Multimodal therapy (MMT) for children with ADHD
Children's Mental Health: Attention Deficit Hyperactivity Disorder
Benefit-cost estimates updated December 2023. Literature review updated April 2018.

Current estimates replace old estimates. Numbers will change over time as a result of model inputs and monetization methods.

The WSIPP benefit-cost analysis examines, on an apples-to-apples basis, the monetary value of programs or policies to determine whether the benefits from the program exceed its costs. WSIPP's research approach to identifying evidence-based programs and policies has three main steps. First, we determine "what works" (and what does not work) to improve outcomes using a statistical technique called meta-analysis. Second, we calculate whether the benefits of a program exceed its costs. Third, we estimate the risk of investing in a program by testing the sensitivity of our results. For more detail on our methods, see our Technical Documentation.

Program Description: Multimodal therapies (MMT) combine child-focused psychosocial therapies (such as cognitive-behavioral therapy (CBT) or academic skills training) with a behavioral parent training component (involving psychoeducation and training in child behavior management techniques). Therapies frequently include a school component or involve regular teacher consultation. Therapies that occur exclusively in a school setting, such as after-school programs, were not included in this review. Often, interventions include a medication component; all such studies had a comparison group that also received medication. Interventions were provided in a variety of modalities, including individual, group, and family. Programs typically lasted three months with an average total of five sessions per month; two evaluations in this review were for treatments lasting approximately 12 months. All children in the included studies were diagnosed with attention-deficit hyperactivity disorder (ADHD) or met clinical levels of ADHD symptoms.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$3,006	Benefit to cost ratio	$1.54
Participants	$5,095	Benefits minus costs	$2,475
Others	$738	Chance the program will produce	
Indirect	($1,818)	benefits greater than the costs	57%
Total benefits	$7,021		
Net program cost	($4,546)		
Benefits minus cost	$2,475		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2022). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our Technical Documentation.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
					First time ES is estimated			Second time ES is estimated				
					ES	SE	Age	ES	SE	Age	ES	p-value
Grade point average^	9	Primary	1	67	0.161	0.193	9	n/a	n/a	n/a	0.315	0.104
Test scores	9	Primary	6	353	0.038	0.085	9	0.023	0.094	17	0.038	0.659
Attention-deficit/hyperactivity disorder symptoms	9	Primary	13	741	-0.165	0.064	9	0.000	0.141	10	-0.323	0.001
Anxiety disorder	9	Primary	2	264	-0.190	0.196	9	-0.075	0.108	10	-0.190	0.332
Disruptive behavior disorder symptoms	9	Primary	9	489	-0.247	0.089	9	-0.136	0.079	12	-0.387	0.001
Externalizing behavior symptoms	9	Primary	1	45	-0.288	0.214	9	-0.158	0.145	12	-0.288	0.177
Global functioning^	9	Primary	2	103	0.414	0.171	9	n/a	n/a	n/a	0.613	0.114
Internalizing symptoms	9	Primary	2	93	-0.133	0.155	9	-0.133	0.155	11	-0.219	0.157
Parental stress^	43	Secondary	1	67	-0.293	0.194	43	n/a	n/a	n/a	-0.574	0.003

^WSIPP's benefit-cost model does not monetize this outcome.

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

Detailed Monetary Benefit Estimates Per Participant

Affected outcome:	Resulting benefits:[1]	Benefits accrue to:				
		Taxpayers	Participants	Others[2]	Indirect[3]	Total
Externalizing behavior symptoms	Criminal justice system	$72	$0	$169	$36	$278
Anxiety disorder	K-12 grade repetition	$9	$0	$0	$4	$13
Externalizing behavior symptoms	K-12 special education	$278	$0	$0	$139	$417
Anxiety disorder	Labor market earnings associated with anxiety disorder	$2,097	$4,939	$0	$0	$7,036
Externalizing behavior symptoms	Health care associated with externalizing behavior symptoms	$551	$156	$568	$275	$1,550
Program cost	Adjustment for deadweight cost of program	$0	$0	$0	($2,273)	($2,273)
Totals		$3,006	$5,095	$738	($1,818)	$7,021

[1]In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

[2]"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

[3]"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$3,676	2000	Present value of net program costs (in 2022 dollars)	($4,546)
Comparison costs	$956	2010	Cost range (+ or -)	40%

Per-participant costs are based on the average cost of intensive behavioral treatment reported in Jensen et al., (2005). Cost-effectiveness of ADHD treatments: Findings from the Multimodal Treatment study of children with ADHD. American Journal of Psychiatry, 162, 1628–1636. We use this analysis to calculate a monthly treatment cost and applied this to the average duration of multimodal programs included in this study. For comparison group costs, we used 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent attention-deficit hyperactivity disorder (ADHD).

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.

Benefits Minus Costs Over Time (Cumulative Discounted Dollars)
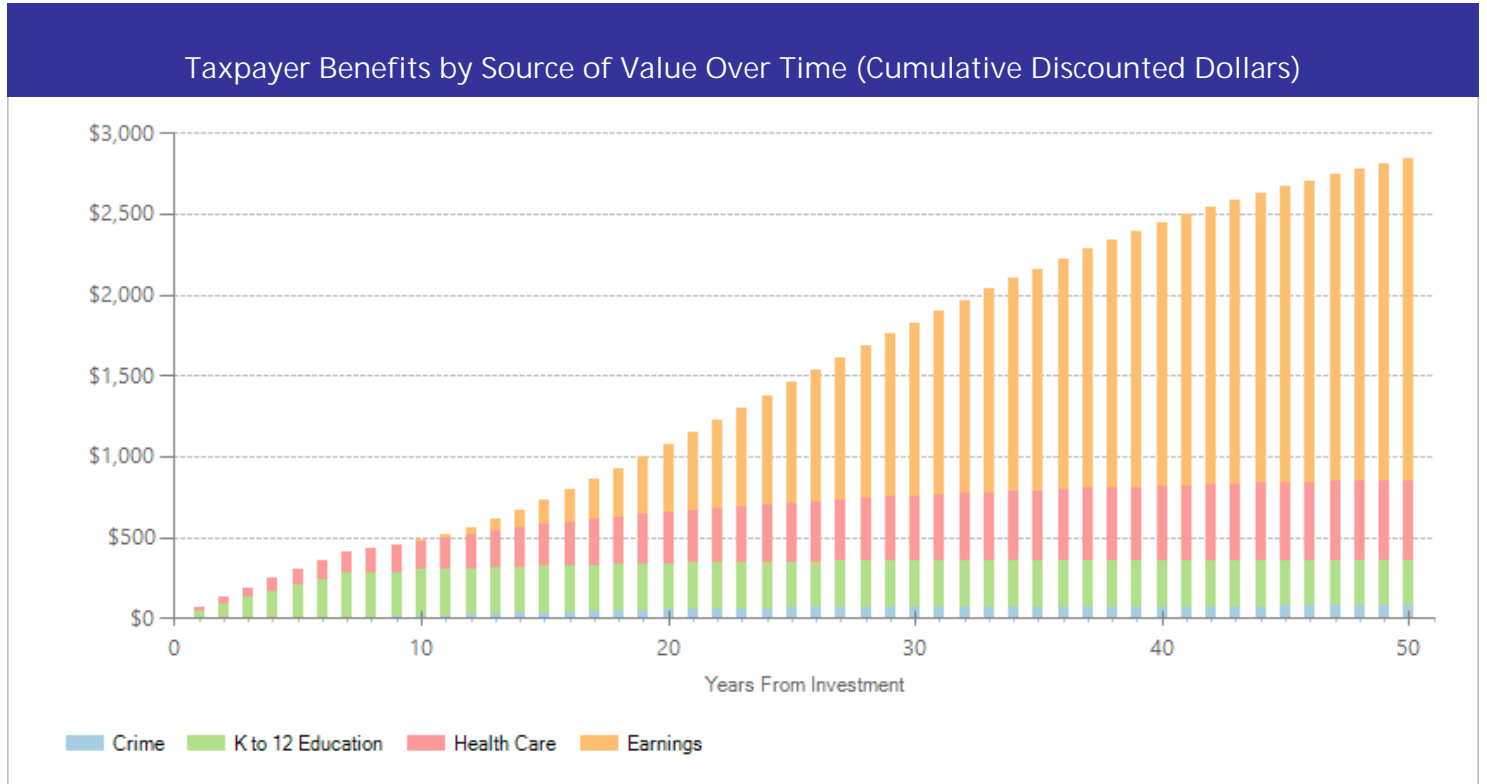

Cumulative net benefits
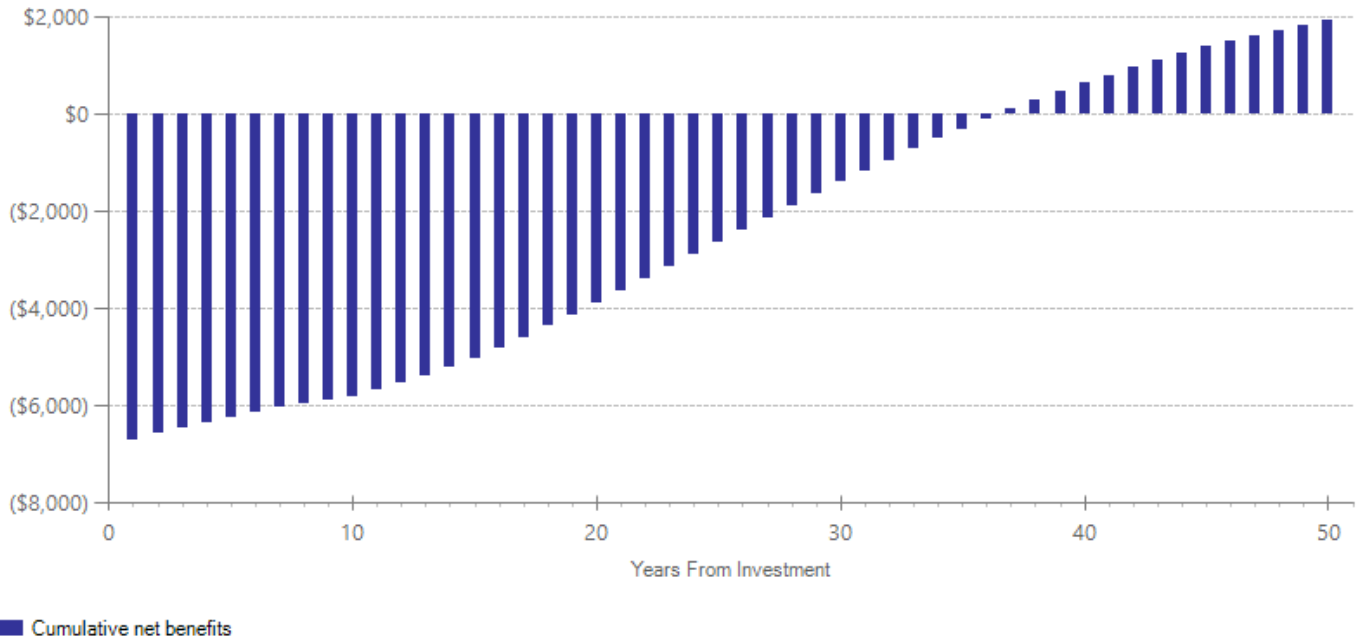
The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in discounted dollars. If the dollars are negative (bars below $0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach $0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above $0, the benefits of the program exceed the initial investment.

Benefits by Perspective Over Time (Cumulative Discounted Dollars)

Participant   Taxpayer   Others   Indirect
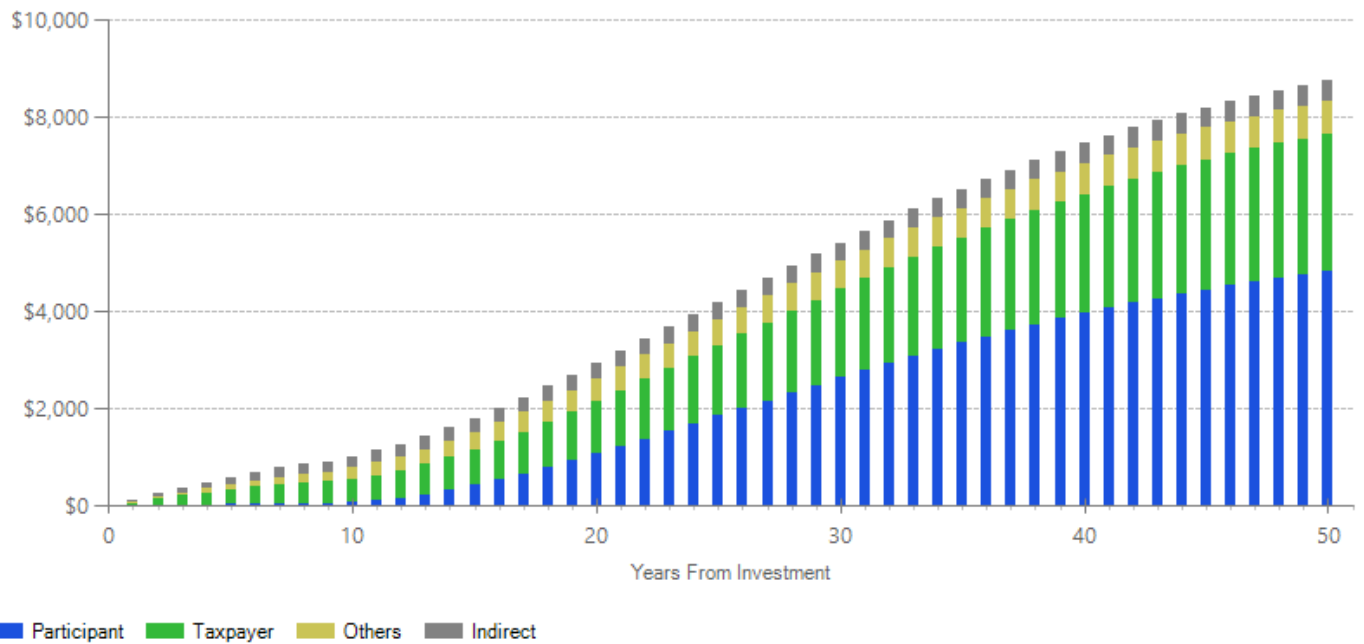
The graph above illustrates the breakdown of the estimated cumulative benefits (not including program costs) per-participant for the first fifty years beyond the initial investment in the program. These cash flows provide a breakdown of the classification of dollars over time into four perspectives: taxpayer, participant, others, and indirect. "Taxpayers" includes expected savings to government and expected increases in tax revenue. "Participants" includes expected increases in earnings and expenditures for items such as health care and college tuition. "Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance. "Indirect benefits" includes estimates of the changes in the value of a statistical life and changes in the deadweight costs of taxation. If a section of the bar is below the $0 line, the program is creating a negative benefit, meaning a loss of value from that perspective.

Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)

Legend: Crime | K to 12 Education | Health Care | Earnings

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

Citations Used in the Meta-Analysis

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