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.

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

Remote cognitive behavioral therapy (CBT) for children with anxiety
Children's Mental Health: Anxiety
Benefit-cost estimates updated December 2018. Literature review updated May 2018.

Program Description: Cognitive behavioral therapy (CBT) uses cognitive restructuring and self-talk, exposure to feared stimuli, and other strategies to treat mental health conditions, including anxiety. Remote CBT interventions are delivered to participants in their homes, via the Internet or workbooks, with limited therapist support by phone or email. In programs in this analysis, 10 to 12 weekly sessions were delivered individually to the child, the parent, or both child and parent. Families were expected to spend an average of 14 hours on the intervention, including time in contact with the therapist. On average, families received four hours of therapist time over three months.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$3,900	Benefit to cost ratio	n/a
Participants	$5,664	Benefits minus costs	$12,642
Others	$1,519	Chance the program will produce	
Indirect	$1,022	benefits greater than the costs	95 %
Total benefits	$12,106		
Net program cost	$536		
Benefits minus cost	$12,642		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
K-12 grade repetition	$0	$45	$0	$22	$67
Labor market earnings associated with anxiety disorder	$5,248	$2,383	$0	$0	$7,632
Health care associated with internalizing symptoms	$416	$1,472	$1,519	$733	$4,141
Mortality associated with depression	$0	$0	$0	$0	($1)
Adjustment for deadweight cost of program	$0	$0	$0	$267	$267
Totals	$5,664	$3,900	$1,519	$1,022	$12,106

[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.
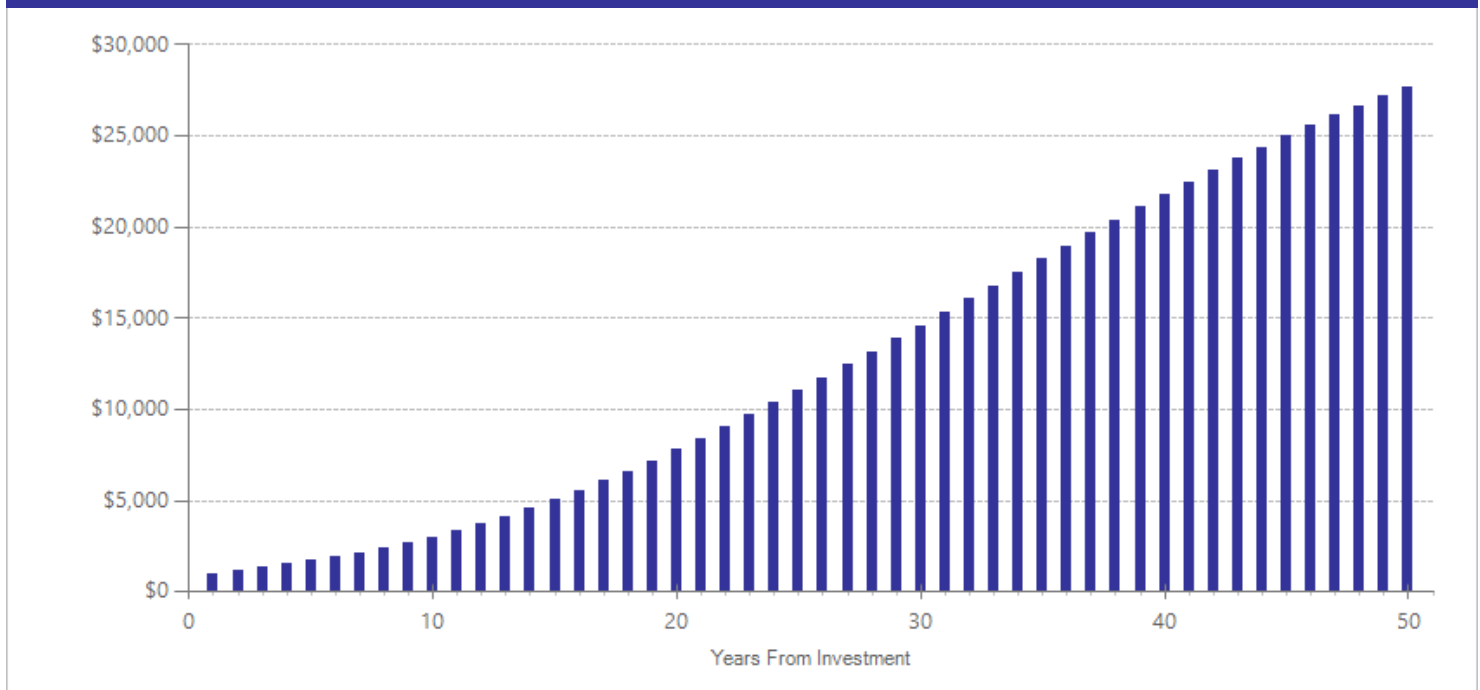
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$477	2015	Present value of net program costs (in 2017 dollars)	$536
Comparison costs	$927	2010	Cost range (+ or -)	30 %

In studies included in this analysis, participants received an average of four hours of therapist time. Per-participant cost estimates are based on weighted average therapist time, as reported in the treatment studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). For comparison group costs, we use 2010 Washington State DSHS data to estimate the average reimbursement rate for anxiety treatment for children and adolescents.

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.

Detailed Annual Cost Estimates Per Participant

Remote cognitive behavioral therapy (CBT) for children with anxiety

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects											
Outcomes measured	Treatment age	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
Anxiety disorder	11	8	217	-0.615	0.217	11	-0.243	0.199	12	-1.080	0.001
Global functioning^	11	2	66	0.456	0.246	11	n/a	n/a	n/a	0.825	0.053
Internalizing symptoms	11	5	110	-0.506	0.158	11	-0.506	0.158	13	-0.854	0.001
Major depressive disorder	11	3	82	-0.225	0.184	11	0.000	0.310	13	-0.377	0.041

^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.

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Group and individual cognitive behavioral therapy (CBT) for children & adolescents with anxiety

Children's Mental Health: Anxiety

Benefit-cost estimates updated December 2018. Literature review updated May 2018.

Program Description: Cognitive behavioral therapy (CBT) uses cognitive restructuring and self-talk, exposure to feared stimuli, and other strategies to treat mental health conditions, including anxiety. CBT interventions are typically delivered by therapists in individual or group format in an outpatient setting; well-known examples include the Coping Cat and Coping Koala programs. Programs in this analysis served typically or atypically developing children with anxiety disorders. This analysis includes both traditional CBT interventions, which on average provided an estimated 15 hours of therapy over 12 weeks, and brief, intensive CBT interventions, which on average provided an estimated 30 hours of therapy over two weeks.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$3,636	Benefit to cost ratio	$24.18
Participants	$5,634	Benefits minus costs	$10,313
Others	$1,113	Chance the program will produce	
Indirect	$374	benefits greater than the costs	95 %
Total benefits	$10,758		
Net program cost	($445)		
Benefits minus cost	$10,313		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]

Benefits to:

	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$58	$140	$29	$227
K-12 grade repetition	$0	$27	$0	$13	$40
K-12 special education	$0	$171	$0	$85	$256
Labor market earnings associated with anxiety disorder	$5,367	$2,437	$0	$0	$7,804
Health care associated with internalizing symptoms	$267	$943	$974	$469	$2,652
Mortality associated with depression	$0	$0	$0	$0	$0
Adjustment for deadweight cost of program	$0	$0	$0	($221)	($221)
Totals	$5,634	$3,636	$1,113	$374	$10,758

[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.
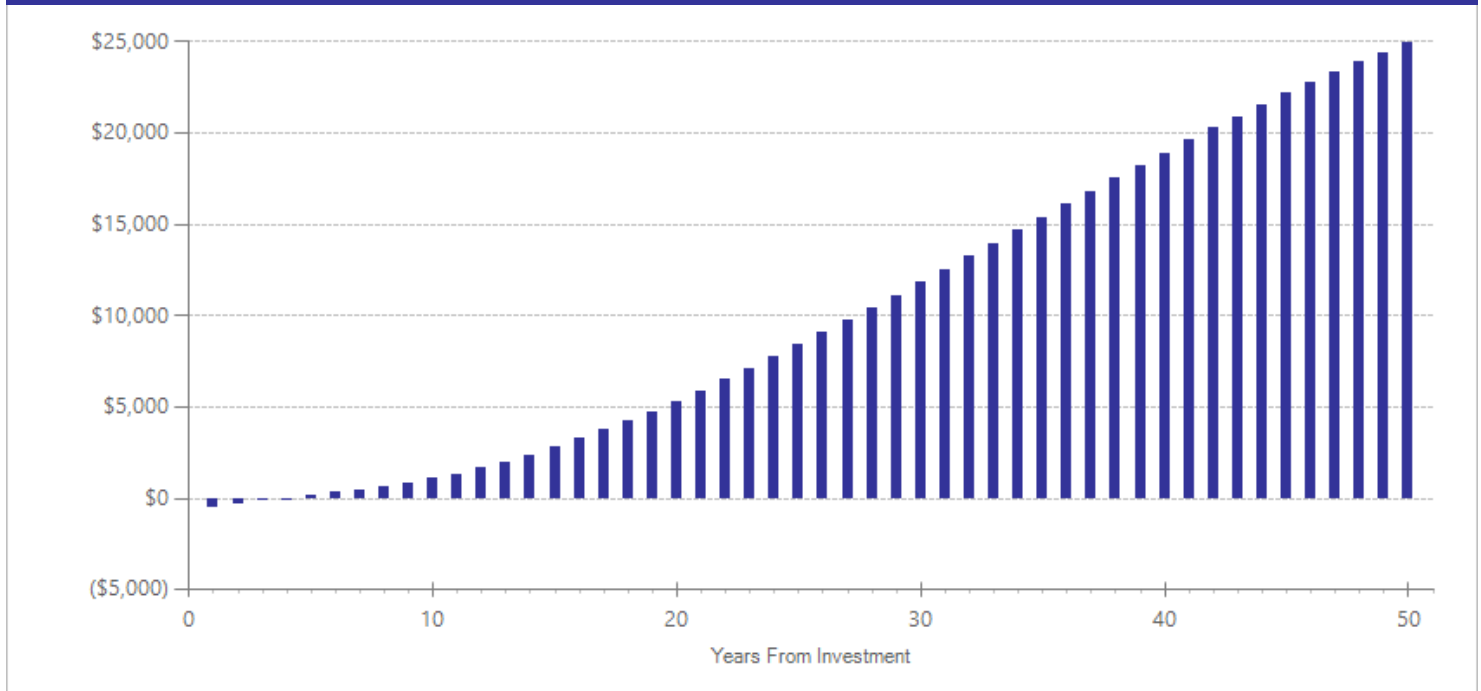
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$1,431	2015	Present value of net program costs (in 2017 dollars)	($445)
Comparison costs	$927	2010	Cost range (+ or -)	30 %

In studies included in this analysis, participants received an average of 15 hours of therapist time. Per-participant cost estimates are based on weighted average therapist time, as reported in the treatment studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). For comparison group costs, we use 2010 Washington State DSHS data to estimate the average reimbursement rate for anxiety treatment for children and adolescents.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Anxiety disorder	10	39	1342	-0.681	0.059	10	-0.269	0.190	11	-0.914	0.001
Attention-deficit/hyperactivity disorder symptoms	10	1	42	-0.683	0.219	10	0.000	0.141	11	-0.683	0.002
Emergency department visits[^^]	10	1	19	0.000	0.457	10	n/a	n/a	n/a	0.000	1.000
Externalizing behavior symptoms	10	9	495	-0.258	0.073	10	-0.142	0.075	13	-0.292	0.001
Global functioning[^]	10	3	173	0.775	0.307	10	n/a	n/a	n/a	0.775	0.011
Health care costs[*^^]	10	1	24	0.046	79.057	10	n/a	n/a	n/a	0.046	1.000
Hospitalization[^^]	10	1	140	-0.082	0.168	10	n/a	n/a	n/a	-0.082	0.627
Hospitalization (psychiatric)[^^]	10	2	182	0.000	0.145	10	n/a	n/a	n/a	0.000	1.000
Internalizing symptoms	10	12	600	-0.338	0.065	10	-0.338	0.065	12	-0.379	0.001
Major depressive disorder	10	14	605	-0.187	0.068	10	0.000	0.310	12	-0.224	0.001
School attendance[^]	10	1	24	0.019	0.286	10	n/a	n/a	n/a	0.019	0.948
Suicidal ideation[^]	10	2	182	0.186	0.145	10	n/a	n/a	n/a	0.186	0.199
Suicide attempts[^]	10	2	182	0.000	0.115	10	n/a	n/a	n/a	0.000	1.000

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

[^^]WSIPP does not include this outcome when conducting benefit-cost analysis for this program.

[*]The effect size for this outcome indicates percentage change, not a standardized mean difference effect size.

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.

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Parent cognitive behavioral therapy (CBT) for children with anxiety
Children's Mental Health: Anxiety

Benefit-cost estimates updated December 2018. Literature review updated May 2018.

Program Description: Parent-only cognitive behavioral therapy (CBT) programs for children with anxiety teach parents how to use cognitive behavioral approaches with their anxious children. CBT uses cognitive restructuring and self-talk, exposure to feared stimuli, and other strategies to treat mental health conditions, including anxiety. Parent-only CBT interventions are typically delivered by therapists in individual or group format in an outpatient setting. In programs in this analysis, parents of 3- to 12-year-old children with anxiety disorders were expected to attend eight to ten weekly sessions, either individually or in groups. On average, families received seven therapeutic hours over two months.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$1,368	Benefit to cost ratio	n/a
Participants	$2,544	Benefits minus costs	$5,090
Others	$247	Chance the program will produce	
Indirect	$392	benefits greater than the costs	93 %
Total benefits	$4,551		
Net program cost	$539		
Benefits minus cost	$5,090		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
K-12 grade repetition	$0	$5	$0	$2	$7
Labor market earnings associated with anxiety disorder	$2,476	$1,125	$0	$0	$3,601
Health care associated with anxiety disorder	$68	$239	$247	$120	$673
Adjustment for deadweight cost of program	$0	$0	$0	$270	$270
Totals	$2,544	$1,368	$247	$392	$4,551

[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.
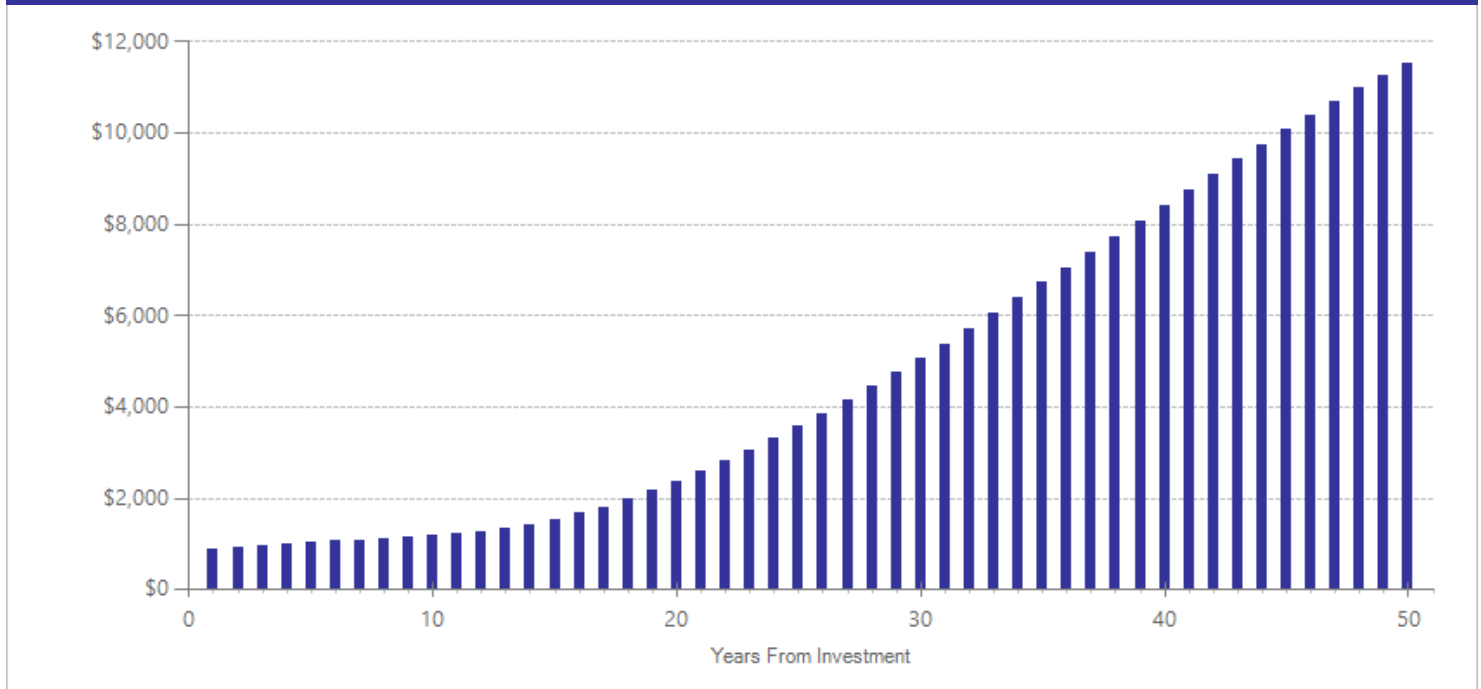
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$475	2015	Present value of net program costs (in 2017 dollars)	$539
Comparison costs	$927	2010	Cost range (+ or -)	20 %

In studies included in this analysis, participants received an average of seven hours of therapist time. Per-participant cost estimates are based on weighted average therapist time, as reported in the treatment studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). For comparison group costs, we use 2010 Washington State DSHS data to estimate the average reimbursement rate for anxiety treatment for children and adolescents.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Anxiety disorder	7	3	137	-0.476	0.199	7	-0.188	0.163	8	-0.796	0.001

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.

Citations Used in the Meta-Analysis

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Acceptance and Commitment Therapy (ACT) for children with anxiety
Children's Mental Health: Anxiety

Benefit-cost estimates updated December 2018. Literature review updated August 2017.

Program Description: Acceptance and Commitment Therapy for anxiety aims to increase client acceptance of negative thoughts and feelings and to reduce the negative behavioral impact of anxiety. Acceptance and Commitment Therapy relies on six core processes of change: 1) acceptance; 2) learning to view thoughts as hypotheses rather than facts, 3) being present, 4) viewing the self as context for experience, 5) identifying core values, and 6) acting based on those values. These core principles are applied through various exercises and through homework. In the single study reported here, the treatment was delivered in 10 group sessions with parents present at all sessions.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$1,100	Benefit to cost ratio	n/a
Participants	$2,108	Benefits minus costs	$3,987
Others	$164	Chance the program will produce	
Indirect	$260	benefits greater than the costs	85 %
Total benefits	$3,632		
Net program cost	$356		
Benefits minus cost	$3,987		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
K-12 grade repetition	$0	$4	$0	$2	$6
Labor market earnings associated with anxiety disorder	$2,063	$937	$0	$0	$2,999
Health care associated with anxiety disorder	$45	$159	$164	$79	$448
Adjustment for deadweight cost of program	$0	$0	$0	$178	$178
Totals	$2,108	$1,100	$164	$260	$3,632

[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.
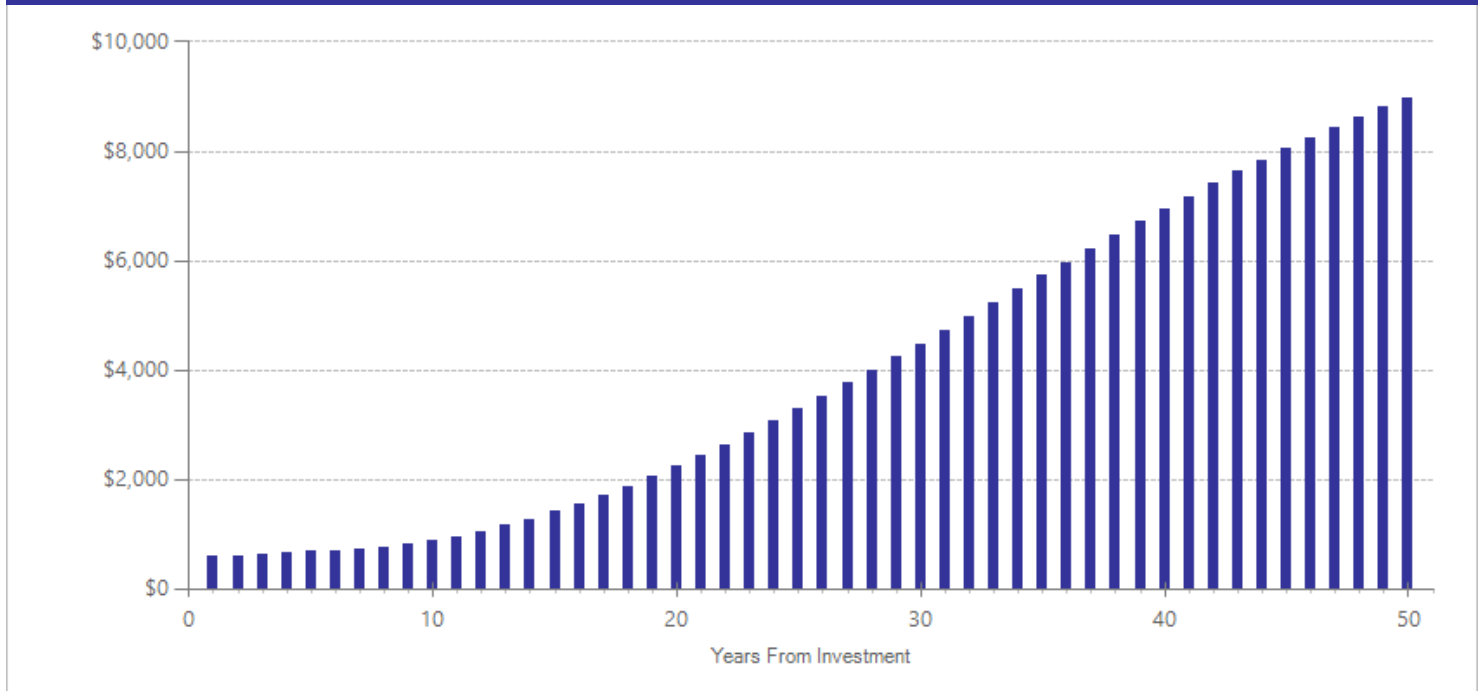
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$660	2016	Present value of net program costs (in 2017 dollars)	$356
Comparison costs	$927	2010	Cost range (+ or -)	15 %

The therapy in this study included ten weekly 90-minute group sessions. Per-participant costs are based on weighted average therapist time as reported in the studies, multiplied by DSHS reimbursement rates reported in Mercer. (2015). Behavioral health data book for the state of Washington for rates effective January 1, 2016. For comparison group costs, we use 2010 Washington State DSHS data to estimate the average reimbursement rate for anxiety treatment for children and adolescents.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Anxiety disorder	11	1	68	-0.266	0.196	11	-0.105	0.119	12	-0.450	0.022

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.

Acceptance and Commitment Therapy (ACT) for children with anxiety

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.

Citations Used in the Meta-Analysis

Hancock, K., & Swain, J. (2016). Long term follow up in children with anxiety disorders treated with Acceptance and Commitment Therapy or cognitive behavioral therapy: Outcomes and predictors. *Journal of Child and Adolescent Behaviour, 4*,5

Behavioral parent training (BPT) for children with ADHD
Children's Mental Health: Attention Deficit Hyperactivity Disorder
Benefit-cost estimates updated December 2018. Literature review updated April 2018.

Program Description: Behavioral parent training targets parents of children with attention-deficit hyperactivity disorder (ADHD). Parents receive psychoeducation about ADHD and are taught child behavior management techniques, usually with a practice component. Some programs may include additional components for children, but parent behavior is the focus. Many studies utilize or build on Barkley's Defiant Children program. This review also includes programs originally developed for a population with disruptive behavior disorders that were then applied to an ADHD population, including the Triple P—Positive Parenting Program, Incredible Years, Helping the Noncompliant Child, and Parent-Child Interaction Therapy. All children in the included studies were diagnosed with ADHD or met clinical levels of ADHD symptoms. Therapies were provided in individual, group, and remote modalities, with 8-12 weekly sessions over a period of two to five months.

Benefit-Cost Summary Statistics Per Participant			
Benefits to:			
Taxpayers	$3,182	Benefit to cost ratio	$21.15
Participants	$3,618	Benefits minus costs	$9,077
Others	$1,817	Chance the program will produce	
Indirect	$912	benefits greater than the costs	75 %
Total benefits	$9,528		
Net program cost	($451)		
Benefits minus cost	$9,077		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$97	$211	$48	$356
Labor market earnings associated with high school graduation	$606	$275	$277	$277	$1,435
K-12 grade repetition	$0	$5	$0	$2	$7
K-12 special education	$0	$311	$0	$154	$465
Health care associated with externalizing behavior symptoms	$217	$769	$793	$380	$2,160
Costs of higher education	($60)	($39)	($18)	($20)	($136)
Subtotals	$764	$1,418	$1,263	$843	$4,288
From secondary participant					
Labor market earnings associated with major depression	$2,700	$1,226	$0	$0	$3,925
Health care associated with major depression	$152	$537	$554	$267	$1,509
Mortality associated with depression	$2	$1	$0	$27	$30
Subtotals	$2,853	$1,764	$554	$293	$5,464
Adjustment for deadweight cost of program	$0	$0	$0	($224)	($224)
Totals	$3,618	$3,182	$1,817	$912	$9,528

The header "Benefits to:" spans the Participants, Taxpayers, Others, Indirect, and Total columns.

[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.
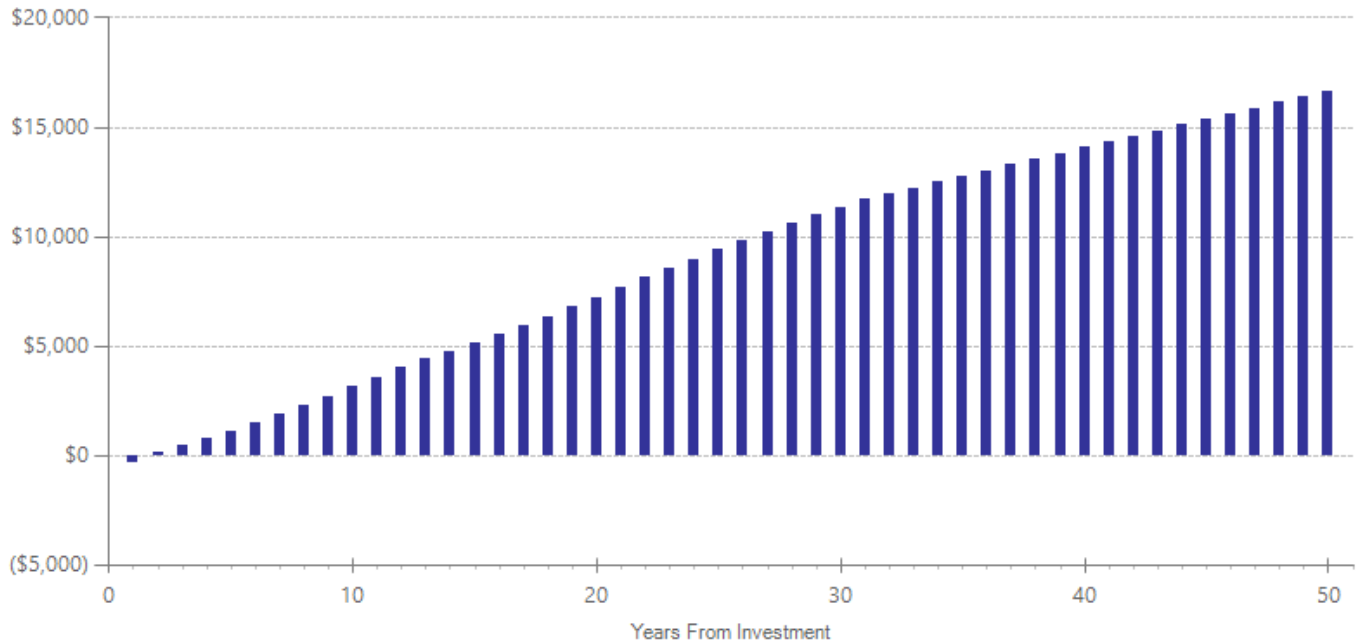
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$1,468	2015	Present value of net program costs (in 2017 dollars)	($451)
Comparison costs	$956	2010	Cost range (+ or -)	20 %

This program is typically delivered over a two- or three- month period, with sessions delivered on a weekly basis. Per-participant cost estimates are based on weighted average therapist time, as reported in the treatment studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). For comparison group costs, we use 2010 Washington State DSHS data to estimate the average reimbursement rate for 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.

Behavioral parent training (BPT) for children with ADHD

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

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
Attention-deficit/hyperactivity disorder symptoms	5	Primary	14	781	-0.144	0.073	5	0.000	0.141	6	-0.391	0.001
Disruptive behavior disorder symptoms	5	Primary	13	610	-0.137	0.086	5	-0.076	0.061	8	-0.490	0.001
Externalizing behavior symptoms	5	Primary	1	47	-0.475	0.229	5	-0.261	0.178	8	-0.475	0.029
Global functioning^	5	Primary	1	71	0.272	0.188	5	n/a	n/a	n/a	0.533	0.005
Internalizing symptoms	5	Primary	1	47	-0.417	0.217	5	-0.417	0.217	7	-0.417	0.054
Anxiety disorder^^	35	Secondary	1	14	-0.762	0.442	35	n/a	n/a	n/a	-1.904	0.001
Major depressive disorder	35	Secondary	3	55	-0.333	0.297	35	-0.173	0.364	37	-1.057	0.123
Parental stress^	35	Secondary	7	285	-0.093	0.118	35	n/a	n/a	n/a	-0.327	0.006

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

^^WSIPP does not include this outcome when conducting benefit-cost analysis for this program.

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.

Citations Used in the Meta-Analysis

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

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	$2,370	Benefit to cost ratio	$1.30
Participants	$3,668	Benefits minus costs	$1,178
Others	$663	Chance the program will produce	
Indirect	($1,595)	benefits greater than the costs	53 %
Total benefits	$5,104		
Net program cost	($3,926)		
Benefits minus cost	$1,178		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]		Benefits to:			
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$64	$149	$32	$245
K-12 grade repetition	$0	$6	$0	$3	$9
K-12 special education	$0	$201	$0	$101	$302
Labor market earnings associated with anxiety disorder	$3,527	$1,602	$0	$0	$5,129
Health care associated with externalizing behavior symptoms	$141	$498	$514	$250	$1,403
Adjustment for deadweight cost of program	$0	$0	$0	($1,981)	($1,983)
Totals	$3,668	$2,370	$663	($1,595)	$5,104

[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.
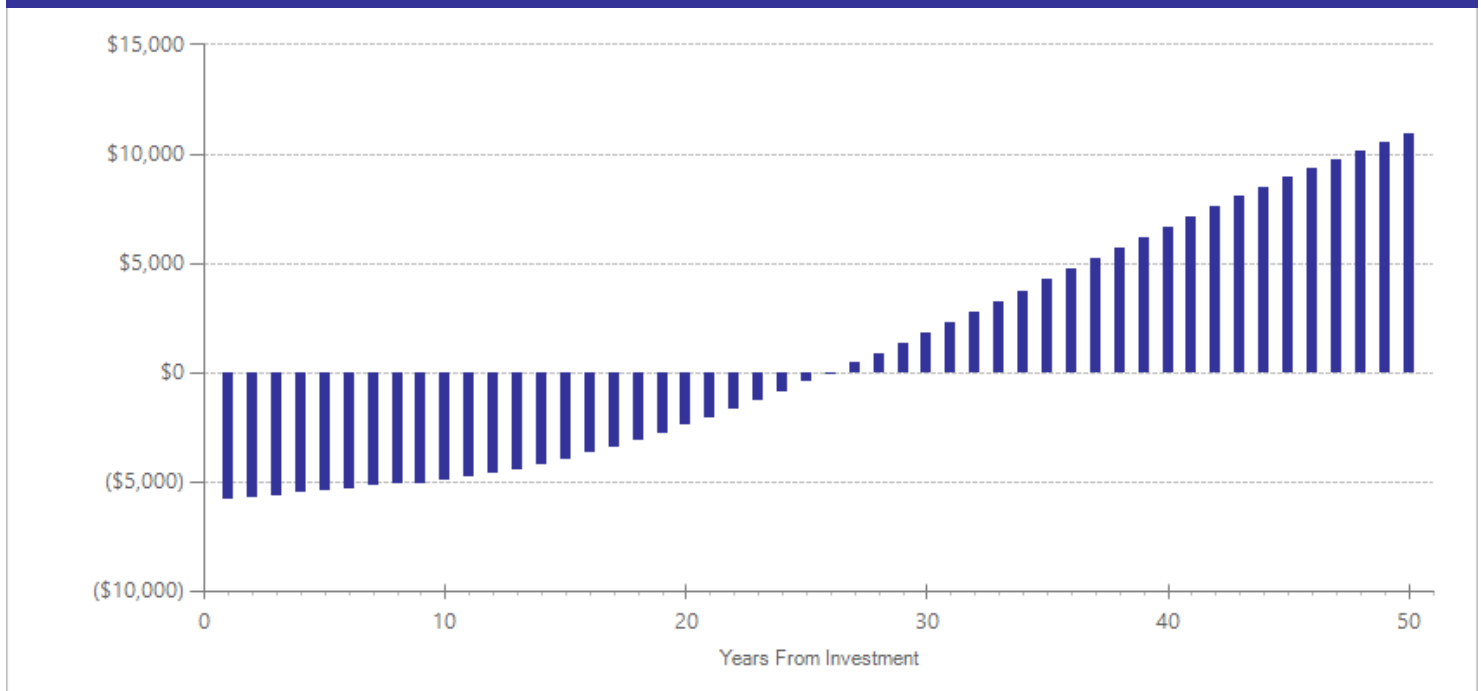
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$3,676	2000	Present value of net program costs (in 2017 dollars)	($3,926)
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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

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
Anxiety disorder	9	Primary	2	264	-0.190	0.196	9	-0.075	0.108	10	-0.190	0.332
Attention-deficit/hyperactivity disorder symptoms	9	Primary	13	741	-0.165	0.064	9	0.000	0.141	10	-0.323	0.001
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
Grade point average^	9	Primary	1	67	0.161	0.193	9	n/a	n/a	n/a	0.315	0.104
Internalizing symptoms	9	Primary	2	93	-0.133	0.155	9	-0.133	0.155	11	-0.219	0.157
Test scores	9	Primary	6	353	0.038	0.085	9	0.023	0.094	17	0.038	0.659
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.

Citations Used in the Meta-Analysis

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

Program Description: Cognitive behavioral therapy (CBT) for children with attention-deficit hyperactivity disorder (ADHD) 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. 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. All children in the included studies were diagnosed with ADHD or met clinical levels of ADHD symptoms. Programs were delivered in individual or group format and lasted on average four months, with an average of 4.5 total sessions per month.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	($432)	Benefit to cost ratio	($2.52)
Participants	($1,227)	Benefits minus costs	($3,540)
Others	($443)	Chance the program will produce	
Indirect	($432)	benefits greater than the costs	47 %
Total benefits	($2,535)		
Net program cost	($1,006)		
Benefits minus cost	($3,540)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]   **Benefits to:**

	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$10	$26	$5	$41
Labor market earnings associated with test scores	($1,232)	($559)	($572)	$0	($2,363)
K-12 grade repetition	$0	$2	$0	$1	$3
K-12 special education	$0	$27	$0	$14	$40
Labor market earnings associated with major depression	($23)	($11)	$0	$0	($34)
Health care associated with disruptive behavior disorder	$28	$99	$102	$50	$278
Mortality associated with depression	$0	$0	$0	$0	$0
Adjustment for deadweight cost of program	$0	$0	$0	($501)	($501)
Totals	($1,227)	($432)	($443)	($432)	($2,535)

[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.
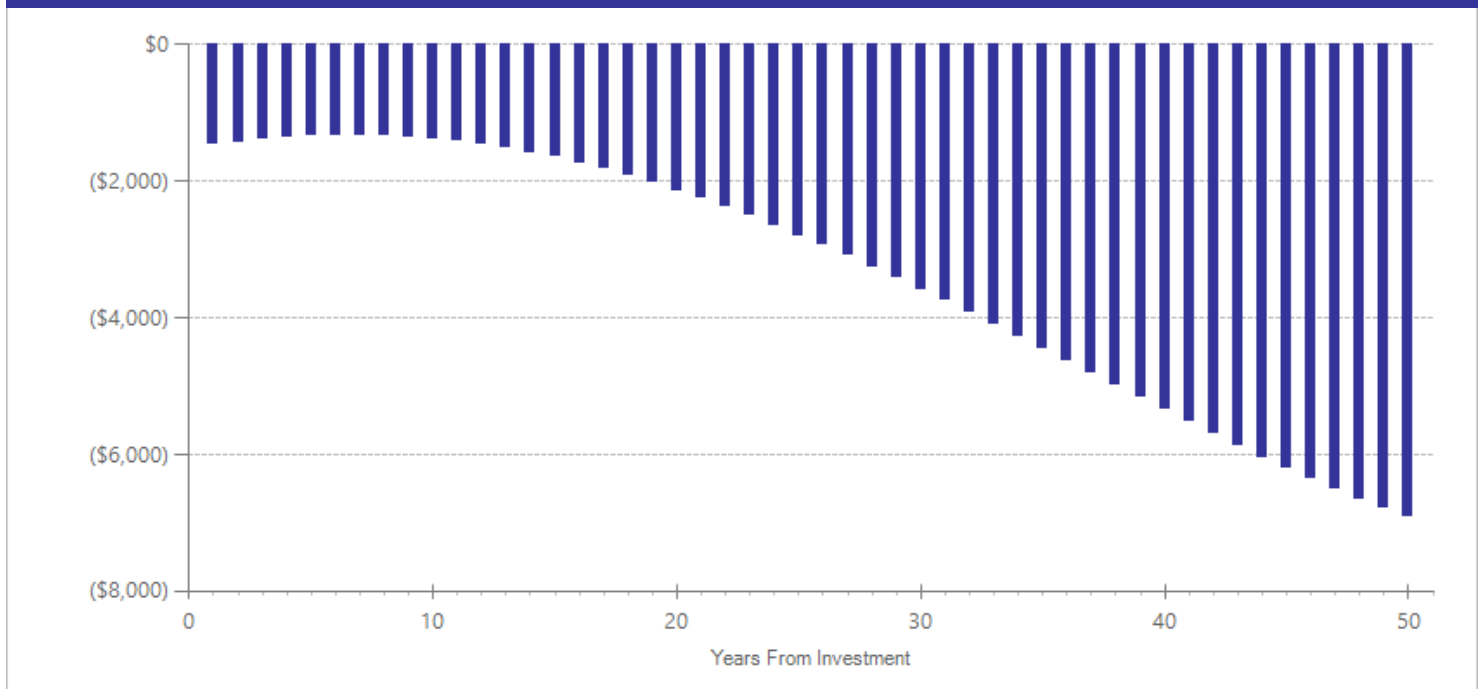
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$2,008	2015	Present value of net program costs (in 2017 dollars)	($1,006)
Comparison costs	$956	2010	Cost range (+ or -)	20 %

This program is typically delivered over a three- or four- month period, with sessions delivered on a weekly basis. Per-participant cost estimates are based on weighted average therapist time, as reported in the treatment studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2016). Behavioral health data nook for the state of Washington for rates effective January 1, 2017). 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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

| Outcomes measured | Treatment age | 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
Attention-deficit/hyperactivity disorder symptoms	13	8	173	-0.081	0.111	13	0.000	0.141	14	-0.232	0.224
Disruptive behavior disorder symptoms	13	2	51	-0.100	0.220	13	-0.055	0.134	16	-0.196	0.375
Global functioning^	13	1	59	0.192	0.195	13	n/a	n/a	n/a	0.942	0.001
Internalizing symptoms^^	13	1	30	-0.019	0.258	13	n/a	n/a	n/a	-0.038	0.884
Major depressive disorder	13	1	59	-0.034	0.204	13	0.000	0.310	15	-0.165	0.421
Test scores	13	4	52	-0.017	0.214	13	-0.014	0.235	17	-0.038	0.868

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

^^WSIPP does not include this outcome when conducting benefit-cost analysis for this program.

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.

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Citations Used in the Meta-Analysis

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Cognitive behavioral therapy (CBT) for children with ADHD

Collaborative primary care for children with depression
Children's Mental Health: Depression
Benefit-cost estimates updated December 2018. Literature review updated August 2017.

Program Description: Collaborative primary care integrates behavioral health into the primary care setting to treat children and adolescents with depression. In the collaborative care model, a care manager coordinates with a primary care provider and behavioral health care providers to develop and implement measurement-based treatment plans for individual patients. Care managers also provide psychoeducation and brief psychotherapy-based modules, such as cognitive behavioral therapy. The included study reports on Reaching Out to Adolescent in Distress (ROAD), a specific collaborative care model that was developed and implemented in Washington State. In the included studies, patients received collaborative care for 12 months. Patients in the comparison group received treatment as usual.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$382	Benefit to cost ratio	$0.96
Participants	$297	Benefits minus costs	($33)
Others	$291	Chance the program will produce	
Indirect	($51)	benefits greater than the costs	50 %
Total benefits	$919		
Net program cost	($952)		
Benefits minus cost	($33)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
K-12 grade repetition	$0	$1	$0	$0	$1
Labor market earnings associated with major depression	$176	$80	$0	$0	$256
Health care associated with major depression	$80	$282	$291	$138	$791
Mortality associated with depression	$41	$19	$0	$289	$349
Adjustment for deadweight cost of program	$0	$0	$0	($478)	($478)
Totals	$297	$382	$291	($51)	$919

[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.
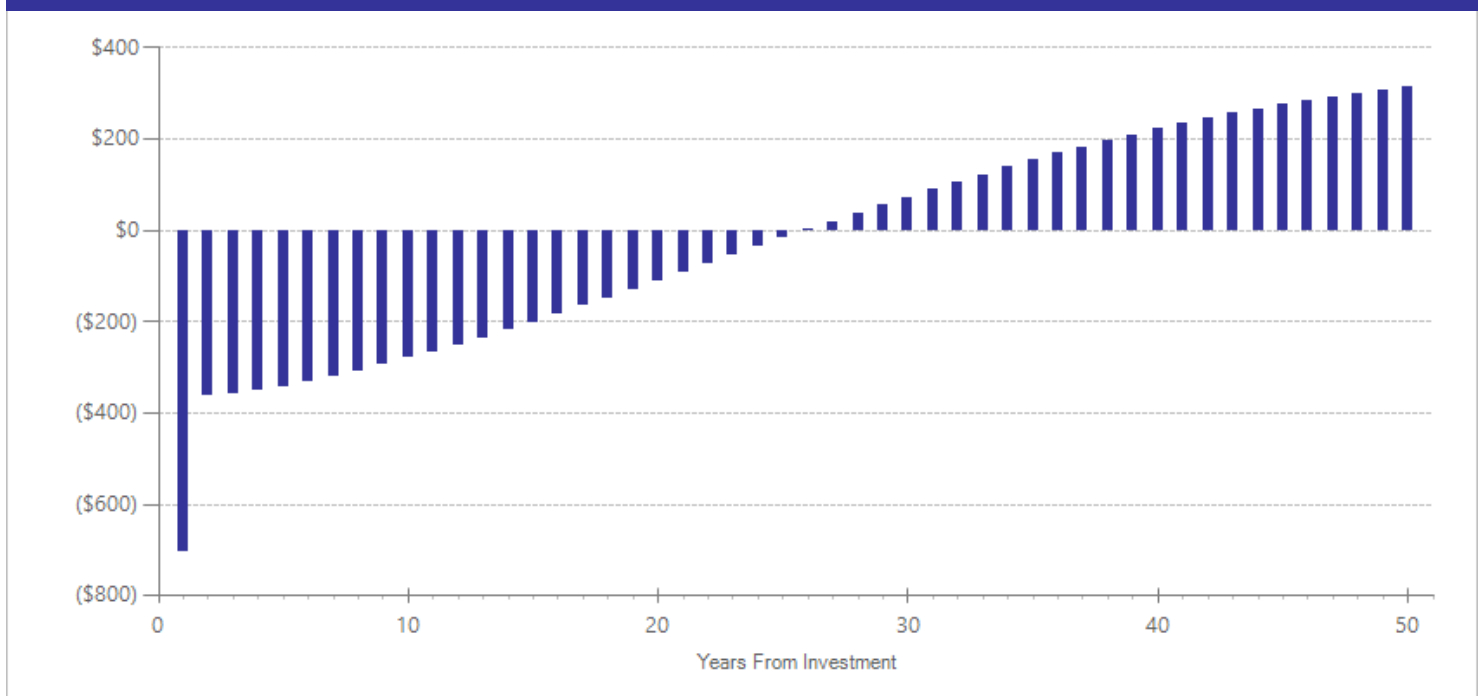
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$1,475	2014	Present value of net program costs (in 2017 dollars)	($952)
Comparison costs	$551	2014	Cost range (+ or -)	15 %

Treatment cost estimate is based on the average cost per child enrolled in the treatment group as reported in Wright, D.R., Haaland, W.L., Ludman, E., McCauley, E., Lindenbaum, J., & Richardson, L.P. (2016). The costs and cost-effectiveness of collaborative care for adolescents with depression in primary care settings: a randomized clinical trial. JAMA Pediatrics, 170(11), 1048-1054. The comparison cost estimate is based on the cost of usual screening and referrals in primary care over six months, as reported in Yu, H., Kolko, D.J., & Torres, E. (2017). Collaborative mental health care for pediatric behavior disorders in primary care: Does it reduce mental health care costs?. Families, Systems, & Health, 35(1), 46. We apply these costs over the twelve-month intervention period and inflate to 2014 dollars.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Major depressive disorder	15	1	50	-0.898	0.332	15	0.000	0.310	17	-0.898	0.007

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.

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Citations Used in the Meta-Analysis

Richardson, L.P., Ludman, E., McCauley, E., Lindenbaum, J., Larison, C., Zhou, C., . . . Katon, W. (2014). Collaborative care for adolescents with depression in primary care: a randomized clinical trial. *Jama, (312)*8, 809-16.

Cognitive behavioral therapy (CBT) for children & adolescents with depression
Children's Mental Health: Depression
Benefit-cost estimates updated December 2018. Literature review updated August 2017.

Program Description: Cognitive behavioral therapy (CBT) for depression includes such elements as cognitive restructuring, scheduling pleasant experiences, emotion regulation, communication skills, and problem-solving. In this review, CBT is provided to children and adolescents aged 7 to 17 with major or minor depression, dysthymia, or subthreshold depression. We include programs such as Coping With Depression—Adolescent (CWD-A), Primary and Secondary Control Enhancement Training (PASCET), the Treatment for Adolescents with Depression (TADS) Study, and other CBT models. On average, treatments in this review provided 14 therapeutic hours per client over three months, with a range of 6 to 28 therapeutic hours per client. Therapies were provided in both individual and group modalities.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$116	Benefit to cost ratio	$0.32
Participants	$91	Benefits minus costs	($303)
Others	$83	Chance the program will produce	
Indirect	($147)	benefits greater than the costs	49 %
Total benefits	$143		
Net program cost	($446)		
Benefits minus cost	($303)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]		Benefits to:			
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$4	$11	$2	$17
K-12 grade repetition	$0	$1	$0	$0	$1
K-12 special education	$0	$9	$0	$4	$13
Labor market earnings associated with major depression	$67	$30	$0	$0	$97
Health care associated with major depression	$20	$72	$74	$37	$203
Health care associated with externalizing behavior symptoms	($1)	($2)	($2)	($1)	($6)
Mortality associated with depression	$5	$2	$0	$33	$39
Adjustment for deadweight cost of program	$0	$0	$0	($222)	($222)
Totals	$91	$116	$83	($147)	$143

[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.

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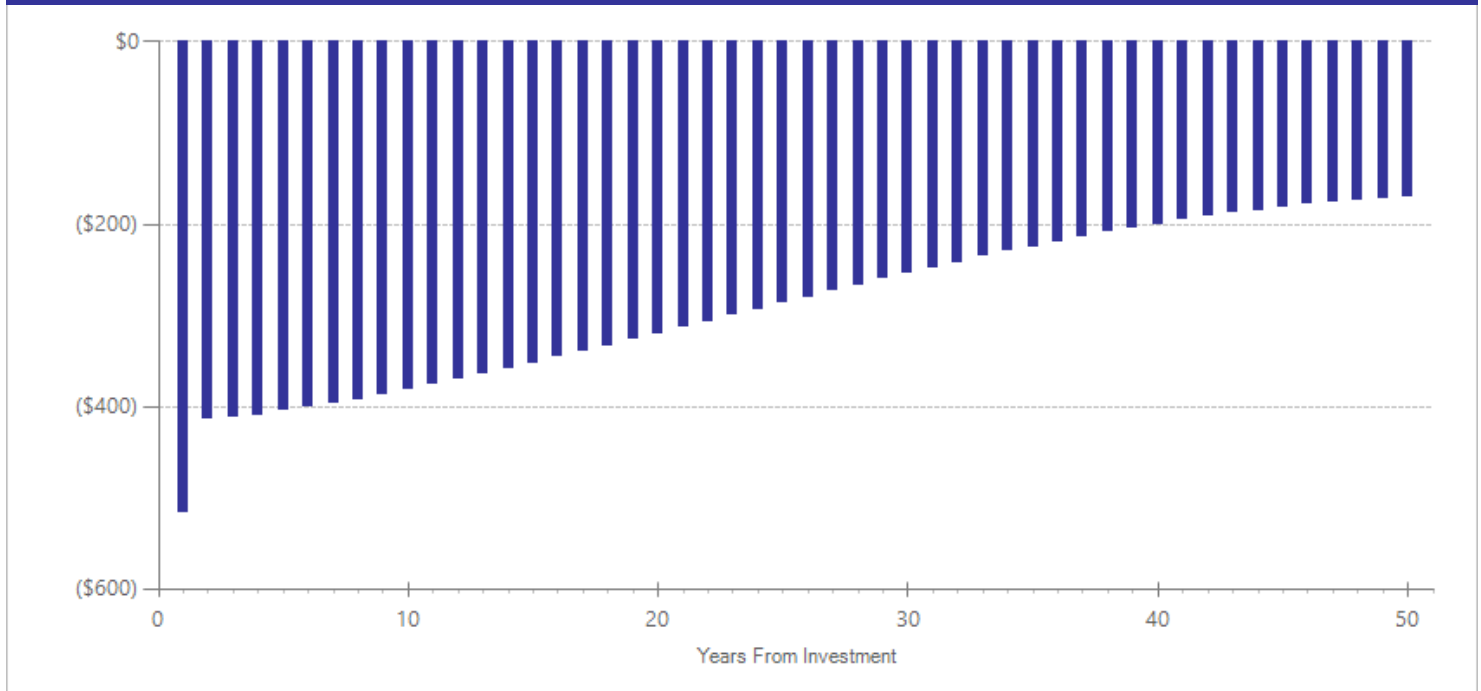
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$1,245	2015	Present value of net program costs (in 2017 dollars)	($446)
Comparison costs	$753	2010	Cost range (+ or -)	15 %

On average, participants received 14 therapeutic hours. Per-participant costs are based on weighted average therapist time, as reported in the included studies. Hourly therapist cost is based on the actuarial estimates of reimbursement for treatment by group or individual modality (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). For comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent depression.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Cognitive behavioral therapy (CBT) for children & adolescents with depression

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Anxiety disorder[^^]	14	5	79	-0.201	0.202	14	n/a	n/a	n/a	-0.249	0.218
Disruptive behavior disorder symptoms	14	3	184	-0.042	0.121	14	-0.023	0.073	17	-0.042	0.730
Externalizing behavior symptoms	14	4	208	0.001	0.101	14	0.001	0.061	17	0.031	0.760
Global functioning[^]	14	6	357	0.172	0.109	14	n/a	n/a	n/a	0.192	0.078
Hospitalization (psychiatric)[^^]	14	1	41	-0.143	0.214	14	n/a	n/a	n/a	-0.143	0.504
Internalizing symptoms[^^]	14	5	183	0.084	0.109	14	n/a	n/a	n/a	0.104	0.341
Major depressive disorder	14	19	580	-0.299	0.076	14	0.000	0.310	16	-0.488	0.001
Specialist visits[^]	14	1	41	-0.135	0.214	14	n/a	n/a	n/a	-0.135	0.529
Suicidal ideation[^]	14	3	252	-0.302	0.093	14	n/a	n/a	n/a	-0.302	0.001
Suicide attempts[^]	14	1	41	0.000	0.232	14	n/a	n/a	n/a	0.000	1.000

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

[^^]WSIPP does not include this outcome when conducting benefit-cost analysis for this program.

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Citations Used in the Meta-Analysis

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Cognitive behavioral therapy (CBT) for children & adolescents with depression

Acceptance and Commitment Therapy (ACT) for children with depression
Children's Mental Health: Depression

Benefit-cost estimates updated December 2018. Literature review updated August 2017.

Program Description: Acceptance and Commitment Therapy (ACT) for depression aims to increase client acceptance of negative thoughts and feelings and to reduce the negative behavioral impact of depression. Acceptance and Commitment Therapy relies on six core processes of change: 1) acceptance; 2) learning to view thoughts as hypotheses rather than facts, 3) being present, 4) viewing the self as context for experience, 5) identifying core values, and 6) acting based on those values. These core principles are applied through various exercises and through homework. In the two studies included in this analysis, ACT was delivered either in 10 group or 20 individual sessions.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$161	Benefit to cost ratio	$0.47
Participants	$110	Benefits minus costs	($320)
Others	$131	Chance the program will produce	
Indirect	($114)	benefits greater than the costs	50 %
Total benefits	$287		
Net program cost	($607)		
Benefits minus cost	($320)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
K-12 grade repetition	$0	$0	$0	$0	$0
Labor market earnings associated with major depression	$56	$25	$0	$0	$81
Health care associated with major depression	$36	$127	$131	$62	$355
Mortality associated with depression	$18	$8	$0	$126	$152
Adjustment for deadweight cost of program	$0	$0	$0	($302)	($302)
Totals	$110	$161	$131	($114)	$287

[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.
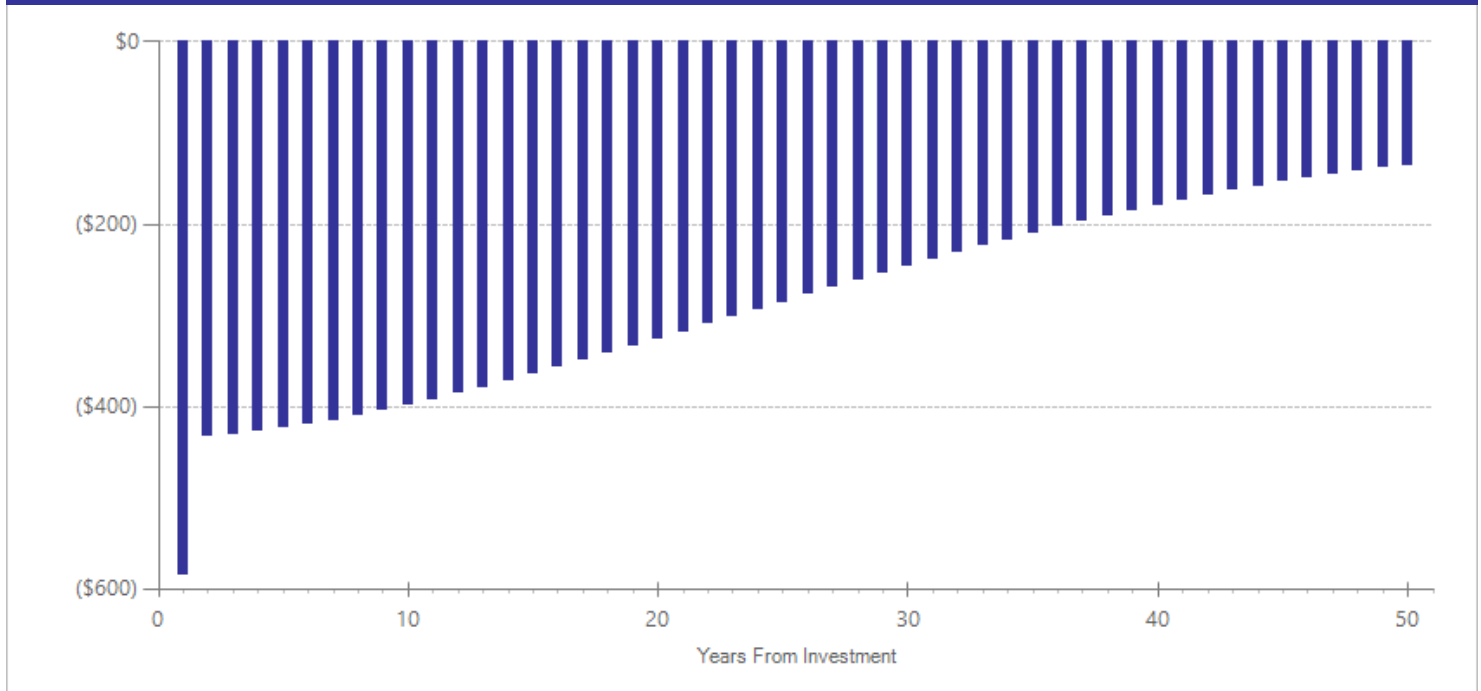
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$1,417	2016	Present value of net program costs (in 2017 dollars)	($607)
Comparison costs	$753	2010	Cost range (+ or -)	15 %

The therapy in this study included 10 group or 20 individual sessions. Per-participant costs are based on weighted average therapist time as reported in the studies, multiplied by DSHS reimbursement rates reported in Mercer. (2015.) Behavioral health data book for the state of Washington for rates effective January 1, 2016. For comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent depression.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Major depressive disorder	15	2	46	-0.438	0.234	15	0.000	0.310	17	-0.438	0.061

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.

Acceptance and Commitment Therapy (ACT) for children with depression

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.

Citations Used in the Meta-Analysis

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Blues Program (prevention program for students at risk for depression)
Children's Mental Health: Depression
Benefit-cost estimates updated December 2018. Literature review updated May 2018.

Program Description: The Blues Program is a prevention program targeting high school and college students with depressive symptoms who do not have major depression. The program consists of six weekly, one-hour group sessions and homework practice assignments. Sessions focus on engaging in pleasant activities, cognitive restructuring techniques, and response plans for future life stressors. In one study, school counselors and nurses delivered the intervention. All interventions took place in a school setting.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	($16)	Benefit to cost ratio	($0.73)
Participants	($34)	Benefits minus costs	($406)
Others	($2)	Chance the program will produce	
Indirect	($119)	benefits greater than the costs	49 %
Total benefits	($171)		
Net program cost	($234)		
Benefits minus cost	($406)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
K-12 grade repetition	$0	$1	$0	$0	$1
Labor market earnings associated with major depression	($33)	($15)	$0	$0	($48)
Health care associated with major depression	($1)	($2)	($2)	($2)	($7)
Mortality associated with depression	$0	$0	$0	$0	$0
Adjustment for deadweight cost of program	$0	$0	$0	($118)	($118)
Totals	($34)	($16)	($2)	($119)	($171)

[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.
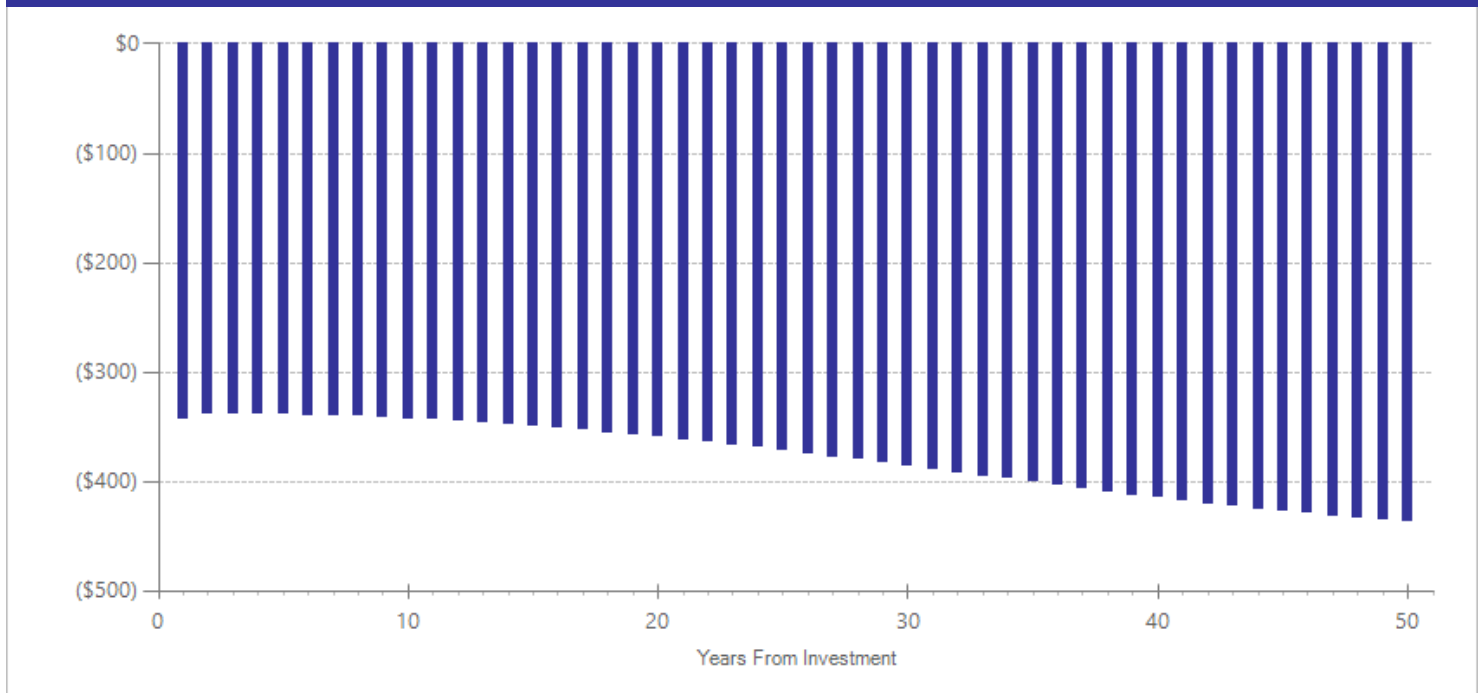
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$234	2017	Present value of net program costs (in 2017 dollars)	($234)
Comparison costs	$0	2017	Cost range (+ or -)	20 %

The Blues Program typically consists of six, one-hour group sessions, co-facilitated by two therapists. Program costs are based on published cost estimations, retrieved in August 2018 from https://www.blueprintsprograms.org/program-costs/blues-program. Costs reflect on-site training, trainer travel, and therapist and supervisor salaries and benefits, as well as teaching supplies.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Major depressive disorder	16	4	290	-0.149	0.090	16	0.000	0.310	18	-0.389	0.001
Substance use^	16	3	240	-0.065	0.096	16	n/a	n/a	n/a	-0.171	0.365

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

Blues Program (prevention program for students at risk for depression)

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.

Citations Used in the Meta-Analysis

Rohde, P., Stice, E., Shaw, H., & Gau, J.M. (2014). Cognitive-behavioral group depression prevention compared to bibliotherapy and brochure control: nonsignificant effects in pilot effectiveness trial with college students. *Behaviour Research and Therapy, 55,* 48-53.

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Stop Now and Plan (SNAP)
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated July 2018.

Program Description: Stop Now and Plan (SNAP) is a cognitive behavioral model for teaching children with disruptive behavior disorders and their parents effective emotional regulation, self-control, and problem-solving skills. SNAP offers separate programs for girls and boys aged 6-11. Children are recruited through referrals by either schools or juvenile courts. The SNAP model consists of 12 weekly group sessions conducted in local clinics designed to teach children to stop and think before acting, keep them involved in school, and avoid delinquent and criminal conduct. In separate group sessions, parents learn parenting skills and strategies to cope with their own emotions related to their children's behavior. In addition to the group sessions, SNAP provides services to meet the needs of individual families. These services may include booster sessions, family counseling, academic tutoring, school advocacy, and mentoring.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$5,286	Benefit to cost ratio	$4.13
Participants	$3,565	Benefits minus costs	$12,968
Others	$8,548	Chance the program will produce	
Indirect	($282)	benefits greater than the costs	86 %
Total benefits	$17,117		
Net program cost	($4,149)		
Benefits minus cost	$12,968		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]		Benefits to:			
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$2,709	$6,180	$1,358	$10,247
Labor market earnings associated with high school graduation	$3,745	$1,701	$1,720	$0	$7,166
K-12 grade repetition	$0	$8	$0	$4	$12
K-12 special education	$0	$384	$0	$192	$576
Health care associated with disruptive behavior disorder	$210	$742	$766	$373	$2,090
Costs of higher education	($390)	($258)	($117)	($129)	($893)
Adjustment for deadweight cost of program	$0	$0	$0	($2,080)	($2,080)
Totals	$3,565	$5,286	$8,548	($282)	$17,117

[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.
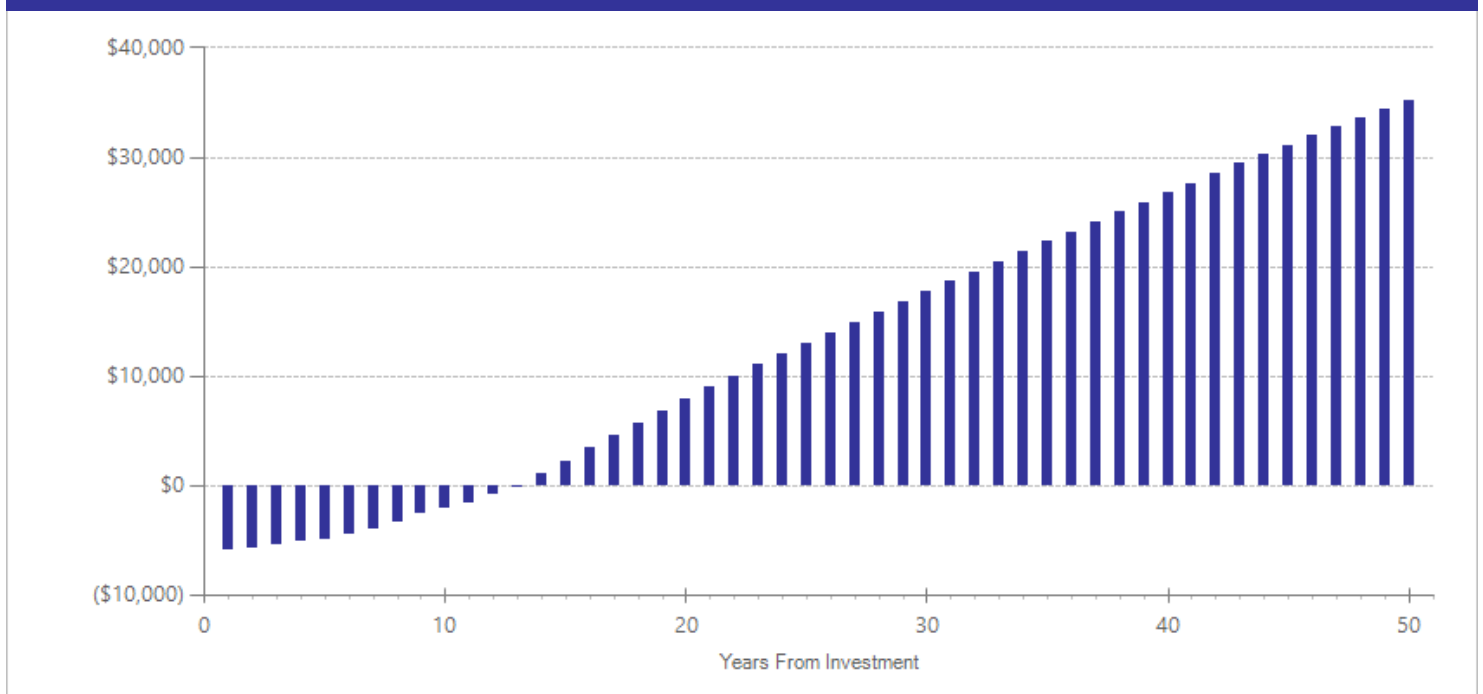
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$4,817	2012	Present value of net program costs (in 2017 dollars)	($4,149)
Comparison costs	$868	2010	Cost range (+ or -)	30 %

SNAP is a 12-week program. We estimated the cost of the treatment group using cost estimates in Farrington and Koegl, 2015 (as recommended by Leena Augimeri via personal communication, August 2018). All treatment group costs were converted from Canadian dollars to US dollars using the average exchange rate from the year the costs were measured. (http://www.canadianforex.ca/forex-tools/historical-rate-tools/yearly-average-rates). Farrington, D.P., & Koegl, C.J. (2015). Monetary benefits and costs of the Stop Now And Plan Program for boys aged 6–11, based on the prevention of later offending. Journal of Quantitative Criminology, 31(2), 263-287. For the comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent disruptive behavior disorders.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Attention-deficit/hyperactivity disorder symptoms	9	1	40	-0.062	0.237	9	0.000	0.141	10	-0.141	0.556
Crime	9	1	80	-0.441	0.273	10	-0.441	0.273	20	-0.441	0.106
Disruptive behavior disorder symptoms	9	3	166	-0.233	0.114	9	-0.128	0.088	12	-0.479	0.001
Internalizing symptoms	9	2	150	-0.284	0.120	9	-0.284	0.120	11	-0.319	0.008

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.

Citations Used in the Meta-Analysis

Augimeri, L.K., Farrington, D.P., Koegl, C.J., & Day, D.M. (2007). The SNAP™ Under 12 Outreach Project: Effects of a community based program for children with conduct problems. *Journal of Child and Family Studies, 16*(6), 799-807.

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Multimodal therapy (MMT) for children with disruptive behavior
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated July 2018.

Program Description: Multimodal therapy (MMT) is a specific therapeutic strategy for children with disruptive behavior disorders. MMT targets different "modalities" of a child's personality through psychosocial interventions that may include the child, their parents, or their teachers. MMT typically takes place in more than one setting (home, school, or community). In this analysis, all studies utilize either a behavioral or cognitive-behavioral model. Interventions included in our review varied in both intensity (multiple times per day to biweekly) and duration (three months to 2.5 years). Typical dosage is weekly sessions for nine months. Programs that last longer than average were administered to children over the course of several years of elementary school and focus on providing intervention during summer breaks.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$2,636	Benefit to cost ratio	$6.05
Participants	$4,952	Benefits minus costs	$8,142
Others	$2,763	Chance the program will produce	
Indirect	($596)	benefits greater than the costs	57 %
Total benefits	$9,754		
Net program cost	($1,612)		
Benefits minus cost	$8,142		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]		Benefits to:			
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$18	$45	$9	$72
Labor market earnings associated with test scores	$5,535	$2,514	$2,471	$0	$10,520
K-12 grade repetition	$0	$2	$0	$1	$4
K-12 special education	$0	$158	$0	$79	$237
Labor market earnings associated with anxiety disorder	($651)	($295)	$0	$0	($946)
Health care associated with anxiety disorder	($15)	($52)	($54)	($25)	($146)
Health care associated with disruptive behavior disorder	$82	$291	$301	$147	$822
Mortality associated with depression	$0	$0	$0	($1)	($1)
Adjustment for deadweight cost of program	$0	$0	$0	($807)	($807)
Totals	$4,952	$2,636	$2,763	($596)	$9,754

[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.
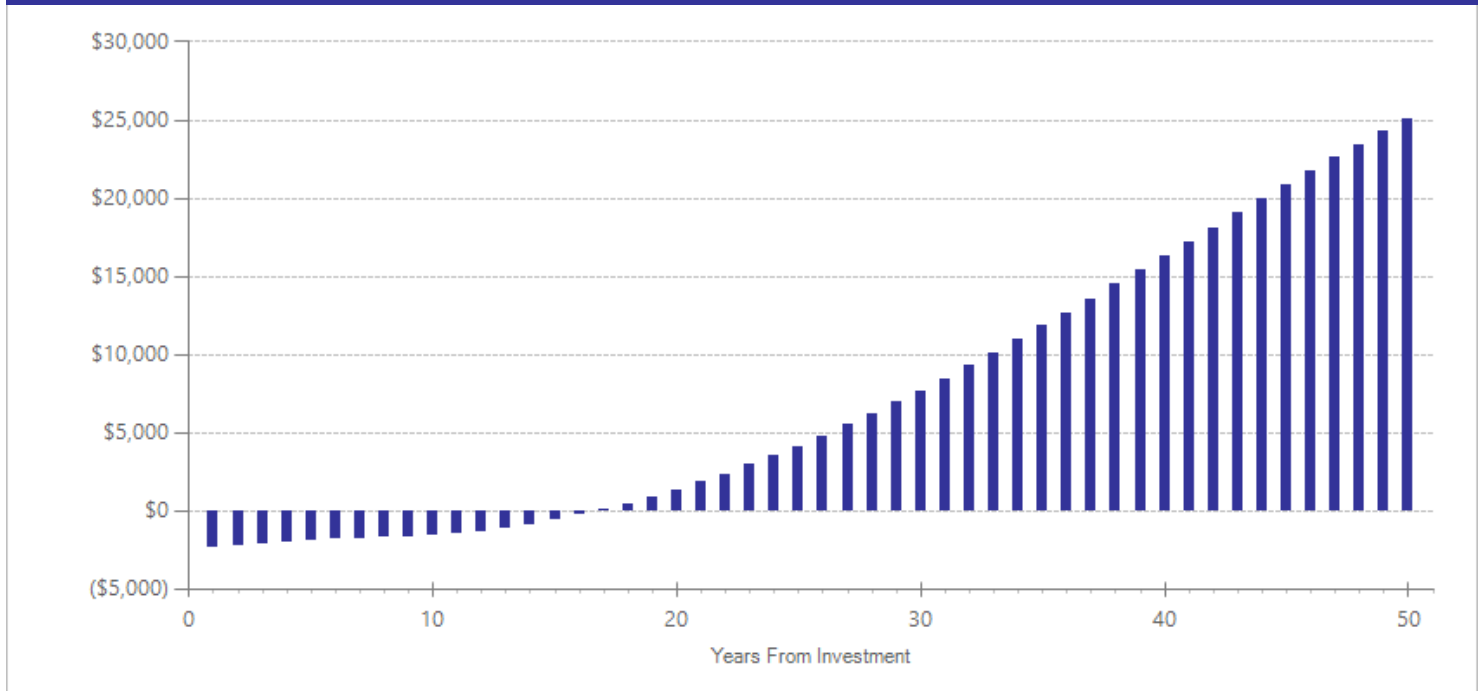
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$2,501	2015	Present value of net program costs (in 2017 dollars)	($1,612)
Comparison costs	$868	2010	Cost range (+ or -)	50 %

These interventions vary in length, with a typical length of nine months. We estimate per-participant costs based on weighted average of 57 hours of therapist time, as reported in the treatment studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). For comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent disruptive behavior disorders.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Anxiety disorder	9	1	40	0.031	0.221	9	0.012	0.107	10	0.135	0.647
Attention-deficit/hyperactivity disorder symptoms	9	1	40	-0.019	0.221	9	0.000	0.141	10	-0.083	0.706
Disruptive behavior disorder symptoms	9	5	195	-0.081	0.109	10	-0.045	0.068	13	-0.270	0.157
Global functioning^	9	1	64	0.951	0.182	9	n/a	n/a	n/a	0.951	0.001
Internalizing symptoms	9	3	127	-0.222	0.182	9	-0.222	0.182	11	-0.260	0.115
Major depressive disorder	9	1	40	0.000	0.294	9	0.000	0.310	11	0.000	1.000
Test scores	9	2	70	0.096	0.176	10	0.063	0.194	17	0.132	0.456

^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.

Citations Used in the Meta-Analysis

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Incredible Years Parent Training
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated July 2018.

Program Description: Incredible Years Parent Training is a group, skills-based behavioral intervention for parents of children with disruptive behavior. The curriculum focuses on strengthening parenting skills (monitoring, positive discipline, confidence) and fostering parents' involvement in children's school experiences in order to promote children's academic, social, and emotional competencies and reduce conduct problems. The program consists of 12 to 16 weekly two-hour sessions provided by trained therapists. Sessions include videotape modeling of parenting skills and then focused discussion of the skills portrayed in the vignettes. Training classes include child care, a family meal, and transportation.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$2,313	Benefit to cost ratio	$5.75
Participants	$4,117	Benefits minus costs	$6,502
Others	$1,873	Chance the program will produce	
Indirect	($432)	benefits greater than the costs	58 %
Total benefits	$7,871		
Net program cost	($1,370)		
Benefits minus cost	$6,502		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]   Benefits to:

	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$10	$24	$5	$39
Labor market earnings associated with test scores	$3,337	$1,515	$1,478	$0	$6,330
K-12 grade repetition	$0	$2	$0	$1	$2
K-12 special education	$0	$118	$0	$59	$177
Health care associated with disruptive behavior disorder	$62	$219	$226	$109	$617
Subtotals	$3,399	$1,865	$1,728	$174	$7,165
From secondary participant					
Labor market earnings associated with major depression	$678	$308	$0	$0	$986
Health care associated with major depression	$40	$141	$145	$71	$396
Mortality associated with depression	$1	$0	$0	$6	$7
Subtotals	$718	$449	$145	$77	$1,389
Adjustment for deadweight cost of program	$0	$0	$0	($683)	($683)
Totals	$4,117	$2,313	$1,873	($432)	$7,871

[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.
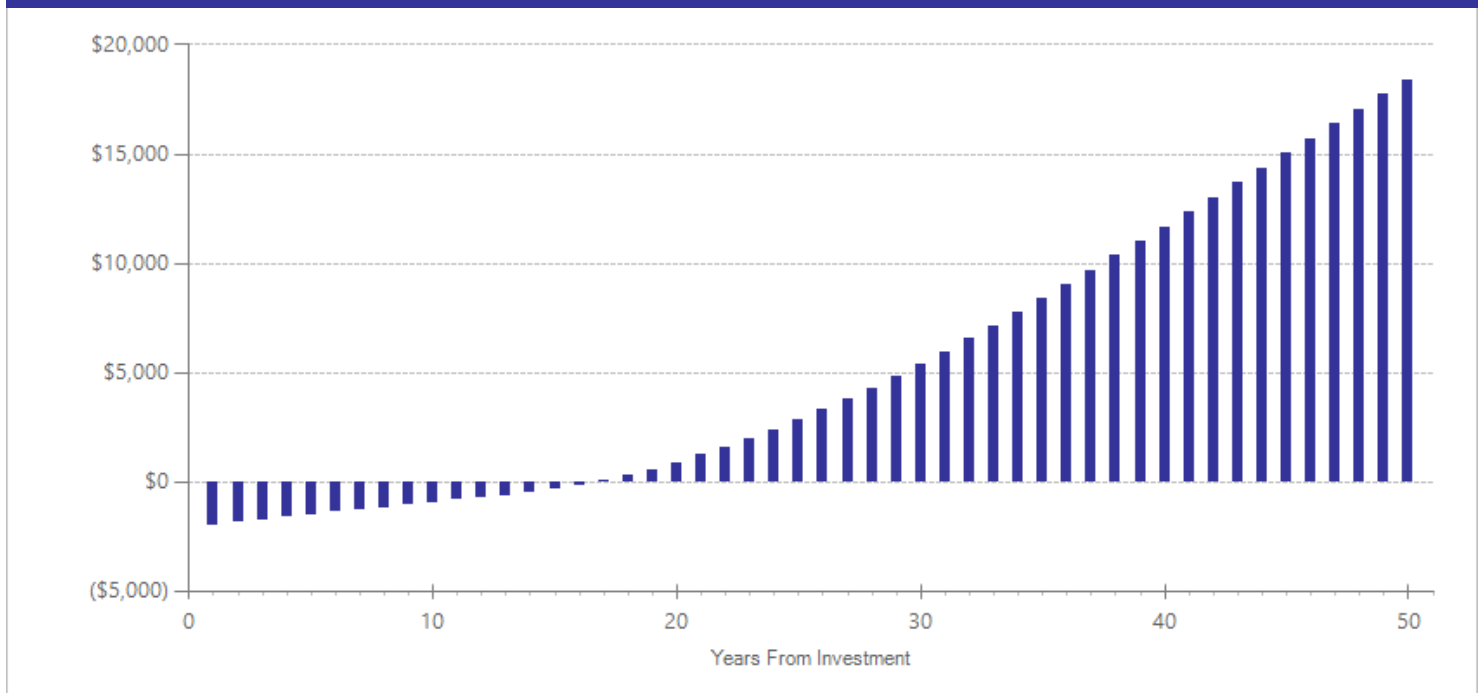
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$2,265	2015	Present value of net program costs (in 2017 dollars)	($1,370)
Comparison costs	$868	2010	Cost range (+ or -)	40 %

Incredible Years Parent Training costs include both therapist time and additional program costs. Participants in the treatment studies received a weighted average of 32 hours of therapist time. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). Additional program costs include training, materials, and implementation fees (e.g., childcare or transportation) as reported in Foster, Olchowski, & Webster-Stratton (2007). Is stacking intervention components cost-effective? An analysis of the Incredible Years program. Journal of the American Academy of Child and Adolescent Psychiatry, 46, 1414-1424. We apply these costs to the average duration of the programs as reported in the studies (16 two-hour sessions), and assume that treatment groups included six families. For comparison group costs we used 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent disruptive behavior disorders.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

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
Attention-deficit/hyperactivity disorder symptoms	5	Primary	4	354	-0.112	0.094	5	0.000	0.141	6	-0.461	0.001
Disruptive behavior disorder symptoms	5	Primary	21	1507	-0.079	0.045	5	-0.043	0.033	8	-0.380	0.001
Internalizing symptoms	5	Primary	4	287	-0.099	0.098	5	-0.099	0.098	7	-0.294	0.003
Test scores	5	Primary	2	144	0.084	0.123	7	0.039	0.135	17	0.227	0.257
Major depressive disorder	28	Secondary	4	210	-0.068	0.118	28	-0.035	0.145	30	-0.115	0.462
Parental stress^	28	Secondary	5	236	-0.184	0.109	28	n/a	n/a	n/a	-0.497	0.001

^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.

Citations Used in the Meta-Analysis

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Triple P—Positive Parenting Program: Level 4, individual
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated June 2018.

Program Description: Triple P—Positive Parenting Program (Level 4, individual) is a behavioral parent training program for families of children with disruptive behavior problems. The focus is learning skills and role-playing strategies to cope with and correct behavior problems. This review includes evaluations of individually administered Triple P, either in therapist-led sessions or in a self-directed modality. In the self-directed version parents receive a full Level 4 curriculum with a workbook and exercises to complete at their own pace, as well as weekly phone calls with a therapist. We excluded evaluations of self-directed treatments with no therapist contact. Children in the included studies were diagnosed with or met a clinical threshold for disruptive behavior disorder. Families received an average of ten hours of treatment over ten weeks.

Benefit-Cost Summary Statistics Per Participant			
Benefits to:			
Taxpayers	$2,114	Benefit to cost ratio	$7.81
Participants	$3,213	Benefits minus costs	$5,224
Others	$683	Chance the program will produce	
Indirect	($20)	benefits greater than the costs	60 %
Total benefits	$5,991		
Net program cost	($767)		
Benefits minus cost	$5,224		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$17	$39	$8	$64
Labor market earnings associated with high school graduation	$273	$124	$125	$0	$522
K-12 grade repetition	$0	$3	$0	$1	$4
K-12 special education	$0	$195	$0	$98	$293
Health care associated with disruptive behavior disorder	$92	$326	$336	$164	$918
Costs of higher education	($30)	($20)	($9)	($10)	($70)
Subtotals	$335	$644	$490	$261	$1,730
From secondary participant					
Health care associated with major depression	$53	$187	$193	$94	$527
Labor market earnings associated with anxiety disorder	$2,825	$1,283	$0	$0	$4,108
Mortality associated with depression	$1	$0	$0	$9	$10
Subtotals	$2,878	$1,470	$193	$103	$4,645
Adjustment for deadweight cost of program	$0	$0	$0	($384)	($384)
Totals	$3,213	$2,114	$683	($20)	$5,991

[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.
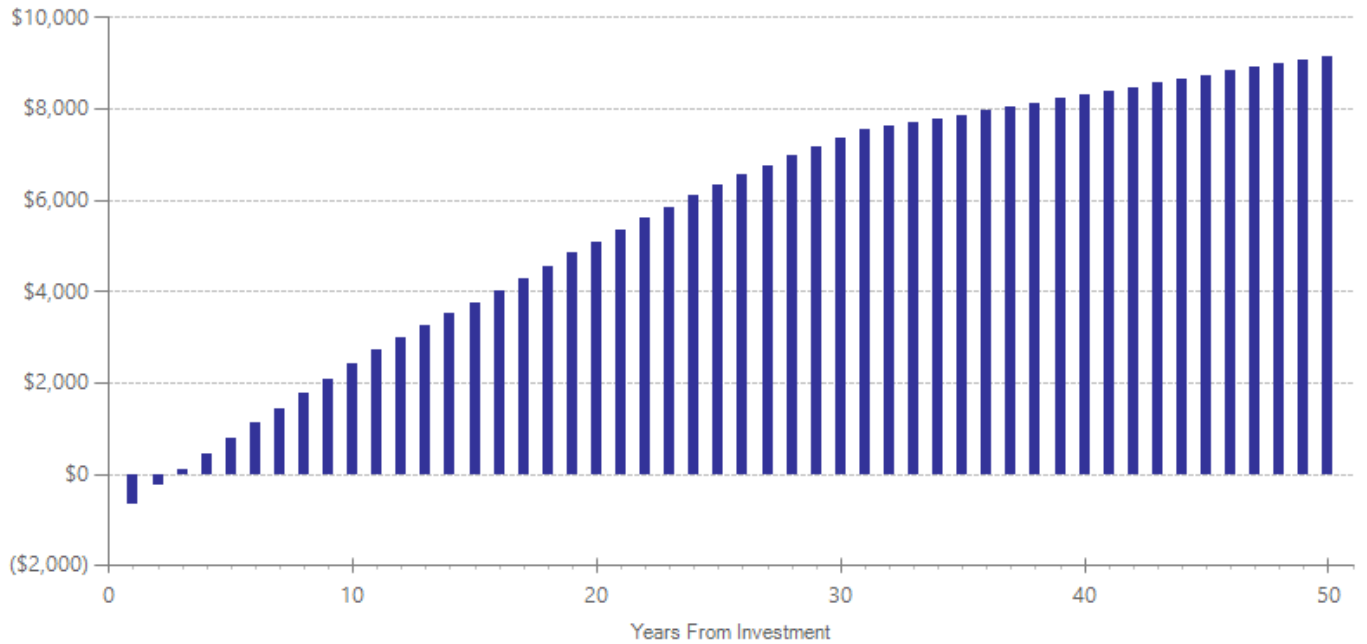
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$1,730	2017	Present value of net program costs (in 2017 dollars)	($767)
Comparison costs	$868	2010	Cost range (+ or -)	30 %

Triple P costs are the average per-family service cost for families receiving Triple P in Washington in fiscal year 2018, provided by Tim Kelly (8/23/2018), Washington State Department of Children Youth and Families. For comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent disruptive behavior disorders.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

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
Anxiety disorder^^	6	Primary	1	26	-0.070	0.991	6	n/a	n/a	n/a	-0.306	0.776
Disruptive behavior disorder symptoms	6	Primary	7	311	-0.112	0.096	6	-0.062	0.064	9	-0.761	0.001
Major depressive disorder^^	6	Primary	1	26	-0.208	0.495	6	n/a	n/a	n/a	-0.910	0.124
Anxiety disorder	35	Secondary	2	79	-0.100	0.201	35	-0.052	0.246	37	-0.438	0.031
Major depressive disorder	35	Secondary	2	79	-0.094	0.201	35	-0.049	0.246	37	-0.411	0.043
Parental stress^	35	Secondary	2	171	-0.300	0.129	35	n/a	n/a	n/a	-0.458	0.001

^WSIPP's benefit-cost model does not monetize this outcome.
^^WSIPP does not include this outcome when conducting benefit-cost analysis for this program.

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.

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Triple P—Positive Parenting Program: Level 4, group
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated June 2018.

Program Description: Triple P—Positive Parenting Program (Level 4, group) is a behavioral parent training program for families of children with disruptive behavior problems. The focus is learning skills and role-playing strategies to cope with and correct behavior problems. This review includes evaluations of group Triple P for parents of children diagnosed with, or meeting a clinical threshold for, disruptive behavior disorder. Some programs included individual sessions or phone calls in addition to group sessions. Programs typically consisted of 8 to 12 sessions over two to three months.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$1,051	Benefit to cost ratio	n/a
Participants	$544	Benefits minus costs	$3,591
Others	$800	Chance the program will produce	
Indirect	$683	benefits greater than the costs	97 %
Total benefits	$3,078		
Net program cost	$513		
Benefits minus cost	$3,591		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$27	$63	$14	$104
Labor market earnings associated with high school graduation	$443	$201	$202	$0	$846
K-12 grade repetition	$0	$4	$0	$2	$6
K-12 special education	$0	$319	$0	$160	$479
Health care associated with disruptive behavior disorder	$150	$532	$549	$267	$1,499
Costs of higher education	($49)	($33)	($15)	($16)	($113)
Adjustment for deadweight cost of program	$0	$0	$0	$256	$256
Totals	$544	$1,051	$800	$683	$3,078

[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.
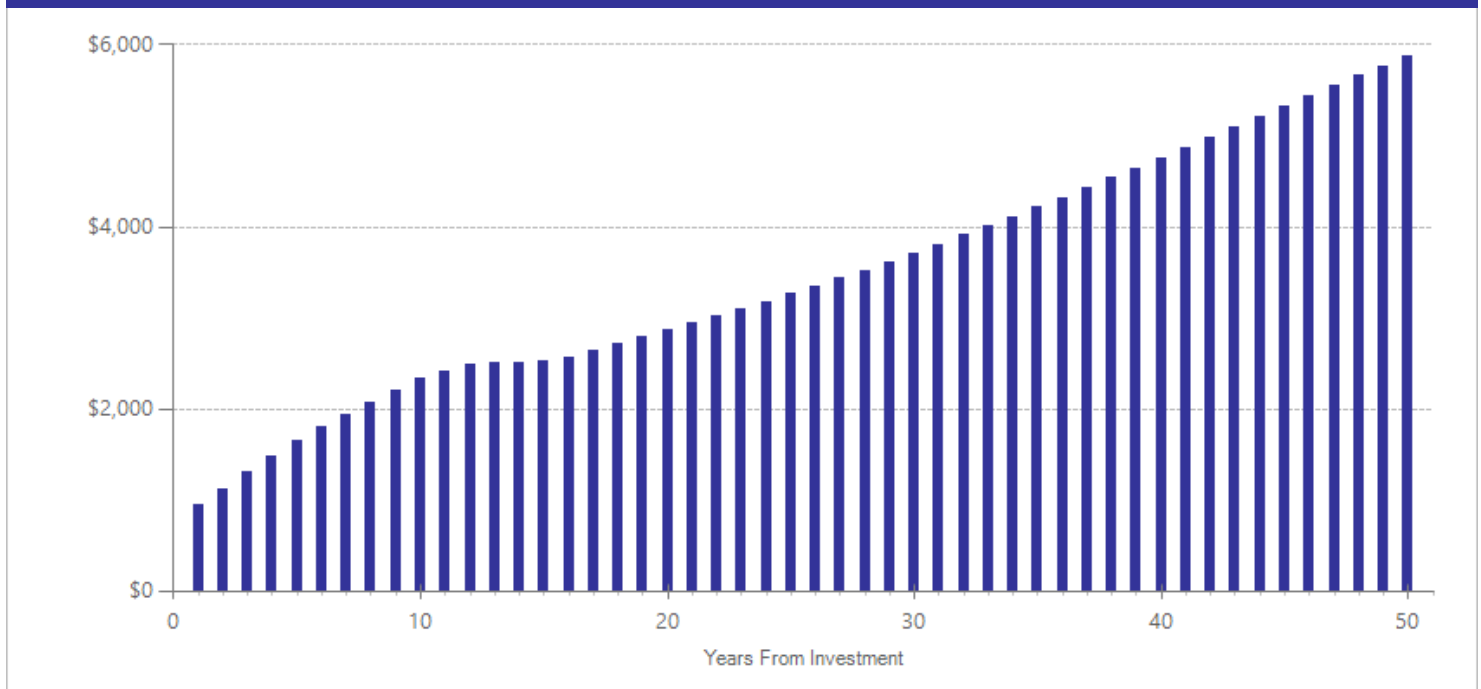
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$449	2017	Present value of net program costs (in 2017 dollars)	$513
Comparison costs	$868	2010	Cost range (+ or -)	30 %

Triple P costs are the average per-family service cost for families receiving individual Triple P in Washington in fiscal year 2018, provided by Tim Kelly (8/23/2018), Washington State Department of Children Youth and Families. For group administration of Triple P, we assume six families could receive training at the same time from the same therapist. We also add an estimated cost for venue rental (a cost that is unnecessary when conducting the program with individual families). For comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent disruptive behavior disorders.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

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
Disruptive behavior disorder symptoms	6	Primary	7	249	-0.183	0.094	6	-0.101	0.071	9	-0.676	0.001
Internalizing symptoms	6	Primary	2	97	-0.109	0.162	6	-0.109	0.162	8	-0.259	0.356
Major depressive disorder^^	35	Secondary	1	20	0.208	0.326	35	n/a	n/a	n/a	0.401	0.222
Parental stress^	35	Secondary	2	62	-0.314	0.208	35	n/a	n/a	n/a	-0.513	0.218

^WSIPP's benefit-cost model does not monetize this outcome.
^^WSIPP does not include this outcome when conducting benefit-cost analysis for this program.

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.

Citations Used in the Meta-Analysis

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Brief Strategic Family Therapy (BSFT)
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated July 2018.

Program Description: Brief Strategic Family Therapy (BSFT) is both a prevention and treatment intervention model that addresses cognitive, behavioral, and affective aspects of families for children with disruptive behavior problems. BSFT targets youth aged 8-17 years who display or are at-risk for behavioral problems, including delinquency and substance use. Youth are eligible for BSFT if they self-report substance use or are referred from an institution for substance use outpatient treatment. BSFT utilizes individual family therapy to teach tools to address specific risk factors and improve family-based interactions. Youth are commonly referred to BSFT through a school or parent recommendation. BSFT consists of 12-17 weekly sessions, each lasting for an hour- to ninety-minutes; each session is overseen by a trained BSFT therapist.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$1,334	Benefit to cost ratio	$2.67
Participants	($204)	Benefits minus costs	$2,851
Others	$3,595	Chance the program will produce	
Indirect	($165)	benefits greater than the costs	61 %
Total benefits	$4,561		
Net program cost	($1,709)		
Benefits minus cost	$2,851		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]   Benefits to:

	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$1,079	$2,674	$541	$4,293
Labor market earnings associated with high school graduation	$1,290	$586	$591	$0	$2,467
K-12 grade repetition	$0	$10	$0	$5	$14
K-12 special education	$0	$47	$0	$24	$71
Labor market earnings associated with alcohol abuse or dependence	($1,454)	($660)	$0	$0	($2,115)
Property loss associated with alcohol abuse or dependence	($3)	$0	($5)	$0	($8)
Health care associated with disruptive behavior disorder	$103	$365	$377	$183	$1,029
Costs of higher education	($138)	($91)	($41)	($46)	($316)
Mortality associated with alcohol	($2)	($1)	$0	($14)	($17)
Adjustment for deadweight cost of program	$0	$0	$0	($857)	($857)
Totals	($204)	$1,334	$3,595	($165)	$4,561

[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.
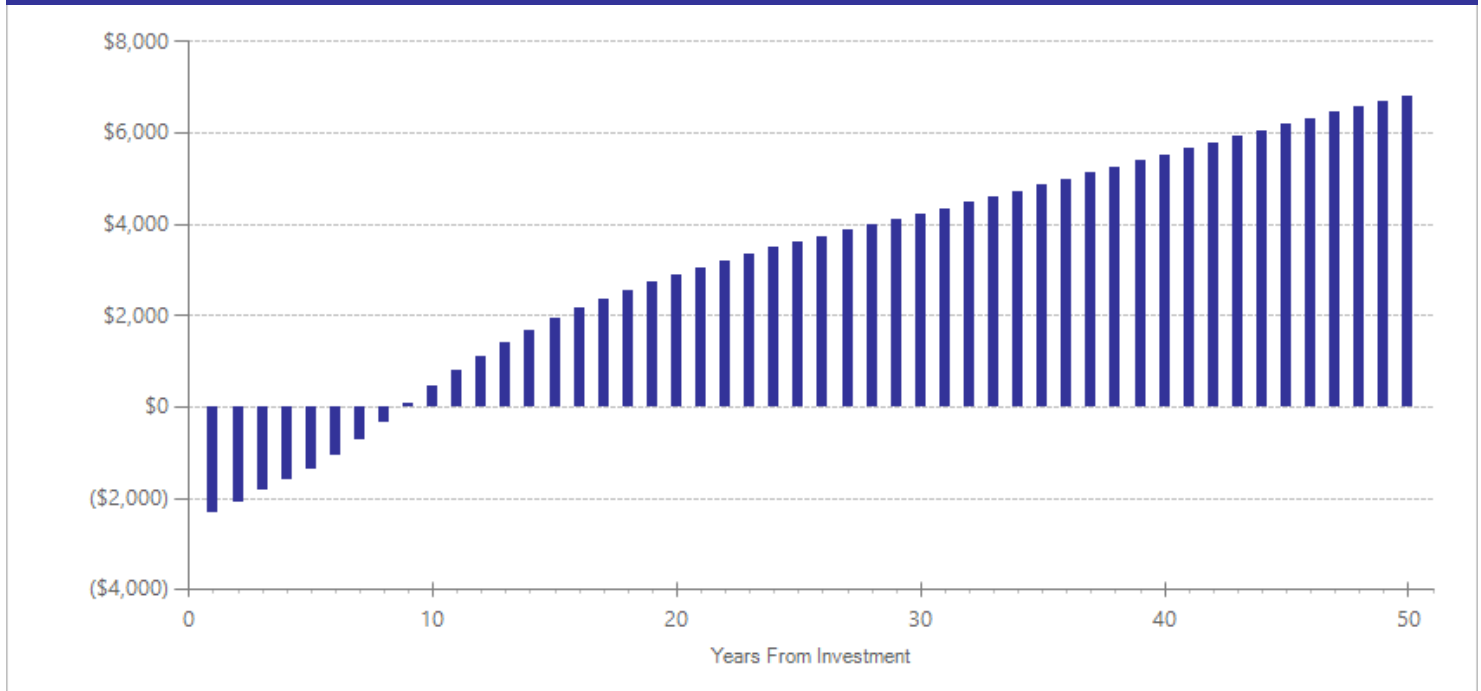
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$2,595	2015	Present value of net program costs (in 2017 dollars)	($1,709)
Comparison costs	$868	2010	Cost range (+ or -)	20 %

Brief Strategic Family Therapy (BSFT) lasts for three- to four-months. We estimate per-participant costs based on a weighted average of 14.8 hours of therapist time, as reported in the treatment studies, multiplied by actuarial estimate of cost of hourly family therapy (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). For comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent disruptive behavior disorders.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Alcohol use in high school	15	1	56	0.134	0.229	15	0.134	0.229	18	0.258	0.261
Cannabis use in high school	15	1	56	-0.123	0.229	15	-0.123	0.229	18	-0.237	0.301
Crime	15	1	140	-0.174	0.124	20	-0.174	0.124	30	-0.335	0.007
Disruptive behavior disorder symptoms	15	2	93	-0.112	0.175	15	-0.062	0.108	18	-0.374	0.160
Illicit drug use in high school	15	2	169	-0.339	0.369	15	-0.339	0.369	18	-0.864	0.310
Smoking in high school[^^]	15	1	20	-0.529	0.322	15	n/a	n/a	n/a	-1.203	0.001
STD risky behavior[^]	15	1	20	-1.042	0.337	15	n/a	n/a	n/a	-2.369	0.001
Youth binge drinking[^^]	15	1	20	-0.829	0.330	15	n/a	n/a	n/a	-1.884	0.001

[^]WSIPP's benefit-cost model does not monetize this outcome.
[^^]WSIPP does not include this outcome when conducting benefit-cost analysis for this program.

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.

Citations Used in the Meta-Analysis

Coatsworth, J.D., Santisteban, D.A., McBride, C.K, Szapocznik, J. (2001). Brief strategic family therapy versus community control: Engagement, retention, and an exploration of the moderating role of adolescent symptom severity. *Family Process, 40*(3), 313-313

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Mentoring: Community-based for children with disruptive behavior
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated May 2018.

Program Description: In community-based mentoring programs for children with disruptive behavior disorders, paraprofessional mentors are paired with youth with diagnosed disruptive behavior disorders. These youth are referred to mentoring by their mental health care providers. Among studies includes in this analysis, youth were 8 to 12 years old. On average, mentors met with their mentees for three to four hours each week over a period of eight weeks. Mentors engage in developmentally appropriate activities (e.g., playing games, sports) and promote and reinforce positive behaviors and goals (e.g., social skills, communication, affect regulation). Mentors debrief parents at the end of each visit and discuss activities, behavior, and goal progression. Paraprofessional mentors receive training on program guidelines, discipline strategies, structured activities, and mentor-parent interactions and receive regular supervision.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$1,807	Benefit to cost ratio	$2.60
Participants	$1,184	Benefits minus costs	$2,654
Others	$1,484	Chance the program will produce	
Indirect	($159)	benefits greater than the costs	67 %
Total benefits	$4,316		
Net program cost	($1,662)		
Benefits minus cost	$2,654		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]   Benefits to:

	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$60	$153	$30	$243
Labor market earnings associated with high school graduation	$1,039	$472	$475	$0	$1,985
K-12 grade repetition	$0	$16	$0	$8	$24
K-12 special education	$0	$513	$0	$257	$769
Health care associated with disruptive behavior disorder	$243	$861	$889	$432	$2,426
Costs of higher education	($98)	($115)	($32)	($58)	($302)
Adjustment for deadweight cost of program	$0	$0	$0	($829)	($829)
Totals	$1,184	$1,807	$1,484	($159)	$4,316

[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.
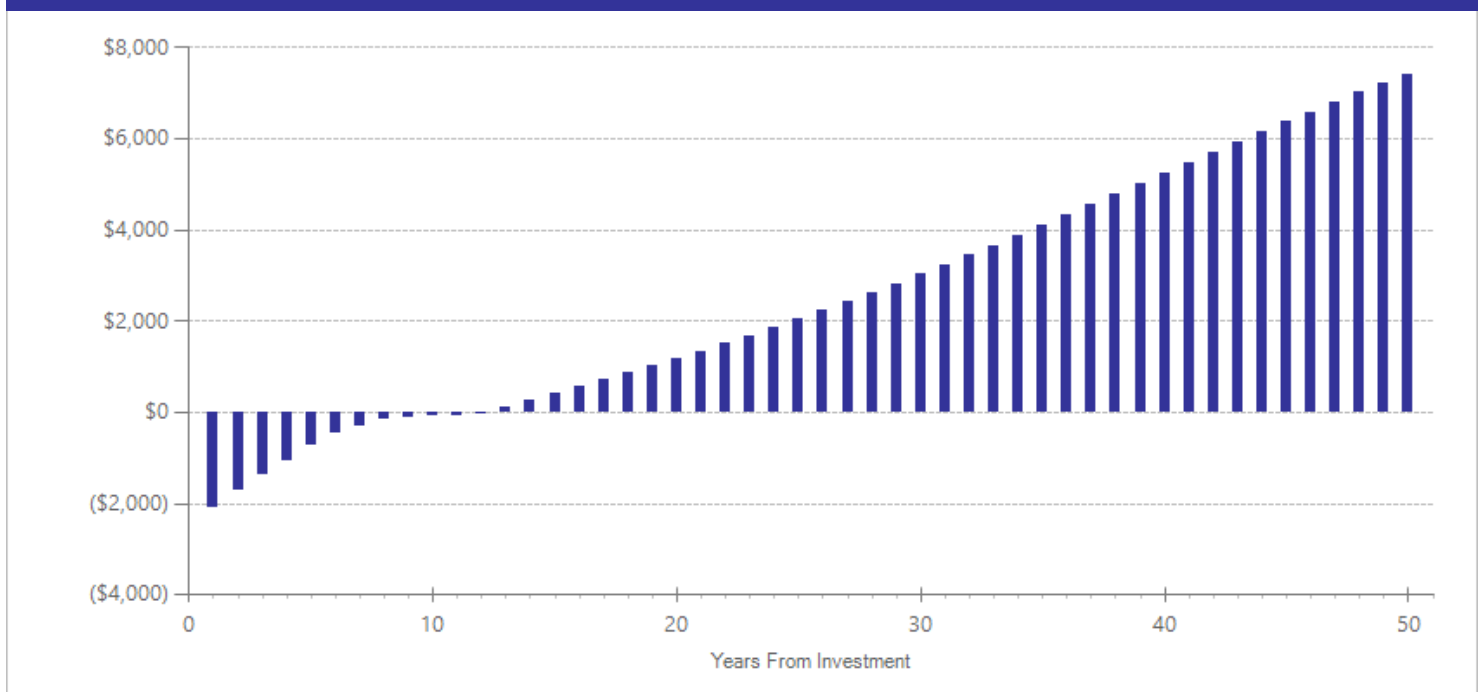
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$1,640	2016	Present value of net program costs (in 2017 dollars)	($1,662)
Comparison costs	$0	2016	Cost range (+ or -)	50 %

The per-participant cost estimate is based on a weighted average of the costs of each study and includes the cost of mentor time, training, materials, supervision, and any administrative costs. The studies included in our analysis did not report specific cost estimates, so we constructed the costs associated with mentor time based on the average time spent with each participant in direct interaction, time to train mentors, and the approximate time spent on administrative tasks per child as outlined in both Jent & Niec (2006) and Jent & Niec (2009) We estimate mentor salary using Washington State labor costs as reported by the Bureau of Labor Statistics.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Disruptive behavior disorder symptoms	10	2	72	-0.275	0.256	10	-0.151	0.167	13	-0.782	0.003
Internalizing symptoms	10	2	72	-0.329	0.257	10	-0.329	0.257	12	-0.746	0.004

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.

Citations Used in the Meta-Analysis

Jent, J.F, & Niec, L.N. (2006). Mentoring youth with psychiatric disorders: The impact on child and parent functioning. *Child & Family Behavior Therapy*, *28*(3), 43-58.

Jent, J.F., & Niec, L.N. (2009). Cognitive behavioral principles within group mentoring: A randomized pilot study. *Child & Family Behavior Therapy, 31*(3), 203-219.

Other behavioral parent training (BPT) for children with disruptive behavior
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated July 2018.

Program Description: Behavioral parent training (BPT) programs target parents of youth with disruptive behavior disorders. BPT programs teach parents self-regulation, behavior management skills, positive reinforcement methods, and communication techniques either individually or in conjunction with their children. BPT programs aim to change parenting behaviors and instruct parents in the use of positive reinforcement methods through individual, group, or family therapies. Interventions occurred either in family homes, or in mental health/community clinics. Interventions in our review varied in both intensity (weekly to bi-weekly meetings) and duration (two months to six months). Typical dosage for BPT is weekly for three months.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$889	Benefit to cost ratio	$31.97
Participants	$490	Benefits minus costs	$2,314
Others	$693	Chance the program will produce	
Indirect	$316	benefits greater than the costs	96 %
Total benefits	$2,389		
Net program cost	($75)		
Benefits minus cost	$2,314		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$25	$58	$12	$95
Labor market earnings associated with high school graduation	$405	$184	$186	$0	$776
K-12 grade repetition	$0	$4	$0	$2	$6
K-12 special education	$0	$258	$0	$129	$387
Health care associated with disruptive behavior disorder	$126	$447	$461	$224	$1,258
Costs of higher education	($41)	($27)	($12)	($14)	($95)
Adjustment for deadweight cost of program	$0	$0	$0	($37)	($37)
Totals	$490	$889	$693	$316	$2,389

[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.
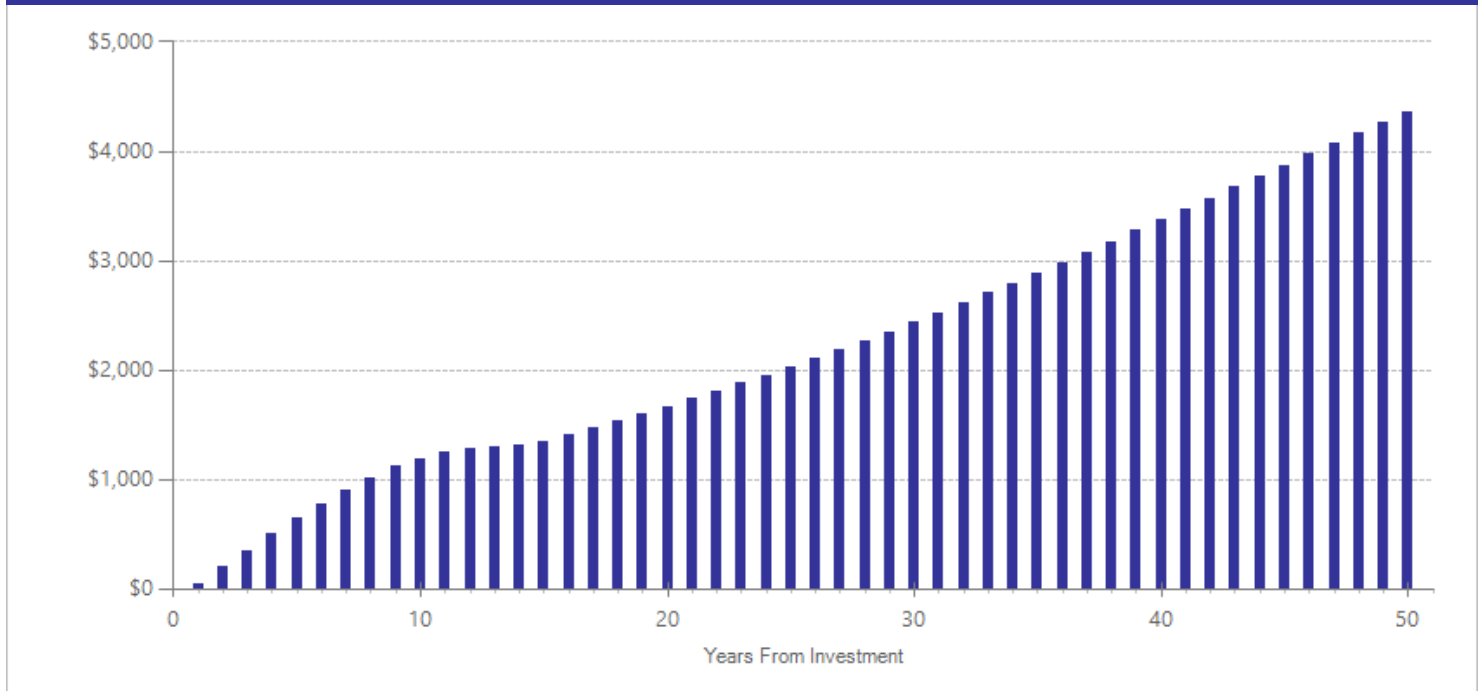
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$1,008	2015	Present value of net program costs (in 2017 dollars)	($75)
Comparison costs	$868	2010	Cost range (+ or -)	20 %

On average, participants received 22 therapeutic hours over three months. Per-participant costs are based on weighted average therapist time, as reported in the included studies. Hourly therapist cost is based on the actuarial estimates of reimbursement for group treatment (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). For comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent disruptive behavior disorders.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

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
Attention-deficit/hyperactivity disorder symptoms	7	Primary	4	158	-0.072	0.119	7	0.000	0.141	8	-0.310	0.035
Disruptive behavior disorder symptoms	7	Primary	13	754	-0.149	0.057	7	-0.082	0.049	10	-0.526	0.001
Internalizing symptoms	7	Primary	6	355	-0.194	0.078	7	-0.194	0.078	9	-0.334	0.009
Parental stress^	38	Secondary	3	126	-0.134	0.139	38	n/a	n/a	n/a	-0.291	0.038

^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.

Citations Used in the Meta-Analysis

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Child Parent Relationship Therapy
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated May 2018.

Program Description: Child Parent Relationship Therapy is a manualized play-based therapy for families whose children have social, emotional, or behavioral problems. In group sessions parents are taught relationship skills grounded in child-centered play therapy, limit-setting for children's misbehavior, and attitudes of empathy and respect for their child. Parents practice new skills in videotaped play sessions which are later reviewed in the group for supervision and feedback to parents. This program is typically administered in ten weekly small group sessions, with an average of 20 therapist contact hours. Children in the included studies were diagnosed with, or met a clinical threshold for, disruptive behavior disorder.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$699	Benefit to cost ratio	n/a
Participants	$359	Benefits minus costs	$1,939
Others	$541	Chance the program will produce	
Indirect	$304	benefits greater than the costs	80 %
Total benefits	$1,903		
Net program cost	$35		
Benefits minus cost	$1,939		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$18	$40	$9	$66
Labor market earnings associated with high school graduation	$283	$128	$129	$0	$540
K-12 grade repetition	$0	$4	$0	$2	$5
K-12 special education	$0	$199	$0	$100	$299
Health care associated with disruptive behavior disorder	$104	$369	$380	$185	$1,039
Costs of higher education	($28)	($19)	($8)	($9)	($65)
Adjustment for deadweight cost of program	$0	$0	$0	$18	$18
Totals	$359	$699	$541	$304	$1,903

[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.
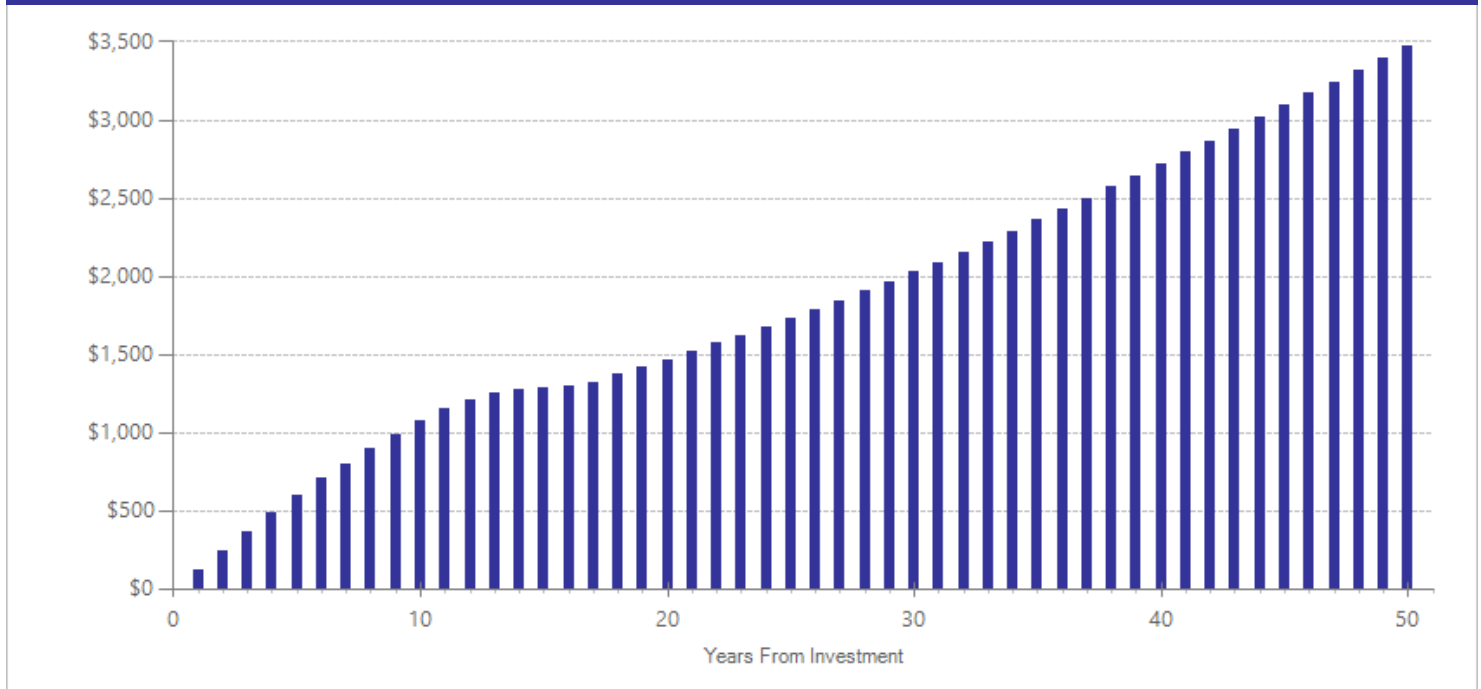
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$901	2015	Present value of net program costs (in 2017 dollars)	$35
Comparison costs	$868	2010	Cost range (+ or -)	20 %

On average, participants received 20 therapeutic hours over ten weeks. Per-participant costs are based on weighted average therapist time, as reported in the included studies. Hourly therapist cost is based on the actuarial estimates of reimbursement for group treatment (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). For comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent disruptive behavior disorders.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

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
Disruptive behavior disorder symptoms	5	Primary	5	104	-0.130	0.145	5	-0.072	0.092	8	-0.849	0.001
Internalizing symptoms	5	Primary	3	55	-0.256	0.200	5	-0.256	0.200	7	-0.871	0.106
Parental stress^	35	Secondary	2	49	-0.417	0.211	35	n/a	n/a	n/a	-1.301	0.013

^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.

Citations Used in the Meta-Analysis

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Parent Management Training—Oregon Model (treatment population)
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated March 2018.

Program Description: Parent Management Training—Oregon Model (PMTO) is a behavioral parent training program for families of children with disruptive behavior problems. PMTO focuses on teaching parents to apply five parenting practices: skill encouragement, appropriate discipline, monitoring, problem solving, and positive involvement. This review includes evaluations of PMTO in both individual and group modalities for parents of children diagnosed with, or meeting a clinical threshold for, disruptive behavior disorder. Parents in these studies typically received an average of 27 therapy hours over three to six months; one study evaluated a brief primary care version of PMTO, with an average of 5.5 therapy hours over one month.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$1,119	Benefit to cost ratio	$1.87
Participants	$652	Benefits minus costs	$1,137
Others	$896	Chance the program will produce	
Indirect	($222)	benefits greater than the costs	71 %
Total benefits	$2,445		
Net program cost	($1,308)		
Benefits minus cost	$1,137		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$34	$81	$17	$131
Labor market earnings associated with high school graduation	$559	$254	$256	$0	$1,069
K-12 grade repetition	$0	$5	$0	$3	$8
K-12 special education	$0	$309	$0	$154	$462
Health care associated with disruptive behavior disorder	$158	$560	$578	$278	$1,575
Costs of higher education	($65)	($43)	($19)	($21)	($149)
Adjustment for deadweight cost of program	$0	$0	$0	($653)	($653)
Totals	$652	$1,119	$896	($222)	$2,445

[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.
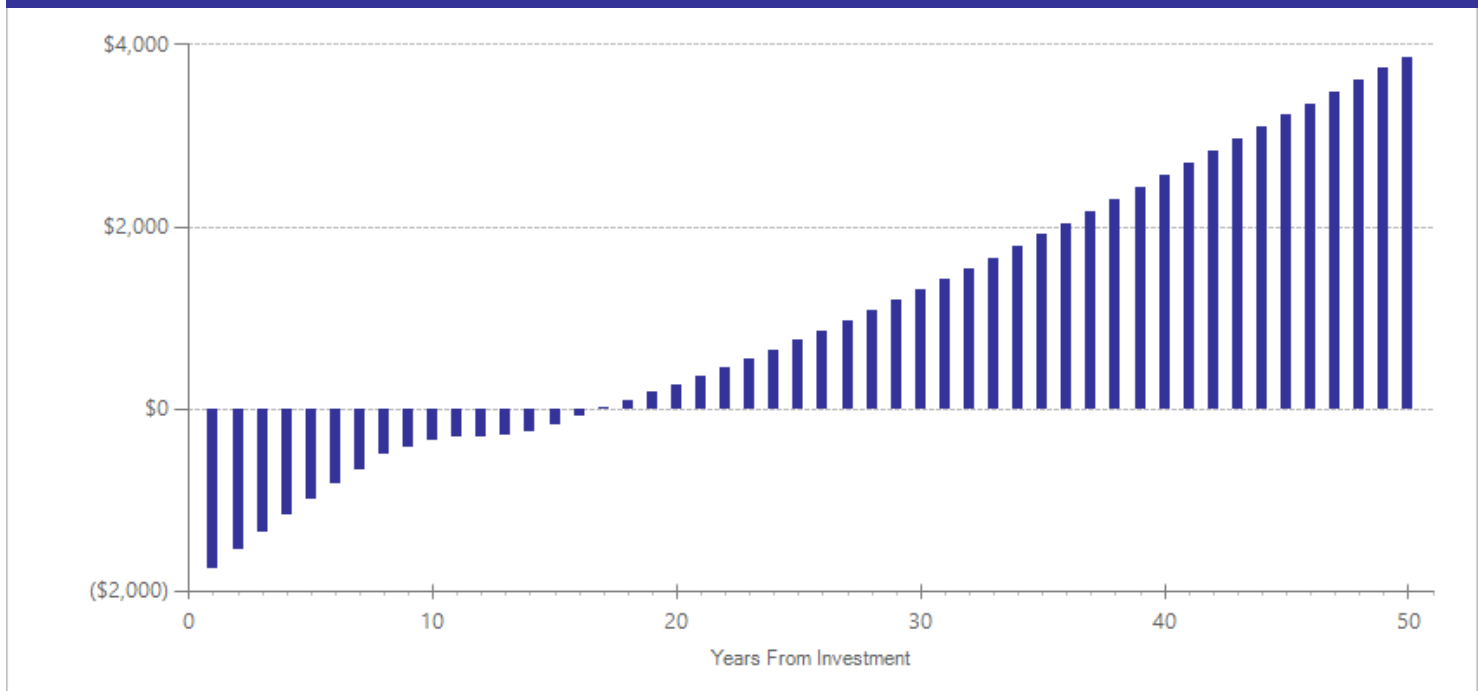
	Annual cost	Year dollars	Summary	
Program costs	$2,205	2015	Present value of net program costs (in 2017 dollars)	($1,308)
Comparison costs	$868	2010	Cost range (+ or -)	30 %

On average, participants received 22 therapist contact hours over one to six months, in either a group format or individual family therapy format. Per-participant costs are based on weighted average therapist time, as reported in the included studies. Hourly therapist cost is based on the actuarial estimates of reimbursement for treatment by modality (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). For comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child/adolescent disruptive behavior disorders.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Parent Management Training—Oregon Model (treatment population)

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
Disruptive behavior disorder symptoms	8	Primary	6	417	-0.183	0.075	8	-0.101	0.063	11	-0.199	0.007
Internalizing symptoms	8	Primary	5	374	-0.059	0.077	8	-0.059	0.077	10	-0.062	0.424
Major depressive disorder^^	8	Primary	1	37	-0.030	0.236	8	n/a	n/a	n/a	-0.057	0.808
Parental stress^	37	Secondary	1	91	-0.147	0.173	37	n/a	n/a	n/a	-0.147	0.393

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

^^WSIPP does not include this outcome when conducting benefit-cost analysis for this program.

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.

Citations Used in the Meta-Analysis

Bank, L., Marlowe, J.H., Reid, J.B., Patterson, G.R., & Weinrott, M.R. (1991). A comparative evaluation of parent-training interventions for families of chronic delinquents. *Journal of Abnormal Child Psychology, 19*(1), 15-33.

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Collaborative primary care for children with behavior disorders
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated August 2017.

Program Description: Collaborative primary care for behavior disorders integrates behavioral health into the primary care setting to treat children and adolescents with oppositional defiance disorder, attention deficit/hyperactivity disorder, or other behavior disorders. In the collaborative care model, a care manager coordinates with a primary care provider and behavioral health care providers to develop and implement measurement-based treatment plans for individual patients. Care managers also provide psychoeducation and brief psychotherapy-based modules, such as cognitive behavioral therapy. Studies in this meta-analysis report on Doctor-Office Collaborative Care (DOCC), a specific collaborative care model. In the included studies, patients received collaborative care for six months. Patients in the comparison group received "enhanced" treatment as usual, which consisted of brief psychoeducation and referrals to usual mental health services.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$401	Benefit to cost ratio	$3.50
Participants	$238	Benefits minus costs	$697
Others	$321	Chance the program will produce	
Indirect	$16	benefits greater than the costs	60 %
Total benefits	$976		
Net program cost	($279)		
Benefits minus cost	$697		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]		Benefits to:			
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$12	$29	$6	$48
Labor market earnings associated with high school graduation	$203	$92	$93	$0	$387
K-12 grade repetition	$0	$2	$0	$1	$3
K-12 special education	$0	$109	$0	$55	$164
Health care associated with disruptive behavior disorder	$56	$199	$206	$100	$561
Costs of higher education	($21)	($14)	($6)	($7)	($48)
Adjustment for deadweight cost of program	$0	$0	$0	($139)	($139)
Totals	$238	$401	$321	$16	$976

[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.
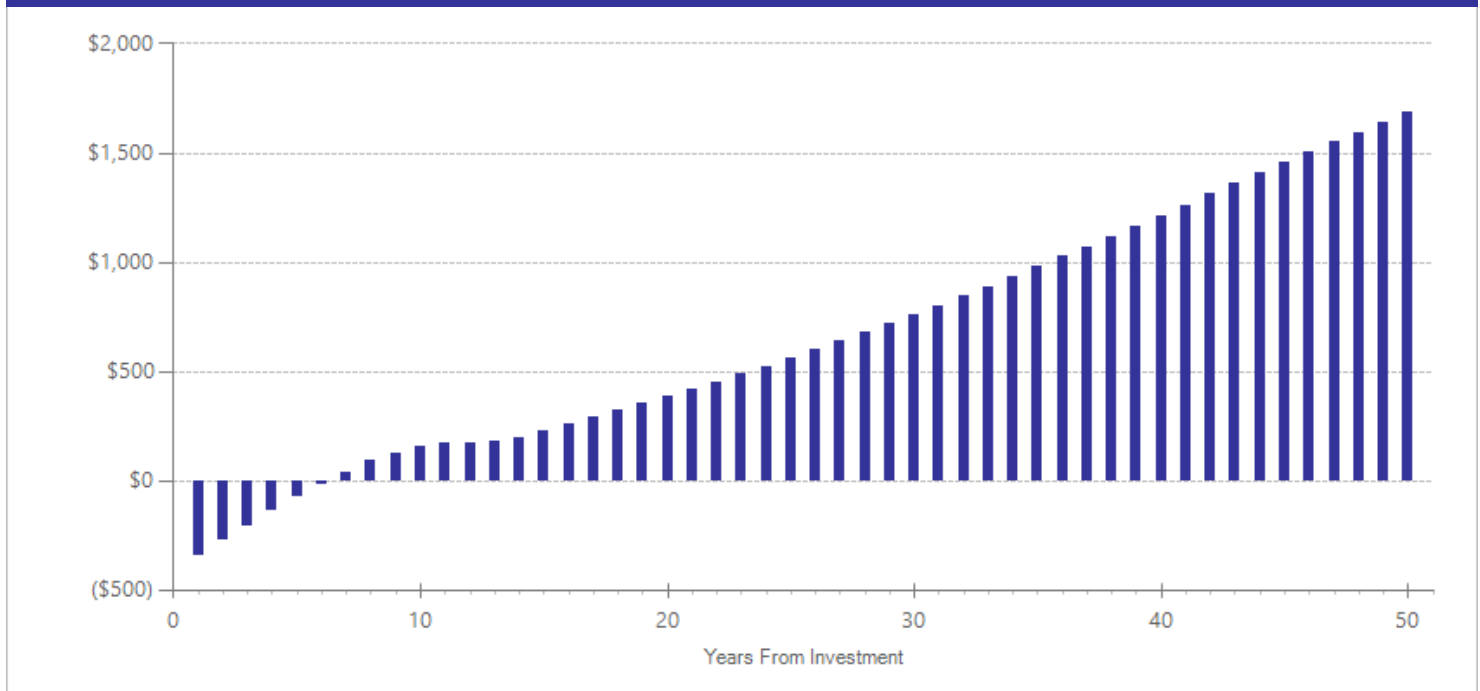
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$511	2010	Present value of net program costs (in 2017 dollars)	($279)
Comparison costs	$259	2010	Cost range (+ or -)	15 %

Per-participant cost estimates are based on the average cost per child enrolled in the treatment group and average cost per child enrolled in the comparison group, as reported in Yu et al. (2017). These estimates include the costs of training, outreach, equipment, and provider salaries.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Attention-deficit/hyperactivity disorder symptoms	8	2	201	-0.149	0.141	8	0.000	0.141	9	-0.309	0.075
Disruptive behavior disorder symptoms	8	2	201	-0.064	0.141	8	-0.035	0.086	11	-0.227	0.108

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.

Citations Used in the Meta-Analysis

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Helping the Noncompliant Child for children with disruptive behavior
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated June 2018.

Program Description: Helping the Noncompliant Child is a behavioral parent training program for families of children diagnosed with disruptive behavior problems. In this program, a therapist directly observes a parent and child through a one-way mirror and provides in vivo coaching to the parent through a radio earphone. The program is delivered in two phases. The first phase focuses on "differential attention," when parents are taught to describe the child's appropriate behavior to the child rather than giving commands and to give rewards through positive physical attention and verbal praise. In the second phase, parents learn the importance of clear, simple instructions and to provide positive rewards for compliance and negative consequences for noncompliance.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$301	Benefit to cost ratio	$1.24
Participants	$152	Benefits minus costs	$113
Others	$236	Chance the program will produce	
Indirect	($109)	benefits greater than the costs	51 %
Total benefits	$580		
Net program cost	($466)		
Benefits minus cost	$113		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]   Benefits to:

Benefits from changes to:[1]	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$7	$17	$4	$28
Labor market earnings associated with high school graduation	$117	$53	$54	$0	$224
K-12 grade repetition	$0	$1	$0	$1	$2
K-12 special education	$0	$83	$0	$41	$124
Health care associated with disruptive behavior disorder	$46	$164	$169	$83	$462
Costs of higher education	($12)	($8)	($3)	($4)	($26)
Adjustment for deadweight cost of program	$0	$0	$0	($233)	($233)
Totals	$152	$301	$236	($109)	$580

[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.
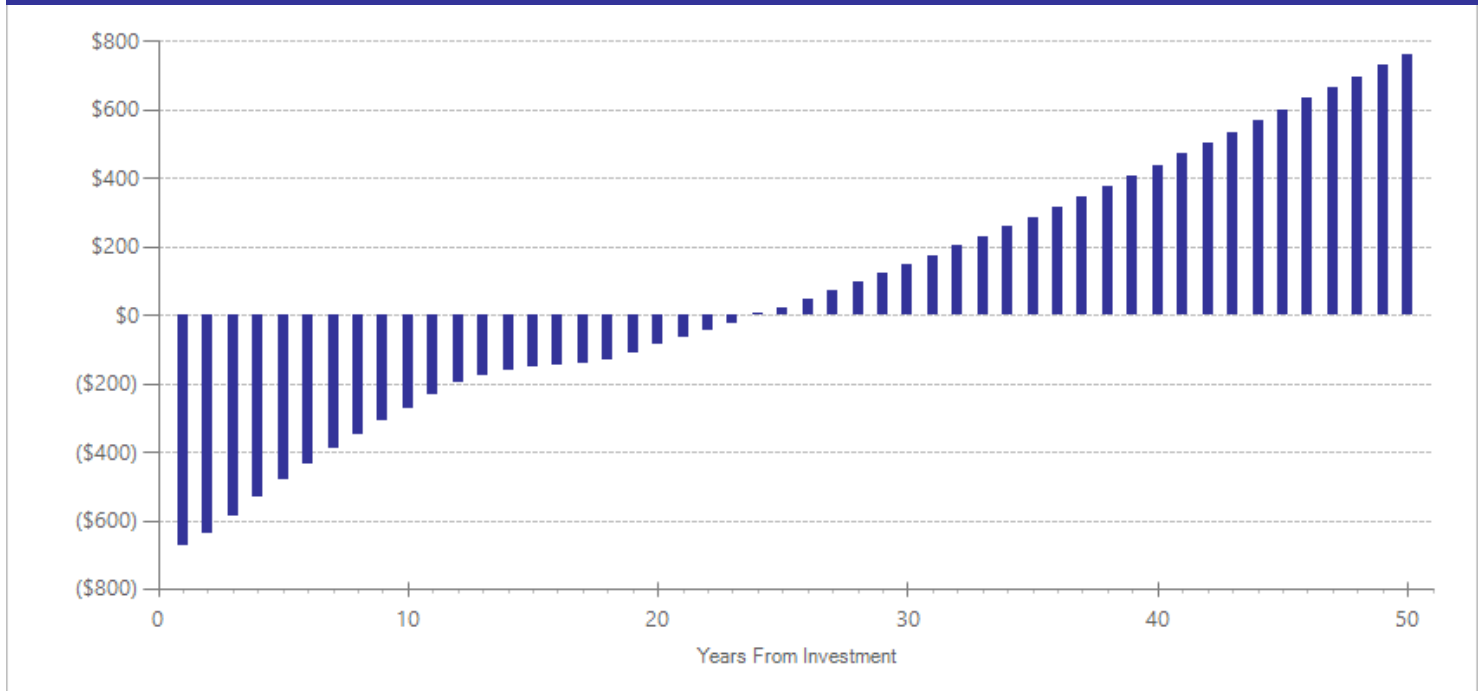
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$1,389	2015	Present value of net program costs (in 2017 dollars)	($466)
Comparison costs	$868	2010	Cost range (+ or -)	40 %

On average, participants received ten therapeutic hours over ten weeks. Per-participant costs are based on weighted average therapist time, as reported in the included studies. Hourly therapist cost is based on the actuarial estimates of reimbursement for family treatment (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). For comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child/adolescent disruptive behavior disorders.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Helping the Noncompliant Child for children with disruptive behavior

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
Attention-deficit/hyperactivity disorder symptoms	4	Primary	1	63	-0.176	0.268	4	0.000	0.141	5	-0.771	0.005
Disruptive behavior disorder symptoms	4	Primary	1	63	-0.068	0.268	4	-0.037	0.161	7	-0.298	0.269
Major depressive disorder^^	34	Secondary	1	9	-0.762	0.475	34	n/a	n/a	n/a	-0.762	0.109
Parental stress^	34	Secondary	1	63	-0.153	0.268	34	n/a	n/a	n/a	-0.669	0.014

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

^^WSIPP does not include this outcome when conducting benefit-cost analysis for this program.

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.

Citations Used in the Meta-Analysis

Abikoff, H.B., Thompson, M., Laver-Bradbury, C., Long, N., Forehand, R.L., Miller, B.L., . . . Sonuga-Barke, E. (2014). Parent training for preschool ADHD: a randomized controlled trial of specialized and generic programs. *Journal of Child Psychology and Psychiatry, 56*(6), 618-631.

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Parent-Child Interaction Therapy (PCIT) for children with disruptive behavior
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated June 2018.

Program Description: Parent-Child Interaction Therapy (PCIT) is a type of behavioral parent training that aims to build the skills of the parent to more positively interact with the child and manage the child's behavior. PCIT is a manualized, multi-session program that relies on "in vivo" coaching, in which therapists observe parents and children interacting through a one-way mirror and provide direct feedback to the parent through an earpiece. This analysis includes standard PCIT provided to families of children with disruptive behavior, as well as PCIT adapted for parents of atypically developing children with disruptive behavior. On average, families received 14 therapeutic hours over three months. Therapies were provided in individual, group, and remote modalities.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$807	Benefit to cost ratio	$0.57
Participants	$407	Benefits minus costs	($865)
Others	$638	Chance the program will produce	
Indirect	($685)	benefits greater than the costs	29 %
Total benefits	$1,167		
Net program cost	($2,032)		
Benefits minus cost	($865)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$20	$44	$10	$74
Labor market earnings associated with high school graduation	$314	$143	$144	$0	$601
K-12 grade repetition	$0	$3	$0	$1	$4
K-12 special education	$0	$218	$0	$109	$327
Health care associated with disruptive behavior disorder	$126	$446	$460	$224	$1,256
Costs of higher education	($34)	($22)	($10)	($11)	($77)
Adjustment for deadweight cost of program	$0	$0	$0	($1,019)	($1,019)
Totals	$407	$807	$638	($685)	$1,167

[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.
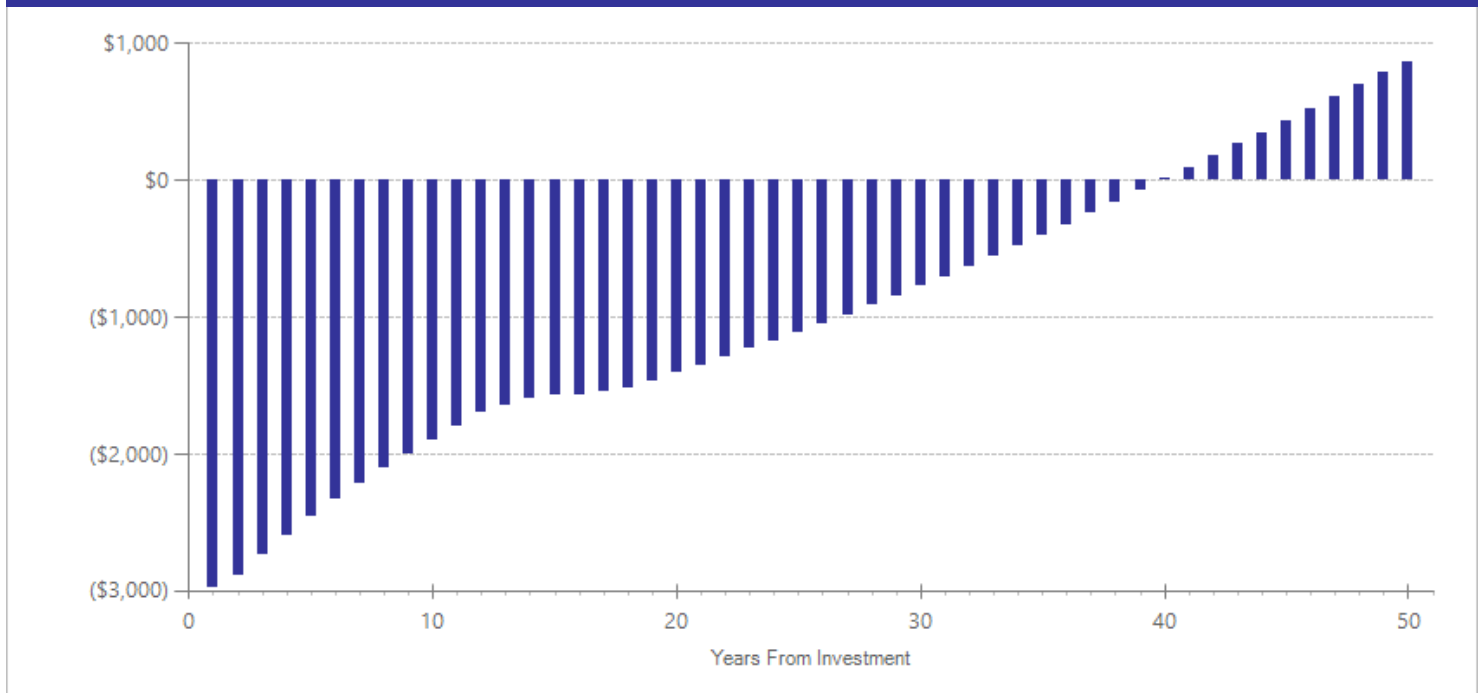
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$2,993	2017	Present value of net program costs (in 2017 dollars)	($2,032)
Comparison costs	$868	2010	Cost range (+ or -)	20 %

Parent-Child Interaction Therapy (PCIT) costs are the average per-family cost for families receiving PCIT in Washington in fiscal year 2018, provided by Tim Kelly (8/23/2018), Washington State Department of Children Youth and Families. For comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent disruptive behavior disorders.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

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
Attention-deficit/hyperactivity disorder symptoms	4	Primary	5	87	-0.123	0.175	4	0.000	0.141	5	-0.670	0.001
Disruptive behavior disorder symptoms	4	Primary	12	340	-0.166	0.093	4	-0.091	0.068	7	-0.792	0.001
Internalizing symptoms	4	Primary	4	183	-0.087	0.138	4	-0.087	0.138	6	-0.383	0.010
Major depressive disorder^	37	Secondary	2	27	-0.114	0.304	37	n/a	n/a	n/a	-0.426	0.320
Parental stress^	37	Secondary	8	308	-0.168	0.101	37	n/a	n/a	n/a	-0.470	0.001

^WSIPP's benefit-cost model does not monetize this outcome.
^^WSIPP does not include this outcome when conducting benefit-cost analysis for this program.

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.

Citations Used in the Meta-Analysis

Bagner, D. M., Sheinkopf, S. J., Vohr, B. R., & Lester, B. M. (2010). Parenting intervention for externalizing behavior problems in children born premature: An initial examination. *Journal of Developmental and Behavioral Pediatrics, 31*(3), 209-216.

Danko, C.M. (2014). *The effect of parent-child interaction therapy on strengthening the attachment relationship with foster parents and children in foster care.*

Leung, C., Tsang, S., Heung, K., & Yiu, I. (2009). Effectiveness of Parent-Child Interaction Therapy (PCIT) among Chinese families. *Research on Social Work Practice, 19*(3), 304-313.

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Webb, H.J., Thomas, R., McGregor, L., Avdagic, E., & Zimmer-Gembeck, M.J. (2017). An evaluation of Parent-Child Interaction Therapy with and without motivational enhancement to reduce attrition. *Journal of Clinical Child and Adolescent Psychology : the Official Journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53, 46*(4).

Parent-Child Interaction Therapy (PCIT) for children with disruptive behavior

Incredible Years Parent Training with Incredible Years Child Training
Children's Mental Health: Disruptive Behavior
Benefit-cost estimates updated December 2018. Literature review updated July 2018.

Program Description: Incredible Years Parent Training is a group, skills-based behavioral intervention for parents of children with disruptive behavior. The curriculum focuses on strengthening parenting skills (monitoring, positive discipline, confidence) and fostering parents' involvement in children's school experiences in order to promote children's academic, social, and emotional competencies and reduce conduct problems. In the studies included in this review, children also received Incredible Years Child Training concurrent to the parent training. The program consists of 12 to 16 weekly two-hour sessions provided by trained therapists separately to parents and children. Parent sessions include videotape modeling of parenting skills and focused discussion of the skills portrayed in the vignettes. Training classes include child care, a family meal, and transportation. Children are taught social, emotional, and academic skills, such as understanding and communicating feelings, using effective problem solving strategies, managing anger, practicing friendship, and conversational skills, as well as appropriate classroom behaviors.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$328	Benefit to cost ratio	($0.21)
Participants	$183	Benefits minus costs	($3,779)
Others	$257	Chance the program will produce	
Indirect	($1,431)	benefits greater than the costs	2 %
Total benefits	($662)		
Net program cost	($3,117)		
Benefits minus cost	($3,779)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]   Benefits to:

	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$9	$22	$5	$35
Labor market earnings associated with high school graduation	$152	$69	$70	$0	$291
K-12 grade repetition	$0	$1	$0	$1	$2
K-12 special education	$0	$95	$0	$47	$142
Health care associated with disruptive behavior disorder	$47	$165	$170	$81	$463
Costs of higher education	($16)	($10)	($5)	($5)	($36)
Adjustment for deadweight cost of program	$0	$0	$0	($1,559)	($1,559)
Totals	$183	$328	$257	($1,431)	($662)

[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.
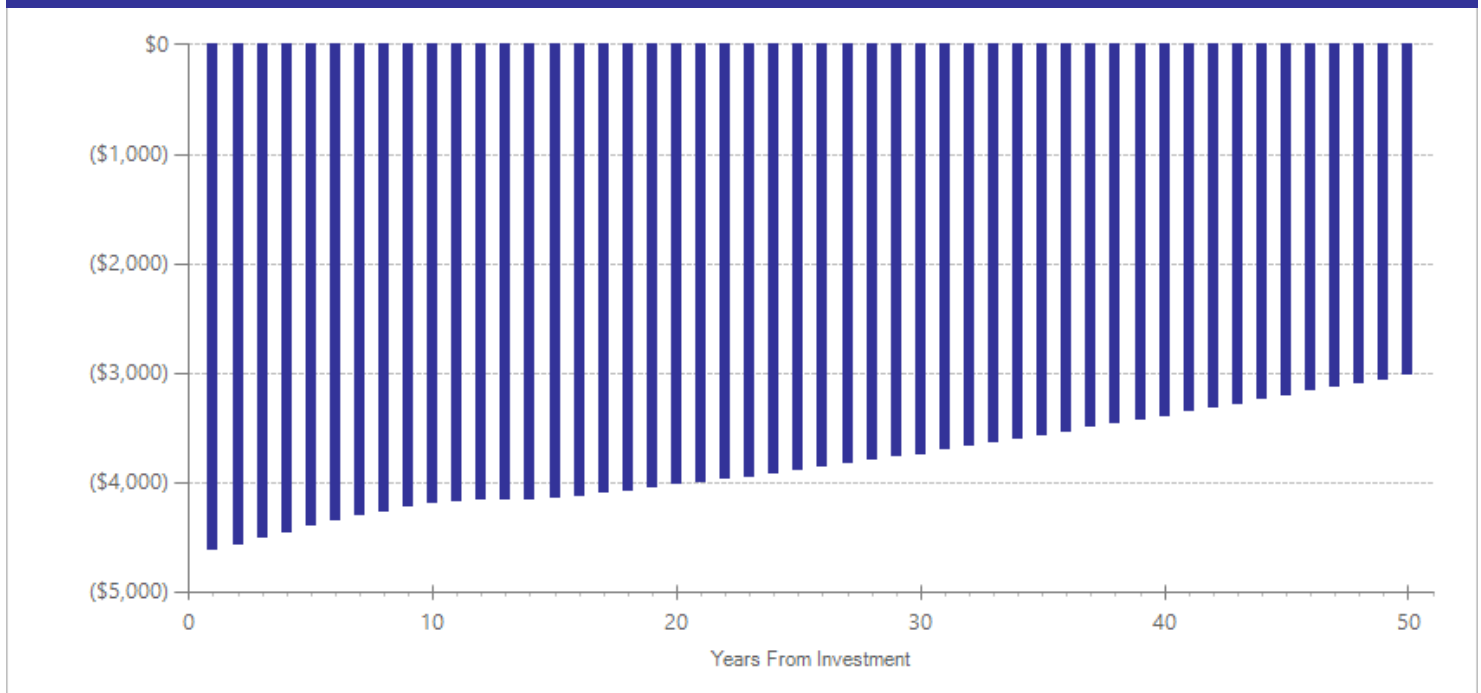
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$3,970	2015	Present value of net program costs (in 2017 dollars)	($3,117)
Comparison costs	$868	2010	Cost range (+ or -)	40 %

Incredible Years Parent Training with Incredible Years Child Training costs include both therapist time and additional program costs. Participants in the treatment studies received a weighted average of 32 hours of therapist time for parents, and 32 hours of therapist time for children. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). Additional program costs include training, materials, and implementation fees (e.g., childcare or transportation) as reported in Foster, Olchowski, & Webster-Stratton (2007). Is stacking intervention components cost-effective? An analysis of the Incredible Years program. Journal of the American Academy of Child and Adolescent Psychiatry, 46, 1414-1424. We apply these costs to the average duration of the programs as reported in the studies (16 two-hour sessions for adults and 16 two-hour sessions for children) and assume that treatment groups included six families. For comparison group costs we used 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent disruptive behavior disorders.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

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
Attention-deficit/hyperactivity disorder symptoms	7	Primary	1	48	-0.064	0.204	7	0.000	0.141	8	-0.517	0.019
Disruptive behavior disorder symptoms	7	Primary	4	259	-0.056	0.091	7	-0.031	0.056	10	-0.549	0.025
Internalizing symptoms	7	Primary	3	241	-0.067	0.096	7	-0.067	0.096	9	-0.197	0.098
Parental stress^	33	Secondary	2	69	-0.258	0.197	34	n/a	n/a	n/a	-0.780	0.001

^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.

Citations Used in the Meta-Analysis

Barrera, M., Biglan, A., Taylor, T.K., Gunn, B.K., Smolkowski, K., Black, C., . . . Fowler, R.C. (2002). Early elementary school intervention to reduce conduct problems: A randomized trial with Hispanic and non-Hispanic children. *Prevention Science, 3*(2), 83-94.

Larsson, B., Fossum, S., Clifford, G., Drugli, M.B., Handegard, B.H., & Morch, W.T. (2009). Treatment of oppositional defiant and conduct problems in young Norwegian children: Results of a randomized controlled trial. *European Child & Adolescent Psychiatry, 18*(1), 42-52.

Webster-Stratton, C., & Hammond, M. (1997). Treating children with early-onset conduct problems: A comparison of child and parent training interventions. *Journal of Consulting and Clinical Psychology, 65*(1), 93-100.

Webster-Stratton, C., Reid, M.J., & Beauchaine, T.P. (2011). Combining parent and child training for young children with ADHD. *Journal of Clinical Child and Adolescent Psychology, 40*(2), 191-203.

Child-Parent Psychotherapy
Children's Mental Health: Trauma
Benefit-cost estimates updated December 2018. Literature review updated June 2018.

Program Description: Child-Parent Psychotherapy is an intervention for parents and young children that aims to strengthen the relationship between parent and child, thereby increasing the child's sense of safety and security. In one of the two studies in the review, children had witnessed domestic violence. In the other, mothers had diagnoses of depression. The intervention consists of weekly psychotherapy sessions where both child and parent are present. The program is designed to consist of 50 weekly sessions. Among studies included in this analysis, participants received an average of 39 therapeutic hours over a period of 12 months.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$23,252	Benefit to cost ratio	$15.59
Participants	$34,165	Benefits minus costs	$64,396
Others	$9,160	Chance the program will produce	
Indirect	$2,233	benefits greater than the costs	95 %
Total benefits	$68,810		
Net program cost	($4,414)		
Benefits minus cost	$64,396		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
K-12 grade repetition	$0	$0	$0	$0	$0
Labor market earnings associated with PTSD	$9,774	$4,438	$0	$0	$14,212
Health care associated with PTSD	$1,072	$3,793	$3,914	$1,880	$10,660
Mortality associated with depression	$0	$0	$0	$0	($1)
Subtotals	$10,846	$8,231	$3,914	$1,880	$24,872
From secondary participant					
Labor market earnings associated with PTSD	$21,879	$9,936	$0	$0	$31,815
Health care associated with PTSD	$1,437	$5,083	$5,245	$2,519	$14,284
Mortality associated with depression	$3	$1	$0	$35	$40
Subtotals	$23,319	$15,020	$5,245	$2,554	$46,138
Adjustment for deadweight cost of program	$0	$0	$0	($2,200)	($2,200)
Totals	$34,165	$23,252	$9,160	$2,233	$68,810

[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.
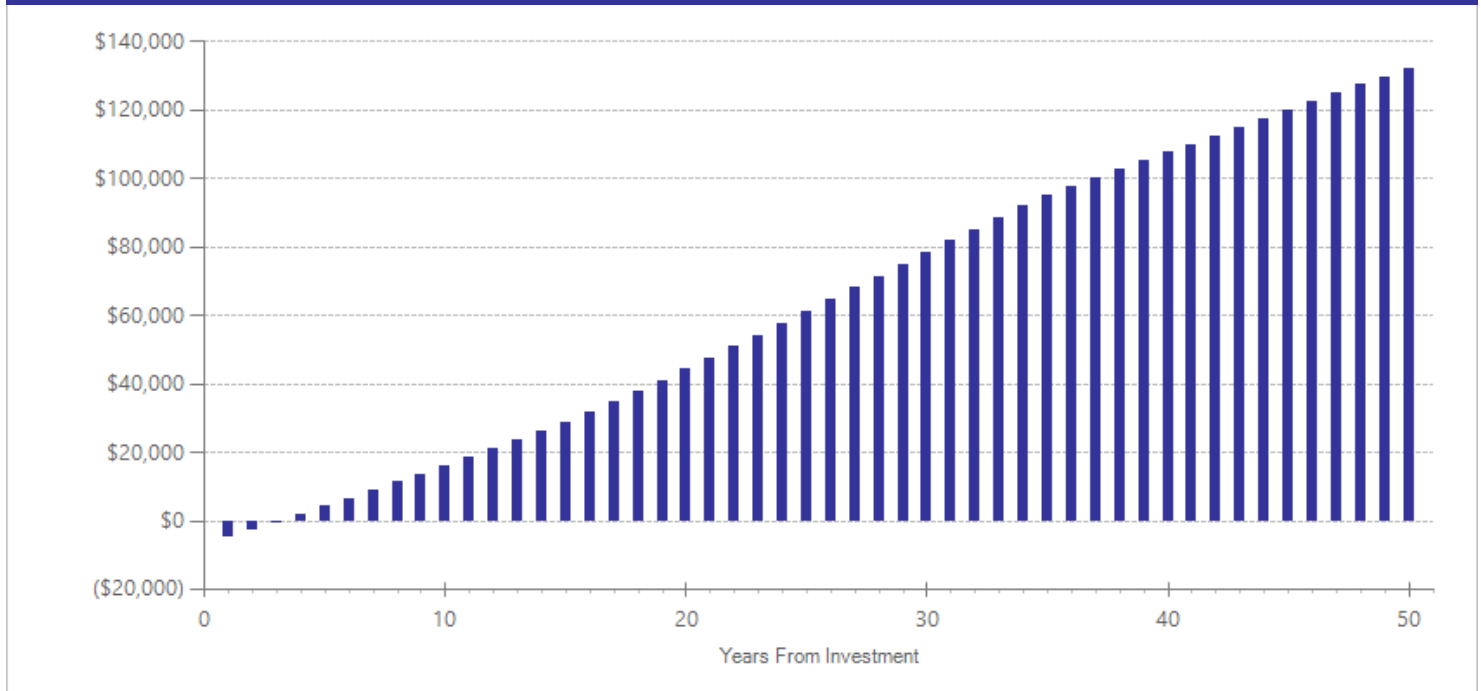
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$5,406	2015	Present value of net program costs (in 2017 dollars)	($4,414)
Comparison costs	$1,035	2010	Cost range (+ or -)	20 %

On average, participants received 39 therapeutic hours. Per-participant cost estimates are based on weighted average therapist time, as reported in the included studies. Hourly therapist cost is based on the actuarial estimates of reimbursement for family treatment (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). For comparison group costs, we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of post-traumatic stress disorder (PTSD) or trauma in children and adolescents.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

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
Major depressive disorder	3	Primary	1	42	-0.385	0.238	3	0.000	0.310	5	-0.385	0.106
Post-traumatic stress	3	Primary	1	42	-0.629	0.239	3	-0.629	0.239	4	-0.629	0.008
Preschool test scores^	3	Primary	1	43	0.242	0.205	3	n/a	n/a	n/a	0.484	0.020
Major depressive disorder	31	Secondary	1	42	-0.433	0.236	31	-0.225	0.289	33	-0.433	0.066
Post-traumatic stress	31	Secondary	1	42	-0.440	0.237	31	-0.440	0.237	32	-0.440	0.063

^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.

Citations Used in the Meta-Analysis

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Child-Parent Psychotherapy

Cognitive behavioral therapy (CBT)-based models for child trauma
Children's Mental Health: Trauma
Benefit-cost estimates updated December 2018. Literature review updated August 2017.

Program Description: Cognitive behavioral therapy (CBT) for trauma includes psycho-education about post-traumatic stress disorder (PTSD), relaxation and other 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. In programs in this analysis, 5 to 27 therapeutic hours per client were provided in individual or group settings, with duration of treatment ranging from one to five months. This review includes studies of trauma-focused CBT, cognitive behavioral intervention for trauma in schools (CBITS), narrative exposure therapy for traumatized children (Kid-NET), enhancing resiliency among students experiencing stress (ERASE), trauma and grief component therapy, and Teaching Recovery Techniques (TRT).

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$8,772	Benefit to cost ratio	n/a
Participants	$12,158	Benefits minus costs	$26,734
Others	$3,782	Chance the program will produce	
Indirect	$1,911	benefits greater than the costs	99 %
Total benefits	$26,622		
Net program cost	$112		
Benefits minus cost	$26,734		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$29	$75	$14	$118
K-12 grade repetition	$0	$6	$0	$3	$9
K-12 special education	$0	$86	$0	$43	$128
Labor market earnings associated with PTSD	$11,142	$5,060	$0	$0	$16,203
Health care associated with PTSD	$1,015	$3,592	$3,707	$1,795	$10,110
Mortality associated with depression	$0	$0	$0	$0	$0
Adjustment for deadweight cost of program	$0	$0	$0	$56	$56
Totals	$12,158	$8,772	$3,782	$1,911	$26,622

[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.
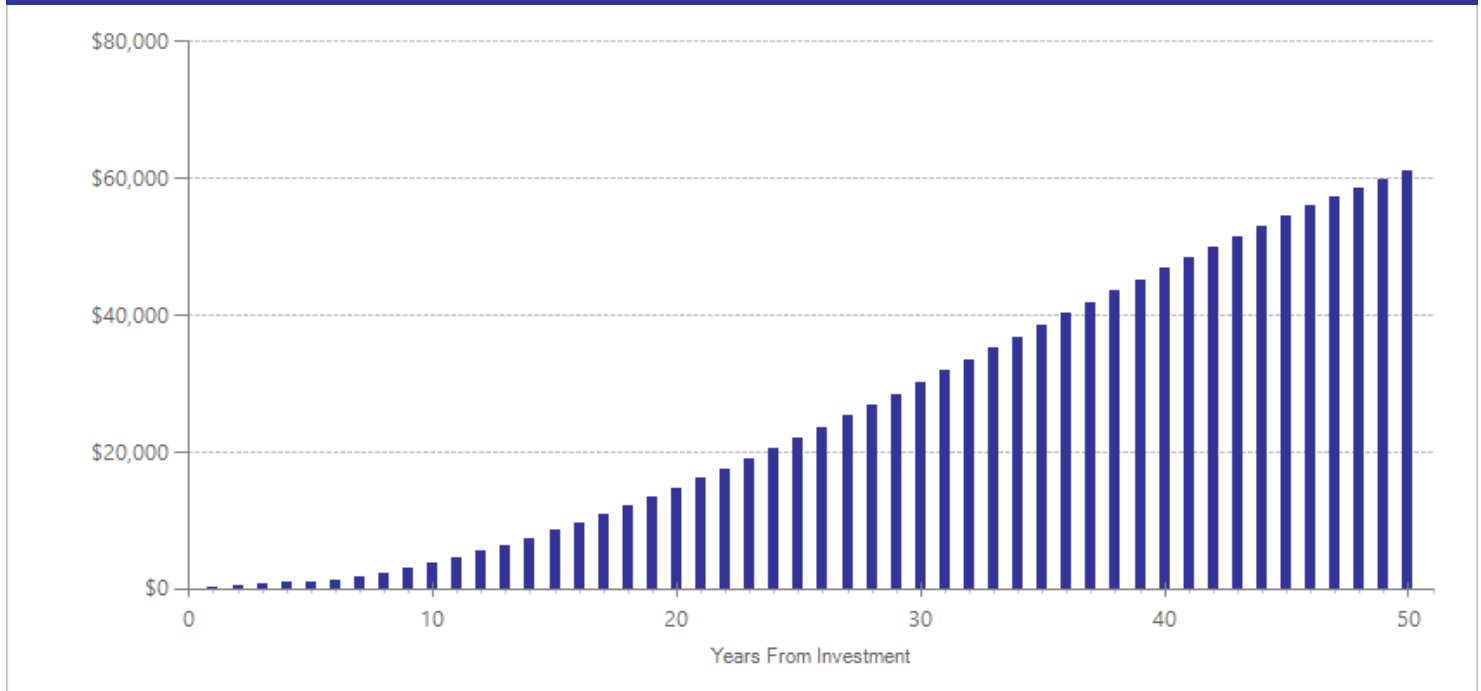
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$1,037	2016	Present value of net program costs (in 2017 dollars)	$112
Comparison costs	$1,035	2009	Cost range (+ or -)	30 %

Per-participant costs are based on weighted average therapist time, as reported in the included studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer, 2015, Behavioral Health Data Book for the State of Washington for Rates Effective January 1, 2016). For comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent post-traumatic stress disorder.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Cognitive behavioral therapy (CBT)-based models for child trauma

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Anxiety disorder	12	18	999	-0.166	0.047	12	-0.066	0.051	13	-0.307	0.001
Disruptive behavior disorder symptoms	12	3	102	-0.324	0.150	12	-0.178	0.119	15	-0.759	0.016
Externalizing behavior symptoms	12	10	528	-0.008	0.077	12	-0.004	0.046	15	0.064	0.636
Global functioning^	12	4	165	0.239	0.141	12	n/a	n/a	n/a	0.490	0.038
Internalizing symptoms	12	9	296	-0.181	0.085	12	-0.181	0.085	14	-0.261	0.026
Major depressive disorder	12	25	1483	-0.308	0.054	12	0.000	0.310	14	-0.581	0.001
Post-traumatic stress	12	35	2187	-0.449	0.064	12	-0.449	0.064	13	-0.733	0.001
Suicidal ideation^	12	1	26	-0.147	0.283	19	n/a	n/a	n/a	-0.294	0.301

^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.

Citations Used in the Meta-Analysis

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Cognitive behavioral therapy (CBT)-based models for child trauma

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Kids Club & Moms Empowerment
Children's Mental Health: Trauma
Benefit-cost estimates updated December 2018. Literature review updated July 2018.

Program Description: Kids Club & Moms Empowerment are concurrent interventions for children and their mothers who have experienced intimate partner violence. Kids Club is a ten-week manualized group intervention for children, which aims to improve the child's sense of safety, foster emotional adjustment, and encourage appropriate social behavior. Moms Empowerment is a ten-week manualized parenting program and support group which meets at the same time as the Kids Club intervention. This intervention aims to improve parenting and enhance mothers' social and emotional adjustment. The program is designed to consist of ten weekly sessions. In the study in this analysis, children participating in Kids Club received about seven therapeutic hours over ten weeks, and their mothers in Moms Empowerment also received about seven therapeutic hours over ten weeks.

Benefit-Cost Summary Statistics Per Participant			
Benefits to:			
Taxpayers	$6,254	Benefit to cost ratio	$28.44
Participants	$9,658	Benefits minus costs	$18,227
Others	$2,231	Chance the program will produce	
Indirect	$747	benefits greater than the costs	81 %
Total benefits	$18,891		
Net program cost	($664)		
Benefits minus cost	$18,227		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$4	$8	$2	$14
Labor market earnings associated with high school graduation	$72	$33	$33	$0	$138
K-12 grade repetition	$0	$3	$0	$1	$4
K-12 special education	$0	$11	$0	$6	$17
Health care associated with internalizing symptoms	$23	$81	$83	$41	$228
Costs of higher education	($8)	($5)	($2)	($3)	($17)
Subtotals	$87	$126	$122	$47	$383
From secondary participant					
Labor market earnings associated with PTSD	$8,993	$4,084	$0	$0	$13,077
Health care associated with PTSD	$578	$2,044	$2,109	$1,032	$5,763
Subtotals	$9,571	$6,128	$2,109	$1,032	$18,840
Adjustment for deadweight cost of program	$0	$0	$0	($332)	($332)
Totals	$9,658	$6,254	$2,231	$747	$18,891

[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.
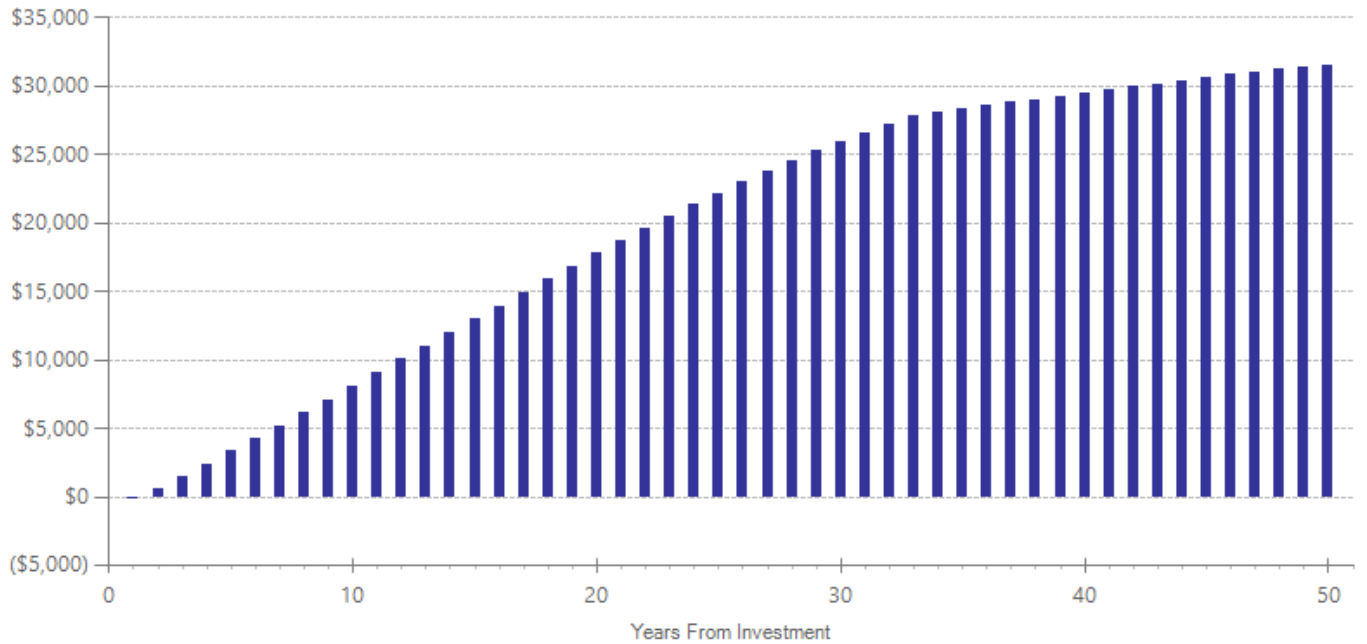
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$1,761	2015	Present value of net program costs (in 2017 dollars)	($664)
Comparison costs	$1,035	2010	Cost range (+ or -)	10 %

Per-participant costs are based on average therapist time, as reported in the included study. Kids Club and Moms Empowerment support groups are both run by two therapists, so a group of four therapists total provides this treatment. These therapists provide ten therapeutic hours to children participating in Kids Club and to their mothers in Moms Empowerment. Hourly therapist cost is based on the actuarial estimates of reimbursement for family treatment (Mercer. (2016). Behavioral health data book for the state of Washington for rates effective January 1, 2017). For comparison group costs we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child/adolescent post-traumatic stress disorder.

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.

Kids Club & Moms Empowerment

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

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
Externalizing behavior symptoms	8	Primary	1	61	-0.009	0.201	8	-0.005	0.120	11	-0.019	0.921
Internalizing symptoms	8	Primary	1	61	-0.163	0.191	8	-0.163	0.191	10	-0.327	0.088
Post-traumatic stress	33	Secondary	1	61	-0.190	0.196	33	-0.190	0.196	34	-0.380	0.054

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.

Kids Club & Moms Empowerment

Citations Used in the Meta-Analysis

Graham-Bermann, S.A., Lynch, S., Banyard, V., DeVoe, E.R., & Halabu, H. (2007). Community-based intervention for children exposed to intimate partner violence: an efficacy trial. *Journal of Consulting and Clinical Psychology, 75*(2), 199-209.

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Eye Movement Desensitization and Reprocessing (EMDR) for child trauma
Children's Mental Health: Trauma
Benefit-cost estimates updated December 2018. Literature review updated June 2018.

Program Description: Eye movement desensitization and reprocessing (EMDR) aims to alleviate distress associated with traumatic memories. During therapy, a client is asked to recall a traumatic memory while the therapist uses their hand to guide eye movement. Programs in this analysis served children who had a diagnosis of post-traumatic stress disorder (PTSD) or had experienced a traumatic event. Treatment occurred in an outpatient setting, and consisted of individual weekly sessions for four to eight weeks. On average, children received four therapeutic hours over six weeks.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$2,526	Benefit to cost ratio	n/a
Participants	$3,475	Benefits minus costs	$8,584
Others	$1,123	Chance the program will produce	
Indirect	$847	benefits greater than the costs	82 %
Total benefits	$7,970		
Net program cost	$613		
Benefits minus cost	$8,584		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Labor market earnings associated with PTSD	$3,168	$1,438	$0	$0	$4,606
Health care associated with PTSD	$308	$1,088	$1,123	$540	$3,058
Adjustment for deadweight cost of program	$0	$0	$0	$307	$307
Totals	$3,475	$2,526	$1,123	$847	$7,970

[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.
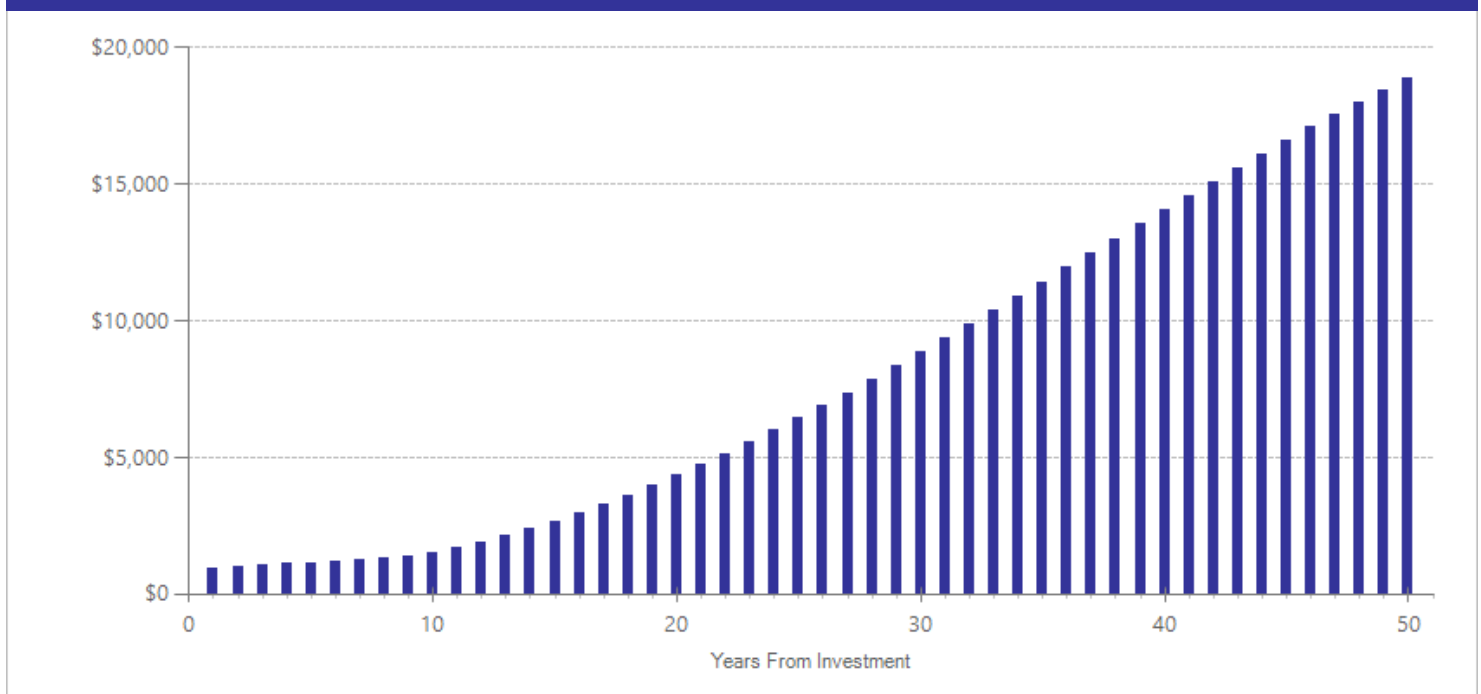
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$520	2015	Present value of net program costs (in 2017 dollars)	$613
Comparison costs	$1,035	2010	Cost range (+ or -)	20 %

In studies included in this analysis, participants received an average of four hours of therapist time. Per-participant cost estimates are based on weighted average therapist time, as reported in the treatment studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington). For comparison group costs, we use 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of post-traumatic stress disorder (PTSD) or trauma in children and adolescents.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Anxiety disorder^^	9	2	29	0.103	0.271	9	n/a	n/a	n/a	0.206	0.449
Major depressive disorder^^	9	2	29	0.016	0.271	9	n/a	n/a	n/a	0.033	0.904
Post-traumatic stress	9	3	46	-0.179	0.221	9	-0.179	0.221	10	-0.371	0.273

^^WSIPP does not include this outcome when conducting benefit-cost analysis for this program.

Eye Movement Desensitization and Reprocessing (EMDR) for child trauma

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.

Citations Used in the Meta-Analysis

Ahmad, A., Larsson, B., & Sundelin-Wahlsten, V. (2007). EMDR treatment for children with PTSD: results of a randomized controlled trial. *Nordic Journal of Psychiatry, 6*(5), 349-54.

Chemtob, C.M., Nakashima, J., & Carlson, J G. (2002). Brief treatment for elementary school children with disaster-related posttraumatic stress disorder: A field study. *Journal of Clinical Psychology, 58*(1), 99-112.

Kemp, M., Drummond, P., & McDermott, B. (2010). A wait-list controlled pilot study of eye movement desensitization and reprocessing (EMDR) for children with post-traumatic stress disorder (PTSD) symptoms from motor vehicle accidents. *Clinical Child Psychology and Psychiatry, 15*(1), 5-25.

Modular Approach to Therapy for Children with Anxiety, Depression, Trauma, or Conduct Problems (MATCH-ADTC)
Children's Mental Health: Other
Benefit-cost estimates updated December 2018. Literature review updated July 2018.

Program Description: Modular treatment (MATCH) consists of a collection of 33 modules from three standard treatment types for child anxiety (Coping Cat), depression (Primary and Secondary Control Enhancement Training), and disruptive behavior (Behavioral Parent Training/Defiant Child). Modular treatment uses a "guiding algorithm" that allows the therapies to vary based on treatment response. For example, the MATCH therapist could jump ahead in the treatment protocol, could omit modules, or could use procedures from multiple programs. MATCH is typically delivered in an individual modality but may include one or more family members for some modules. This analysis includes MATCH provided to children with depression, anxiety, conduct disorders, or trauma.

On average, children in MATCH received 19 therapeutic hours over seven months. Children in the comparison group received standard therapy, which may consist of models such as Coping Cat, Primary and Secondary Control Enhancement Training, or Behavioral Parent Training/Defiant Child but did not include a guiding algorithm or flexible modules of these treatments. Comparison group children received an average of 24 therapeutic hours over a period of eight months.

Benefit-Cost Summary Statistics Per Participant			
Benefits to:			
Taxpayers	$1,351	Benefit to cost ratio	n/a
Participants	$710	Benefits minus costs	$4,917
Others	$1,176	Chance the program will produce	
Indirect	$1,097	benefits greater than the costs	98 %
Total benefits	$4,335		
Net program cost	$582		
Benefits minus cost	$4,917		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$85	$206	$42	$333
Labor market earnings associated with high school graduation	$574	$261	$263	$263	$1,361
K-12 grade repetition	$0	$20	$0	$10	$30
K-12 special education	$0	$324	$0	$162	$485
Health care associated with internalizing symptoms	$199	$703	$726	$350	$1,978
Costs of higher education	($62)	($41)	($19)	($21)	($142)
Adjustment for deadweight cost of program	$0	$0	$0	$290	$290
Totals	$710	$1,351	$1,176	$1,097	$4,335

[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.
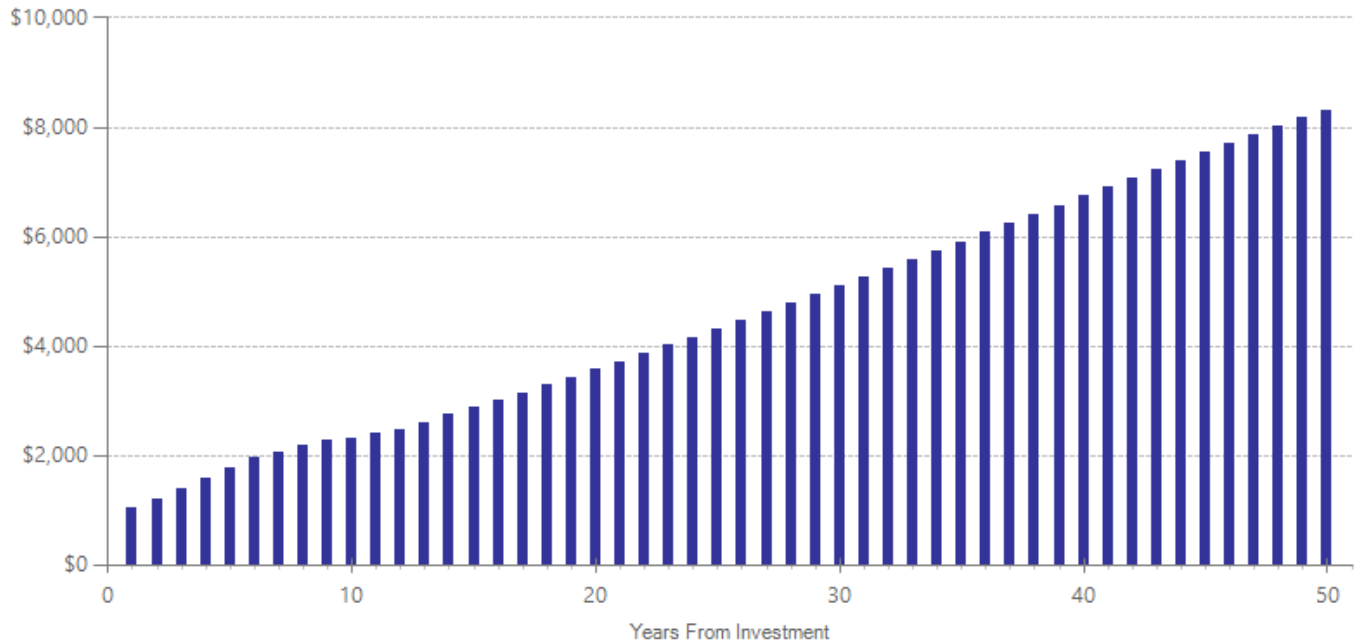
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$2,709	2015	Present value of net program costs (in 2017 dollars)	$582
Comparison costs	$3,276	2015	Cost range (+ or -)	20 %

On average, children in MATCH received 19 therapeutic hours over seven months. Comparison group children received an average of 24 therapeutic hours over a period of eight months. Per-participant costs for both groups are based on weighted average therapist time, as reported in the included studies. Hourly therapist cost is based on the actuarial estimates of reimbursement for family treatment (Mercer. (2016). Mental health and substance use disorder services data book for the state of Washington).

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Externalizing behavior symptoms	10	2	140	-0.280	0.128	10	-0.154	0.102	13	-0.537	0.001
Internalizing symptoms	10	2	140	-0.260	0.128	10	-0.260	0.128	12	-0.501	0.001

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.

Citations Used in the Meta-Analysis

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Dialectical Behavior Therapy (DBT) for adolescent self-harming behavior
Children's Mental Health: Other
Benefit-cost estimates updated December 2018. Literature review updated August 2017.

Program Description: Dialectical Behavior Therapy (DBT) is a cognitive behavioral treatment originally developed for chronically parasuicidal adults. DBT involves both group skills training and individual psychotherapy and focuses on mindfulness, interpersonal, emotion-regulating, and self-management skills. In studies included in this meta-analysis, DBT was modified to treat adolescents by shortening the treatment length, streamlining and simplifying some lessons, and including parents in some sessions. Studies in this analysis include adolescents in both inpatient and outpatient treatment settings presenting with suicidal ideation, non-suicidal self-harm, and/or prior suicide attempts. Treatment duration ranges from 2-19 weeks, with multiple sessions per week.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$590	Benefit to cost ratio	$7.10
Participants	($16)	Benefits minus costs	$937
Others	$130	Chance the program will produce	
Indirect	$388	benefits greater than the costs	50 %
Total benefits	$1,091		
Net program cost	($154)		
Benefits minus cost	$937		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2017). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]   Benefits to:

	Participants	Taxpayers	Others[2]	Indirect[3]	Total
K-12 grade repetition	$0	$24	$0	$12	$36
Labor market earnings associated with major depression	($43)	($19)	$0	$0	($62)
Health care associated with psychiatric hospitalization	$8	$577	$130	$322	$1,036
Mortality associated with depression	$19	$8	$0	$131	$158
Adjustment for deadweight cost of program	$0	$0	$0	($77)	($77)
Totals	($16)	$590	$130	$388	$1,091

[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.
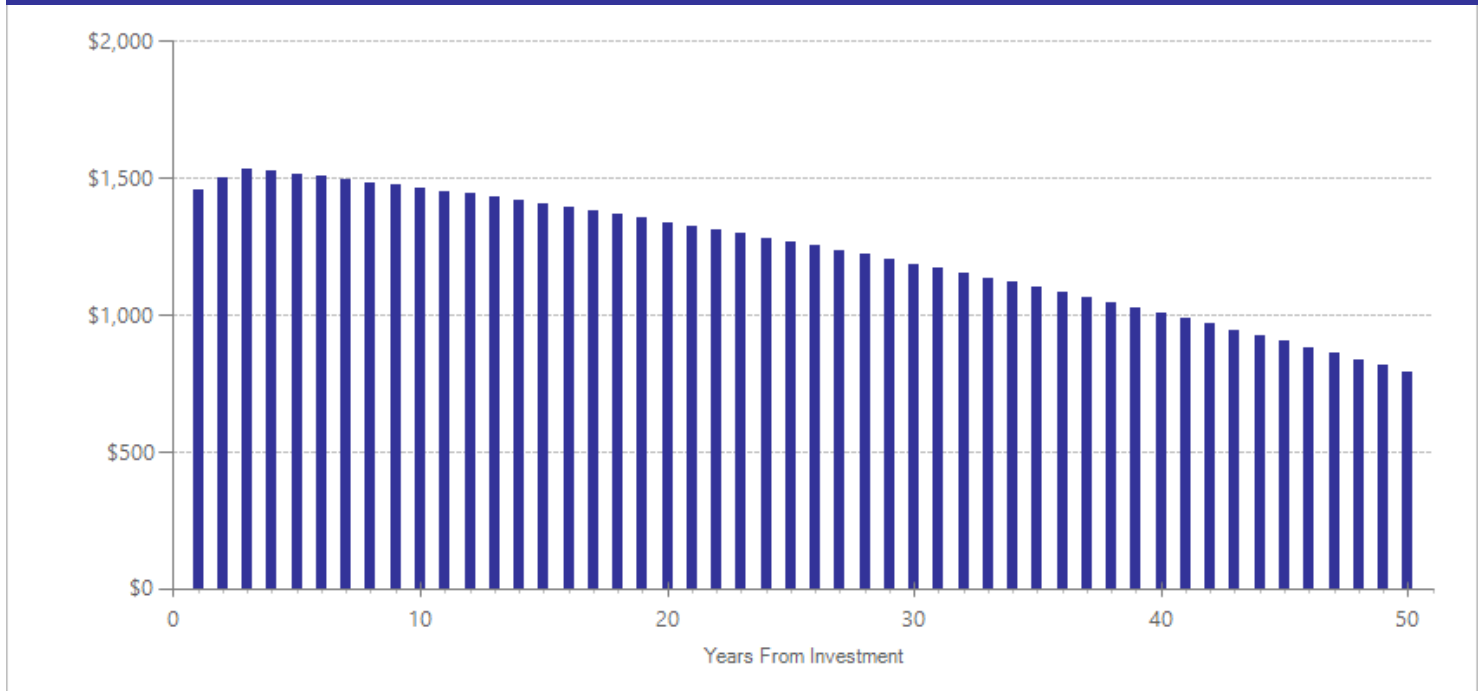
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$2,792	2016	Present value of net program costs (in 2017 dollars)	($154)
Comparison costs	$2,641	2016	Cost range (+ or -)	25 %

Per-participant costs are based on a weighted average for therapist time of 15.97 hours in individual sessions and 18.17 hours of group sessions, as reported in the treatment studies, multiplied by the hourly therapist cost is based on the 2016 actuarial estimates of reimbursement for individual therapy (Mercer, 2015, Behavioral Health Data Book for the State of Washington for Rates Effective January 1, 2016). Comparison costs are calculated in the same way from study reports of control group treatments.

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.

Detailed Annual Cost Estimates Per Participant

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 non-discounted dollars to simplify the "break-even" point from a budgeting perspective. 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.

Dialectical Behavior Therapy (DBT) for adolescent self-harming behavior

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	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
Hope^	16	2	71	0.493	0.181	16	n/a	n/a	n/a	0.493	0.006
Hospitalization (psychiatric)	16	2	55	-0.606	0.231	16	0.000	0.118	17	-0.606	0.009
Major depressive disorder	16	2	71	-0.445	0.180	16	0.000	0.310	18	-0.445	0.014
Self-harming behavior^	16	1	39	-0.531	0.253	16	n/a	n/a	n/a	-0.531	0.036
Suicidal ideation^	16	2	71	-0.434	0.321	16	n/a	n/a	n/a	-0.434	0.176
Suicide attempts^	16	2	55	-0.116	0.258	16	n/a	n/a	n/a	-0.116	0.652

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

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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.

Citations Used in the Meta-Analysis

Katz, L.Y., Cox, B.J., Gunasekara, S., & Miller, A.L. (2004). Feasibility of dialectical behavior therapy for suicidal adolescent inpatients. *Journal of the American Academy of Child and Adolescent Psychiatry, 43*(3), 276-282.

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Dialectical Behavior Therapy (DBT) for adolescent self-harming behavior

Addition of CBT to antidepressants (compared to antidepressants alone) for adolescent depression

Children's Mental Health: Depression

Literature review updated June 2018.

Program Description: Cognitive behavioral therapy (CBT) for depression includes such elements as cognitive restructuring, scheduling pleasant experiences, emotion regulation, communication skills, and problem-solving. Studies included in this review evaluated the effect of adding CBT to treatment with antidepressants compared to treatment with antidepressants only. Some studies included programming for parents, but children were the focus of interventions. One study occurred in a group modality; all others were individual treatments. Most programs included a shorter acute phase lasting three to four months followed by a longer, less intensive phase; this review analyzes post-acute phase outcomes where possible. On average, participants attended three sessions per month. Participants met clinical criteria for moderate to severe major depressive disorder, dysthymic disorder, or unspecified depressive disorder. Comparison groups received medication management services without CBT.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Anxiety disorder	1	25	0.082	0.288	15	0.082	0.776
Disruptive behavior disorder symptoms	1	107	-0.089	0.136	15	-0.089	0.511
Externalizing behavior symptoms	2	102	-0.172	0.234	15	-0.172	0.462
Global functioning	3	344	0.078	0.091	15	0.078	0.388
Internalizing symptoms	2	102	-0.113	0.142	15	-0.113	0.424
Major depressive disorder	6	486	-0.037	0.078	15	-0.033	0.682
Suicidal ideation	4	399	-0.112	0.144	15	-0.112	0.436
Suicide attempts	2	267	0.056	0.143	15	0.056	0.695

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.

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Citations Used in the Meta-Analysis

Brent, D.A., Emslie, G., Clarke, G., Wagner, K.D., Asarnow, J.R., Keller, M., et al. (2008). Switching to another SSRI or to venlafaxine with or without cognitive behavioral therapy for adolescents with SSRI-resistant depression: The TORDIA randomized controlled trial. *JAMA, 299*(8), 901-913.

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Addition of CBT to antidepressants (compared to antidepressants alone) for adolescent depression

Choice Theory/Reality Therapy for children with disruptive behavior
Children's Mental Health: Disruptive Behavior
Literature review updated July 2018.

Program Description: Choice Theory/Reality Therapy (CT/RT) is a program for parents of elementary students with repeated disciplinary referrals, typically three or more referrals during one school year. These referrals were due to a child's defiance and/or physical or verbal abuse towards others. The program is delivered by a trained therapist in nine 90-minute weekly parent training group lessons. CT/RT provides both instructional handouts and homework for the parents. The program focuses on responding to the child's needs, teaching self-control by example, and parenting in an authoritative way (rather than an authoritarian or a permissive way). Authoritative parenting sets limits in keeping with the child's development and creates a supportive environment in the home.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Disruptive behavior disorder symptoms	1	15	-0.110	0.372	9	-0.479	0.212
Internalizing symptoms	1	15	-0.101	0.372	9	-0.441	0.248
Office discipline referrals	1	15	-0.215	0.373	9	-0.938	0.017

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.

Citations Used in the Meta-Analysis

Petra, J.R. (2000). *The effects of a choice theory and reality therapy parenting program on children's behavior*. (Doctoral Dissertation). The Union Institute Graduate College.

Multisystemic Therapy (MST) for youth with serious emotional disturbance (SED)
Children's Mental Health: Serious Emotional Disturbance
Literature review updated July 2018.

Program Description: Multisystemic Therapy (MST) is an intensive family- and community-based treatment, which combines aspects of cognitive, behavioral, and family therapies. The purpose of MST is to reduce juvenile delinquency and youth substance use and empower parents to manage future difficult behavior. Children with serious emotional disturbance are most often referred to MST by child welfare agencies, juvenile courts, and schools. MST therapists provide individualized treatment in a child's home, school, or community for an average of five months. These therapist-led sessions aim to modify the youth's environment to support lasting behavioral changes through goal-setting, weekly treatment tasks, and progress monitoring. MST is often conducted with court-involved youth as a requirement of their adjudication; however, the studies included in this analysis primarily focused on children with serious emotional disturbance either without or prior to adjudication.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Alcohol use in high school	1	79	-0.103	0.160	14	-0.103	0.522
Alcohol use before end of middle school	1	57	-0.151	0.188	14	-0.289	0.126
Attention-deficit/hyperactivity disorder symptoms	1	290	-0.098	0.085	14	-0.098	0.249
Cannabis use before end of middle school	1	57	0.023	0.188	14	0.045	0.812
Crime	6	1189	-0.058	0.064	14	-0.094	0.338
Disruptive behavior disorder symptoms	7	733	-0.229	0.054	14	-0.248	0.001
Hospitalization (psychiatric)	2	136	0.137	0.168	14	0.137	0.414
Illicit drug use in high school	1	79	0.128	0.160	14	0.128	0.425
Internalizing symptoms	4	212	-0.113	0.133	14	-0.130	0.352
Major depressive disorder	1	78	-0.017	0.160	14	-0.033	0.835
Out-of-home placement	5	1027	-0.240	0.081	14	-0.462	0.001
School attendance	1	79	-0.364	0.220	14	-0.364	0.098
Suicidal ideation	1	78	-0.016	0.160	14	-0.031	0.887
Suicide attempts	1	78	-0.153	0.160	14	-0.294	0.278

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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.

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Intensive Family Preservation Services (HOMEBUILDERS®) for youth with serious emotional disturbance (SED)

Children's Mental Health: Serious Emotional Disturbance

Literature review updated July 2018.

Program Description: Intensive Family Preservation Services are short-term, home-based crisis intervention services that emphasize placement prevention. The original program, HOMEBUILDERS®, was developed in 1974 in Federal Way, Washington. The program emphasizes contact with the youth's family within 24 hours of the crisis, small caseload sizes, service duration of four to six weeks, 24-hour staff accessibility, and provision of intensive, concrete services and counseling. This model is intended to prevent removal of a child from his or her biological home, or to promote his or her return to that home, by improving family functioning.

For this analysis, youth are identified as emotionally disturbed and at imminent risk of psychiatric hospitalization. These youth receive either Home-Based Crisis Intervention (HOMEBUILDERS®) or Enhanced Home-Based Crisis Intervention, which is HOMEBUILDERS® with additional services. These additional services include individualized parent support from a consultant with cultural competence and an average of $100 of service money per family to meet individual needs (e.g., respite care).

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Disruptive behavior disorder symptoms	2	175	0.116	0.147	12	0.116	0.429
Hospitalization (psychiatric)	2	175	-0.238	0.224	12	-0.238	0.288
Internalizing symptoms	2	175	0.457	0.148	12	0.457	0.002

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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.

Citations Used in the Meta-Analysis

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Full fidelity wraparound for youth with serious emotional disturbance (SED)
Children's Mental Health: Serious Emotional Disturbance
Literature review updated July 2018.

Program Description: Wraparound is an intensive, individualized care planning and management process for children with complex emotional and behavioral needs. Commonly, children are also diagnosed with one or more mental health disorders including: conduct disorder, oppositional defiant disorder, attention deficit or hyperactivity disorder, or anxiety disorder. During the wraparound process, a team of people who are relevant to the child or youth collaboratively develop an individualized plan of care, implement this plan, monitor the efficacy of the plan, and work towards success over time. The wraparound plan typically includes formal services and interventions, together with community services and interpersonal support and assistance provided by friends, kin, and other people drawn from the family's social networks. After the initial plan is developed, the team continues to meet to monitor progress and revise interventions and strategies when needed. Typically, families can be expected to receive case management for a minimum of eight weeks.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Disruptive behavior disorder symptoms	4	166	-0.491	0.141	13	-0.491	0.001
Internalizing symptoms	4	166	-0.259	0.136	13	-0.259	0.056
Out-of-home placement	1	47	0.194	0.317	12	0.194	0.540
Permanent placement	1	54	0.418	0.219	15	0.418	0.056

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Citations Used in the Meta-Analysis

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Great Life Mentoring (formerly 4Results Mentoring)
Children's Mental Health: Other
Literature review updated November 2018.

Program Description: Great Life Mentoring (formerly 4Results Mentoring) is a mentoring program for youth receiving outpatient mental health care for a range of diagnoses. Youth are referred to the program by their therapist as part of their treatment program. Volunteer mentors meet with youth for 2-3 hours per week for at least one year. Mentoring goals are to promote stability and reduce social isolation for youth and to reinforce behaviors and strategies learned in therapy. In the study included in this analysis, youth were 7 to 18 years old and had a range of diagnoses including attention-deficit hyperactivity disorder (ADHD), depression, anxiety, conduct disorders, trauma, and others. On average, participants remained in their mentoring relationship for three years.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Global functioning	1	66	0.606	0.178	10	0.606	0.001

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Citations Used in the Meta-Analysis

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Motivational interviewing to engage children in mental health treatment
Children's Mental Health: Other
Literature review updated August 2017.

Program Description: 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.

This analysis includes studies that use motivational interviewing with the goal of improving treatment engagement in mental health services for children and adolescents. In the included studies, participants have been diagnosed with mood or anxiety disorders or have been identified as "at risk" of developing a disorder. Participants in the intervention group received motivational interviewing in addition to being offered psychotherapy (such as cognitive-behavioral therapy). In this collection of studies, the motivational interviews typically lasted about 50 minutes and were provided by clinicians at outpatient mental health centers. Participants in the comparison condition were offered psychotherapy without motivational interviewing.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Engagement/Retention	2	89	0.505	0.202	16	0.505	0.013
Major depressive disorder	1	39	0.011	0.304	16	0.011	0.970

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Citations Used in the Meta-Analysis

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Washington State Institute for Public Policy

The Washington State Legislature created the Washington State Insititute for Public Policy in 1983. A Board of Directors-representing the legislature, the governor, and public universities-governs WSIPP and guides the development of all activities. WSIPP's mission is to carry out practical research, at legislative direction, on issues of importance to Washington State.