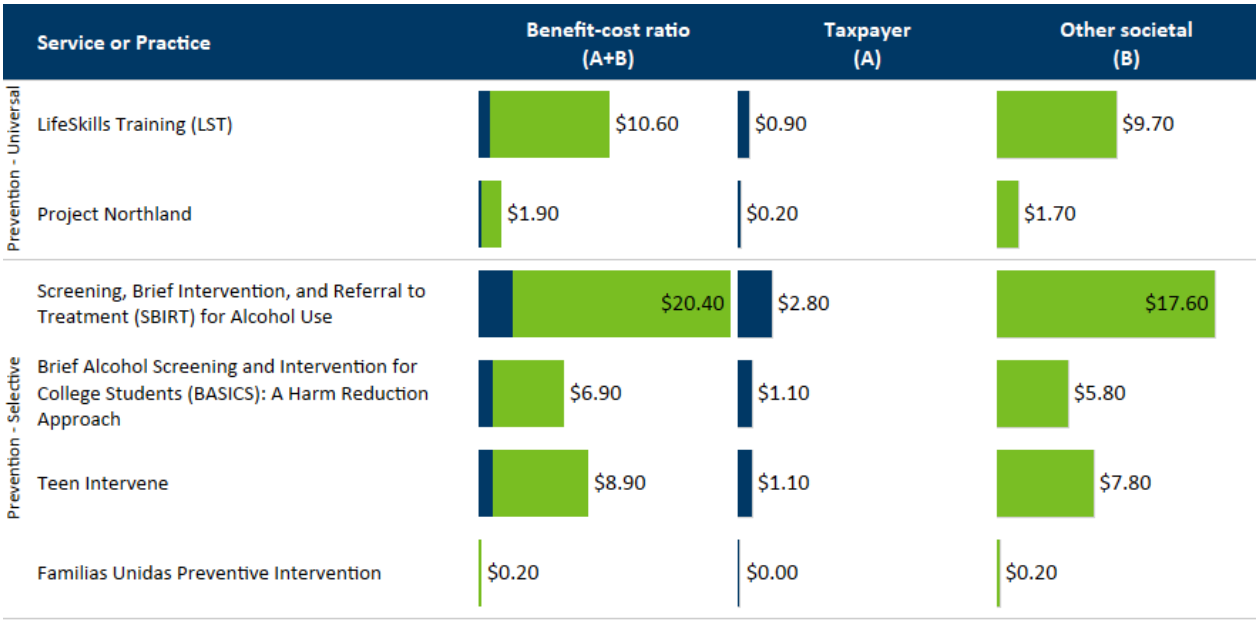
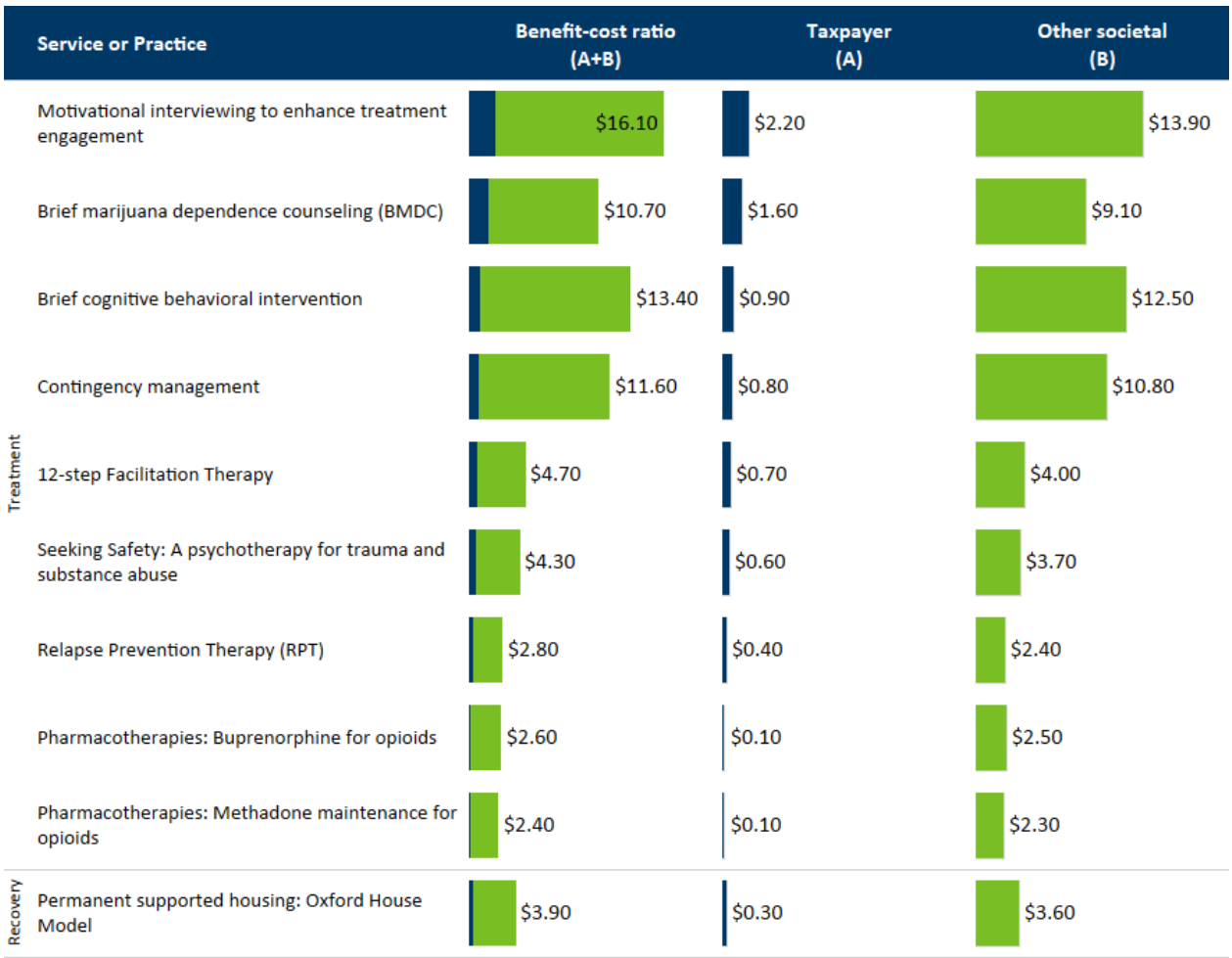


Figure 2: Comparison of benefit-cost ratios for treatment and recovery services



Minnesota Results First

Background

A bipartisan provision enacted during the 2015 legislative session directed Minnesota Management & Budget (MMB) to implement an evidence-based policy framework. Through the *Results First Initiative*, MMB uses high-quality evidence to estimate the extent to which publicly funded services generate positive, cost-effective outcomes for Minnesotans. We collaborate with state, local, and national entities to identify and estimate the benefits and costs of a range of public services that support the well-being of Minnesotans.

As policymakers face difficult budget choices, knowing which services have proven outcomes that lead to taxpayer savings is valuable. When applied consistently, these insights improve outcomes and maximize benefits for Minnesotans.

Results First framework

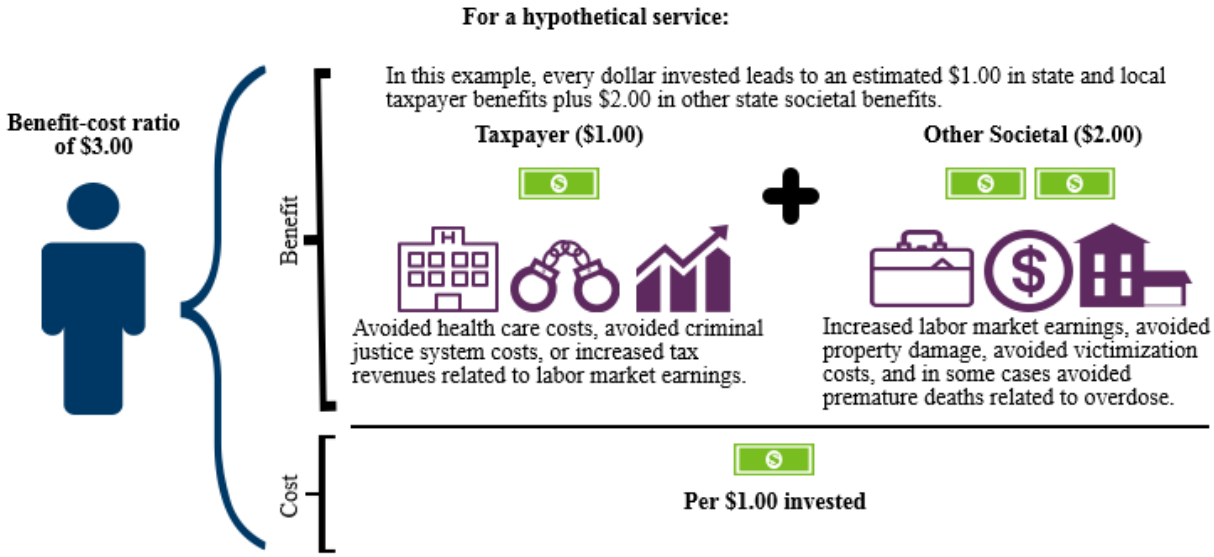
Overview

Minnesota's Results First Initiative works to implement a framework based on research synthesis and benefit-cost modeling developed by the Pew Charitable Trusts and MacArthur Foundation and the Washington State Institute for Public Policy (WSIPP). The approach enables us to identify opportunities for investment that generate positive outcomes for citizens and achieve long-term savings. Minnesota is one of a growing number of states that are customizing this approach to their state-specific context and using its results to inform policy and budget decisions.

The Results First framework has two major products: the inventory of services and the benefit-cost analysis. The substance use inventory identifies the degree to which there is evidence of effectiveness -- defined as a decrease in underage alcohol use, illegal drug use, tobacco use, substance abuse or misuse, and crime -- for each of the services implemented in Minnesota. We have developed an inventory of 118 substance use services and conducted in-depth benefit-cost analyses on 16 services for which there is sufficient research and fiscal data available. The benefit-cost analyses estimate the monetary value of a given change in alcohol, tobacco, and other drug use outcomes. Changes in these outcomes affects taxpayer expenses, such as public health care and criminal justice involvement, and participants' labor market earnings and use of substances. The benefit-cost ratio compares per-participant benefits to the per-participant cost of the service.

The benefit-cost ratio means "for every dollar invested in this service, there are X dollars in benefits".

Figure 3: Explanation of a benefit-cost ratio



Assumptions

In conducting the benefit-cost analysis described in this report, we did not directly evaluate service outcomes or effectiveness of services delivered in Minnesota. Rather, we estimated the benefits the state can expect if services have the same impact found in high-quality evaluations conducted in Minnesota or elsewhere in the country. Confirming that our local programs actually achieve these outcomes would require conducting separate impact evaluations. To achieve the estimated benefit, evidence-based services in Minnesota must be implemented effectively. Additionally, the analysis compares evidence-based models to treatment as usual; it does not compare it to no treatment. Treatment as usual varies depending on how comparison groups are set-up in the underlying academic research.

We used data from the Minnesota Department of Human Services, Minnesota Department of Health, and a survey with follow-up interviews of treatment providers to estimate the cost and use of services. To supplement the findings, we added context and collected data from a sample of Minnesota counties: Dakota, Dodge, Olmsted, Otter Tail, Morrison, Steel, Waseca, Watonwan, and Washington. This sample includes counties of varying size and proximity to metro areas, but is not necessarily representative of human service agencies throughout the state.

The substance use system is complex and diffuse. Before reviewing the findings, it is important to understand what influences a person's use of substances, what a "continuum of care" is, the extent of substance use in Minnesota, the funding and governance of the state's substance use services, and who provides those services.

Background

Alcohol, tobacco, and other drugs are chemicals that affect the brain by mimicking the way it normally sends, receives, and processes information. Substance use disorder is a chronic, yet treatable, disease that is associated with compulsive seeking and use, despite harmful consequences (National Institute on Drug Abuse 2014a, 2014b). Each year, approximately 107,000 Minnesotans over the age of 12 abuse an illegal substance, but only 16 percent, or roughly 15,000, of these individuals receive treatment (Substance Abuse and Mental Health Services Administration 2015).[1]

Nationwide, substance disorders are estimated to cost more than $740 billion annually in crime, poor health, and lost work productivity (National Institute on Drug Abuse 2017). Many of these costs are borne by taxpayers. For example, of the estimated $250 billion in alcohol related costs, 40 percent typically accrue to local units of government (Sacks et al. 2015).

Biological, cultural, psychological, social, and environmental factors influence substance use disorders.[2] Effective practitioners assess these factors when determining the appropriate policy or program intervention for a given individual or population. Risk factors increase the likelihood that a given individual will experience substance use disorder, while protective factors can reduce this likelihood.

The continuum of care for substance use disorders

Use of legal and illegal substances directly or indirectly touches every Minnesotan. To promote individuals' wellbeing and recovery, the state has a decentralized network of formal and informal health and social services. Non-profit community organizations, inpatient and outpatient programs, hospitals, schools, primary care clinics, county jails, and adolescent correctional facilities provide services which include medication-assisted therapy services, peer-based recovery support services, and harm reduction interventions.[3]

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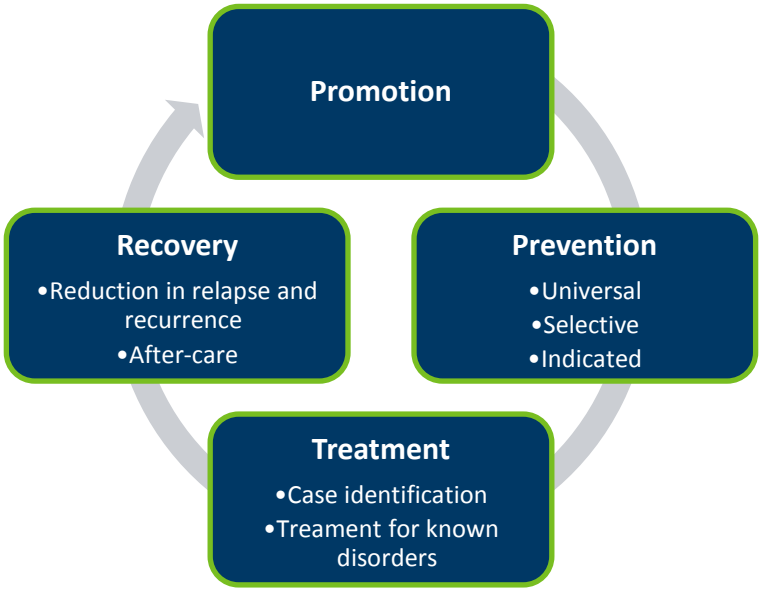
[1] This report uses prevalence of misuse as a proxy for treatment need. It is not a perfect estimate, as individuals should be motivated to seek treatment. It is also important to assist individuals with high risk factors prior to when substance use begins.

[2] A summary of prominent risk and protective factors is available at https://www.samhsa.gov/capt/practicing-effective-prevention/prevention-behavioral-health/risk-protective-factors.

[3] Harm reduction is a public health strategy that seeks to reduce or mitigate the risks associated with substance use. Approaches include needle-exchange programs, access to methadone maintenance programs, and more recently, supervised injecting facilities ("Harm Reduction: An Approach to Reducing Risky Health Behaviors in Adolescents" 2008). Some advocates note that legal and illegal drug use is part of society and instead of ignoring or condemning the epidemic, work should be done to minimize substances' harmful effects.

The continuum of care includes four categories: promotion, prevention, treatment, and recovery. Many activities such as assessments, peer support, care coordination, and relapse prevention happen across this continuum in order to support an individual's progression towards sustained recovery.

Figure 4: Continuum of Care



Source: Substance Abuse and Mental Health Services Administration, 2016

Promotion encourages an individual's management of overall health and wellbeing. Strategies in this category "create environments and conditions that support behavioral health and the ability to withstand challenges. Promotion strategies also reinforce the entire continuum of behavioral health services" (Substance Abuse and Mental Health Services Administration 2014). While prevention focuses on strategies to delay or reduce use, promotion focuses on improving general health, increasing resilience, and reducing stigma (Canadian Centre on Substance Abuse 2014)

Prevention encompasses universal, selective, and indicated services to reduce the prevalence of use among the state's population and to delay the age of first use. Universal prevention seeks to reach the entire population—for example through policy, systems, and environmental changes, while selective prevention focus solely on specific populations. Indicated prevention targets individuals who are experiencing early onset of substance use disorder. Prevention methods occur before substance use disorder develops by enhancing protective factors and reducing risk factors. Best practices suggest offering and applying comprehensive policies, programs, and system changes with evidence of effectiveness. A constellation of universal, selective, and indicated services can reduce the likelihood of substance use disorder (Center for Substance Abuse Prevention 2009).

Treatment begins with case identification followed by standard treatment for the diagnosed disorder(s) and can occur in a variety of settings. Treatment may include withdrawal management, outpatient and residential treatment, hospital programs, medication-assisted therapy, recovery support services, and case or care management.

Recovery is a lifelong process that is self-directed and self-determined through many different pathways (Kaskutas et al., 2014; Laudet, Savage, & Mahmood, 2002; Substance Abuse and Mental Health Services Administration, 2015). Recovery supports help individuals excel holistically within their communities and deter relapse. Forty to sixty percent of individuals discharged from treatment relapse within the first year, a rate that is similar those of other chronic diseases, such as diabetes, asthma, and hypertension (A. T. McLellan et al. 2000; National Institute on Drug Abuse 2012; White 2012). Recovery supports seek to prevent relapse. Recovery supports include non-clinical services like employment or educational support, halfway houses, faith-based support, peer-to-peer mentoring and coaching, Alcoholics and Narcotics Anonymous, and other strategies to promote wellness and recovery (Substance Abuse and Mental Health Services Administration 2009). These supports bridge the gap between systems that treat substance use in a clinical environment and the larger communities in which individuals live and work to sustain their recovery.

In 2012, Minnesota legislation directed the Department of Human Services to work with counties, tribes, and other stakeholders to improve the effectiveness and efficiency of the continuum of care model for chemically dependent individuals.[4] This encompassed facilitating earlier intervention for individuals and families, and direct access to appropriate levels of treatment services, comprehensive case management services, peer recovery coaches, and follow-up services (Department of Human Services 2013). New state legislation enacted in 2017 offers additional ways to access screenings and expands on the services available in the continuum of care.[5]

Historically, treatment for substance use disorder has remained separate from traditional healthcare systems. Treatment is delivered by organizations geographically, culturally, and financially separate from mainstream healthcare (U.S. Department of Health and Human Services 2016). This divide complicates assessment and referral and coordination of client care. It can also reinforce the notion that substance use disorder is different than other medical conditions. Given this, efforts to integrate the substance use care continuum, the traditional health care system, and the mental health system could improve client outcomes and decrease disparities (Compton, Blanco, and Wargo 2015; Saitz et al. 2005; Samet, Friedmann, and Saitz 2001).

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[4] *Laws of Minnesota 2012, Chapter 247, Article 5, Section 8*

[5] New services covered in 2017 substance use disorder reform legislation can be found here.

Disordered use in Minnesota

Prevalence

In 2014, approximately 404,000 Minnesotans (9 percent of the population) over the age of 12 used an illegal drug in a given month (SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013 and 2014).[6,7] Marijuana was the most common illegal drug used followed by nonmedical use of pain relievers[8] and cocaine. Over 1.1 million individuals 12 or older (26 percent of the population) reported using a tobacco product, including 938,000 (21 percent of the population age 12 or older) smoked a cigarette in a given month.[9,10] More than 1 million individuals 12 or older (24 percent of the population), some of whom also used illegal drugs, engaged in "binge drinking" at least one day in the past 30 days, defined as having five or more drinks for men or four or more for women on the same occasion (SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013 and 2014).

Of Minnesotans who used alcohol or illegal drugs, 286,000 individuals (6 percent of the population age 12 or older) met the criteria for having an alcohol use disorder (alcohol abuse or dependence) and 107,000 individuals (2 percent of the population age 12 or older) met the criteria for having an illegal drug disorder (SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013 and 2014).

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[6] Illegal drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used for nonmedical purposes.

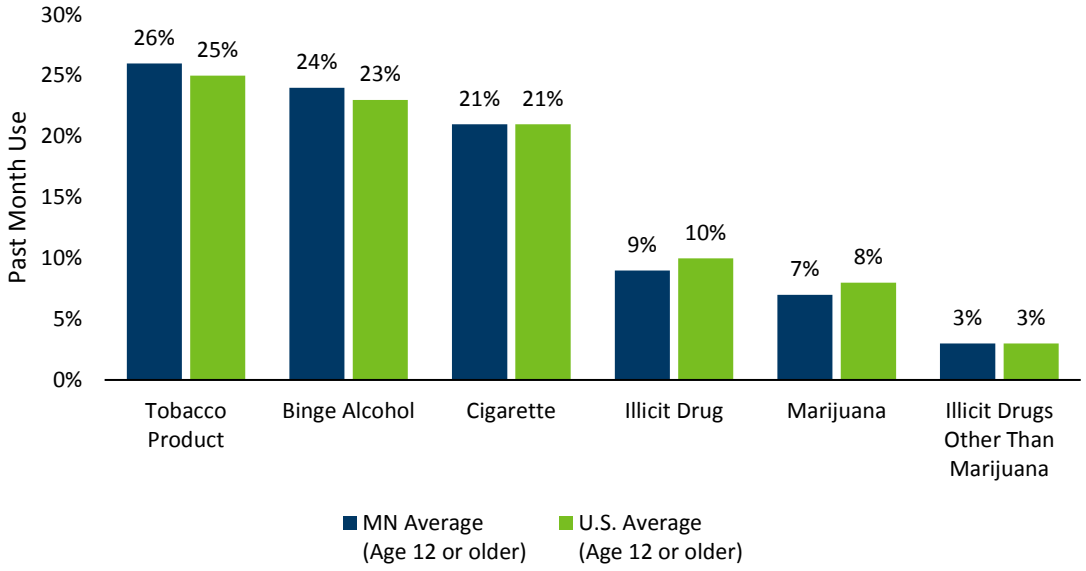
[7] In 2015, a number of changes were made to the National Survey on Drug Use and Health questionnaire and data collection procedures resulting in the establishment of new baselines for a number of measures. Therefore, estimates for several measures included in prior reports are not available. The most recent years for which state-specific data are available for a variety of measures is 2013-2014. SAMHSA does not have single year indicators. Estimates are for 2 years pooled. For details, see the "Summary of the Effects of the 2015 NSDUH Questionnaire Redesign: Implications for Data Users" at http://samsha.gov/data/.

[8] Nonmedical use of prescription pain relievers is defined as use of these drugs without a prescription or use that occurred simply for the experience or feeling the drug caused. Over-the-counter use and legitimate use of prescription pain relievers are not included.

[9] Tobacco products include cigarettes, smokeless tobacco (i.e. chewing tobacco or snuff), cigars, or pipe tobacco.

[10] The Minnesota Department of Health in partnership with ClearWay Minnesota conducts The Minnesota Adult Tobacco Survey (MATS) every three to four years to monitor progress toward reducing tobacco use among Minnesotans. Results from the 2014 MATS revealed that cigarette smoking has significantly decreased and is at its lowest rate ever in Minnesota. The percentage of adult Minnesotans who smoke has dropped from 16 percent in 2010 to 14 percent in 2014, down from 22 percent when the survey was first administered in 1999 (The Minnesota Adult Tobacco Survey 2014). Additionally, the Minnesota Department of Health, Education, Human Services, and Public Safety, work together to administer the Minnesota Student Survey (MSS) every three years. The 2016 MSS tobacco findings indicate that while cigarette smoking continues to decrease among high schoolers, other tobacco product use such as e-cigarettes, e-hookahs, and vape pens are increasing (Minnesota Department of Health 2016a).

Figure 5: Substance use in Minnesota and the United States, by age group: percentages, annual averages based on 2013-2014 NSDUHs

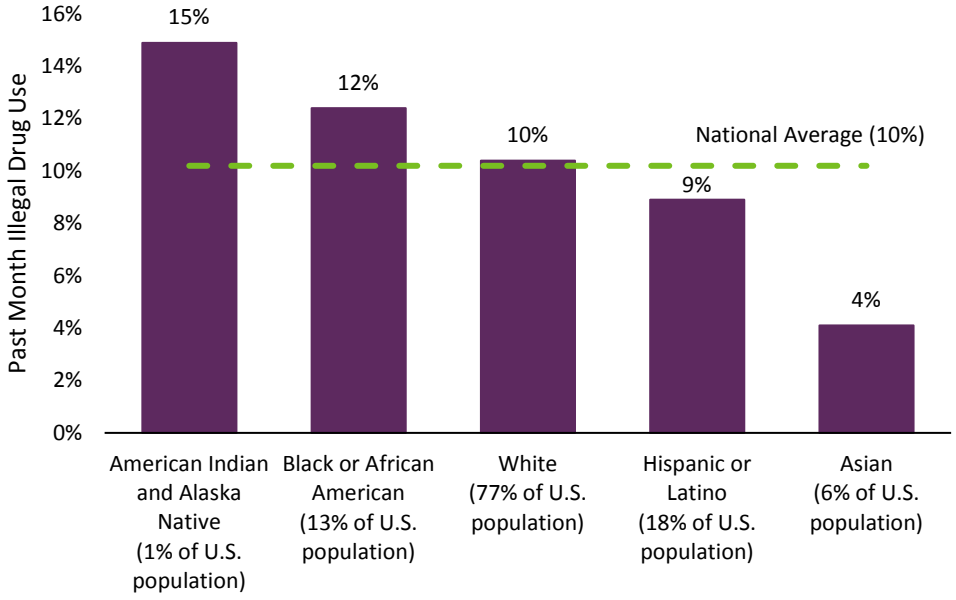


Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013 and 2014

Substance use and specific populations

The use of alcohol, tobacco, and other drugs varies by race and ethnicity, age, gender, socioeconomic status, sexual orientation, and geography. Individuals who experience trauma and stressful life events are more likely to use substances to cope. Communities of color face higher than average rates of poverty, homelessness,

Figure 6: Illegal drug use, past month among persons aged 12 or older, by demographic characteristic, nationwide, 2014

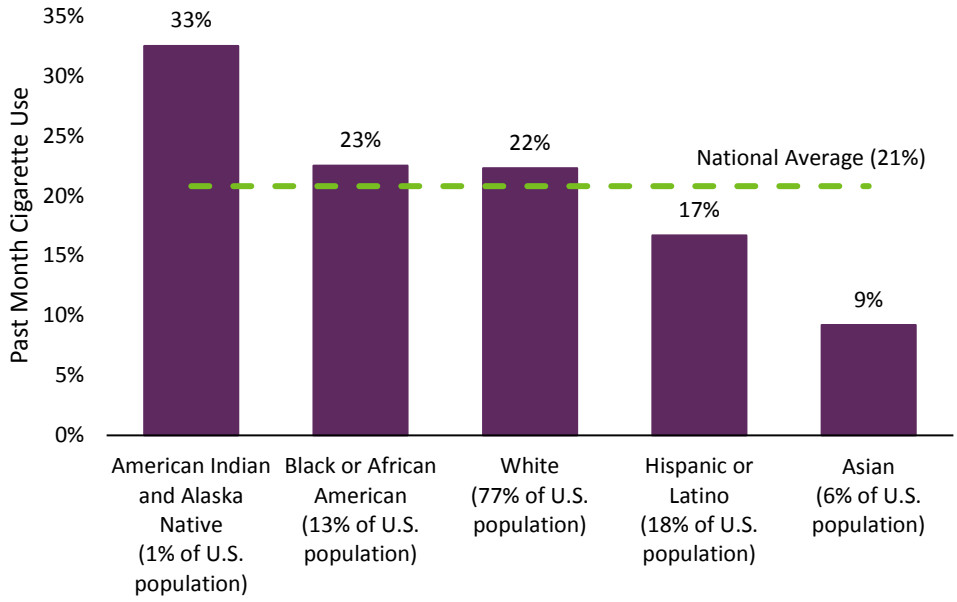


Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013 and 2014

incarceration, and poor access to care, all of which contribute to substance use (Blume 2016). Nationally[11], the rate of illegal drug use in the past month among American Indians and Alaska Natives age 12 or older in 2014 was 15 percent, compared to the national average of 10 percent. For Black or African Americans age 12 or older, the rate of illegal drug use in the past month was 12 percent, compared to the national average of 10 percent.

For tobacco, the rate of cigarette use in the past month among American Indians age 12 and older in 2014 was 33 percent, compared to the national average of 21 percent. For Black or African Americans age 12 and older, the rate of cigarette use in the past month was 23 percent, compared to the national average of 21 percent.

Figure 7: Cigarette use in past month among persons aged 12 or older, by race/ethnicity, nationwide, 2014



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013 and 2014

Although these communities share common traits, cultural and local background affects the way an individual responds to each stage in the continuum of care. The needs of these communities should be considered alongside community-specific research (Minnesota Department of Health 2016b).

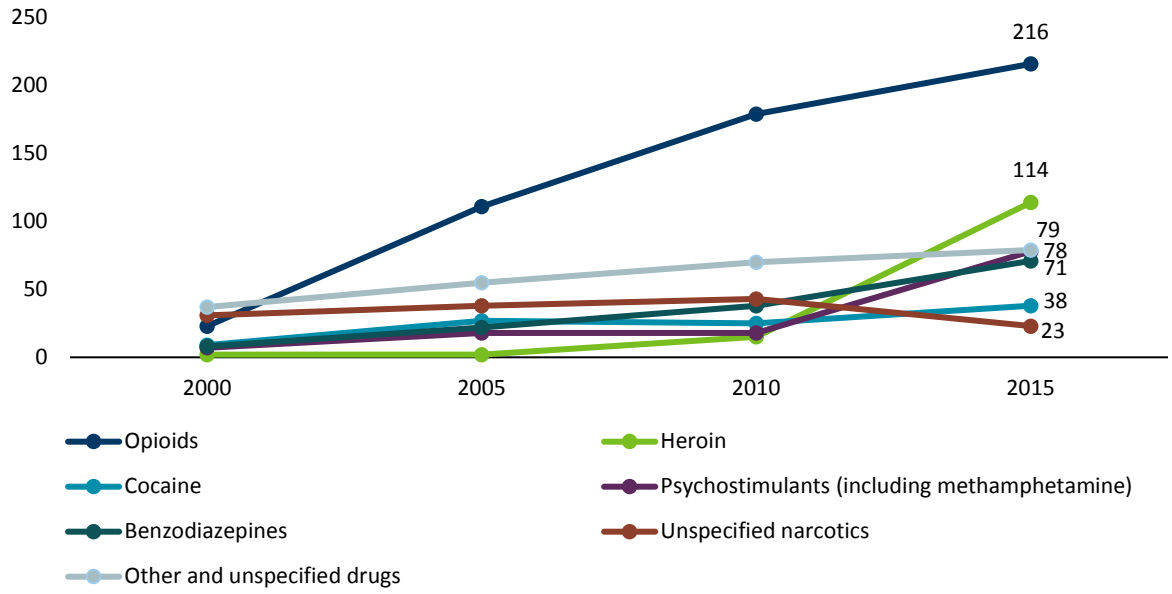
[11] No state data by race/ethnicity is available from NSDUH. The Minnesota Survey of Adult Substance Use (MNSASU) is conducted by the Department of Human Services, once in 2004, 2010, and 2015, to obtain current estimates of the number of adults in the general population in Minnesota who are abusing or dependent on alcohol and other drugs and are in need of treatment. In 2010, the most recent year for which race/ethnicity data is available, adults reporting use of any illegal drug other than marijuana in the past year was 11 percent for American Indian individuals, 8 percent for Hispanic or Latino, 6 percent for Black or African American, 4 percent for White, and 2 percent for Asian American or Pacific Islander. The population for this survey included Minnesota residents age 18 or older and non-institutionalized. More information is available at www.sumn.org.

Overdose epidemic

A 2015 Minnesota Department of Health Injury and Violence Prevention Unit report examined the growing drug overdose death crisis among Minnesota residents. Drug overdose deaths have risen over time, and recent data reveals an 11 percent increase from 2014 (516 deaths) to 2015 (572 deaths) (Minnesota Department of Health 2015).[12]

Prescription drugs were involved in nearly half of the drug overdose-related deaths, with the most stemming from opiate pain relievers (216) compared to heroin (114), methamphetamine (78), and cocaine (38). Within the last three years in Minnesota, unintentional overdoses accounted for 78 percent of drug-related deaths (Minnesota Department of Health 2015).[13]

Figure 8: Overdose deaths by drug category, MN residents, statewide 2000-2015



Source: Minnesota Department of Health 2017

For context, there were 420 alcohol poisoning deaths in Minnesota in 2015, up 18 percent from 2014 (356 deaths) (Minnesota Department of Health 2017a). Minnesota is ranked 8th overall in having one of the highest alcohol poisoning death rates in the country (Centers for Disease Control and Prevention 2015). Similarly the CDC estimates that 5,900 Minnesotans die annually from smoking-related illnesses (Centers for Disease Control

[12] This report did not examine alcohol poisoning deaths.

[13] Intentional drug overdose is defined as purposely self-inflicted harm, while unintentional includes accidental harm.

and Prevention 2017). While the rising number of opioids overdoses is concerning, tobacco is still responsible for the most drug-related deaths by a wide margin.

Opioid epidemic

Opioid use and opioid related overdose deaths are rapidly spreading across Minnesota. According to a recent Substance Abuse and Mental Health Administration survey, over 160,000 Minnesotans over the age of 12 (4 percent of the population) used a nonmedical pain reliever in the past year (SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013 and 2014). In 2015, 216 Minnesotans died from an opioid overdose (a 95 percent increase from 2005), while 114 Minnesotans died from a heroin overdose (a 5,600 percent increase from 2005) (Minnesota Department of Health 2015). Furthermore, according to the Department of Human Services, in 2016, over 10,000 Minnesotans received treatment for opioid use and heroin use disorder (Department of Human Services, ADAD, DAANES 2017).

Minnesota is taking important measures to address the opioid epidemic public health crisis. With the goal of reducing use, overdose, and death, the Office of the Governor and multiple state agencies have implemented the State Opioid Oversight Project (SOOP). SOOP focuses on: medication-assisted treatment, neonatal abstinence syndrome, Opioid Prescribing Improvement Program, Prescription Drug Monitoring Program, increasing access to naloxone, prevention, and increasing medication waste collection in pharmacies and long-term care facilities (Minnesota Department of Health 2015; Minnesota Department of Human Services 2016). Further information is available at https://www.ag.state.mn.us/Consumer/Protection/OpioidReport.pdf.

Substance use disorder system governance and funding

Governance

The systems to prevent, treat, and help individuals recover from substance use are large, complex, decentralized, and often siloed. Among state agencies, the Department of Human Services (DHS) and Department of Health (MDH), along with the State's criminal justice system, are the leaders in funding and delivering substance use disorder prevention, treatment, and recovery services.

Department of Human Services

DHS's Community Supports Administration and its Alcohol and Drug Abuse Division (ADAD) supports the effectiveness of treatment providers and accompanying services in Minnesota. DHS ADAD encourages and supports research-based practices, expanding the use of successful models, and monitoring outcomes. ADAD is the primary authority in funding and overseeing alcohol and illegal drug prevention and treatment services.

Through services and programming, ADAD seeks to reduce the prevalence of alcohol and other drug use in the state. This includes a range of activities throughout the continuum of care, including administrating and monitoring federal and state funding for prevention and treatment[14], interpreting and encouraging research-informed practices, coordinating system improvements with a range of federal, state, county, and local representatives, and conducting checks at the retail-level to assess compliance with state laws.

ADAD supports the effectiveness of providers and other partners through licensing, technical support, and monitoring. Around 400 substance use disorder treatment programs are licensed and monitored by DHS.[15]

Minnesota Department of Health

MDH seeks to protect, maintain, and improve the health of all Minnesotans. Their comprehensive health promotion strategies pursue both individual behavior change as well as environmental change. This includes community-wide approaches that promote norms, systems changes, and public policies that support broad prevention and cessation efforts, education, skills training, and peer support.

Tobacco prevention and control efforts are a primary focus for MDH. MDH's grant programs, Tobacco-Free Communities, Statewide Health Improvement Partnership and Tribal Grants Program, all fund local organizations, public health agencies, and tribes working to reduce the number of people using tobacco.

Criminal Justice System

The Department of Public Safety (DPS) is frequently involved in the consequences related to alcohol and other drug misuse and abuse. DPS addresses substance use through regulation, prevention, training and enforcement, planning, and data collection and analysis. The department also partners with local communities, especially by providing grants to local jurisdictions and community organizations, to foster engagement in crime prevention, youth programming, specialty court programs, and reentry services.

The State Judicial Branch administers legal consequences related to substance misuse. Judges often set supervision conditions that require abstinence from substance use and completion of treatment. The courts also oversee treatment courts, formerly known as drug courts. With this process, the court works with prosecutors,

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[14] Additionally, the Department of Human Services administrates a range of direct care and treatment programs for individuals with chemical dependency. The Department of Human Services operated Community Addiction Recovery Enterprise (C.A.R.E.), which utilizes a person-centered approach to treatment planning. In addition to specialty programs, each site provides family programming, relapse prevention, continued care programming, and monitoring of medication-assisted therapy.

[15] Chemical dependency treatment rules set standards for licensing chemical dependency treatment programs. More information is available at http://www.dhs.state.mn.us/main/groups/licensing/documents/pub/dhs-291114.pdf.

public defenders, probation officers, social workers, and other justice system partners develop individualized strategies to help substance users complete treatment programs and abstain from repeating the behaviors that brought them to court. These strategies can include regular alcohol and other drug testing, extended probation, staggered sentencing that breaks up jail time into segments, and the possibility of earning reductions in sentencing for good behavior (Department of Human Services 2012; Minnesota Judicial Branch 2017).

The Department of Corrections also administers Chemical Dependency treatment for those in prison. The Department reported that 90 percent of inmates (3,630 inmates in 2016) are diagnosed as chemically abusive or dependent. In 2016, 1,570 offenders entered treatment programs. The DOC also identifies community-based programs for those offenders that complete treatment. Previous findings from Minnesota's Results First initiative found a $2.80 return on investment for prison-based chemical dependency treatment.

Counties

Counties provide detoxification and/or withdrawal management services and help pay for treatment under the Consolidated Chemical Dependency Treatment Fund (CCDTF).[16] This role as funder differs from many other areas of health care and can lead to disparities in counties with varying abilities to pay.[17] Currently, counties also deliver assessments to determine client needs and recommend the intensity of treatment and provider (Minnesota Department of Human Services Chemical Health Division 2006). Legislation passed in 2017 will phase out the current process over the next several years and will allow clients to select providers to complete these assessments. Individuals seeking to access CCDTF-paid treatment must also undergo an assessment of financial eligibility in their county of residence.[18]

Counties also bear the cost of crime, which can result from untreated use. In addition to treatment, counties commit significant resources to public safety, juvenile and adult detention, and district courts.

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[16] Starting in 2018, withdrawal management services are Medicaid eligible. Withdrawal management is defined as the medical and psychological care of individuals who are experiencing withdrawal symptoms as a result of reducing or ceasing use of their drug use (World Health Organization 2009). These services help manage the often significant withdrawal effects over a short period (3-5 days) with medical care. These treatments are effective at reducing medical complications related to discontinuing use, and they are most effective when serving as a preparation and bridge to treatment (Lee et al. 2014; National Institute on Drug Abuse 2012; U.S. Department of Health and Human Services 2016). This stabilization process is akin to that for other acute medical conditions, such as a stroke or diabetic coma. Unfortunately, 50-66 percent of individuals receiving withdrawal management do not enter treatment (Mark et al. 2002). This leads to costly, repeat stays.

[17] Many counties and practitioners also noted this is a barrier to system reform because potential changes that would increase treatment use impacts budgets in all counties.

[18] In 2018, individuals will have the option of going directly to a provider for a comprehensive assessment by a credentialed professional to determine intensity and duration of placement in treatment services.

Tribes

Tribes provide resources within their communities to reduce the prevalence of alcoholism and drug dependence through American Indian Prevention Programs. These cultural-specific programs incorporate traditional American Indian practices (such as talking circles, sweat lodges, pipe ceremonies, and cultural teachings) to build community capacity while strengthening outreach, advocacy, and education services (Minnesota Department of Human Services, American Indian Advisory Council on Chemical Dependency, and American Indian Mental Health Advisory Council 2008). Tribes also invest in and administrator state/federal grants for general health promotion and prevention.

Other public sector involvement

There are many other public sector entities in the substance use disorder care continuum, including the Housing Finance Authority, school districts, universities and colleges, oversight and licensing boards, and cities.

Covered services

The Substance Abuse and Mental Health Services Administration (SAMHSA) of the U.S. Department of Health and Human Services provides the Substance Abuse Prevention and Treatment Block Grant to address substance use. The state is required to spend at least 20 percent of the grant on primary prevention services and practices.

Public Programs

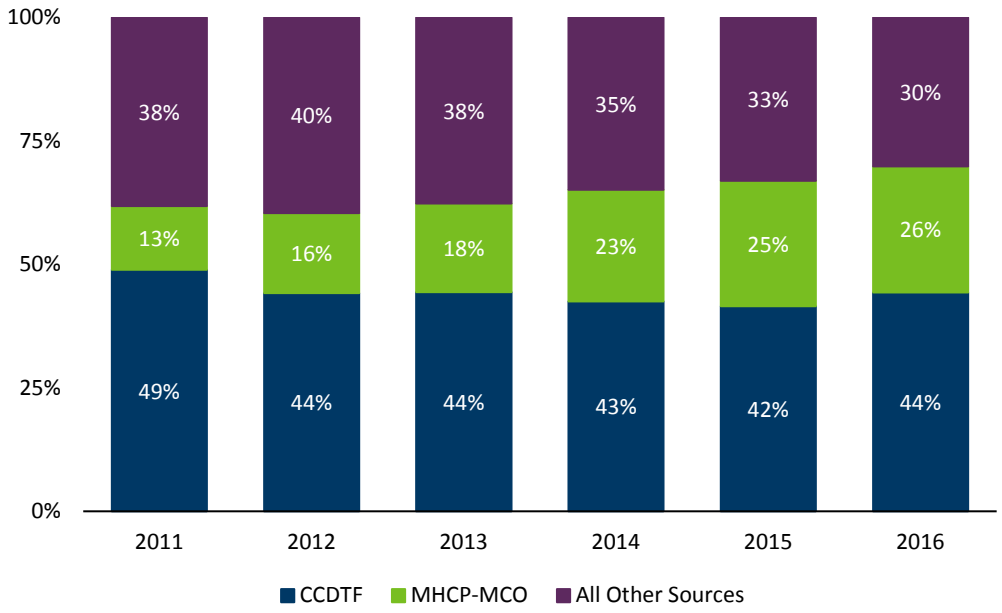
In Minnesota the primary treatment funding source for individuals on public assistance is the state-operated, county-managed Consolidated Chemical Dependency Treatment Fund (CCDTF). This fund combines county, state, and federal funding sources to provide assessments, treatment, and ongoing recovery and paid for nearly $160 million in FY2016 treatment costs.[19,20] The Minnesota Health Care Programs, which include Medical Assistance and MinnesotaCare, provide health insurance for Minnesotans with low-incomes and/or disabilities. These programs cover any substance use services provided under a licensed program of care, including nonresidential treatment, residential treatment, hospital-based inpatient treatment, and service coordination. Minnesotans enrolled in a public health care program through managed care receive coverage for substance use

[19] The county share was $15.6 million (10 percent), the federal share was $50.9 million (32 percent), and the state share was $92.3 million (58 percent). This does not represent all public spending on substance use treatment, as clients on public assistance may also receive treatment services through a managed care organization. This spending is difficult to identify because providers are paid on a per-person basis rather than for specific services delivered.

[20] This $160 million pays for treatment for 44% of individuals entering treatment in the state. If the cost per client is the same for the other funding sources, the total annual spending in Minnesota for treating substance use disorder is $360 million. It is challenging to determine the payment rates under MHCPs because of capitation. We assumed the proportion and total payments for CCDTF to estimate the other payers (e.g., $158.8 million / 44%).

disorder just as they would for any other covered health care benefits. Minnesotans without insurance or on fee-for-service Medical Assistance are eligible for coverage through the CCDTF. Older adults participating in the federal Medicare program are covered for treatment services and are subject to cost-sharing.

Figure 9: Proportion of treatment admissions paid by various sources, 2011-2016



Source: Department of Human Services, ADAD, DAANES 2017

Private Insurance

Under federal law, private health plans offered through the state health insurance marketplace (MNsure in Minnesota) must include coverage for substance use disorder that is no more restrictive than coverage for other medical conditions. Federal law does not require other private health plans to cover treatment for substance use disorder, but if plans do cover these services, they must do so in a way that is no more restrictive than coverage for other medical conditions.

Evidence-based principles, practices, and protocols for substance use disorder

While addiction is a complex, chronic disease, it is preventable and treatable. Evidence-based prevention and treatment reduces the prevalence and impact of substance use disorders. These practices, however, are not always used or properly implemented. To understand, it is important to understand the evolution of substance treatments (Aos, Miller, and Drake 2006). Until recently, substance use disorder was often thought of as a moral failing or character flaw to be solved by individuals, families, places of worship, or the criminal justice system, instead of as a chronic illness. Consequently, professional help for those experiencing substance use disorder

was limited. As a result, prevention and treatment practices evolved in isolation from mainstream healthcare, and an alternative system of care emerged, based on peer-guidance models such as Alcoholics Anonymous.

Within the parameters of medicine, healthcare professionals are generally expected to provide treatment based on the best scientific evidence, however, prevention and treatment services have been slower to adopt the same standard (W. R. Miller et al. 2006). Some practitioners express concern that the use of evidence-based practices will result in less individualized treatment and poorer quality of care, while others emphasize the quality of therapist-individual relationships over the practice itself (Glasner-Edwards and Rawson 2010).

Culturally-specific practices

Culture is an important component of any discussion of substance use and misuse and can influence a person's health risk through shared attitudes and beliefs (Felipe Gonzalez Castro et al. 2007; Unger et al. 2002, 2006). Culture also plays a key role in how people exhibit symptoms, use coping mechanisms and social supports, and their willingness to seek care (Samuels, Schudrich, and Altschul 2009; Unger et al. 2004).[21] Often, program designers or service delivery teams fail to consider or are not sufficiently knowledgeable about the cultural context in which they are providing their services or how that context will influences the outcome of their services (Felipe González Castro, Barrera Jr, and Holleran Steiker 2010). Culturally competent services improve an individual's chances of recovery, and program managers can identify specific cultural values as protective factors against substance use (Felipe Gonzalez Castro et al. 2007; Soto et al. 2011; Unger et al. 2002, 2006).

Some evidence-based services may not be suitable for all communities. Research assesses evidence-based practices with a rigorous scientific perspective. This perspective measures a self-contained causal effect isolated from the moderating factors. Since culture influences human behavior, this perspective cannot draw a valid conclusion on effectiveness for cultural communities without considering how culture can be a mediating or confounding variable (American Evaluation Association 2011). This creates a need for cultural adaptation of evidence-based practices. Cultural adaptation goes beyond translating forms or using interpreters; it reviews and changes the structure of a service or practice to more appropriately fit the needs and preferences of a particular cultural group or the community (Samuels, Schudrich, and Altschul 2009). The aim of this type of adaptation is to maximize the effect when delivered to diverse communities.

[21] People of color face higher than average rates of poverty, homelessness, incarceration, and poor access to care, which may contribute to the increased rates of substance use (Blume 2016). Although these communities share common traits, cultural background affects the way an individual responds to each stage in the continuum of care.

The challenge of adjusting evidence-based practices to be responsive to cultural and community needs lies in doing so without also compromising the active ingredients of the practice that makes it effective. A recent Surgeon General's Report on Alcohol, Drugs, and Health refers to this as the "Fidelity-Adaptation Dilemma" (U.S. Department of Health and Human Services 2016). There are two emerging principles that inform and guide the development of cultural adaptations (U.S. Department of Health and Human Services 2016):

1. Avoid "misadaptations" that erode the established efficacy of the evidence-based practice.
2. Design adaptations that enhance engagement through activities that are culturally responsive to the local community.

To make culturally responsive modifications to a program, its designers need to work closely with community members. The Surgeon General recommends a partnership between intervention developers, those who deliver the intervention, and potential program participants who can represent perspectives and interests of the community. Once the service has been adapted, additional evaluation can reaffirm the effectiveness of the modified program.[22]

[22] In addition, the study population included in an evaluation would need to reflect the cultural composition of the group that the service was adapted for. There are few examples of this for specific cultural populations, but the science is nascent and additional research is needed.

Findings

Overview

This section presents findings from the benefit-cost analyses. Of the 118 services included in the program inventory (see Appendix A), available research allowed a full benefit-cost analysis on 16. For each of these 16 services, we present the estimated impact on outcomes, benefit-cost ratio, and a breakdown of the benefits and costs to the taxpayers and society at large. Of the 16 services analyzed, 15 have overall benefits to Minnesotans that exceed their cost. Five also have state and local taxpayer benefits that exceed the investment. The analysis assumes clients are on Medical Assistance or the CCDTF.

Treatment vs control

This analysis ***does not*** review the overall return on investment for substance use disorder treatment versus not receiving treatment, but instead the impact of the individual service to its *likely alternative*. A commonly cited analysis for the impact of treatment versus no treatment found each dollar invested in treatment saves $4 in health care costs and $7 in criminal justice costs (Ettner et al. 2006).[23]

These findings rely on studies that examine the difference between a treatment group that receives the studied treatment and a control group that receives treatment as usual. Results compare the change in outcomes for the treatment group and the control group. This research design recognizes it would be unethical to offer no clinical treatment to individuals in need. A common comparison group is "general group therapy" or "non-specific group treatment" (defined in Berglund et al. 2003 as "treatment as usual" or "supportive counseling"). Each profile reports the comparison group.

Ongoing nature of recovery

Recovery is a multidimensional, ongoing process of growth. Many of the following offerings have been shown to decrease substance use. These services, however, are not, in and of themselves, sufficient for recovery. Treatment is more effective when recovery systems address the "medical, psychological, social, and legal problems" associated with the individual's substance abuse (National Institute on Drug Abuse 2012). Research indicates that moving from an acute care model to a chronic model is associated with cost-effective client outcomes (Kaplan 2008; Zarkin et al. 2005).

[23] This analysis used administrative data from 43 substance abuse treatment providers in California during 2000-2001. It is cited by the former Surgeon General and NIH's National Institute on Drug Abuse, and falls in line with estimates from other analyses, including McCollister and French (2003) and Gernstein et al. (1994). The literature, generally, is unable to randomly assign clients into treatment and control groups. Most, including Ettner, use pre and post designs. All else equal, this design has more threats to internal validity than experimental design studies.

Matching client need to the services they receive

The services listed are not necessarily interchangeable, and many are used together or in succession as individuals move through the care continuum. Practitioners use evidence-based assessments and professional expertise to determine the proper treatment regimen. Research shows these services work best when they are matched to the person's individual strengths and needs.

Figure 10: Benefit-cost analysis terms

Term	Definition
Benefits	Services shown to reduce substance use produce benefits to taxpayers and members of society (including the participant). Total benefits are the sum of taxpayer benefits, such as avoided use of health care services, plus other benefits to society, such as increased labor market earnings. Estimates are rounded to the nearest ten dollars.
Benefit-cost analysis	A systematic approach to estimate the cost effectiveness of alternative services or policies by comparing expected benefits to expected costs.
Benefit-cost ratio	The net present value of anticipated service benefits to state residents for every dollar in programmatic costs. Ratios are rounded to the nearest ten cents.
Continuum of care category	There are four continuum of care categories of activities and services in the substance use system: promotion, prevention, treatment, and recovery.
Evidence-based	A service or practice whose effectiveness has been rigorously evaluated using studies with treatment and control group designs.
Funding source	Entities involved in funding the intervention (including monitoring, evaluation, administration, and technical assistance).
Impact on outcomes	Impact on outcomes reflects the degree to which there is evidence of effectiveness for a given service, as reflected in one or more of eight national clearinghouses or MMB literature review. The categories mirror the levels of evidence defined by The Pew Charitable Trusts and MacArthur Foundation.
Proven effective	A proven effective service or practice offers a high level of research on effectiveness, determined through multiple qualifying evaluations outside of Minnesota or one or more qualifying local evaluation. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
Promising	A promising service or practice has some research demonstrating effectiveness, such as a single qualifying evaluation that is not contradicted by other such studies, but does not meet the full criteria for the proven effective designation. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.

Term	Definition
Theory-based	A theory-based service or practice has no research on effectiveness or less rigorous research designs that do not meet the above standards. These services and practices typically have a well-constructed logic model or theory of change. This ranking is neutral. Services may move up to promising or proven effective after research reveals their impact on measured outcomes.
Mixed evidence	Mixed evidence has been studied by multiple qualifying studies but have contradictory findings. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
No effect	A service or practice with no effects has no impact on the measured outcome. It does not include the service's potential effect on other outcomes. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
Category of Services	These services represent a category of services that a client may receive, dependent on need. Some of these services may be evidenced-based, but the services have not been studied holistically. As services can vary from client to client, we cannot assess their effectiveness.
Net (marginal) costs	The incremental cost of providing the service to one individual minus the cost of the likely alternative. For example, the net cost of providing individual placement and support minus the employment services the individual would otherwise receive. Estimates are rounded to the nearest ten dollars.
Net present value	The difference between the present value of cash inflows and the present value of cash outflows.
Other societal benefits	Benefits that accumulate to society are increased labor market earnings, health care costs, reductions in crime, and the value of statistical life (associated with premature death). Estimates are rounded to the nearest ten dollars.
Service	A state- or county-implemented intervention that attempts to affect one or more outcomes, such as reducing alcohol, tobacco, or illegal drug use.
Source of evidence	The source of evidence is the entity whose research synthesis was used to determine each service's effectiveness.
Taxpayer benefits	Potential taxpayer benefits accrue from health care, criminal justice, and taxes (from increased earnings) related to changes in substance use. Estimates are rounded to the nearest ten dollars.
Time frame	The length of time the benefits accrue from participation in the service. We rely on existing research to determine persistence of benefits.

Prevention Services

Brief Alcohol Screening and Intervention for College Students (BASICS): A Harm Reduction Approach

BASICS is a prevention program for those who drink heavily and are at risk for alcohol-related problems. It is typically provided by school counselors or campus primary care providers. Utilizing a harm reduction approach, the program aims to motivate students to reduce alcohol consumption in order to decrease the negative consequences of drinking. College students recruited or referred to BASICS are screened for hazardous drinking. Those reporting high rates of consumption receive brief motivational sessions that discuss adverse impacts and compare consumption to their peers.

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Prevention - Selective	DHS, Federal SABG, Universities/colleges

Benefit-cost analysis (compared to treatment as usual):

State ratio
$6.90

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$570	$90	$480	$190
Net costs	$80	$80	$80	$0
B/C ratio	$6.90	$1.10	$5.80	-

Cost and effectiveness: MMB estimated costs using information on number and duration of sessions, the average salary for guidance counselors, and prorated training costs. Federal block grants pay for some of these services, but given that these amounts are fixed and this analysis looks at marginal cost, any increases would come from state sources.

Comparison group, years of benefits, and monetized outcomes: The comparison group is no BASICS. Benefits are the net present value of lifetime benefits. The analysis monetized declines in problem alcohol use.

Implementation and demand: Many colleges and universities around the state use this approach, in particular schools involved in the Partnership for Success grant program, though the overall scale appears small. Anecdotal evidence suggests that there is limited supply and unmet demand.

Familias Unidas Preventive Intervention

Familias Unidas Preventive Intervention is a family-based program for Hispanic families with children ages 12-17. It is designed to prevent conduct disorders; use of illegal drugs, alcohol, and cigarettes; and risky sexual behaviors by improving family functioning (NREPP 2017a). The intervention is delivered primarily through multi-parent groups, which aim to develop effective parenting skills, and family visits, during which parents are encouraged to apply those skills while interacting with their child. Familias Unidas is influenced by culturally-specific models developed for Hispanic populations in the United States (NREPP 2017a).

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Promising	Washington State Institute of Public Policy	Prevention - Selective	DHS, Federal SABG, private funding

Benefit-cost analysis (compared to treatment as usual):

State ratio
$0.20

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$270	$40	$230	$80
Net costs	$1,470	$1,470	$1,470	$0
B/C ratio	$0.20	$0.00	$0.20	-

Cost and effectiveness: MMB used estimated costs from the Washington State Institute of Public Policy. Local marginal cost data was not available. Research from implementations of Familias Unidas across the country showed small, positive impacts on behavioral problems, family functioning, alcohol, tobacco, and other drug use, and risky sexual behavior compared to care as usual. The results showed the service was most effective for adolescents with parents reporting high stress and lower social support. Federal block grants pay for some of these services, but given that the amounts are fixed and our analysis uses marginal cost, increases would need to come from state sources.

Comparison group, years of benefits, and monetized outcomes: The comparison group was referred to community-based organizations for standard care. Benefits are the net present value of lifetime benefits. The analysis monetized changes in alcohol and illegal drug use in high school, smoking, and marijuana use.

Implementation and demand: Familias Unidas is typically offered by community-based organizations.

LifeSkills Training (LST)

The school-based LST program aims to prevent alcohol, tobacco, and marijuana use and violence by addressing major social and psychological factors that push individuals towards substance use and other risky behaviors. LST teaches personal and social skills that build resilience and help youth navigate developmental tasks, including skills to understand and resist adverse influences (NREPP 2017b).

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Prevention - Selective	School districts, private funding

Benefit-cost analysis (compared to treatment as usual):

State ratio
$10.60

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$700	$60	$640	$170
Net costs	$70	$70	$70	$0
B/C ratio	$10.60	$0.90	$9.70	-

Cost and effectiveness: MMB estimated costs using information on number and duration of sessions, the average salary for elementary school teachers, and prorated training costs. Annual costs are $23, and the training lasts three years. Federal block grants pay for some of these services, but given the amounts are fixed and our analysis uses marginal cost, increases would need to come from state or local sources. LST shows statistically significant impacts on alcohol use and smoking.

Comparison group, years of benefits, and monetized outcomes: The comparison group was treatment as usual, general prevention information via pamphlets or knowledge-based education. Benefits are the net present value of lifetime benefits. The analysis monetized declines in smoking, marijuana, and alcohol use before the end of middle/high school; youth binge drinking; and internalizing symptoms (a category that includes depression, withdrawal, and anxiety).

Implementation and demand: We found a small number of sites implementing this program.

Project Northland

Project Northland is a school-based prevention curriculum for students in grades 6-8 designed to delay the onset of alcohol use or reduce alcohol use among those already using. The program has a specific theme in each grade level that each include different parent, peer, and community components. The 6th grade home-based program targets underage alcohol use by utilizing student-parent homework assignments, group discussions, and a community task force. The 7th grade peer and teacher-led curriculum consist of resistance skills and expectations regarding underage alcohol use. The 8th grade curriculum includes learning about community dynamics related to alcohol use prevention through interactive activities, community-based projects, and mock town hall meetings (NREPP 2017c).

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Prevention - Selective	DHS, Federal SABG, School districts, private funding

Benefit-cost analysis (compared to treatment as usual):

State ratio
$1.90

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$330	$30	$300	$120
Net costs	$180	$180	$180	$0
B/C ratio	$1.90	$0.20	$1.70	-

Cost and effectiveness: MMB estimated costs using information on number and duration of sessions, the average salary for teachers, and prorated training costs. The course is three years with an average cost of $65 per year. Federal block grants pay for some of these services, but given that the amounts are fixed and our analysis uses marginal cost, increases would need to come from state or local sources.

Comparison group, years of benefits, and years of benefits: The comparison group was treatment as usual: general prevention information via knowledge-based education. Benefits are the net present value of lifetime changes. The model monetized changes in alcohol and marijuana use and smoking in middle school.

Implementation and demand: Project Northland is one of the more common prevention models adopted in Minnesota, but it still has limited coverage. Interviews revealed that some districts have dropped the curriculum because of cost. Wilder Research compiled a fidelity review and found adequate training and classroom implementation but challenges in getting the desired family participation.

Screening, Brief Intervention, and Referral to Treatment (SBIRT) for Alcohol Use

SBIRT is used in a range of settings to identify and address hazardous alcohol use. After screening, eligible participants receive the brief intervention, which includes feedback on the patient's consumption compared to peers, a motivational interview, and appropriate referrals. Health care staff administer the intervention (WSIPP 2017c). We have estimated the benefits assuming a primary care population, but this service is also available in emergency rooms, hospitals, and other settings.

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Prevention - Indicated	DHS, Federal SABG, CCDTF/Medicaid, Private insurance

Benefit-cost analysis (compared to treatment as usual):

State ratio
$20.40

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$2,640	$370	$2,270	$780
Net costs	$130	$130	$130	$60
B/C ratio	$20.40	$2.80	$17.60	$12.90

Cost and effectiveness: MMB estimated costs using reimbursement data combined with estimated duration of sessions and booster sessions. This analysis ran the benefit-cost analysis for a primary care setting. Analysis by WSIPP shows costs and benefits can differ dependent on the type of setting (emergency room, primary care, or hospital). This service is a proven practice for problem alcohol use, and is particularly effective for those with misuse, instead of addiction. There is some evidence to suggest SBIRT could be effective for illegal drug use, but more research is needed.

Comparison group, years of benefits, and monetized outcomes: The comparison group is screening/physician care as usual. Benefits are the net present value of lifetime benefits. The analysis monetized changes in emergency room visits, hospitalizations, and problematic alcohol use.

Implementation and demand: In Minnesota, we found only 272 billed claims for SBIRT across the state's public health care programs. Many individuals would meet the screening criteria, but practitioners often find the intervention difficult to implement (Department of Human Services 2016; M. Willenbring 2012; Williams et al. 2011).

Teen Intervene

Teen Intervene is a program for youth who are involved in alcohol or drugs. During three sessions, trained professionals work with the individual to examine the extent of their substance use and the related consequences, the costs and benefits of substance use, and ways to make changes by setting goals to reduce or eliminate substance use. The therapist assesses the individual's progress and discusses strategies for overcoming barriers. The program also includes an individual counseling session with the individual's parent or guardian to address parent-child communication and discipline practices (NREPP 2017e).

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Prevention - Selective	School districts, CCDTF/Medicaid, private insurance, private funders

Benefit-cost analysis (compared to treatment as usual):

State ratio
$8.90

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$1,450	$180	$1,270	$450
Net costs	$160	$160	$160	$80
B/C ratio	$8.90	$1.10	$7.80	$5.90

Cost and effectiveness: MMB estimated costs using reimbursement data combined with estimated duration of sessions and booster sessions. These costs assume that there is a federal share associated with a high-school chemical health counselor (Teen Intervene is Medical Assistance eligible). This service is a proven practice for marijuana use in high school, substance misuse, and youth binge drinking.

Comparison group, years of benefits, and monetized outcomes: The comparison group was substance use screening only. Benefits are the net present value of lifetime benefits. The analysis monetized changes in emergency room visits, hospitalizations, and problem alcohol use.

Implementation and demand: In Minnesota, an MMB review identified only a few schools implementing Teen Intervene, including offerings from non-profits like Lutheran Social Services. Many individuals would meet the screening criteria, but practitioners often find it difficult to implement and stigma may prevent schools from investing in the service (Sterling et al. 2012; M. Willenbring 2012; Williams et al. 2011).

Treatment and Recovery Services

12-step Facilitation Therapy

12-step Facilitation Therapy is a brief structured approach to facilitating early recovery from alcohol and drug abuse. The intervention is based on the behavioral, spiritual, and cognitive principles of 12-step fellowships, such as Alcoholics Anonymous (AA) or Narcotics Anonymous (NA). These principles include peer support, spiritual renewal, and acknowledging that willpower alone cannot achieve sustained sobriety. A counselor assesses the individual's alcohol or drug use, advocates abstinence, and actively supports involvement. Twelve step is also adept at preparing and connecting clients to ongoing community-led AA/NA groups (WSIPP 2017a).

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Treatment, Recovery	DHS, Federal SABG, CCDTF/MA, private insurance

Benefit-cost analysis (compared to treatment as usual):

State ratio
$4.70

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$2,610	$390	$2,220	$730
Net costs	$560	$560	$560	$260
B/C ratio	$4.70	$0.70	$4.00	$2.80

Cost and effectiveness: MMB estimated costs using session duration data collected from a survey of treatment providers and CCDTF reimbursement rates. MMB then estimated and netted out the cost of treatment as usual.

Comparison group, years of benefits, and monetized outcomes: The comparison group received non-specific group treatment (as defined in Berglund et al. 2003); we netted out the estimated cost of this service from the total cost of the treatment provision. Benefits occur over three years. The analysis monetized changes in crime, health care costs, and earnings related to decreases in alcohol and drug use.

Implementation and demand: From interviews and surveys, we found evidence that this manualized content was often not implemented with fidelity. Surveys showed differences between what is offered and what the literature recommends, for example, in session length and duration. This analysis assumes services will see the same impact as the research. The CCDTF and Medical Assistance afford Minnesotans access to treatment, however, distance to treatment, assessment/treatment wait times, low coverage in culturally specific services, and gaps in supports (e.g., housing, childcare) impede care and recovery.

Brief cognitive behavioral intervention

Brief cognitive behavioral intervention is a manualized, standalone treatment focused on motivational interviewing, coping skills, controlling thoughts, and relapse prevention (WSIPP 2017b). This service is based on principles of Motivational Enhancement Therapy (MET), and occurs over two to four weekly sessions.

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Treatment, Recovery	DHS, Federal SABG, CCDTF/MA, private insurance

Benefit-cost analysis (compared to treatment as usual):

State ratio
$13.40

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$5,380	$370	5,010	$660
Net costs	$400	$400	$400	$190
B/C ratio	$13.40	$0.90	$12.50	$3.50

Cost and effectiveness: MMB estimated costs using session duration data collected from a survey of treatment providers and CCDTF reimbursement rates. MMB then estimated and netted out the cost of treatment as usual.

Comparison group, years of benefits, and monetized outcomes: The comparison group received non-specific group treatment (as defined in Berglund et al. 2003), and this analysis netted out the estimated cost of this service from the total cost of the treatment provision. Benefits occur over three years. The analysis monetized changes in crime, health care costs, and earnings related to decreased illegal drug use.

Implementation and demand: From interviews and surveys, we found evidence that this manualized content was often not implemented with fidelity. Surveys showed differences between what is offered and what the literature recommends, for example, in session length and duration. This analysis assumes services will see the same impact as the research. The CCDTF and Medical Assistance afford Minnesotans access to treatment, however, distance to treatment, assessment/treatment wait times, low coverage in culturally specific services, and gaps in supports (e.g., housing, childcare) impede care and recovery.

Brief marijuana dependence counseling (BMDC)

Brief marijuana dependence counseling (BMDC) is an intervention program designed to treat adults with marijuana dependence. BMDC targets a reduction in the frequency of marijuana use, thereby reducing marijuana-related problems and symptoms. Treatment includes elements of Motivational Enhancement Therapy, cognitive behavioral therapy, and case management (WSIPP 2017d).

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Treatment, Recovery	DHS, Federal SABG, CCDTF/MA, private insurance

Benefit-cost analysis (compared to treatment as usual):

State ratio
$10.70

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$720	$100	$620	$190
Net costs	$70	$70	$70	$30
B/C ratio	$10.70	$1.60	$9.10	$5.90

Cost and effectiveness: MMB estimated costs using session duration data collected from a survey of treatment providers and CCDTF reimbursement rates. MMB then estimated and netted out the cost of treatment as usual.

Comparison group, years of benefits, and monetized outcomes: The comparison group received non-specific group treatment (as defined in Berglund et al. 2003), and this analysis netted out the estimated cost of this service from the total cost of the treatment provision. Benefits occur over three years. The analysis monetized changes in crime, health care costs, and earnings related to decreased marijuana abuse or dependence.

Implementation and demand: From interviews and surveys, we found evidence that this manualized content was often not implemented with fidelity. Surveys showed differences between what is offered and what the literature recommends, for example, in session length and duration. This analysis assumes services will see the same impact as the research. The CCDTF and Medical Assistance afford Minnesotans access to treatment, however, distance to treatment, assessment/treatment wait times, low coverage in culturally specific services, and gaps in supports (e.g., housing, childcare) impede care and recovery.

Contingency management

Contingency management is a supplement to counseling treatment that rewards individuals for attending treatment and/or abstaining from substance use. Over the course of three months, urine and breath samples are collected frequently. For each sample that tests negative for the target drug, individuals enter a drawing to win a cash prize. They may also receive draws from a prize bowl for attending counseling/group therapy sessions and completing weekly activities designed to meet various goals (WSIPP 2017f).

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Recovery	DHS, Federal SABG, CCDTF/MA, private insurance

Benefit-cost analysis (compared to treatment as usual):

State ratio
$11.60

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$4,450	$310	$4,140	$540
Net costs	$380	$380	$380	$180
B/C ratio	$11.60	$0.80	$10.80	$3.00

Cost and effectiveness: MMB estimated costs using the "high cost" (around $500 in maximum value) sobriety prize estimates from WSIPP. WSIPP also provides estimates for lower cost prizes and for opioid users, specifically. Using WSIPP cost estimates, the benefit-cost ratios for these were $16.60 and $39.80, respectively. We used a single estimate for ease of understanding and because high cost contingency management had the strongest underlying research. The findings for opioids, however, suggest this may be a highly effective technique. Cost estimates also include the drug testing.

Comparison group, years of benefits, and monetized outcomes: The comparison group received treatment services, but did not get rewards. Benefits occur over three years. The analysis monetized changes in crime, health care costs, and earnings related to decreased alcohol and illegal drug use.

Implementation and demand: From interviews and surveys, we found evidence that this manualized content was often not implemented with fidelity. Surveys showed differences between what is offered and what the literature recommends, for example, in session length and duration. This analysis assumes services will see the same impact as the research. It can be difficult to fund these types of incentive-based programs using public funding, but research shows rewarding positive behaviors is effective.

Motivational interviewing to enhance treatment engagement

Motivational interviewing to enhance treatment engagement uses goal-directed, individualized counseling in a nonconfrontational manner. The therapist seeks to facilitate intrinsic motivation to change substance use habits. This is done by highlighting the individual's own motivation and commitment to change, while responding in a way that minimizes defensiveness or resistance (WSIPP 2017h).

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Treatment	DHS, Federal SABG, CCDTF/MA, private insurance school districts, universities/colleges, private funding

Benefit-cost analysis (compared to treatment as usual):

State ratio
$16.10

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$2,580	$350	$2,230	$670
Net costs	$160	$160	$160	$80
B/C ratio	$16.10	$2.20	$13.90	$8.80

Cost and effectiveness: MMB estimated costs using recommended duration data from the academic literature and CCDTF reimbursement rates.

Comparison group, years of benefits, and monetized outcomes: The comparison group received care as usual (standard assessment, evaluation, referral, and treatment). Benefits occur over three years. The analysis monetized changes in crime, health care costs, and earnings related to decreased alcohol and illegal drug use.

Implementation and demand: This practice is used by a range of practitioners in various settings, but there is limited fidelity to the program design. Some providers, such as college counselors or graduate assistants, may not have adequate training. This should be a consideration for any setting considering using motivational interviewing techniques. An MMB survey also found that, in some cases, the sessions were not of a sufficient duration or done individually, though this analysis assumes services will use the same dosage and see the same impact as the research base. Motivational interviewing is a common component of all substance use treatment and can be accessed by eligible Minnesotans through the CCDTF/MA.

Pharmacotherapies: Buprenorphine for opioids

Buprenorphine/buprenorphine-naloxone maintenance for opioids is a medication-assisted treatment (MAT) for opioid dependence. Medication is dispensed daily and is typically provided in conjunction with counseling therapies. Treatment alleviates withdrawal symptoms, suppresses opiate effects, and, when combined with naloxone, decreases risk of overdose (WSIPP 2017e).

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Treatment	DHS, Federal SABG, CCDTF/MA, private insurance

Benefit-cost analysis (compared to treatment as usual):

State ratio
$2.60

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$7,850	$370	$7,480	$680
Net costs	$3,000	$3,000	$3,000	$1,410
B/C ratio	$2.60	$0.10	$2.50	$0.50

Cost and effectiveness: MMB estimated costs using estimates of office-based buprenorphine treatment from Jones, Emlyn S., et al., 2009. Adjusted for inflation; these estimates fell in line with cost estimates from the Washington State Institute of Public Policy.

Comparison group, years of benefits, and monetized outcomes: The comparison group is individuals only receiving counseling. Benefits occur in one year. The analysis monetized changes in crime, health care costs, and earnings related to decreases in the prevalence of opioid use disorder.

Implementation and demand: Research shows that MATs are often provided in duration and dosages that are below recommended levels; though this analysis assumes services will use the same dosage and see the same impact as the research base. While the MA/CCDTF affords Minnesotans access to MATs, there are only a few buprenorphine providers in the state, especially in the areas hit hardest by the opioid crisis (Department of Human Services 2017a). Distance to treatment, assessment/treatment wait times, low coverage in culturally specific services, and gaps in supporting services (e.g., housing, childcare) impede care and recovery.

Pharmacotherapies: Methadone maintenance for opioids

Methadone maintenance for opioids is a medication-assisted treatment for opioid dependence. Methadone is a synthetic opioid that blocks the effects of opiates, reduces withdrawal symptoms, and suppresses cravings. Medication is dispensed daily from clinics and is typically combined with counseling (WSIPP 2017g).

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Treatment	DHS, Federal SABG, CCDTF/MA, private insurance

Benefit-cost analysis (compared to treatment as usual):

State ratio
$2.40

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$7,900	$380	$7,520	$680
Net costs	$3,330	$3,330	$3,330	$1,570
B/C ratio	$2.40	$0.10	$2.30	$0.40

Cost and effectiveness: MMB estimated costs using session duration collected from a survey of treatment providers, CCDTF reimbursement rates, and recommended minimum duration for methadone use. The Results First approach does not include transportation or startup costs, such as transportation or the fixed costs related to new facilities, both of which can be significant expenses in Methadone treatment.

Comparison group, years of benefits, and monetized outcomes: The comparison group is individuals only receiving counseling. Benefits occur in one year. The analysis monetized changes in crime, health care costs, and earnings related to decreases in the prevalence of opioid use disorder.

Implementation and demand: Research shows that MATs are often provided in duration and dosages that are below recommended levels; though this analysis assumes services will use the same dosage and see the same impact as the research base. While the CCDTF and Medical Assistance afford Minnesotans access to treatment, distance to treatment, assessment/treatment wait times, low coverage in culturally specific services, and gaps in supporting services (e.g., housing, childcare) impede care and recovery.

Permanent supported housing: Oxford House Model

Permanent supported housing provides housing and rehabilitative support for adults who are recovering from substance use disorder and who want to maintain sobriety. Participants agree to live together under a set of shared rules. Residents are encouraged to seek psychological or substance use disorder treatment by professionals or participate in 12-step programs (WSIPP 2017j). This analysis reviewed only one housing model, but evidence shows long-term housing combined with supports is more effective than housing with no supports or housing with short durations.

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Promising	Washington State Institute of Public Policy	Treatment, Recovery	DHS, Federal SABG, counties, other state and federal sources; private funding

Benefit-cost analysis (compared to treatment as usual):

State ratio
$3.90

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$1,100	$90	$1,010	$130
Net costs	$280	$280	$280	$0
B/C ratio	$3.90	$0.30	$3.60	-

Cost and effectiveness: MMB estimated costs using data provided to WSIPP by the Oxford House organization, which includes start-up costs and operational overhead for new units. Once the house is established, client rents cover the ongoing expenses. It does not include expenses paid by residents such as rent, utilities, and household items. These Oxford Housing estimates show positive impacts on crime, employment, illegal drug use, and substance misuse. Federal block grants pay for some of these services, but given that the amounts are fixed and our analysis uses marginal cost, increases may come from state or local sources.

Comparison group, years of benefits, and monetized outcomes: The comparison group is care as usual, which likely includes housing as available and potentially in the form of a waitlist. The benefits accrue over a three year period. The analysis monetized declines in crime and illegal drug use.

Implementation and demand: We found only one instance of an Oxford Housing model. It is located in Rochester, Minnesota. The facility has eight beds and was started by Recovery is Happening.

Relapse Prevention Therapy (RPT)

RPT is a behavioral self-control program that teaches individuals with substance use disorder how to anticipate and cope with the possibility of a relapse. RPT teaches strategies to understand relapse as a process, cope with urges and cravings, identify and cope with interpersonal conflict and social pressures, and learn how to create a more balanced lifestyle. Training strategies incorporate cognitive and behavioral techniques to avoid alcohol and drug use (NREPP 2017d).

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Treatment, Recovery	DHS, Federal SABG, CCDTF/MA, private insurance

Benefit-cost analysis (compared to treatment as usual):

State ratio
$2.80

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$930	$140	$790	$260
Net costs	$330	$330	$330	$160
B/C ratio	$2.80	$0.40	$2.40	$1.70

Cost and effectiveness: MMB estimated costs using information on session duration collected from a survey of treatment providers and CCDTF reimbursement rates. MMB then estimated and netted out the cost of treatment as usual.

Comparison group, years of benefits, and monetized outcomes: The comparison group received non-specific group treatment (as defined in Berglund et al. 2003), and this analysis netted out the estimated cost of this service from the total cost of the treatment provision. Benefits occur over three years. The analysis monetized changes in crime, health care costs, and earnings related to decreased alcohol and illegal drug use.

Implementation and demand: From interviews and surveys, we found evidence that this manualized content was often not implemented with fidelity. Surveys showed differences between what is offered and what the literature recommends, for example, in session length and duration. This analysis assumes services will see the same impact as the research. The CCDTF and Medical Assistance afford Minnesotans access to treatment, however, distance to treatment, assessment/treatment wait times, low coverage in culturally specific services, and gaps in supports (e.g., housing, childcare) impede care and recovery.

Seeking Safety: A psychotherapy for trauma and substance abuse

Seeking Safety is a present-focused coping skills model for individuals with a history of trauma and/or substance use disorder. The program's five key principles are: helping individuals attain safety in their relationships, thinking, behavior and emotions; simultaneously addressing posttraumatic stress disorder (PTSD) and substance use disorder; counteracting the loss of ideals in both PTSD and substance use disorder; cognitive, behavioral, interpersonal, and case management; and helping clinician processes (WSIPP 2017i).

Impact on outcomes	Source of evidence	Continuum of care category	Funding Source
Proven effective	Washington State Institute of Public Policy	Treatment, Recovery	DHS, Federal SABG, CCDTF/MA, private insurance

Benefit-cost analysis (compared to treatment as usual):

State ratio
$4.30

Type	Minnesota total	State and local taxpayer	Other Minnesota societal benefits	Federal
Benefits	$850	$120	$730	$240
Net costs	$200	$200	$200	$90
B/C ratio	$4.30	$0.60	$3.70	$2.60

Cost and effectiveness: MMB estimated costs using information on session duration collected from a survey of treatment providers and CCDTF reimbursement rates. MMB then estimated and netted out the cost of treatment as usual.

Comparison group, years of benefits, and monetized outcomes: The comparison group received non-specific group treatment (as defined in Berglund et al. 2003), and this analysis netted out the estimated cost of this service from the total cost of the treatment provision. Benefits occur over three years. The analysis monetized changes in crime, health care costs, and earnings related to decrease alcohol and drug use as well as impacts on health care costs and earnings related to declines in PTSD prevalence.

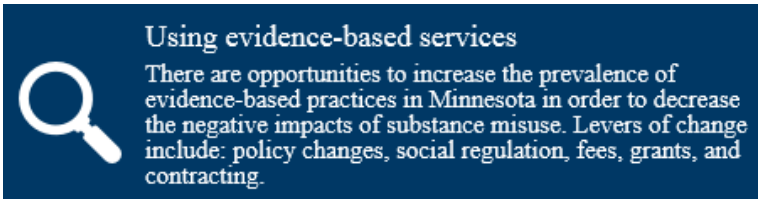
Implementation and demand: From interviews and surveys, we found evidence that this manualized content was often not implemented with fidelity. Surveys showed differences between what is offered and what the literature recommends, for example, in session length and duration. This analysis assumes services will see the same impact as the research. The CCDTF and Medical Assistance afford Minnesotans access to treatment, however, distance to treatment, assessment/treatment wait times, low coverage in culturally specific services, and gaps in supports (e.g., housing, childcare) impede care and recovery.

Key considerations

The following sections highlight some of the major themes that emerged from the analysis and interviews with stakeholders. In general, we found evidence-based substance use disorder practices generate positive outcomes for clients. Systemic factors, however, hinder the use of these practices and could contribute to the perception that substance use disorder is not treatable. In general, we found:

1) Evidence-based policies, practices, and services can generate positive, cost-effective outcomes for Minnesotans, but their use is not universal. Many low- or no-cost levers exist to increase use.
2) Prevention and early intervention are effective at reducing substance misuse and its negative outcomes.
3) Differences exist in the availability of evidence-based practices across the state. This is often related to distance, stigma, funding, and workforce challenges.
4) We often fail to effectively implement evidence-based services, and consequently we may not see the anticipated returns. This could also contribute to the notion that substance use treatment does not work.
5) Minnesota funds substance use treatment differently and apart from primary healthcare, which has important implications for the adoption of evidence-based practices. Evidence also suggests that integrating substance use treatment with mental health and primary health may improve outcomes.

Using evidence-based services



As reflected in the Results First inventory of services (Appendix A), agencies and providers in Minnesota implement many evidence-based services.[24] The benefit-cost analyses show that effectively implementing those services enables state and local governments to decrease substance use, lower health care costs, increase participant earnings, and/or avoid criminal justice costs. Of the 118 services listed in the program inventory, 75 are categorized as "proven effective" or "promising." Of those, 16 services qualified for a full benefit-cost analysis.[25]

[24] In addition to treatment modalities, evidence indicates other elements play a role in the success of treatment services. One important factor is the skill of the counselor and their rapport with the client (T. McLellan et al. 1988; Najavits and Weiss 1994; Norcross and Wampold 2011). Another evidence-based practice is proper use of an assessments to sort clients into appropriate services (U.S. Department of Health and Human Services 2016; National Institute of Drug Abuse 2015)

[25] To be eligible for benefit-cost analysis, the service needed to be in Pew's statistical model, have research that met MMB's thresholds on sample size and statistical significance, and be offered by at least one provider in the state in a similar way as the underlying research in Pew's model.

In a given year, around seven percent of Minnesotans require treatment for substance use disorder, though less than 10 percent of those individuals receive treatment (Department of Human Services 2013, 2016). Access is particularly low for cost-effective services like medication-assisted treatment and screening and brief intervention (discussed in more detail later in this report; Department of Human Services 2016; Minnesota Attorney General 2016). In addition, many prevention and treatment services currently in use may be ineffective or untested. Nationally, 70 percent of youth report participating in school-based substance use prevention programs; yet, only 8 percent of school administrators noted the use of an evidence-based prevention practice (Center for Behavioral Health Statistics and Quality 2016; Crosse et al. 2011; T. Miller and Hendrie 2008). Similarly, in treatment, there are many services without evidence on effectiveness. A report by the previous Surgeon General noted "general group counseling remains the major form of behavioral intervention available in most treatment," however, little evidence exists that it reduces substance use (McGovern and Carroll 2003; U.S. Department of Health and Human Services 2016).

While evidence-based services can lead to improved outcomes, relying on these services exclusively could limit innovation. At some juncture, all evidence-based treatments were theory-based. It takes time to design, implement, and evaluate effective services. In the absence of rigorous evaluations, practitioners can still ground new services in known best practices and outline a theory of impact. This is especially important for models that account for and reflect the diversity of client experiences. As practitioners create innovative services, they can also conduct impact evaluations to ensure they are generating the anticipated outcomes.

Piloting Promising Practices - Institute of Mental Disease Waiver

Evidence-based practices can help us generate more cost effective models, but we can also test innovative, research-informed practices. One opportunity is a 5-year demonstration project as part of the Federal Institute of Mental Disease (IMD) waiver. The Department of Human Services is proposing to test the effectiveness of new provider delivery systems for substance use disorder treatment, including improved assessment and planning software and an expanded continuum of care. Research by the National Institute of Health found that using this method showed significant improvements in client engagement and retention and decreased rates of relapse (American Society of Addiction Medicine, 2016).

The Department of Human Services will consider the effectiveness of this new model for increasing access, reducing wait times, and improving treatment outcomes. The agency is seeking approval from the Centers for Medicare & Medicaid Services (CMS) and pilot providers for a demonstration that would go from 2018 to 2023. This presents a unique opportunity to rigorously evaluate these pilots to ensure they are causing the anticipated improvements for clients.

Levers for increasing evidence-based practices

This report highlights many mechanisms to increase the use of evidence-based practices in Minnesota. Some of these mechanisms involve investing new resources or shifting around existing resources. Other mechanisms allow decision-makers to promote system change in low- or no-cost ways. Figure 11 identifies levers available to policymakers, each of which offer varying levels of effectiveness, efficiency, equity, administrative overhead, and support among stakeholders. Exercising these policy levers in thoughtful ways has the potential to increase adoption of evidence-based practices, create cost savings, and improve the health of Minnesotans.

Figure 11: Categories of policy levers

Lever	Delivery mechanism	Evidence-based examples
Direct government	Direct provision	State/county provision of assessment/treatment (e.g., Direct Care & Treatment); drug courts; compliance checks; prescription drug monitoring; technical assistance
Social regulation	Law/rule	Restricting density of alcohol retailers; tobacco free ordinances; restrictions on hours of sale
Fees	Taxes or fines	Increasing taxes on alcohol or tobacco
Economic Regulation	Entry and rate controls	Restricting density of tobacco/alcohol retailers; eliminating Medical Assistance preauthorization requirements for medication-assisted therapies
Contracting	Contract payment	Making new, evidence-based treatments reimbursable; media campaigns; fidelity monitoring and program evaluation
Grants	Grant award	Prioritizing prevention/treatment grantees that can implement evidence-based services; fidelity monitoring and program evaluation
Liability law	Tort law	Laws that hold retail establishments liable for illegal sales/service (dram shop)

Source: Adapted from *The Tools of Government* (Elliott 2002)

Social regulation, economic regulation, and liability laws are often low cost options for government entities and can influence access to legal and illegal substances. Examples include holding establishments liable for illegal service, creating non-smoking spaces, and increasing age compliance checks. These restrictions can decrease the use of alcohol and tobacco, as well as decrease negative externalities or harm to non-participants (e.g. second hand smoke, drug-related crime, and property damage) (Community Preventive Services Task Force 2017). Multiple levels of government can implement and promote these policies. Recently the City of Edina raised the minimum age to purchase cigarettes from 18 to 21, a promising practice for decreasing youth tobacco use.[26,27]

[26] A similar policy change in Needham, MA, found youth 30-day smoking rates declined significantly in the four years after the ban was implemented: from 13 percent to 7 percent in Needham compared to 15 percent to 12 percent in comparison communities (Schneider et al. 2015).

[27] Reductions in smoking are likely greater if they are part of a statewide or regional push. The FDA estimated that a nationwide increase of the minimum purchase age to 21 would decrease smoking prevalence by 12 percent (Food and Drug Adminstration 2016).

Different levels of government also have the ability to raise prices on legal drugs through taxes. Economic theory suggests that increasing price decreases the quantity purchased, and the evidence bears this out. A meta-analysis estimated that doubling the alcohol tax would "reduce alcohol-related deaths by 35 percent, traffic deaths by 11 percent, sexually transmitted diseases by 6 percent, violence by 2 percent, and crime by 1 percent" (A. C. Wagenaar, Tobler, and Komro 2010). Similarly, the Congressional Budget Office estimated a 10 percent increase in the federal cigarette tax rate would reduce underage use by 5 to 10 percent among youth and 3-7 percent among adults (Congressional Budget Office 2012).[28] Some states invest revenues from the taxation of legal drugs into prevention and treatment efforts. While evidence suggests this may be an effective way to reduce use and fund treatment, efforts to enact these taxes are often contested.

Grants and contracting

Besides adopting new evidence-based services or expanding funding for existing ones, policy makers can change the criteria by which state agencies select grantees and contractors. For example, the Department of Human Services and Department of Health administers millions of dollars in state and federal grants each year and has some discretion in establishing the criteria for selecting providers.

In some cases, legislative and administrative procedures are in place to increase the selection of evidence-based practices. For example, *The Partnership for Success* federal grant program uses the Strategic Prevention Framework to require grantees to review community needs, intervening variables, and the political will to make a particular change. After this review, grantees work with the Department of Human Services staff to identify and implement evidence-based strategies that fit with the community's needs and assets. Grantees then set up methods to track and evaluate performance on a series of related output measures. This is a replicable model which could be expanded to more grant applications, including those focused on treatment and recovery services.

Another example is the statewide tobacco prevention grants administered by the Minnesota Department of Health. The Minnesota legislature dedicates $3 million annually to reduce youth tobacco use. Of that, $2 million

[28] Theoretically, taxation on prescription opioids would follow a similar mechanism as that for alcohol and tobacco. Congress, California, and Alaska have considered imposing a one-cent-per-milligram tax on manufacturers and wholesalers of prescription opioids (Bartolone, 2017). Proceeds from this tax would then fund prevention efforts. However, opioids differ from alcohol and tobacco because of the cost-sharing aspect of health care, and producers would likely pass the tax on through drug higher prices. Often this is higher cost is ultimately paid by taxpayers through Medicaid and Medicare. Users may not experience a cost increase, and actors who write the prescriptions would not be impacted financially. Therefore, neither group has a strong incentive to decrease utilization of opioids. Moreover, if taxes were increased, opioid users may transition to using heroin as a cheaper alternative. In spite of this, the revenue created by the tax and concomitant increase in prevention and treatment could reduce opioid use and harm.

goes to the Tobacco-Free Communities competitive grant. Statute requires the commissioner to give priority to projects that are "research based or based on proven effective strategies."[29]

Other states also use this form of guidance. In 2003 Oregon passed a law requiring the Department of Corrections, Oregon Youth Authority, Oregon Commissioner on Children & Families, Department of Human Services Behavioral Health Division, and Oregon Criminal Justice commissioner to spend 75 percent of state grant funds on evidence-based programs (Pew-MacArthur Results First Initiative 2017). The law was phased in slowly, and Oregon reached the target by 2011. To assist grantees in fulfilling this requirement, agencies created lists of vetted evidence-based programs. Agencies also interpreted the statute to include evidence-based practices that have been modified or adapted to meet the needs of special populations.[30]

Medication-Assisted Treatment

This analysis found that medication-assisted treamtent (MAT) is often highly effective, though some communities face limited access to this service. MAT involves using approved medication to reduce withdrawal symptoms, decrease cravings, and prevent use. Health care providers have used MAT for decades and have shown positive impacts on decreasing the use of alcohol, tobacco, and opioids. Paired with counseling and other behavioral therapies, MAT is one of the National Institute on Drug Abuse's 13 evidence-based principles of effective treatment for substance use disorder (National Institute on Drug Abuse 2012). These drugs are particularly important in combating opioid addiction, and Minnesota state agencies identify increasing medication-assisted therapy access as a priority action (Department of Human Services 2017a; Minnesota Attorney General 2016).

For tobacco, medication-assisted therapy use is not controversial. Three drugs, Nicotine Replacement Therapy (NRT), varenicline, and bupropion, are licensed for use in the United States. Studies show, compared to a placebo, Nicotine Replacement Therapy and bupropion helped 80 percent more people quit, while varenicline doubled the odds of quitting (Lancaster et al. 2000). These drugs are covered by public and private insurance, and Clearway provides Nicotine Replacement Therapy to the uninsured.

For alcohol, research shows that naltrexone, disulfiram, and acamprosate combined with counseling and other behavioral therapies are more effective than counseling alone (National Institute on Drug Abuse 2012). This consensus is supported by many entities, including the American Society for Addiction Medicine, National Quality Forum, National Association of State Alcohol and Drug Abuse Directors, and National Institute on Drug

[29] Minnesota Statute 2016, section 144.396

[30] To read more, see http://bit.ly/2t2f0S7.

Abuse (National Association of State Alcohol and Drug Abuse Directors, Inc. 2015). However, many practitioners believe abstinence is the best course of treatment, which contributes to medication-assisted therapies remaining under-prescribed (Substance Abuse and Mental Health Services Administration 2017b). Better engagement, education, and training could increase access to medication-assisted therapies.

Figure 12: Results First review of pharmacotherapies for alcohol, opioids, and other drugs[31]

Pharmacotherapy	Substance	Impact on outcomes	Source	Available through	Common brands
Acamprosate	Alcohol	Proven effective	Cochrane Review	Health care provider with prescribing authority	Campral
Disulfiram	Alcohol	Mixed Evidence	Cochrane Review	Health care provider with prescribing authority	Antabuse
Naltrexone	Alcohol, opioids	Proven effective	WSIPP	Health care provider with prescribing authority	Revia, Vivitrol
Buprenorphine	Opioids	Proven effective	Crime Solutions	Health care provider with prescribing authority and a waiver	Suboxone, Subutex, Zubsolv
Levo-alpha acetylmethadol (LAAM)	Opioids	Promising	Cochrane Review	In person at opioid treatment under supervision	OrLAAM
Methadone	Opioids	Proven effective	WSIPP	In person at opioid treatment under supervision	Methadose, Dolophine
Bupropion	Tobacco	Proven effective	Cochrane Review	Health care provider with prescribing authority	Wellbutrin, Elontrill, Zyban
Nicotine Replacement Therapies (NRT)	Tobacco	Proven effective	Cochrane Review	Over the counter	Nicoderm, Comit, Nicorette, chantix, others
Varenicline	Tobacco	Proven effective	Cochrane Review	Health care provider with prescribing authority	Chantix

Medication-assisted therapies are most often discussed in the context of the ongoing opioid crisis. Opioid use disorder pharmacological treatments vary in who has the authority to deliver the drug.[32] Licensed treatment providers generally dispense these pharmacological treatments daily to clients in a health care setting, although in some circumstances the treatment can be prescribed as take-home doses. For each drug, research shows improved retention in treatment and reduction of use compared to counseling alone (Fullerton et al. 2014; Mattick et al. 2009; National Association of State Alcohol and Drug Abuse Directors, Inc. 2015). There is also

[31] Impact on outcomes refers to overall research findings. These drugs may not be effective for all populations. For example, Cochrane review points out agonist and antagonist, like buprenorphine, methadone, and naltrexone, does not seem to be effective at reducing drug use in male offender populations. For more see: http://bit.ly/2uI2NFm.

[32] These drugs differ in the mechanism for impact and who can deliver them. For more on how Methadone, Buprenorphine, and Naltrexone work, read here http://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2016/11/medication-assisted-treatment-improves-outcomes-for-patients-with-opioid-use-disorder.

strong evidence that access to methadone leads to decreases in crime, death, and risky behaviors.[33] Moreover, it is effective across special populations including criminal justice populations and pregnant women.

In spite of this evidence, medication-assisted therapies remain under-prescribed, underused, and controversial amongst some policymakers and practitioners. Many view it as "substituting one substance for another" (Substance Abuse and Mental Health Services Administration 2017b), and individuals attempting to quit might not want to be on medications due to side effects, cost, or personal choice. This stigma can manifest itself in structural barriers that do not exist for other pharmacotherapies. For example, Minnesota's Medical Assistance program requires pre-approval prior to their clients receiving these drugs, thus delaying their use and potentially harming clients (Minnesota Attorney General 2016).[34]

In addition to the stigma of medication-assisted therapies, lack of infrastructure and regulations limit access to them, especially in rural counties (Rieckmann, Kovas, and Rutkowski 2010; Minnesota Attorney General 2016). In Minnesota, there are only 17 certified Opioid Treatment Programs (licensed locations authorized to use methadone to treat clients), and these facilities are located in eight, mostly metro, counties.[35] Buprenorphine, which is used after a client is stabilized, is often prescribed in an office-based setting with monitored take-home doses. But, prescribers are present in less than half (38) of the 87 Minnesota counties (Substance Abuse and Mental Health Services Administration 2017a). Of the 174 total buprenorphine prescribers, only a third are outside the seven-county metro.[36]

Proper dosage is also a concern. Research shows "a majority of individuals treated at methadone clinics receive inadequate doses and that many clinics place an arbitrary limit on the duration of treatment" (Fullerton et al. 2014). Treatment that lasts less than 90 days shows no impact on outcomes, and treatment is recommended to last at least one year (Judd et al. 1998; National Institute on Drug Abuse 2012).

The state and federal government are taking evidence-informed steps to increase the availability of medication-assisted therapies. In 2017, the Department of Human Services released *Minnesota State Targeted Response to the Opioid Crisis*, which identified a range of priorities to address opioid use, including increasing the number of Opiate Treatment Programs and office-based prescribers, reducing geographic and demographic disparities in

[33] See Results First Inventory for specific drugs, impacts, and research.

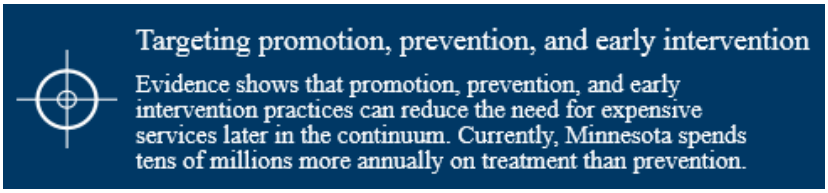
[34] As noted in the state's Attorney General Report on Opioids, changing this would take action by the Minnesota legislature.

[35] See Appendix D: Heroin and other opiate treatment admissions per 10,000 people and methadone maintenance providers, by county, 2016.

[36] Findings from SAMHSA show that the need for these types of providers is especially acute in Minnesota's tribal nations (Substance Abuse and Mental Health Services Administration, 2017c).

care, educating practitioners and the public about the drugs' effectiveness, supporting retention of patients in opioid treatment, and making it easier for patients to identify facilities with openings.[37]

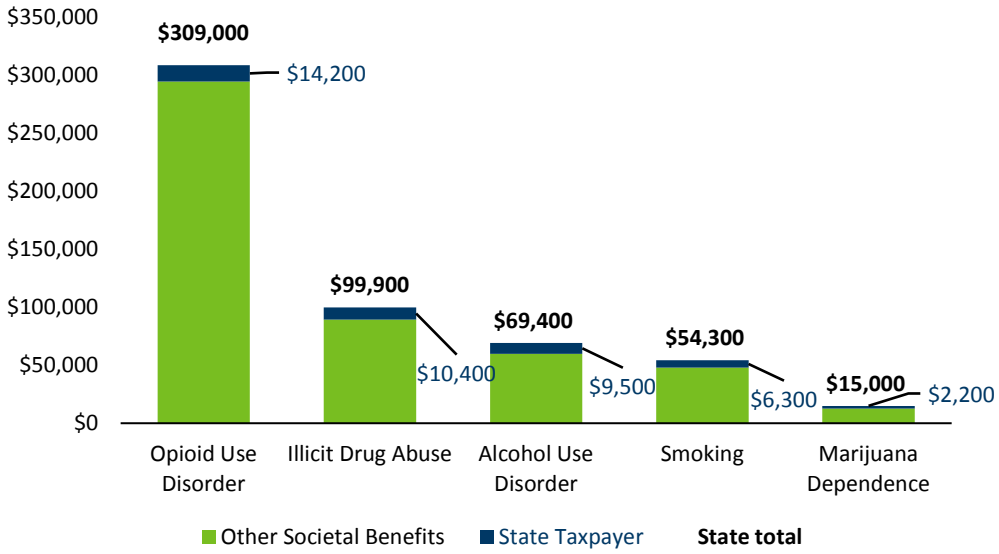
Targeting promotion, prevention, and early intervention



The Results First inventory and benefit-cost analysis lay out a range of proven, cost-effective prevention models. While a full continuum of care is needed and many treatments offer high returns on investment, prevention is vital because it helps individuals avoid substance misuse altogether. If an individual reaches treatment, it is likely they already suffered negative health, employment, criminal justice, or relational outcomes.

This harm is costly for taxpayers and citizens. Using our statistical model, we estimate that preventing the development of substance abuse would generate benefits or avoid costs ranging from $15,000 for avoiding an instance of marijuana dependence to $309,000 for avoiding an instance of opioid use disorder. Looking just at taxpayer expenses, avoiding alcohol use disorder for a single individual yields a benefit of $9,500. This estimate includes avoided costs related to crime, earnings, health care costs, property, and the statistical value of a life. This only includes the impact on Minnesotans, and sets aside the additional benefits that accrue to the federal government or other states.

Figure 13: Lifetime value to Minnesotans for avoiding substance use disorder



Source: Pew-MacArthur Results First model; analysis by MMB 2017

[37] More on the activities, roles, and goals of the Opioid Response initiative here https://mn.gov/dhs/assets/mn-opioid-str-project-narrative-april-2017_tcm1053-289624.pdf

Prevention Programs

Prevention programs work by decreasing individuals' risk factors and increasing their protective factors. By delaying substance use, a portion of those users will never develop substance use disorder. For example, according to one survey, individuals who begin drinking before age 14 are significantly more likely to develop alcohol dependency and have two or more dependence episodes. They have a 45 percent chance of developing a diagnosable dependence, compared to 10 percent for those who wait until they are 21 or older to begin drinking (Hingson, Heeren, and Winter 2006).

The majority of the overall substance use spending and attention focuses on treatment in the later stages of the care continuum with identification of misuse occurring too late (U.S. Department of Health and Human Services 2016). Data from the Consolidated Chemical Dependency Treatment Fund shows the average cost per treatment placement was over $2,000 in SFY 2016. By contrast, SAMHSA estimated in 2002 that the average school-based prevention program cost $220 or $300 per participant in 2016 dollars (T. Miller and Hendrie 2008). There are, however, obvious differences in the effectiveness of these services and the population served, which makes comparing the costs and benefits challenging.

Compared to some other states, Minnesota's state investment in prevention is limited.[38] The largest centralized portions of prevention funding comes from two sources: the $8.4 million annually ADAD oversees in federal block grant funding ($5.2 million as required spending and $3.2 in discretionary funding) and the $20 million in federal and state money administered by MDH for tobacco control and general state health improvement. By comparison, federal, state, and county spending on treatment from the Consolidated Chemical Dependency Treatment Fund *alone* was $160 million and reached a much smaller number of participants. Often, state-distributed funding attempts to mobilize local communities into action. For example, the federal government awards grants to Regional Prevention Coordinators (RPC), Planning & Implementation grantees (P&I), and Drug/Tobacco Free Coalitions to assemble local actors into prevention coalitions and conduct training for evidence-based programs. The funding is insufficient to cover the entire state, so it targets areas with the greatest need.

Localities also have the ability to dedicate funding streams for substance use prevention and often use levy dollars to fund primary prevention. For example, some school districts across Minnesota implement Project Northland, an evidence-based program. Funding for these programs is discretionary and competes for funding with other programs, meaning the resources to support these programs can vary greatly by location. A national survey of school administrators found less than 10 percent were using evidence-based substance abuse

[38] The CDC rates Minnesota as below average for using state funding to allocate for comprehensive tobacco control.

prevention programs and only 11 percent of youth report participating in a program outside of school (Center for Behavioral Health Statistics and Quality 2016). Locally, a 2011 Wilder survey of practitioners using four evidence-based curriculums identified insufficient training, time constraints, lack of parent involvement, and the inability to provide students with incentives to reinforce good behaviors as hurdles to properly implementing the curriculum (Thomsen et al. 2011).

Part of the challenge in shifting funding from later in the continuum of care to prevention services is the fact that state services are "siloed by funding streams" (Department of Human Services 2015). Policies that lower these artificial barriers could be an effective way to create a sustainable stream of prevention funding.

Prevention Policies

Prevention takes the form of both individual programming and environmental policies. While individual programs are critical ways to build protective factors, holistic policies reach broader audiences and shape access to alcohol, tobacco, and prescription drugs. Figure 14 identifies some of the levers available to policymakers to implement evidence-based, system-level prevention practices

Figure 14: Examples of evidence-based policies and practices to reduce alcohol misuse

Policies that Affect Access to Alcohol	Policies to Reduce Drinking and Driving
Increasing taxes	Publicized sobriety checkpoints
Decreasing the density of alcohol outlets	Mandatory ignition interlock devices
Direct local government control of retail alcohol sales	24/7 alcohol monitoring for DUI convictions
Alcohol Compliance Checks Maintaining limits on hours of sale	Zero tolerance driving laws for persons younger than 21 Reducing the legal BAC to operate a motor vehicle

Source: U.S. Department of Health and Human Services 2016, Community Preventive Services Task Force 2017

Minnesota and its localities have successfully implemented some of these practices. For example, the Centers for Disease Control and Prevention (CDC) reported Minnesota was one of 18 states to give local government entities the authority to regulate the density of alcohol outlets, an evidence-based way to decrease alcohol use.

Figure 15: CDC rating on state beer excise tax level in Minnesota, 2014

Rating	State beer excise tax
Green	≥$1.00 per gallon
Yellow	$0.50-$0.99 per gallon
Red	<$0.50 per gallon

Source: Centers for Disease Control and Prevention 2016

In other places, the state ranked less favorably.[39] For example, the CDC's State Prevention Report rated the state's excise tax rate for beer, spirits, and wine as being below the recommended amount (Centers for Disease Control and Prevention 2016).

[39] This report only presents evidence on practices that decrease substance use and levers that have been used in Minnesota and elsewhere to implement these practices. It does not make recommendations on what decision-makers should do. There are many values and goals beyond research evidence and return on investment that must be weighed.

Research shows that "increasing the price of beer by 10 percent reduces consumption by 5 percent," and "doubling the alcohol tax could reduce alcohol-related mortality by 35 percent" (Community Preventive Services Task Force 2007; A. C. Wagenaar, Tobler, and Komro 2010). The National Institute on Alcohol Abuse and Alcoholism also noted that Minnesota did not have in place social host laws or requirements for responsible beverage service training for retail establishments selling alcohol (A. Wagenaar 2017). Similarly, the CDC notes that increasing the price of cigarettes, restricting indoor smoking, and funding comprehensive tobacco control activities reduces use. Minnesota scored highly in the first two areas and in the lowest tier for funding of tobacco control activities.

Figure 16: CDC rating on funding tobacco control in Minnesota, 2015

Rating	State funding level
Green	≥100% of CDC recommendation
Yellow	50.0%-99.9% of CDC recommendation
Red	<50.0% of CDC recommendation

Source: Centers for Disease Control and Prevention 2016

While MMB presents these policies individually in both the report and inventory, experts note that a mix of individual and environment strategies that meet the particular strengths and needs of the community is the best way to reduce substance use (SAMHSA 2016). In some ways, policies may be easier to implement: they generally require little funding to implement and have broader reach than individual programming. Yet, these policies may be controversial, especially when they take away local control or raise taxes.

Intervening Earlier

The Results First benefit-cost analysis shows that one of the most cost-effective ways to avoid substance misuse is to identify at-risk individuals and intervene early (U.S. Department of Health and Human Services 2016). Evidence-based early interventions—hereafter referred to as screening and brief intervention (SBI)—include Screening, Brief Intervention, and Referral to Treatment (SBIRT), Teen Intervene, and Brief Alcohol Screening and Intervention for College Students (BASICS). These services occur in different settings (including primary care, emergency departments, and school clinics) and target different populations, but they have the same goal: to identify early misuse, engage client in conversation about the risks, provide strategies for stopping, and, for individuals with more serious use, refer to a treatment program.[40]

This early monitoring and management is the norm for other areas of medicine. For example, primary care physicians routinely check blood pressure, instruct clients in ways they can make needed lifestyle changes, and

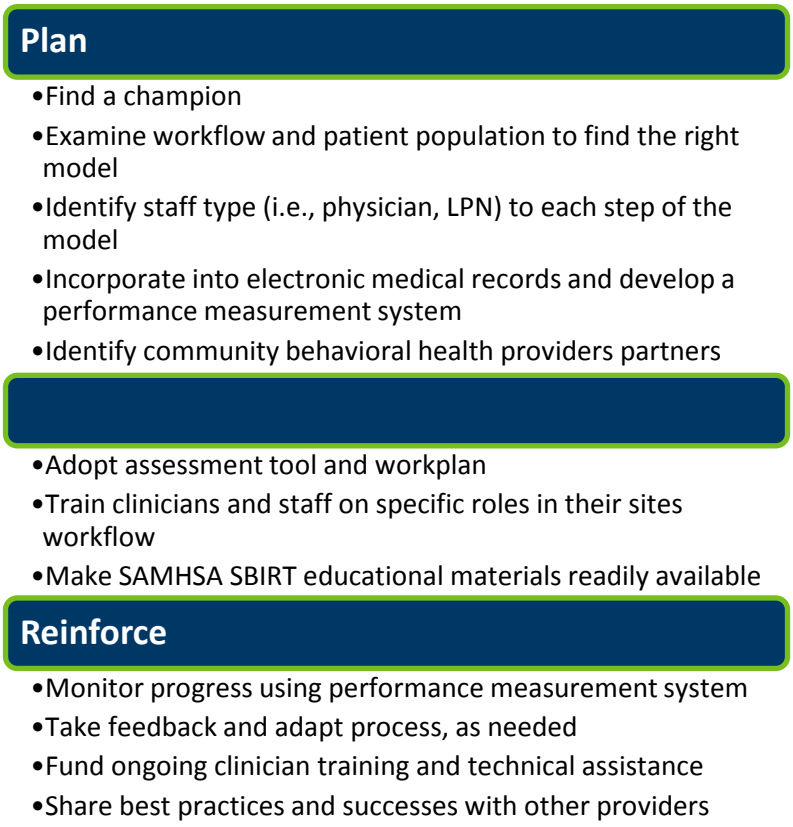
[40] Research has found that 1 in 10 people (about 2.2 million people) are affected by substance use disorder get treatment annually. In other words, 20 million Americans do not get treatment for substance use disorder. This "treatment gap" is especially acute for some racial and ethnic groups and individuals with mental illnesses (Satre et al. 2010).

provide necessary medications (U.S. Department of Health and Human Services 2016). Primary care practitioners also regularly screen for depression or violence at home, but only 1 in 6 American adults have ever been asked by a health professional about drinking (McKnight-Eily et al. 2014)

Similarly, data from Minnesota suggests uptake of SBI is extremely low; the Department of Human Services data shows Medical Assistance and MinnesotaCare was only billed 272 times for SBIRT statewide in 2016. Given the high benefit-cost ratios this report found for SBI, there is an opportunity to increase its use in Minnesota.

In 2013, the legislature appropriated $600,000 to pilot ways to expand SBIRT. The appropriation gave primary care clinics technical assistance to increase training. Pilot participants reported their patients experienced a reduction in number of binge drinking sessions per week, though clinician time constraints, inadequate training, stigma, and initiative fatigue were barriers to widespread adoption (Department of Human Services 2016; M. Willenbring 2012).[41]

Figure 17: Strategies for implementing SBIRT



It may be easier to increase SBI by using non-physician practitioners on primary care teams. A Registered Nurse (RN), Licensed Nurse Practitioner (LPN), Physician's Assistant (PA), or Nurse Practitioner (APRN) can complete the screening, brief intervention, and referral to treatment. These tasks can be completed by different non-physician practitioners based on a practice's workflow. For an RN or LPN under the supervision of a physician or

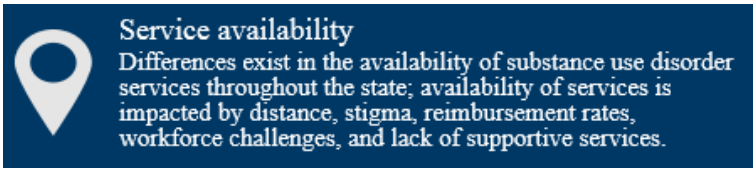
[41] This mirrors findings from academic literature. See page 273 of the Surgeon General Report on Alcohol, Drugs, and Health for more information (U.S. Department of Health and Human Services 2016).

APRN, the reimbursement rate for Medical Assistance and MinnesotaCare is 90 percent. PAs and APRNs also receive 90 percent if they have a provider agreement with the Department of Human Services.[42,43]

In addition to using primary care teams to implement early interventions, a review of eight SBI pilots across the United States found that instances of successful implementation shared many commonalities. Most importantly, successful pilots tailored SBI to the workflow of the organization and provided support from multiple levels of the organization. The review also found that the best implementations incorporated SBI into its electronic medical records (EMR) and used that data to monitor and reinforce progress (Williams et al. 2011). In particular, one pilot at a Veterans Affairs (VA) medical clinic added a reminder to the EMR to complete a brief intervention for any individual that screens positive for unhealthy use. Over the analysis period, 71 percent of individuals that met the criteria received a brief intervention, compared to 28 percent at VA hospitals with no reminder (Williams et al. 2010).

There may also be a place for web-based assessments or kiosks in emergency departments combined with telephone or in-person follow-ups (U.S. Department of Health and Human Services 2016). These tools may be a useful supplement to in-person care and could increase uptake among clients that may not otherwise receive an assessment (Litvin, Abrantes, and Brown 2013; Rosa et al. 2015; U.S. Department of Health and Human Services 2016). Many promising instruments already exist, especially on college campuses, including *eCHECKUP TO GO and College Drinker's Check-up,* (Hester, Delaney, and Campbell 2012).[44,45] Given the stigma and workflow issues around SBI, these tools may be a supplement for practitioners, especially for hard-to-reach populations. The research on these interventions is nascent and any new investments should be evaluated.

Service availability[46,47]



As described above, Minnesota has a government-financed, privately-administered

[42] Physician's reimbursement is $25 for 15-30 minute session. An RN, LPN, PA, or APRN rate for the same length is $22.50.

[43] As part of SBIRT reform work with SAMHSA, Wisconsin used health educators under the supervision of a credentialed provider. For more information, see https://www.dhs.wisconsin.gov/aoda/sbirt/billing.pdf

[44] See the Results First Inventory for the evidence on these interventions.

[45] Some studies indicate that people may be more likely to accurately disclose drinking habits to these tools (Hankin et al. 2015).

[46] One important step already taken is increasing access and use by allowing clients to go directly to providers for assessments instead of to a "county, tribe or pre-paid health plan" (Department of Human Services, 2013). This removes one step to receiving care, decreases the wait for assessment, and can connect a client immediately to care.

[47] Service availability is one factor behind why 9 in 10 Americans with substance use disorder do not receive treatment annually. In a nationwide survey of individuals with substance use disorder, forty percent of individuals that do not seek

substance use disorder treatment model. Forty-seven percent of providers licensed to provide specialty treatment for clients on public insurance (Rule 31) are located in the seven-county metro area. This region has about 55 percent of the state population but constitutes less than four percent of the state's geographic area (DAANES 2016). Around 217,000 Minnesotans live in one of the 21 counties without a chemical dependency provider, also referred to as a Rule 31 provider. In addition, bottlenecks exist in getting the necessary assessments in order to access care and in finding an appropriate placement location for treatment (Department of Human Services 2013).[48]

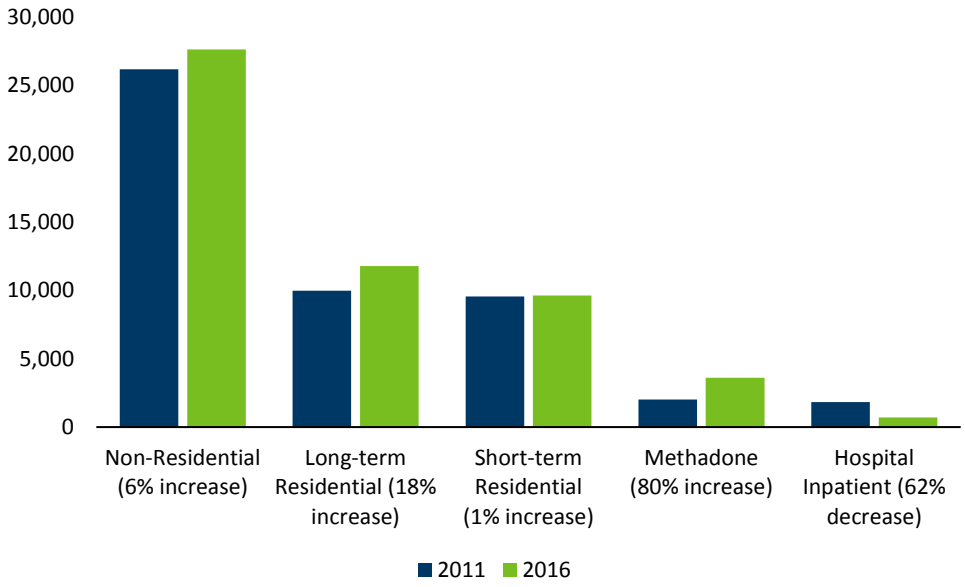
In addition to historical concerns about access to treatment, the present system is also facing increasing demand for services. Laws requiring substance use disorder to be treated just like any other health services and the expansion in Medicaid have increased the number of people receiving treatment. In the last five years, treatment admissions saw an eight percent increase across all settings.

Part of the access issue may be related to low reimbursement rates relative to other health care services (Vestal 2015), which may be partially attributable to relatively slower growth in provider reimbursement rates. From 1994 to 2016, CCDTF substance use treatment reimbursement rates increased 13 percent. Over the same period, the consumer price index increased 62 percent and medical inflation has increased more than 100 percent (Minnesota Association of Resources For Recovery and Chemical Health 2017).

treatment say they are not ready to stop using (Center for Behavioral Health Statistics and Quality 2016). Twenty-five percent are afraid of the stigma attach to care. Many also reported access issues including lack of coverage/affordability (30 percent), not knowing how to access treatment (13 percent), lack of appropriate treatment programs (11 percent), and lack of transportation, distance, or inconvenient hours (12 percent).

[48] Anecdotally, we heard from counties and providers these barriers can at times create multi-week wait times, though no aggregate data on average wait times is available. Reforms to Minnesota's model of care are anticipated to help ameliorate assessment wait times by allowing for direct access to providers for assessment.

Figure 18: Substance use disorder treatment admissions in Minnesota, by setting, 2011 and 2016



Source: Department of Human Services, ADAD, DAANES 2017

Low reimbursement rates can have negative impacts on care due to providers needing to keep their labor costs and other expenses down, which may lead to fewer treatment locations in rural areas. In interviews, providers reported low rates are the most important impediment to delivering quality care. While the evidence shows rates have grown slower than the healthcare field, it is challenging to evaluate whether there is a causal relationship between reimbursement rates and access or quality of care.[49] An upcoming DHS rate study can do more to understand cost structure and make recommendations that improve access and care.

Additionally, wages for counselors in the addiction field are often lower than those of other medical professions despite those positions having similar job qualifications (Vestal 2015). For example, in Minnesota Substance Abuse & Behavioral Disorder Counselors earn $46,650 compared to $49,420 for Marriage and Family Therapists and $68,330 for Healthcare practitioners (Bureau of Labor Statistics 2016).

Workforce challenges

Many providers mentioned challenges in finding qualified individuals to help clients recover. A recent Department of Human Services report notes that "the number of licensed Alcohol and Drug Counselors (LADCs) in Minnesota is inadequate to meet current needs, which are even more pronounced in Greater Minnesota"

[49] We were unable to find any studies on reimbursement rates and access or care quality in chemical dependency treatment. Most of the literature focuses on reimbursement rates in nursing care (Institute of Medicine (US) Committee on Improving Quality in Long-Term Care, Wunderlich, and Kohler 2001). These studies find that there is a relationship between Medicaid reimbursement and staff levels. The research also points to a "threshold point" or a minimum level of reimbursement that impacts quality of care, above which there may not be an additional impact.

(Department of Human Services 2017b). Listening sessions conducted by the Department of Human Services around the state echoed these concerns and noted that their ability to find, train, and retain qualified staff was one of the "biggest barriers to the current system" (Department of Human Services 2015). This is especially true of finding trained professionals that reflect and understand the cultural context of their clients.

In the fourth quarter of 2016, Substance Abuse and Behavioral Disorder Counselors and Mental Health and Substance Abuse Social Workers had a vacancy rate of 10.8 percent and 6.5 percent, respectively, in Minnesota, compared to 4.7 percent for counselors and social workers overall and a 3.6 percent vacancy rate for all occupations. This high vacancy rate appears to be a function of high burnout and geographic, urban-rural mismatch between where candidates would like to work and where jobs are located. From 2017 to 2018, the state's Department of Employment and Economic Development (DEED) projects 92 new job openings for substance abuse and behavioral disorder counselors, while 150 students completed a 4-year or graduate-level substance abuse/addiction counseling programs last year in Minnesota (Steiner 2016; U.S. Department of Education 2016).

Figure 19: Job Vacancies in Behavioral Health, Minnesota, 4th Quarter 2016

Occupation	# of Job Vacancies	Job Vacancy Rate	Requiring Post-Secondary Education	Median Wage Offer	Anticipated employment growth (2014-2024)
Total, All Occupations	97,374	3.6%	33%	$13.97	4.3%
Healthcare Practitioners and Technical Occupations	7,254	4.3%	91%	$26.84	12.3%
Community and Social Service Occupations	2,324	4.6%	78%	$16.16	9.1%
Mental Health and Substance Abuse Social Workers	140	6.5%	100%	$20.13	13.3%
Substance Abuse and Behavioral Disorder Counselors	251	10.8%	81%	$16.55	15.8%
Mental Health Counselors	688	18.9%	100%	$16.47	14.7%

Source: MN DEED, Labor Market Information, Job Vacancy Survey and Employment outlook

Without properly trained counselors, providers cannot provide adequate access or cost-effective, evidence-based practices. This is an ongoing challenge. In MMB's survey, numerous providers said they had to turn away clients because of staffing shortages, and one interviewee noted his health care system recently closed a rural treatment location because of a lack of qualified staff. For potential clients, this may mean a lost treatment opportunity.[50]

[50] The Department of Human Services has noted major obstacles to change, including lack of data about the present and projected needs. They also note using frameworks like SAMHSA/Annapolis Coalition Action Plan for Behavioral Health Workforce Development and Workforce Developments by the Addiction Technology Transfer Center Network to recruit,

Treatment and Recovery Supports

Another important difference from region to region is investment in supportive services for individuals with substance use disorder. These services, such as mental health care, care coordination, transportation, housing, employment services, and recovery coaching, play a critical role in connecting individuals to treatment, helping them complete their treatment, and supporting their recovery.

The availability of quality recovery services is an important predictor of treatment completion and relapse prevention, which is especially critical in the first few years in recovery (Harrison and Asche 2000). Once an individual reaches five years in recovery, the likelihood of relapse reaches the same risk rate as the general population (A. T. McLellan et al. 2000). Having access to transportation and childcare is also associated with less substance use (Finkelstein 1994; Marsh, D'Aunno, and Smith 2000); in Minnesota, child care reimbursement is limited to women's programs. These two services may be especially important in rural Minnesota where the distance to treatment can be large.

Recent investments have increased the availability of many of these recovery services. New legislation in 2017 made two evidence-based practices —care coordination and peer support—Medicaid reimbursable. Nevertheless, other gaps remain. In conversations with counties and providers, gaps were especially acute in sober housing. One evidence-based model presently employed is Oxford Supported Housing, a peer-run, substance-free residence where 6-10 peers in recovery live together. Our benefit-cost analysis found a $3.90 return for each dollar invested.

As other reports have noted, discrepancies exist because of varying levels of investment across counties, differences in workforce availability, cultural differences, varying population density, and other factors. Additional resources may improve outcomes, decrease relapse, and produce positive returns for taxpayers. Supportive services in aftercare can also help Minnesota move from an acute care model to a chronic care model. The state has the opportunity to monitor investments in support services, such as care coordination, to ensure we are getting the anticipated outcome.

The importance of implementation

The findings in this report demonstrate the potential for evidence-based practices to generate positive outcomes for individuals and taxpayers. In this analysis we assume services will have the same impacts found in previous evaluations, which is

develop, and retain the substance use disorder workforce. This analysis notes the challenges as a major barrier to care delivery, but it is not in a position to offer additional solutions.

most likely to occur if programs are effectively implemented. Fidelity "depends upon a precisely delineated program logic, a clearly specified implementation plan, and well-defined outcomes" (Weiss, Bloom, and Brock 2013). In lay terms, fidelity means the right population receives the right dosage from the right professionals at the right time and place. Research shows fidelity and outcomes are correlated (Dusenbury et al. 2003; Mihalic 2004). Despite extensive research on best practices, many substance use prevention and treatment interventions are "implemented with limited fidelity" (Botvin et al. 1995; Dusenbury et al. 2003; U.S. Department of Health and Human Services 2016). From MMB's interviews and surveys, the same appears to be true for Minnesota programs.

There is no easy way to assess fidelity holistically, but one quick check is to measure the extent to which individuals who complete treatment are receiving a service for its recommended length. While each client is different, the National Institute on Drug Abuse notes that treatment participation for less than 90 days "is of limited effectiveness, and treatment that lasts significantly longer is recommended for maintaining positive outcomes" (National Institute on Drug Abuse 2014a). According to data provided by the Department of Human Services, the median length of treatment for individuals who had completed their treatment and been discharged in 2016 was 54 days, 40 percent less than the recommended minimum (Department of Human Services, ADAD, DAANES 2017).[51] Only 31 percent of substance use treatment completers received treatment for 90 days or more. The overall median length of stay, including non-completers, was 43 days. In July 2018, peer support and care coordination will be reimbursable for individuals on Medical Assistance and the CCDTF, which may extend the average length of care.

Reasons for this low length of stay vary, and include the need for counties and insurers to approve continued services, pressure to discharge patients when there is no longer immediate medical necessity, limited access to aftercare, and a historic model of intense, short-duration inpatient treatment.[52] Best practices note lower intensity treatment spread over a long period may be more effective (National Institute on Drug Abuse 2014a). Evidence suggests finding ways to extend the length of care and connection to aftercare would reduce relapse and readmission. Providing payers with information and technical assistance could also increase the length of stays and improve outcomes.

Meeting this 90-day threshold does not mean fidelity has been achieved, as it speaks little to the quality of the services received during the stay. In order to achieve fidelity and achieve the projected returns, services must be

[51] The average stay for treatment completers was 74 days. Total average stay was 64 days.

[52] Unlike other areas of medicine, the present system ties counties to paying a portion (22.95 percent) of CCDTF payments and to approve treatment requests. Because counties have varying levels of resources, this funding method may create disparities in access and duration of treatment from county-to-county.

provided in accordance with the research and clients must remain engaged. While many social service fields struggle with fidelity, substance use disorder appears to be behind other fields, such as mental health and criminal justice. One piece of research noted that there is "no consensus as to how to optimize fidelity assessments for EBPs for substance use disorder" (Glasner-Edwards and Rawson 2010). Surveys of practitioners often reveal "over-estimates of the extent to which they utilize EBPs, including those for which they have received no formal training." We found a similar overestimation of the extent to which EBPs are used properly in our survey of Minnesota providers.

Another important check on fidelity is the use of individual versus group treatment. While group therapies are a good tool for reducing substance use, research shows that evidence-based practices require a mix of both session types (McGovern and Carroll 2003; National Institute on Drug Abuse 2012; U.S. Department of Health and Human Services 2016). However, group sessions are a more cost-efficient service for a provider to offer compared to individual sessions. A group could include 6-8 clients with a reimbursement of $35 per client, while an individual session is $72.[53] Moreover, if a client skips an individual session, the provider cannot bill for that time. For a group session, it is unlikely that all the clients will fail to attend. DHS could identify appropriate individual session minimums (e.g., one weekly 50 minute session), and provide this information and educational materials to providers and payers.

Part of the challenge of fidelity monitoring is the intensive nature of monitoring and training. It requires that evaluators shadow practitioners and offer training to correct mistakes. In addition to the expense, practitioners often see this as onerous oversight. They also argue that evidence-based practices are too rigid and they need the ability to tailor practices to the individual client circumstances.[54] Identifying and implementing the causal mechanisms of treatment is critical to generating the anticipated impact.

In Minnesota, other programmatic areas are taking steps to ameliorate this challenge. For example, in criminal justice, Minnesota counties, the Minnesota Department of Corrections and the University of Cincinnati formed a checklist collaborative. This group sends evaluators into the field with a checklist to assess how well corrections agents are implementing evidence-based practices and interventions. By June 2016, 67 programs had been assessed with only 38 percent of the services studied showing strict adherence to evidence-based practices. Of

[53] For a full listing of codes, visit: https://mn.gov/dhs/assets/ccdtf-rates-updated_tcm1053-299691.pdf. Modifiers boost rates for special populations, co-occurring disorders, children, and when additional medical services are necessary.

[54] There is an inherent challenge in implementing services with total protocol and making services responsive to local context. For more on this "Fidelity-Adaption Dilemma", read the brief in Culturally-specific and Chapter 3 of the Surgeon General's Report on Alcohol, Drugs, and Health.

those programs, 12 have now gone through a reassessment and showed a five percent average improvement on the adherence to evidence-based practices, which requires constant feedback and vigilance.

In substance use disorder treatment, peer reviewers may be well positioned to provide implementation monitoring and technical assistance. These federally-required peer reviews—which are optional for providers—look at a sample of client records to assess the appropriateness of treatment services (Office of the Legislative Auditor 2006). These reviewers can provide advice on documented intake assessment, treatment, discharge, and relapse prevention techniques, but they do not monitor and advise on treatment sessions. Some providers noted that they already contract with consultants for this type of feedback and training.

Where to start with fidelity monitoring

Fidelity monitoring seems overwhelming, but Glasner-Edwards and Rawson (2010) offer advice:

1) Work with stakeholders to identify a target list of evidence-based practices on which offer coaching and monitoring. This list can be small initially, but it helps prioritize programs to monitor.
2) Train existing clinicians on the core principles of fidelity monitoring to spur behavior change. Stakeholders can be tapped to see what training is weak or needs refreshing. Glasner-Edwards and Rawson recommend trainings on contingency management, motivational interviewing/brief intervention, cognitive-behavioral coping skills, relapse prevention, and couples therapy because they are high-value, widely applicable evidence-based practices. NIDA and SAMHSA provide free informational resources on these evidence-based practices.
3) Providing information is not sufficient. Information should be supplemented with in-person coaching. If this is not feasible, informational guides should be provided for role playing activities.
4) Continuously engage with providers to ensure they understand the latest evidence. Encouraging access to EBPs increases adoption, especially for new or controversial practices, such as MATs.[55]

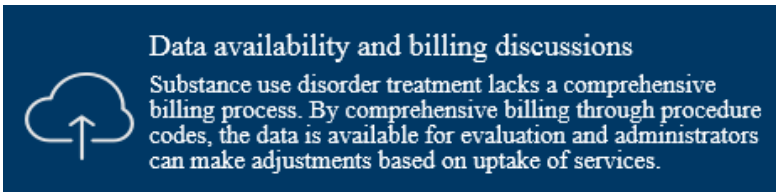
In some places, fidelity monitoring takes the form of peer review with free, optional sessions offered. A similar process took place with the National Implementing Evidence-Based Practices project (McHugo et al. 2007). Eight states worked with stakeholders to build implementation toolkits, which included user guides, web resources, and fidelity scales. The group provided consultants for the initial training followed by ongoing support for a year.

Fidelity monitoring and evaluation represents only a small percent of overall substance use disorder spending (Pew-MacArthur Results First Initiative 2016). Research recommends individualized training, coaching, and

[55] To this point, the Department of Health and Department of Human Services are invested in and support continuing.

feedback on an ongoing basis (Martino 2010). Pursuing evidence-based practices has the potential to improve outcomes for Minnesotans, but when they are not implemented properly, benefits can go unrealized.

Data availability and billing discussions



One challenge in substance use disorder treatment is the way services are billed. To improve the uptake of evidence-based practices and evaluate their effect, there needs to be information about what services are used in clinical settings. However, billing for substance use disorder treatment captures limited information about inpatient rates, intensity level, and whether outpatient treatment is in the form of group or individual sessions. It does not allow insights into whether a provider is offering proven practices, which hinders our understanding of what happens in treatment sessions and whether the services are provided in the recommended doses. Without good information, it's hard to encourage more effective services.

Figure 20: Procedure codes for mental health

Type	CPT or HCPC Code	Modifier	Service Name	Eligible Providers	Unit	Effective 1/1/2017
ARMHS	90882		Community Intervention	DHS Certified MH Rehabilitation Agency-LP; LICSW; LMFT;LPCC; CNS-MH; Psychiatrist; NP; Certified MH Rehabilitation Professional; MH Practitioner	Session	$51.11
ARMHS	90882	HM	Community Intervention	DHS Certified MH Rehabilitation Agency-MH Rehabilitation Worker	Session	$38.33
ARMHS	90882	U3	Transition to Community Living (TCL) Intervention	DHS Certified MH Rehabilitation Agency-LP; LICSW; LMFT;LPCC; CNS-MH; Psychiatrist; NP; Certified MH Rehabilitation Professional; MH Practitioner	Session	$51.11
ARMHS	90882	U3 HM	Transition to Community Living (TCL) Intervention by a mental health rehabilitation worker	DHS Certified MH Rehabilitation Agency-MH Rehabilitation Worker	Session	$38.33
ACT	H0040		Assertive Community Treatment - Adult	County contracted multidisciplinary treatment teams	Per diem	See table
ACT	H0040	HA	Assertive Community Treatment - Children	County contracted multidisciplinary treatment teams	Per diem	See table
ACT	H0040	HK	Assertive Community Treatment - Forensic	County contracted multidisciplinary treatment teams	Per diem	See table
IRTS	H0019		Intensive Residential Treatment Services- Adult	County contracted DHS certified agency multidisciplinary treatment staff	Per diem	See table

In comparison, other health sectors base billing off procedure codes for a wide range of services. For example, in the provision of mental health services, billing captures mobile crisis, assertive community treatment, or illness management & recovery as distinct services. Tying billing to procedure codes ensures there is readily available

Figure 21: Substance use disorder treatment rate grid, January 2017

ADULT SERVICE RATES		COMPLEXITY			
Treatment Setting Descriptions	**Addiction Only Basic Rate**	**Co-occurring** *HH*	**Special Populations** *U4*	**Clients with their Children** *U6*	**Medical Services** *U5*
Non-Residential Treatment Rates – acuity addressed in intensity					
Individual *(one hour increments)* *H2035*	$71.40	+$6.43	+$4.28	+$4.28	+$17.14
Group *(one hour increments)* *H2035 HQ*	$34.68	+$3.12	+$2.08	+$2.08	+$8.32

data for evaluation and allows administrators to make adjustments based on the uptake of services; when uptake is too low, they can increase training and promotion or review the adequacy of the reimbursement rate.

It could be difficult to implement a procedure code-based system for substance use treatment because trained professionals mix and match evidence-based practices based on a client's need. In other words, no one session is entirely cognitive-behavioral therapy or supportive expressive therapy. Rather the session might include components from different services. While this is true, manualized content has been shown to be effective and offers flexibility to incorporate practitioner discretion. By following the manualized content, it might be possible to bill by a procedure code. Additionally, the use of electronic medical records are becoming more common across the healthcare industry, which could lessen the administrative burden of redesigning a billing process.

Another way of incentivizing the use of certain types of practices would be through adding a rate modifier for practitioners who use evidence-based services. There is precedent to this, as practitioners add modifier codes to increase billing for special client populations or individuals with mental illness (see Figure 20: Procedure codes for mental health).[56] Instituting a modifier might require developing a certification process, training, oversight, and investment in data systems. Grants could help ensure equity amongst providers by covering the costs of certifications and training some might not otherwise be able to afford. A pilot, such as the Institute of Mental Disease waiver (discussed in the Using evidence-based services section) could see if this improves outcomes.

Integrating substance use and mainstream healthcare

This billing discussion highlights a broader systemic issue: substance use is not funded or treated like other health fields. This, in part, has to do with the genesis of substance use disorder treatment as a separate treatment system outside of mainstream healthcare. Integrating Minnesota healthcare system could take many forms, such as, increasing the percent of individuals with health insurance (e.g., enrolling eligible clients into Medical Assistance instead of the CCDTF alone), expanding use of interdisciplinary teams or care coordination, introducing new performance management systems, changing practitioner norms, and physically collocating services (Suter et al. 2009; D'amour and Oandasan 2005; U.S. Department of Health and Human Services 2016). The research shows moving to this integrated system can generate positive, cost-effective outcomes. (Weisner et al. 2001; Chi et al. 2011; Parthasarathy et al. 2012; Saitz et al. 2005; M. L. Willenbring and Olson 1999; Samet, Friedmann, and Saitz 2001; Butler et al. 2008). It also follows our growing understanding that treating clients based on their individual needs can improve health.

[56] See *254B.05, subd. 5 (c)*

Conclusion

The 2015 legislature instructed MMB to inventory and conduct benefit-cost analyses for state investments. This report focuses on evidence-based practices in substance use prevention, treatment, and recovery. Our findings draw on scientific evidence that substance use disorder is a preventable and treatable disease. Evidence-based treatment and prevention practices offer the potential to improve public safety, decrease premature death, and generate positive health and labor outcomes for participants and other taxpayers. MMB conducted a benefit-cost analysis for 16 practices that have been rigorously evaluated. Fifteen of these practices have benefits that exceed their cost, and for five of these practices, the taxpayer benefits alone exceed their cost. Increasing the availability of evidence-based practices can help Minnesota improve outcomes related to substance use.

Through literature reviews, surveys, interviews, and discussions with agency and county partners, MMB found that practitioners routinely use evidence-based practices. These partners report that there is a need to decrease treatment barriers, increase access to care, and improve implementation of evidence-based practices. For example, these partners explain that stigma and regulations limit access to proven, cost-effective services like methadone maintenance treatment for Minnesotans with opioid use disorder. Early interventions, such as Screening, Brief Intervention, and Referral to Treatment (SBIRT), also generate large returns to participants and taxpayers, but practitioners report that workflow challenges mean there is a relatively low uptake across the state. Practitioners reported limited access to funding for ensuring evidence-based practices are implemented effectively. Failure to deliver services to the right person at the right intensity and at the right time can limit the extent to which the services are able to deliver anticipated outcomes. Systemic factors hinder the use of cost-effective practices and may contribute to the perception that substance use disorder is not treatable.

This analysis also shows the potential for improved data collection. Unlike other health fields, present substance use treatment billing systems do not capture the extent to which providers bill for evidence-based practices. Gathering this information could improve our understanding of the adoption and effectiveness of treatment and create a mechanism to incent the use of high-impact services. This is, however, likely a symptom of a broader issue: substance use treatment is not treated as, funded like, or integrated with the broader healthcare system.

The Results First initiative uses evaluations from Minnesota and across the nation to estimate the impact of prevention and treatment services in the state. It assumes we will get the same impact found in the research to-date. As more local evidence becomes available, future analysis will be able to speak directly to the impact of services for a Minnesota specific populations. The findings from this analysis provide one lens that decision-makers can use when making investment decisions, but they should consider other important factors such as parity, equity, justice, and fairness. Nevertheless, the Results First framework and its benefit-cost analysis is a powerful tool to help decision-makers make informed choices when employing scarce public resources.

Appendix A: Inventory of services

The Results First inventories are an intermediary step toward determining which services to include in the final benefit-cost analysis. Each contains information about the service, the agencies involved in funding or overseeing the service, service details, and the extent to which there is evidence that the services are attaining desired outcomes. To build the inventory, we reviewed state grant reports, surveyed providers, and conducted interviews with counties and practitioners. The inventory reflects all models we found through this process.

Minnesota Management and Budget places services in one of the five categories listed in the following table, based on evidence of effectiveness found in eight national clearinghouses, the Washington Institute of Public Policy, the Cochrane Review, Campbell Collaboration, and Centers for Disease Control and Prevention (CDC) community guide. The categories largely mirror the levels of evidence defined by the Pew-MacArthur Results First Initiative. Services delivered in Minnesota that closely resemble ones featured in a national clearinghouse (with respect to the nature, length, frequency, and targeted population) or have been rigorously evaluated in Minnesota are categorized as "Proven effective," "Promising," "Mixed Evidence, or "No effect."

Proven effective	A proven effective service or practice offers a high level of research on effectiveness, determined through multiple qualifying evaluations outside of Minnesota or one or more qualifying local evaluation. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
Promising	A promising service or practice has some research demonstrating effectiveness, such as a single qualifying evaluation that is not contradicted by other such studies, but does not meet the full criteria for the proven effective designation. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
Theory-based	A theory-based service or practice has no research on effectiveness or less rigorous research designs that do not meet the above standards. These services and practices typically have a well-constructed logic model or theory of change. This ranking is neutral. Services may move to another category after research reveals their impact on measured outcomes.
Mixed evidence	Mixed evidence has been studied by multiple qualifying studies but have contradictory findings. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
No effect	A service or practice with no effects has no impact on the measured outcome. It does not include the service's potential effect on other outcomes. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
Category of services	These services represent a category of services that a client may receive, dependent on need. Some of these services may be evidenced-based, but the services have not been studied holistically. As services can vary from client to client, we cannot assess their effectiveness.

Service Inventory: Substance Use Treatment and Recovery

This inventory presents information about substance use treatment and recovery services available in Minnesota. The "Impact on outcomes" column indicates the extent to which rigorous research has been completed. Where available, this document shows which client outcomes are impacted. The inventory lists four categories of outcomes, but does not include all potential outcomes. The research includes outcomes verified by meta-analyses conducted by respected sources (Washington Institute of Public Policy (WSIPP), the National Registry of Evidence-Based Programs or Practices (NREPP), Cochrane Review, amongst other rigorous sources). More information on using the inventory can be found at our website: mn.gov/mmb/result-first.

Number of services	Rating	Definitions
20	Proven effective	A proven effective service or practice offers a high level of research on effectiveness, determined through multiple qualifying evaluations outside of Minnesota or one or more qualifying local evaluation. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
16	Promising	A promising service or practice has some research demonstrating effectiveness, such as a single qualifying evaluation that is not contradicted by other such studies, but does not meet the full criteria for the proven effective designation. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
15	Theory-based	A theory-based service or practice has no research on effectiveness or less rigorous research designs that do not meet the above standards. These services and practices typically have a well-constructed logic model or theory of change. This ranking is neutral. Services may move up to promising or proven effective after research reveals their impact on measured outcomes.
2	Mixed evidence	Mixed evidence has been studied by multiple qualifying studies but have contradictory findings. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
6	No effect	A service or practice with no effects has no impact on the measured outcome. It does not include the service's potential effect on other outcomes. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
4	Category of services	These services represent a category of services that a client may receive, dependent on need. Some of these services may be evidenced-based, but the services have not been studied holistically. As services can vary from client to client, we cannot assess their effectiveness.

Other definitions	
	Favorable impact on the outcome
	Neutral impact on the outcome
	Unfavorable impact on the outcome
*	Adequate research is not available
Population in research study	as available, is specified by race/ethnicity, as well as other specific populations (women, co-occurring disorders, HIV+, and offenders).
Other evidence or expert opinion	provides additional context from experts in the field.
Culturally-informed intervention	Research shows that evidence-based policies are contextual and may not be equally effective for all communities. Moreover, many communities have built their own programs, imbued with culturally-specific context. These programs often have practice-based evidence on effectiveness, but that evidence does not yet use the required research design. We have attempted to note these programs and their own evidence.

Service	Description	Targeted substance	Impact on outcomes	Illicit Drug Use	Opioid Use	Alcohol Use	Crime	Source of evidence	Population in research study, as available	Other evidence or expert opinion
12-step Facilitation Therapy	A brief, structured approach to facilitating early recovery from alcohol and other drug abuse. The intervention is based on the principles of 12-step fellowships, such as alcoholics or narcotics anonymous. A counselor assesses client's alcohol use, advocates abstinence, and provides support.	Alcohol, other drugs	Proven effective	Decrease	*	Decrease	*	NREPP	Black or African American, Hispanic or Latino, White	Reductions from illicit drug use came from WSIPP meta-analysis. More information is available at http://bit.ly/2v3kRHD.
Adolescent Community Reinforcement Approach (A-CRA)	An outpatient program for youth returning from residential substance abuse. Case workers make home visits and promote continued treatment and pro-social activities.	Alcohol, other drugs	Proven effective	Decrease	*	*	*	Crime Solutions	Black or African American, Hispanic or Latino, American Indian, White	
Assessments and screening	Evaluations to understand if individuals exhibit features of drug misuse or abuse. Where symptoms are evident, results allow practitioners to prescribe a course of treatment. These services are critical to guiding clients in a way that will fit their needs.	Alcohol, other drugs	Category of services	*	*	*	*			Assessments allow for evidence-based practices to apply to the right person, at the right time, in the right dosage. NIDA provides listing of evidence-based, age appropriate, ATOD specific screening tools. More information is available at http://bit.ly/1MR43oA.
Behavioral Couples Therapy	Treatment for couples and families struggling with substance use or abuse. Participants learn communication skills and cognitive behavioral therapy skills. Often includes the use of appropriate medications (e.g., naltrexone).	Alcohol, other drugs	Proven effective	*	*	Decrease	Decrease	Crime Solutions	Black or African American, Hispanic or Latino, White	Research has demonstrated improved relational functioning and decreases in domestic violence. More information is available at http://bit.ly/2qS6HsV.
Behavioral Self-Control Training (BSCT)	A treatment approach used to pursue abstinence or moderate drinking. Sessions consist of teaching self-monitoring, identifying high-risk situations, goal setting, and coping skills.	Alcohol, other drugs	Proven effective	*	*	Decrease	Decrease	WSIPP	Women, co-occurring	
Beyond Trauma + Helping Women Recover	Gender-responsive, cognitive behavioral program for female offenders with a history of trauma. These services, typically delivered together, include group counseling and connection to aftercare resources. The curriculum follows a strengths-based approach with a focus on developing healthy relationships, employing coping skills, and practicing mindfulness.	Alcohol, other drugs	Promising	Decrease	*	*	Decrease	NREPP	Women, co-occurring, Black or African American, Hispanic or Latino, White	The research cited pertains to when the service is delivered together. These services are sometimes delivered independently. Delivered separately, they are considered theory-based.
Breaking Free	Education & support for women involved in prostitution and the criminal justice system. Group discusstions cover creating healthy relationships, avoiding domestic violence, and where to go for recovery resources.	n/a	Theory-based	*	*	*	*			
Brief cognitive behavioral intervention	Brief cognitive behavioral intervention is a manualized, standalone treatment. The intervention focuses on motivational interviewing, coping skills, controlling thoughts, and relapse prevention. This service is based on principles of Motivational Enhancement Therapy (MET).	Other drugs	Proven effective	Decrease	*	*	*	WSIPP		
Brief marijuana dependence counseling (BMDC)	Targets a reduction in marijuana use. Treatment includes elements of Motivational Enhancement Therapy, cognitive behavioral therapy, and case management.	Marijuana	Proven effective	Decrease	*	Decrease	*	NREPP	Black or African American, Hispanic or Latino, White, co-occurring	

Service	Description	Targeted substance	Impact on outcomes	Illicit Drug Use	Opioid Use	Alcohol Use	Crime	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Brief Strategic Family Therapy	Therapy designed to prevent, curtail, or treat adolescent substance use, conduct, and risky behavior. Considers these symptoms to be rooted in maladaptive family interactions, and seeks to improve family relationships.	Alcohol, other drugs	Proven effective	Decrease	*	*	*	NREPP	Black or African American, Hispanic or Latino, White, co-occurring	
Care Coordination	Service to support individuals in treatment or recovery. Care coordinators connect clients to services, including substance use disorder aftercare, traditional health care, housing, employment programs, etc., to facilitate delivery of health care.	Alcohol, other drugs	Theory-based	*	*	*	*			Part of the 2017 substance use disorder system reform. Previous Results First analysis in Mental Health found care coordination for individuals with a mental illness as a promising practice.
Chemical Dependency Navigators	Navigators assist clients struggling in traditional treatment programs by coordinating housing, medical care, and employment. The navigator works to deal holistically with unmet client needs. The program began as a pilot and is now a permanent feature of 10 southeastern counties in Minnesota.	Alcohol, other drugs	Promising	*	*	Decrease	*	Literature Review	Minnesota specific population - White, Hispanic, Other	In Minnesota, the pilot showed positive impacts on use of detox, reducing psychological distress, and recovery environment. The results, however, varied by the county that provided or contracted for the service.
Cognitive-Behavioral Coping Skills Therapy	Treatment emphasizes identifying high-risk situations that could lead to relapse and developing coping skills for those situations. Clients engage in problem solving and role playing.	Alcohol, other drugs	Proven effective	Decrease	*	Decrease	*	WSIPP		
Community Reinforcement Approach with vouchers	Combines community reinforcement approach with contingency management. It consists of four main areas: minimizing contact with substance use and recognizing consequences of use, counseling to find alternative activities, employment counseling, and relationship counseling. The program rewards clients with vouchers based on results.	Alcohol, other drugs	Proven effective	Decrease	*	*	*	WSIPP		
Contingency management	Contingency management is a supplement to counseling treatment that systemically rewards participants for attending treatment and/or abstaining from substance use.	Alcohol, opioids, other drugs	Proven effective	Decrease	Decrease	Decrease	*	NREPP	Black or African American, Hispanic or Latino, White, HIV+	Opioid specific results from WSIPP. More information is available at http://bit.ly/2uN5plN.
Dialectical behavior therapy (DBT)	A cognitive-behavioral treatment approach for treating patients with complex co-occurring disorders. Emphasizes behavioral change, problem solving, and mindfulness.	Alcohol, other drugs	Proven effective	Decrease	*	*	*	NREPP	Black or African American, Hispanic or Latino, American Indian, Asian, White, co-occurring	
DUI Court	This integrated treatment program uses high levels of supervision, electronic monitoring, drug testing, ignition interlock devices, treatment services, and community supports to reduce substance use. Sometimes it is an alternative to incarceration.	Alcohol	Promising	*	*	*	Decrease	WSIPP	Alcohol offenders	Early research is promising for DUI courts, but the research base remains nascent. Additional studies could move this to proven effective.
Enhanced Illness Management & Recovery	Integrates the principles of Integrated Dual Disorder Treatment (IDDT) into the skills and curriculum of Illness Management Recovery (IMR). Designed for clients with co-occurring disorders.	Alcohol, other drugs	Promising	*	*	*	Decrease	WSIPP		University of Minnesota developed the program and is piloting it across the state. More information is available at http://bit.ly/2qRyxFU.

Service	Description	Targeted substance	Impact on outcomes	Illicit Drug Use	Opioid Use	Alcohol Use	Crime	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Family Behavior Therapy (FBT)	Based on the Community Reinforcement Approach, this behavioral treatment consists of several parts: behavioral contracting, skills to reduce interaction with individuals/situations related to drug use, impulse and urge control, communication skills, and vocational or education training.	Alcohol, other drugs	Proven effective	Decrease	*	Decrease	*	NREPP	Black or African American, Hispanic or Latino, White, co-occurring	
Harm Reduction techniques	A category of strategies aimed at reducing the negative consequences associated with drug use. This can include structured alcohol doses, needle exchanges, access to methadone maintenance, wet housing, and birth control.	n/a	Category of services	*	*	*	*			Non-experimental research has shown harm reduction techniques reducing teen pregnancies and sexually transmitted disease transmission. More information is available at http://bit.ly/2pDO9fd.
Health Realization (HR)	Treatment model that teaches mindfulness. The approach is built on clients understanding the nature of human psychological functioning, and how to apply this learning to their lives.	Alcohol, other drugs	Theory-based	*	*	*	*		Women	
Holistic Harm Reduction Program (HHRP+)	Manualized treatment for those with drug abuse or dependence who are HIV positive. Focuses on harm reduction, health promotion, and improving quality of life.	Other drugs	Promising	Decrease	*	*	*	WSIPP	HIV+ population	
Housing (See permanent supportive housing below for specific models)	Housing for homeless individuals with chronic substance abuse. Services generally provide housing or housing subsidies, access to physical and mental healthcare, life skills, substance use disorder treatment, peer support, and job assistance. Housing varies between sober and wet. Wet housing is generally associated with a harm reduction approach.	Alcohol, other drugs	Category of services	*	*	*	*			Housing is most effective at aiding recovery when it is client need focused, long-term, and combined with other recovery and supporting services, such as job search, transportation, primary health care, and mental health services.
Men in Recovery	Trauma-informed, gender-responsive treatment for men. Informed by Dr. Stephen Covington's "Helping Women Recover". Curriculum is built on theories of addiction, psychological development, and trauma. Program is being piloted in treatment and correctional settings	Alcohol, other drugs	Theory-based	*	*	*	*			
Motivational Enhancement Therapy (MET)	Program uses motivational interviewing and normative assessment feedback to individuals in a nonconfrontational manner. Aim is to help individuals increase their motivation and commit to change.	Alcohol, other drugs	Proven effective	Decrease	*	Decrease	*	NREPP	Black or African American, American Indian, Hispanic or Latino, White	
Motivational Enhancement Therapy and Cognitive Behavioral Therapy (MET/CBT) for marijuana use	A brief intervention that combines principles of cognitive behavioral therapy and motivational enhancement therapy. It's typically applied to adolescent marijuana users, but can be applied to other substances and those with co-occurring disorders.	Marijuana	Proven effective	Decrease	*	*	Decrease	NREPP	Black or African American, Hispanic or Latino, White, co-occurring, adolescent	
Motivational interviewing to enhance treatment engagement	Counseling style that aids clients in exploring and resolving ambivalence by increasing intrinsic motivation to change. It can be used by itself, or in combination of other treatments.	Alcohol, opioids, other drugs	Proven effective	Decrease	Decrease	Decrease	Decrease	NREPP	Black or African American, Asian, Hispanic or Latino, White	

Service	Description	Targeted substance	Impact on outcomes	Illicit Drug Use	Opioid Use	Alcohol Use	Crime	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Multidimensional Family Therapy (MDFT)	Family-based program for substance-abusing adolescents. MDFT helps youth develop effective coping and problem-solving skills for better decision-making and helps the family improve interpersonal functioning.	Alcohol, other drugs	Proven effective	Decrease	*	Decrease	Decrease	NREPP	Black or African American, Asian, Hispanic or Latino, White, co-occurring, adolescent	
Parent-Child Assistance Program (PCAP)	Maternal recovery program that assists mothers in obtaining alcohol and drug treatment and staying in recovery. PCAP provides home visitation and connection to services in health, housing, parenting, and vocational services.	Alcohol, other drugs	Theory-based	Decrease	*	Decrease	*	CEBC		
Pathways to Success	Supports Hmong adults who have been incarcerated and/or been through substance use disorder treatment. The group provides an opportunity for participants to share experiences and build a supportive network.	Alcohol, tobacco, other drugs	Theory-based (culturally specific service)	*	*	*	*			Culturally informed service. Incorporates best practices for Hmong adults with substance use and contact with the criminal justice system. See the Culturally-specific practices section in the Adult and Youth Substance Use report. More information is available at mn.gov/mmb/results-first/substance-use-disorder.
Peer support for substance abuse	Trained peer specialists with a lived experience are matched with individuals seeking recovery. Specialists offer ongoing support, help with recovery planning, and identifying services for the client. Services can include both telephone and in-person, though effectiveness findings are based on in-person support.	Alcohol, other drugs	Promising	Decrease	*	Decrease	*	Literature review		Peer support can be used in different forms and dosages. Peer support is effective when delivered by the right person, at the right time, in the right dosage. SAMHSA has assembled best practices and needed competencies for peers. More information is available at http://bit.ly/2qcpbFr.
Permanent supported housing: Oxford House Model	Provides independent housing and rehabilitation support for adults recovering from alcohol and/or drug use and who want to remain abstinent from use.	Alcohol, other drugs	Promising	Decrease	*	Decrease	Decrease	NREPP	Black or African American, Hispanic or Latino, White, co-occurring	
Permanent supported housing: Pathways Housing First	Supports recovery for individuals who are homeless with a co-occurring disorder. Based on the belief that housing is a basic human right while emphasizing consumer choice, sobriety, and harm reduction.	Alcohol, other drugs	Proven effective	*	*	Neutral	Decrease	NREPP	Black or African American, Hispanic or Latino, White, co-occurring, homeless	
Pharmacotherapies - Acamprosate	Reduces cravings and consumption for individuals that are alcohol dependent by modulating and normalizing brain activity. This drug is typically delivered with counseling and in combination with naltrexone.	Alcohol	Proven effective	*	*	Decrease	*	Cochrane Review		
Pharmacotherapies - Buprenorphine for opioids	A medication-assisted treatment for opioid dependence. Treatment alleviates withdrawal symptoms, suppresses opiate effects, and decreases risk of overdose. Medication is dispensed daily from clinics and is typically combined with counseling.	Opioids	Proven effective	*	Decrease	*	*	Crime Solutions	Black or African American, American Indian, Asian, Hispanic or Latino, White, alcohol and other drug offenders	

Service	Description	Targeted substance	Impact on outcomes	Illicit Drug Use	Opioid Use	Alcohol Use	Crime	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Pharmacotherapies - Disulfiram	Reduces alcohol use through aversion. If alcohol is consumed, the individual will have severe physical reactions, including vomiting, facial flushing, headaches, and weakness.	Alcohol, Cocaine	Mixed evidence	Neutral	*	Neutral	*	Cochrane Review		Research literature finds mixed results for the efficacy of disulfiram. Hughes and Cook (1997) review of 24 studies finds reduced alcohol consumption, but no evidence of ongoing abstinence. Cochrane review also shows small, but not statistically significant impacts on cocaine use. More information is available at http://bit.ly/2tlffrh.
Pharmacotherapies - Levo-alpha acetylmethadol (LAAM)	Reduces opioid use by blocking the effects and also helps with withdrawal symptoms. LAAM has low abuse potential, but has low uptake because of regulatory issues, clinical acceptance, and potential for negative health outcomes.	Opioids	Promising	*	Decrease	*	*	Cochrane Review		Research indicates that LAAM is more effective than methadone at reducing heroin dependence, but there was not enough evidence from trials to draw conclusions about patient safety. More information is available at http://bit.ly/2rUojlg.
Pharmacotherapies - Methadone maintenance for opioids	A medication-assisted treatment for opioid dependence. Treatment blocks the effects of opiates, reduces withdrawal symptoms, and relieves cravings. Medication is dispensed daily from clinics and is typically combined with counseling.	Opioids	Proven effective	*	Decrease	*	Decrease	WSIPP	Black or African American, American Indian, Asian, Hispanic or Latino, White, co-occurring, alcohol and other drug offenders	Cochrane review notes that dosages ranging from 60-100 mg/day over long periods (at least one year) are more effective in retaining patients and reducing use. More information is available at http://bit.ly/2slOdMp.
Pharmacotherapies - Naltrexone	An alcohol or opiate antagonist that helps treat alcohol or opiate dependence. Naltrexone acts to prevent cravings and relapse. Patients do not develop tolerance or experience withdrawal symptoms when they stop taking the drug.	Alcohol, opioids	Promising	*	Decrease	Decrease	*	WSIPP		Naltrexone is also known as vivitrol. Cochrane review found no statistically significant impact of naltrexone on reincarceration rates or criminal activity. More information is available at http://bit.ly/2uI2NFm. WSIPP echoes these findings. More information is available at http://bit.ly/2to0H9X.
Pregnant women and mother's treatment services	Screening, substance use disorder treatment, mental and physical health services, and drug testing for pregnant women or women with children. Often includes education on Fetal Alcohol Spectrum Disorder, trauma informed services, group counseling/support, job training, transportation, recovery support, and housing. In some court mandated circumstances, failed drug tests lead to referrals to substance use disorder treatment and are reported to child protective services.	Alcohol, other drugs	Category of services	*	*	*	*			
Reality-based therapy	The treatment helps patients better understand the elements in their life they can and cannot control. It seeks to mirror environments that clients may be exposed to practice techniques for maintaining their sobriety. Through practice, patterns are identified and clients can create coping mechanisms.	Alcohol, other drugs	Theory-based	*	*	*	*			

Service	Description	Targeted substance	Impact on outcomes	Illicit Drug Use	Opioid Use	Alcohol Use	Crime	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Reinforcement-Based Treatment (RBT)	An intensive behavioral treatment model reinforcing non-substance-using behaviors and avoiding triggers by using contingency management, motivational interviewing, community reinforcement and recovery housing when feasible. Treatment includes social-skills training, vocational counseling, recreational activities, group-skills building, and individualized treatment planning.	Alcohol, opioids, other drugs	Proven effective	Decrease	Decrease	Neutral	Decrease	NREPP	Black or African American, White, co-occurring	
Relapse Prevention Therapy (RPT)	A cognitive-behavioral approach helps clients anticipate problems, identify strategies, and promote recovery. Can be used as a stand-alone treatment program or as aftercare.	Alcohol, tobacco, other drugs	Proven effective	Decrease	*	Decrease	*	NREPP	White, co-occurring disorders	
Seeking Safety: A psychotherapy for trauma and substance abuse	Present-focused coping skills model for individuals with a history of trauma and substance use. The program focuses on psychoeducation and coping skills.	Alcohol, other drugs	Proven effective	Decrease	*	Decrease	*	NREPP	Black or African American, Hispanic or Latino, Asian, American Indian, White, co-occurring	
Service Outreach and Recovery (SOAR)	Multicomponent program for impoverished and residentially unstable individuals. Program aims to reduce drug and alcohol use and increase participation in substance use disorder treatment programs and 12-step self-help groups.	Alcohol, other drugs	Promising	Decrease	*	*	*	NREPP	Black or African American, Hispanic or Latino, White	
Sober activities and education	Events, often held monthly, to facilitate monthly skills-based and education training for people in recovery. Provides sober events and support opportunities. These can be standalone or part of a more intensive aftercare and support program.	All	Theory-based	*	*	*	*			
Spiritual practices and therapeutic recreation	An aggregate category for mindfulness, meditation, prayer, and other therapeutic activities. These services occur across the care continuum. Many treatments incorporate these techniques as part of evidence-based offerings.	All	Category of services	*	*	*	*			
Supportive-Expressive Psychotherapy for substance use disorder (Psychodynamic therapy)	Psychotherapy for individuals with heroin and cocaine addiction. Themes relate to drug dependence, the role of drugs in relation to problem feelings and behaviors, and alternative, drug-free means of resolving problems. Service is often delivered with medication assisted therapy.	Other drugs	Proven effective	Decrease	*	*	*	NREPP	Black or African American, White, co-occurring	
Talking/Healing Circle	A culturally specific practice that integrates American Indian values. Participants talk through problems with the goal of connecting to peers, learn about their culture, and build self reliance. Program used by both youth and adults.	All	Promising	Decrease	*	Decrease	*	Crime Solutions	American Indian adolescents	Culturally informed service. Incorporates best practices for American Indian populations with substance use and contact with the criminal justice system. The population studied was Cherokee, which means this service should be studied to ensure its efficacy for Minnesota specific populations. See the Culturally-specific practices section in the Adult and Youth Substance Use report. More information is available at mn.gov/mmb/results-first/substance-use-disorder.

Service	Description	Targeted substance	Impact on outcomes	Illicit Drug Use	Opioid Use	Alcohol Use	Crime	Source of evidence	Population in research study, as available	Other evidence or expert opinion
The Matrix Model (Intensive Outpatient Program)	Individual, group, and family sessions that focus on skills training, relapse prevention, drug education, social support, and self-help groups. It also includes education for family members and monitoring for drug use.	Alcohol, other drugs	Promising	Decrease	*	*	*	NREPP	Asian or Pacific Islander, Hispanic or Latino, White	Anoka county adopted the Enhanced Treatment Program which employs the matrix model to women with minor children in Child Protection Services. A Wilder non-experimental design evaluation found participants were more likely to have stable housing, paid employment, less drug use, and better treatment completion rates. More information is available at http://bit.ly/2rPuBm3.
The Seven Challenges	Curriculum designed to treat adolescents with substance use and behavior. Counselors encourage clients to talk about how their behaviors impact their lives and others. In addition to group discussion, clients journal on their goals and what they need to do to overcome barriers.	Alcohol, other drugs	Promising	Decrease	*	Decrease	*	NREPP	Hispanic or Latino, White, Co-occurring	
Trauma Recovery and Empowerment Model (TREM)	A group-based intervention to aid in recovery for women with a history of trauma. The service uses principles from cognitive restructuring, psychoeducation, and skills-based training.	Alcohol, other drugs	Promising	Decrease	*	Decrease	*	NREPP	Black or African American, Hispanic or Latino, White	
Treatment courts	Voluntary treatment program for individuals with a felony drug possession. Wellness court includes substance use disorder treatment, drug testing, sanctions, community service, connection to physical and mental health services, housing, job assistance, supervision, and other services. Courts attempt to strike a balance between promoting wellness for clients and protecting community safety.	Alcohol, other drugs	Proven effective	Decrease	*	Decrease	Decrease	WSIPP	Black or African American, Hispanic or Latino, White, alcohol and other drug offenders	Substance Abuse and Mental Health Services Administration compiled ten cost-effective practices drug courts can use to reduce recidivism. More information is available at http://bit.ly/2q8ezrr. Substance use outcomes come from a meta-analysis completed by the National Institute of Justice. More information is available at http://bit.ly/1M7iA2r.
Withdrawal management	Withdrawal management represents a suite of short-term medical interventions to avoid illness and death caused by substance use. The settings offer a range of treatment dependent on the need of clients. Once a client is stabilized, they are referred to long-term treatment for addiction.	Alcohol, other drugs	Category of services	*	*	*	*			Often referred to as detoxification. This service is part of changes from the 2017 substance use disorder system reform. Withdrawal management limits withdrawal symptoms and stabilizes clients prior to further treatment. Unfortunately, many of those who receive withdrawal management do not become engaged in treatment. This link could be strengthened.
Women's Recovery & Reentry Initiative	A re-entry program for female offenders exiting Shakopee women's prison. Services include case management, counseling, chemical/physical/mental health treatment, recovery maintenance, employment services, housing, care coordination, and medication management.	Alcohol, other drugs	Category of services	*	*	*	*			

Service Inventory: Substance Use Prevention

This inventory presents information about substance use prevention services available in Minnesota. The "Impact on outcomes" column indicates the extent to which rigorous research has been completed. Where available, this document shows which client outcomes are impacted. The inventory lists four categories of outcomes, but does not include all potential outcomes. The research includes outcomes verified by meta-analyses conducted by respected sources (Washington Institute of Public Policy (WSIPP), the National Registry of Evidence-Based Programs or Practices (NREPP), Cochrane Review, amongst other rigorous sources). More information on using the inventory can be found at our website: mn.gov/mmb/result-first.

Number of services	Rating	Definitions
20	Proven effective	A proven effective service or practice offers a high level of research on effectiveness, determined through multiple qualifying evaluations outside of Minnesota or one or more qualifying local evaluation. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
16	Promising	A promising service or practice has some research demonstrating effectiveness, such as a single qualifying evaluation that is not contradicted by other such studies, but does not meet the full criteria for the proven effective designation. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
15	Theory-based	A theory-based service or practice has no research on effectiveness or less rigorous research designs that do not meet the above standards. These services and practices typically have a well-constructed logic model or theory of change. This ranking is neutral. Services may move up to promising or proven effective after research reveals their impact on measured outcomes.
2	Mixed evidence	Mixed evidence has been studied by multiple qualifying studies but have contradictory findings. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
6	No effect	A service or practice with no effects has no impact on the measured outcome. It does not include the service's potential effect on other outcomes. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
4	Category of services	These services represent a category of services that a client may receive, dependent on need. Some of these services may be evidenced-based, but the services have not been studied holistically. As services can vary from client to client, we cannot assess their effectiveness.

Other definitions	
	Favorable impact on the outcome
	Neutral impact on the outcome
	Unfavorable impact on the outcome
*	Adequate research is not available
Population in research study	as available, is specified by race/ethnicity, as well as other specific populations (women, co-occurring disorders, HIV+, and offenders).
Other evidence or expert opinion	provides additional context from experts in the field.
Culturally-informed intervention	Research shows that evidence-based policies are contextual and may not be equally effective for all communities. Moreover, many communities have built their own programs, imbued with culturally-specific context. These programs often have practice-based evidence on effectiveness, but that evidence does not yet use the required research design. We have attempted to note these programs and their own evidence.

Service	Description	Targeted substance	Impact on outcomes	Underage Alcohol use	Illicit Drug Use	Tobacco Use/Second hand smoke	Substance misuse or harm	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Alcohol compliance checks	Checking and providing feedback to outlets on compliance with minimum age laws for alcohol. Uses underage buyers to attempt to buy alcohol from establishments. Typically includes media coverage and retailer education. The checks can use penalties for violating the law and rewards (congratulatory notes) for compliance.	Alcohol	Promising	Decrease	*	*	Decrease	WSIPP		
Alcohol Tax	Under this strategy, a state or local government increases the tax on the sale of alcohol, thereby raising the cost of alcohol consumption and the affordability of excessive drinking.	Alcohol	Proven effective	Decrease	*	*	Decrease	CDC meta-review		
AlcoholEdu for College	A prevention course for college students. The course provides background information on alcohol and its impact on the brain and body. Students create a personal plan with academic, social, and health related goals, as well as a harm-reduction plan. A month after the first session, students are sent the second portion of the class, which reviews progress on the students plan. If a student violates university policies, they may receive a follow-up course. This is a multi-component education-focused program.	Alcohol	Proven effective	Decrease	*	*	Decrease	NREPP	Asian or Pacific Islander, Black or African American, Hispanic or Latino, White	The Campbell Collaborative notes there is evidence these interventions reduce evidence for several months. They also note multi-dose assessment and feedback are more effective than single-dose.
Brief Alcohol Screening and Intervention for College Students (BASICS): A Harm Reduction Approach	College students recruited or referred to BASICS are screened for hazardous drinking. Those reporting high rates of consumption receive brief motivational sessions that discuss adverse impacts and compare consumption to their peers.	Alcohol	Proven effective	Decrease	*	*	Decrease	NREPP	American Indian or Alaska Native, Asian, Hispanic or Latino, White	
Brief Cannabis Screening and Intervention for College Students (CASICS)	College students recruited or referred to CASICS are screened for marijuana use. Those reporting use receive brief motivational sessions that discuss adverse health impacts and compare consumption to their peers.	Marijuana	Theory-based	*	*	*	*			Applies evidence-based practices learned from BASICs.
Brief computerized interventions on risky alcohol use	Web-based tools that provide students with personalized feedback about their drinking patterns and how their alcohol use might affect their health and personal goals. The program has a special focus on two high-risk groups: first-year students and athletes. Includes modules for alcohol, marijuana, tobacco, and sexual assault. Examples include eCHECKUP TO GO, Marijuana-wise, Under the Influence, and AlcoholEDU.	Alcohol, other drugs	Promising	Decrease	*	*	Decrease	Campbell Collaboration		The Campbell Collaborative notes there is evidence these interventions reduce use for several months. They also note multi-dose assessment and feedback are more effective than single-dose.
Building Assets, Reducing Risks (BARR)	A social and emotional learning model that seeks to decrease educational disparities. The model combines teachers' analysis of data with student asset building and intensive teacher-to-teacher as well as teacher-to-student collaboration to prevent course failure as well as accelerate middle and high performers.	Alcohol, tobacco, other drugs	Theory-based	*	*	*	*			While there is no research on the impact of BARR directly on substance use, it has demonstrated positive outcomes on increasing student connectedness and academic performance. Other research notes improvements in these areas can reduce early substance use and heavy alcohol use (Catalano et al., 2002).

Service	Description	Targeted substance	Impact on outcomes	Underage Alcohol use	Illicit Drug Use	Tobacco Use/Second hand smoke	Substance misuse or harm	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Bystander Intervention	A program to increase a student's capacity to intervene when another student may be in danger of harming him/herself or another person due to alcohol use. Bystander intervention programs also are used to reduce consequences of drug use, sexual assault, and other problems. Examples include Step-UP and Green Dot.	Alcohol, other drugs	Theory-based	*	*	*	*			Non-experimental design studies have shown positive changes in self-reported bystander behaviors.
CASASTART	Targets youth age 11 to 13 in high-risk neighborhoods. The program attempts to decrease youth exposure to crime and drug activity by providing intensive case management, family services such as counseling and parent training, community-enhanced policing, after school activities, tutoring, mentoring and incentives including refreshments, vouchers, and special events.	Alcohol, other drugs	No effect	*	Neutral	*	*	Crime Solutions	Black or African American, Hispanic or Latino, Asian, White, at risk children	
Celebrating Families! (CF!)	A parenting skills training program designed for families in which one or both parents are in early stages of recovery from substance addiction and in which there is a high risk for domestic violence and child abuse. The CF! program uses a cognitive behavioral theory (CBT) model.	Alcohol, other drugs	Promising	*	Decrease	Decrease	Decrease	NREPP	American Indian or Alaska Native, Black or African American, Hispanic or Latino	
Changing Course	Curriculum for women who drank alcohol or used drugs during pregnancy. Seeks to educate women on fetal alcohol spectrum disorder (FASD) and learn strategies for parenting a child affected by FASD.	Alcohol	Theory-based	*	*	*	*			
Class Action	School-based alcohol-use prevention curriculum that seeks to delay the onset of alcohol use or reduce alcohol use. Curriculum consists of group sessions where student prepare mock civil cases involving persons harmed by underage drinking. Curriculum is often preceded by Project Northland.	Alcohol	Proven effective	Decrease	*	*	Decrease	NREPP	American Indian or Alaska Native, White	
Culturally specific prevention practices	Culturally-specific smoking prevention and cessation programs. Federal and state funding is used to deploy culturally specific programs for populations including African Americans, American Indians, Asian Americans, East Africans, Hispanic/Latinos, LGBTQ, and West African populations. These programs were started in recognition that best practices suggest incorporating cultural context improves the impact of the services and that minority groups are disproportionally impacted by tobacco and substance use.	All	Category of services	*	*	*	*			See the Culturally-specific practices section in the Adult and Youth Substance Use report. More information is available at mn.gov/mmb/results-first/substance-use-disorder.
Dram shop liability laws	Holds owners and servers of a retail alcohol establishment liable for alcohol related harm created by customers that were underage or overserved. This includes injury and damage from an alcohol-related accident.	Alcohol	Promising	*	*	*	Decrease	CDC meta-review		

Service	Description	Targeted substance	Impact on outcomes	Underage Alcohol use	Illicit Drug Use	Tobacco Use/Second hand smoke	Substance misuse or harm	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Driving with Care	Offenders with DUIs receive cognitive behavioral therapy.	Alcohol	Promising	*	*	*	Decrease	Crime Solutions	Offenders	
Drug Abuse Resistance Education (D.A.R.E) **Legacy Curriculum**	Drug Abuse Resistance Education (D.A.R.E.) is a school-based substance use, gang membership, and violent behavior prevention program. The class is taught by local police officers and aims to teach peer resistance skills.	Alcohol, tobacco, other drugs	No effect	Neutral	Neutral	*	*	Crime Solutions	Black or African American, Asian/Pacific Islander, Hispanic or Latino, White	In 2009, Minnesota's DARE program switched to the Keepin it Real curriculum. Unlike the original, the new curriculum generates positive outcomes and is rated as promising.
Drug Abuse Resistance Education (D.A.R.E) **with Keepin' it Real Curriculum**	Drug Abuse Resistance Education (D.A.R.E.) is a school-based substance use, gang membership, and violent behavior prevention program. The class is taught by local police officers and aims to teach peer resistance skills.	Alcohol, tobacco, other drugs	Promising	Decrease	Decrease	Decrease	*	NREPP	Black or African American, Hispanic or Latino, White	In 2009, Minnesota's DARE program switched to the Keepin it Real curriculum. Unlike the original, the new curriculum generates positive outcomes and is rated as promising.
Familias Unidas Preventive Intervention	The Familias Unidas Preventive Intervention is a family-based program for Hispanic families with children ages 12-17. It is designed to prevent conduct disorders; use of illicit drugs, alcohol, and cigarettes; and risky sexual behaviors by improving family functioning.	Alcohol, tobacco, other drugs	Promising (culturally-informed intervention)	Decrease	Decrease	*	Decrease	Crime Solutions	Hispanic or Latino	
General prevention education or Knowledge-focused curricula **alone**	General category for awareness and education. Includes specific programs targeted at alcohol, opioids, synthetic drugs, marijuana, amphetamines, etc. This will commonly include fear arousal, one-time assemblies, drug fact sheets, or moralistic appeals. Research shows each of these methods is ineffective and can actually increase use.	Alcohol, tobacco, other drugs	No effect	Neutral	*	Neutral	*	Cochrane Review	Black or African American, Hispanic or Latino, White, Asian/Pacific Islander, American Indian	From Regional Prevention Coordinators, "Information is effective when paired with skills development, including cultivating self-control, emotional awareness, problem solving, healthy peer relationship, and norms. Prevention should enhance protective factors and reduce risk."
Gifts from the sacred circle	Culturally-specific program to assist families impacted by Fetal Alcohol Spectrum Disorder (FASD). Identifies cultural strengths and resiliency factors that help caregivers to individuals impacted by FASD.	Alcohol	Theory-based (culturally-informed intervention)	*	*	*	*			Culturally informed service. See the Culturally-specific practices section in the Adult and Youth Substance Use report. More information is available at mn.gov/mmb/results-first/substance-use-disorder.
Ginew/Golden Eagle Program	Culturally-specific curriculum designed to help American Indian youth strengthen and develop life skills. Includes mentoring, homework sessions, and recreation. Alcohol and substance abuse prevention offerings include awareness, chemical free activities, and talking circles. Youth also engage in participatory research and advocacy on tobacco related issues.	Alcohol, other drugs, tobacco (non-ceremonial use)	Theory-based (culturally-informed intervention)	*	*	*	*			Culturally informed service. See the Culturally-specific practices section in the Adult and Youth Substance Use report. More information is available at mn.gov/mmb/results-first/substance-use-disorder.

Service	Description	Targeted substance	Impact on outcomes	Underage Alcohol use	Illicit Drug Use	Tobacco Use/Second hand smoke	Substance misuse or harm	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Group behavior therapy programming for smoking cessation	Group-based smoking cessation programs. The evidence shows impacts for services that offer personal quit plans, in-person sessions lead by a trained practitioners, motivational interviewing techniques, nicotine replacement drugs, and "quit kits." Examples include Freshstart, Freedom from smoking, and iQuits.	Tobacco	Proven effective	*	*	Decrease	*	Cochrane Review		
Guía Project	Program that focuses on Latino youth who use or at risk of chemical consumption. Youth participate on a voluntary basis. Staff use motivational interviewing techniques to help youth promote responsible behavior and promote healthy relationships.	Alcohol, other drugs	Theory-based (culturally-informed intervention)	*	*	*	*			Culturally informed service. See the Culturally-specific practices section in the Adult and Youth Substance Use report. More information is available at mn.gov/mmb/results-first/substance-use-disorder.
Ignition Interlock Devices	First-time DUI offenders install a device in their vehicle that connects the ignition system to a breath analyzer.	Alcohol	Proven effective	*	*	*	Decrease	WSIPP		
Know the Dangers	A synthetic drugs awareness and education Initiative. The campaign seeks to identify and deter the use of synthetic drugs.	Synthetic drugs	Theory-based	*	*	*	*			
LifeSkills Training (LST)	Program aims to prevent alcohol, tobacco, and marijuana use and violence by addressing major social and psychological factors behind substance use and other risky behaviors. LST is based on both the social influence and competence enhancement models of prevention.	All	Proven effective	Decrease	Decrease	Decrease	Decrease	NREPP	American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, White	
Mandatory Random Drug Testing on students	This intervention conducts random drug testing on students. Generally, it is conducted only for students involved in extra-curricular activities when there is a reasonable suspicion of use. In some cases, a student that tests positive would receive counseling or treatment. This analysis considers testing alone.	Alcohol, other drugs	No effect	Neutral	Neutral	Neutral	*	Crime Solutions	Black or African American, American Indian or Alaska Native, Asian/Pacific Islander, Hispanic or Latino, White	
Mass media anti-smoking campaigns	Extended duration media campaign that use brief, recurring messages to inform and motivate individuals to be or remain tobacco free. Campaign can target youth or adults.	Tobacco	Mixed evidence	*	*	*	*	Cochrane Review		The CDC and Cochrane meta-analysis find insufficient evidence to assess the effectiveness. WSIPP finds an impact for campaigns targeting youth. More information is available at http://bit.ly/2u4Szyt.
Mass media campaigns to prevent illicit drug use amongst youth	Extended duration media campaign to inform youth about the dangers of illicit drugs and treatment options and strengthen erroneous normative beliefs.	Other drugs	No effect	*	Neutral	*	*	Crime Solutions	Asian/Pacific Islander, Black or African American, Hispanic or Latino, White	The Cochrane Review concluded, "Overall the available evidence does not allow conclusions about the effect of media campaigns on illicit drug use among young people. Further studies are needed." More information is available at http://bit.ly/2stBnBF.

Service	Description	Targeted substance	Impact on outcomes	Underage Alcohol use	Illicit Drug Use	Tobacco Use/Second hand smoke	Substance misuse or harm	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Minnesota Prescription Monitoring Program (PMP)	Program to detect prescription drug abuse or misuse. The program compiles a database of patients that receive narcotics, and allows physicians to search the database prior offering prescriptions. Program participation is voluntary.	Opioids	Promising	*	Decrease	*	Decrease	Pew-Charitable Trust		PMP is promising in terms of ensuring the appropriate use of prescription-controlled substances, reducing drug abuse and diversion, and improving health outcomes (Pew Charitable Trusts, 2012).
Model Smoking Prevention Program (MSPP)	A school-based tobacco prevention program for adolescents. MSPP addresses tobacco use by influencing the social and psychological factors that encourage the onset of smoking.	Tobacco	Promising	*	*	Decrease	*	Crime Solutions	Black or African American, American Indian or Alaska Native, Asian/Pacific Islander, Hispanic or Latino, White	
Motivational Interviewing (MI)	Goal-directed counseling to encourage behavior change. MI is applied to range of problem behaviors related to alcohol and substance abuse as well as health promotion, medical treatment adherence, and mental health issues. Typically includes exploring client motivation, identifying gap between present and desired behavior, encouraging change, and developing an action plan.	Alcohol, tobacco, other drugs	Proven effective	Decrease	Decrease	*	Decrease	NREPP	Asian, Black or African American, Hispanic or Latino, White	
Multicomponent prevention programs	Prevention efforts that are delivered across multiple settings (school, community, home) and typically include a parenting intervention.	Alcohol, tobacco	Promising	Decrease	*	Decrease	*	Cochrane Review		For tobacco intervention, the evidence source is WSIPP.
Ninijanisag Prevention Program	Works with youth to decrease the harms of non-traditional tobacco use by engaging them in cultural teachings centered in the traditional use of tobacco, health education, leadership and advocacy development. Engaged groups in powwows, mentors, sweat lodges, drum circles, and harvesting activities.	Tobacco (non-ceremonial)	Theory-based (culturally-informed intervention)	*	*	*	*			Culturally informed service. Incorporates best practices for American Indian smoking prevention and cessation. See the Culturally-specific practices section in the Adult and Youth Substance Use report. More information is available at mn.gov/mmb/results-first/substance-use-disorder.
Ordinance: Restricting density of retail alcohol sales	Using regulation to limit the density of retail alcohol outlets. This includes both bars/restaurants and liquor stores.	Alcohol	Promising	*	*	*	Decrease	CDC meta-review		
Outdoor experiential education	This program involves outdoor pursuits that focus on personal growth, healthy relationships, and alternatives to substance use. Examples include: camping, challenge courses, canoeing, etc.	Alcohol, tobacco, other drugs	Theory-based	*	*	*	*			
Pharmacotherapy for smoking cessation: Bupropion	Medications that reduce the symptoms of nicotine withdrawal. Typically, these services are delivered with behavioral therapy.	Tobacco	Proven effective	*	*	Decrease	*	Cochrane Review		

Service	Description	Targeted substance	Impact on outcomes	Underage Alcohol use	Illicit Drug Use	Tobacco Use/Second hand smoke	Substance misuse or harm	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Pharmacotherapy for smoking cessation: Nicotine Replacement Therapy (NRT)	Medications that reduce the symptoms of nicotine withdrawal. Typically, these services are delivered with behavioral therapy. NRT is administered through patches, gum, tablets, sprays, and lozenges. Quitplan provides NRT and the treatment is Medicaid eligible.	Tobacco	Proven effective	*	*	Decrease	*	Cochrane Review		
Pharmacotherapy for smoking cessation: Varenicline	Medications that reduce the symptoms of nicotine withdrawal. Typically, these services are delivered with behavioral therapy. The treatment is Medicaid eligible.	Tobacco	Proven effective	*	*	Decrease	*	Cochrane Review		
Place of last drink	Police-led initiative to identify the place of last drink for alcohol-related incidents. Helps law-enforcement develop patterns and address problematic establishments.	Alcohol	Theory-based	*	*	*	*			Non-experimental design studies show a relationship between increased enforcement of establishments identified by DUI arrestees can lead to decreased DUIs from that site. More information is available at http://bit.ly/2t3erXI.
Point of-sale-restrictions	Attempts to reduce the community's exposure to licit drugs through local ordinance changes. Ordinances include reducing density of retail outlets, municipal alcohol sales, liability laws, restricting menthol or other flavored products, changing legal purchase ages, and regulating signage.	Alcohol, Tobacco (non-ceremonial)	Category of services	*	*	*	*			Evidence supports the use of many of these regulations to reduce substance use and harm, including reducing store density, requiring liability laws, regulating store marketing, and increasing licit drug prices.
Positive community norms framework (PCN)	A strategy used to promote community norms to change behaviors and attitudes with the goal of reducing youth substance abuse. Based on social norm research which holds that people tend to behave in a way that is accepted by peers. PCN includes work with students, teachers, parents, community members, a media-campaign and surveys.	Alcohol, other drugs	Category of services	*	*	*	*			Best practices as recommended by the CDC. DHS report notes that the data correlates with reducing youth alcohol use. More information is available at http://bit.ly/2sjv2YX.
Project Northland	School-based alcohol-use prevention curriculum that seeks to delay the onset or reduce alcohol use. The curriculum occurs in 6-8th grade with different parent, peer, and community components in each year. Curriculum is often followed by Class Action.	Alcohol	Proven effective	Decrease	*	*	*	NREPP	American Indian or Alaska Native, White	
Project SUCCESS	Project SUCCESS is a school-based prevention program that focuses on high-risk adolescents. The program helps youth identify factors that influence their development and understand what healthy support systems are.	Alcohol, tobacco, other drugs	Proven effective	Decrease	Decrease	Decrease	*	NREPP	American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, White	
Project Towards No Tobacco Use (Project TNT)	A school-based curriculum that aims to prevent and reduce tobacco use, primarily among 6th-8th grade students. Project TNT believes youth will be better able to resist tobacco if they are aware of misleading information that facilitates tobacco use, have skills that counteract social pressures, and understand the physical consequences of tobacco use.	Tobacco	Proven effective	*	*	Decrease	*	NREPP	Black or African American, Hispanic or Latino, White	

Service	Description	Targeted substance	Impact on outcomes	Underage Alcohol use	Illicit Drug Use	Tobacco Use/Second hand smoke	Substance misuse or harm	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Project Venture	A classroom-based and outdoor experiential prevention program for American Indian youth that concentrates on cultural values to promote prosocial development and avoidance of alcohol, tobacco, and other drugs.	Alcohol, tobacco (non-ceremonial), other drugs	Promising	Decrease	Decrease	*	*	Crime Solutions	American Indian or Alaska Native, Asian/Pacific Islander, Hispanic or Latino, White	
Protecting You/Protecting Me	Aims to reduce alcohol use and alcohol related injuries. Teaches children about the physiological impacts of alcohol and life skills. Children engage in role-playing, group discussion, and storytelling. It also includes take home materials for families to complete together.	Alcohol	Proven effective	Decrease	*	*	Decrease	NREPP	American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, White	
Red Cliff Wellness School Curriculum	A culturally specific curriculum that seeks to strengthen protective factors in youth to prevent the use of alcohol, tobacco, and other drugs. Includes a language camp, hunting camp, and sobriety run and camp.	Alcohol, tobacco (non-ceremonial), other drugs	Promising (culturally-informed intervention)	Decrease	Decrease	*	*	NREPP	American Indian or Alaska Native	
Responsible beverage server training (RBST)	Training for beverage servers that discusses the consequences of selling alcohol to an underage person, how detect a fake identification, and the need to check IDs of any person and prevent over service.	Alcohol	Theory-based	*	*	*	*			The CDC notes there is insufficient evidence to ascertain the impact of RBST. More information is available at http://bit.ly/2uakA7u.
Screening, Brief Intervention, and Referral to Treatment (SBIRT) for Alcohol Use	Used to identify and address "hazardous" alcohol use, not dependence. After the screening, eligible patients receive the brief intervention, which includes feedback on patients' consumption compared to peers, a motivational interview, and appropriate referrals. Health care staff administer the intervention.	Alcohol, other drugs	Proven effective	Decrease	Neutral	*	Decrease	WSIPP		
Social host provision ordinances and campaigns	In Minnesota, social host ordinances are enacted by local city or county municipalities to hold adults accountable who knowingly allow and provide a place for underage alcohol consumption.	Alcohol	Theory-based	*	*	*	*			The National Institute on Alcohol Abuse and Alcoholism notes this as a moderately effective practice. MMB was unable to identify any experimental or quasi-experimental design studies. More information is available at http://bit.ly/2sxygK0.
Social norms interventions for college students	A strategy used to promote norms to change behaviors and attitudes with the goal of reducing alcohol misuse by college students. Based on social norm research which holds that people tend to behave in a way that is accepted by peers.	Alcohol, other drugs	No effect	Neutral	*	*	Neutral	Cochrane Review		Cochrane reports "Although some significant effects were found, we interpret the effect sizes as too small, given the measurement scales used in the studies included in this review, to be of relevance for policy or practice."
Sons, Daughters, and Families of tradition	A program that educates Native American youth and families on raising healthy kids. The curriculum includes learning on cultural healthy decision-making, expressing emotions, conflict management and recognizing healthy behavior. Incorporates traditional American Indian culture to help develop protective factors.	Alcohol, tobacco (non-ceremonial), other drugs	Theory-based (culturally-informed intervention)	*	*	*	*			Culturally informed service. Incorporates best practices for American Indian smoking prevention and cessation. See the Culturally-specific practices section in the Adult and Youth Substance Use report. More information is available at mn.gov/mmb/results-first/substance-use-disorder.

Service	Description	Targeted substance	Impact on outcomes	Underage Alcohol use	Illicit Drug Use	Tobacco Use/Second hand smoke	Substance misuse or harm	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Storytelling for empowerment	School-based bilingual (English and Spanish) intervention for teenagers. Program uses cognitive decision-making, positive cultural identity (cultural empowerment), and resiliency models of prevention to decrease alcohol, tobacco, and other drug use.	Alcohol, tobacco, other drugs	Proven effective	Decrease	Neutral	*	*	NREPP	Hispanic or Latino	
Strengthening Families	Aims to reduce substance abuse by teaching pre-teens social skills and their families parenting skills. It incorporates cultural components to strengthening protective factors. Sessions encourage families to improve communication and reinforce positive behavior. Practice adopted from Strengthening Families program.	Alcohol, tobacco, other drugs	Promising	*	*	*	Decrease	NREPP	American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, White	Bii-Zin-Da-De-Dah (listening to one another) Program. This service is undergoing a randomized-control presently. Earlier process evaluations returned positive results.
Technical assistance for smoking cessation and, substance use disorder prevention	Involves a range of services provided by multiple units of government, nonprofits, and coalitions to develop, train, implement, monitor, and evaluate substance use programs. Examples include MDH technical assistance grants for smoking cessation, DHS's regional prevention coordinators and planning and implementation grantees, the Minnesota Student Survey, and the Minnesota Prevention Resource Center.	All	Category of services	*	*	*	*			
Teen Intervene	Used to identify substance use and the related consequences in teenagers. The therapist assesses the individual's progress and discusses strategies for overcoming barriers. The program also includes an individual counseling session with the parent or guardian to address parent-child communication and discipline practices	Alcohol, other drugs	Proven effective	Decrease	Decrease	*	Decrease	NREPP	White	
Text messaging for smoking cessation	Text message-based smoking cessation interventions use short messages to support smokers in quit attempts. Generally, the programs help participants set a quit date, send motivational text messages, and send supportive messages after the quit date. These lines are more effective when paired with other evidence-based interventions, such as nicotine replacement therapy, text messaging, web-based services, and client referrals.	Tobacco	Proven effective	*	*	Decrease	*	WSIPP		The Cochrane Review found similarly positive outcomes (http://bit.ly/2roOcg3).
Tobacco compliance checks	Checking and providing feedback to outlets on compliance with minimum age laws for tobacco. Often uses underage buyers to attempt to buy tobacco products. Typically includes media coverage and retailer education. The checks can use penalties for violating the law and rewards (congratulatory notes) for compliance.	Tobacco	Mixed evidence	*	*	Neutral	*	WSIPP		Evidence shows significant reductions in tobacco sales to minors, but no impact on perception of the availability of tobacco or prevalence of smoking. This may be because "few communities studies achieved sustained levels of compliance" More information is available at http://bit.ly/2rwcNAK.
Tobacco quitlines	Quitlines offer telephone counseling for smoking cessation. These lines are more effective when paired with other evidence-based interventions, such as nicotine replacement therapy, text messaging, web-based services, and client referrals.	Tobacco	Proven effective	*	*	Decrease	*	WSIPP		The Cochrane Review found similarly positive outcomes. More information is available at http://bit.ly/2t1HZbS.

Service	Description	Targeted substance	Impact on outcomes	Underage Alcohol use	Illicit Drug Use	Tobacco Use/Second hand smoke	Substance misuse or harm	Source of evidence	Population in research study, as available	Other evidence or expert opinion
Tobacco tax	A state or local government increases the tax on the sale of tobacco, thereby raising the cost of tobacco consumption and the prevalence of use.	Tobacco	Promising	*	*	Decrease	*	WSIPP		According to the CDC, a 10% increase in the cigarette price leads to a 3-5% reduction in prevalence. Higher prices from other strategies (taxes, minimum prices, or restrictions on promotions) may similarly reduce smoking. Other interventions to increase the cost of tobacco are found to be effective, as well. More information is available at http://bit.ly/2tEAYMN.
Tobacco-free/clean air ordinances	Policies that restrict smoking indoors and public spaces. This includes establishments, workplaces, public housing, public transport, educational facilities, healthcare facilities, daycare premises, and public parks.	Tobacco	Promising	*	*	Decrease	Decrease	Cochrane Review		National and local research from MDH suggest smoke free places limit exposure to second hand smoke and the associated outcomes. The evidence is mixed on changes in smoking prevalence.
Waybinagay Program	Culturally-specific smoking prevention and cessation program for Native American youth and young adults. Participants receive information, skills, cultural teachings, and ceremony. There are incentives to finish the course and do 3-month follow-up survey.	Tobacco (non-ceremonial)	Theory-based (culturally-informed intervention)	*	*	*	*		American Indian	Culturally informed service. Incorporates best practices for American Indian smoking prevention and cessation. See the Culturally-specific practices section in the Adult and Youth Substance Use report. More information is available at mn.gov/mmb/results-first/substance-use-disorder.

Appendix B: Summary of research methods

Inventory of services

In the preparation of this report, we compiled an inventory of all services identified in available, current state grant reports and those identified by local practitioners or through our survey of providers. Appendix A presents this inventory, which is also available on our website (https://mn.gov/mmb/results-first/). For each policy area, the inventory lists information about the service, the oversight agency, treatment components, and supporting evidence. For substance use, we collaborated with nine counties and over 150 treatment providers. The inventory and the subsequent benefit-cost analyses reflect the experiences of those participants.

Benefit-cost analysis

The Results First benefit-cost analysis relies on the Washington State Institute for Public Policy (WSIPP) Model. The technical documentation is available on WSIPP's website (http://www.wsipp.wa.gov/BenefitCost). Benefit-cost analysis is a tool used to compare policy alternatives to determine which will generate the highest net benefit over time for each dollar invested. The results provide important data on cost-effectiveness, but they do not address other important factors in the policy-making process, such as equity, justice, or innovation. An advantage of using benefit-cost analysis is the ability to measure costs and outcomes in the same way across different services and programmatic areas.

In the most basic form, our statistical model uses meta-analyses on programs to generate an average effect size on outcomes of interest (e.g., substance use). The model then applies this effect on a treatment population. The benefits are the monetized value of the change in the outcome compared to a group that did not receive treatment. For substance use, the model uses underlying research to estimate the impacts of declining use on labor market, healthcare, and crime outcome. The Minnesota Results First team adds Minnesota-specific data on social and economic characteristics and funding sources to make the results specific to state residents.

The analysis uses an integrated set of calculations in a statistical model to produce the two summary statistics for each service included in the analysis: a net present value and a statewide benefit-cost ratio. Net-present value is the difference between the present value of cash inflows and the present value of cash outflows. The model calculates the net present value of a stream of estimated benefits and costs. The second statistic is the benefit-cost ratio. This ratio indicates how many dollars in benefits to taxpayers and society the state can expect to occur over time, for every dollar spent to fund the service. The reported ratios show Minnesota costs and benefits for a typical client. Later in the appendix, we discuss how the team apportioned those benefits.

Benefits from reducing the incidence of substance use

Benefits included in this analysis are taxpayer benefits and societal benefits. Taxpayer benefits include avoided health care costs and avoided criminal justice system costs. These are marginal health care and criminal justice costs avoided as the results of changes in disordered substance use, such as: hospitalization, emergency room visits, pharmacy services, law enforcement, adjudication, the DOC, and county supervision jurisdictions. Taxpayer benefits also include increased tax revenues related to labor market earnings by the individual. Societal benefits include increased labor market earnings, avoided property damage, avoided victimization costs, and in some cases avoided premature death related to overdose. Labor market earnings represent the change in related earnings to the extent that evidence shows current earnings improve when an individual manages their substance use disorder. Some substance use disorders can also lead to premature death. WSIPP modeled mortality-related lost earnings, lost household production, and the value of a statistical life based on the probability of dying from an overdose.

Costs

Costs represent the direct expense of providing a service to one additional client, called a marginal cost. The costs represent either one year of service or one cycle of treatment. Often, costs were difficult to ascertain, as there is no state-level administrative dataset that includes information on treatment modalities. We relied on a provider survey, administrative datasets, previous research, and interviews to estimate the cost of an additional unit. Each individual profile provides information on how we estimated costs. For more information on cost calculations, contact the Results First team at Minnesota Management and Budget.

Data quality and limitations

To be included in the benefit-cost analysis, a service or practice must have a similar treatment, duration, frequency, and participant profiles as the empirical research that indicated its level of evidence. The benefit-cost analysis assumes services in the state have an impact comparable to the impact found in research. In cases where they did not meet these requirements or staff articulated a concern about adequate fidelity, the service was not included in the benefit-cost analysis. We did not conduct fieldwork to ensure fidelity of implementation, but rely on professional judgement about services targeting the appropriate population as well as dosage per the treatment design. If fidelity is absent, we will not see the full scope of benefits projected in this report.

There are limits to using a statewide benefit-cost ratio since Minnesota experiences many differences between regions and between counties, including differences in availability of services and providers' capability to follow evidence-based practices. A generalized state-level ratio averages the cost of services across very different situations and may not be an accurate representation of the cost experience by a given provider.

Many public services are composed of a set of treatments given in concert. This analysis, however, uses individual pieces of research on practices. Because of this, the model cannot estimate the impact of two separate services taken together. For example, if a person is participating in methadone maintenance, cognitive behavioral therapy, and supported housing, the analysis will not measure the interaction between them or whether that interaction has any effect on reducing the prevalence or symptoms of substance use disorder.

Further, we cannot break down results by demographic or socioeconomic characteristics. Since the WSIPP model uses a meta-analysis, we can only generalize results by the populations studied in those evaluations. To calculate results by demographic or socioeconomic status, we would need to have studies which produced measures of impact for those groups. The model is flexible to allow for it, but we do not have those specific evaluations right now to use in the model.

Apportioning benefits and costs

The Results First Model provides a total benefit-cost ratio that includes federal costs and benefits. For state decision-makers, it is more relevant to exclude federal costs and benefits in order to show the benefit-cost ratio specific to state and local governments and Minnesota residents. To do so, we take the model outputs and apportion those benefits and costs to federal and state sources. Because of this, our results are snapshot in time. These numbers are especially sensitive to major federal changes that reduce funding for treatment.

There are three types of taxpayer benefits: health care, criminal justice, and labor income. For healthcare costs, we assume an adult Medical Assistance population with the state paying (or avoiding) 42 percent and the federal government 58 percent of the total cost. These figures are based on analysis from DHS for the typical SUD client on public assistance. For health care related benefits, we apportioned in the same terms as the above. Criminal justice benefits entirely accrue to state and local governments and Minnesota residents. Labor income, minus income tax, accrued with participants. For income tax from labor, the WSIPP builds in a tax figure, which assumes a total effective tax rate of 31 percent. Of the estimated tax contribution, 35 percent is assumed to go to state and local governments and 65 percent is assumed to be federal (Washington State Institute for Public Policy 2016). We use these model outputs to apportion tax revenues to each source. The overall proportion split by federal, state, and local entities may vary based on the source of the benefits and some of the underlying model functions, but generally approximate the above breakdown.

This assumption may overstate the proportion of the estimated benefits that would accrue to taxpayers versus society more broadly. However, such an overstatement could be offset by other changes associated with additional earned income, including reductions in use of public programs such as health coverage and cash assistance that we did not assumed occurred for purpose of this analysis. Benefits also only consider the client,

not ramifications on friends or family. In particular, substance use can lead to additional placements in the children's system.

If a recipient of a program leaves the state, Minnesota will not see those benefits. To account for this, we use net migration rates by age to estimate the cumulative departure rate and deduct a proportional percentage of the total benefits.

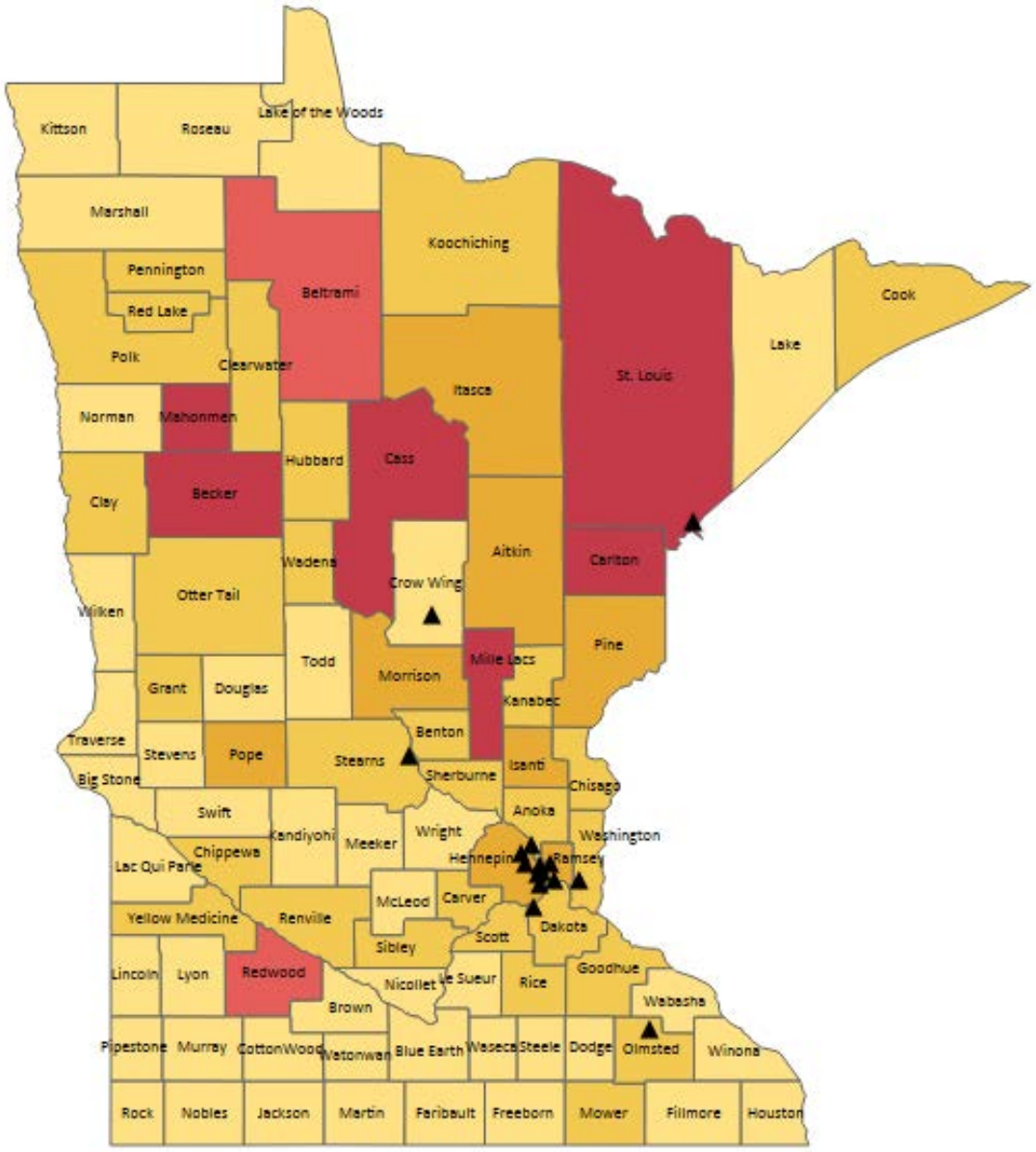
Finally, we recognize that the model assumes all labor earnings are net new. However, in some cases, additional earnings by a program participation may have gone to another Minnesotan. Bartik (2011) estimated that interventions in early education that create new workers displaces about 34 percent of wages for workers already in the workforce. Applying this to our work, we assume that 66 cents of each additional dollar earned by substance use disorder individuals is net new. We subtracted one third of new state wages (and tax income) to account for such displacement.

Appendix C: Breakeven analysis

The following table also includes the estimated number of years when state benefits exceed costs to be society overall and to taxpayers alone. N/A means we do not anticipate the program to break even in the study period.

Service	Type	BCA (Overall)	BCA (Taxpayers)	Years for benefits	Breakeven years (total)	Breakeven years (taxpayers)
Brief Alcohol Screening and Intervention for College Students (BASICS)	Prevention	$6.90	$1.10	Lifetime	2	38
Familias Unidas Preventive Intervention	Prevention	$0.20	$0.00	Lifetime	n/a	n/a
LifeSkills Training	Prevention	$10.60	$0.90	Lifetime	13	44
Project Northland	Prevention	$1.88	$0.19	Lifetime	30	n/a
Screening, Brief Intervention, and Referral to Treatment (SBIRT)	Prevention	$20.60	$2.90	Lifetime	1	2
Teen Intervene	Prevention	$8.90	$1.10	Lifetime	9	14
12-step Facilitation Therapy	Treatment	$4.70	$0.70	3 years	1	n/a
Brief cognitive behavioral intervention	Treatment	$13.40	$0.90	3 years	1	n/a
Brief marijuana dependence counseling	Treatment	$10.80	$1.60	3 years	1	2
Buprenorphine for opioids	Treatment	$2.40	$0.10	1 year	1	n/a
Contingency management	Treatment	$11.70	$0.80	3 years	1	n/a
Methadone maintenance for opioids	Treatment	$3.50	$0.10	1 year	1	n/a
Motivational interviewing to enhance treatment engagement	Treatment	$16.10	$2.20	3 years	1	1
Relapse Prevention Therapy	Treatment	$2.80	$0.40	1 year	1	n/a
Seeking Safety	Treatment	$4.30	$0.60	3 years	1	n/a
Permanent supported housing: Oxford House Model	Recovery	$3.90	$0.30	3 years	1	n/a

Appendix D: Heroin and other opiate treatment admissions per 10,000 people and methadone maintenance providers, by county, 2016



Heroin and Other Opiate Treatment Admissions per 10,000 people

- Less than 10
- 10-19
- 20-29
- 30-39
- 40 or more
- ▲ Methadone Maintenance Provider

References

American Evaluation Association. 2011. "American Evaluation Association: Statement on Cultural Competence in Evaluation." http://www.eval.org/p/cm/ld/fid=92.

Aos, Steve, Marna Miller, and Elizabeth Drake. 2006. "Evidence-Based Public Policy Options to Reduce Future Prison Construction, Criminal Justice Costs, and Crime Rates." *Federal Sentencing Reporter* 19: 275.

Bartik, Timothy J. 2011. *Investing in Kids: Early Childhood Programs and Local Economic Development*. W.E. Upjohn Institute. doi:10.17848/9780880994002.

Berglund, Mats, Sten Thelander, Mikko Salaspuro, Johan Franck, Sven Andréasson, and Agneta Öjehagen. 2003. "Treatment of Alcohol Abuse: An Evidence-based Review." *Alcoholism: Clinical and Experimental Research* 27 (10): 1645–56.

Blume, Arthur W. 2016. "Advances in Substance Abuse Prevention and Treatment Interventions Among Racial, Ethnic, and Sexual Minority Populations." *Alcohol Research: Current Reviews* 38 (1): 47–54.

Botvin, Gilbert J., Eli Baker, Linda Dusenbury, Elizabeth M. Botvin, and Tracy Diaz. 1995. "Long-Term Follow-up Results of a Randomized Drug Abuse Prevention Trial in a White Middle-Class Population." *Jama* 273 (14): 1106–12.

Bureau of Labor Statistics. 2016. "Occupational Employment Statistics Home Page." https://www.bls.gov/oes/.

Butler, Mary, Robert L. Kane, Donna McAlpine, Roger G. Kathol, Steven S. Fu, Hildi Hagedorn, and Timothy J. Wilt. 2008. "Integration of Mental Health/Substance Abuse and Primary Care."

Canadian Centre on Substance Abuse. 2014. "Substance Use Prevention and Health Promotion." http://www.ccsa.ca/Resource%20Library/CCSA-Substance-Use-Prevention-Health-Promotion-Toolkit-2014-en.pdf.

Castro, Felipe González, Manuel Barrera Jr, and Lori K. Holleran Steiker. 2010. "Issues and Challenges in the Design of Culturally Adapted Evidence-Based Interventions." *Annual Review of Clinical Psychology* 6: 213–39.

Castro, Felipe Gonzalez, Julie Garfinkle, Diana Naranjo, Maria Rollins, Judith Brook, and David Brook. 2007. "Cultural Traditions as 'Protective Factors' Among Latino Children of Illicit Drug Users." *Substance Use & Misuse* 42: 621–42.

Center for Behavioral Health Statistics and Quality. 2016. "Results from the 2015 National Survey on Drug Use and Health." Substance Abuse and Mental Health Services Administration. https://www.samhsa.gov/data/sites/default/files/NSDUH-DetTabs-2015/NSDUH-DetTabs-2015/NSDUH-DetTabs-2015.pdf.

Center for Substance Abuse Prevention. 2009. "Identifying and Selecting Evidence-Based Interventions Revised Guidance Document for the Strategic Prevention Framework State Incentive Grant Program." HS Pub. No. (SMA)09-420. Rockville, M: Substance Abuse and Mental Health Services Administraito. https://store.samhsa.gov/shin/content/SMA09-4205/SMA09-4205.pdf.

Centers for Disease Control and Prevention. 2015. "Alcohol Poisoning Deaths Infographics." *Centers for Disease Control and Prevention*. January 6. http://www.cdc.gov/vitalsigns/alcohol-poisoning-deaths/infographic.html.

———. 2016. "Prevention Status Report." https://wwwn.cdc.gov/psr/?state=Minnesota.

———. 2017. "Extinguishing the Tobacco Epidemic in Minnesota." https://www.cdc.gov/tobacco/about/osh/program-funding/pdfs/minnesota-508.pdf.

Chi, Felicia W., Sujaya Parthasarathy, Jennifer R. Mertens, and Constance M. Weisner. 2011. “Continuing Care and Long-Term Substance Use Outcomes in Managed Care: Early Evidence for a Primary Care-Based Model.” *Psychiatric Services* 62 (10): 1194–1200.

Community Preventive Services Task Force. 2017. “The Guide to Community Preventive Services.” https://www.thecommunityguide.org/.

Community Preventive Services Task Force, Community Preventive Services Task. 2007. “Preventing Excessive Alcohol Consumption: Increasing Alcohol Taxes.” *Guide to Community Preventive Services. Updated Jun*.

Compton, Wilson M., Carlos Blanco, and Eric M. Wargo. 2015. “Integrating Addiction Services into General Medicine.” *Jama* 314 (22): 2401–2.

Congressional Budget Office. 2012. “Raising the Excise Tax on Cigarettes: Effects on Health and the Federal Budget.” Washington, D.C. https://www.cbo.gov/sites/default/files/cbofiles/attachments/06-13-Smoking_Reduction.pdf.

Crosse, Scott, Barbara Williams, Carol A. Hagen, Michele Harmon, Liam Ristow, Ralph DiGaetano, Pamela Broene, Debbie Alexander, Margaret Tseng, and James H. Derzon. 2011. “Prevalence and Implementation Fidelity of Research-Based Prevention Programs in Public Schools. Final Report.” *Office of Planning, Evaluation and Policy Development, US Department of Education*.

DAANES. 2016. “Drug and Alcohol Abuse Normative Evaluation System (DANNES).” Department of Human Services.

D’amour, Danielle, and Ivy Oandasan. 2005. “Interprofessionality as the Field of Interprofessional Practice and Interprofessional Education: An Emerging Concept.” *Journal of Interprofessional Care* 19 (sup1): 8–20.

Department of Human Services. 2012. “Minnesota State Substance Abuse Strategy.” https://www.leg.state.mn.us/docs/2014/other/140416.pdf.

———. 2013. “Minnesota’s Model of Care for Substance Use Disorder.” http://www.dhs.state.mn.us/main/groups/disabilities/documents/pub/dhs16_195241.pdf.

———. 2015. “Substance Use Disorder and Prevention Listening Sessions.” http://www.dhs.state.mn.us/main/groups/disabilities/documents/pub/dhs-285947.pdf.

———. 2016. “Drug and Alcohol Abuse In Minnesota, 2016.” https://mn.gov/dhs/assets/2016_drug_and_alcohol_abuse_in_minnesota_tcm1053-166258.pdf.

———. 2017a. “Minnesota State Targeted Response to the Opioid Crisis.” https://mn.gov/dhs/assets/mn-opioid-str-project-narrative-april-2017_tcm1053-289624.pdf.

———. 2017b. “MHCP Provider Manual - Alcohol and Drug Abuse (ADA).” March 23. http://www.dhs.state.mn.us/main/idcplg?IdcService=GET_DYNAMIC_CONVERSION&RevisionSelectionMethod=LatestReleased&dDocName=id_008949.

Department of Human Services, ADAD, DAANES. 2017. “SUD Treatment Information CY2011-CY2016 for MMB Updated 6-12-2017.”

Dusenbury, Linda, Rosalind Brannigan, Mathea Falco, and William B. Hansen. 2003. “A Review of Research on Fidelity of Implementation: Implications for Drug Abuse Prevention in School Settings.” *Health Education Research* 18 (2): 237–56.

Elliott, Odus V. 2002. *The Tools of Government: A Guide to the New Governance*. Oxford University Press.

Ettner, Susan L., David Huang, Elizabeth Evans, Danielle Rose Ash, Mary Hardy, Mickel Jourabchi, and Yih-Ing Hser. 2006. “Benefit–cost in the California Treatment Outcome Project: Does Substance Abuse Treatment ‘Pay for Itself’?” *Health Services Research* 41 (1): 192–213.

Finkelstein, Norma. 1994. “Treatment Issues for Alcohol- and Drug-Dependent Pregnant and Parenting Women.” *Health & Social Work* 19 (1): 7–15. doi:10.1093/hsw/19.1.7.

Food and Drug Administration. 2016. “Report to Congress on the Study of Raising the Minimum Age to Purchase Tobacco Products.” Washington, D.C.: Department of Human Services. https://www.fda.gov/downloads/TobaccoProducts/Labeling/RulesRegulationsGuidance/UCM492462.pdf.

Fullerton, Catherine Anne, Meelee Kim, Cindy Parks Thomas, D. Russell Lyman, Leslie B. Montejano, Richard H. Dougherty, Allen S. Daniels, Sushmita Shoma Ghose, and Miriam E. Delphin-Rittmon. 2014. “Medication-Assisted Treatment with Methadone: Assessing the Evidence.” *Psychiatric Services* 65 (2): 146–57.

Gerstein, Dean R. Johnson, Robert A. Harwood, Henrick J. Fountain, Douglas Suter, Natalie Malloy, and Kathryn M. 1994. “Evaluating Recovery Services: The California Drug and Alcohol Treatment Assessment (CALDATA) : General Report Submitted to the State of California, Department of Alcohol and Drug Programs.” ADP 94-629. Sacramento, CA: California Department of Alcohol and Drug Programs, Resource Center.

Glasner-Edwards, Suzette, and Richard Rawson. 2010. “Evidence-Based Practices in Addiction Treatment: Review and Recommendations for Public Policy.” *Health Policy (Amsterdam, Netherlands)* 97 (2–3): 93–104. doi:10.1016/j.healthpol.2010.05.013.

Hankin, Abigail, Leon Haley, Amy Baugher, Kia Colbert, and Debra Houry. 2015. “Kiosk versus In-Person Screening for Alcohol and Drug Use in the Emergency Department: Patient Preferences and Disclosure.” *Western Journal of Emergency Medicine* 16 (2): 220.

“Harm Reduction: An Approach to Reducing Risky Health Behaviours in Adolescents.” 2008. *Paediatrics & Child Health* 13 (1): 53–56.

Harrison, Patricia, and Stephen Asche. 2000. “The Challenges and Benefits of Chemical Dependency Treatment.” Minnesota Department of Human Services. http://www.journalofsubstanceabusetreatment.com/article/S0740-5472(01)00199-4/fulltext.

Hester, Reid K., Harold D. Delaney, and William Campbell. 2012. “The College Drinker’s Check-Up: Outcomes of Two Randomized Clinical Trials of a Computer-Delivered Intervention.” *Psychology of Addictive Behaviors* 26 (1): 1.

Hingson, Ralph W., Timothy Heeren, and Michael R. Winter. 2006. “Age at Drinking Onset and Alcohol Dependence: Age at Onset, Duration, and Severity.” *Archives of Pediatrics & Adolescent Medicine* 160 (7): 739–46. doi:10.1001/archpedi.160.7.739.

Institute of Medicine (US) Committee on Improving Quality in Long-Term Care, Gooloo S. Wunderlich, and Peter O. Kohler. 2001. *Reimbursing to Improve Quality of Care*. National Academies Press (US). https://www.ncbi.nlm.nih.gov/books/NBK224491/.

Judd, L. L., M. G. Marston, C. Attkisson, W. Berrettini, N. L. Buc, B. S. Bunney, C. Murphy, R. A. Dominguez, R. O. Friedel, and H. E. Drummond. 1998. “Effective Medical Treatment of Opiate Addiction.” *JAMA-Journal of the American Medical Association* 280 (22): 1936–43.

Kaplan, Linda. 2008. “The Role of Recovery Support Services in Recovery-Oriented Systems of Care.” 08-4315. Washington, D.C.: Center for Substance Abuse Services, Substance Abuse and Ment al Health Services Administration. https://store.samhsa.gov/shin/content/SMA08-4315/SMA08-4315.pdf.

Lancaster, Tim, Lindsay Stead, Chris Silagy, and Amanda Sowden. 2000. “Regular Review: Effectiveness of Interventions to Help People Stop Smoking: Findings from the Cochrane Library.” *BMJ: British Medical Journal* 321 (7257): 355.

Laws of Minnesota 2012, Chapter 247, Article 5, Section 8. n.d.

Lee, Margaret T., Constance M. Horgan, Deborah W. Garnick, Andrea Acevedo, Lee Panas, Grant A. Ritter, Robert Dunigan, Hermik Babakhanlou-Chase, Alfred Bidorini, and Kevin Campbell. 2014. "A Performance Measure for Continuity of Care after Detoxification: Relationship with Outcomes." *Journal of Substance Abuse Treatment* 47 (2): 130–39.

Litvin, Erika B., Ana M. Abrantes, and Richard A. Brown. 2013. "Computer and Mobile Technology-Based Interventions for Substance Use Disorders: An Organizing Framework." *Addictive Behaviors* 38 (3): 1747–56.

Mark, Tami L., Joan D. Dilonardo, Mady Chalk, and Rosanna M. Coffey. 2002. "Trends in Inpatient Detoxification Services, 1992–1997." *Journal of Substance Abuse Treatment* 23 (4): 253–60.

Marsh, J. C., T. A. D'Aunno, and B. D. Smith. 2000. "Increasing Access and Providing Social Services to Improve Drug Abuse Treatment for Women with Children." *Addiction (Abingdon, England)* 95 (8): 1237–47.

Martino, Steve. 2010. "Strategies for Training Counselors in Evidence-Based Treatments." *Addiction Science & Clinical Practice* 5 (2): 30–39.

Mattick, Richard P., Courtney Breen, Jo Kimber, and Marina Davoli. 2009. "Methadone Maintenance Therapy versus No Opioid Replacement Therapy for Opioid Dependence." *The Cochrane Library*.

McCollister, Kathryn E., and Michael T. French. 2003. "The Relative Contribution of Outcome Domains in the Total Economic Benefit of Addiction Interventions: A Review of First Findings." *Addiction (Abingdon, England)* 98 (12): 1647–59.

McGovern, Mark P., and Kathleen M. Carroll. 2003. "Evidence-Based Practices for Substance Use Disorders." *The Psychiatric Clinics of North America* 26 (4): 991–1010.

McHugo, Gregory J., Robert E. Drake, Rob Whitley, Gary R. Bond, Kikuko Campbell, Charles A. Rapp, Howard H. Goldman, Wilma J. Lutz, and Molly T. Finnerty. 2007. "Fidelity Outcomes in the National Implementing Evidence-Based Practices Project." *Psychiatric Services* 58 (10): 1279–84.

McKnight-Eily, Lela R., Yong Liu, Robert D. Brewer, Dafna Kanny, Hua Lu, Clark H. Denny, Lina Balluz, and Janet Collins. 2014. "Vital Signs: Communication between Health Professionals and Their Patients about Alcohol Use—44 States and the District of Columbia, 2011." *MMWR Morb Mortal Wkly Rep* 63 (1): 16–22.

McLellan, A. Thomas, David C. Lewis, Charles P. O'brien, and Herbert D. Kleber. 2000. "Drug Dependence, a Chronic Medical Illness: Implications for Treatment, Insurance, and Outcomes Evaluation." *Jama* 284 (13): 1689–95.

McLellan, Thomas, George E. Woody, Lester Luborsky, and Leslie Goehl. 1988. "Is the Counselor an" Active Ingredient" in Substance Abuse Rehabilitation?: An Examination of Treatment Success among Four Counselors." *The Journal of Nervous and Mental Disease* 176 (7): 423–30.

Mihalic, Sharon. 2004. "The Importance of Implementation Fidelity." *Emotional and Behavioral Disorders in Youth* 4 (4): 83–105.

Miller, Ted, and David Hendrie. 2008. "Substance Abuse Prevention Dollars and Cents: A Cost-Benefit Analysis." *Center for Substance Abuse Prevention (CSAP), SAMHSA. DHHS Pub*, no. 07-4298.

Miller, William R., James L. Sorensen, Jeffrey A. Selzer, and Gregory S. Brigham. 2006. "Disseminating Evidence-Based Practices in Substance Abuse Treatment: A Review with Suggestions." *Journal of Substance Abuse Treatment* 31 (1): 25–39. doi:10.1016/j.jsat.2006.03.005.

Minnesota Association of Resources For Recovery and Chemical Health. 2017. "Advocating for Fair Reimbursement for Chemical Dependency Treatment Services."

Minnesota Attorney General. 2016. “Opioids: Preventing and Addressing Prescription Drug Abuse.” https://www.ag.state.mn.us/Consumer/Protection/OpioidReport.pdf.

Minnesota Department of Health. 2015. “Drug Overdose Deaths among Minnesota Residents (2010-2015).” http://www.health.state.mn.us/divs/healthimprovement/content/documents/2015OpioidDeathReport.pdf.

———. 2016a. “2016 Minnesota Student Survey: Tobacco Findings.” http://www.health.state.mn.us/divs/chs/mss/2016_MSS_tobacco_10-31-16.pdf.

———. 2016b. “Community Voices: Reducing Tobacco-Related Health Inequities.” http://www.health.state.mn.us/divs/hpcd/tpc/initiatives/docs/communityvoices_fullreport.pdf.

———. 2017a. “Copy of Alcohol Poisoning Deaths_corrected July282017.”

———. 2017b. “Copy of Tables from Drug Report by Year - 7 County.”

Minnesota Department of Human Services, American Indian Advisory Council on Chemical Dependency, and American Indian Mental Health Advisory Council. 2008. “American Indian Symposium Briefing Book - American Indian Symposium on Mental Health and Chemical Dependency.” http://www.d.umn.edu/~kheltzer/sw8441_f08/American%20Indian%20Symposium%20on%20MH%20&%20CD.pdf.

Minnesota Department of Human Services Chemical Health Division. 2006. “Analysis Report The Consolidated Chemical Dependency Treatment Fund.” https://www.leg.state.mn.us/docs/2009/other/090616.pdf.

Minnesota Judicial Branch. 2017. “Treatment Courts.” http://www.mncourts.gov/Help-Topics/Treatment-Courts.aspx.

Najavits, Lisa M., and Roger D. Weiss. 1994. “Variations in Therapist Effectiveness in the Treatment of Patients with Substance Use Disorders: An Empirical Review.” *Addiction* 89 (6): 679–88.

National Association of State Alcohol and Drug Abuse Directors, Inc. 2015. “Consensus Statement on the Use of Medications in Treatment of Substance Use Disorders.” http://nasadad.org/wp-content/uploads/2013/01/13-January-15-NASADAD-Statement-on-MAT.pdf.

National Institute of Drug Abuse. 2015. “Choose Evidence-Based Screening Tools and Resoruce Materials.” *Chart of Evidence-Based Screening Tools for Adults and Adolescents*. https://www.drugabuse.gov/nidamed-medical-health-professionals/tool-resources-your-practice/screening-assessment-drug-testing-resources/chart-evidence-based-screening-tools-adults.

National Institute on Drug Abuse. 2012. “Principles of Drug Addiction Treatment: A Research-Based Guide.” NIH Publication No. 12–4180). Rockville, MD: National Institutes of Health, U.S. Department of Health and Human Services. https://www.drugabuse.gov/publications/principles-drug-addiction-treatment-research-based-guide-third-edition/principles-effective-treatment.

———. 2014a. “Drug Abuse and Addiction.” July. https://www.drugabuse.gov/publications/drugs-brains-behavior-science-addiction/drug-abuse-addiction.

———. 2014b. “Drugs and the Brain.” July. https://www.drugabuse.gov/publications/drugs-brains-behavior-science-addiction/drugs-brain.

———. 2017. “Trends & Statistics.” April 24. https://www.drugabuse.gov/related-topics/trends-statistics.

Norcross, John C., and Bruce E. Wampold. 2011. *Evidence-Based Therapy Relationships: Research Conclusions and Clinical Practices.* Educational Publishing Foundation.

NREPP. 2017a. “Intervention Summary - Familias Unidas Preventive Intervention.” Accessed May 31. http://legacy.nreppadmin.net/ViewIntervention.aspx?id=85.

———. 2017b. “Intervention Summary - LifeSkills Training (LST).” Accessed May 31. http://legacy.nreppadmin.net/ViewIntervention.aspx?id=109.

———. 2017c. “Intervention Summary - Project Northland.” Accessed May 31. http://legacy.nreppadmin.net/ViewIntervention.aspx?id=25.

———. 2017d. “Intervention Summary - Relapse Prevention Therapy (RPT).” Accessed May 31. http://legacy.nreppadmin.net/ViewIntervention.aspx?id=97.

———. 2017e. “Intervention Summary - Teen Intervene.” Accessed May 31. http://legacy.nreppadmin.net/ViewIntervention.aspx?id=287.

Office of the Legislative Auditor. 2006. “Substance Abuse Treatment.” http://www.auditor.leg.state.mn.us/ped/pedrep/subabuse.pdf.

Parthasarathy, Sujaya, Felicia W. Chi, Jennifer R. Mertens, and Constance Weisner. 2012. “The Role of Continuing Care on 9-Year Cost Trajectories of Patients with Intakes into an Outpatient Alcohol and Drug Treatment Program.” *Medical Care* 50 (6): 540.

Pew-MacArthur Results First Initiative. 2016. “Implementation Oversight for Evidence-Based Programs.” http://www.pewtrusts.org/~/media/assets/2016/05/rf_programimplementationbrief.pdf.

Pew-MacArthur Results First Initiative. 2017. “How Policymakers Prioritize Evidence- Based Programs Through Law.” Washington, D.C. http://www.pewtrusts.org/~/media/assets/2017/04/rf_how_policymakers_prioritize_evidencebased_programs_through_law.pdf.

Rieckmann, Traci, Anne E. Kovas, and Beth A. Rutkowski. 2010. “Adoption of Medications in Substance Abuse Treatment: Priorities and Strategies of Single State Authorities.” *Journal of Psychoactive Drugs* 42 (sup6): 227–38.

Rosa, Carmen, Aimee NC Campbell, Gloria M. Miele, Meg Brunner, and Erin L. Winstanley. 2015. “Using E-Technologies in Clinical Trials.” *Contemporary Clinical Trials* 45: 41–54.

Sacks, Jeffrey J., Katherine R. Gonzales, Ellen E. Bouchery, Laura E. Tomedi, and Robert D. Brewer. 2015. “2010 National and State Costs of Excessive Alcohol Consumption.” *American Journal of Preventive Medicine* 49 (5): e73–79. doi:10.1016/j.amepre.2015.05.031.

Saitz, Richard, Nicholas J. Horton, Mary Jo Larson, Michael Winter, and Jeffrey H. Samet. 2005. “Primary Medical Care and Reductions in Addiction Severity: A Prospective Cohort Study.” *Addiction* 100 (1): 70–78.

Samet, Jeffrey H., Peter Friedmann, and Richard Saitz. 2001. “Benefits of Linking Primary Medical Care and Substance Abuse Services: Patient, Provider, and Societal Perspectives.” *Archives of Internal Medicine* 161 (1): 85–91.

SAMHSA. 2016. “Prevention of Substance Abuse and Mental Illness.” https://www.samhsa.gov/prevention.

SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013 and. 2014. “2014 National Survey on Drug Use and Health.” /data/population-data-nsduh/reports.

Samuels, Judith, Wendy Schudrich, and Deborah Altschul. 2009. *Toolkit for Modifying Evidence-Based Practices to Increase Cultural Competence*. Orangeburg, NY: Research Foundation for Mental Health. http://calmhsa.org/wp-content/uploads/2013/10/ToolkitEBP.pdf.

Satre, Derek D., Cynthia I. Campbell, Nancy P. Gordon, and Constance Weisner. 2010. “Ethnic Disparities in Accessing Treatment for Depression and Substance Use Disorders in an Integrated Health Plan.” *The International Journal of Psychiatry in Medicine* 40 (1): 57–76.

Schneider, Shari Kessel, Stephen L. Buka, Kim Dash, Jonathan P. Winickoff, and Lydia O'Donnell. 2015. "Community Reductions in Youth Smoking after Raising the Minimum Tobacco Sales Age to 21." *Tobacco Control*, June, tobaccocontrol-2014-052207. doi:10.1136/tobaccocontrol-2014-052207.

Soto, Claradina, Jennifer B. Unger, Anamara Ritt-Olson, Daniel W. Soto, David Scott Black, and Lourdes Baezconde-Garbanati. 2011. "Cultural Values Associated With Substance Use Among Hispanic Adolescents in Southern California." *Substance Use & Misuse* 46 (10): 1223–33. doi:10.3109/10826084.2011.567366.

Steiner, Andy. 2016. "Does Minnesota Really Need More Addiction Counselors." *MinnPost*, September 23. https://www.minnpost.com/mental-health-addiction/2016/09/does-minnesota-really-need-more-addiction-counselors.

Sterling, Stacy, Tina Valkanoff, Agatha Hinman, and Constance Weisner. 2012. "Integrating Substance Use Treatment into Adolescent Health Care." *Current Psychiatry Reports* 14 (5): 453–61.

Substance Abuse and Mental Health Services Administration. 2009. "What Are Peer Recovery Support Services?" https://store.samhsa.gov/shin/content//SMA09-4454/SMA09-4454.pdf.

———. 2014. "Prevention of Substance Abuse and Mental Illness." Text. June 20. https://www.samhsa.gov/prevention.

———. 2015. "Behavioral Health Barometer: Minnesota, 2015." HHS Publication SMA-16-Baro-2015-MN. Rockville, MD: Substance Abuse and Mental Health Services Administration. https://store.samhsa.gov/shin/content/SMA16-BARO-2015/SMA16-BARO-2015-MN.pdf.

———. 2017a. "Buprenorphine Treatment Practitioner Locator." https://www.samhsa.gov/medication-assisted-treatment/physician-program-data/treatment-physician-locator?distance%5Bpostal_code%5D=&distance%5Bsearch_distance%5D=10&distance%5Bsearch_units%5D=mile&field_bup_physician_city_value=&field_bup_physician_us_state_value=MN.

———. 2017b. "Medication and Counseling Treatment." https://www.samhsa.gov/medication-assisted-treatment/treatment.

Suter, Esther, Nelly D. Oelke, Carol E. Adair, and Gail D. Armitage. 2009. "Ten Key Principles for Successful Health Systems Integration." *Healthcare Quarterly (Toronto, Ont.)* 13 (Spec No): 16.

The Minnesota Adult Tobacco Survey. 2014. "Tobacco Use in Minnesota." http://www.mntobacco.nonprofitoffice.com/vertical/Sites/%7B988CF811-1678-459A-A9CE-34BD4C0D8B40%7D/uploads/MATS_Fact_Sheet_FINAL_1_20_15.pdf.

Thomsen, Darcie, Kristin Dillon, Monica Idzelis, and Amy Leite. 2011. "School-Based Prevention Programming Fidelity and Teacher Satisfaction Results: 2008-09, 2009-10, and 2010-11 School Years." http://www.wilder.org/Wilder-Research/Publications/Studies/Alcohol,%20Tobacco%20and%20Other%20Drug%20(ATOD)%20Prevention/School-based%20Prevention%20Programming%20Fidelity%20and%20Teacher%20Satisfaction%20Results%20-%202008-09,%202009-10,%20and%202010-11%20Schol%20Years.pdf.

Unger, Jennifer, Lourdes Baezconde-Garbanti, Sohaila Shakib, Paula Palmer, Elahe Nezami, and Juana Mora. 2004. "A Cultural Psychology Approach to 'Drug Abuse' Prevention." *Substance Use & Misuse* 39 (10–12): 1779–1820.

Unger, Jennifer, Anamara Ritt-Olson, Lorena Teran, Terry Huang, Beth Hoffman, and Paula Palmer. 2002. "Cultural Values and Substance Use in a Multiethnic Sample of California Adolescents." *Addiction Research & Theory* 10 (3): 257–79. doi:10.1080/16066350211869.

Unger, Jennifer, Sohaila Shakib, Peggy Gallaher, Anamara Ritt-Olson, Michele Mouttapa, Paula Palmer, and C. Anderson Johnson. 2006. "Cultural/Interpersonal Values and Smoking in an Ethnically Diverse Sample of Southern California Adolescents." *Journal of Cultural Diversity* 13 (1): 55–63.

U.S. Department of Education. 2016. "IPEDS Completion Survey, 2015." Institute of Education Sciences, National Center for Education Statistics.

U.S. Department of Health and Human Services. 2016. "Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health." *Washington, DC: HHS*. https://addiction.surgeongeneral.gov/.

U.S. Department of Health and Human Services, Office of the Surgeon General. 2016. "Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health." Washington, DC: HHS. https://addiction.surgeongeneral.gov/surgeon-generals-report.pdf.

Vestal, Christine. 2015. "How Severe Is the Shortage of Substance Abuse Specialists?" http://bit.ly/19GbMZ1.

Wagenaar, Alexander. 2017. "Alcohol Policy Information System (APIS)." https://alcoholpolicy.niaaa.nih.gov/.

Wagenaar, Alexander C., Amy L. Tobler, and Kelli A. Komro. 2010. "Effects of Alcohol Tax and Price Policies on Morbidity and Mortality: A Systematic Review." *American Journal of Public Health* 100 (11): 2270–78.

Washington State Institute for Public Policy. 2016. "Benefit-Cost Technical Documentation." Olympia, WA. http://wsipp.wa.gov/TechnicalDocumentation/WsippBenefitCostTechnicalDocumentation.pdf.

Weisner, Constance, Jennifer Mertens, Sujaya Parthasarathy, Charles Moore, and Yun Lu. 2001. "Integrating Primary Medical Care with Addiction Treatment: A Randomized Controlled Trial." *Jama* 286 (14): 1715–23.

Weiss, Michael J., Howard S. Bloom, and Thomas Brock. 2013. "A Conceptual Framework for Studying the Sources of Variation in Program Effects." SSRN Scholarly Paper ID 2393091. Rochester, NY: Social Science Research Network. https://papers.ssrn.com/abstract=2393091.

White, W. L. 2012. "Recovery/Remission from Substance Use Disorders: An Analysis of Reported Outcomes in 415 Scientific Reports, 1868-2011." *Drug & Alcohol Findings Review Analysis. Pittsburgh, PA: Philadelphia Department of Behavioral Health and Intellectual DisAbility Services and the Great Lakes Addiction Technology Transfer Center*.

Willenbring, Mark. 2012. "Final Report - Screening, Brief Intervention and Referral or Treatment (SBIRT+) Project."

Willenbring, Mark L., and Douglas H. Olson. 1999. "A Randomized Trial of Integrated Outpatient Treatment for Medically Ill Alcoholic Men." *Archives of Internal Medicine* 159 (16): 1946–52.

Williams, Emily C., M. Laura Johnson, Gwen T. Lapham, Ryan M. Caldeiro, Lisa Chew, Grant S. Fletcher, Kinsey A. McCormick, William G. Weppner, and Katharine A. Bradley. 2011. "Strategies to Implement Alcohol Screening and Brief Intervention in Primary Care Settings: A Structured Literature Review." *Psychology of Addictive Behaviors* 25 (2): 206.

Williams, Emily C., Gwen Lapham, Carol E. Achtmeyer, Bryan Volpp, Daniel R. Kivlahan, and Katharine A. Bradley. 2010. "Use of an Electronic Clinical Reminder for Brief Alcohol Counseling Is Associated with Resolution of Unhealthy Alcohol Use at Follow-Up Screening." *Journal of General Internal Medicine* 25 (Suppl 1): 11–17. doi:10.1007/s11606-009-1100-z.

World Health Organization. 2009. *Withdrawal Management*. Geneva: World Health Organization. https://www.ncbi.nlm.nih.gov/books/NBK310652/.

WSIPP. 2017a. "12-Step Facilitation Therapy." Accessed May 31. http://www.wsipp.wa.gov/BenefitCost/Program/313.

———. 2017b. “Brief Cognitive Behavioral Intervention for Amphetamine Users.” Accessed May 31. http://www.wsipp.wa.gov/BenefitCost/Program/335.

———. 2017c. “Brief Intervention in Emergency Department (SBIRT).” Accessed May 31. http://www.wsipp.wa.gov/BenefitCost/Program/310.

———. 2017d. “Brief Marijuana Dependence Counseling.” Accessed May 31. http://www.wsipp.wa.gov/BenefitCost/Program/306.

———. 2017e. “Buprenorphine (or Buprenorphine/Naloxone) Maintenance Treatment for Opioid Use Disorder.” Accessed May 31. http://www.wsipp.wa.gov/BenefitCost/Program/695.

———. 2017f. “Contingency Management (Lower Cost) for Substance Use Disorders.” Accessed May 31. http://www.wsipp.wa.gov/BenefitCost/Program/294.

———. 2017g. “Methadone Maintenance for Opioid Use Disorder.” Accessed May 31. http://www.wsipp.wa.gov/BenefitCost/Program/694.

———. 2017h. “Motivational Interviewing to Enhance Treatment Engagement.” Accessed May 31. http://www.wsipp.wa.gov/BenefitCost/Program/497.

———. 2017i. “Seeking Safety.” Accessed May 31. http://www.wsipp.wa.gov/BenefitCost/Program/307.

———. 2017j. “Sober Living Houses.” Accessed June 6. http://www.wsipp.wa.gov/BenefitCost/Program/718.

Zarkin, Gary A., Jeremy W. Bray, Debanjali Mitra, Ron A. Cisler, and Daniel R. Kivlahan. 2005. “Cost Methodology of COMBINE.” *Journal of Studies on Alcohol, Supplement*, no. 15: 50–55.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