MANAGEMENT AND BUDGET

CHILDREN'S MENTAL HEALTH

INVENTORY AND BENEFIT-COST ANALYSIS

RESULTS FIRST

JANUARY 2019

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Through the Minnesota Results First Initiative, Minnesota Management and Budget (MMB) uses high-quality evidence to estimate the extent to which publicly funded programs generate positive, cost-effective outcomes. We collaborate with state, tribal, and local entities to identify and estimate the benefits and costs of a range of public programs that support the well-being of Minnesotans.

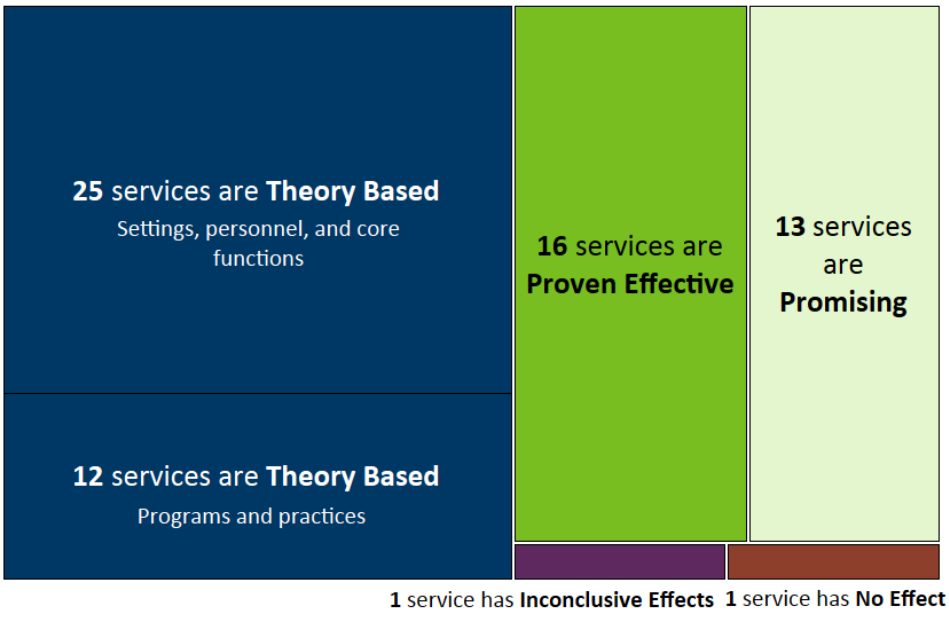
This report examines benefits and costs associated with children's mental health services. Providers, counties, tribes, and the Minnesota Departments of Human Services, Health, Corrections, and Education administer a range of services aimed at preventing or ameliorating symptoms of mental illness. In addition to improving the well-being of children and families, these services can decrease health care costs, reduce crime, improve educational outcomes, and increase future earnings, thereby generating benefits to participants and the state.

A complex web of social and biological factors influence mental health needs, but early identification and treatment can lessen associated symptoms. In 2016, more than 87,000 Minnesotans under 21 received publically funded mental health services. Treating the symptoms of mental illness—like any healthcare treatment—can be costly to families and communities, and represents a significant share of public sector health spending. In 2017, Minnesota spent nearly $1.2 billion on mental health services for all ages. This includes community, ambulatory, prevention, early intervention, and residential services and settings.

This report presents a review of 68 mental health services funded through our human services system. We rated 16 of these services as Proven Effective, meaning they have a strong base of research supporting their positive impact. An additional 13 services are Promising, or have at least one impact evaluation with favorable impacts. Based on the available research, one service has No Effect (Cognitive Behavioral Therapy for ADHD) and one service has an Inconclusive Effect (Antidepressants in addition to therapy for children with depression). The remaining 37 are Theory Based, meaning qualifying evidence is not yet available.

As our ability to identity symptoms of mental illness improves, it is increasingly important to ensure families have access to services that work. In practice, however, we find the system does not always prioritize access to evidence-based treatments.

Figure 1: Children's mental health inventory summary



For the benefit-cost analysis, we use a statistical model to monetize benefits from changes in health care, education, and crime costs, as well as employment earnings. Findings from rigorous evaluations inform these projected outcomes. In general, it takes a high number of studies to complete a benefit-cost analysis for a single service; currently, sufficient research is available to conduct analyses for seven Minnesota offerings.

Five of the children's mental health services have benefit-cost ratios greater than $1. Estimated benefits per dollar invested range from $15.20 for Trauma-Focused Cognitive Behavioral Therapy (TF - CBT) to $0.00 for Cognitive Behavioral Therapy (CBT) alone for children with Attention-Deficit Hyperactivity Disorder (ADHD). We group these services by basic clinical services and community supports (Figure 2).

Benefit-cost analysis is a valuable tool for informing decisions about how to use scarce public resources, but is only one factor to consider when evaluating investments. When choosing which policies to fund, policy-makers also weigh other considerations, like equity, innovation, parity, and the well-being and stability of families. These factors are challenging to monetize, but represent important public values.

Figure 2: Children's mental health benefit-cost ratios summary

Basic Clinical Services

Service	Per participant benefit minus cost	Benefit-cost ratio (A+B)	State and local taxpayer ratio (A)	Other Minnesota societal ratio (B)
Trauma-Focused Cognitive Behavioral Therapy (TF-CBT)	$9,320	$15.20	$3.10	$12.10
Cognitive behavioral therapy (CBT) for anxiety	$3,030	$7.00	$1.60	$5.40
Parent Child Interaction Therapy (PCIT)	$1,110	$2.20	$0.60	$1.60
Cognitive behavioral therapy (CBT) for depression	($380)	$0.25	$0.05	$0.20
Cognitive behavioral therapy (CBT) for ADHD	($630)	$0.00	$0.00	$0.00

Community Supports

Service	Per participant benefit minus cost	Benefit-cost ratio (A+B)	State and local taxpayer ratio (A)	Other Minnesota societal ratio (B)
Incredible Years: Parent training	$1,850	$2.70	$0.30	$2.40
Behavioral parent training (BPT)	$260	$1.60	$0.40	$1.20

Per participant benefit minus cost is the difference between the present value of cash inflows (anticipated benefits) from a given service and the present value of cash outflows (costs).
Benefit-cost ratio is the net present value of anticipated benefits to state residents for every dollar invested in the service.
Taxpayer benefits *(blue)* accrue from avoided health care costs, criminal justice costs, and special education costs and increased tax revenues related to labor market earnings for state and local taxpayers.
Other societal benefits *(green)* accumulate to society through increased labor market earnings, decreased healthcare costs, decreased criminal justice costs, and changes in education costs.

1. Results First children's mental health analysis

Minnesota's Results First Initiative implements a framework based on research synthesis and benefit-cost modeling provided by the Pew Charitable Trusts and MacArthur Foundation. The approach enables us to identify opportunities for investments 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.

Figure 3: A framework for evidence-based decision-making

The nationally recognized Results First Initiative framework uses a three-step process:

1. **Use high-quality research** from across the nation to identify what works
2. **Use this research and state-specific data** to project the effect of services offered in Minnesota
3. **Compare services' costs and projected benefits** to identify the return on investment of public dollars

The Results First framework has two major products: the inventory of services and the benefit-cost analysis. The children's mental health inventory identifies the degree to which there is causal evidence of effectiveness for each of the services implemented in Minnesota.[1] We developed an inventory of 68 children's mental health services and conducted in-depth benefit-cost analyses on 7 services for which there is sufficient research and fiscal data available (more detail and methodology in Appendix A and B). The benefit-cost analyses estimate the monetary value of a given change in the prevalence of mental health conditions. Changes in these outcomes affect taxpayer expenses. For instance, through avoided costs to the health care system, increased tax revenues related to labor market earnings, and decreases in the use of special education in the K-12 system. The benefit-cost ratio compares per-participant benefits to the per-participant cost of the service.

Section 4 presents findings from the inventory and benefit-cost analysis. To frame that analysis, the report outlines the effects of trauma (Section 2. A.) and a continuum of care (Section 2.B), acknowledges gaps in service availability (Section 2. C.), and describes the structure and funding of state, county, tribal, and educational institutions in Minnesota (Section 3).

A. Scope and assumptions

The programs and services in this analysis include those that have an intended goal to reduce the incidence or symptoms of mental illness, including anxiety disorder, attention-deficit/hyperactivity disorder (ADHD), depression, disruptive behavior, post-traumatic stress disorder (PTSD), and severe emotional disorder (SED). We did not address needs for children with autism in this analysis.

While we recognize a full continuum of care—from health promotion to prevention to treatment—is necessary, this report focused on the latter half of that continuum, prevention and treatments for children that have shown symptoms of mental illness.[2] The target population age ranges from 0 to 21 years old.

[1] We assess effectiveness through reduced incidence or symptoms of children's mental health disorders or enhancement in child or family wellbeing.

[2] In other words, only selective and indicated prevention programs are included.

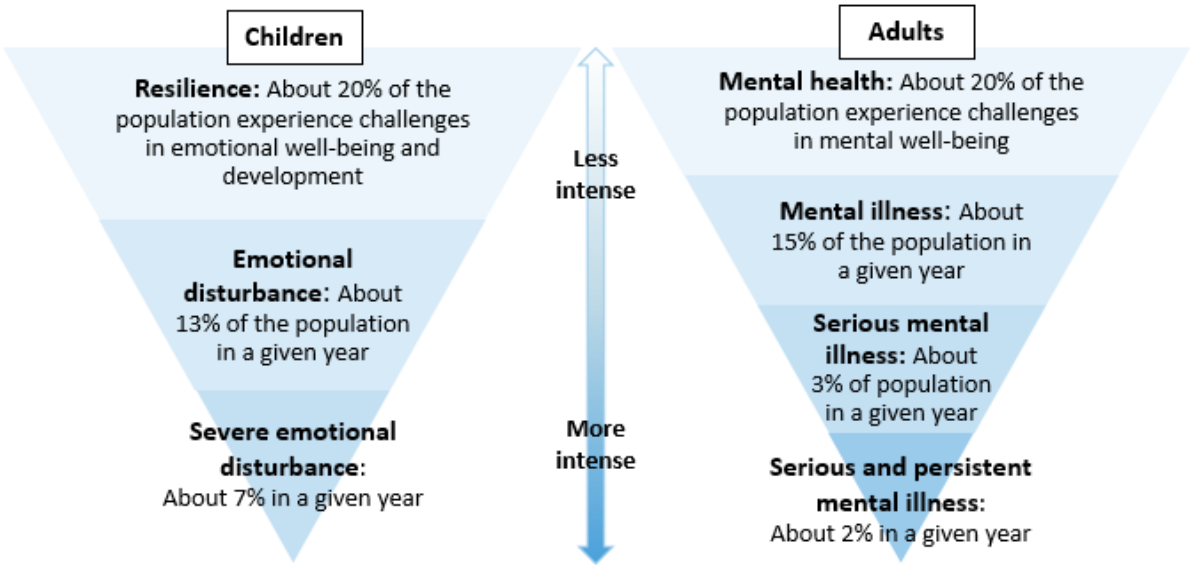
Minnesota Management and Budget collected program data from the Department of Human Services, Department of Health, Department of Education, Mercer Consulting Rate Study, and a sample of Minnesota counties: Carlton, Grant, Olmsted, Rice, and Wright. This sample includes counties of varying sizes and proximity to metro areas, but it is not necessarily representative of all regions throughout the state. We also used administrative data that covers the entire state population from state agencies, providers, and associations.

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 previously conducted in Minnesota or elsewhere in the country. Confirming that Minnesota children's mental health offerings actually achieve these outcomes would require conducting separate, time-intensive impact evaluations. To achieve the estimated benefit reported in the profile pages of this report, evidence-based services in Minnesota must be implemented effectively. Additionally, this 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.

2. Children's mental health in Minnesota

Mental illness in children is sometimes termed "emotional disturbance", which refers to a range of medical disorders and defining symptoms. Seven percent of Minnesotans from birth to age 21 (109,000 total) experience severe emotional disturbance in a given year. This rate is higher for school-age children (9%) and lower for preschool children (5%) (Minnesota Department of Human Services, 2018a).

Figure 4: Minnesota prevalence of emotional disturbance (children) and mental illness (adults)



Source: Governor's Task Force on Mental Health, 2016
Note: Interpretation of the graph is "20 percent of children experience challenges, which includes 13 percent of the population who experience emotional disturbance, which includes 7 percent of the population who experience severe emotional disturbance."

There are important differences between children, adolescents, and adults that affect their experience of mental illness. Besides anatomical and physiological differences, there are important social, emotional, and cognitive distinctions among age groups. For example, children and adolescents are still developing social

behaviors, emotional awareness, and cognitive abilities (until their mid-twenties). The broader context of development and the child's stage in development has a significant impact on their experience and recovery.

A 2016 Governor's Task Force on Mental Health Report notes "current scientific understanding of mental illness uses a medical model which interprets thoughts, feelings, and behaviors, such as hearing voices or feeling prolonged periods of despair, as symptoms of illness that can be treated by medical professionals with medications and therapies." Recently, the medical model expanded to one which recognizes the role of biological, social, and environmental dimensions of mental illness (Melchert, 2015). For example, social determinants of health – experiencing poverty, income inequality, racism, childhood trauma, and inadequate social capital – contribute to the onset and development of mental illness (Compton & Shim, 2015).

A. Factors and consequences

A child's personal experiences, cultural background, and messages from family, friends, and their community influence their conception and manifestation of normal behavior and optimum health. Risk factors are characteristics at the biological, psychological, family, community, or cultural level that precede a mental illness and increase the likelihood of negative outcomes (SAMHSA, Center for Application of Prevention Technologies, 2015). Some risk factors are fixed over time. Other risk factors are variable, such as a family's income level or parents' employment status, the child's relationships, or traumatic experiences. These variable risk factors, or social determinants of health, can contribute to the development of mental health conditions and/or substance use disorders later in life (Compton & Shim, 2015; SAMHSA, Center for Application of Prevention Technologies, 2015). Trauma in childhood (also referred to as adverse childhood experiences) is a significant risk factor.

Trauma and adverse childhood experiences

Trauma is one important component of mental health. A traumatic experience threatens someone's safety or well-being and elicits intense feelings such as fear, terror, and despair that overwhelm their capacity to cope (Buffington, Dierkhising, & Marsh, 2010). There are different types of trauma, such as sexual, physical, and emotional abuse, neglect, forced displacement, amongst others (Cook et al., 2017). Long-term effects of trauma during youth have negative effects on physical and emotional development (Adams, 2010; Ford, Chapman, Hawke, & Albert, 2007; National Child Traumatic Stress Network, 2017) and social and behavioral development (American Academy of Child and Adolescent Psychiatry, 2011; Ford et al., 2007). As an adult, the physical effects of trauma may develop into health problems[3] (Adams, 2010; Center on the Developing Child at Harvard University, 2017; Felitti et al., 1998). Trauma also increases the likelihood of developing life-long psychiatric conditions (Adams, 2010; National Child Traumatic Stress Network, 2017; van der Kolk, 2005).

Adverse Childhood Experiences (ACEs) are traumatic events that can lead to social, emotional, and cognitive impairment, which in turn, can lead to the adoption of high-risk behaviors, disease, and early death (SAMHSA, Center for Application of Prevention Technologies, 2016). Unfortunately, adverse childhood experiences are common. A CDC-Kaiser Permanente (1998) study of 9,508 adults found two-thirds of participants reported at least one ACE, and one in five reported three or more. The study confirmed ACEs have a powerful relationship to depression, suicide, substance use, violence, obesity, and sexually transmitted diseases (van der Kolk, 2005).

Trauma, adverse childhood experiences, and other social determinants of health can affect the development and course of mental illness through "toxic stress". Toxic stress refers to prolonged activation of the body's

[3] Such as obesity, cancer, heart disease, liver disease, depression, domestic violence, drug use, and suicide attempts.

stress management system, and can create structural changes in the brain which can increase the risk of physical and mental illness later in life (National Scientific Council on the Developing Child, 2014).

Consequences of untreated mental illness

Childhood events can influence the progress and success of individuals from adolescence into adulthood. Without proper screening, diagnoses, and treatment, a child may not receive needed services. This failure to intervene early negatively affects families. While there are many negatives outcomes—including the health, safety, and wellbeing of families—we focus on three discrete outcomes used in our benefit-cost analysis.

Utilization of mental health services

Another consequence of failing to screen children for mental health needs, and develop an early treatment plan is the need for additional services. As a child moves down the continuum of care, the services become more intense and expensive. For many children, early intervention can mean avoiding later intense mental health services.

The cost of failing to prevent a mental health crisis is large. If a treatment plan is not in place, a child experiencing a crisis may spend time in the hospital or an emergency room. On average, a child crisis hospitalization is $15,540 per stay (NAMI: Minnesota & AspireMN, 2017). The cost for an emergency room visit is $2,264 (NAMI: Minnesota & AspireMN, 2017).[4]

High school graduation and future earnings

Mental health influences and coexists with problems in many domains, including failure to graduate from high school (DeSocio & Hootman, 2004). Breslau et al. (2008) explored data on school terminations in high school and found 10 percent were related to mental disorders. The effects of school dropout due to mental disorders can lead to a decrease in future earnings (Fronstin, Greenberg, & Robins, 2005).

Delinquent behavior and substance use

Trauma can disrupt a child's neurodevelopment, including their ability to control or regulate emotions, process social stimuli, and make decisions (Brito et al., 2013; Pechtel & Pizzagalli, 2011). Youth who experience trauma have an increased likelihood of delinquent behavior (Buffington et al., 2010; Burrell, 2013; Ford et al., 2007; Mersky & Reynolds, 2007) and placement in a correctional facility (Hurley Swayze & Buskovic, 2015). Delinquent behavior also has a cumulative effect. Lopes et al. (2012) examined effects of youth interaction with police and found that experiencing an arrest as an adolescent (ages 14-19) *triples* the odds of being arrested as an adult (ages 21-23), and has a significant effect on drug use later in adulthood.

B. Continuum of care

Minnesota's mental health system follows a community-based model of care that provides services to children and their families near home whenever possible. Although part of the larger healthcare system, mental health providers interact with children in a wide range of settings and activities. The system also intersects with health promotion efforts, juvenile justice, child welfare, K-12 education, and many other existing systems.

In 2016, the Governor's Task Force on Mental Health outlined a vision for a continuum of care for individuals with mental health needs (See Appendix C).[5] The continuum includes promotion and prevention, early

[4] A forthcoming 2019 study by Wilder Research, NAMI, ASPIRE, and DHS will explore in more depth the availability, quality, and cost of intensive mental health services, including residential treatment and psychiatric hospitalization.
[5] It is not specific to children's mental health needs.

intervention, basic clinical services, residential treatment, community supports, and crisis response. The following sections describe our current children's mental health system.

Mental health promotion

Everyone has a state of mental health, and this state is dynamic with changes occurring across a lifespan. In this way, promoting mental wellbeing is important for all Minnesotans and has the potential to lessen the probability or severity of mental illness.

In 2015, an advisory group at Minnesota Department of Health (MDH) outlined public health values around mental health in an emerging narrative to guide mental health promotion efforts. The framework identifies a comprehensive set of protective factors in three categories: people, place, and equity (Minnesota Department of Health, 2018). The protective factors under each category operate in the context of community.

The ability of a given community to solve collective problems and improve community well-being is their community capacity. Community capacity is linked to decreased rates of mental illness, antisocial behavior, neighborhood violence, and suicide (Minnesota Department of Health, 2018). Community leaders can build their community capacity by expanding community understanding about what shapes mental health, creating change through leadership development, and focusing on policy (Minnesota Department of Health, 2018).

Prevention

Risk factors are characteristics that increase the likelihood of negative outcomes; protective factors reduce a risk factor's impact and decrease the likelihood of negative outcomes (SAMHSA, Center for Application of Prevention Technologies, 2015). Variable risk factors change over time and can vary across contexts.

Risk factors tend to be positively correlated to each other, but negatively correlated to protective factors (SAMHSA, Center for Application of Prevention Technologies, 2015). Risk factors also tend to have a cumulative effect on the development of behavioral issues, while protective factors cumulate to reduce development of behavioral health issues (SAMHSA, Center for Application of Prevention Technologies, 2015). The interactions between the two highlight the importance of prevention and early intervention.

Figure 5: Variable risk and protective factors for mental, emotional, and behavioral health

Level	Risk factors	Protective factors
Individual characteristics	Difficult temperament; inflexibility; poor concentration; low self-esteem; poor social skills; shyness; rebelliousness; insecure attachment; or withdrawal.	Academic achievement; intellectual development; emotional self-regulation; coping skills; problem-solving skills; engagement/connections in school with peers, in athletics, employment, religion, or culture.
Family characteristics	Depression; marital/family conflict; poor parenting; substance use; child abuse; maltreatment; or unemployment.	Family provides structure, limits, rules, monitoring, and predictability. The child has supportive relationships with family members and clear expectations of behavior and values.
School/Community characteristics	Peer rejection; community/school violence; poverty; poor academic achievement; community-level stressful or traumatic events; drug use in community or at school.	Presence of mentors and support for development of skills and interests; opportunities for engagement within school and community; positive norms; clear expectations of behavior and safety.

Source: O'Connell, Boat, & Warner, 2009

This report does not focus on universal prevention programming, but a few current examples of such programming include:

- Children's Mental Health and Family Services Collaboratives support mental health prevention and early intervention services and supports, such as community, family and school-linked programs, flexible funds and wraparound services.[6] Multi-Generational Treatment uses outpatient services to treat parent-child relationships through the parent's mental health diagnosis.
- The MN State Suicide Prevention Task Force and Department of Health (MDH) released the Minnesota Suicide Prevention Plan in 2015, which aims to reduce suicide in Minnesota by 10 percent in five years, 20 percent in ten, and ultimately working towards zero deaths. MDH also leads monthly learning opportunities for communities interested in building reliance and promoting well-being.
- The Minnesota Department of Education provides school districts with training and technical support to promote improvement in student behavior, especially for students with challenging social behaviors.

Screening

A mental health or development screening helps identify potential mental health symptoms. Usually screenings are quick questionnaires. Screenings are not diagnostic; if the results indicate a potential mental health condition, further evaluation is necessary by a mental health professional (Minnesota Department of Human Services, 2016b). Many types of screenings exist that target specific ages or circumstances related to the mental health of children and youth. Settings include: child and teen checkups, child welfare systems, early childhood screenings, juvenile justice systems, and public schools (Minnesota Department of Human Services, 2016b).

Diagnostic assessment

If a child shows possible symptoms of a mental illness, a diagnostic assessment may be in order. During a diagnostic assessment, a healthcare professional interviews the child or family to gather information about symptoms, history of mental health problems, and the relevant family history and social determinants (Minnesota Department of Human Services, 2017b). Medical Assistance covers diagnostic assessments.[7]

The American Psychiatric Association maintains a manual of mental illness classifications, the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, or "DSM-5." Health care professionals use the DSM-5 to diagnose mental health disorders. For infants, toddlers, and young children, the Diagnostic Classification of Mental Health and Developmental Disorders in Infancy and Early Childhood or "DC:0-5" apply.[8]

The diagnostic assessment includes a mental health diagnosis, documentation of the medical necessity for services, and recommended services. If the child has no insurance or is on public insurance and the mental health diagnosis includes severe emotional disturbance (SED), the child is eligible for county case management services. [9] If a child is on private insurance, the insurer may arrange case management and therapy services.

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[6] See report section 3. Governance and funding for more information on Children's Mental Health and Family Services Collaboratives.
[7] Minnesota Rules 2017, 9505.0372 subpart 1.
[8] ZERO to THREE published the DC:0-3 and DC:0-3R manual, but have since updated and revised it to the current DC:0-5.
[9] Minnesota Statutes 2017, 245.462, subdivision 20. Definitions.

County case management services

For clients with no insurance or on public insurance, after receiving the diagnostic assessment, the county determines whether the child has a severe emotional disturbance (SED).[10] If the child does have an SED and the parent or guardian consents to services, the county refers the family to a case management provider or a county case manager. If the county determines that the child does not have an SED, but still has mental health symptoms, they can refer the child to a mental health provider.

Case management includes four main components[11]:

1. Monitoring and coordinating: review progress and effectiveness of services and supports
2. Assessment: review diagnostic assessment and complete screenings and assessments
3. Planning: develop an individual community support plan (ICSP) with ongoing updates
4. Referral and linkage: implement the ICSP and acquire resources, services and natural supports

Community services and supports

If a child does not have a severe emotional disturbance and county case management services, they can still receive mental health services in the community. County staff or healthcare providers will use a functional assessment to determine the level of care needed for treatment.

Figure 6: Examples of community services and supports (all below included in our inventory)

Children's Therapeutic Services and Supports (CTSS): The state certifies community providers as CTSS. They provide individual, family, or group psychotherapy, group skills training, family skills training, crisis assistance, and mental health behavioral aide services. The services occur in the family's home, the child's school, or another community setting. Some children may receive services from a CTSS provider after discharge from a residential setting. *Billing*: Medical Assistance and, in some occasions, private health plans.

Community mental health centers: Centers provide psychotherapy on a sliding fee scale. They also administer diagnostic assessments and have staff that helps manage psychiatric medications. *Billing*: Public (MN Health Care Plans) or private insurance.

Early childhood mental health grantees (ECMHG): Since 2009, DHS awarded these grants to create comprehensive mental health systems and services to meet the needs of young children (birth to age 5) and families. In 2015, DHS granted 22 agencies awards.[12] Future grantees will implement direct clinical and ancillary services, mental health consultation to childcare providers, and capacity enhancement. *Billing*: Grantees provide these services under the Early Childhood Mental Health Grant.

Family community support services: Includes family outreach, therapeutic foster care, medication management, independent living assistance, leisure and recreation, parenting skills, and home-based therapy. *Billing*: Counties must provide these services under the Children's Mental Health Act.[13]

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[10] Defined in Minnesota Statutes 2018, section 245.4871, subdivision 6.

[11] Providing case management services (also called targeted case management or Rule 79 case management) to children with severe emotional disturbances is a duty of the county board (Minnesota Statutes 2017, 245.4874). Minnesota Rule 79 establishes standards and procedures providing mental health case management (Minnesota Rules 2018, 9520.0900 to 9520.0926).

[12] Map and list of ECMHG agencies.

[13] Minnesota Statutes 2017, 245.487, Declaration of policy; Mission.

Private clinics and practices: Licensed mental health professionals provide counseling, therapy or other treatments. Sessions may be individual or group. *Billing*: Public (MN Health Care Plans) or private insurance.

Respite care: This type of support gives families a break from caring for the child with mental health conditions. It involves bringing a trained respite provider into the home or placing the child in another setting for a temporary basis, often a few hours to a weekend. *Billing*: State or county funds are available for respite care if the child receives case management services through the county (Rule 79 case management).

School-linked mental health services: Community mental health agencies place mental health professionals and practitioners in schools to provide mental health services to students. Students do not need to qualify for special education to receive services. *Billing*: Public (MN Health Care Plans) or private insurance, and a state grant for children who are uninsured or underinsured.

Intensive mental health services for children

Some children and adolescents need intensive mental health services. The continuum of intensive mental health services includes both intensive community-based services and residential services.

Figure 7: Intensive community-based mental health services

Day Treatment: When therapy is not enough, day treatment can help stabilize a child's mental health. Services are a package of CTSS structured services. A provider spends 2-3 hours a day for 3-5 days a week providing individual or group psychotherapy and skills services. Staff may also help manage medications and practice independent living skills. Some children participate as a step-down from a residential setting. *Billing*: Public (MN Health Care Plans) or private insurance, or a county's or a school's special education program.

Partial hospitalization: Hospital care offers a higher level of medical care and observation and services to prepare a child to return home, including medication management, therapy, and skills building. *Billing*: Public (MN Health Care Plans) or private insurance, and in some cases the hospital's charity care program.

Residential settings provide structure, services, and monitoring in a home-like environment. Children who need long-term care are placed in residential settings and receive intensive mental health services; for example, in Intensive Treatment Foster Care (ITFC) or at children's residential facilities. Inpatient hospitalization is the most intensive level of treatment, offering 24-hour care in a secure unit of a hospital or facility. Inpatient stays are typically short-term and focus on stabilizing the child.

Another inpatient setting for children and youth under 21 years old is psychiatric residential treatment facilities (PRTF). Instead of a hospital, PRTFs provide care in a residential facility, but the child is still under direction of a physician. This setting is not an out-of-home placement; it is a medically necessary inpatient psychiatric admission. Within the continuum of intensive mental health services, a PRTF is more intensive than a children's residential facility, but less medically intensive than a psychiatric hospital or a psychiatric unit of a general hospital.

Figure 8: Intensive mental health services in residential settings[14]

Intensive Treatment Foster Care (ITFC)[15]: Delivered in a foster home, school, parent's home, or other natural setting, ITFC is a bundled package of services and treatments. Includes psychotherapy and psychoeducational services (individual, family, and group), clinical care consultation, and crisis assistance. Eligible ITFC recipients must live in a family foster care setting. *Billing*: Public (MN Health Care Plans).

Children's residential facilities (CRF): These facilities seek to stabilize children in crisis and help families develop skills to return to the community. These settings are less restrictive than hospitalizations or PRTFs. These medium-term placements (9-12 months) help children in a crisis and are in need of out-of-home placement. *Billing*: Private insurance (Minnesota-based plans), Medical Assistance (only accessed through county placement).

Psychiatric Residential Treatment Facilities (PRTF): Instead of a hospital, PRTFs provide care for children with complex needs, but in a residential setting. Services may include individual, family, and/or group therapy, family engagement activities, supportive services for daily living, and consultation with other professionals including case managers, primary care physicians, community-based mental health providers, school staff, and other support planners. *Billing*: Private insurance (Minnesota-based plans), Public (MN Health Care Plans).

Psychiatric units (inpatient hospitalization): When medically necessary, doctors can admit a child into a hospital's psychiatric unit (NAMI: Minnesota, 2015). Psychiatric units are different from other parts of a hospital because there are locked doors and restricted areas. Inpatient hospital care focuses on stabilization and includes medical, nursing, and group or individual therapy. A case manager may help parents create a discharge plan when the child is ready to leave. *Billing*: Public (MN Health Care Plans) or private insurance, and in some cases the hospital's charity care program.

Crisis response services

A mental health crisis is "any situation in which the child's behaviors puts them at risk of hurting themselves or others and/or when a parent isn't able to resolve the situation with the skills and resources available" (NAMI: Minnesota, 2016).[16] Many different stressors can trigger a mental health crisis for children at home, at school, or in the community. To help people in crisis, mental health crisis phone lines are available in every county in Minnesota. Trained workers assist callers with their mental health crisis, make referrals, and contact emergency services if necessary. If needed, a mobile crisis response team can meet the child at the scene of the crisis. These teams administer services that are intensive, face-to-face, short-term interventions to help the child return to a baseline level of functioning. Besides meeting with the child to de-escalate, a mobile response team conducts a

[14] In an upcoming report (anticipated in February 2019), Wilder Research, DHS and other partners will discuss the use, need, and gaps of intensive mental health services. As such, this report does not focus on these services in detail.

[15] Eligible ITFC providers include county-operated agencies, Indian health services facilities, non-county agencies as defined by Minnesota statutes, section 245.62, and mental health clinics (Rule 29 or clinicians in private practice). See DHS ITFC overview for mental health providers.

[16] Minnesota Statutes 2017, section 256.0944 subdivision 1(a). "A 'mental health crisis' occurs when a child's behavioral, emotional, or psychiatric situation would likely result in significantly reduced levels of functioning in primary activities of daily living, an emergency situation, or the child's placement in a more restrictive setting, such as inpatient hospitalization, if not for the provision of crisis response services."

mental health assessment and creates a treatment plan. If the child is in immediate danger, the team may involve law enforcement or recommend an emergency room visit.

While crisis services are, ostensibly, available across Minnesota, the response rate of services vary greatly from county to county and tribal nation to tribal nation (Minnesota Department of Human Services, 2017a).

C. Service availability and barriers to access

While the state offers a range of mental health services, demand and distance often means there are gaps in the continuum of care. The Department of Human Services conducts a Gap Analysis study every two years, assessing the capacity of local systems.[17] Across all population groups (including adults), the most common gaps were workforce shortages, transportation, crisis services, and housing (Minnesota Department of Human Services, 2017a). The top two gaps for children's mental health were workforce shortages and crisis services.

2017 DHS Gap Analysis study: Prioritized service gaps for children's mental health	Rank
Workforce Shortage	1
Crisis Services	2
Other out-of-home placements*	3 (tie)
Psychiatrists/prescribers/medication management	3 (tie)
Residential treatment	3 (tie)
Transportation	3 (tie)
In-home services, home health, home health care	4

*Placements other than those specified as residential treatment, noting a continuum of placement types.

Workforce shortages

Workforce shortages were the most common service gap priority reported in the Gap Analysis study for children with mental health conditions. The mental health workforce is a broad range of providers, for instance psychiatrists, psychologists, social workers, mental health practitioners, case managers, and peer specialists.

Psychiatrist shortages can increase wait times and reduce access to services. The American Association of Child and Adolescent Psychiatry reports the national average wait time to see a Child and Adolescent Psychiatrist is 7.5 weeks (American Association of Child & Adolescent Psychiatry, 2018). In Minnesota, the wait time can be even longer; some child psychiatrists reported wait times up to *14 weeks* (DeFor & Rosenthal, 2015). Waits are especially long for children with culturally specific needs and for high-intensity services.

A culturally diverse workforce

Individuals experiencing emotional or behavioral disorders need treatment and support from professionals who understand and are sensitive to their ethnic and cultural values, customs, and practices (DeFor & Rosenthal, 2015). To that end, the Institute of Medicine (2004) reported that:

- Racial and ethnic minority healthcare professionals are significantly more likely than their white peers to serve diverse communities and medically underserved communities.
- Diverse patients who have a choice are more likely to select healthcare professionals with a similar racial or ethnic background.

[17] The 2017 report, prepared by Wilder Research, uses data from the calendar years of 2015 and 2016. Different from previous gap analysis studies, this time Wilder convened eleven regional meetings, each attended by lead agency representatives, service providers, and consumers and advocates of these services. Participants prioritized gaps for each population group, identified solutions, and developed plans to implement the proposed solutions.

- Those patients are generally more satisfied with the care that they receive from diverse professionals.

The demand for a diverse mental health workforce grows as the Minnesota population becomes more culturally diverse. The Cultural and Ethnic Minority Infrastructure Grant program through DHS increases access to mental health services for children from cultural minority populations. Since 2008, 390 individuals received clinical supervision, mentoring, or training through the grant and 140 of those received a clinical license (Minnesota Department of Human Services, 2018c). The grant also covers direct services for children from cultural minority families who are uninsured or underinsured. In 2017, 243 children directly received services.

Need for short-term care settings during a mental health crisis

The Gap Analysis study identified a need for a continuum of placement types for children experiencing a mental health crisis, especially those in need of short-term care settings. If a child needs publically funded 24-hour observation after a crisis, the process can be long and there is limited eligibility (NAMI: Minnesota & AspireMN, 2017).

The lack of available crisis residential services for children in Minnesota may lead to increased emergency room visits. The Minnesota Hospital Association tracked emergency department visits for children facing mental health crises and found nearly 20,000 in 2016 (NAMI: Minnesota & AspireMN, 2017). This is an inefficient outcome as they are not equipped to provide the necessary care for children experiencing a mental health crisis.

Regional differences

The 2017 Gap Analysis study examined service availability across regions. Figure 9 maps the number of mental health users under 25 in each region compared to the region's population of children, adolescents, and transitional youth. The estimates displayed for each region are the number of mental health users (25 and under) per 1,000 individuals under 25 years old.

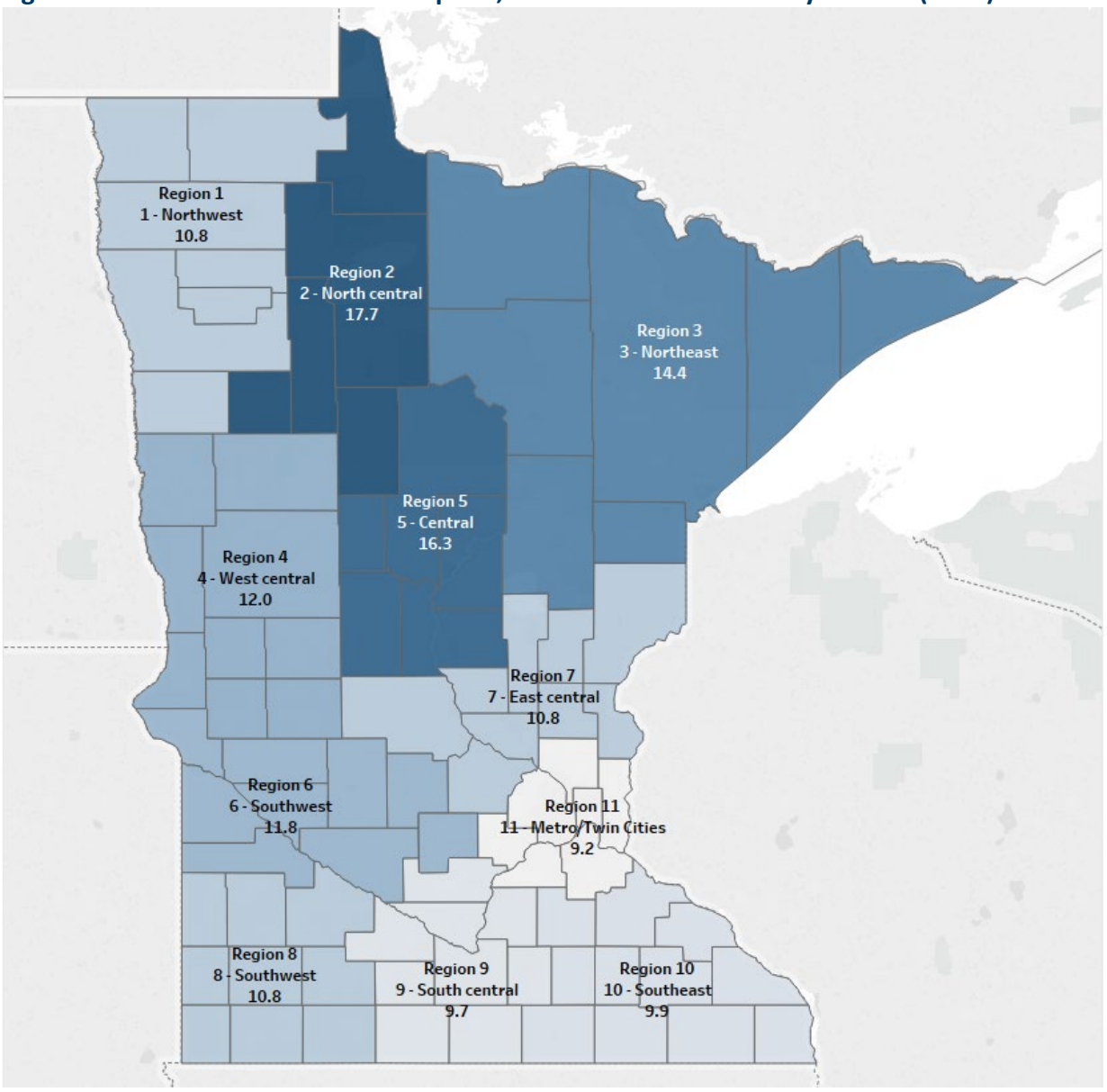
The highest density of mental health users is concentrated in the North central, Central, and Northeast regions; ranging from 14.4 to 17.7 mental health users per 1,000 residents under 25 (includes children, adolescents, and transitional youth).

Also using findings from the 2017 Gap Analysis study, figure 10 summarizes the top service gaps in each region. The top two gaps for children's mental health are workforce shortages and crisis services. When the data is broken down by region this remains true, except for three regions: North central, East central, Metro/Twin Cities.

In a 2015 report, DHS conveyed that some services are widely available (early childhood mental health services) while others are rare: family peer specialists, youth ACT, partial hospitalization, inpatient hospitalization, and children's residential treatment (Community Supports Administration, 2015).[18] Figure 11 shows the service availability across regions for diagnostic assessments, community services, and intensive mental health services.

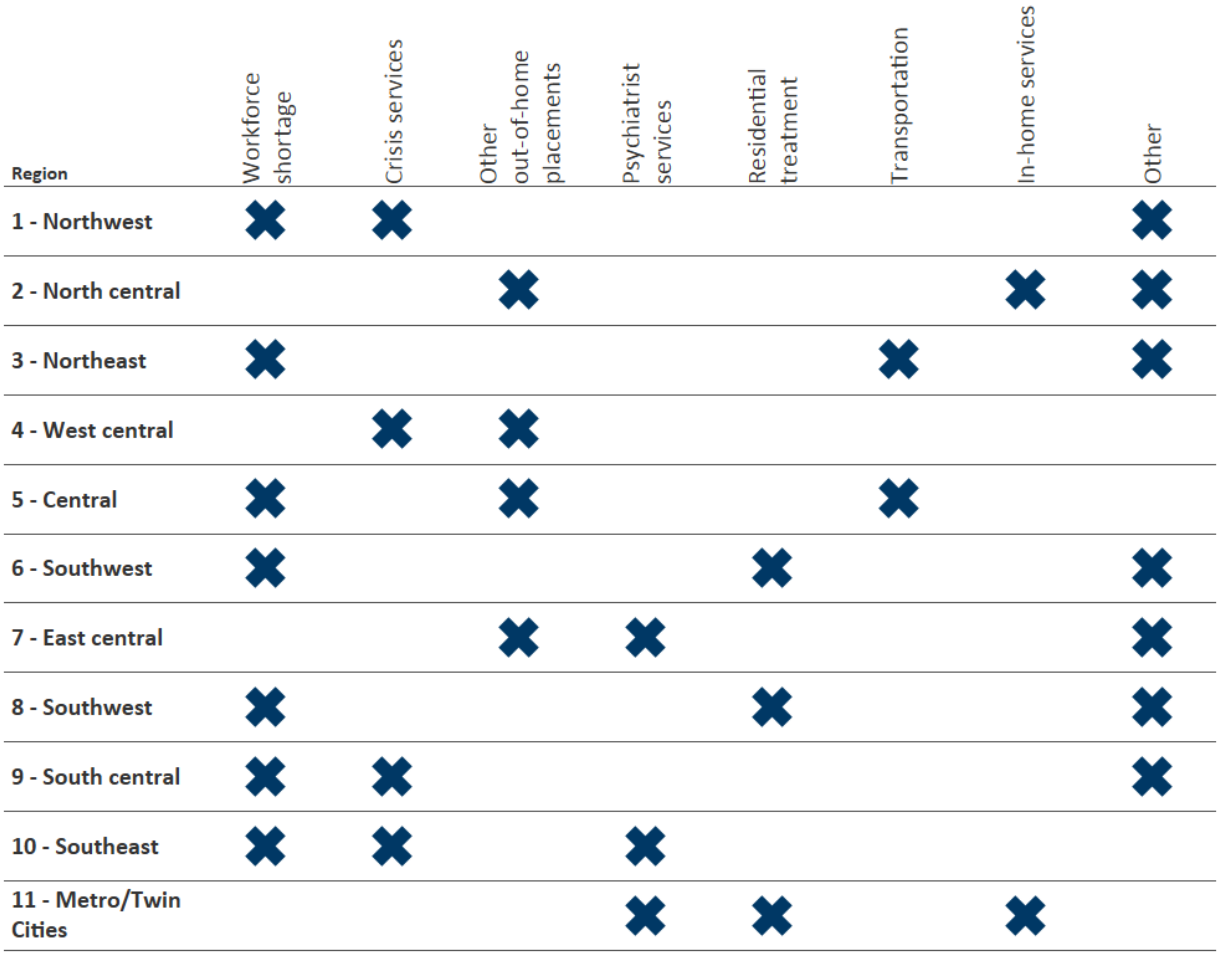
[18] The Minnesota Department of Human Services collects data from a wide variety of sources to estimate the availability of children's mental health services: Medical Assistance claims data, county and tribal reporting, and surveys with counties, providers, and those using mental health services.

Figure 9: MHCP mental health users per 1,000 individuals under 25 years old (2015)



Source: Minnesota Management and Budget, 2018
Note: Data from [American Community Survey, 2015 data] and the Minnesota DHS 2017 Gap Analysis study

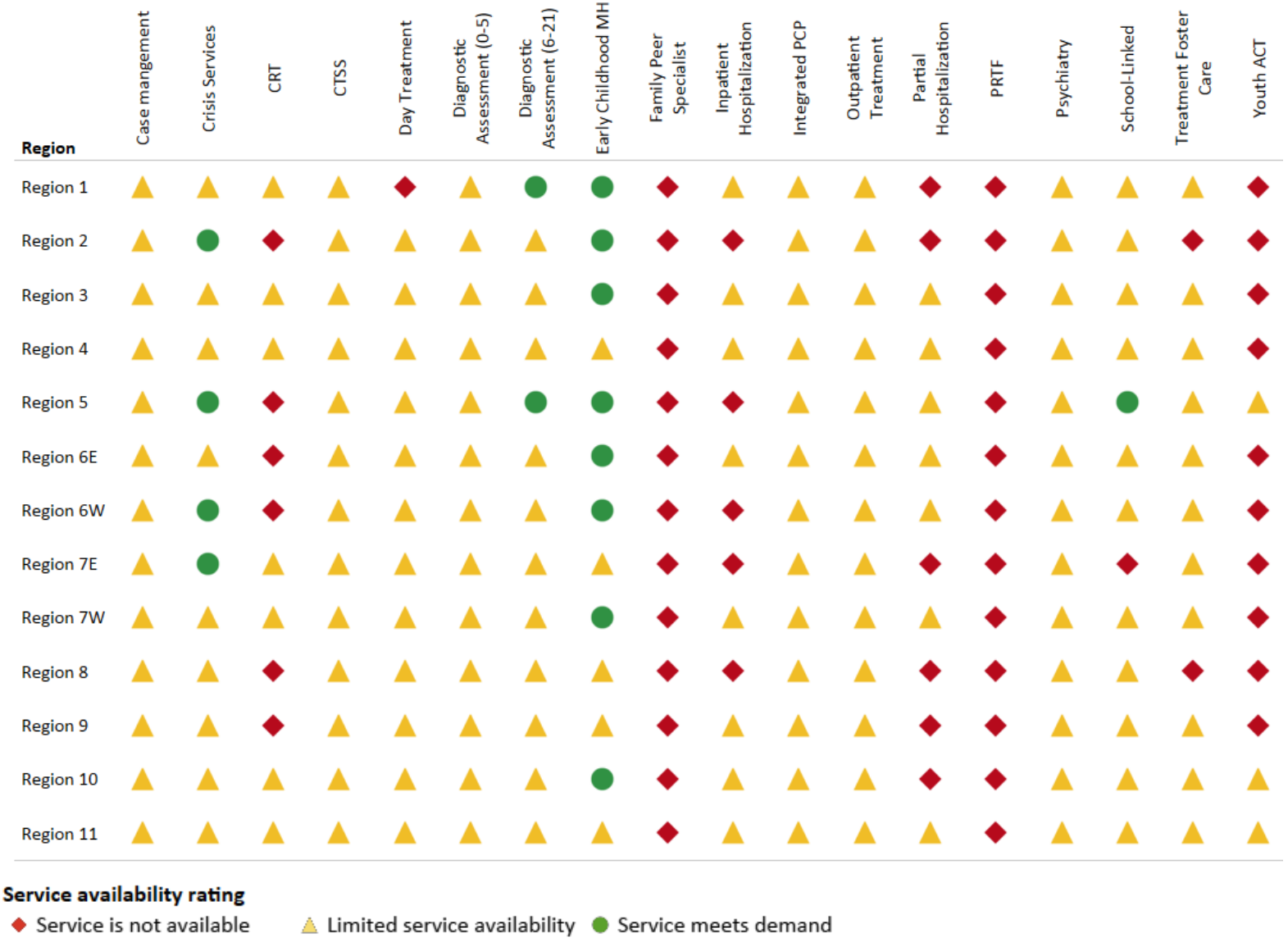
Figure 10: Service gaps by economic development regions (2015)



Source: Minnesota Department of Human Services 2017 Gap Analysis study
Note: Other includes Trauma training/support for schools (region 1), Chemical dependency services (region 2), Day treatment (region 3), Well rounded access to evaluations and services (region 6, 8), Respite (region 7), Intensive preventative community-based supports (region 9)

Region	Counties
1 - Northwest	Kittson, Marshall, Norman, Pennington, Polk, Red Lake, Roseau
2 - North central	Beltrami, Clearwater, Hubbard, Lake of the Woods, Mahnomen, White Earth reservation
3 - Northeast	Aitkin, Carlton, Cook, Itasca, Koochiching, Lake, St. Louis
4 - West central	Becker, Clay, Douglas, Grant, Otter Tail, Pope, Stevens, Traverse, Wilkin
5 - Central	Cass, Crow Wing, Morrison, Todd, Wadena
6 - Southwest	Big Stone, Chippewa, Kandiyohi, Lac qui Parle, McLeod, Meeker, Renville, Swift, Yellow Medicine
7 - East central	Benton, Chisago, Isanti, Kanabec, Mille Lacs, Pine, Sherburne, Stearns, Wright
8 - Southwest	Cottonwood, Jackson, Lincoln, Lyon, Murray, Nobles, Pipestone, Redwood, Rock
9 - South central	Blue Earth, Brown, Faribault, Le Sueur, Martin, Nicollet, Sibley, Waseca, Watonwan
10 - Southeast	Dodge, Fillmore, Freeborn, Goodhue, Houston, Mower, Olmsted, Rice, Steele, Wabasha, Winona
11 – Metro/Twin Cities	Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, Washington

Figure 11: Service availability by economic development region (2014)



Source: DHS Community Supports Administration, 2015 **Note**: Regions 6 and 7 split by East and West. CRT are children's residential treatment centers; CTSS is children's therapeutic services, Integrated PCP is Integrated Primary Care Practitioner; PRTF is psychiatric residential treatment facility; and Youth ACT is Youth assertive community treatment. The first PRTF was not yet open at the time of data collection.

Cost of evidence-based practices

A significant challenge for advancing evidence-based practices is they often are more expensive to deliver than status-quo, non-model treatments. This stems from the high start-up cost for providers offering the treatment, including training, certification, fidelity monitoring, and equipment. Providers are often unable to bill for or recoup the overhead for these costs from existing reimbursement rates. Higher reimbursements do not ensure good care or improved outcomes, but when rates do not cover the cost to deliver proven practices, practitioners may underutilize them or fail to deliver them correctly.

In 2015, the Minnesota Legislature asked DHS to commission a study on the sustainability of current public health care rates and alternative payment methodologies for mental health services (DHS & Mercer, 2018). The study—completed by Mercer Consulting—surveyed community-based providers in Minnesota to gauge the rate adequacy. Their report indicates that adequate reimbursement "does not mean that excessive or inefficient provider costs are covered; rather, it means that required and reasonable costs of the average provider will be covered with sufficient return on investment for the provider to continue to invest its resources in growing services necessary to meet communities' needs." This study did not include residential treatment settings, which tend to be more expensive.

The Mercer report found, for the 22 providers that provided cost data (which are not necessarily representative of providers across the state), reported costs exceeded the reimbursement rate for 31 of the 37 treatment modalities analyzed.[19] For instance, the evidence-based Multi-systemic Family Therapy has unreimbursed initial certification, training, and monitoring costs of around $49,000 per team and $5,000 annually in ongoing costs. Current Medical Assistance reimbursement rates are $13.44 (per 15 minutes), which—even spread across many clients—is insufficient to cover those initial start-up costs. In two anonymous comparison states selected by Mercer, rates were higher for research-based models (DHS & Mercer, 2019). For instance, Multi-systemic Family Therapy rates in these two states are $30.23 and $43.06 (per 15 minutes), or 130 – 150 percent higher than Minnesota's rate. Importantly, rates that do not cover costs is not unique to mental health or evidence-based practices, but is broadly considered to be the case in public health care insurance.

To help ease start-up costs, the Minnesota Legislature in FY 2017 funded two grants (Children's Evidence-Based Training Grants and the Early Childhood Mental Health Capacity Grants) to support training for evidence-based practices, including Attachment-Biobehavioral Training (ABC), Child-Parent Psychotherapy (CPP), Parent Child Interaction Therapy (PCIT), Trauma-Focused Cognitive Behavioral Therapy (TF-CBT), and the Managing and Adapting Practice (MAP) model. This can lead to increased adoption of proven practice models across Minnesota.

[19] These numbers are reliant on self-reported provider data and are a relatively small subset—only around 5%--of the provider population. As Mercer notes, this level of response is insufficient to determine if these costs are representative of the state writ large. As of now, no administrative dataset can systematically collect this data.

Cultural responsiveness

Culture affects how people exhibit symptoms, use coping mechanisms and social supports, and their willingness to seek care (Samuels, Schudrich, & Altschul, 2009; Unger et al., 2004). 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 incorporate local knowledge, needs, and preferences of a particular cultural group or the community (Samuels et al., 2009). The aim of this type of adaptation is to maximize the effect when delivered to diverse communities.

Culturally adapting evidence-based practices is not an easy or straightforward task. There is a balance of adapting evidence-based practices to be responsive to cultural and community needs while retaining the "causal ingredients" of the practice that makes it effective. A recent Surgeon General's Report refers to this balancing act as the "Fidelity-Adaptation Dilemma" (U.S. Department of Health and Human Services, Office of the Surgeon General, 2016). There are two emerging principles that guide the development of cultural adaptations (U.S. Department of Health and Human Services, Office of the Surgeon General, 2016):

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

To make culturally responsive modifications to a program, its designers need to work closely with community members. The Surgeon General (2016) recommends a partnership between intervention developers, those who deliver the intervention, and potential program participants who can represent perspectives and interests of the community. Additional evaluation can reaffirm the effectiveness of the adapted program.

In addition to adapting models from elsewhere, local communities could have cultural practices attain an evidence-based designation—as defined in this report—by undertaking an impact evaluation. [20] The Red Cliff Band of Lake Superior Chippewa took this approach with their Wellness School curriculum, a program now rated a promising practice by the Substance Abuse and Mental Health Services Administration (SAMHSA).

Culturally competent research

For many important technical and historical reasons, we know less about the causal impact of culturally informed services or if evidence-based practices work equally well for all populations. While services can be both culturally-informed and evidence-based, some communities may want to pursue an alternative model of knowing what works. One method is using culturally competent research. The cultural foundation of culturally competent research is different from the "causal ingredients" foundation of how we currently rate evidence-based practices (Echo-Hawk, 2018). This field of research, also referred to as practice-based evidence or community-defined evidence, includes the following fundamentals:

1. knowledge of the function of cultural help-seeking patterns
2. understanding the cultural context of problem identification
3. use of culturally-informed therapeutic intervention(s)
4. engaging the local community and cultural resources to achieve the long-term positive effects

[20] There are numerous forms of rigorous evaluation or ways of knowing. Impact evaluation seeks to understand the causal impact using a specific scientific frame. As such, it is not desirable for all questions, in all contexts, or for all communities.

3. Governance and funding

A. State, county, and tribal human services

Minnesota implements a state-directed, county-administered public mental health system. The Department of Human Services (DHS) is the state mental health authority. The State administers many of the billing mechanisms and capacity grants for children's mental health. In 2016, DHS served 270,651 clients for mental health; 33 percent were under the age of 20 (SAMHSA, 2017)[21].

Figure 12: Individuals served by the state mental health authority (2016)

Category	Age: 0-12	Age: 13-17	Age: 18-20	Age: 21-75+	Total
Individuals served under the state mental health authority (DHS)	47,316 (18%)	29,235 (11%)	11,326 (4%)	182,734 (68%)	**270,651 (100%)**
Children with SED or adults with SMI served under the state mental health authority (DHS)	18,727 (14%)	11,783 (9%)	5,572 (4%)	95,947 (73%)	**132,046 (100%)**

Source: SAMHSA, 2017

Note: Reporting period is from January 1, 2016 to December 31, 2016. Age not available for 40 individuals.

Department of Human Services

As the state mental health authority, the Department of Human Services supervises the development and coordination of children's mental health services, provides technical assistance in developing and maintaining services, and monitors progress in developing system capacity and quality.[22]

Minnesota Health Care Plans

A combination of state and federal resources fund Medical Assistance and MinnesotaCare. DHS administers these programs with various matching funds and maintenance of effort requirements. Medical Assistance (MA) is Minnesota's Medicaid program, providing insurance for low-income Minnesotans. DHS is the state Medicaid agency, and it collaborates with counties to administer the program. For children receiving mental health services, the state generally receives fifty percent federal matching funds for the cost of MA services and the state general fund pays the remaining 50 percent. A county share covers some specified services. MinnesotaCare is a premium-based public health insurance program for low-income residents who do not have access to Medical Assistance or health insurance through an employer. Eligibility is based on income with members paying a monthly premium based on a sliding fee scale.[23]

Children's mental health grants

Historically, treatment and support service availability in Minnesota was limited. In 2008, Minnesota launched a long-term capacity building effort to increase access to quality mental health care for children (Minnesota

[21] The U.S. Department of Health and Human Services requires DHS to prepare and submit performance indicators and accomplishments for their National Outcome Measures (NOMS) tables. These tables show the number of individuals served and total expenditures.

[22] Minnesota Statutes 2017, 245.4873, subdivision 5. Duties of the commissioner.

[23] DHS Insurance affordability programs (IAPs) income and asset guidelines.

Department of Human Services, 2016a). Children's mental health grants promote integration of mental health services into the overall healthcare system by filling gaps in the continuum of services and supports and covering services for children who remain uninsured or under-insured by private health plans.[24] These grants also build statewide service delivery capacity, expand access to direct treatment, train providers on evidence-based practices, fund measurement of outcomes, and support development of new levels of care for children.

The Behavioral Health Division at DHS administers children's mental health grants, using state and federal resources. Grantees include non-profit agencies, schools, Medicaid-enrolled mental health clinics, tribes, counties, and culturally specific agencies. Total spending for Children's Mental Health Grants activity for FY 2017 was $24.3 million or about 0.15 percent of the DHS overall budget (Minnesota Management and Budget, 2018).

Figure 13: General fund budget detail for Children's Mental Health Grants, FY 2017

Name	FY 2017 Budget
Adverse Childhood Experiences Grants	Program started in FY 2018
Children's MH Crisis Services	$5,424,000
Children's Mental Health (CMH) - Capacity Respite Grants	$1,524,000
CMH - Cultural Competence Provider Capacity Grants	$300,000
Children's Mental Health (CMH) - Screening Grant	$4,412,000
CMH - Evidence Based Practices Training Grants	$750,000
Children's Mental Health (CMH) - Capacity School Based Services	$9,587,000
CMH - Capacity Early Intervention Grants	$1,024,000
Statewide text message suicide prevention program	$1,125,000
Mental Health First Aid	$23,000
First Episode Psychosis Grants	$177,000

Source: FY 2018-19 Governor's Revised Budget Recommendations, page 457

DHS also distributes capped or non-entitlement federal grants, including formula grants which supplement state and local expenditures for specific categories of services; for example, the Community Mental Health Services Block Grant and the Community Mental Health Services for Children with Serious Emotional Disturbances Grant.

In the calendar year 2017, DHS reported over $170 million in state hospital expenditures and $1 billion for non-state hospital expenditures for mental health (all ages) which includes community services, ambulatory services, primary prevention, evidence-based practices for early serious mental illness, and 24-hour care (SAMHSA, 2017).

Figure 14: DHS mental health related expenditures in hospital settings, 2017

Funding Source	Total ($)	Total (%)
Medicaid (Federal, State, and Local)	$22,522,313	13.1%
Other Federal Funds*	$8,769,795	5.1%
State Funds	$100,194,100	58.1%
Local Funds**	$35,946,865	20.8%
Other	$5,132,756	3.0%
Total	**$172,565,829**	**100%**

Source: SAMHSA, 2017
Note: Data includes both adults and children.
*Examples: ACF (TANF), CDC, CMS (Medicare), SAMHSA
**Excluding local Medicaid

[24] CMH grants cover services, supports, and coordination activities not eligible for Medicaid reimbursement.

Figure 15: DHS mental health related expenditures in non-hospital care, 2017

Funding Source	Total ($)	Total (%)
Mental Health Block Grant	$4,570,349	0.4%
Medicaid (Federal, State, and Local)	$848,185,940	75.0%
Other Federal Funds*	$4,583,024	0.4%
State Funds	$111,025,303	9.8%
Local Funds**	$147,120,803	13.0%
Other	$15,401,615	1.4%
Total	**$1,130,887,033**	**100%**

Source: SAMHSA, 2017
Note: Data includes both adults and children.
*Examples: ACF (TANF), CDC, CMS (Medicare), SAMHSA
**Excluding local Medicaid

County and tribal human service agencies

County boards of commissioners, American Indian tribal governments, and multi-county regions are the local mental health authorities. Many prevention strategies, screening and assessments, coordination of services, and out-of-home placements happen at the local level. In 2016, DHS reported over 87,000 children, adolescents, and transitional youth served in community mental health programs (SAMHSA, 2017).

Figure 16: Individuals served in community health programs, 2016[25]

Category	Age: 0-17	Age: 18-20	Age: 21-75+	Total
Individuals served in community mental health programs	76,543 (29%)	11,261 (4%)	181,060 (67%)	**268,902 (100%)**

Source: SAMHSA, 2017
Note: Reporting period is from January 1, 2016 to December 31, 2016. Age not available for 38 individuals. There is overlap in the total number of individuals served in community mental health programs (Figure 16) and individuals served under the state mental health authority (Figure 12).

The county board is responsible for developing and coordinating a system of locally available and affordable children's mental health services.[26] Depending on resource availability, the county may provide some or all of the mental health services, or contract with outside organizations to deliver services. For instance, Rice County employees offer families services like short-term respite, where case managers take children with emotional disorders to music or art lessons, day camps, and other recreational activities for short periods. This offers parents needed time to rest and complete other tasks.

Counties or groups of counties may enter agreements with treatment centers for service delivery. No matter how the delivery mode, the county board must develop a mental health system that includes thirteen statutorily-defined services, such as, prevention, screening, crisis services, outpatient, day and residential treatment, case management, and home-based family treatment.[27]

[25] These figures overlap with Figure 12. The difference is the 2,217 individuals served in state hospitals.
[26] Minnesota Statutes 2017, 245.4875, subdivision 1. Development of children's services.
[27] Minnesota Statutes 2017, 245.4875, subdivision 2. Children's mental health services.

In 1993, the Minnesota Legislature established Children's Mental Health Collaboratives, funded through the Children's Mental Health Integrated Fund.[28] There are 90 Collaboratives in Minnesota, 12 for children's mental health, 47 for family services, and 31 which integrate children's mental health and family services (Minnesota Department of Human Services, 2018b).[29] Collaboratives include a multi-agency response for children with emotional disturbances and their families. Partners at the county level, school districts, local mental health entities, community groups, and juvenile corrections agencies provide wraparound services.

There are seven Anishinaabe (Chippewa, Ojibwe) reservations and four Dakota (Sioux) communities in Minnesota. Tribes license mental health providers and arrange payment for services with the federal Centers for Medicare and Medicaid Services (CMS). The Indian Health Service (IHS) also provides direct health services, which includes children's mental health services at some locations. These provider locations often offer culturally informed treatment modalities.

Other funding

Case management services

The case manager is responsible for ongoing coordination, planning, and delivery of social, educational, health, or vocational services for the child.[30] The family community support plan developed by the case manager helps coordinate these local service system providers. Case managers reflect diverse and varying systems from county to county, and this diversity creates spaces for programmatic innovation.

Counties and tribal authorities provide case management services directly or contract with private providers. Minnesota Health Care Plans allow a monthly reimbursement rate or tribal encounter rate, if case managers provide at least one of the four qualifying service components face-to-face during the month[31]. Tribal authority-provided case management rates are federally determined. Contracted case management providers receive a monthly rate negotiated by the host authority and approved by DHS.

Out-of-home placements

When a child enters an out-of-home placement for mental health treatment, this can occur at family foster homes, intensive therapeutic homes, group homes, shelters, and residential treatment centers certified to provide mental health services.

Parents can grant the county authority for placement, care, and supervision for a child with mental health needs.[33] This allows the county to access federal funds to pay for room and board. Title IV-E of the Social Security Act (SSA) allows federal payments for foster care. If Title IV-E funds are used, the child welfare system processes the placement. Medical Assistance pays for the mental health treatment; counties and families pay the remaining costs. The same set of standards and rules govern the licensing of these settings.[34]

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[28] Minnesota Statutes 245.491-245.495. Children's Mental Health Integrated Fund.
[29] Map of Children's Mental Health Collaboratives.
[30] Minnesota Statutes 2017, 245.4873, subdivision 4. Individual case coordination.
[31] Case management service components: monitoring and coordinating; assessment; planning; referral and linkage.
[33] Legal authority for placement, care, and supervision is different than legal custody of parental rights.
[34] Minnesota Rules, Chapter 2960. (Also known as the "Umbrella Rule")

Private health insurance

Private health insurance plans offer mental health coverage. Minnesotans can obtain private group health insurance through an employer or an association, or obtain individual coverage through the insurance marketplace or directly with an insurer. Coverage varies from plan to plan, but all are legally required to provide the same level of benefits for mental health treatment as other types of medical or surgical care.[35]

B. Minnesota schools

From the time a child enters Kindergarten to their high school graduation, they will spend almost 20 percent of their waking hours in school.[36] A school setting is often a trusted place and providing support here reduces the need for travel and avoids additional disruption to a family's normal routine at home (Minnesota Department of Human Services, 2016a).

Besides being a convenient location to provide services, schools can facilitate access to services among children who would not otherwise gain such access. In 2015, 47 percent of students served by a school-linked mental health grant received their first-ever service in school (Minnesota Department of Human Services, 2016a).

School-Linked Mental Health Grant (SLMH)

Community mental health agencies place mental health professionals and practitioners in schools to provide mental health services to students. Direct services include diagnostic assessment; functional assessment; individual, group, and family therapy; skills training; and crisis interventions (Minnesota Department of Human Services, 2016a). The grant also funds support services for kids and in-service training for educators and school staff.[37] Ancillary and supportive services include consultation with teachers and families, diagnostic assessment, interpreters, care coordination, and transportation to school and home (Minnesota Department of Human Services, 2016a).

Best practices in school-linked mental health show the services need to be more than just co-located; they need to integrate into the school community. These services should also be delivered in a way that is culturally appropriate for the child and family (Doll, Nastasi, Cornell, & Song, 2017). In practice, interviews in Minnesota suggest this puts tremendous pressure on therapists to perform multiple roles and may contribute to high turnover, harming therapeutic alliance and service provision.

Funding

Public and private insurance cover the mental health treatment provided in schools. If the family lacks insurance coverage, the grant covers treatment. The School-Linked Mental Health (SLMH) grant covers all ancillary and supportive services since most private and public insurance plans do not cover them. For FY 2017, DHS spent $9.59 million on SLMH grants, reaching over 16,000 children in eighty counties (Minnesota Department of Human Services, 2018c).

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[35] The Mental Health Parity and Addiction Equity Act (MHPAEA) of 2008 requires health insurance companies and group plans to provide the same level of benefits for mental health treatment as other types of medical or surgical care.

[36] Assuming a child spends 6 hours a day in school, 180 days a year for 13 years, and assuming they sleep 8 hours a night. 14,040 school hours divided by 75,920 waking hours equals 18.49 percent.

[37] Common trainings include the following topics: mental health conditions, ways to decrease stigma, culturally sensitive treatment interventions and supports, identifying students who may benefit from grant services, and collecting data for state-determined outcome measures (Minnesota Department of Human Services, 2016a).

Figure 17: School-Linked Mental Health (SLMH) grant summary, FY 16 and FY 17

Fiscal year	School programs	School districts	Counties with SLMH grantees (%)	Students Served	SLMH expenditures
2016	921	276	90%	14,971	$9.56 million
2017	953	288	92%	16,284	$9.59 million

Source: Minnesota Department of Human Services, 2018c

School-wide mental health promotion

Minnesota schools and districts are moving towards a continuum of practices to promote improvement in student behavior across the entire school, especially for students with challenging social behaviors (Minnesota Department of Education, 2018). Using a multi-tiered model of support, the universal tier focuses on prevention strategies for the entire population, followed by a targeted tier for early intervention, and an intensive tier focusing on the needs of an individual student (Minnesota Department of Education, 2012). Through this tiered model, students have access to licensed student support services or specialized instructional support personnel.

Positive Behavioral Interventions and Supports (PBIS) is one example of this framework. PBIS "helps schools select and organize evidence-based behavioral interventions into an integrated continuum that enhances academic and social behavior outcomes for all students." (Minnesota PBIS, 2018). PBIS provides training and technical support to school districts and individual schools throughout the state (Minnesota Department of Education, 2018).

As of August 2018, 661 schools are in training or have established PBIS systems, impacting over 300,000 students (35% of Minnesota students) (Minnesota PBIS, 2018). Funding to support PBIS came from a one-time $2.75 million appropriation from the state legislature to the Minnesota Department of Education. [38]

[38] PBIS funding includes a grant from the MN Department of Education, Federal Award CFDA#84.027A – Special Education – Grants to States, and IDEA Part B-611.

4. Findings

A. Inventory findings

The children's mental health continuum provides a wide array of services for children, adolescents, and transitional youth. The Results First inventory only includes services that the State of Minnesota funds fully or partially and has improving the symptoms of children's mental health disorders as a central goal.

We worked with the Department of Human Services (DHS) and program staff from five Minnesota counties– Carlton, Grant, Olmsted, Rice, and Wright – to identify 68 services and practices available across the state. After we created a list of current services and practices, we reviewed the evidence of effectiveness for each (for more information on the process, see Appendix A). We then rated each service as Proven Effective, Promising, No Effect, or Theory Based depending on the availability and findings from rigorous evaluation studies including randomized controlled trials (RCTs), quasi-experimental design methods, and meta-analyses. RCT and quasi-experimental designs include a treatment and control group which allows the researcher to test the impact of the service or practice. They measure a causal impact by randomly selecting individuals into the treatment and control group. See Appendix A for the complete inventory.

The evaluation studies measured the following primary outcomes: decreased symptoms of children's mental health disorders or enhanced child or family wellbeing. If services administered in Minnesota are implemented effectively, we can expect similar outcomes as those found in the research studies. Of the 68 services and practices:

- **16 (24%)** services are **Proven Effective** (multiple qualifying studies show favorable impact)
- **13 (19%)** services are **Promising** (at least one qualifying study shows favorable impact)
- **37 (55%)** services are **Theory Based** (qualifying evidence is not currently available)
- **1 (1%)** service has **No Effect** (qualifying evidence shows a neutral impact)
- **1 (1%)** service is **Inconclusive** (qualifying evidence disagrees on impact)

In addition to each service rating, some may also include a parenthetical: Category of Services and/or Culturally-informed intervention. Category of Services represents a grouping of settings, assessments, tools, and processes that a client may receive dependent on need. Culturally-informed interventions mean they have been evaluated for cultural subpopulations or the service was built from the community, imbued with culturally specific context.

- **24** services are a **Category of Services**
- **5** services are **Culturally-informed interventions**

Figure 18 places each Proven Effective and Promising service on the children's mental health continuum.

Figure 18: Evidence-based services along Minnesota's children's mental health continuum

Source: Minnesota Management and Budget, 2018

B. Provider capacity for using evidence-based practices

As noted earlier, an important impediment to using evidence-based practices is the relatively high cost of adoption. A recent legislatively requested Minnesota rate study (DHS & Mercer, 2018) evaluated current Medical Assistance payment methodologies and recommended strategies to provide adequate payments to providers. The Department of Human Services (DHS) and Mercer collected data through voluntarily submitted cost reports, agency focus groups, and provider questionnaires. They found that, for the 22 providers that provided cost data (which are not necessarily representative of providers across the state), reimbursement rates for evidence-based practices did not reflect the cost. In particular, providers are not reimbursed for the start-up cost of services, including certification, training, supervision/consultation, materials/equipment (DHS & Mercer, 2018). This mirrors anecdotes relayed by practitioners and providers.

There are several other barriers to investing in evidence-based services for children's mental health. Providers reported difficulty retaining trained staff, flat payment rates not accounting for travel, and concern that pay-for-performance may create a disincentive to work with distressed families (DHS & Mercer, 2018). Many providers report an increased focus on training in evidence-based practices, but few resources to pay for staff to attend these intensive trainings (DeFor & Rosenthal, 2015).

Training grants available in Minnesota may help cover start-up costs of implementing evidence-based services. DHS provides the Children's Evidence-Based Practice Training Grants to children's mental health providers to encourage staff to earn credentials and training for the Managing and Adapting Practice (MAP) model and certification for Trauma-Focused Cognitive Behavioral Therapy (TF-CBT). In 2016 and 2017, the grant helped 105 clinicians train in MAP and 97 clinicians train in TF-CBT (Minnesota Department of Human Services, 2018c).

The MAP model training includes five days of classroom training followed by six months of bi-weekly consultation calls, which help ensure fidelity to the MAP model. The TF-CBT training includes five days of classroom instruction with one year of bi-weekly phone consultation sessions. There is a national certification for TF-CBT for clinicians who complete the training requirements and pass an on-line assessment.

Early Childhood Mental Health Capacity Grants also support training for evidence-based practices for young children, including Attachment-Biobehavioral Training (ABC), Child-Parent Psychotherapy (CPP), Parent Child Interaction Therapy (PCIT), and Managing and Adapting Practice (MAP) model.

Family First Prevention Services Act

Enacted in February 2018, the federal Family First Prevention Services Act (FFPSA) will allow Title IV-E funds (of the Social Security Act) to be spent on activities proven to prevent placement of children in out-of-home settings (Part I). The law will also curtail the use of congregate care settings (Part IV). Part IV takes effect October 1, 2019; although, states may delay the implementation of this part of the legislation for two years, which would also delay funding for prevention services as defined in Part I.

Part I – Prevention activities under Title IV-E

Under FFPSA, states can use Title IV-E funds to prevent the placement of children and youth into foster care through evidence-based services. The funding is available for "candidates for foster care", pregnant or parenting foster youth, and children under guardianship of a kin caregiver (NCSL, 2018).

Eligible services fall under four categories: in-home parent skill-based programs, kinship navigator programs, mental health services, and substance abuse prevention and treatment services (HHS, 2018). Eligible services must meet certain requirements: must be described as part of the state's plan, must have a manual outlining the components of the service, must show a clear benefit, and must meet one of three thresholds – Promising Practice, Supported Practice, and Well-supported treatment.

Threshold	Description
Promising Practice	At least one qualifying study with a rigorous study design and a favorable effect on at least one "target outcome"
Supported Practice	At least one qualifying study with a rigorous study design and a favorable effect on at least one "target outcome" at least 6 months beyond treatment
Well-supported treatment	At least two qualifying studies with rigorous study design, and at least one of the studies demonstrates a sustained favorable effect at least 12 months beyond treatment, on at least one target outcome.

Source: HHS, Administration on Children and Families, 2018
Note: The Secretary of the Department of Health and Human Services is responsible for creating a clearinghouse of approved services.

Part IV – Ensuring the necessity of a placement that is not in a foster family home

Many states, including Minnesota, rely on congregate care or group care for out-of-home placements in the child welfare system. Under FFPSA, there are new limits on the circumstances in which Title IV-E funds pay for congregate care. With some exceptions, the federal government will not cover a long-term stay—longer than two weeks—in congregate care. Exceptions include: juvenile justice system placements, although states may not incarcerate more juveniles under this provision; prenatal, postpartum or parenting support for teen moms; a supervised setting for children 18 or older; and high-quality residential activities for youth that have been victims of trafficking or are at risk of it.

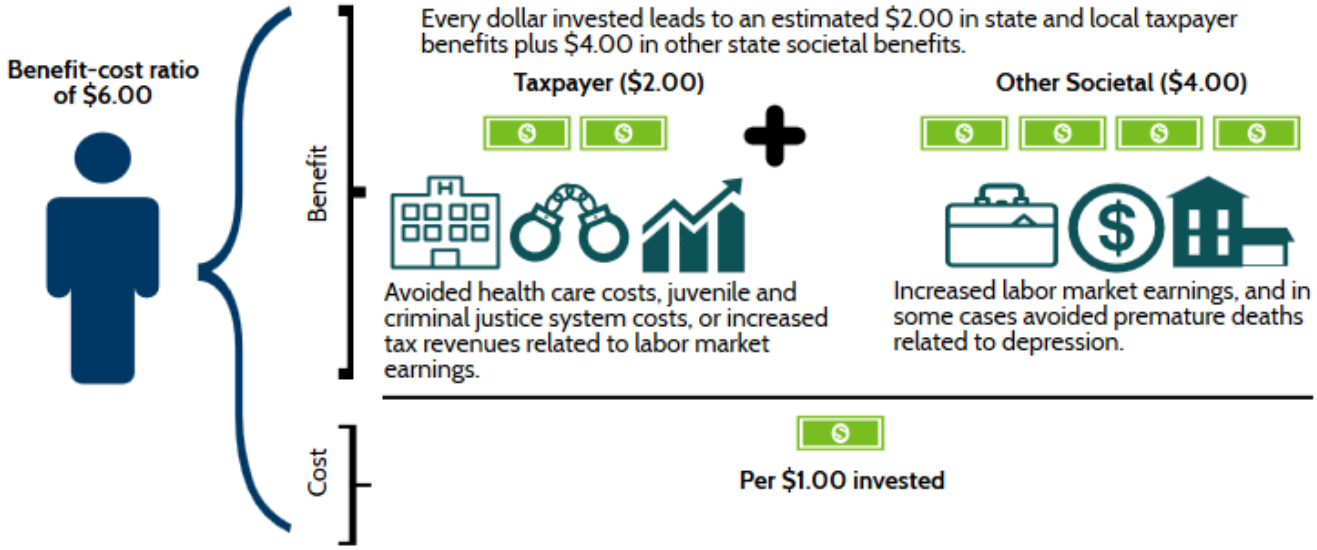
A reimbursement-eligible family foster home needs to have six or fewer children; a reimbursement-eligible child care institution needs to have 25 or fewer children. Federal payments for placements that are not foster homes or qualified residential treatment programs have a limit of two weeks. Qualified residential treatment programs must use a trauma-informed treatment model, employ registered or licensed nursing staff and other licensed clinical staff, be inclusive of family members and document their involvement, offer at least six months of support after discharge, and be licensed by an approved commission.

C. Benefit-cost analysis

This section presents findings from the benefit-cost analyses. Of the 68 services included in the inventory, qualifying research allowed a full benefit-cost analysis on seven (see Appendix B for methodology, terms, and definitions). In the following pages, we provide a two-page profile for each service with a benefit-cost ratio. We present the inventory findings, the benefit-cost ratio, which benefits accrue to taxpayers and other societal participants, further description of the breakdown of benefits, and our service cost calculations.

Five of the children's mental health services in the benefit-cost analysis have estimated benefits that exceed their costs. Estimated benefits per dollar invested range from $15.20 for TF-CBT to $0.00 for CBT for children with ADHD. The benefit-cost ratio means "for every dollar invested in this service, there are X dollars in benefits". We only include benefits and costs that are relevant for Minnesota.

Figure 19: Explanation of a benefit-cost ratio



Treatment versus control

These findings rely on studies that examine the difference between a treatment group that receives the service and a comparison group that receives service as usual. Results compare the change in outcomes for the treatment group and the treatment as usual group. This research design recognizes it would be unethical to offer no treatment to individuals in need, in this way, typical services are never withheld from children with a mental health disorder. Each profile reports the comparison group. The analysis assumes services are implemented in the same way as the services evaluated in the research used to estimate impacts.

Estimating the average cost of a program

These analyses use Minnesota-specific data to calculate an average cost per participant for each children's mental health service.[39] We base estimates on aggregate, statewide data from the Medicaid Management Information System (MMIS), the Mercer rate study (provider survey and interviews), and other expert opinion. For a detailed explanation of costing methodology, see Appendix B.

[39] The average cost per participant is really a net cost of the counterfactual (relevant only if the counterfactual is >$0).

Behavioral parent training (BPT)

Description: This brief intervention involves psychoeducation on mental health disorders and teaching parents behavior management techniques, such as reinforcement, communication skills, and teacher correspondence. BPT for children includes a series of sessions to focus on broad goals of improving parental style, helping parents communicate, improving management of the child's disorder, and improving regulation through interaction and games.

Evidence

Rating	Outcomes on disorders or psychiatric symptoms for child	Enhancement in child or family wellbeing	Effective for which age groups?	Source of evidence
Proven Effective	Favorable	Favorable (parental stress)	Childhood (6-12)	Washington State Institute for Public Policy

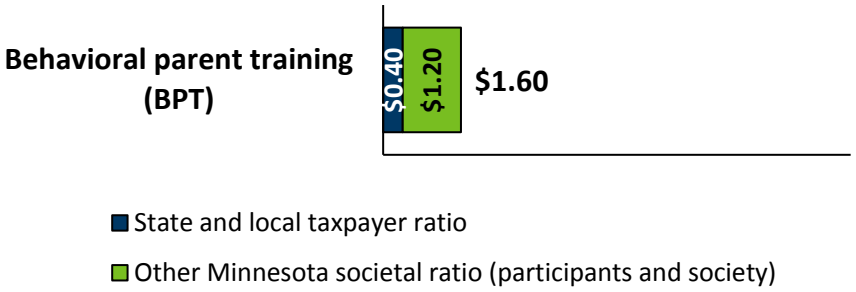
Target population: Children diagnosed with ADHD and their family.

Implementation and prevalence: We found few sites implementing behavioral parent training. In the few areas where providers did offer the evidence-based practice, the current service capacity is small compared to the number of eligible but unserved clients.

Benefit-cost analysis

For every dollar the state invests in behavioral parent training (BPT), state and local taxpayers, on average, receive $0.40 in benefits plus $1.20 in other Minnesota societal benefits (includes benefits that accrue to program participants). The total is $1.60.

$1.60
Benefit-cost ratio



Type	Minnesota total	State and local taxpayer	Other Minnesota societal	Federal
Present value of lifetime benefits[1]	$670	$190	$480	$100
Average cost per participant[2]	$410	$410	$410	$140
Benefit-cost ratio	**$1.60**	**$0.40**	**$1.20**	$0.70

[1] The sum of state and local taxpayer benefits and other Minnesota societal benefits equals the Minnesota total.
[2] The average cost per participant is $550. The state share is $410, and the federal share is $140.
*All estimates are rounded to the nearest ten dollars and are in 2017 dollars.

Benefits

The benefit-cost model estimates the monetary value of children's mental health services using an incident-based costing approach. We assume that certain services reduce symptoms of mental health conditions, thereby producing benefits for the participant, taxpayers, and society. For BPT, the model estimates the benefits associated with reduced symptoms of disruptive behavior disorder and attention deficit hyperactivity disorder (ADHD). Reductions in disorders lead to higher earnings (through academic achievement), increased spending on higher education, decreased healthcare costs, lower crime related expenses, and less special education costs. The WSIPP meta-analysis included 13 studies on the functioning and psychiatric symptoms of children and parents. The model only monetized children's benefits.

The total benefits to the participant, taxpayers, and society is $770. We subtract the benefits that accrue to federal taxpayers ($100). This estimate is the present value of lifetime benefits.

Minnesota total benefits: $670 **Total years of benefits**: Lifetime

The Results First benefit-cost model monetizes the following outcomes for BPT:

Outcome category	Monetary value of outcome	Monetizable benefits accrue to which stakeholder?
Crime	Reduced juvenile and adult criminal justice costs	Taxpayers, Society
Disruptive behavior	Reduced health care system costs	Participants, Taxpayers, Society
High school graduation	Earnings via high school graduation	Participants, Taxpayers, Society
Higher education	Costs of attending institute of higher education	Participants, Taxpayers, Society
Special education	Reduced K-12 system costs	Taxpayers

Costs

To estimate the cost of BPT, we used data from Minnesota Medicaid Management Information System, academic literature, and data gathered from interviews with practitioners. This cost reflects the average cost for trained providers delivering this service to Medical Assistance (MA) participants with fidelity and full session attendance. We anticipate a mix of 10 total hours of group and individual psychoeducation sessions, billed at $119 and $23.84 per hour. The average per participant treatment cost is estimated to be $710. We also estimated the pro-rated overhead from annual and one-time costs of training, certification, fidelity monitoring, and materials per unit. We anticipate this is around $270. This results in a total cost of $980 per client.

We then subtract the alternative costs from a counterfactual. The counterfactual is the hypothetical service a family would receive, if BPT is unavailable; in this case, non-model psychoeducation (estimated at $430).

Average cost per participant BPT (state and federal): $980 - $430 = $550

For the reimbursable treatment and counterfactual cost, we anticipate the federal government pays for half this cost through MA and the state pays the other half. We assume no federal reimbursement for the overhead cost.

Duration/intensity of service: Treatment ranges from eight to twelve weeks in individual or group settings.

Total years of costs: One year or less

Cognitive behavioral therapy (CBT) alone for ADHD

Description: Therapies aim to teach children strategies for altering thinking patterns and behavior. Examples of CBT methods used with an ADHD population include relaxation training, self-verbalization, a self-control game, or social problem-solving activities. CBT generally also includes a homework component intended to support generalizing skills learned in therapy to everyday life. Programs in this review may have included modules for parents either alone or in combination with their child, but children were the focus of interventions.

Evidence

Rating	Outcomes on disorders or psychiatric symptoms for child	Enhancement in child or family wellbeing	Effective for which age groups?	Source of evidence
No Effect	Neutral	Not measured	Children, Adolescents, and Transitional youth (7 - 21)	Washington State Institute for Public Policy

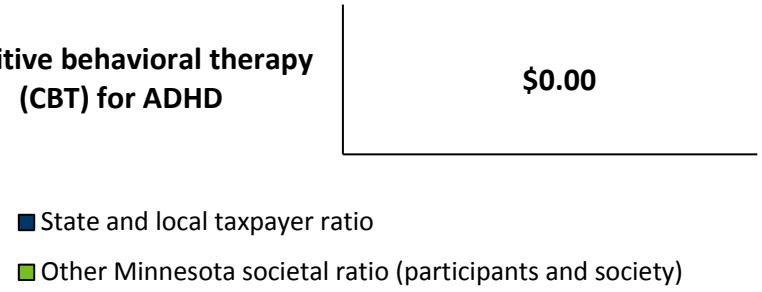
Target population: Children, adolescents, and transitional youth diagnosed with ADHD and their families.

Implementation and prevalence: WSIPP's meta-analysis reflects studies from several types of CBT for ADHD. Some individual models that use CBT principles show positive impacts, like Multimodal therapy and Behavioral Parent Training, but the aggregate category did not have a statistically significant impact. This may suggest that CBT needs to be paired with therapeutic components, such as strengthening parenting skills and fostering parental involvement. Meta-analysis by Cochrane Review and Campbell Collaboration found similar mixed or inclusive results for CBT-informed interventions for ADHD and recommend additional high-quality studies.

Benefit-cost analysis

Our meta-analysis finds modest positive effects on ADHD symptoms, but they were not statistically significant. This null effect means for every dollar that the state invests in CBT for ADHD there are no estimated benefits.

$0.00
Benefit-cost ratio



Type	Minnesota total	State and local taxpayer	Other Minnesota societal	Federal
Present value of lifetime benefits[1]	$0	$0	$0	$0
Average cost per participant[2]	$630	$630	$630	$190
Benefit-cost ratio	**$0.00**	**$0.00**	**$0.00**	$0.00

[1] The sum of state and local taxpayer benefits and other Minnesota societal benefits equals the Minnesota total.
[2] The average cost per participant is $820. The state share is $630, and the federal share is $190.
*All estimates are rounded to the nearest ten dollars and are in 2017 dollars.

Benefits

The benefit-cost model estimates the monetary value of children's mental health services using an incident-based costing approach. It applies the premise that certain services reduce symptoms of mental health conditions, thereby producing benefits for the participant, taxpayers, and society. For CBT for ADHD, the meta-analysis found a small improvement in ADHD and disruptive behavior disorder symptoms, but they were not statistically significant. For this reason, the model does not monetize any impacts of the program on these two disorders. The WSIPP meta-analysis included seven studies for CBT on ADHD. WSIPP's systematic review did find one study with a significant impact on Global Functioning; the benefit-cost model does not monetize this outcome.

The total benefits to the participant, taxpayers, and society is $0.00. We subtract the benefits that accrue to federal taxpayers ($0.00) when estimating the Minnesota share of total benefits. This estimate is the present value of lifetime benefits.

Minnesota total benefits: $0.00 **Total years of benefits**: One

Costs

To estimate the cost of CBT for ADHD, we used data from Minnesota Medicaid Management Information System, academic literature, and data gathered from interviews with practitioners. This cost reflects the average cost for trained providers delivering this service to Medical Assistance (MA) participants with fidelity and full session attendance. We anticipate a mix of 16 total hours of group and individual psychotherapy sessions, billed at $102.61 and $31.58 per hour. The average per person treatment cost is $1,180. We also estimated the overhead annual and one-time cost of training, certification, supervision, fidelity monitoring, travel, and materials per unit of CBT for ADHD delivered. We anticipate this is $440, resulting in a total cost of $1,620 per client.

We then subtract the alternative costs from a counterfactual situation. The counterfactual is the hypothetical service a client would receive, if CBT ADHD is not available. For this analysis, the counterfactual is treatment as usual which would include non-model individual and group therapy. We estimated this cost to be $800.

Average cost per participant CBT for ADHD (state and federal): $1,620 - $800 = $820

For the reimbursable treatment and counterfactual cost, we anticipate the federal government pays for half this cost through MA and the state pays the other half. We assume no federal reimbursement for the overhead cost.

Duration/intensity of service: Treatment duration includes 16 hourly sessions.

Total years of costs: One year or less

Cognitive behavioral therapy (CBT) for anxiety

Description: Aims to teach children strategies for altering thinking patterns and behavior. Uses cognitive restructuring and self-talk, exposure to feared stimuli, and other strategies to treat mental health conditions. CBT interventions are typically delivered by therapists in individual or group format in an outpatient setting, Programs served typically or atypically developing children with anxiety disorders. In some cases, the programs also included parents and families, but the focus of the treatment was the child.

Evidence

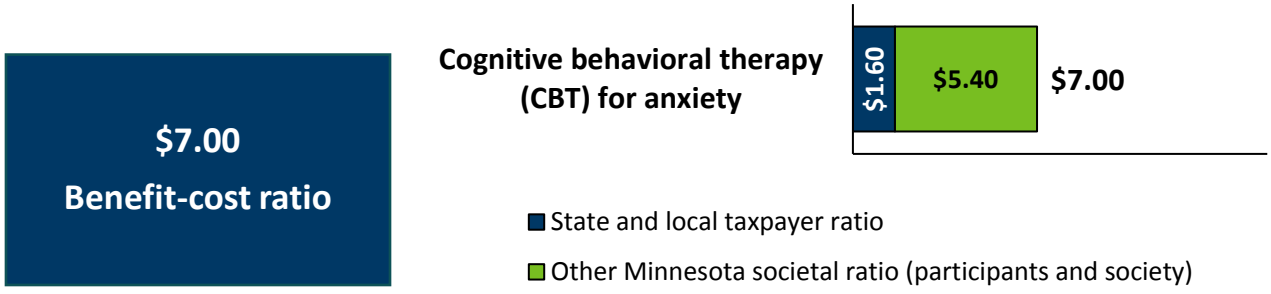
Rating	Outcomes on disorders or psychiatric symptoms for child	Enhancement in child or family wellbeing	Effective for which age groups?	Source of evidence
Proven Effective	Favorable	Not measured	Children, Adolescents, and Transitional youth (7 - 21)	Washington State Institute for Public Policy

Target population: Children, adolescents, and transitional youth diagnosed with anxiety and their family.

Implementation and prevalence: We found a relatively high use and availability for cognitive behavioral therapy for anxiety. Practitioners noted that many children do not receive services because of lack of adequate screening and assessments. Clients do not always receive the recommended dosage, which is an average of 15 hour-long sessions with a mix between individual and group sessions.

Benefit-cost analysis

We estimate that for every dollar the state invests in CBT for anxiety, state and local taxpayers, on average, receive $1.60 in benefits plus $5.40 in other Minnesota societal benefits (includes benefits that accrue to program participants). The total benefit-cost ratio is $7.00.



Type	Minnesota total	State and local taxpayer	Other Minnesota societal	Federal
Present value of lifetime benefits[1]	$3,540	$830	$2,710	$730
Average cost per participant[2]	$510	$510	$510	$150
Benefit-cost ratio	**$7.00**	**$1.60**	**$5.40**	$4.80

[1] The sum of state and local taxpayer benefits and other Minnesota societal benefits equal Minnesota total.
[2] The average cost per participant is $660. The state share is $510, and the federal share is $150.
*All estimates are rounded to the nearest ten dollars and are in 2017 dollars.

Benefits

The benefit-cost model estimates the monetary value of children's mental health services using an incident-based costing approach. It applies the premise that certain services reduce symptoms of mental health conditions, producing benefits for the participant, taxpayers, and society. Reductions in anxiety disorder caused by CBT: increases expenditures on higher education; increases earnings through high school graduation; decreases healthcare costs; lowers crime related expenses, and decreases expenditures on special education. The WSIPP meta-analysis included 39 studies on the impact of CBT on psychiatric symptoms. They also found improvements in functioning and internalizing and externalizing symptoms; the model does not monetize these.

The total estimated benefits to the participant, taxpayers, and society is $4,270. We subtract the benefits that accrue to federal taxpayers ($730) when estimating the Minnesota share of total benefits.

Minnesota total benefits: $3,540 **Total years of benefits**: Lifetime

The Results First benefit-cost model monetizes the following outcomes for CBT for anxiety:

Outcome category	Monetary value of outcome	Benefits accrue to which stakeholder?
Crime	Reduced juvenile and adult criminal justice costs	Taxpayers, Society
Anxiety	Reduced health care system costs	Participants, Taxpayers, Society
Earnings	Earnings via high school graduation	Participants, Taxpayers, Society
Higher education	Costs of attending institute of higher education	Participants, Taxpayers, Society
Special education	Reduced K-12 system costs	Taxpayers

Costs

To estimate the cost of CBT for anxiety, we used data from Minnesota Medicaid Management Information System, academic literature, and data gathered from interviews with practitioners. This cost reflects the average cost for trained providers delivering the service to Medical Assistance (MA) participants with fidelity and full session attendance. We assume a mix of 15 total hours of group and individual psychotherapy sessions, billed at $102.61 and $31.58 per hour. The treatment cost is $950. We also estimated the overhead annual and one-time cost of training, certification, fidelity monitoring, and materials per unit delivered. We anticipate this is around $350; resulting in a total cost of $1,300 per client.

We then subtract the alternative costs from a counterfactual situation. The counterfactual is the hypothetical service a client would receive, if CBT for ADHD were not available. For this analysis, the counterfactual is treatment as usual which includes a non-model individual and group therapy. We estimate this to cost $640.

Average cost per participant CBT for anxiety (state and federal): $1,300 - $640 = $660

For the reimbursable treatment and counterfactual cost, we anticipate the federal government pays for half the cost through Medicaid and the state pays the other half. We assume no federal reimbursement for overhead.

Duration/intensity of service: Treatment ranges from 12 to 18 hourly sessions, depending on the child's needs.

Total years of costs: One year or less

Cognitive behavioral therapy (CBT) for depression

Description: Therapies use elements like cognitive restructuring, scheduling pleasant experiences, emotion regulation, communication skills, and problem solving. The population includes children and adolescents with major or minor depression, dysthymia, or subthreshold depression. We include programs such as Coping with Depression, Enhancement Training, the Treatment for Adolescents with Depression, and other CBT models.

Evidence

Rating	Outcomes on disorders or psychiatric symptoms for child	Enhancement in child or family wellbeing	Effective for which age groups?	Source of evidence
Proven Effective	Favorable	Not measured	Children, Adolescents, and Transitional youth (7 - 21)	Washington State Institute for Public Policy

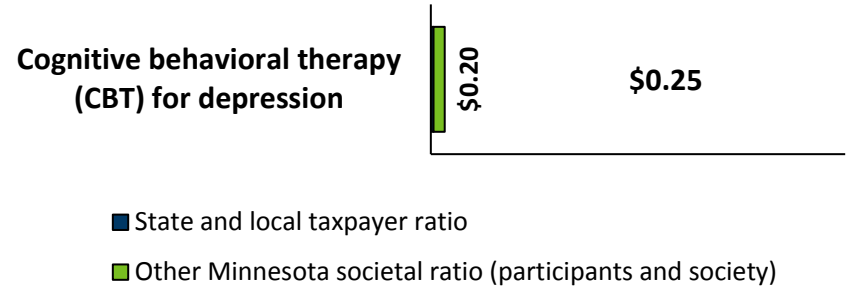
Target population: Children, adolescents, and transitional youth diagnosed with depression and their family.

Implementation and prevalence: WSIPP reported modest, short-term persistence of the treatment effects (e.g., two years post treatment), which explains the modest benefit-cost ratio. We did not find alternatives with more persistent impacts. As noted in a systematic review conducted by Cochrane, "further research should be undertaken to develop more effective psychological therapies to treat depression in children and adolescents with long-term physical conditions" (Thabrew et al., 2018). Given the lack of alternatives and critical stakes for effective treatment, this may be our best available therapy to help childhood depression.

Benefit-cost analysis

For every dollar the state invests in CBT for depression, state and local taxpayers, on average, receive $0.05 in benefits plus $0.20 in other Minnesota societal benefits (includes benefits that accrue to program participants). The total benefit-cost ratio is $0.25.

$0.25
Benefit-cost ratio



Type	Minnesota total	State and local taxpayer	Other Minnesota societal	Federal
Present value of lifetime benefits[1]	$130	$20	$110	$20
Average cost per participant[2]	$510	$510	$510	$150
Benefit-cost ratio	**$0.25**	**$0.05**	**$0.20**	$0.10

[1] The sum of state and local taxpayer benefits and other Minnesota societal benefits equals the Minnesota total.
[2] The average cost per participant is $660. The state share is $510, and the federal share is $150.
*All estimates are rounded to the nearest ten dollars and are in 2017 dollars.

Benefits

The benefit-cost model estimates the monetary value of children's mental health services using an incident-based costing approach. It applies the premise that certain services reduce symptoms of mental health conditions, thereby producing benefits for the participant, taxpayers, and society. For CBT for depression, the model estimates the benefits associated with reduced symptoms of depression. Reductions in depression leads to higher earnings and decreased healthcare costs, albeit only small improvements in these outcomes. The WSIPP meta-analysis included 19 studies for CBT for depression finding favorable outcomes on psychiatric symptoms for the treated child. They also found increases in global functioning and decreases in suicidal ideation; although, the benefit-cost model does not monetize these outcomes.

The total benefits to the participant, taxpayers, and society is $150. We subtract the benefits that accrue to federal taxpayers ($20) when estimating the Minnesota share of total benefits. Thus, the estimate of the present value of lifetime benefits is $130.

Minnesota total benefits: $130 **Total years of benefits**: Two years

The Results First benefit-cost model monetizes the following outcomes for CBT for depression:

Outcome category	Monetary value of outcome	Benefits accrue to which stakeholder?
Depression	Reduced health care system costs	Participants, Taxpayers, Society
Earnings	Earnings via high school graduation	Participants, Taxpayers, Society

Costs

To estimate the cost of CBT for depression, we used data from Minnesota Medicaid Management Information System, academic literature, and data gathered from interviews with practitioners. This cost reflects the average cost for trained providers delivering this service to Medical Assistance (MA) participants with fidelity and full session attendance. We anticipate a mix of 14 total hours of group and individual psychotherapy sessions, billed at $102.61 and $31.58 per hour. The average per participant treatment cost is $950. We also estimated the overhead annual and one-time cost of training, certification, supervision, fidelity monitoring, travel, and materials per unit. We anticipate this is around $350 which results in a total cost of CBT for depression is $1,300 per client.

Then, we subtract the alternative costs from a counterfactual situation. The counterfactual is the hypothetical service a client would receive if CBT for depression is not available. For this analysis, the counterfactual is treatment as usual or non-model group and individual therapy. We estimated this cost to be $640.

Average cost per participant CBT for depression (state and federal): $1,300 - $640 = $660

For the reimbursable treatment and counterfactual cost, we anticipate the federal government pays for half this cost through Medicaid and the state pays the other half. We assume no federal reimbursement for the overhead.

Duration/intensity of service: Treatment duration includes 14 hourly sessions.

Total years of costs: One year or less

Incredible Years: Parent training

Description: A group, skills-based behavioral intervention for parents of children with behavior problems. The curriculum focuses on strengthening parenting skills and fostering parents' involvement in children's school experiences in order to promote children's academic, social, and emotional competencies and reduce conduct problems. We review here the model that only has the parent training, not the parent and child training model.

Evidence

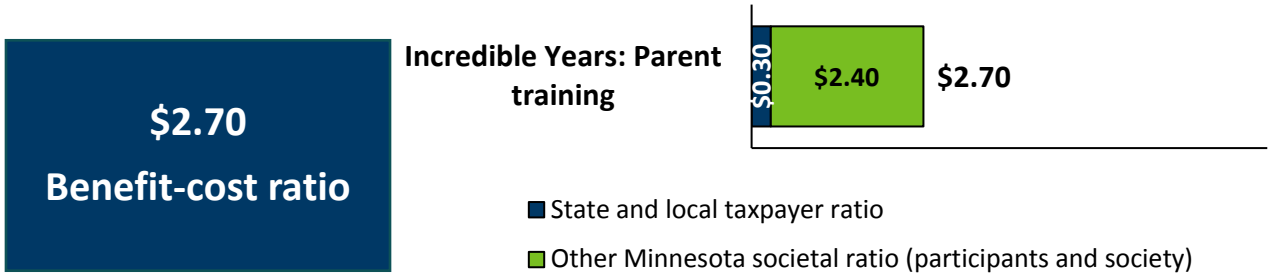
Rating	Outcomes on disorders or psychiatric symptoms for child	Enhancement in child or family wellbeing	Effective for which age groups?	Source of evidence
Proven Effective	Favorable	Favorable (antisocial-aggressive behavior; conduct problems; positive social/prosocial behavior; prosocial with peers)	Early childhood and Childhood (4 - 8)	Washington State Institute of Public Policy

Target population: Children with behavioral disorders and their family.

Implementation and prevalence: We found only two current providers of Incredible Years in Minnesota. The model is time-intensive to train in and only a portion of the cost may be reimbursable. Funding changes related to the Families First Prevention Services Act could increase the available funding for this program, but to increase use, the state may need to subsidize training and certification in the model. We also found limited use of the version of the model that also includes children's therapy. This version is also an evidence-based practice.

Benefit-cost analysis

For every dollar the state invests in Incredible Years: Parent training, state and local taxpayers, on average, receive $0.30 in benefits plus $2.40 in other Minnesota societal benefits (includes benefits that accrue to program participants). The total benefit-cost ratio is $2.70.



Type	Minnesota total	State and local taxpayer	Other Minnesota societal	Federal
Present value of lifetime benefits[1]	$2,970	$300	$2,670	$420
Average cost per participant[2]	$1,120	$1,120	$1,120	$90
Benefit-cost ratio	**$2.70**	**$0.30**	**$2.40**	$4.60

[1] The sum of state and local taxpayer benefits and other Minnesota societal benefits equals the Minnesota total.
[2] The average cost per participant is $1,210. The state share is $1,120, and the federal share is $90.
*All estimates are rounded to the nearest ten dollars and are in 2017 dollars.

Benefits

The benefit-cost model estimates the monetary value of children's mental health services using an incident-based costing approach. It applies the premise that certain services reduce symptoms of mental health conditions, thereby producing benefits for the participant, taxpayers, and society. For Incredible Years, the model estimates the benefits associated with reduced symptoms of anxiety disorder. Reductions in this two disorders lead to increased expenditures on higher education, higher earnings through academic achievement, decreased healthcare costs, lower crime related expenses, and less taxpayer expenditures on K-12 special education. The WSIPP meta-analysis included 23 studies for Incredible Years on mental health symptoms. Five studies studied the impact on parental stress and depression; the benefit-cost model does not monetize these.

The total benefits to the participant, taxpayers, and society is $3,390. We subtract the benefits that accrue to federal taxpayers ($420) when estimating the Minnesota share of total benefits. This estimate is the present value of lifetime benefits.

Minnesota total benefits: $2,970 **Total years of benefits**: Lifetime

The Results First benefit-cost model monetizes the following outcomes for Incredible Years (parent only):

Outcome category	Monetary value of outcome	Benefits accrue to which stakeholder?
Crime	Reduced juvenile and adult criminal justice costs	Taxpayers, Society
Disruptive behavior	Reduced health care system costs	Participants, Taxpayers, Society
Earnings	Earnings via high school graduation	Participants, Taxpayers, Society
Higher education	Costs of attending institute of higher education	Participants, Taxpayers, Society
Special education	Reduced K-12 system costs	Taxpayers

Costs

We used data using estimates from the Wilder Foundation's implementation of the program (Martell Kelly, 2013); they found an average cost of around $1,570 per participant in the family and child model. Using figures from Washington State we conservatively assumed that 20 percent of the cost was associated with the extended version of the model that includes therapy for children. In reviewing Wilder's report, around 15 percent of the service cost is covered by public insurance with remainder from client payments and donors. If Minnesota extended the use of Incredible Years, we anticipate the state would need to cover those costs. For this analysis, we assumed the state would bear that cost. It could also be that Medicaid or other funding mechanisms could cover more than 15 percent used in this example. The counterfactual for this service is no program; in the absence of its service, we assume parents will receive no additional services.

Average cost per participant of Incredible Years (state and federal): $1,210 – $0.00 = $1,210

For the reimbursable treatment and counterfactual cost (15 percent of total cost), we anticipate the federal government pays for half this cost through Medicaid and the state pays the other half.

Duration/intensity of service: Parent training ranges from 12 to 28 two-hour sessions.

Total years of costs: One year or less

Parent Child Interaction Therapy (PCIT)

Description: A dyadic behavioral intervention for children and caregivers that focuses on decreasing externalizing child behavior problems and improving parent-child relationships. A therapist observes a parent and child through a one-way mirror while providing coaching through a radio earphone. The focus is on building the skills of the parent to more positively interact with the child and manage his or her behavior. Therapists aim to ultimately restructure the parent-child relationship and provide the child with a more secure attachment to the parent.

Evidence

Rating	Outcomes on disorders or psychiatric symptoms for child	Enhancement in child or family wellbeing	Effective for which age groups?	Source of evidence
Proven Effective (Culturally-informed intervention)	Favorable	Favorable (parental stress)	Early childhood and Childhood (3 - 8)	Washington State Institute for Public Policy

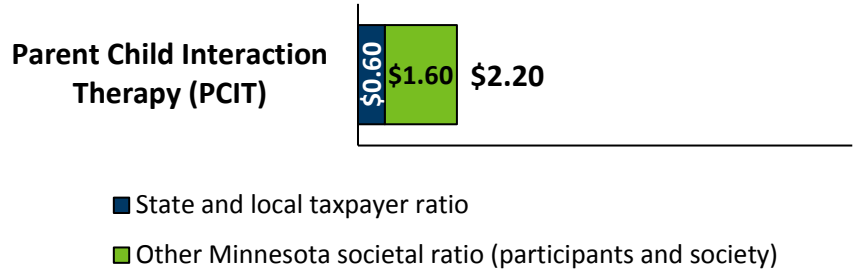
Target population: Children diagnosed with behavior disorders and their families.

Implementation and prevalence: We heard from practitioners the start-up costs associated with training, fidelity monitoring, and equipment is an impediment to use. To that end, using the early childhood mental health capacity grants, DHS was able to train 10 clinicians in the parent-child interaction therapy model in 2016. Expanding PCIT use may be beneficial, as it has a relatively large impact on psychiatric symptoms.

Benefit-cost analysis

For every dollar the state invests in PCIT, state and local taxpayers, on average, receive $0.60 in benefits plus $1.60 in other Minnesota societal benefits (includes benefits to program participants). The total benefit-cost ratio is $2.20.

$2.20
Benefit-cost ratio



Type	Minnesota total	State and local taxpayer	Other Minnesota societal	Federal
Present value of lifetime benefits[1]	$2,050	$580	$1,470	$310
Average cost per participant[2]	$940	$940	$940	$520
Benefit-cost ratio	**$2.20**	**$0.60**	**$1.60**	$0.60

[1] The sum of state and local taxpayer benefits and other Minnesota societal benefits equals the Minnesota total.
[2] The average cost per participant is $1,460. The state share is $940, and the federal share is $520.
*All estimates are rounded to the nearest ten dollars and are in 2017 dollars.

Benefits

The benefit-cost model estimates the monetary value of children's mental health services using an incident-based costing approach. It applies the premise that certain services reduce symptoms of mental health conditions, thereby producing benefits for the participant, taxpayers, and society. The reduction in behavioral disorders from PCIT lead to increased higher education costs, higher earnings through high school graduation, decreased healthcare costs, lower crime related expenses, and less taxpayer expenditures on special education. The WSIPP meta-analysis included 10 studies and found favorable outcomes on psychiatric symptoms for the treated child. They also found decreases in parental stress; the model does not monetize this outcome.

The total benefits to the participant, taxpayers, and society is $2,360. We subtract the benefits that accrue to federal taxpayers ($310) when estimating the Minnesota share of total benefits. This estimate is the present value of lifetime benefits.

Minnesota total benefits: $2,050 **Total years of benefits**: Lifetime

The Results First benefit-cost model monetizes the following outcomes for PCIT:

Outcome category	Monetary value of outcome	Benefits accrue to which stakeholder?
Crime	Reduced juvenile and adult criminal justice costs	Taxpayers, Society
Behavioral disorder	Reduced health care system costs	Participants, Taxpayers, Society
Earnings	Earnings via high school graduation	Participants, Taxpayers, Society
Higher education	Costs of attending institute of higher education	Participants, Taxpayers, Society
Special education	Reduced K-12 system costs	Taxpayers

Costs

To estimate costs, we used data from Minnesota Medicaid Management Information System, a 2018 Mercer rate study, academic literature, and data gathered from practitioners. This cost reflects the average cost for trained providers delivering the service to Medical Assistance (MA) participants with fidelity and full session attendance. We anticipate 17 total hours of individual psychotherapy sessions, billed at $119 per hour. The treatment cost is $1,990. We also estimated the overhead annual and one-time cost of training, certification, fidelity monitoring, travel, and materials per unit to be $430. This results in a total cost of $2,420 per client.

Then, we subtract the alternative costs from a counterfactual situation. The counterfactual is the hypothetical service a client would receive, if PCIT was not available. For this analysis, the counterfactual is treatment as usual which would include another non-model child-centered therapy. We estimated this cost to be $960.

Average cost per participant of PCIT (state and federal): $2,420 - $960 = $1,460

For the reimbursable treatment and counterfactual cost, we assume the federal government pays half the cost through Medicaid and the state pays the other half. We assume no federal reimbursement for the overhead.

Duration/intensity of service: Ranges from 15 to 20 hours per client.

Total years of costs: One year or less

Trauma-Focused Cognitive Behavioral Therapy (TF-CBT)

Description: A psychosocial model designed to treat posttraumatic stress and related emotional and behavioral problems. Treatments include psychoeducation, techniques for managing physiological and emotional stress, the gradual desensitization of traumatic memories, and cognitive restructuring of unhelpful thoughts.

Evidence

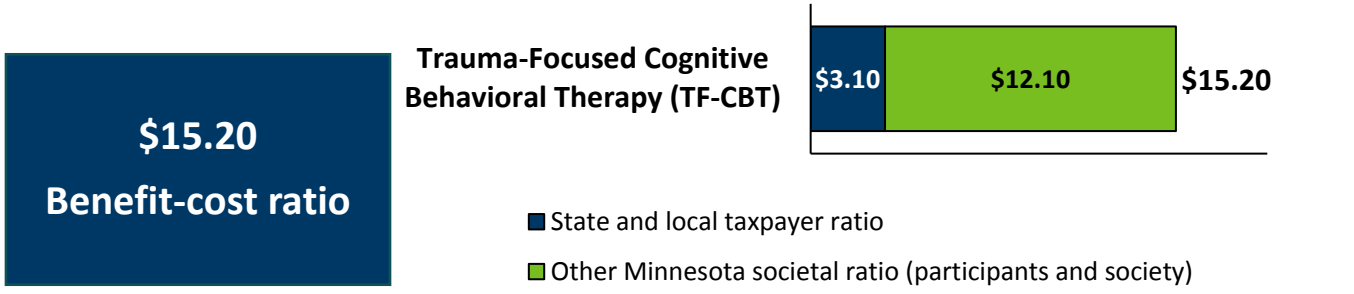
Rating	Outcomes on disorders or psychiatric symptoms for child	Enhancement in child or family wellbeing	Effective for which age groups?	Source of evidence
Proven Effective (Culturally-informed intervention)	Favorable	Not measured	Early childhood, Childhood, Adolescent and Transitional youth (4 - 21)	Washington Institute for Public Policy

Target population: Children, adolescents, and transitional youth that have experienced trauma and their family.

Implementation and prevalence: This is one of the most widely used evidence-based practices in Minnesota. DHS is working with Ambit Network to train mental health professionals across the state in the practice. A map of trained providers in Minnesota is available online at cehd.umn.edu/fsos/research/ambit/provider.asp. In spite of this investment, there are still many communities in the state without trained professionals. This model has modified to meet the cultural needs of a range of communities, including adaptations for tribal communities.

Benefit-cost analysis

For every dollar the state invests in Trauma-Focused Cognitive Behavioral Therapy, state and local taxpayers, on average, receive $3.10 in benefits plus $12.10 in other Minnesota societal benefits (includes benefits that accrue to program participants). The total benefit-cost ratio is $15.20.



Type	Minnesota total	State and local taxpayer	Other Minnesota societal	Federal
Present value of lifetime benefits[1]	$9,980	$2,050	$7,930	$2,490
Average cost per participant[2]	$660	$660	$660	$370
Benefit-cost ratio	**$15.20**	**$3.10**	**$12.10**	$6.70

[1] The sum of state and local taxpayer benefits and other Minnesota societal benefits equal Minnesota total.
[2] The average cost per participant is $1,030. The state share is $660, and the federal share is $370.
*All estimates are rounded to the nearest ten dollars and are in 2017 dollars.

Benefits

The benefit-cost model estimates the monetary value of children's mental health services using an incident-based costing approach. It applies the premise that certain services reduce symptoms of mental health conditions, thereby producing benefits for the participant, taxpayers, and society. For TF-CBT, the model estimates the benefits associated with reduced symptoms of anxiety disorder, major depressive disorder, post-traumatic stress, and externalizing/internalizing behavior symptoms. Reductions in these symptoms lead to increased expenditures on higher education, higher earnings through high school graduation, decreased healthcare costs, lower crime related expenses, and less taxpayer expenditures on K-12 special education. The WSIPP meta-analysis included 35 studies for TF-CBT and found favorable outcomes for psychiatric symptoms for the treated child. They also found increases in global functioning; the model does not monetize this outcome.

The total benefits to the participant, taxpayers, and society is $12,470. We subtract the benefits that accrue to federal taxpayers ($2,490). This estimate is the present value of lifetime benefits.

Minnesota total benefits: $9,980 **Total years of benefits**: Lifetime

The Results First benefit-cost model monetizes the following outcomes for TF-CBT:

Outcome category	Monetary value of outcome	Benefits accrue to which stakeholder?
Crime	Reduced juvenile and adult criminal justice costs	Taxpayers, Society
PTSD	Reduced health care system costs	Participants, Taxpayers, Society
Earnings	Earnings via high school graduation	Participants, Taxpayers, Society
Higher education	Costs of attending institute of higher education	Participants, Taxpayers, Society
Special education	Reduced K-12 system costs	Taxpayers

Costs

To estimate the cost, we used data from Minnesota Medicaid Management Information System, a 2018 rate studied conducted by Mercer, academic literature, and data gathered from interviews with practitioners. This cost reflects the average cost for trained providers delivering this service to Medical Assistance (MA) participants with fidelity and full session attendance. We assume a mix of 13 total hours of individual therapy sessions, billed at $102.61 per hour. The treatment cost is $1,340. We also estimated the overhead annual and one-time cost of training, certification, supervision, fidelity monitoring, and materials per unit delivered. We estimate this to be $290. This results in a total cost for TF-CBT of $1,630 per client.

We subtract the costs from a counterfactual. A client would receive this service, if TF-CBT were not available. For this analysis, the counterfactual is non-model individual and group therapy. We estimate this cost to be $600.

Average cost per participant of TF-CBT (state and federal): $1,630 - $600 = $1,030

For the reimbursable treatment and counterfactual cost, we anticipate the federal government pays for half this cost through MA and the state pays the other half. We assume no federal reimbursement for the overhead.

Duration/intensity of service: Treatment is 8 to 20 hours per client.

Total years of costs: One year or less

Appendix A: Inventory of services

Methodology

Minnesota Management & Budget (MMB) compiled an inventory that provides information about services and practices currently offered in Minnesota that reduce the incidence or symptoms of these mental health diagnoses: anxiety disorder, attention-deficit/hyperactivity disorder (ADHD), depression, disruptive behavior, post-traumatic stress disorder (PTSD), and severe emotional disorder (SED). For this inventory, MMB collaborated with the following counties: Carlton, Grant, Olmsted, Rice, and Wright.

Each Results First inventory contains information about the service, the organizations involved in funding or overseeing the program, program details, and the extent to which there is evidence that the services are attaining desired outcomes. This is the service's rating. The evidence used for the inventory rating must meet a high level of rigor. The Results First Initiative rates programs using impact evaluations only. Impact evaluations use either a randomized controlled trial design or a quasi-experimental design. Both evaluation designs include a treatment and treatment as usual (control) group. This type of evaluation identifies a cause and effect relationship between the program and desired outcomes.

We look for impact evaluations in the Pew Results First Clearinghouse Database, Washington Institute for Public Policy meta-analyses and other high-quality sources. The Pew Results First Clearinghouse Database contains information from nine national clearinghouses that conduct systematic research reviews to identify what works. While each uses a different procedures, criteria, and terminology, all use a similar approach.

Both of these resources include impact evaluations which use a randomized controlled trial design or a quasi-experimental design. Some children's mental health services in Minnesota do not have impact evaluations. These programs are not ineffective. It simply means there are not currently impact evaluations studying the service.

Services delivered in Minnesota that closely resemble ones featured the Pew Results First Clearinghouse Database or the Washington State Institute for Public Policy meta-analyses (with respect to the nature, length, frequency, and target population) are categorized as "Proven Effective," "Promising," "Mixed Effects, "No Effect", or "Proven Harmful". Programs that do not resemble any in these clearinghouses are categorized as "Theory Based".

A rating that includes the parenthetical Category of Services means the service represents groupings of settings, assessments, tools, and processes that a participant may receive, dependent on need. If the parent rating is Theory Based some of the services may have been studied and found to have favorable effects on participants, but the services have not been studied holistically. If the parent rating is something other than Theory Based, there is at least one qualifying study that assessed the effectiveness of the grouping holistically.

A rating that includes the parenthetical Culturally-informed intervention includes services built from communities, imbued with culturally-specific context. For up to date definitions and sources of evidence, visit https://mn.gov/mmb/evidence/.

Limitations

When we look for services in the clearinghouses we match on similar treatment population, structure, and adequately trained staff. We do not conduct fieldwork to ensure fidelity of implementation. Rather, we review the extent to which services have attributes that are similar to those that have been rigorously evaluated. If services are not implemented effectively, Minnesota will not receive the anticipated benefits.

Many mental health services are composed of a set of treatments given in concert. The inventory, however, often uses individual pieces of research on services. Because of this, we do not estimate the impact of two separate services taken together unless existing research has evaluated them together; for example, cognitive behavioral therapy (CBT) plus antidepressants.

Figure 20: Inventory rating definitions

Rating	Description
Proven Effective	A Proven Effective service or practice offers a high level of research on effectiveness for at least one outcome of interest. This is 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 for at least one outcome of interest. This may be 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 either no research on effectiveness or research designs that do not meet the above standards. These services and practices may 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 causal impact on measured outcomes.
Mixed Effects	A Mixed Effects service or practice offers a high level of research on the effectiveness of multiple outcomes. However, the outcomes have contradictory effects. This is determined through multiple qualifying studies outside of Minnesota or one or more qualifying local evaluation. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
No Effect	A service or practice rated No Effect has no impact on the measured outcome or outcomes of interest. Qualifying evaluations use rigorously implemented experimental or quasi-experimental designs.
Proven Harmful	A Proven Harmful service or practice offers a high level of research that shows program participation adversely affects outcomes of interest. This is 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.
[Rating] (Category of Services)	These services represent groupings of settings, assessments, tools, and processes that a client may receive dependent on need. If the parent rating is Theory Based, some of the services within the category may be evidence-based, but the services have not been studied holistically. If the parent rating is something other than Theory Based, there is at least one qualifying study that assessed the effectiveness of the services holistically.
[Rating] (Culturally-informed intervention)	Research shows that evidence-based policies 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 qualifying research designs.

Name	Category	Description	Rating	Outcomes on disorders or psychiatric symptoms for children	Enhancement in child or family wellbeing	Source of evidence	Effective for which age groups?	Additional comment or expert opinion
Attachment and Biobehavioral Catch-Up (ABC)	Counseling / Therapy	**Description:** This parent-training intervention targets young children who have experienced adversity, such as maltreatment or disruptions in care. ABC addresses several issues including behavioral and biological dysregulation. **Target Population:** Young children with emotional/behavioral disorders.	Proven Effective	Favorable	Favorable (cognitive functioning; family cohesion; parenting practices; physical health and symptoms)	NREPP	**Ages:** Early childhood (0-2)	Some early research have found reductions in maternal depression. Since the sample sizes were relatively low, we would like to see additional evidence before adding to the inventory.
Attachment-Based Family Therapy (ABFT)	Counseling / Therapy	**Description:** Treatment seeks to address the problems that emerge when processes such as family conflict, detachment, harsh criticism, or traumas (e.g., abandonment, neglect, abuse) disrupt the secure base of family life. **Target population:** Adolescents diagnosed with emotional/behavioral disorders and their family.	Proven Effective	Favorable	*	NREPP	**Ages:** Adolescent (13-17)	
Behavioral parent training (BPT) for children with ADHD	Counseling / Therapy	**Description:** A brief intervention that involves psychoeducation and teaching parents behavior management techniques, such as reinforcement, communication skills, and teacher correspondence. **Target population:** Children diagnosed with ADHD and their family.	Proven Effective	Favorable	Favorable (parental stress)	WSIPP	**Ages:** Childhood (6-12)	
Bounce back project	Family, community, and client education and support	**Description:** A community initiative to promote research-based psychology skills, such as the Three Good Things. Brings together physicians, nurses, hospital leaders, staff and community partners. **Target population:** Communities, families, and mental health professionals.	Theory Based	*	*	Not at this time	n/a	
Brief Strategic Family Therapy (BSFT)	Counseling / Therapy	**Description:** BSFT is a brief intervention used to treat adolescent drug use that occurs with other problem behaviors. These co-occurring problem behaviors include conduct problems at home and at school, oppositional behavior, delinquency, associating with antisocial peers, aggressive and violent behavior, and risky sexual behavior. **Target population:** Adolescents with problem behaviors, including substance use, and their family.	Proven Effective (Culturally-informed intervention)	Favorable	Favorable (substance use, family functioning)	Crime solutions	Adolescents (12-18)	BSFT has been tested on several treatment populations including African-Americans, women, and those with HIV/Aids. The co-developer has made adaptations to a variety of settings: foster care, Native American reservations, home-based and community clinic settings, transitional programs and others. See https://bit.ly/2NJJuRE.
Certified Family Peer Specialists (CFPS)	Family, community, and client education and support	**Description:** An individual with a lived mental health condition works with the family of a child receiving mental health treatment to promote resiliency and recovery. Also provide nonclinical family peer support, building on the strengths of the family and helping them achieve desired outcomes. **Target population:** Children, adolescents, and transitional youth diagnosed with emotional/behavioral disorders and their family.	Theory Based	*	*	Not at this time	n/a	

Name	Category	Description	Rating	Outcomes on disorders or psychiatric symptoms for children	Enhancement in child or family wellbeing	Source of evidence	Effective for which age groups?	Additional comment or expert opinion
Check and Connect	Family, community, and client education and support	**Description:** A dropout prevention program for high school students with learning, emotional, and/or behavioral disabilities. Students typically enter the program in 9th grade, and are assigned a monitor who works with them as a mentor, advisor, and service coordinator. **Target population:** Adolescents diagnosed with emotional/behavioral disorders.	Promising	*	Favorable (student dropout rates and attendance)	What Works Clearinghouse	**Ages:** Adolescents (13-17)	
Child Parent Relationship Therapy	Counseling / Therapy	**Description:** A play-based treatment program involving parents in the therapeutic process. Teaches parents the skills to respond more effectively to their child's needs. In turn, children learn they can count on their parents to meet their needs for love, acceptance, safety, and security. **Treatment Population:** Children diagnosed with emotional/behavioral disorders and their family.	Proven Effective	Favorable	Favorable (family cohesion)	NREPP	**Ages:** Early childhood and Childhood (3-8)	
Child-Parent/Infant-Parent Psychotherapy	Counseling / Therapy	**Description:** A dyadic, relationship-based treatment for parents, infants, and young children designed to improve relationships in the wake of incidences of domestic violence and trauma. To prevent compromised development that can lead to later maladaptation and psychopathology, it seeks to correct the insecurities that have developed in maltreating parents from negative experiences. **Target population:** Young children that have experienced trauma and their family.	Proven Effective	Favorable	Favorable (child-parent secure attachment; maternal PTSD symptoms; maternal mental health)	NREPP	**Ages:** Early childhood (0 -5)	This service is also referred to as Toddler-Parent Psychotherapy. Five randomized trials provide support for the efficacy of Child-Parent Psychotherapy: https://bit.ly/2OAf1K4
Circle of Security Parenting (COS-P)	Family, community, and client education and support	**Description:** Manualized content that provides parenting skills to high-risk populations. The program seeks to teach caregivers about child attachment and exploratory behavior. **Target population:** High-risk children showing behavioral disorders and their family.	Theory Based	*	*	Not at this time	n/a	
Cognitive Behavioral Intervention for Trauma in Schools (CBITS)	Counseling / Therapy	**Description:** School-based, cognitive-behavioral, skills-based interventions designed for elementary, middle, and high school students (CBITS: grades 5-12; Bounce Back: grades K-5) who have experienced traumatic events. Aims to improve the well-being of traumatized students by reducing symptoms of posttraumatic stress disorder (PTSD), anxiety, depression, problems related to behavior, and by improving behavior, social functioning, grades and attendance, peer and parent support, and coping skills. **Target population**: Children and adolescents that have experienced trauma.	Proven Effective	Favorable	Neutral (school conduct)	Crime Solutions	**Ages:** Childhood and Adolescent (6 - 17)	
Cognitive behavioral therapy (CBT) for children	Counseling / Therapy	**Description**: Therapies target problem-solving in order to reduce impulsive behavior; specific strategies include self-monitoring, modeling/role playing, self-instruction, generation of alternatives, and reinforcement. CBT can include other various components: scheduling pleasant experiences, emotion regulation, and communication skills. **Target population**: Children, adolescents, and transitional youth diagnosed with emotional/behavioral disorders and their family.	Proven Effective	Favorable	*	WSIPP	**Ages:** Children, Adolescents, and Transitional youth (7 - 21)	There are a multitude of different models of cognitive behavioral therapy, dependent on age, need, and population, but excludes models that use ADHD. This includes adaptions for anxiety, trauma, depression, insomnia, psychosis, eating-disorders, amongst others. This is an aggregate rating; the effectiveness of CBT varies dependent on the model and treatment population.

Name	Category	Description	Rating	Outcomes on disorders or psychiatric symptoms for children	Enhancement in child or family wellbeing	Source of evidence	Effective for which age groups?	Additional comment or expert opinion
Cognitive behavioral therapy (CBT) alone for children with ADHD	Counseling / Therapy	**Description**: Therapies aims to teach children strategies for altering thinking patterns and behavior. Examples of CBT methods used with an ADHD population include relaxation training, self-verbalization, a self-control game, or social problem-solving activities. Programs in this review may have included modules for parents either alone or in combination with their child, but children were the focus of interventions. **Target population**: Children, adolescents, and transitional youth diagnosed with ADHD and their family.	No Effect	Neutral	*	WSIPP	**Ages:** Children, Adolescents, and Transitional youth (7 - 21)	Some individual models that use CBT principles in concert with other supports show positive impacts, like Multimodal therapy and Behavioral Parent Training, but CBT alone a statistically significant impact on ADHD symptoms. This may suggest that CBT needs to paired with therapeutic components, such as strengthening parenting skills and fostering parents' involvement.
Collaborative bridging (CIBS)	Counseling / Therapy	**Description:** An integrated service that combines intensive in-home based therapeutic services with a short-term residential treatment placement. The service is designed so that the community-based therapeutic service is involved prior to the residential treatment placement, collaborates and coordinates in-home therapeutic services with the residential treatment staff during placement, and provides aftercare. **Target population:** Children diagnosed with emotional/behavioral disorders and their family.	Theory Based	*	*	Not at this time	n/a	
Crisis Nursery	Crisis services	**Description:** A family support program that provides temporary, short-term care for children while families address a crisis situation. Additional services may be included for the parent(s): crisis counseling and support, parent education, in-home family counseling, referral to community resources. **Target population:** Parents experiencing a mental health crisis and their families.	Promising	*	Favorable (child placement and permanency)	MMB Literature Review	n/a	
Crisis Text Line	Crisis services	**Description:** Free counseling via telephone, chat, or text message. Crisis line counselors provide support to callers, assess suicide risk, and referrals to counseling, social services, and emergency services **Target population:** Adolescents and transitional youth experiencing a mental health crisis and their family.	Promising	Favorable	*	What Works for Health	**Ages:** Adolescent and Transitional youth (16 - 21)	In April 2018, DHS replaced the Txt4Life program with Crisis Text Line, making it available in all MN counties. By texting "MN" to 741741 an individual in distress is connected to a trained counselor who can offer help and connect them to community resources.
Culturally adapted healthcare	Counseling / Therapy	**Description:** Tailors health care to a patient's norms, beliefs, values, and language. For example: matching specialists to patients by race or ethnicity; adapting patient materials to reflect patients' culture, language, or literacy skills; offering education via community-based health advocates; incorporating norms about faith, food, family, or self-image into patient care; and implementing patient involvement strategies. **Target population:** Culturally and linguistically diverse children and families	Proven Effective (Culturally-informed intervention)	*	Favorable (psychological functioning; healthcare outcomes)	What Works for Health	**Ages**: Transitional youth (19 - 25)	The research population is limited to transitional youth and adults. Three systematic reviews show that psychotherapy adapted to an individual's cultural understanding of illness improves psychological functioning more than standard psychotherapy and may improve satisfaction, expectations, adherence to treatment, and willingness to consider alternate illness explanations (Benish 2011, Chowdhary 2014, Fuentes 2012).

Name	Category	Description	Rating	Outcomes on disorders or psychiatric symptoms for children	Enhancement in child or family wellbeing	Source of evidence	Effective for which age groups?	Additional comment or expert opinion
Dialectical Behavior Therapy (DBT) for adolescent self-harming	Counseling / Therapy	**Description:** A treatment program that uses a combination of individualized rehabilitative and psychotherapeutic interventions. DBT involves weekly therapy and group skills training, telephone coaching as needed, and weekly consultation team meetings. **Treatment population:** Adolescents that exhibit self-harming behavior and their family.	Promising	Favorable	Favorable (self-harming behavior)	WSIPP and McCauley et. al. 2018	**Ages**: Adolescent (12 - 18)	We focus on a self-harming population, but small RCTs have shown favorable outcomes for adolescents with bipolar disorder when paired with pharmacotherapy. We need additional studies to establish the efficacy for this population. McCauley (2018) found here: https://bit.ly/2RjWAuG
Early Childhood Mental Health Consultation	Assessment services	**Description:** A mental health prevention service focused on building adults' capacity to support young children's emotional development. It includes training, reflective consultation, and skill building. **Target population:** Families with young children	Promising	*	Favorable (student self-efficacy, teacher turnover, favorable classroom environment)	MMB Literature Review	**Ages:** Early childhood (0 - 5)	A peer-reviewed systematic review found 11 qualifying studies. Of those, two were RCTs. One RCT found positive impacts and the other found neutral impacts. The remaining 9 quasi-experimental studies showed varying--but generally positive--impacts.
Eye movement desensitization and reprocessing (EMDR) for child trauma	Counseling / Therapy	**Description:** During this individual-based treatment, clients focus on a traumatic memory for 30 seconds at a time while the therapist provides a stimulus. The client reports on what thoughts come to mind and clients are guided to refocus on that thought in the next stimulus session. During therapy visits, clients report on the level of distress they feel. In later phases, a positive thought is emphasized during the stimulus sessions. **Target population:** Children that have experienced serious trauma and their family.	Promising	Favorable	*	Crime solutions	**Ages:** Children, Adolescent, and Transitional youth (6 - 21)	Research findings for EMDR are specific to children with trauma. There was no effect on internalizing behavior or anxiety disorders.
First episode psychosis	Counseling / Therapy	**Description:** A coordinated specialty care team promotes shared decision-making to create a personal treatment plan with the individual served. Using this plan, specialists offer psychotherapy, medication management, family education and support, skills training, and work or education support. **Target population:** Transitional youth and adults who have experienced a first episode of psychosis and their family.	Proven Effective	Favorable	*	WSIPP	**Ages**: Adolescent and Transitional youth (15 - 25)	
Gathering of Native Americans (GONA)	Family, community, and client education and support	**Description:** A GONA is a culture-based planning process where community members gather to address community-identified issues. It uses an interactive approach that empowers and supports AI/AN tribes. The GONA approach reflects AI/AN cultural values, traditions, and spiritual practices. **Target population:** American Indian communities	Theory based (Culturally-informed intervention)	*	*	Not at this time	n/a	SAMHSA has formally articulated a framework and theory of change. For more see: https://bit.ly/2AhJq7Y
Generation PMTO / After Deployment Adaptive Parenting Tools (ADAPT)	Family, community, and client education and support	**Description:** A group parent training intervention which aims to teach effective family management skills in order to reduce antisocial and problematic behavior in children. **Target population:** Parents of children with behavioral disorders and their children. ADAPT is a modification for kids with parents deployed in the military.	Proven Effective	Favorable	Favorable (antisocial-aggressive behavior; conduct problems; delinquency/criminal behavior; illicit drug use)	Blueprints	**Ages:** Early childhood, Childhood, and Adolescent (3-18)	Research findings for ADAPT: https://bit.ly/2IoGB7z

Name	Category	Description	Rating	Outcomes on disorders or psychiatric symptoms for children	Enhancement in child or family wellbeing	Source of evidence	Effective for which age groups?	Additional comment or expert opinion
JED campus model	Family, community, and client education and support	**Description:** A campus-wide public health approach to provide comprehensive, customized support in mental health, substance use, and suicide prevention. **Target population:** Universal prevention for college-age students.	Theory based	*	*	Not at this time	*	
Incredible Years: Child and Parent training	Family, community, and client education and support	**Description:** A group, skills-based behavioral intervention for parents of children with behavior problems. The curriculum focuses on strengthening parenting skills and fostering parents' involvement in children's school experiences in order to promote academic, social, and emotional competencies and reduce conduct problems. Children are taught social, emotional and academic skills. **Target population:** Children with behavioral disorders and their family.	Proven Effective	Favorable	Favorable (antisocial-aggressive behavior; conduct problems; positive social/prosocial behavior; prosocial with peers)	CEBC	**Ages:** Early childhood and Childhood (4 - 8)	
Integrated Dual Disorders Treatment (IDDT)	Counseling / Therapy	**Description:** Counselors, clinicians or multidisciplinary teams provide treatment to support recovery when mental illness and substance use disorders occur together. They use specific listening and counseling skills to guide awareness of how mental and substance use disorders interact and to foster hopefulness and motivation for recovery from both disorders. **Target population:** Adolescents with co-occurring disorders and their family.	Theory Based	*	*	Not at this time	n/a	This is an evidence-based service for adult populations, but we could not find sufficient evidence for a youth population.
Intensive In Home Therapy	Counseling / Therapy	**Description:** A form of therapy (also called systemic family therapy or in-home family therapy) intended to increase stability at home and in the community for family members experiencing emotional and behavioral difficulties. Typically, medical necessity for in-home family therapy must be identified through diagnostic assessment. **Target population:** Children diagnosed with emotional/behavioral disorders and their families.	Promising	*	Favorable (child behavior and parent child interactions)	CEBC	**Ages:** Childhood and Adolescent (6-17)	Refers to services delivered by certified practitioners using a validated model, such as MST-CAN.
Intensive Treatment in Foster Care (ITFC)	Counseling / Therapy	**Description**: A bundled service for children who are in a family foster care setting with a mental illness diagnosis and require intensive intervention without 24-hour medically monitoring. Service includes psychotherapy, psycho-education, clinical consultation and crisis assistance. **Target population**: Children in need of intensive rehabilitative mental health services and their families.	Theory Based	*	*	Not at this time	n/a	
Managing and Adapting Practice (MAP)	Counseling / Therapy	**Description:** This system involves a set of resources and models that help counselors organize the best available evidence, track treatment history and client outcomes, and support assessment, planning, and monitoring care. **Target population:** Children diagnosed with emotional/behavioral disorders and their families.	Promising	Favorable	*	Crime solutions	**Ages:** Childhood (6-12)	Recently, the MAP concepts and architecture were used to design and evaluate a modular, flexible treatment protocol called "Modular Approach to Therapy for Children (MATCH)".

Name	Category	Description	Rating	Outcomes on disorders or psychiatric symptoms for children	Enhancement in child or family wellbeing	Source of evidence	Effective for which age groups?	Additional comment or expert opinion
Mentoring: Community-based services for children with disruptive behavior disorders	Family, community, and client education and support	**Description:** In community-based mentoring programs for children with disruptive behavior disorders, paraprofessional mentors are paired with youth with diagnosed disruptive behavior disorders. Mentors promote and reinforce positive behaviors and goals and brief parents on progress. **Target population:** Children diagnosed with disruptive behavior disorders, their families, and community members.	Promising	Favorable	*	WSIPP	**Ages:** Childhood (8 - 12)	There is a wide range of quality for mentoring programs. To find more about best practices, see https://www.mentoring.org/program-resources/elements-of-effective-practice-for-mentoring.
Mobile crisis response for children	Crisis services	**Description:** Provide face-to-face, short-term, intensive mental health services during a mental health crisis or emergency. Responders help the recipient cope, identify resources, avoid hospitalization, develop an action plan and begin a baseline level of functioning. **Target population:** Children experiencing a mental health crisis and their family.	Theory Based	*	*	Not at this time	n/a	This is an evidence-based practice for adult populations, but we could not find sufficient evidence for a youth population.
Motivational interviewing to engage children in mental health treatment	Counseling / Therapy	Motivational interviewing is a method of communication intended to increase participants' motivation for change. In clinical practice, motivational interviewing can be used with the goal of increasing engagement in treatment. **Target population:** Children diagnosed with emotional/behavioral disorders and their family.	Promising	*	Favorable (treatment engagement/retention)	WSIPP	**Ages:** Early childhood, Childhood, Adolescent and Transitional youth (4 - 21)	Motivational interviewing is a technique used by a range of practitioners across the human services spectrum. The technique has demonstrated positive impacts across populations on engagement and retention in treatment.
Parent Child Interaction Therapy (PCIT)	Counseling / Therapy	**Description:** A manualized intervention where a therapist directly observes a parent and child through a one-way mirror while providing direct coaching to the parent through a radio earphone. The focus is on building the skills of the parent to more positively interact with the child and manage his or her behavior. Therapists aim to restructure the parent-child relationship and provide the child with a more secure attachment to the parent. **Target population:** Children diagnosed with emotional/disruptive behavior disorders and their families.	Proven Effective (Culturally-informed intervention)	Favorable	Favorable (parental stress)	WSIPP	**Ages:** Early childhood and Childhood (3 - 8)	Bigfoot and Funderburk (2011) adapted this service for American Indian populations. To see more, visit https://bit.ly/2Rkxlpd Typically, this service is delivered to children with disruptive behavior. It is also used in other populations, including those with anxiety, delayed emotional development, selective mutism, and those with a history of trauma.
Positive Behavioral Interventions and Supports (PBIS)	Family, community, and client education and support	**Description:** A multi-tiered framework supports the ability to respond quickly and appropriately to behavioral and mental health concerns within school settings. **Target population:** Universal prevention for children.	Proven Effective	*	Favorable (improved youth behavior)	What Works for Health	**Ages:** Children (5 - 11)	This rating references research on the first tier of PBIS.
Social Emotional Learning curricula	Family, community, and client education and support	**Description:** Programs are designed to foster the development of core competencies, teach students to understand and manage emotions, set and achieve goals, feel and show empathy, establish and maintain relationships, and make responsible decisions. One example is Collaborative for Academic, Social, and Emotional Learning (CASEL). **Target population:** Universal prevention for children.	Proven Effective	Favorable	Favorable (juvenile problem and at risk behaviors)	Crime Solutions	**Ages:** Childhood and Adolescent (5 - 18)	Examples include Students Teaching Attitudes of Respect, Girls Lead, and Coping with Stress.

Name	Category	Description	Rating	Outcomes on disorders or psychiatric symptoms for children	Enhancement in child or family wellbeing	Source of evidence	Effective for which age groups?	Additional comment or expert opinion
Sources of Strength	Family, community, and client education and support	**Description:** A school-based, suicide prevention program designed to build socioecological-protective influences across a full student population, using youth leaders from diverse social cliques to develop and deliver, with adult mentoring, messaging aimed at changing the norms and behaviors of their peers. **Target population:** Universal prevention for adolescents and transitional youth.	Promising	*	Favorable (help for suicidal peers, seeking help, coping, school engagement, support to peers, trusted adults)	Crime Solutions	**Ages:** Adolescent and Transitional youth (14 - 21)	
Targeted Case Management (MH-TCM)	Family, community, and client education and support	**Description**: Assists recipients in gaining access to needed educational, health, legal, medical, social, vocational and other services and supports. The four core components are: assessment, planning, referral/linkage and monitoring/coordination. **Target population**: Children in need of intensive rehabilitative mental health services and families.	Theory Based	*	*	Not at this time	n/a	The PracticeWise Evidence-Based Youth Mental Health Services Literature Database (PWEBS) lists case management as a practice element in larger treatment families - most of which include clinical interventions.
Transition services	Family, community, and client education and support	**Description:** Youth services that promote activities after high school: postsecondary education, vocational training, employment, continuing and adult education, adult mental health and social services, other adult services, community participation, and living independently. **Target population:** Children diagnosed with emotional/behavioral disorders and their families.	Theory Based	*	*	Not at this time	n/a	
Trauma-Focused Cognitive Behavioral Therapy (CBT)	Counseling / Therapy	**Description:** A psychosocial treatment model designed to treat posttraumatic stress and related emotional and behavioral problems. Treatments include psycho-education, techniques for managing physiological and emotional stress, the gradual desensitization to memories of the traumatic event (also called exposure), and cognitive restructuring of inaccurate or unhelpful thoughts. **Target population:** Children, adolescents, and transitional youth that have experienced trauma and their family.	Proven Effective (Culturally-informed intervention)	Favorable	*	WSIPP	**Ages:** Early childhood, Childhood, Adolescent and Transitional youth (4 - 21)	Different modalities exist for different age groups. Bigfoot and Schmidt (2010) adapted this service for American Indian populations: https://bit.ly/2QmVLNw. Similar results were found in meta-analyses completed by other researchers.
Use of antidepressant medication in combination with therapy for depression in children	Counseling / Therapy	**Description:** Compares whether anti-depressants alone or in combination with therapies generates the best results for children with depressive disorder. **Target population:** Children, adolescents, and transitional youth diagnosed with depression and their family.	Inconclusive	Research on the psychiatric impact is inconclusive	*	Research on the psychiatric impact is inconclusive	**Ages:** Adolescent and Transitional youth (16 - 21)	A Cochrane Review noted found it was not possible to determine whether adding anti-depressants to psychotherapy was more effective than psychotherapy alone. https://bit.ly/2AQWjGn. Other meta-analyses found similar results.
Wraparound Service	Family, community, and client education and support	**Description:** A **t**eam-based care coordination strategy for juveniles (involved in several service systems, experience cognitive-behavioral challenges, and are at-risk of out-of-home placement) and their families. Services include, planning (care coordination), implementation, monitoring, and follow-up. **Target population:** Children diagnosed with emotional/behavioral disorders and their families. Often a juvenile justice or child welfare population.	Promising	*	Favorable (child and family wellbeing)	CEBC	**Ages:** Early childhood, Children, Adolescent, and Transitional youth (3 - 21)	The systems of care grant will introduce a new wraparound model. The model will follow SAMHSA best practices and will be supported with fidelity monitoring.

Name	Category	Description	Rating	Outcomes on disorders or psychiatric symptoms for children	Enhancement in child or family wellbeing	Source of evidence	Effective for which age groups?	Additional comment or expert opinion
Youth ACT (Assertive Community Treatment)	Counseling / Therapy	**Description**: A non-residential, team-based program serving children with mental health diagnoses, between ages 16-21. A multi-disciplinary team offers therapeutic and rehab focused services. **Target population**: Children in need of intensive rehabilitative mental health services and their families.	Theory Based	*	*	Not at this time	n/a	DHS is currently redesigning this offering.
Youth Mental Health First Aid	Family, community, and client education and support	**Description:** Teaches the basic first aid skills needed to help a person who is experiencing a mental health problem or crisis. Participants complete an 8-12 hour course. **Target population:** Communities and families	Promising	*	Favorable (increased knowledge of mental health; reduced stigma)	What Works for Health	**Ages:** Transitional youth (18 - 25)	
Settings, personnel, and core functions								
Name	**Category**	**Description**	**Rating**	**Outcomes on disorders or psychiatric symptoms for children**	**Enhancement in child or family wellbeing**	**Source of evidence**	**Effective for which age groups?**	**Additional comment or expert opinion**
Assessment, consultation, and evaluation services	Assessment services	**Description:** A wide range of services to identify and evaluate behavioral and emotional disorders. There are several diagnostic tools used to determine and evaluate a child's mental health and eligibility for services. Includes Diagnostic Assessment and Child and Teen Check Ups. **Target population:** Universal.	Theory Based (Category of services)	*	*	Not at this time	n/a	May occur in a range of settings: primary care, schools, community organizations, and hospitals. Includes DC: 0-3R, DC: 0-5, and DCM-5.
Care coordination	Family, community, and client education and support	**Description:** Models to coordinate the different services which families require to meet their holistic needs. Many different models exist--like Wraparound services, treatment courts, system navigators, and Medicaid Health Homes--to provide this care management. **Target population:** Children and families with complex needs.	Theory Based (Category of services)	*	*	Not at this time	n/a	There are many evidence-based care coordination models. Wraparound is an example that targets children with behavioral or emotional disorders. Many other programmatic areas offer services that meet the intersected needs families, including those with children with mental health needs.
Certified Community Behavioral Health Clinics	Treatment setting	**Description**: A service delivery model being piloted for further integration of substance use disorder and mental health services. This new service delivery model aims to coordinate care across settings and providers to ensure seamless transitions for individuals across the full spectrum of health and social services, increase consistent use of evidence-based practices, and improve access to high-quality care. **Target population**: Children in need of rehabilitative mental health services and families.	Theory Based (Category of services)	*	*	Not at this time	n/a	
Child & Adolescent Behavioral Health Services (CABHS)	Treatment setting	**Description**: Provides hospital and community-based mental health services to children and adolescents who have a serious emotional disturbance and whose needs may exceed the capacities of their families and local communities. **Target population**: Children in need of intensive rehabilitative mental health services and families.	Theory Based (Category of services)	*	*	Not at this time	n/a	

Name	Category	Description	Rating	Outcomes on disorders or psychiatric symptoms for children	Enhancement in child or family wellbeing	Source of evidence	Effective for which age groups?	Additional comment or expert opinion
Children's Residential Treatment	Treatment setting	**Description**: A 24/7 program with clinically supervised services provided in a community setting to prevent placement in more intensive, expensive or restrictive settings. Care and treatment are designed to help the child improve family living and social interaction skills and/or gain skills to return to the community. **Target population**: Children in need of intensive rehabilitative mental health services and families.	Theory Based (Category of services)	*	*	Not at this time	n/a	Level of care: severe emotional disturbance (SED).
Children's Therapeutic Support Service (CTSS)	Counseling / Therapy	**Description:** A flexible package of mental health services for children who require varying levels of therapeutic and rehabilitative intervention. It typically includes psychotherapy, skills training, crisis assistance, and mental health service plan development, and it can be provided in different settings such as at home or at school. **Target population:** Children diagnosed with emotional/behavioral disorders and their family.	Theory Based (Category of services)	*	*	Not at this time	n/a	
Crisis services	Crisis services	**Description:** A wide range of time-limited services that meet the need of clients during a crisis. Includes county mental health crisis phone numbers, the statewide mental health crisis phone number, children's mobile crisis response, adult mobile crisis response, stabilization, residential placements, crisis nursery, crisis assessment, and interventions; including referrals, updating the crisis stabilization treatment plan, supportive counseling, skills training and collaboration with other service providers in the community. **Target population:** Children experiencing a mental health crisis and their family.	Theory Based (Category of services)	*	*	Not at this time	n/a	
Crisis stabilization services	Crisis services	**Description:** Includes short-term supportive services and connecting the child and family to ongoing services. Short-term supportive services may be provided in the child's home, a family member or friend's home, or in the community, available up to 14 days after a crisis intervention. Also involves the development of a treatment plan. **Target population:** Children experiencing a mental health crisis and their family.	Theory Based (Category of services)	*	*	Not at this time	n/a	
Day treatment	Treatment setting	**Description**: A site-based mental health program, consisting of group psychotherapy and skills training services, intended to stabilize the child's mental health status and develop and improve independent living and socialization skills.. **Target population**: Children in need of rehabilitative mental health services and families	Theory Based (Category of services)	*	*	Not at this time	n/a	

Name	Category	Description	Rating	Outcomes on disorders or psychiatric symptoms for children	Enhancement in child or family wellbeing	Source of evidence	Effective for which age groups?	Additional comment or expert opinion
Family School Support Worker Program	Family, community, and client education and support	**Description:** A multi-system team including social workers, teachers, counselors, mental health providers, and community supports. They work to provide preventative services and problem solving with families within their assigned school. FSSW also provides brief, solution focused in-home services with families to identify and assess needs as well as work with families to develop a plan to address their needs either for an individual child or the entire family system. **Target population:** Children diagnosed with emotional/behavioral disorders and their families.	Theory Based (Category of services)	*	*	Not at this time	n/a	
Family Home Visiting	Family, community, and client education and support	**Description:** A range of programs that generally include home visiting by public health nurses during a woman's pregnancy and years after birth. Programs often aim to improve prenatal health and outcomes, child health and development, and family economic self-sufficiency. **Target population:** Varies by program, typically children 0-3	Please reference the Results First Child Welfare Inventory	*	*	Results First Child Welfare Inventory	*	Many, but not all home visiting models are evidence-based. For a full listing, see our child welfare inventory.
Medication Management	Family, community, and client education and support	**Description:** Provides education for individuals on multiple medications. A trained pharmacist or clinician educates clients and their families on how to take their medication and potential interactions and side effects. **Target population:** Children diagnosed with emotional/behavioral disorders and their families.	Theory Based (Category of services)	*	*	Not at this time	n/a	This category includes different types of providers and medication educators, including the Medication Therapy Management Services (MTMS).
Mental Health Behavioral Aide	Family, community, and client education and support	**Description:** A trained aide helps a child diagnosed with an emotional disturbance practice skills in the child's home, school or community setting. **Target population:** Children diagnosed with emotional/behavioral disorders and their families.	Theory Based (Category of services)	*	*	Not at this time	n/a	
Mental health collectives and coalitions	Family, community, and client education and support	**Description:** The community leads effort to support mental health. Activities include mental health awareness, building community resiliency, and advocacy for health promotion, prevention, and treatment services. **Target population:** Communities and families.	Theory Based (Category of services)	*	*	Not at this time	n/a	
Minnesota Intensive Therapeutic Homes (MITH)	Treatment setting	**Description:** Provides an alternative to institutional placement for children and adolescents with severe emotional disturbance and serious acting out behaviors. Services are provided within a family foster setting. **Target population**: Children in need of intensive rehabilitative mental health services and families.	Theory Based	*	*	Not at this time	n/a	
Other case management services	Family, community, and client education and support	**Description:** Common components for families in many public assistance systems. They ensure child and family wellbeing, check compliance with program requirements, connect participants to health, employment, housing, and other services, and provide education and support. **Target population:** Children and families involved with juvenile justice, child welfare, and public assistance systems.	Theory Based (Category of services)	*	*	Not at this time	n/a	This refers to other forms of case management found in the juvenile justice, child welfare, and other public systems, and often received by children with emotional or behavioral disorders. It also can include coordination of supports between multiple systems.

Name	Category	Description	Rating	Outcomes on disorders or psychiatric symptoms for children	Enhancement in child or family wellbeing	Source of evidence	Effective for which age groups?	Additional comment or expert opinion
Outreach, awareness, and education programming	Family, community, and client education and support	**Description:** This programming seeks to provide education and resources for mental health services and suicide prevention. Examples include NAMI Ending the Silence, Let's Talk About It, More than Sad, and Schools Mobilizing Awareness and Reducing Tragedies (SMART)	Theory Based (Category of services)	*	*	Not at this time	n/a	These groups have the ability to destigmatize mental health and create belongingness.
Outpatient mental health services	Treatment setting	**Description**: Services provided to children who live outside a hospital can include individual, group and family therapy, individual treatment planning, diagnostic assessments, medication management, and psychological testing. **Target population**: Children in need of rehabilitative mental health services and families.	Theory Based (Category of services)	*	*	Not at this time	n/a	There is wide variation in the definition and model of "outpatient" treatment.
Partial hospitalization	Treatment setting	**Description**: A time-limited program of psychotherapy and other therapeutic services that may be provided in an outpatient hospital facility or Community Mental Health Center. The child or youth continues to live at home but travels to a treatment center for services. The goal of this program is to resolve or stabilize an acute episode of mental illness. **Target population**: Children in need of intensive rehabilitative mental health services and families.	Theory Based (Category of services)	*	*	Not at this time	n/a	
Psychiatric Residential Treatment Facility (PRTFs)	Treatment setting	**Description**: Provide services to children and youth with complex mental health conditions. PRTFs are more intensive than other services, such as residential treatment or day treatment, but less medically intensive than a psychiatric hospital or a hospital psychiatric unit. **Target population**: Children in need of rehabilitative mental health services and families.	Theory Based (Category of services)	*	*	Not at this time	n/a	Level of care: mental illness and moderate to high risk. Admittance requires an assessment, limited social supports, and active need for treatment and evidence that past treatment has not been successful.
Respite care	Treatment setting	**Description**: Provides temporary care for children with mental health needs who live at home. This gives families and caregivers a much needed break while offering a safe environment for their children. **Target population**: Families with children in need of rehabilitative mental health services.	Theory Based (Category of services)	*	*	Not at this time	n/a	Respite can be for varying lengths. For instance, Rice County offers short-term respite, where case managers take children with emotional disorders to music or art lessons, day camps, and other recreational activities for several hours. This offers parents needed time to rest and complete other tasks.
School-Linked Mental Health Services	Treatment setting	**Description:** Community mental health agencies provide mental health services in schools (school-based), and at the child's home or community setting (school-linked). Includes assessments, individual/group/family therapy, skills training, crisis interventions, psychoeducation, and supportive services and care coordination. **Target population:** Children diagnosed with emotional/behavioral disorders and their families.	Theory Based (Category of services)	*	*	Not at this time	n/a	
Screening in child welfare and juvenile justice systems	Assessment services	**Description:** Agencies screen children receiving child protective services or those in out-of-home placement, a child for whom parental rights have been terminated, a child found to be delinquent, a child in juvenile detention and certain children in trouble with the law. **Target population:** Communities.	Theory Based (Category of services)	*	*	Not at this time	n/a	This includes validated assessments like ACES, 35-evaluations, structured decision-making, parent-child interaction assessments, and parental health evaluations. It may also include techniques like motivational interviewing and risk, need, responsivity.

Name	Category	Description	Rating	Outcomes on disorders or psychiatric symptoms for children	Enhancement in child or family wellbeing	Source of evidence	Effective for which age groups?	Additional comment or expert opinion
Shelter care for families with mental health needs	Treatment setting	**Description**: Refers to the temporary care that is given to a child in physically unrestricting facilities. In some shelters, screening and treatment for emotional/behavioral disorders is available for families. **Target population**: Children in need of rehabilitative mental health services and families	Theory Based (Category of services)	*	*	Not at this time	n/a	
Skills training	Family, community, and client education and support	**Description:** Children develop behavioral skills. It may be delivered to help the youth to self-monitor, compensate for, cope with, counteract, or replace skill deficits or maladaptive skills acquired during the course of a psychiatric illness. **Target population:** Children diagnosed with emotional/behavioral disorders and their families.	Theory Based (Category of services)	*	*	Not at this time	n/a	These are typically deployed by non-clinical staff.
Substance use treatment (prevention, treatment, and recovery)	Counseling / Therapy	**Description:** Chemical dependency treatment provides a continuum of care to prevent, treat, and promote recovery from substance use disorder. These services are tailored to suit the needs of each offender, and may include screenings and assessments, treatment, and rehabilitation. Many evidence-based models exist for treating substance, including cognitive behavioral therapy and Multidimensional Family Therapy. **Target population:** All ages	See Results First's substance use report	*	*	Results First SUD Inventory	n/a	Many youth with behavioral or emotional disorders may have or develop a substance use disorder. While not all substance use services are evidence based, many are effective at preventing or treating substance use. The Results First team reviewed the evidence for substance use interventions here: http://bit.ly/1yK5cwi.
Telehealth for children's mental health treatment	Treatment setting	**Description:** Clinical services and therapy delivered remotely to clients. This is often used when specialists are unavailable in certain regions and is often paired with in-person treatment for other services. **Target population:** All ages	Theory Based (Category of services)	*	*	Not at this time	n/a	Some evidence suggests that telehealth is an effective method of delivery. For instance, this meta-analysis finds Remote CBT for children with anxiety to be an effective alternative to in-person treatment, https://bit.ly/2psjDUw.

Appendix B: Benefit-cost analysis research methods

Available for a benefit-cost analysis

After the inventory is finished, and each service has a level of evidence, MMB determined which services were available for benefit-cost analysis. To qualify for further analysis, the service needed to meet three criteria:

- The service had a meta-analysis completed by the Washington State Institute for Public Policy or a rigorous local evaluation.
- The service, as operated in Minnesota, had a similar treatment, duration, frequency, and participant profiles as the empirical research.
- MMB and our partners could estimate a statewide cost per participant.[40]

What is a benefit-cost analysis?

Benefit-cost analysis is a tool for comparing policy alternatives based on net benefits generated over time for each dollar invested. The results provide important information about cost-effectiveness, but do not address other important factors, such as equity. An advantage of using benefit-cost analysis within the same policy area is the ability to measure costs and outcomes in the same way across different services.

The Results First model uses an integrated set of calculations in a statistical model to produce a 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 public dollar spent to fund the service.

To calculate the benefits of a service, the model uses estimates of the impact of a service that have been calculated in a meta-analysis conducted by the Washington State Institute for Public Policy (WSIPP). For a full description of model methodology, please see: http://www.wsipp.wa.gov/TechnicalDocumentation/WsippBenefitCostTechnicalDocumentation.pdf.

As described in the following section, MMB applies this impact to Minnesota's baseline rate for the relevant metric. The difference between the baseline and the new estimated rate is monetized as benefits. The service's average cost, i.e., how much it costs to add one additional participant, is the denominator of the ratio. We report the resulting ratio as the monetary value of benefits for each $1 invested to implement the service.

Limitations

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' capacity to follow evidence-based practices. A generalized state-level ratio averages the cost of services across different situations and may not be an accurate representation of the cost experienced by a given jurisdiction.

Further, MMB cannot break down the analysis by demographic or socioeconomic characteristics. Since the WSIPP benefit-cost model uses an aggregate measure of effect from multiple evaluations, 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 at the time of publication, those specific evaluations did not exist.

[40] Implementation costs vary widely from jurisdiction to jurisdiction. This affects the applicability of a benefit-cost ratio from county to county.

Figure 21: Benefit-cost analysis terms

Term	Definition
Average costs per participant	The cost of providing the service to one individual minus the cost of the likely alternative (net). For example, the cost of providing CBT minus the non-model therapy that the individual would otherwise receive. *Estimates are rounded to the nearest ten dollars.*
Benefits	Total benefits are the sum of taxpayer benefits, such as the cost of crime, plus other benefits to society, such as increased labor market earnings. *Estimates are rounded to the nearest ten dollars*.
Benefit-cost analysis	An estimate of the cost effectiveness of alternative services by comparing expected benefits to expected costs. Service profiles note which outcomes the model monetizes.
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*. The overall ratio shows the impact for children with different presenting conditions (referred to as cohorts).
Cohort(s)	Naturally, youth with different conditions have different needs and outcomes. WSIPP built cohorts for youth with different presenting conditions (Anxiety, ADHD, disruptive behavior, and PTSD). The model also allows for children with multiple disorders. The model produces different outcomes (e.g., healthcare costs or future earnings) dependent on deviations from the anticipated outcomes for a children that does not receive treatment. These anticipated outcomes come from analysis of national-level data.
Evidence-based	A service or practice whose effectiveness has been rigorously evaluated using studies with treatment and control group designs. Evidence-based is commonly used to mean services with Proven Effective or Promising effects.
Rating	The rating reflects the degree to which there is evidence of effectiveness for a given service, as reflected in one or more of nine national clearinghouses or literature reviews by MMB. For children's mental health, we examine outcomes to psychiatric symptoms and other wellbeing changes (e.g., parental stress or improved test scores).
Net present value	The difference between the present value of cash inflows and outflows.
Other societal benefits	Benefits that accumulate to society are increased labor market earnings and decreased health care cost, education costs, labor income, and crime. *Estimates are rounded to the nearest ten dollars.*
Service	A state, county, or tribal funded service to reduce psychiatric symptoms.
Source of evidence	The source is the entity whose research was used to determine effectiveness. We use WSIPP effect sizes for benefit-cost estimates.
Taxpayer benefits	Estimated taxpayer benefits accrue from reductions in criminal justice system use, as well as decreases in health care expenses, taxes (from increased earnings) related to changes high school graduation, and increases in higher education use. *Estimates are rounded to the nearest ten dollars.*

Meta-analysis and effect sizes

In order to run the benefit-cost analysis on a given service, we need to know the average effect size of the service on desired outcomes. The Results First Initiative uses a benefit-cost model from Washington State Institute of Public Policy (WSIPP). In order to estimate the impact of each service, WSIPP first conducts a meta-analysis. We use the average effect sizes from their meta-analyses.

WSIPP meta-analysis

A meta-analysis collects existing evaluations on the service and uses the findings from qualifying studies to calculate an average effect size on each relevant outcome. An effect size shows the direction and magnitude to which a service changes an outcome for participants relative to a comparison group (Lipsey & Wilson, 2001). Using psychiatric symptoms as an example, if the effect size is negative, the service decreases symptoms. The size of the effect represents how much the service decreases symptoms. This analysis uses effect size and its associated standard error to determine how many units of the psychiatric symptom the individual potentially avoids after they participate in a service.

WSIPP uses three main steps to systematically review evaluation evidence for a given service[41]: 1) define a topic or topics of interest (*e.g.,* reduce anxiety disorder symptoms), 2) gather all the credible evaluations on the topic, and 3) use statistical procedures to draw a conclusion (Washington State Institute of Public Policy, 2017).

The quality of a meta-analysis depends on the breadth of study selection and coding criteria. WSIPP includes studies from peer-reviewed academic journals and reports obtained from government agencies or independent evaluations. WSIPP researchers use studies that include random assignment to assign subjects into a treatment and control group, as well as quasi-experimental studies which also uses a treatment and control group, but not necessarily random assignment. WSIPP only includes quasi-experimental studies if the study provided enough information to demonstrate comparability between the treatment and comparison groups. Each study must also provide an effect size and standard error for the meta-analysis. Chapter 2.2 of the WSIPP Benefit-Cost Technical Documentation describes the process and formulas used in the meta-analysis. The resulting effect size is a weighted mean effect size of a service on the specific outcome.

In our analysis, we choose to only use meta-analyses results that produced a statistically significant impact on the outcome ($p<0.10$) and had two or more studies. In cases where this criteria is not met, we suppress the impact of that outcome. In this way, MMB's results often diverge from WSIPP's.

Using effect sizes for benefit-cost analysis

Application of the average effect size in the WSIPP benefit-cost model requires converting the average effect size to a unit change percentage and applying it to the base rate of an outcome. For example, if the meta-analysis shows a cognitive-behavioral service for adolescents will reduce psychiatric symptoms of anxiety by 14 percent, the benefit-cost model applies that decrease to the baseline rate for depression in Minnesota, given the age group. The model then estimates the monetary value of this 14 percent reduction in symptoms of depression. The WSIPP benefit-cost model has current 12-month prevalence baseline rates for several children's mental health disorders. WSIPP used national data to estimate these rates.

[41] In general, WSIPP follows the meta-analytic methods described in: Lipsey, M.W. & Wilson, D. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage Publications.

Calculating benefits

The monetary value of a given change in outcomes is the benefits. The taxpayer and societal benefits of a service equal the total benefits that are the numerator in a benefit-cost ratio.

For each service that we calculate benefits, we only monetize the outcomes that are statistically significant at the 90 percent confidence level for that program. There may be programs for which a change in a monetizable outcome is not statistically significant, and therefore, we do not include in our benefit calculation. Additionally, in WSIPP's statistical model, there must be existing research to link the change in outcome with a dollar value.

Taxpayer and other societal benefits for children's mental health

When a service improves children's mental health outcomes considered in the model, the following types of benefits, or avoided costs, are computed: avoided health care costs (e.g., inpatient, outpatient, emergency, office-visit, and pharmacy services), avoided lost labor market earnings due to having anxiety disorder, major depressive disorder, or PTSD, and the value of a statistical life including mortality-related lost earnings and lost household production for suicide due to depression.

A mental health service may also affect outcomes beyond the change in psychiatric symptoms; for example crime, high school graduation, test scores, grade retention, and special education. Some evaluations measure these outcomes, and some are linked within the benefit-cost model.

The taxpayer benefits come from the avoided health care costs, avoided lost labor market earnings, and in some cases avoided criminal justice system costs or special education costs. Taxpayer benefits can also include taxes from future labor market earnings due to high school graduation. The societal benefits are the earnings from the perspective of the participant.

Additional considerations

Labor income, minus income tax, accrues to participants. For income tax from labor, we deviate from WSIPP, which assumes a total effective tax rate of 31 percent, and use an effective tax rate of 20.3 percent. WSIPP's figure reflects the median effective tax rate, which is likely too high for the population in this report. We used estimates from Minnesota's Department of Revenue's 2017 (table 1-5) tax incidence study for state (7.6%) and local taxes (4.7%).[42] For federal taxes, we use estimates from the Peter G. Peterson Foundation of total effective tax rates from income, payroll, corporate, and estate taxes combined for the second quintile (8.0%). This assumption may overstate or understate the proportion of the estimated benefits that would accrue to taxpayers versus society more broadly. However, this could be offset by other changes associated with additional earned income, including use of public programs such as health coverage and cash assistance that MMB did not assume had occurred for purpose of this analysis. Benefits also only consider the participant, not ramifications on friends or family.

If a recipient of a service leaves the state, Minnesota will not see those benefits. To account for this, MMB uses net migration rates by age to estimate the cumulative departure rate and deduct a proportional percentage of the total benefits. In technical terms, this divergence from WSIPP is related to different "levels of analysis". WSIPP considers their level of analysis to be the entire United States. Our level of analysis is only Minnesota.

[42] Average of 2-5th decile for 2014 in table 1-5.

Finally, the WSIPP benefit-cost model assumes that not all labor earnings are net new, because some portions of additional earnings by participants likely displace earnings from other Minnesotans. Bartik (2011) estimated that interventions in early education that create new workers displaces about thirty-four percent of wages for workers already in the workforce. Applying this to the children's mental health benefit-cost analysis, we assumed that 66 percent (i.e., 100% minus 34%) of additional earnings estimated to result from services are net new.

Program Costs

Minnesota Management and Budget worked with the Department of Human Services, practitioners, providers, and used detail from a recent Mercer Rate study to collect program-specific data to calculate an average cost per participant for each mental health program included in the benefit-cost analysis.

The average cost per participant is the denominator of the benefit-cost ratio.[43] If several data collection partners administer the program, we combined each site's average cost per participant into a statewide estimate.

Average cost per participant = (a) Total variable program costs ÷ (b) Number of participants

(a) Total average variable program costs = total program expenditures **-** fixed costs

Total program expenditures include things like staff to administer the program, program-specific training, and program-specific materials.

Fixed costs do not change with the number of participants, such as rent, utilities, etc. They are excluded from the total variable costs.

(b) Number of participants = the total number of participants who began the program/service/intervention

The cost is based on all participants admitted rather than only individuals who complete the program. We also assume that a client received the full dosage, which often does not occur. We use this assumption because we are also assuming that the client received the full benefits. MMB also estimates the comparison cost for the program; in other words, what service would the client receive if the evidence-based practice is unavailable. In each profile, we describe this counterfactual. All services last one year or less.

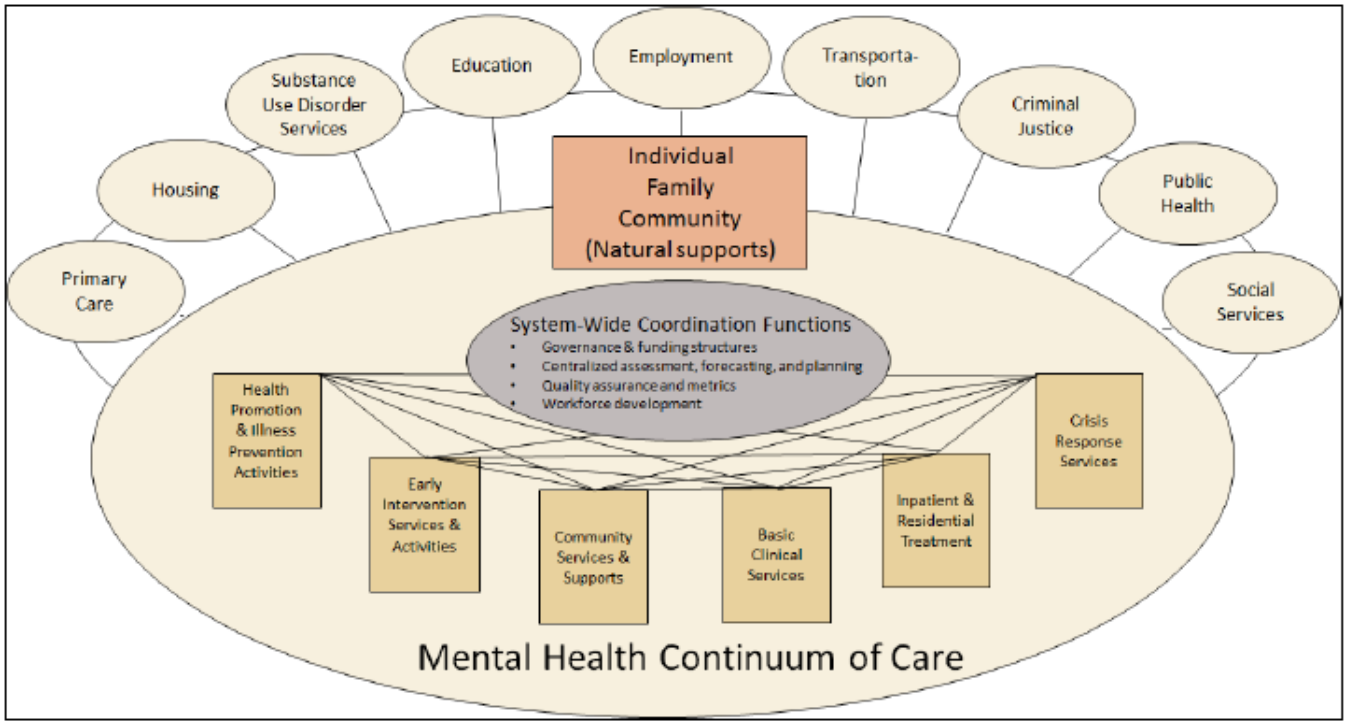
This cost includes the overhead to deliver the program. This stems from the logic that evidence-based services take more training, materials, and other costs to deliver it correctly than non-model programs. We used academic literature and a 2018 rate study from Mercer to estimate this overhead. In some cases, like PCIT and TF-CBT, we had detailed survey responses for the materials, training, certification, travel, and fidelity monitoring. In cases where this was not available, we estimated from the Mercer survey responses the average percent of the total cost to deliver the service. We found the overhead is around 25-35 percent of the total cost to deliver the service; practitioners we interviewed agreed with this assessment. To remain conservative, we used the top end of that estimate (35 percent). We do recognize, however, our estimate is based on self-reported figures from providers, and there was wide variation in these self-reported values. It would be valuable to have improved administrative data on these overhead costs.

For more information on methodology or assumptions, please email ResultsFirstMN@state.mn.us .

[43] The average cost per participant is really a net cost of the counterfactual (relevant only if the counterfactual is >$0).

Appendix C: Mental health continuum of care

Figure 22: Elements of a comprehensive continuum of care



Source: Governor's Task Force on Mental Health, 2016

References

Adams, E. J. (2010). *Healing Invisible Wounds: Why Investing in Trauma-Informed Care for Children Makes Sense*. Washington, D.C.: Justice Policy Institute.

American Academy of Child and Adolescent Psychiatry. (2011). *Facts for Families: Posttraumatic Stress Disorder (PTSD)*. Washington, D.C.: American Academy of Child and Adolescent Psychiatry.

American Association of Child & Adolescent Psychiatry. (2018). *Addressing Children's Mental Health Workforce Shortages*. AACAP. Retrieved from https://www.aacap.org/App_Themes/AACAP/docs/advocacy/advocacy_day/WORKFORCE_2018.pdf

American Evaluation Association. (2011). American Evaluation Association: Statement on Cultural Competence in Evaluation. Retrieved May 8, 2017, from http://www.eval.org/p/cm/ld/fid=92

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

Breslau, J., Lane, M., Sampson, N., & Kessler, R. C. (2008). Mental Disorders and Subsequent Educational Attainment in a US National Sample. *Journal of Psychiatric Research*, *42*(9), 708–716. https://doi.org/10.1016/j.jpsychires.2008.01.016

Brito, S. A. D., Viding, E., Sebastian, C. L., Kelly, P. A., Mechelli, A., Maris, H., & McCrory, E. J. (2013). Reduced orbitofrontal and temporal grey matter in a community sample of maltreated children. *Journal of Child Psychology and Psychiatry*, *54*(1), 105–112. https://doi.org/10.1111/j.1469-7610.2012.02597.x

Buffington, K., Dierkhising, C., & Marsh, S. (2010). *Ten Things Every Juvenile Court Judge Should Know About Trauma and Delinquency*. National Child Traumatic Stress Network.

Burrell, S. (2013). Trauma and the environment of care in juvenile institutions. *The National Child Traumatic Stress Network*.

Center on the Developing Child at Harvard University. (2017). Toxic Stress. Retrieved November 14, 2017, from

Compton, M. T., & Shim, R. S. (2015). The Social Determinants of Mental Health. *FOCUS*, *13*(4), 419–425. https://doi.org/10.1176/appi.focus.20150017

Cook, A., Spinazzola, J., Ford, J., Lanktree, C., Blaustein, M., Cloitre, M., … Kolk, B. van der. (2017). Complex Trauma in Children and Adolescents. *Psychiatric Annals*, *35*(5), 390–398. https://doi.org/10.3928/00485713-20050501-05

DeFor, V., & Rosenthal, M. (2015). Gearing Up for Action: Mental Health Workforce Plan for Minnesota. *HealthForce Minnesota*, 226.

DeSocio, J., & Hootman, J. (2004). Children's mental health and school success. *The Journal of School Nursing*, *20*(4), 189–196.

DHS & Mercer. (2019). *Minnesota State Legislature Report: Final Study of Mental Health Reimbursement [DRAFT]*. Minnesota Department of Human Services.

Doll, B., Nastasi, B. K., Cornell, L., & Song, S. Y. (2017). School-Based Mental Health Services: Definitions and Models of Effective Practice. *Journal of Applied School Psychology*, *33*(3), 179–194. https://doi.org/10.1080/15377903.2017.1317143

Echo-Hawk, H. (2018). *Background: Culturally Based and Emerging Evidence-Based Practice*.

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., … Marks, J. S. (1998). Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults:The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, *14*(4), 245–258.

Ford, J., Chapman, J., Hawke, J., & Albert, D. (2007). *Trauma Among Youth in the Juvenile Justice System: Critical Issues and New Directions*. National Center for Mental Health and Juvenile Justice.

Fronstin, P., Greenberg, D. H., & Robins, P. K. (2005). The Labor Market Consequences of Childhood Maladjustment. *Social Science Quarterly*, *86*(Suppl), 1170–1195. https://doi.org/10.1111/j.0038-4941.2005.00341.x

Governor's Task Force on Mental Health. (2016). *Governor's Task Force on Mental Health Final Report* (p. 83). Saint Paul, MN: Minnesota Department of Human Services.

HHS. (2018). *Attachment C: HHS Initial Practice Criteria and First List of Services and Programs Selected for Review as part of the Title IV-E Prevention Services Clearinghouse* (ACYF-CB-PI-18-09). Retrieved from https://www.cwla.org/wp-content/uploads/2018/12/ACYF-CB-PI-18-09-Attachment-C-Clearinghouse-Initial-Criteria.pdf

Hurley Swayze, D., & Buskovic, D. (2015). *Youth in Minnesota Correctional Facilities and Adverse Childhood Experiences: Responses to the 2013 Minnesota Student Survey*. Minnesota Department of Public Safety.

Institute of Medicine (US) Committee on Institutional and Policy-Level Strategies for Increasing the Diversity of the U.S. Healthcare Workforce. (2004). *In the Nation's Compelling Interest: Ensuring Diversity in the Health-Care Workforce*. (B. D. Smedley, A. Stith Butler, & L. R. Bristow, Eds.). Washington (DC): National Academies Press (US).

Lipsey, M. W., & Wilson, D. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage Publications.

Lopes, G., Krohn, M., J. Lizotte, A., M. Schmidt, N., Edward Vasquez, B., & Bernburg, J. (2012). Labeling and Cumulative Disadvantage: The Impact of Formal Police Intervention on Life Chances and Crime During Emerging Adulthood. *Crime & Delinquency*, *58*(456).

Martell Kelly, L. (2013). *Six Sigma and the Incredible Years Program* (p. 8). Saint Paul, MN: Wilder Research.

Melchert, T. P. (2015). *Biopsychosocial practice: A science-based framework for behavioral health care*. Washington, DC, US: American Psychological Association. https://doi.org/10.1037/14441-000

Mersky, J., & Reynolds, A. (2007). Child Maltreatment and Violent Delinquency: Disentangling Main Effects and Subgroup Effects. *Child Maltreatment*, *12*(3), 246–258.

Minnesota Department of Education. (2012, November 14). Multi-Tiered System of Support: Alternatives-to-Suspension.

Minnesota Department of Education. (2018). Positive Behavioral Interventions and Supports. Retrieved September 25, 2018, from

Minnesota Department of Health. (2018). Mental Health Promotion. Retrieved January 4, 2019, from http://www.health.state.mn.us/divs/cfh/topic/mentalhealth/

Minnesota Department of Human Services. (2016a). *Evaluation of Children's Mental Health Grants: Building Service Capacity*. Saint Paul, MN: Children's Mental Health Division. Retrieved from https://www.leg.state.mn.us/docs/2016/mandated/161244.pdf

Minnesota Department of Human Services. (2016b, March). Children's mental health identifying mental health concerns. Retrieved June 4, 2018, from

Minnesota Department of Human Services. (2017a, April). 2015-2016 Gap Analysis study. Retrieved May 7, 2018, from

Minnesota Department of Human Services. (2017b, October). Mental Health Services. Retrieved May 7, 2018, from

Minnesota Department of Human Services. (2018a). *Children's mental health: Transforming services and supports to better meet children's needs* (No. DHS-5051-ENG) (p. 2).

Minnesota Department of Human Services. (2018b). Collaboratives. Retrieved November 14, 2018, from https://mn.gov/dhs/partners-and-providers/policies-procedures/childrens-mental-health/collaboratives/

Minnesota Department of Human Services. (2018c). *Mental Health Grants 2016-2017*. Saint Paul, MN: Behavioral Health Division.

Minnesota Management and Budget. (2018). *FY2020-21 Human Services* (Budget Narratives). State of Minnesota. Retrieved from https://mn.gov/mmb-stat/documents/budget/research-and-data/summary-of-agencies-programs-activities/human-services.pdf

Minnesota PBIS. (2018). What is PBIS? Retrieved June 20, 2018, from http://pbismn.org/

NAMI: Minnesota. (2015). *Children's Psychiatric Hospitalization*. Saint Paul, MN.

NAMI: Minnesota. (2016). *Mental Health Crisis Planning for Children*. Saint Paul, MN: NAMI: Minnesota.

NAMI: Minnesota, & AspireMN. (2017). *Children's Crisis Residential Services Study*. Saint Paul, MN: Minnesota Department of Human Services.

National Child Traumatic Stress Network. (2017). Effects of Complex Trauma. Retrieved November 14, 2017, from

National Scientific Council on the Developing Child. (2014). *Stress Disrupts the Architecture of the Developing Brain* (p. 12). Harvard University: Center on the Developing Child.

NCSL. (2018, May 15). Family First Prevention Services Act (FFPSA). Retrieved December 3, 2018, from http://www.ncsl.org/research/human-services/family-first-prevention-services-act-ffpsa.aspx#Part%20IV

Pechtel, P., & Pizzagalli, D. A. (2011). Effects of early life stress on cognitive and affective function: an integrated review of human literature. *Psychopharmacology*, *214*(1), 55–70. https://doi.org/10.1007/s00213-010-2009-2

SAMHSA. (2017). *Minnesota 2017 Mental Health National Outcome Measures (NOMS): SAMHSA Uniform Reporting System* (SAMHSA Uniform Reporting System (URM) Output Tables). Retrieved from https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/Minnesota-2017.pdf

SAMHSA, Center for Application of Prevention Technologies. (2015). Risk and Protective Factors. Retrieved May 30, 2018, from

SAMHSA, Center for Application of Prevention Technologies. (2016). *Trauma & Adverse Childhood Experiences: Implications for Preventing Substance Misuse*. Retrieved from https://www.samhsa.gov/capt/sites/default/files/capt_resource/ace-webinar-summary.pdf

Samuels, J., Schudrich, W., & Altschul, D. (2009). *Toolkit for Modifying Evidence-Based Practices to Increase Cultural Competence*. Orangeburg, NY: Research Foundation for Mental Health. Retrieved from http://calmhsa.org/wp-content/uploads/2013/10/ToolkitEBP.pdf

Thabrew, H., Stasiak, K., Hetrick, S. E., Donkin, L., Huss, J. H., Highlander, A., … Merry, S. N. (2018). Psychological therapies for anxiety and depression in children and adolescents with long-term physical conditions. *Cochrane Database of Systematic Reviews*, (12). https://doi.org/10.1002/14651858.CD012488.pub2

Unger, J., Baezconde-Garbanti, L., Shakib, S., Palmer, P., Nezami, E., & Mora, J. (2004). A Cultural Psychology Approach to "Drug Abuse" Prevention. *Substance Use & Misuse*, *39*(10–12), 1779–1820.

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. Retrieved from https://addiction.surgeongeneral.gov/surgeon-generals-report.pdf

van der Kolk, B. A. (2005). Developmental Trauma Disorder: Toward a rational diagnosis for children with complex trauma histories. *Psychiatric Annals*, *35*(5), 401–408.

Washington State Institute of Public Policy. (2017). *Benefit-Cost Technical Documentation*. Olympia, WA.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