

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 2017. Literature review updated April 2012.

**Program Description:** These treatments utilize the same principles and techniques as those of other Cognitive Behavior Therapy (CBT) treatments for anxiety (e.g., strategies to control physiological responses to anxiety, cognitive restructuring and self-talk, exposure to feared stimuli, and positive reinforcement). However, they are unique insofar as clients have reduced (if any) face-to-face time with therapists. Clients are supported remotely via email or phone contact. A manual or online program helps to guide progress of the intervention.

#### Benefit-Cost Summary Statistics Per Participant

##### Benefits to:

Taxpayers	\$2,017	Benefit to cost ratio	n/a
Participants	\$3,977	Benefits minus costs	\$7,599
Others	\$296	Chance the program will produce	
Indirect	\$518	benefits greater than the costs	93 %
<b>Total benefits</b>	<b>\$6,808</b>		
<b>Net program cost</b>	<b>\$791</b>		
<b>Benefits minus cost</b>	<b>\$7,599</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
K-12 grade repetition	\$0	\$8	\$0	\$4	\$11
Labor market earnings associated with major depression	\$1	\$1	\$0	\$0	\$2
Health care associated with major depression	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with anxiety disorder	\$3,918	\$1,779	\$0	\$0	\$5,698
Health care associated with anxiety disorder	\$80	\$244	\$302	\$123	\$749
Costs of higher education	(\$22)	(\$15)	(\$7)	(\$7)	(\$50)
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$399	\$399
<b>Totals</b>	<b>\$3,977</b>	<b>\$2,017</b>	<b>\$296</b>	<b>\$518</b>	<b>\$6,808</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

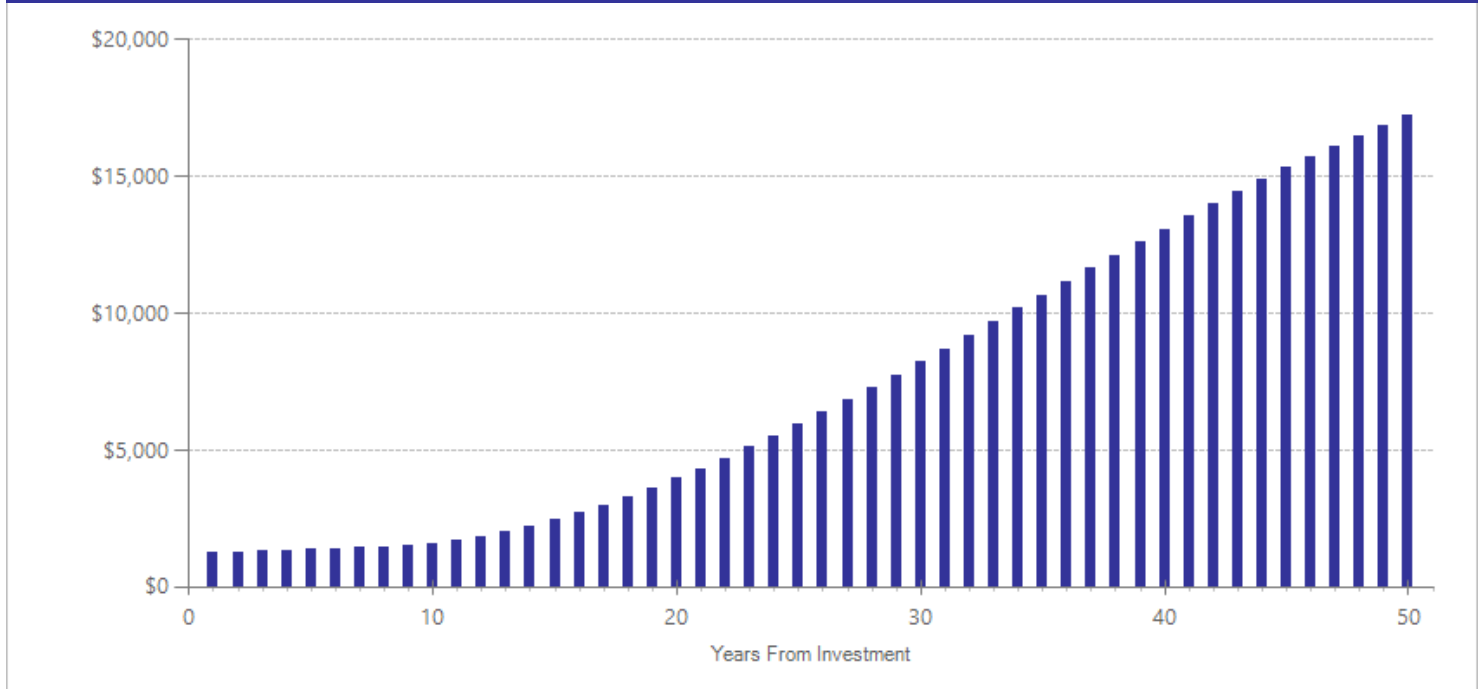
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$217	2010	Present value of net program costs (in 2016 dollars)	\$791
Comparison costs	\$943	2010		Cost range (+ or -)

Per-participant costs are based on average therapist time, as reported in the treatment studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2013). *Behavioral Health Data Book for the State of Washington for Rates Effective January 1, 2014*). Comparison costs are based on the average reimbursement for treatment of child anxiety.

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	5	210	-0.439	0.285	11	-0.203	0.142	12	-1.141	0.001
Global functioning <sup>^</sup>	2	46	0.451	0.212	11	0.209	0.110	12	1.074	0.001
Major depressive disorder <sup>^^</sup>	1	30	0.000	0.260	11	0.000	0.021	12	0.000	1.000

<sup>^</sup>WSIPP’s benefit-cost model does not monetize this outcome.

<sup>^^</sup>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

- Khanna, M.S., & Kendall, P.C. (2010). Computer-assisted cognitive behavioral therapy for child anxiety: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 78*(5), 737-745.
- Lyneham, H.J., & Rapee, R.M. (2006). Evaluation of therapist-supported parent-implemented CBT for anxiety disorders in rural children. *Behaviour Research and Therapy, 44*(9), 1287-1300.
- March, S., Spence, S.H., & Donovan, C.L. (2009). The efficacy of an internet-based cognitive-behavioral therapy intervention for child anxiety disorders. *Journal of Pediatric Psychology, 34*(5), 474-487.
- Rapee, R.M., Abbott, M.J., & Lyneham, H.J. (2006). Bibliotherapy for children with anxiety disorders using written materials for parents: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 74*(3), 436-444.
- Spence, S.H., Holmes, J.M., March, S., & Lipp, O.V. (2006). The feasibility and outcome of clinic plus internet delivery of cognitive-behavior therapy for childhood anxiety. *Journal of Consulting and Clinical Psychology, 74*(3), 614-621.

# Acceptance and Commitment Therapy (ACT) for children with anxiety

## Children's Mental Health: Anxiety

Benefit-cost estimates updated December 2017. 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	\$1,998	Benefit to cost ratio	n/a
Participants	\$3,972	Benefits minus costs	\$6,901
Others	\$271	Chance the program will produce	
Indirect	\$294	benefits greater than the costs	99 %
<b>Total benefits</b>	<b>\$6,534</b>		
<b>Net program cost</b>	<b>\$367</b>		
<b>Benefits minus cost</b>	<b>\$6,901</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
K-12 grade repetition	\$0	\$8	\$0	\$4	\$11
Labor market earnings associated with anxiety disorder	\$3,921	\$1,781	\$0	\$0	\$5,702
Health care associated with anxiety disorder	\$73	\$224	\$278	\$112	\$687
Costs of higher education	(\$22)	(\$15)	(\$7)	(\$7)	(\$51)
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$185	\$185
<b>Totals</b>	<b>\$3,972</b>	<b>\$1,998</b>	<b>\$271</b>	<b>\$294</b>	<b>\$6,534</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

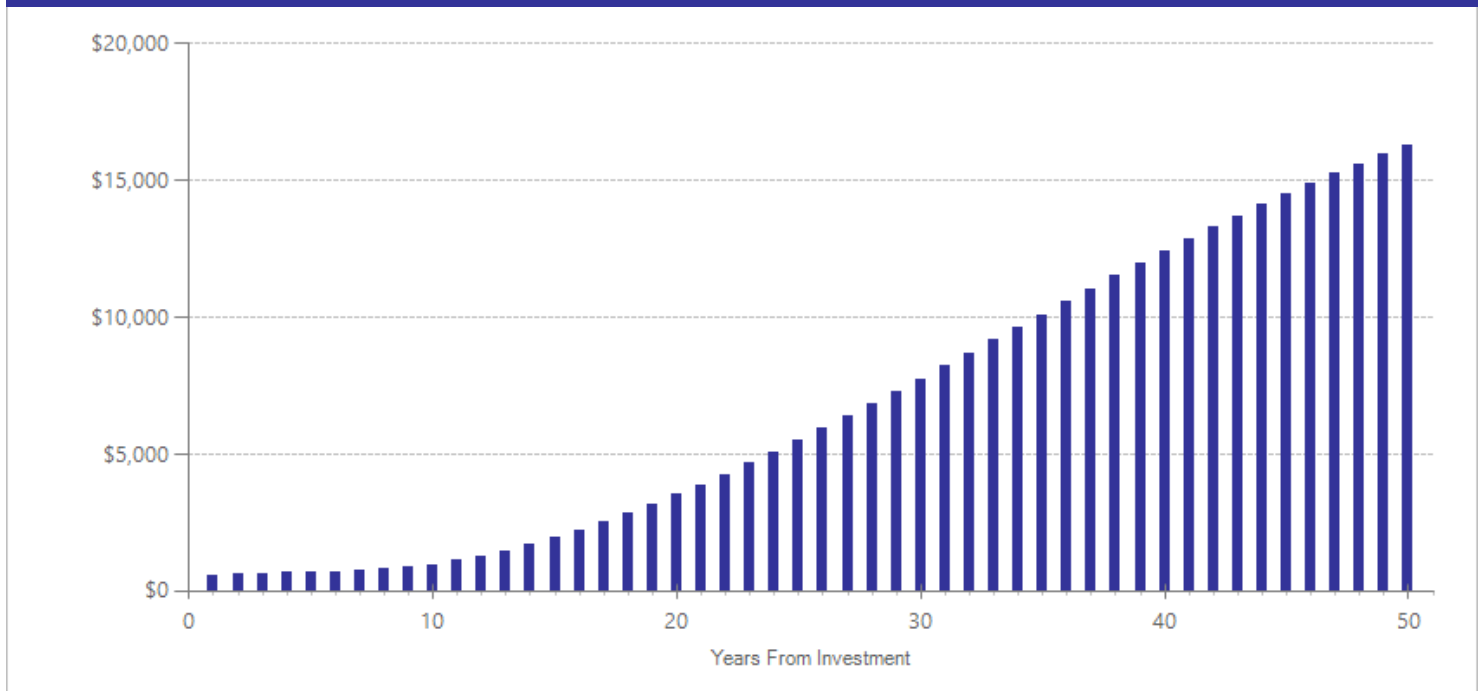
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$660	2016	Present value of net program costs (in 2016 dollars)	\$367
Comparison costs	\$943	2010	Cost range (+ or -)	15 %

The therapy in this study included 10 weekly 90-minute group sessions. Per-participant costs are based on 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. Comparison costs are based on the average reimbursement for treatment of child anxiety.

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	1	68	-0.450	0.197	11	-0.208	0.103	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.

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

# Group cognitive behavioral therapy (CBT) for children with anxiety

## Children's Mental Health: Anxiety

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: Treatments usually include multiple components, such as strategies to control physiological responses to anxiety, cognitive restructuring and self-talk, exposure to feared stimuli, and positive reinforcement. This brief therapy can be administered in individual, group, or family format; well-known examples include the Coping Cat and Coping Koala programs. The results below are those from group formats.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,884	Benefit to cost ratio	n/a
Participants	\$3,718	Benefits minus costs	\$6,612
Others	\$275	Chance the program will produce	
Indirect	\$318	benefits greater than the costs	100 %
<b>Total benefits</b>	<b>\$6,194</b>		
<b>Net program cost</b>	<b>\$418</b>		
<b>Benefits minus cost</b>	<b>\$6,612</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
K-12 grade repetition	\$0	\$7	\$0	\$3	\$11
Labor market earnings associated with anxiety disorder	\$3,664	\$1,664	\$0	\$0	\$5,328
Health care associated with anxiety disorder	\$74	\$227	\$281	\$113	\$694
Costs of higher education	(\$20)	(\$14)	(\$6)	(\$7)	(\$47)
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$208	\$208
<b>Totals</b>	<b>\$3,718</b>	<b>\$1,884</b>	<b>\$275</b>	<b>\$318</b>	<b>\$6,194</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.



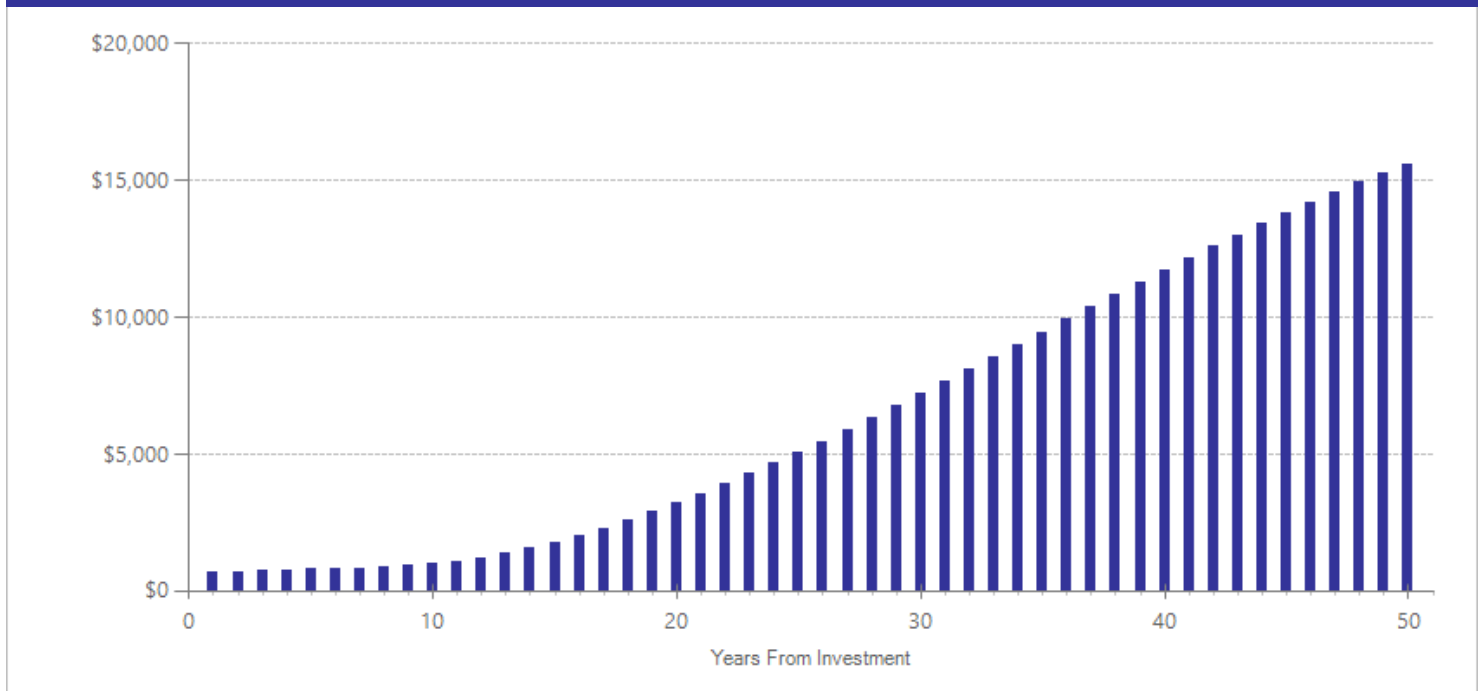
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$559	2010	Present value of net program costs (in 2016 dollars)	\$418
Comparison costs	\$943	2010	Cost range (+ or -)	10 %

Per-participant costs are based on a weighted average of 15.7 hours of therapist time, as reported in the treatment studies, multiplied by the 2014 actuarial estimates of reimbursement for group therapy (Mercer. (2013). *Behavioral Health Data Book for the State of Washington For Rates Effective January 1, 2014*). Comparison costs are based on the average reimbursement for treatment of child anxiety.

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	13	469	-0.414	0.118	11	-0.191	0.069	12	-0.950	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

- Barrett, P. M. (1998). Evaluation of cognitive-behavioral group treatments for childhood anxiety disorders. *Journal of Clinical Child Psychology, 27*(4), 459-468.
- Bernstein, G. A., Layne, A. E., Egan, E. A., & Tennison, D. M. (2005). School-based interventions for anxious children. *Journal of the American Academy of Child & Adolescent Psychiatry, 44*(11), 1118-1127.
- Dadds, M. R., Spence, S. H., Holland, D. E., Barrett, P. M., & Laurens, K. R. (1997). Prevention and early intervention for anxiety disorders: A controlled trial. *Journal of Consulting and Clinical Psychology, 65*(4), 627-635.
- Gallagher, H. M., Rabian, B. A., & McCloskey, M. S. (2004). A brief group cognitive-behavioral intervention for social phobia in childhood. *Journal of Anxiety Disorders, 18*(4), 459-479.
- Hudson, J. L., Rapee, R. M., Deveney, C., Schniering, C. A., Lyneham, H. J., & Bovopoulos, N. (2009). Cognitive-behavioral treatment versus an active control for children and adolescents with anxiety disorders: A randomized trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 48*(5), 533-544.
- Lau, W.-Y., Chan, C. K.-Y., Li, J. C.-H., & Au, T. K.-F. (2010). Effectiveness of group cognitive-behavioral treatment for childhood anxiety in community clinics. *Behaviour Research and Therapy, 48*(11), 1067-1077.
- Muris, P., Meesters, C., & van Melick, M. (2002). Treatment of childhood anxiety disorders: A preliminary comparison between cognitive-behavioral group therapy and a psychological placebo intervention. *Journal of Behavior Therapy and Experimental Psychiatry, 33*(3-4), 143-158.
- Rapee, R. M., Abbott, M. J., & Lyneham, H. J. (2006). Bibliotherapy for children with anxiety disorders using written materials for parents: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 74*(3), 436-444.
- Rapee, R. (2000). Group treatment of children with anxiety disorders: Outcome and predictors of treatment response. *Australian Journal of Psychology, 52*(3), 125-129.
- Shortt, A. L., Barrett, P. M., & Fox, T. L. (2001). Evaluating the FRIENDS program: A cognitive-behavioral group treatment for anxious children and their parents. *Journal of Clinical Child Psychology, 30*(4), 525-535.
- Silverman, W. K., Kurtines, W. M., Ginsburg, G. S., Weems, C. F., Lumpkin, P. W., & Carmichael, D. H. (1999). Treating anxiety disorders in children with group cognitive-behavioral therapy: A randomized clinical trial. *Journal of Consulting and Clinical Psychology, 67*(6), 995-1003.
- Spence, S. H., Donovan, C., & Brechman-Toussaint, M. (2000). The treatment of childhood social phobia: The effectiveness of a social skills training-based, cognitive behavioural intervention, with and without prenatal involvement. *Journal of Child Psychology and Psychiatry, 41*(6), 713-726.
- Spence, S. H., Holmes, J. M., March, S., & Lipp, O. V. (2006). The feasibility and outcome of clinic plus internet delivery of cognitive-behavior therapy for childhood anxiety. *Journal of Consulting and Clinical Psychology, 74*(3), 614-621.

# Individual cognitive behavioral therapy (CBT) for children with anxiety

## Children's Mental Health: Anxiety

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: Treatments usually include multiple components, such as strategies to control physiological responses to anxiety, cognitive restructuring and self-talk, exposure to feared stimuli, and positive reinforcement. This brief therapy can be administered in individual, group, or family format; well-known examples include the Coping Cat and Coping Koala programs. The results below are those from individual formats.

### Benefit-Cost Summary Statistics Per Participant

#### Benefits to:

Taxpayers	\$1,487	Benefit to cost ratio	\$5.55
Participants	\$2,960	Benefits minus costs	\$3,554
Others	\$200	Chance the program will produce	
Indirect	(\$311)	benefits greater than the costs	98 %
<u>Total benefits</u>	<u>\$4,335</u>		
<u>Net program cost</u>	<u>(\$782)</u>		
Benefits minus cost	\$3,554		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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:<sup>1</sup>

#### Benefits to:

	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
K-12 grade repetition	\$0	\$6	\$0	\$3	\$9
Labor market earnings associated with anxiety disorder	\$2,922	\$1,327	\$0	\$0	\$4,249
Health care associated with anxiety disorder	\$54	\$165	\$205	\$83	\$507
Costs of higher education	(\$16)	(\$11)	(\$5)	(\$6)	(\$38)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$391)	(\$391)
<b>Totals</b>	<b>\$2,960</b>	<b>\$1,487</b>	<b>\$200</b>	<b>(\$311)</b>	<b>\$4,335</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

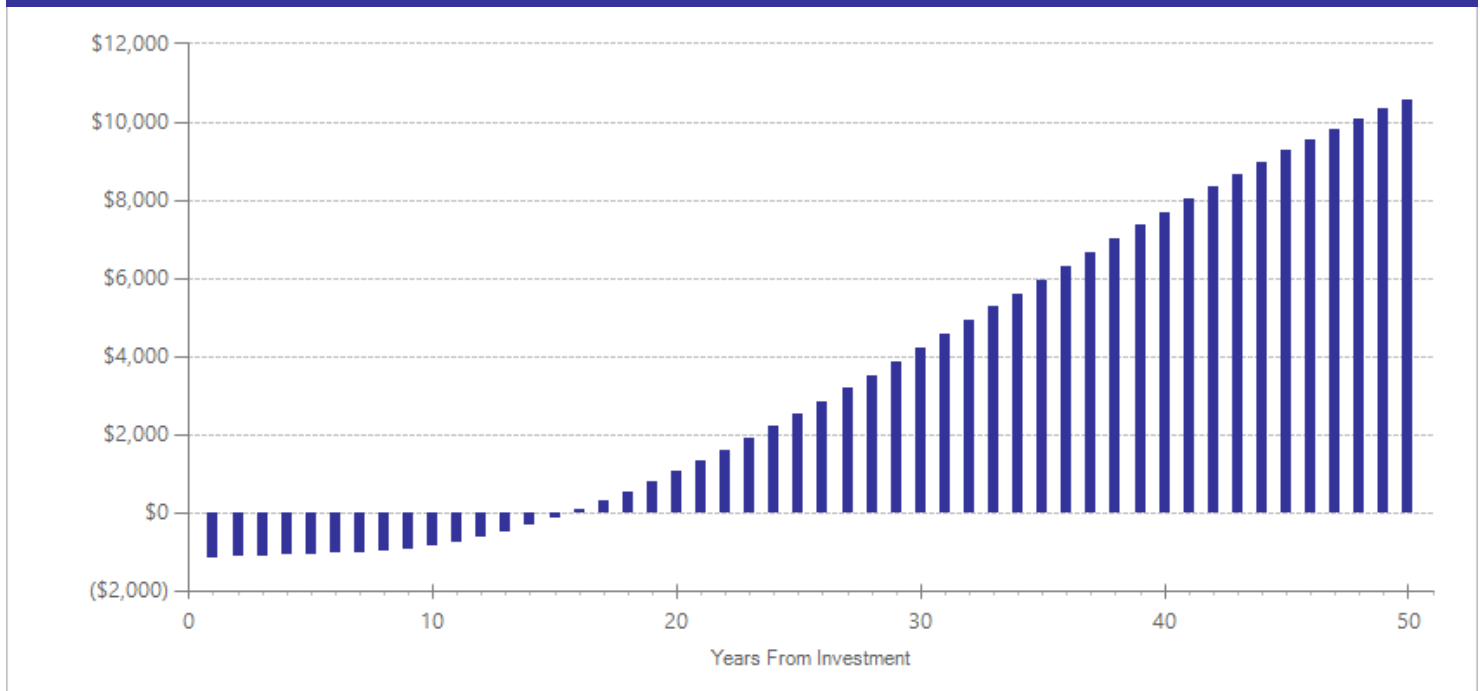
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,661	2010	Present value of net program costs (in 2016 dollars)	(\$782)
Comparison costs	\$943	2010	Cost range (+ or -)	10 %

Per-participant costs are based on a weighted average of 14.22 hours of therapist time, as reported in the treatment studies, multiplied by the hourly therapist cost is based on the 2014 actuarial estimates of reimbursement for individual therapy (Mercer. (2013). *Behavioral Health Data Book for the State of Washington for Rates Effective January 1, 2014*). Comparison costs are based on the average reimbursement for treatment of child anxiety.

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	9	523	-0.347	0.081	11	-0.161	0.052	12	-0.735	0.001
Global functioning <sup>^</sup>	2	279	0.092	0.139	11	0.043	0.066	12	0.092	0.506
Major depressive disorder <sup>^^</sup>	1	41	-0.202	0.227	11	0.000	0.025	12	-0.482	0.036
Suicidal ideation <sup>^</sup>	2	279	0.285	0.124	11	0.132	0.065	12	0.285	0.021

<sup>^</sup>WSIPP’s benefit-cost model does not monetize this outcome.

<sup>^^</sup>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

- Barrett, P.M., Dadds, M.R., & Rapee, R.M. (1996). Family treatment of childhood anxiety: A controlled trial. *Journal of Consulting and Clinical Psychology, 64*(2), 333-342.
- Flannery-Schroeder, E.D., & Kendall, P.C. (2000). Group and individual cognitive-behavioral treatments for youth with anxiety disorders: A randomized clinical trial. *Cognitive Therapy and Research, 24*(3), 251-278.
- Kendall, P.C., Flannery-Schroeder, E., Panichelli-Mindel, S.M., Southam-Gerow, H., Henin, A., & Warman, M. (1997). Therapy for youths with anxiety disorders: A second randomized clinical trial. *Journal of Consulting and Clinical Psychology, 65*(3), 366-380.
- Kendall, P.C., Hudson, J.L., Gosch, E., Flannery-Schroeder, E., & Suveg, C. (2008). Cognitive-behavioral therapy for anxiety disordered youth: A randomized clinical trial evaluating child and family modalities. *Journal of Consulting and Clinical Psychology, 76*(2), 282- 297.
- Kendall, P.C. (1994). Treating anxiety disorders in children: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 62*(1), 100-110.
- Manassis, K., Mendlowitz, S.L., Scapillato, D., Avery, D., Fiksenbaum, L., Freire, M., . . . Owens, M. (2002) Group and individual cognitive-behavioral therapy for childhood anxiety disorders: A randomized trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*(12), 1423-1430.
- Nauta, M.H., Scholing, A., Emmelkamp, P.M.G., & Minderaa, R.B. (2003). Cognitive-behavioral therapy for children with anxiety disorders in a clinical setting: No additional effect of a cognitive parent training. *Journal of the American Academy of Child & Adolescent Psychiatry, 42*(11), 1270-1278.
- Southam-Gerow, M.A., McLeod, B.D., Weisz, J.R., Chu, B.C., Gordis, E.B., & Connor-Smith, J.K. (2010). Does cognitive behavioral therapy for youth anxiety outperform usual care in community clinics? An initial effectiveness test. *Journal of the American Academy of Child & Adolescent Psychiatry, 49*(10), 1043-1052.
- Walkup, J. T., Albano, A. M., Piacentini, J., Birmaher, B., Compton, S. N., Sherrill, J. T., . . . Kendall, P. C. (2008). Cognitive behavioral therapy, sertraline, or a combination in childhood anxiety. *The New England Journal of Medicine, 359*(26), 2753-2766.

# Parent cognitive behavioral therapy (CBT) for young children with anxiety

## Children's Mental Health: Anxiety

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: Parents received training in cognitive behavioral approaches to use with their anxious children. Approaches usually include multiple components, such as strategies to control physiological responses to anxiety, cognitive restructuring and self-talk, exposure to feared stimuli, and positive reinforcement. This brief therapy can be administered in individual, group, or family format. Well-known examples include the Coping Cat and Coping Koala programs.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$468	Benefit to cost ratio	n/a
Participants	\$913	Benefits minus costs	\$2,459
Others	\$75	Chance the program will produce	
Indirect	\$355	benefits greater than the costs	99 %
<u>Total benefits</u>	<u>\$1,811</u>		
<u>Net program cost</u>	<u>\$648</u>		
Benefits minus cost	\$2,459		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
K-12 grade repetition	\$0	\$2	\$0	\$1	\$2
Labor market earnings associated with anxiety disorder	\$898	\$408	\$0	\$0	\$1,306
Health care associated with anxiety disorder	\$20	\$61	\$76	\$31	\$188
Costs of higher education	(\$5)	(\$3)	(\$1)	(\$2)	(\$11)
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$325	\$325
<b>Totals</b>	<b>\$913</b>	<b>\$468</b>	<b>\$75</b>	<b>\$355</b>	<b>\$1,811</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

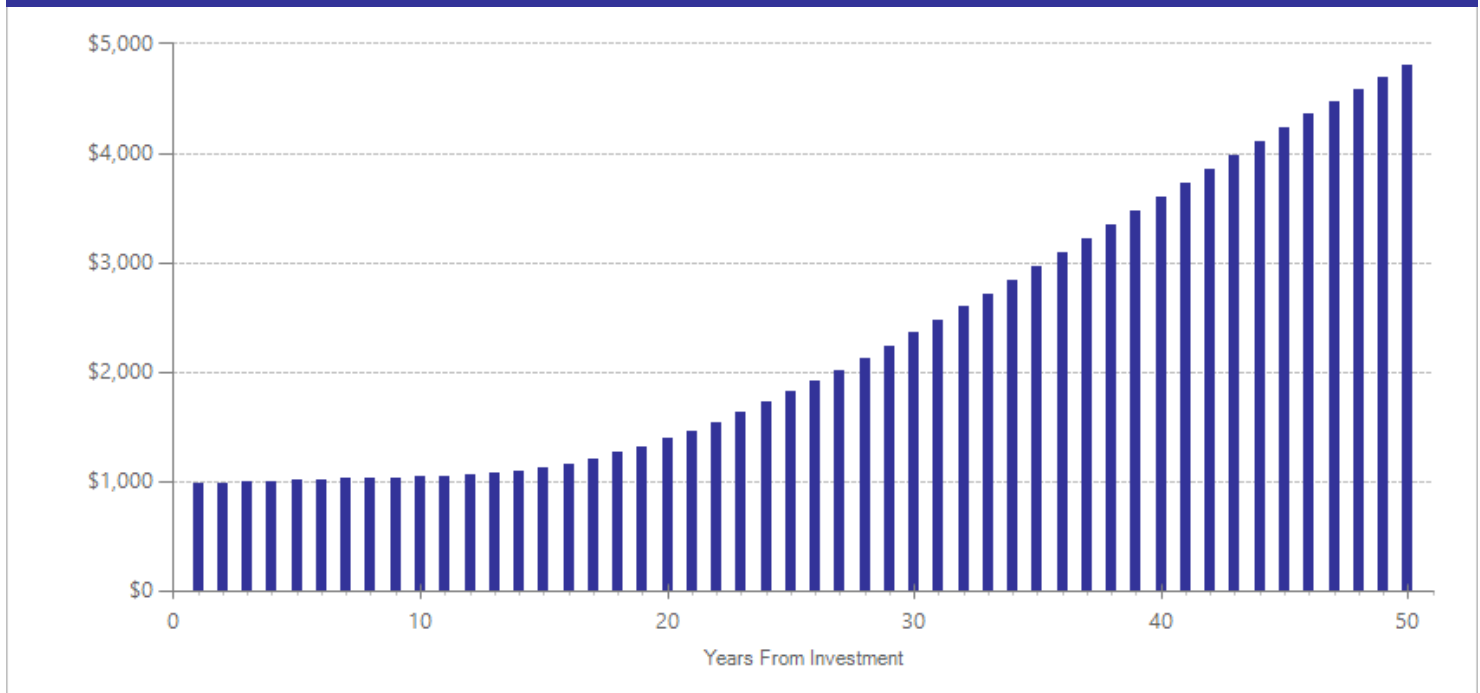
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$348	2010	Present value of net program costs (in 2016 dollars)	\$648
Comparison costs	\$943	2010	Cost range (+ or -)	10 %

Per-participant costs are based on average therapist time, as reported in the treatment studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2013). *Behavioral Health Data Book for the State of Washington for Rates Effective January 1, 2014*). Comparison cost is based on the average reimbursement for treatment of child anxiety.

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	3	135	-0.266	0.155	6	-0.123	0.078	7	-0.842	0.013

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

- Kennedy, S. J., Rapee, R. M., & Edwards, S. L. (2009). A selective intervention program for inhibited preschool-aged children of parents with an anxiety disorder: Effects on current anxiety disorders and temperament. *Journal of the American Academy of Child & Adolescent Psychiatry, 48*(6), 602-609.
- Rapee, R. M., Kennedy, S. J., Ingram, M., Edwards, S. L., & Sweeney, L. (2010). Altering the trajectory of anxiety in at-risk young children. *American Journal of Psychiatry, 167*(12), 1518-1525.
- Waters, A. M., Ford, L. A., Wharton, T. A., & Cobham, V. E. (2009). Cognitive-behavioural therapy for young children with anxiety disorders: Comparison of a child + parent condition versus a parent only condition. *Behaviour Research and Therapy, 47*(8), 654-662.



# Behavioral parent training (BPT) for children with ADHD

## Children's Mental Health: Attention Deficit Hyperactivity Disorder

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: This is a brief intervention (spanning a couple of months) that involves psychoeducation on ADHD and teaching parents behavior management techniques, such as reinforcement and teacher correspondence. Parent programs were delivered in either individual or group format. Many studies utilize or build on Barkley's Defiant Children program.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$101	Benefit to cost ratio	n/a
Participants	\$159	Benefits minus costs	\$552
Others	\$110	Chance the program will produce	
Indirect	\$70	benefits greater than the costs	91 %
<b>Total benefits</b>	<b>\$439</b>		
<b>Net program cost</b>	<b>\$113</b>		
<b>Benefits minus cost</b>	<b>\$552</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$6	\$14	\$3	\$22
Labor market earnings associated with high school graduation	\$164	\$74	\$75	\$0	\$313
K-12 grade repetition	\$0	\$1	\$0	\$1	\$2
K-12 special education	\$0	\$8	\$0	\$4	\$12
Health care associated with disruptive behavior disorder	\$6	\$20	\$25	\$10	\$61
Costs of higher education	(\$12)	(\$8)	(\$3)	(\$4)	(\$26)
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$56	\$56
<b>Totals</b>	<b>\$159</b>	<b>\$101</b>	<b>\$110</b>	<b>\$70</b>	<b>\$439</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

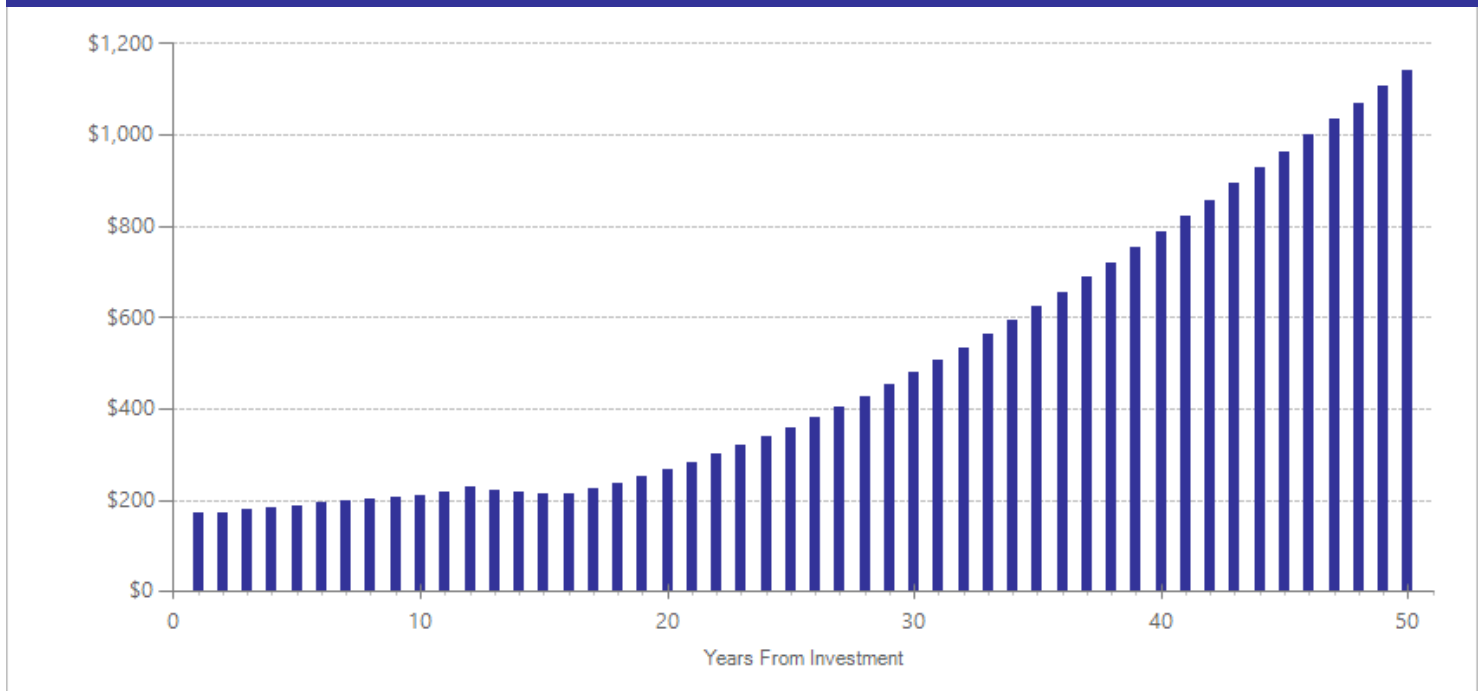
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$846	2010	Present value of net program costs (in 2016 dollars)	\$113
Comparison costs	\$950	2010	Cost range (+ or -)	10 %

We estimated per-participant cost of treatment based on average therapist time, as reported in the treatment studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2013). *Behavioral Health Data Book for the State of Washington for Rates Effective January 1, 2014*). Comparison cost is based on the average reimbursement for treatment of child 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	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	p-value
			ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	7	277	-0.233	0.097	7	-0.001	0.012	8	-0.465	0.001
Disruptive behavior disorder symptoms	4	184	-0.119	0.118	7	-0.057	0.066	10	-0.232	0.305

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., Klein, R.G., ... Sonuga-Barke, E. (2015). Parent training for preschool ADHD: a randomized controlled trial of specialized and generic programs. *Journal of Child Psychology and Psychiatry*, 56(6), 618-631.
- Anastopoulos, A.D., Shelton, T.L., DuPaul, G.J., & Guevremont, D.C. (1993). Parent training for attention-deficit hyperactivity disorder: Its impact on parent functioning. *Journal of Abnormal Child Psychology*, 21(5), 581-596.
- Chacko, A., Wymbs, B.T., Wymbs, F.A., Pelham, W.E., Swanger-Gagne, M.S., Ghiro, E., . . . O'Connor, B. (2009). Enhancing traditional behavioral parent training for single mothers of children with ADHD. *Journal of Clinical Child & Adolescent Psychology*, 38(2), 206-218.
- Sonuga-Barke, E.J.S., Daley, D., Thompson, M., Laver-Bradbury, C., & Weeks, A. (2001). Parent-based therapies for preschool attention-deficit/hyperactivity disorder: A randomized, controlled trial with a community sample. *Journal of the American Academy of Child & Adolescent Psychiatry*, 40(4), 402-408.
- Sonuga-Barke, E.J.S., Thompson, M., Daley, D., & Laver-Bradbury, C. (2004). Parent training for Attention Deficit/Hyperactivity Disorder: Is it as effective when delivered as routine rather than as specialist care? *British Journal of Clinical Psychology*, 43(4), 449-457.
- Thompson, M.J.J., Laver-Bradbury, C., Ayres, M., Le Poidevin, E., Mead, S., Dodds, C., . . . Sonuga-Barke, E. J. S. (2009). A small-scale randomized controlled trial of the revised new forest parenting programme for preschoolers with attention deficit hyperactivity disorder. *European Child & Adolescent Psychiatry*, 18(10), 605-616.
- Van den Hoofdakker, B.J., Van der Veen-Mulders, L., Sytema, S., Emmelkamp, P.M.G., Minderaa, R.B., & Nauta, M.H. (2007). Effectiveness of behavioral parent training for children with ADHD in routine clinical practice: A randomized controlled study. *Journal of the American Academy of Child & Adolescent Psychiatry*, 46(10), 1263-1271.

# Cognitive behavioral therapy (CBT) for children with ADHD

## Children's Mental Health: Attention Deficit Hyperactivity Disorder

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: Cognitive training and cognitive-behavioral therapies are included in this program grouping. Both target problem-solving in order to reduce impulsive behavior; specific strategies include self-monitoring, modeling/role playing, self-instruction, generation of alternatives, and reinforcement.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	(\$146)	Benefit to cost ratio	(\$1.01)
Participants	(\$216)	Benefits minus costs	(\$2,108)
Others	(\$151)	Chance the program will produce	
Indirect	(\$547)	benefits greater than the costs	8 %
<u>Total benefits</u>	<u>(\$1,059)</u>		
<u>Net program cost</u>	<u>(\$1,049)</u>		
Benefits minus cost	(\$2,108)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	(\$8)	(\$19)	(\$4)	(\$31)
Labor market earnings associated with high school graduation	(\$224)	(\$102)	(\$103)	\$0	(\$429)
K-12 grade repetition	\$0	(\$1)	\$0	(\$1)	(\$2)
K-12 special education	\$0	(\$19)	\$0	(\$10)	(\$28)
Health care associated with disruptive behavior disorder	(\$9)	(\$27)	(\$33)	(\$13)	(\$82)
Costs of higher education	\$17	\$11	\$5	\$6	\$38
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$525)	(\$525)
<u>Totals</u>	<u>(\$216)</u>	<u>(\$146)</u>	<u>(\$151)</u>	<u>(\$547)</u>	<u>(\$1,059)</u>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

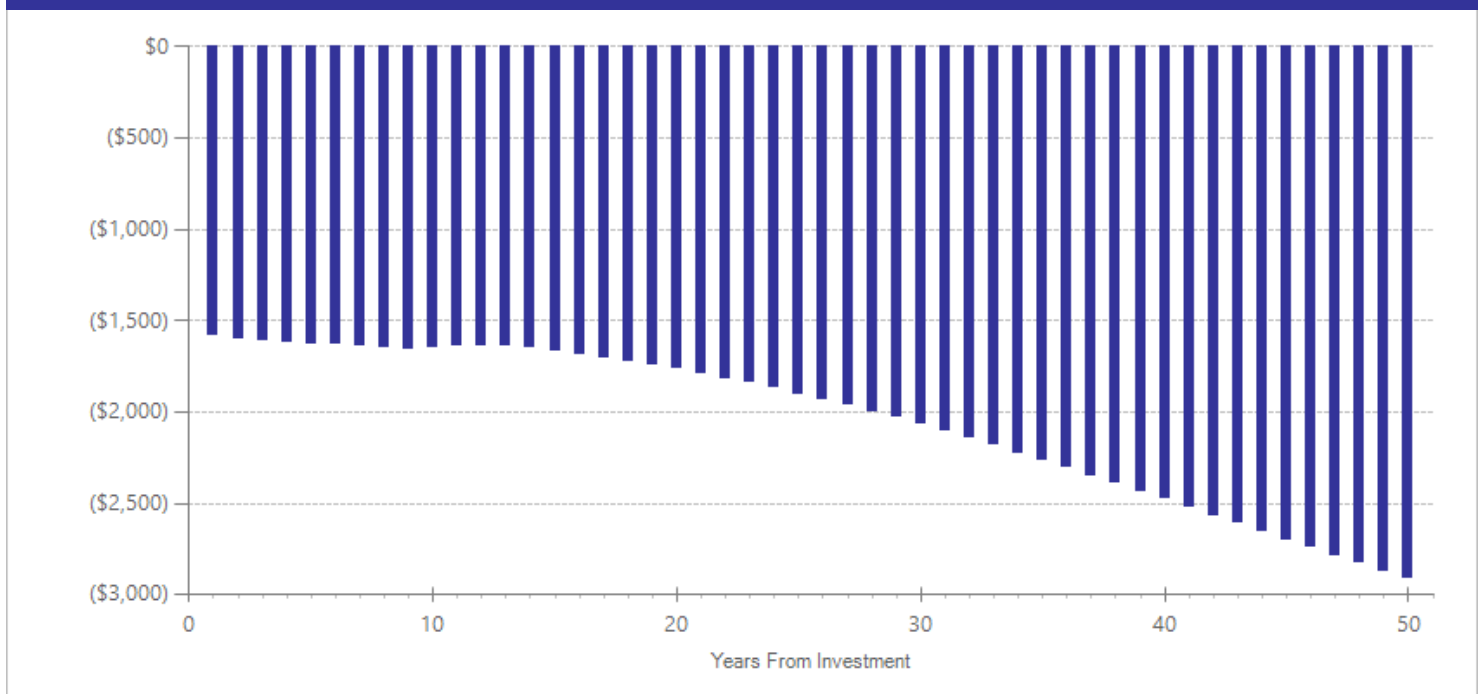
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,913	2010	Present value of net program costs (in 2016 dollars)	(\$1,049)
Comparison costs	\$950	2010	Cost range (+ or -)	10 %

We estimated per-participant cost of treatment based on average therapist time, as reported in the treatment studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2013). *Behavioral Health Data Book for the State of Washington for Rates Effective January 1, 2014*). Comparison cost is based on the average DSHS reimbursement for treatment of child 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	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	p-value
			ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	7	96	0.015	0.152	10	0.000	0.008	11	0.040	0.791
Disruptive behavior disorder symptoms	2	42	0.148	0.362	10	0.071	0.189	12	0.148	0.682

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. & Gittelman, R. (1985). Hyperactive children treated with stimulants: Is cognitive training a useful adjunct? *Archives of General Psychiatry*, 42(10), 953-961.
- Abikoff, H., Ganeles, D., Reiter, G., Blum, C., Foley, C., & Klein, R. G. (1988). Cognitive training in academically deficient ADHD boys receiving stimulant medication. *Journal of Abnormal Child Psychology*, 16(4), 411-432.
- Bloomquist, M. L., August, G. J., & Ostrander, R. (1991). Effects of a school-based cognitive-behavioral intervention for ADHD children. *Journal of Abnormal Child Psychology*, 19(5), 591-605.
- Brown, R.T., Wynne, M.E., Borden, K.A., Clingerman, S.R., Geniesse, R., & Spunt, A.L. (1986). Methylphenidate and cognitive therapy in children with attention deficit disorder: A double-blind trial. *Journal of Developmental and Behavioral Pediatrics*, 7(3), 163-174.
- Fehlings, D.L., Roberts, W., Humphries, T., & Dawe, G. (1991). Attention deficit hyperactivity disorder: Does cognitive behavioral therapy improve home behavior? *Journal of Developmental and Behavioral Pediatrics*, 12(4), 223-228.
- Kaduson, H.G., & Finnerty, K. (1995). Self-control game interventions for attention-deficit hyperactivity disorder. *International Journal of Play Therapy*, 4(2), 15-29.

# Multimodal Therapy (MMT) for children with ADHD

## Children's Mental Health: Attention Deficit Hyperactivity Disorder

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: These treatments target more than one dimension with psychosocial interventions. For instance, many therapies provide behavioral training to parents, school consultations with teachers, and self-control training with children. In this analysis, all studies utilized either behavioral or cognitive-behavioral orientations.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$2,698	Benefit to cost ratio	\$0.66
Participants	\$662	Benefits minus costs	(\$2,988)
Others	\$5,853	Chance the program will produce	
Indirect	(\$3,309)	benefits greater than the costs	42 %
<b>Total benefits</b>	<b>\$5,904</b>		
<b>Net program cost</b>	<b>(\$8,892)</b>		
<b>Benefits minus cost</b>	<b>(\$2,988)</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$2,417	\$5,477	\$1,208	\$9,102
Labor market earnings associated with test scores	\$999	\$454	\$436	\$0	\$1,889
K-12 grade repetition	\$0	\$2	\$0	\$1	\$3
K-12 special education	\$0	\$20	\$0	\$10	\$30
Health care associated with disruptive behavior disorder	\$12	\$36	\$45	\$18	\$111
Costs of higher education	(\$349)	(\$232)	(\$104)	(\$116)	(\$801)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$4,430)	(\$4,430)
<b>Totals</b>	<b>\$662</b>	<b>\$2,698</b>	<b>\$5,853</b>	<b>(\$3,309)</b>	<b>\$5,904</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

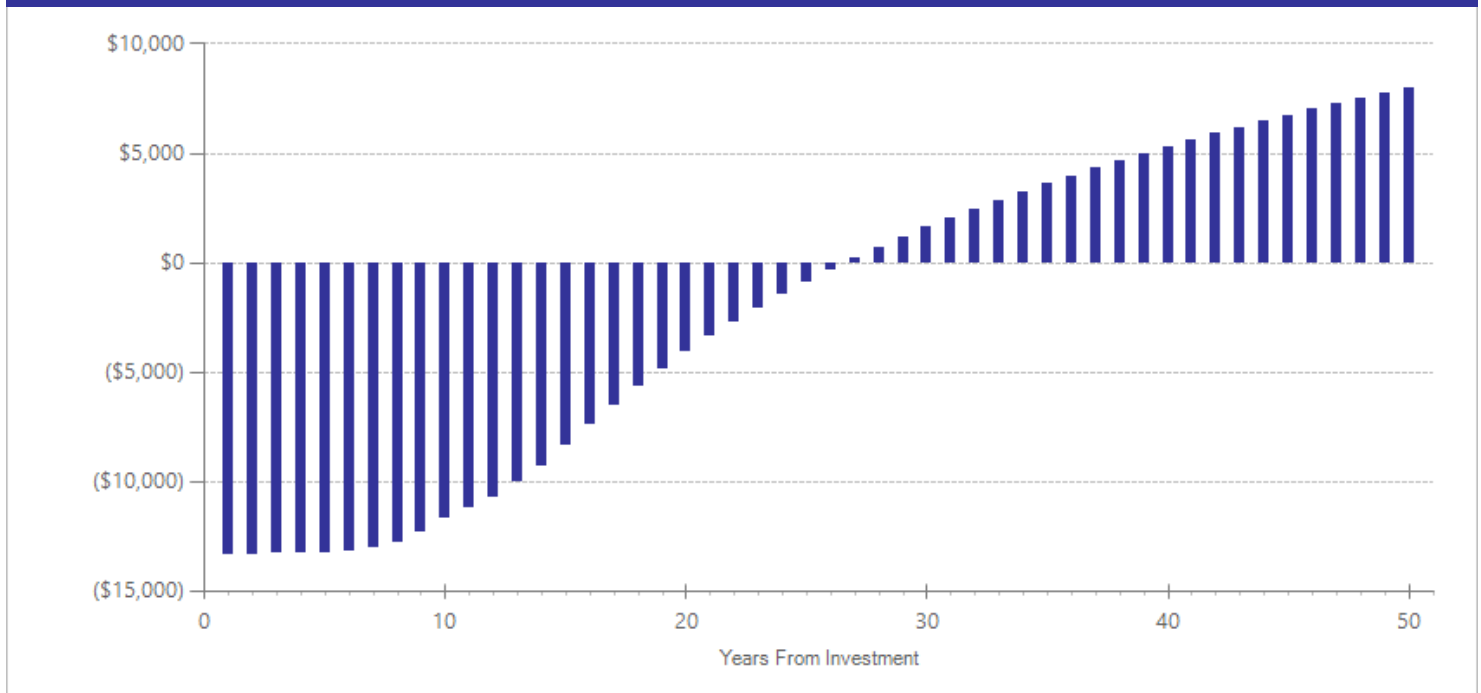
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$9,120	2010	Present value of net program costs (in 2016 dollars)	(\$8,892)
Comparison costs	\$950	2010	Cost range (+ or -)	20 %

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. Comparison costs are based on the average DSHS reimbursement for treatment of child 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	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	p-value
			ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	9	453	-0.079	0.079	9	0.000	0.005	10	-0.186	0.125
Crime	1	81	-0.430	0.230	16	-0.430	0.230	26	-0.430	0.062
Disruptive behavior disorder symptoms	7	362	-0.229	0.096	9	-0.109	0.068	12	-0.341	0.007
Global functioning <sup>^</sup>	1	30	0.141	0.256	9	0.000	0.011	10	0.151	0.582
Test scores	5	324	0.023	0.079	9	0.014	0.087	17	0.023	0.774

<sup>^</sup>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

- Abikoff, H., Hechtman, L., Klein, R. G., Weiss, G., Fleiss, K., Etcovitch, J., . . . Pollack, S. (2004). Symptomatic improvement in children with ADHD treated with long-term methylphenidate and multimodal psychosocial treatment. *Journal of the American Academy of Child & Adolescent Psychiatry, 43*(7), 802-811.
- Chacko, A., Wymbs, B.T., Wymbs, F.A., Pelham, W.E., Swanger-Gagne, M.S., Gario, E., . . . O'Connor, B. (2009). Enhancing traditional behavioral parent training for single mothers of children with ADHD. *Journal of Clinical Child and Adolescent Psychology, 38*(2), 206- 218.
- Hechtman, L., Abikoff, H., Klein, R.G., Weiss, G., Respitz, C., Kouri, J., . . . Pollack, S. (2004). Academic achievement and emotional status of children with ADHD treated with long-term methylphenidate and multimodal psychosocial treatment. *Journal of the American Academy of Child & Adolescent Psychiatry, 43*(7), 812-819.
- Hechtman, L., Etcovitch, J., Platt, R., Arnold, L.E., Abikoff, H.B., Newcorn, J.H., . . . Wigal, T. (2005). Does multimodal treatment of ADHD decrease other diagnoses? *Clinical Neuroscience Research, 5*(5-6), 273-282.
- Horn, W.F., Ialongo, N.S., Pascoe, J.M., Greenberg, G., Packard, T., Lopez, M., . . . Puttler, L. (1991). Additive effects of psychostimulants, parent training, and self-control therapy with ADHD children. *Journal of the American Academy of Child & Adolescent Psychiatry, 30*(2), 233-240.
- Klein, R.G., & Abikoff, H. (1997). Behavior therapy and methylphenidate in the treatment of children with ADHD. *Journal of Attention Disorders, 2*(2), 89-114.
- MTA Cooperative Group. (1999). A 14-month randomized clinical trial of treatment strategies for attention-deficit hyperactivity disorder. *Archives of General Psychiatry, 56*(12), 1073-1086.
- Pfiffner, L.J., Yee Mikami, A., Huang-Pollock, C., Easterlin, B., Zalecki, C., & McBurnett, K. (2007). A randomized, controlled trial of integrated home-school behavioral treatment for ADHD, predominantly inattentive type. *Journal of the American Academy of Child & Adolescent Psychiatry, 46*(8), 1041-1050.
- van der Oord, S., Prins, P.J.M., Oosterlaan, J., & Emmelkamp, P.M.G. (2007). Does brief, clinically based, intensive multimodal behavior therapy enhance the effects of methylphenidate in children with ADHD? *European Child & Adolescent Psychiatry, 16*(1), 48-57.

# Blues Program

## Children's Mental Health: Depression

Benefit-cost estimates updated December 2017. Literature review updated May 2015.

Program Description: This prevention program targets 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 home practice assignments. Sessions focus on engaging in pleasant activities, cognitive restructuring techniques, and response plans for future life stressors.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$11	Benefit to cost ratio	(\$0.24)
Participants	\$1	Benefits minus costs	(\$144)
Others	\$12	Chance the program will produce	
Indirect	(\$52)	benefits greater than the costs	41 %
<u>Total benefits</u>	<u>(\$28)</u>		
<u>Net program cost</u>	<u>(\$116)</u>		
Benefits minus cost	(\$144)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
K-12 grade repetition	\$0	\$3	\$0	\$1	\$4
Labor market earnings associated with major depression	\$6	\$3	\$0	\$2	\$10
Health care associated with major depression	\$4	\$12	\$14	\$6	\$35
Costs of higher education	(\$8)	(\$6)	(\$3)	(\$3)	(\$19)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$58)	(\$58)
<u>Totals</u>	<u>\$1</u>	<u>\$11</u>	<u>\$12</u>	<u>(\$52)</u>	<u>(\$28)</u>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

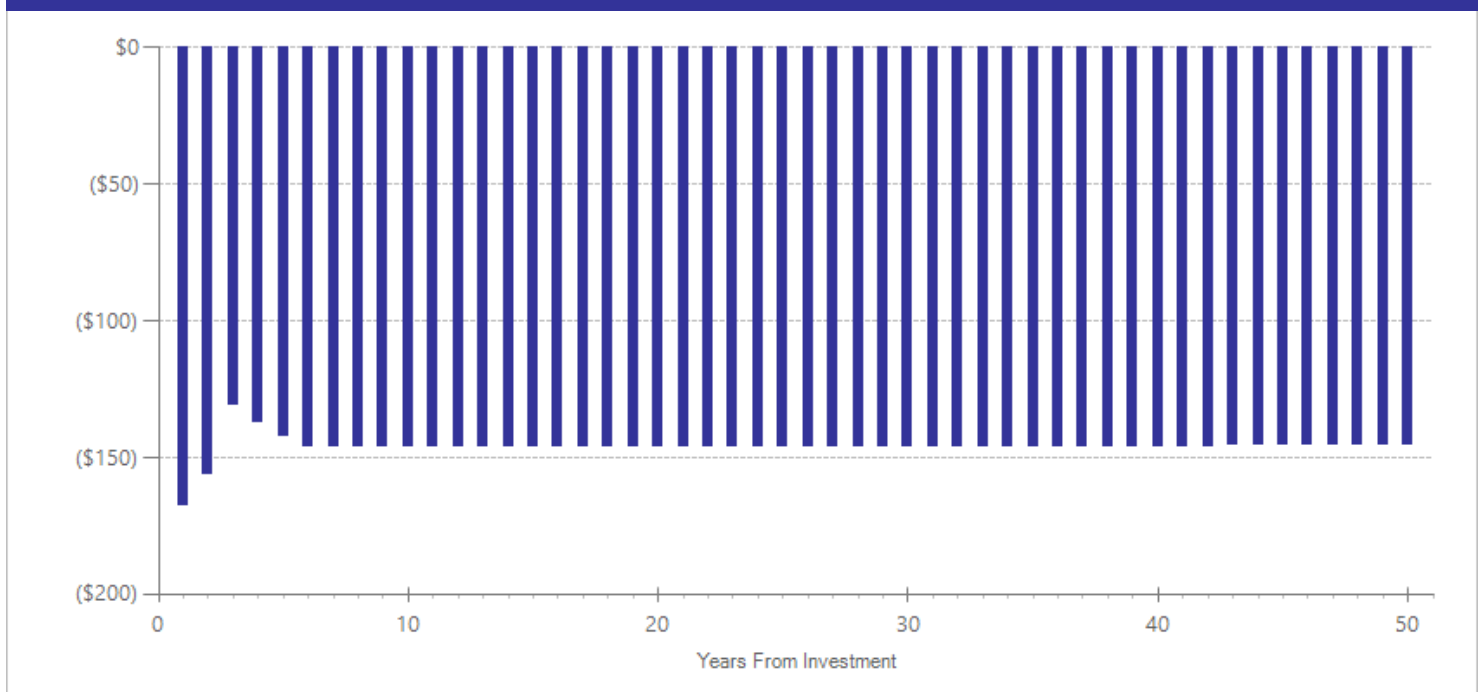
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$114	2014	Present value of net program costs (in 2016 dollars)	(\$116)
Comparison costs	\$0	2014	Cost range (+ or -)	10 %

The Blues Program typically consists of six 1-hour group sessions. In the studies we reviewed, there was an average of 6.85 students per group with an average of 73 students served by each teaching team. The program was team-taught by either a graduate student and undergraduate assistant or two school personnel (typically a school counselor or school nurse). We used the average salary and benefits for a certified school counselor and certified school nurse in the 2014-2015 school year (<http://www.k12.wa.us/safs/PUB/PER/1415/ps.asp>) as the cost for staff time. Program leaders received an average of ten hours of training.

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Major depressive disorder	4	292	-0.201	0.125	18	0.000	0.019	19	-0.313	0.015

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.
- Rohde, P., Stice, E., Shaw, H., & Gau, J.M. (2014). Effectiveness trial of an indicated cognitive-behavioral group adolescent depression prevention program versus bibliotherapy and brochure control at 1- and 2-year follow-up. *Unpublished Manuscript*.
- Stice, E., Burton, E., Bearman, S.K., & Rohde, P. (2006). Randomized trial of a brief depression prevention program: An elusive search for a psychosocial placebo control condition. *Behaviour Research and Therapy*, *45*(5), 863-876.
- Stice, E., Rohde, P., Gau, J.M., & Wade, E. (2010). Efficacy trial of a brief cognitive-behavioral depression prevention program for high-risk adolescents: effects at 1- and 2-year follow-up. *Journal of Consulting and Clinical Psychology*, *78*(6), 856-67.

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

## Children's Mental Health: Depression

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

Program Description: Cognitive behavioral therapies (CBT) include various components, such 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	\$36	Benefit to cost ratio	(\$0.27)
Participants	\$7	Benefits minus costs	(\$566)
Others	\$37	Chance the program will produce	
Indirect	(\$201)	benefits greater than the costs	31 %
<u>Total benefits</u>	<u>(\$122)</u>		
<u>Net program cost</u>	<u>(\$444)</u>		
Benefits minus cost	(\$566)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$3	\$7	\$1	\$11
K-12 grade repetition	\$0	\$1	\$0	\$0	\$1
K-12 special education	\$0	\$9	\$0	\$5	\$14
Labor market earnings associated with major depression	\$5	\$2	\$0	\$4	\$11
Health care associated with major depression	\$8	\$25	\$31	\$13	\$77
Costs of higher education	(\$6)	(\$4)	(\$2)	(\$2)	(\$14)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$222)	(\$222)
<u>Totals</u>	<u>\$7</u>	<u>\$36</u>	<u>\$37</u>	<u>(\$201)</u>	<u>(\$122)</u>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

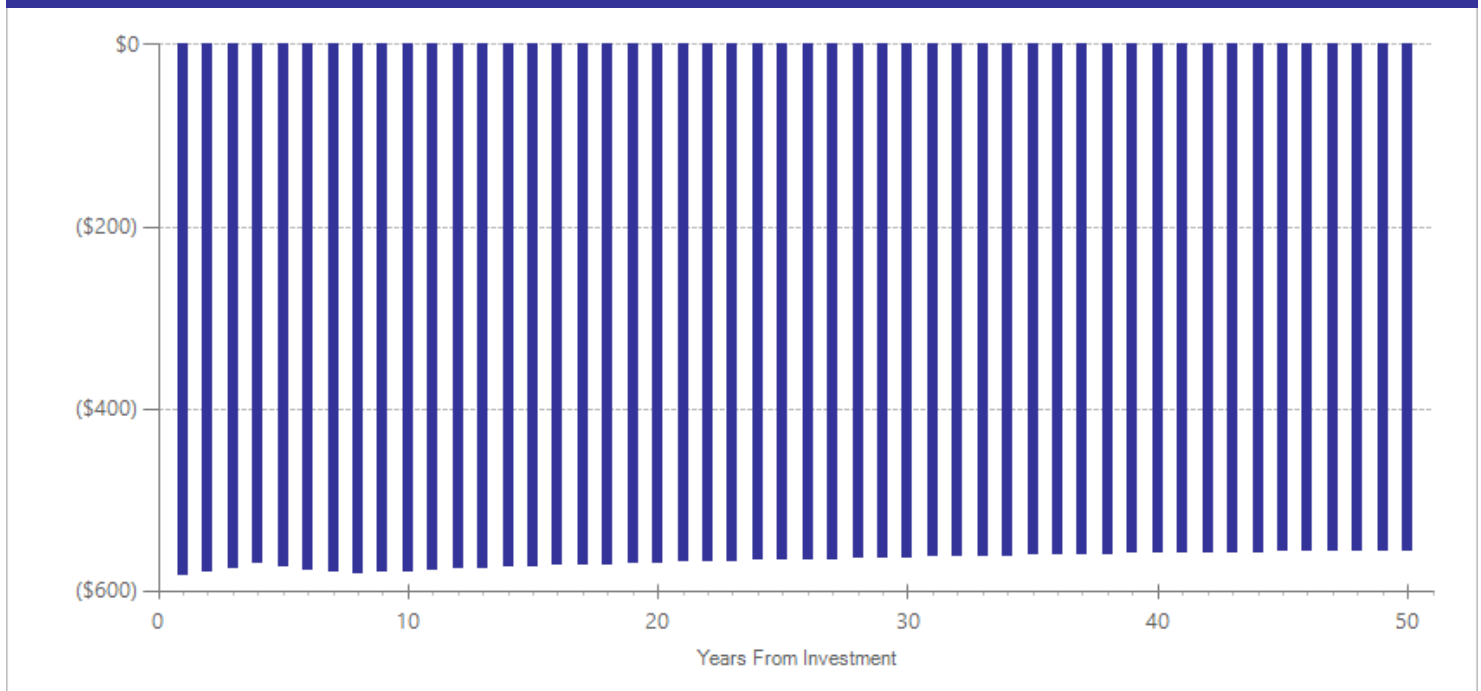
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,245	2015	Present value of net program costs (in 2016 dollars)	(\$444)
Comparison costs	\$806	2015	Cost range (+ or -)	15 %

On average, participants received 14 therapeutic hours. The per-participant cost of treatment by modality (individual or group) was weighted by the treatment Ns reported in the studies. Cost per session is \$44.02/session for group and \$140.90/session for individual modalities (2015 dollars). This rate is based on actuarial tables reported in Mercer (2016) Behavioral Health Data Book for the State of Washington For Rates Effective January 1, 2017. Comparison group costs are based on the average cost of psychotherapy treatment as usual for children and adolescents with depression, based on a WSIPP analysis.

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder <sup>^^</sup>	4	55	-0.222	0.243	14	-0.102	0.117	15	-0.365	0.136
Disruptive behavior disorder symptoms	2	140	-0.049	0.125	14	-0.023	0.066	17	-0.077	0.539
Externalizing behavior symptoms	4	208	-0.005	0.101	14	-0.002	0.052	17	0.031	0.760
Global functioning <sup>^</sup>	6	357	0.147	0.094	14	n/a	n/a	n/a	0.192	0.078
Hospitalization (psychiatric) <sup>^^</sup>	1	41	-0.091	0.214	14	0.000	0.118	15	-0.143	0.504
Internalizing symptoms <sup>^^</sup>	5	183	0.081	0.109	14	0.059	0.088	16	0.104	0.341
Major depressive disorder	18	564	-0.284	0.078	14	0.000	0.024	15	-0.484	0.001
Specialist visits <sup>^</sup>	1	41	-0.086	0.214	14	n/a	n/a	n/a	-0.135	0.529
Suicidal ideation <sup>^</sup>	3	252	-0.244	0.093	14	n/a	n/a	n/a	-0.302	0.001
Suicide attempts <sup>^</sup>	1	41	0.000	0.232	14	n/a	n/a	n/a	0.000	1.000

<sup>^</sup>WSIPP's benefit-cost model does not monetize this outcome.

<sup>^^</sup>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

- Brent, D.A., Holder, D., Kolko, D., Birmaher, B., Baugher, M., Roth, C., . . . Johnson, B.A. (1997). A clinical psychotherapy trial for adolescent depression comparing cognitive, family, and supportive therapy. *Archives of General Psychiatry*, 54(9), 877-885.
- Clarke, G., DeBar, L.L., Pearson, J.A., Dickerson, J.F., Lynch, F.L., Gullion, C.M., & Leo, M.C. (2016). Cognitive Behavioral Therapy in Primary Care for Youth Declining Antidepressants: A Randomized Trial. *Pediatrics*, 137(5), 1-13.
- Clarke, G.N., Hornbrook, M., Lynch, F., Polen, M., Gale, J., O'Connor, E., . . . Debar, L. (2002). Group cognitive-behavioral treatment for depressed adolescent offspring of depressed parents in a health maintenance organization. *Journal of the American Academy of Child & Adolescent Psychiatry*, 41(3), 305-313.
- Clarke, G.N., Rohde, P., Lewinsohn, P.M., Hops, H., & Seeley, J.R. (1999). Cognitive-behavioral treatment of adolescent depression: Efficacy of acute group treatment and booster sessions. *Journal of the American Academy of Child & Adolescent Psychiatry*, 38(3), 272-279.
- Curtis, S.E. (1992). Cognitive-behavioral treatment of adolescent depression: effects on multiple parameters.
- Kahn, J.S., Kehle, T.J., Jenson, W.R., & Clark, E. (1990). Comparison of cognitive-behavioral, relaxation, and self-modeling interventions for depression among middle-school students. *School Psychology Review*, 19(2), 196-211.
- Kennard, B., Silva, S., Vitiello, B., Curry, J., Kratochvil, C., Simons, A., et al. (2006). Remission and residual symptoms after short-term treatment in the Treatment of Adolescents with Depression Study (TADS). *Journal of the American Academy of Child & Adolescent Psychiatry*, 45(12), 1404-1411.
- Lewinsohn, P.M., Clarke, G.N., Hops, H. & Andrews, J. (1990). Cognitive-behavioral treatment for depressed adolescents. *Behavior Therapy*, 21(4), 385-401.
- Liddle, B. & Spence, S.H. (1990). Cognitive-behaviour therapy with depressed primary school children: A cautionary note. *Behavioural Psychotherapy*, 18(2), 85-102.
- Listug-Lunde, L., Vogeltanz-Holm, N., & Collins, J. (2013). A cognitive-behavioral treatment for depression in rural American Indian middle school students. *American Indian and Alaska Native Mental Health Research*, 20(1), 16-34.

- March, J., Silva, S., Petrycki, S., Curry, J., Wells, K., Fairbank, J., et al. (2004). Fluoxetine, cognitive-behavioral therapy, and their combination for adolescents with depression: Treatment for Adolescents With Depression Study (TADS) randomized controlled trial. *JAMA*, *292*(7), 807-820.
- Rohde, P., Clarke, G.N., Mace, D.E., Jorgensen, J.S., & Seeley, J.R. (2004). An efficacy/effectiveness study of cognitive-behavioral treatment for adolescents with comorbid major depression and conduct disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, *43*(6), 660-668.
- Rossello, J., Bernal, G. (1999). The efficacy of cognitive-behavioral and interpersonal treatments for depression in Puerto Rican adolescents. *Journal of Consulting and Clinical Psychology*, *67*(5), 734-745.
- Stark, K.D., Reynolds, W.M., & Kaslow, N.J. (1987). A comparison of the relative efficacy of self-control therapy and a behavioral problem-solving therapy for depression in children. *Journal of Abnormal Child Psychology*, *15*(1), 91-113.
- Vitiello, B., Rohde, P., Silva, S., Wells, K., Casat, C., Waslick, B., et al. (2006). Functioning and quality of life in the Treatment for Adolescents with Depression Study (TADS). *Journal of the American Academy of Child & Adolescent Psychiatry*, *45*(12), 1419-1426.
- Vostanis, P., Feehan, C., Grattan, E., & Bickerton, W.L. (1996). Treatment for children and adolescents with depression: Lessons from a controlled trial. *Clinical Child Psychology and Psychiatry*, *1*(2), 199-212.
- Weisz, J.R., Southam-Gerow, M.A., Gordis, E.B., Connor-Smith, J.K., Chu, B.C., Langer, D.A., . . . Weiss, B. (2009). Cognitive-behavioral therapy versus usual clinical care for youth depression: An initial test of transportability to community clinics and clinicians. *Journal of Consulting and Clinical Psychology*, *77*(3), 383-396.
- Weisz, J.R., Thurber, C.A., Sweeney, L., Proffitt, V.D., & LeGagnoux, G.L. (1997). Brief treatment of mild-to-moderate child depression using primary and secondary control enhancement training. *Journal of Consulting and Clinical Psychology*, *65*(4), 703-707.
- Wood, A., Harrington, R., & Moore, A. (1996). Controlled trial of a brief cognitive-behavioural intervention in adolescent patients with depressive disorders. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *37*(6), 737-746.



# Acceptance and Commitment Therapy (ACT) for children with depression

## Children's Mental Health: Depression

Benefit-cost estimates updated December 2017. 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	\$30	Benefit to cost ratio	(\$0.26)
Participants	\$19	Benefits minus costs	(\$755)
Others	\$31	Chance the program will produce	
Indirect	(\$237)	benefits greater than the costs	31 %
<u>Total benefits</u>	<u>(\$157)</u>		
<u>Net program cost</u>	<u>(\$598)</u>		
Benefits minus cost	(\$755)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
K-12 grade repetition	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with major depression	\$10	\$5	\$0	\$49	\$64
Health care associated with major depression	\$8	\$25	\$31	\$13	\$78
Costs of higher education	\$0	\$0	\$0	\$0	\$0
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$300)	(\$300)
<b>Totals</b>	<b>\$19</b>	<b>\$30</b>	<b>\$31</b>	<b>(\$237)</b>	<b>(\$157)</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

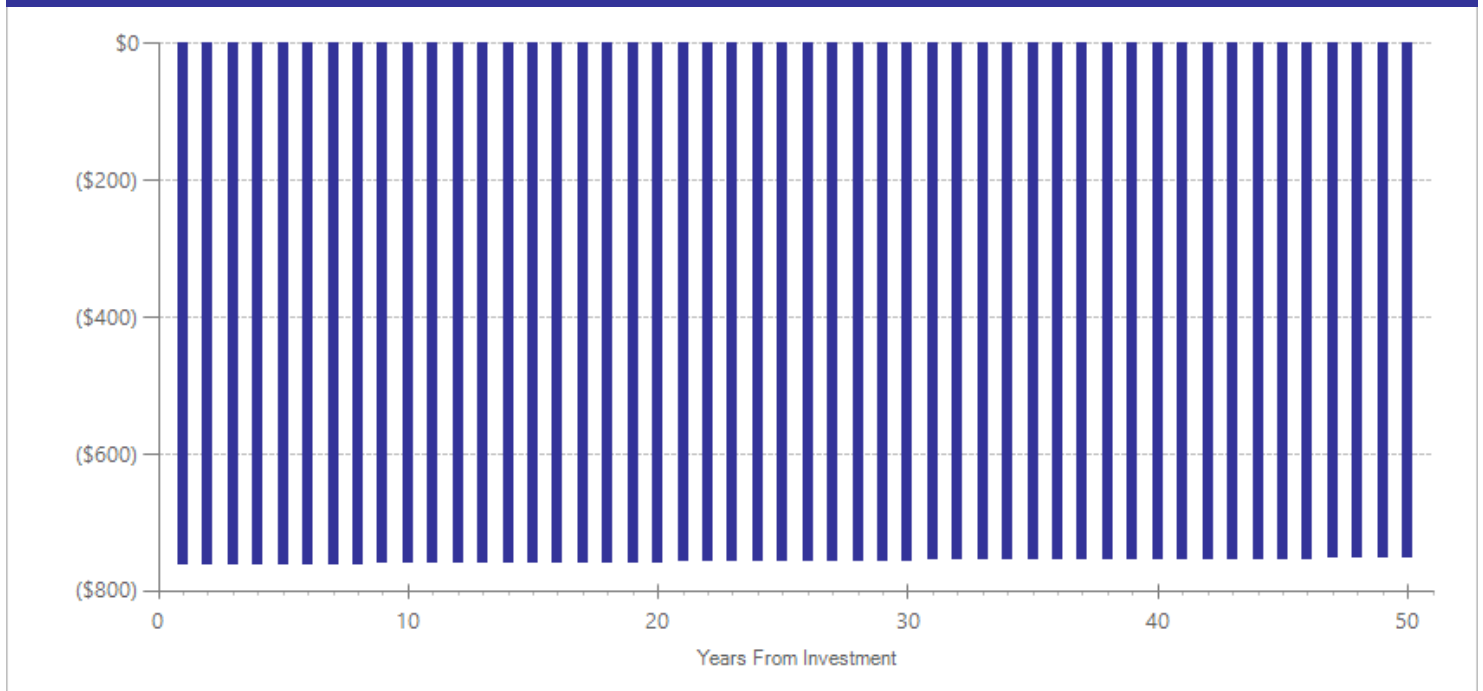
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,417	2016	Present value of net program costs (in 2016 dollars)	(\$598)
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. Comparison costs are based on the average reimbursement for treatment of child 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	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	p-value
			ES	SE	Age	ES	SE	Age		
Major depressive disorder	2	46	-0.281	0.232	15	0.000	0.030	16	-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.

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

- Hayes, L., Boyd, C. P., & Sewell, J. (2011). Acceptance and Commitment Therapy for the treatment of adolescent depression: A pilot study in a psychiatric outpatient setting. *Mindfulness*, 2(2), 86-94.
- Livheim, F., Hayes, L., Ghaderi, A., Magnusdottir, T., Hogfeldt, A., Rowse, J., . . . Tengstrom, A. (2015). The effectiveness of Acceptance and Commitment Therapy for adolescent mental health: Swedish and Australian pilot outcomes. *Journal of Child and Family Studies*, 24(4), 1016-1030.

# Mentoring: Community-based for children with disruptive behavior disorders

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2017. 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 included 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	\$1,933	Benefit to cost ratio	\$3.49
Participants	\$1,680	Benefits minus costs	\$4,085
Others	\$1,596	Chance the program will produce	
Indirect	\$517	benefits greater than the costs	78 %
<b>Total benefits</b>	<b>\$5,727</b>		
<b>Net program cost</b>	<b>(\$1,641)</b>		
<b>Benefits minus cost</b>	<b>\$4,085</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$113	\$287	\$56	\$456
Labor market earnings associated with high school graduation	\$1,618	\$735	\$739	\$739	\$3,829
K-12 grade repetition	\$0	\$34	\$0	\$17	\$50
K-12 special education	\$0	\$679	\$0	\$339	\$1,017
Health care associated with disruptive behavior disorder	\$158	\$486	\$602	\$242	\$1,489
Costs of higher education	(\$96)	(\$113)	(\$31)	(\$57)	(\$297)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$819)	(\$819)
<b>Totals</b>	<b>\$1,680</b>	<b>\$1,933</b>	<b>\$1,596</b>	<b>\$517</b>	<b>\$5,727</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

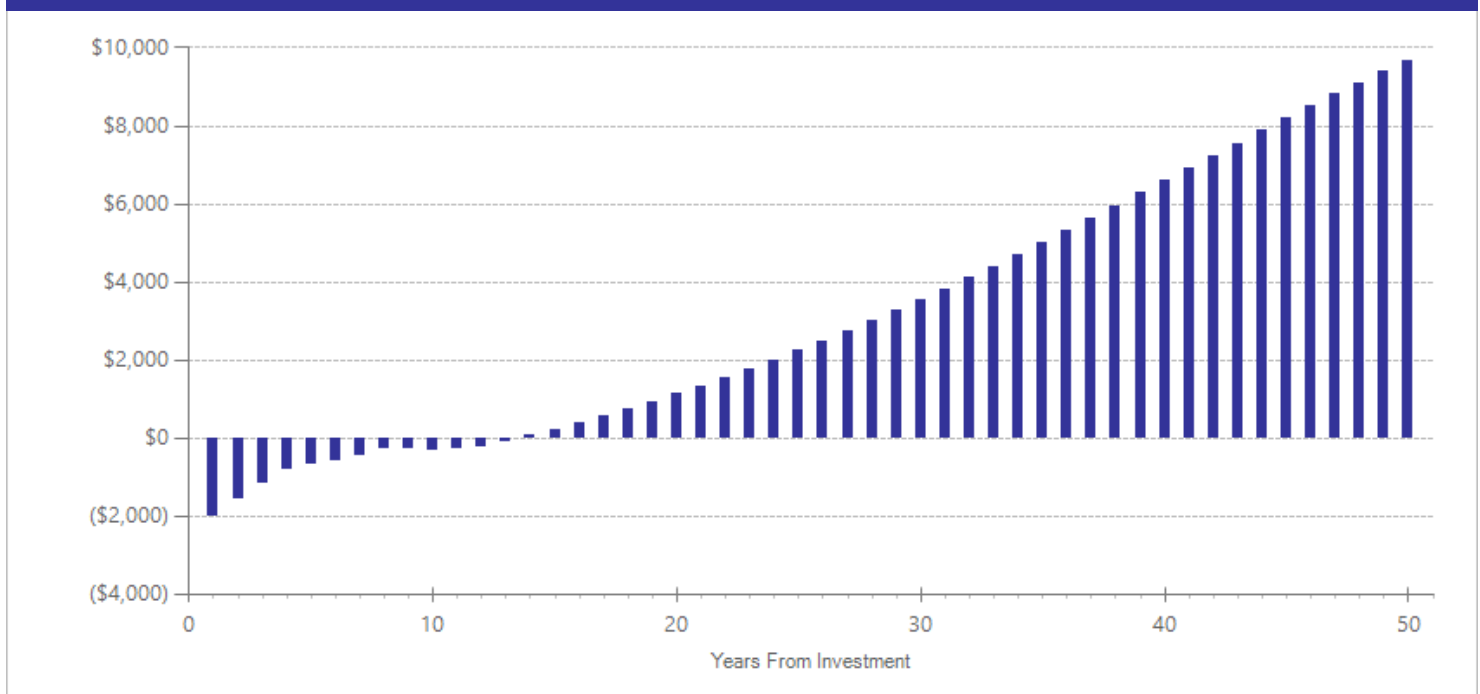
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,640	2016	Present value of net program costs (in 2016 dollars)	(\$1,641)
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	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	p-value
			ES	SE	Age	ES	SE	Age		
Externalizing behavior symptoms	2	72	-0.585	0.378	10	-0.278	0.228	13	-0.782	0.003
Internalizing symptoms	2	72	-0.746	0.262	10	-0.544	0.293	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 disorders

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: In addition to several brand-name parenting programs, we grouped other brief treatments in which parents were taught behavior management skills and communication either alone or with their children (in a family format). In the studies included here, treatment duration ranged from two to six months, with weekly sessions.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$680	Benefit to cost ratio	n/a
Participants	\$754	Benefits minus costs	\$2,383
Others	\$612	Chance the program will produce	
Indirect	\$224	benefits greater than the costs	89 %
<b>Total benefits</b>	<b>\$2,271</b>		
<b>Net program cost</b>	<b>\$112</b>		
<b>Benefits minus cost</b>	<b>\$2,383</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$30	\$72	\$15	\$116
Labor market earnings associated with high school graduation	\$753	\$342	\$346	\$0	\$1,440
K-12 grade repetition	\$0	\$5	\$0	\$2	\$7
K-12 special education	\$0	\$169	\$0	\$84	\$254
Health care associated with disruptive behavior disorder	\$55	\$170	\$211	\$85	\$521
Costs of higher education	(\$54)	(\$36)	(\$16)	(\$18)	(\$123)
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$56	\$56
<b>Totals</b>	<b>\$754</b>	<b>\$680</b>	<b>\$612</b>	<b>\$224</b>	<b>\$2,271</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

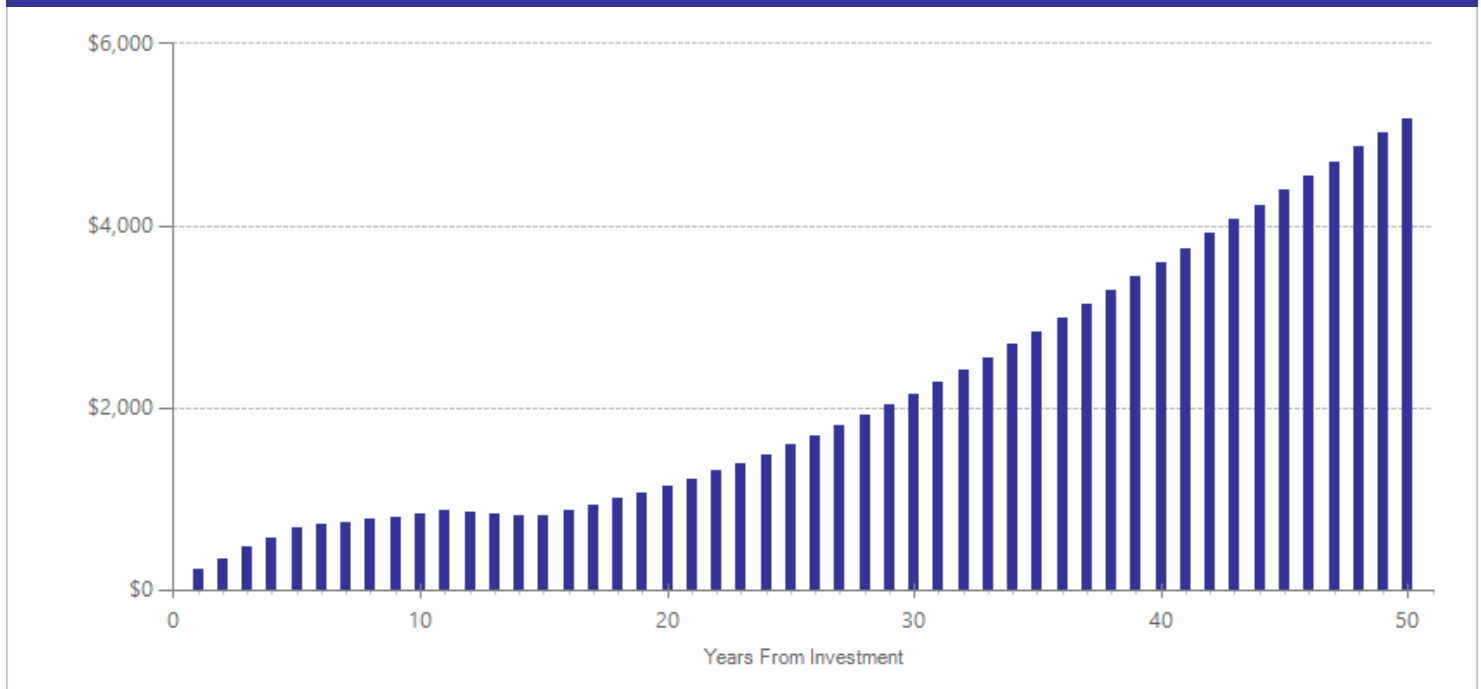
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$778	2010	Present value of net program costs (in 2016 dollars)	\$112
Comparison costs	\$881	2010	Cost range (+ or -)	10 %

These interventions typically take place over a two- to six-month period. We estimated per-participant costs based on therapist time, as reported in the treatment studies. Hourly therapist cost was based on the latest actuarial estimates of reimbursement by modality in WA State (DSHS).

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Disruptive behavior disorder symptoms	7	136	-0.186	0.139	8	-0.089	0.081	11	-0.746	0.001
Internalizing symptoms	2	62	-0.123	0.205	8	-0.090	0.164	10	-0.442	0.033

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

- Behan, J., Fitzpatrick, C., Sharry, J., Carr, A., & Waldron, B. (2001). Evaluation of the Parenting Plus Programme. *The Irish Journal of Psychology, 22*(3-4), 238-256.
- Coughlin, M., Sharry, J., Fitzpatrick, C., Guerin, S., & Drumm, M. (2009). A controlled clinical evaluation of the parents plus children's programme: A video-based programme for parents of children aged 6 to 11 with behavioural and developmental problems. *Clinical Child Psychology and Psychiatry, 14*(4), 541-558.
- Hamilton, S.B., & MacQuiddy, S.L. (1984). Self-administered behavioral parent training: Enhancement of treatment efficacy using a time-out signal seat. *Journal of Clinical Child & Adolescent Psychology, 13*(1), 61-69.
- Landy, S., & Menna, R. (2006). An evaluation of a group intervention for parents with aggressive young children: Improvements in child functioning, maternal confidence, parenting knowledge and attitudes. *Early Child Development and Care, 176*(6), 605-620.
- Luk, E.S.L., Staiger, P., Mathai, J., Field, D., & Adler, R. (1998). Comparison of treatments of persistent conduct problems in primary school children: A preliminary evaluation of a modified cognitive-behavioural approach. *Australian and New Zealand Journal of Psychiatry, 32*(3), 379-386.
- Sayger, T.V., Horne, A.M., Walker, J.M., & Passmore, J.L. (1988). Social learning family therapy with aggressive children: Treatment outcome and maintenance. *Journal of Family Psychology, 1*(3), 261-285.
- Zangwill, W.M. (1983). An evaluation of a parent training program. *Child and Family Behavior Therapy, 5*(4), 1-16.

## Triple-P Positive Parenting Program: Level 4, individual Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: Triple P—Positive Parenting Program (Level 4, self-directed) is an intensive individual-based parenting program for families of children with challenging behavior problems. In the self-directed modality, parents receive a full Level 4 curriculum with a workbook and exercises to complete at their own pace. They are also offered support from a therapist by telephone on a regular basis.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,168	Benefit to cost ratio	\$3.36
Participants	\$1,255	Benefits minus costs	\$2,339
Others	\$1,098	Chance the program will produce	
Indirect	(\$191)	benefits greater than the costs	86 %
<b>Total benefits</b>	<b>\$3,331</b>		
<b>Net program cost</b>	<b>(\$992)</b>		
<b>Benefits minus cost</b>	<b>\$2,339</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$50	\$113	\$25	\$188
Labor market earnings associated with high school graduation	\$1,221	\$555	\$559	\$0	\$2,335
K-12 grade repetition	\$0	\$7	\$0	\$4	\$11
K-12 special education	\$0	\$249	\$0	\$125	\$373
Health care associated with disruptive behavior disorder	\$119	\$364	\$451	\$182	\$1,115
Costs of higher education	(\$84)	(\$56)	(\$25)	(\$28)	(\$194)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$498)	(\$498)
<b>Totals</b>	<b>\$1,255</b>	<b>\$1,168</b>	<b>\$1,098</b>	<b>(\$191)</b>	<b>\$3,331</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

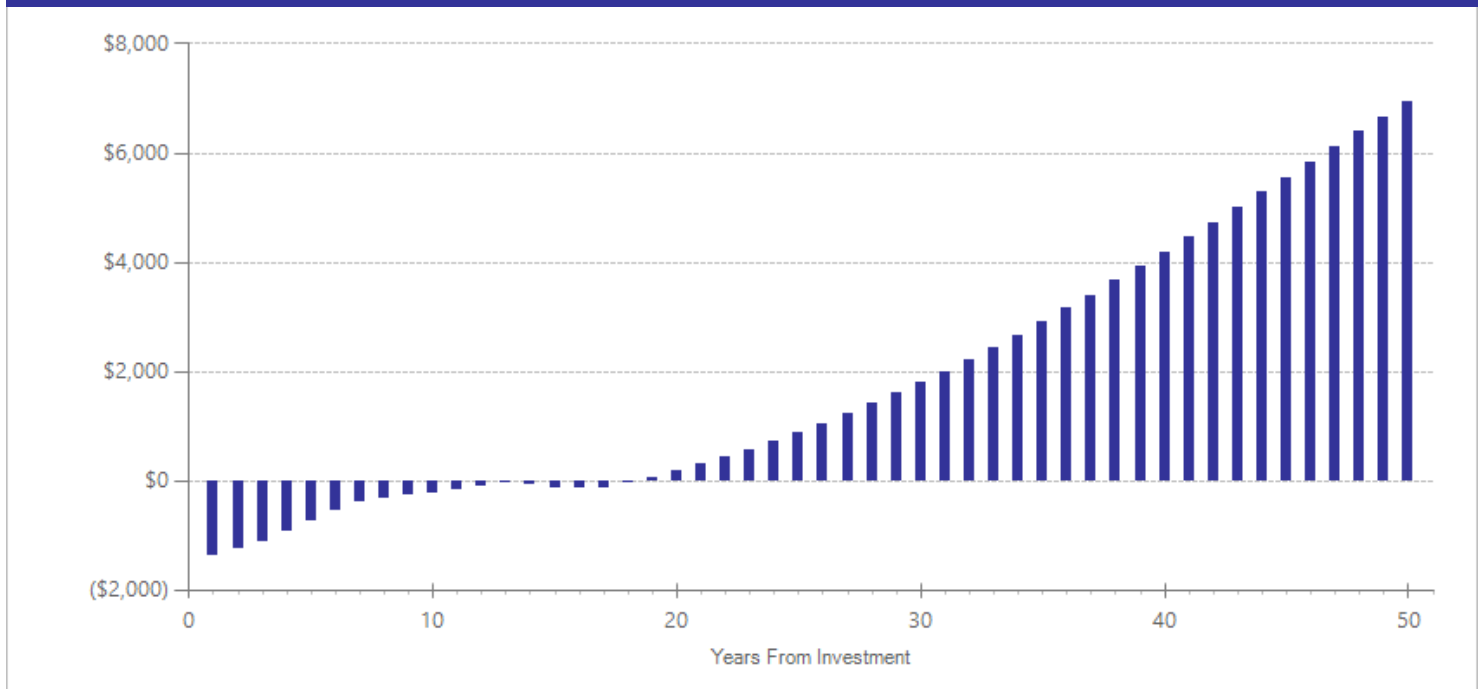
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,792	2010	Present value of net program costs (in 2016 dollars)	(\$992)
Comparison costs	\$881	2010	Cost range (+ or -)	10 %

Expenditures per family provided by Washington State DSHS Children's Administration, June 2011; based on 10-16 sessions of individual family behavioral training over three to four months.

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Disruptive behavior disorder symptoms	5	150	-0.336	0.122	7	-0.160	0.093	10	-0.866	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

- Connell, S., Sanders, M. R., Markie-Dadds, C. (1997). Self-directed behavioral family intervention for parents of oppositional children in rural and remote areas. *Behavior Modification, 21*(4), 379-408.
- Markie-Dadds, C., & Sanders, M. R. (2006). A controlled evaluation of an enhanced self-directed behavioural family intervention for parents of children with conduct problems in rural and remote areas. *Behaviour Change, 23*(1), 55-72.
- Markie-Dadds, C., & Sanders, M. R. (2006). Self-directed Triple P (Positive Parenting Program) for mothers with children at-risk of developing conduct problems. *Behavioural and Cognitive Psychotherapy, 34*(3), 259-276.
- Nicholson, J. M., & Sanders, M. R. (1999). Randomized controlled trial of behavioral family intervention for the treatment of child behavior problems in stepfamilies. *Journal of Divorce and Remarriage, 30*(3/4), 1-23.
- Sanders, M. R., Markie-Dadds, C., Tully, L. A., & Bor, W. (2000). The Triple P-Positive Parenting Program: A comparison of enhanced, standard, and self-directed behavioral family intervention for parents of children with early onset conduct problems. *Journal of Consulting and Clinical Psychology, 68*(4), 624-640.

## Triple-P Positive Parenting Program: Level 4, group Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: Triple P—Positive Parenting Program (Level 4, group) is an intensive class-based parenting program for families of children with more challenging behavior problems. The focus is learning skills and role-playing strategies to cope with and correct behavior problems.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$410	Benefit to cost ratio	n/a
Participants	\$468	Benefits minus costs	\$2,201
Others	\$383	Chance the program will produce	
Indirect	\$380	benefits greater than the costs	100 %
<u>Total benefits</u>	<u>\$1,641</u>		
<u>Net program cost</u>	<u>\$560</u>		
Benefits minus cost	\$2,201		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$19	\$43	\$9	\$72
Labor market earnings associated with high school graduation	\$464	\$211	\$211	\$0	\$886
K-12 grade repetition	\$0	\$3	\$0	\$1	\$4
K-12 special education	\$0	\$87	\$0	\$44	\$131
Health care associated with disruptive behavior disorder	\$36	\$112	\$138	\$56	\$342
Costs of higher education	(\$32)	(\$21)	(\$10)	(\$11)	(\$73)
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$281	\$281
<b>Totals</b>	<b>\$468</b>	<b>\$410</b>	<b>\$383</b>	<b>\$380</b>	<b>\$1,641</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"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	\$367	2010	Present value of net program costs (in 2016 dollars)	\$560
Comparison costs	\$881	2010	Cost range (+ or -)	20 %

This program typically consists of 10-16 sessions over a period of three to four months. Per-family costs are based on current Washington expenditures per family for individual behavioral treatment with Triple P, under the assumption that with group training, eight families could receive training at the same time from the same therapist. We also added an estimated cost for venue rental (a cost that is unnecessary when conducting the program with individual families).

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Disruptive behavior disorder symptoms	8	1154	-0.170	0.043	5	-0.081	0.041	8	-0.491	0.001
Internalizing symptoms	1	186	-0.025	0.127	5	-0.018	0.099	7	-0.066	0.602

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

- Hahlweg, K., Heinrichs, N., Kuschel, A., Bertram, H., & Naumann, S. (2010). Long-term outcome of a randomized controlled universal prevention trial through a positive parenting program: Is it worth the effort? *Child and Adolescent Psychiatry and Mental Health, 4*, 14-27.
- Leung, C., Sanders, M. R., Leung, S., Mak, R., & Lau, J. (2003). An outcome evaluation of the implementation of the Triple P-Positive Parenting Program in Hong Kong. *Family Process, 42*(4), 531-544.
- Matsumoto, Y., Sofronoff, K., & Sanders, M.R. (2007). The efficacy and acceptability of the Triple P-Positive Parenting Program with Japanese parents. *Behaviour Change, 24*(4), 205-218.
- Matsumoto, Y., Sofronoff, K., & Sanders, M.R. (2010). Investigation of the effectiveness and social validity of the Triple P Positive Parenting Program in Japanese society. *Journal of Family Psychology, 24*(1), 87-91.
- Morawska, A., & Sanders, M. (2009). An evaluation of a behavioural parenting intervention for parents of gifted children. *Behaviour Research and Therapy, 47*(6), 463-470.
- Turner, K. M. T., Richards, M., & Sanders, M. R. (2007). Randomised clinical trial of a group parent education programme for Australian indigenous families. *Journal of Paediatrics and Child Health, 43*(6), 429-437.
- Whittingham, K., Sofronoff, K., Sheffield, J., & Sanders, M. R. (2009). Stepping stones Triple P: An RCT of a parenting program with parents of a child diagnosed with an autism spectrum disorder. *Journal of Abnormal Child Psychology, 37*(4), 469-480.
- Zubrick, S. R., Ward, K. A., Silburn, S. R., Lawrence, D., Williams, A. A., Blair, E., et al. (2005). Prevention of child behavior problems through universal implementation of a group behavioral family intervention. *Prevention Science, 6*(4), 287-304.

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

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: Parent Child Interaction Therapy (PCIT) is a program where a therapist directly observes a parent and child through a one-way mirror while providing direct coaching to the parent through a radio earphone. The focus is on building the skills of the parent to more positively interact with the child and manage his or her behavior. Therapists aim to ultimately restructure the parent-child relationship and provide the child with a more secure attachment to the parent.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,154	Benefit to cost ratio	\$2.21
Participants	\$1,286	Benefits minus costs	\$1,704
Others	\$1,092	Chance the program will produce	
Indirect	(\$414)	benefits greater than the costs	78 %
<b>Total benefits</b>	<b>\$3,118</b>		
<b>Net program cost</b>	<b>(\$1,414)</b>		
<b>Benefits minus cost</b>	<b>\$1,704</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$51	\$117	\$25	\$194
Labor market earnings associated with high school graduation	\$1,261	\$573	\$576	\$0	\$2,410
K-12 grade repetition	\$0	\$8	\$0	\$4	\$11
K-12 special education	\$0	\$238	\$0	\$118	\$356
Health care associated with disruptive behavior disorder	\$112	\$343	\$425	\$171	\$1,050
Costs of higher education	(\$87)	(\$58)	(\$26)	(\$29)	(\$200)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$703)	(\$703)
<b>Totals</b>	<b>\$1,286</b>	<b>\$1,154</b>	<b>\$1,092</b>	<b>(\$414)</b>	<b>\$3,118</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.



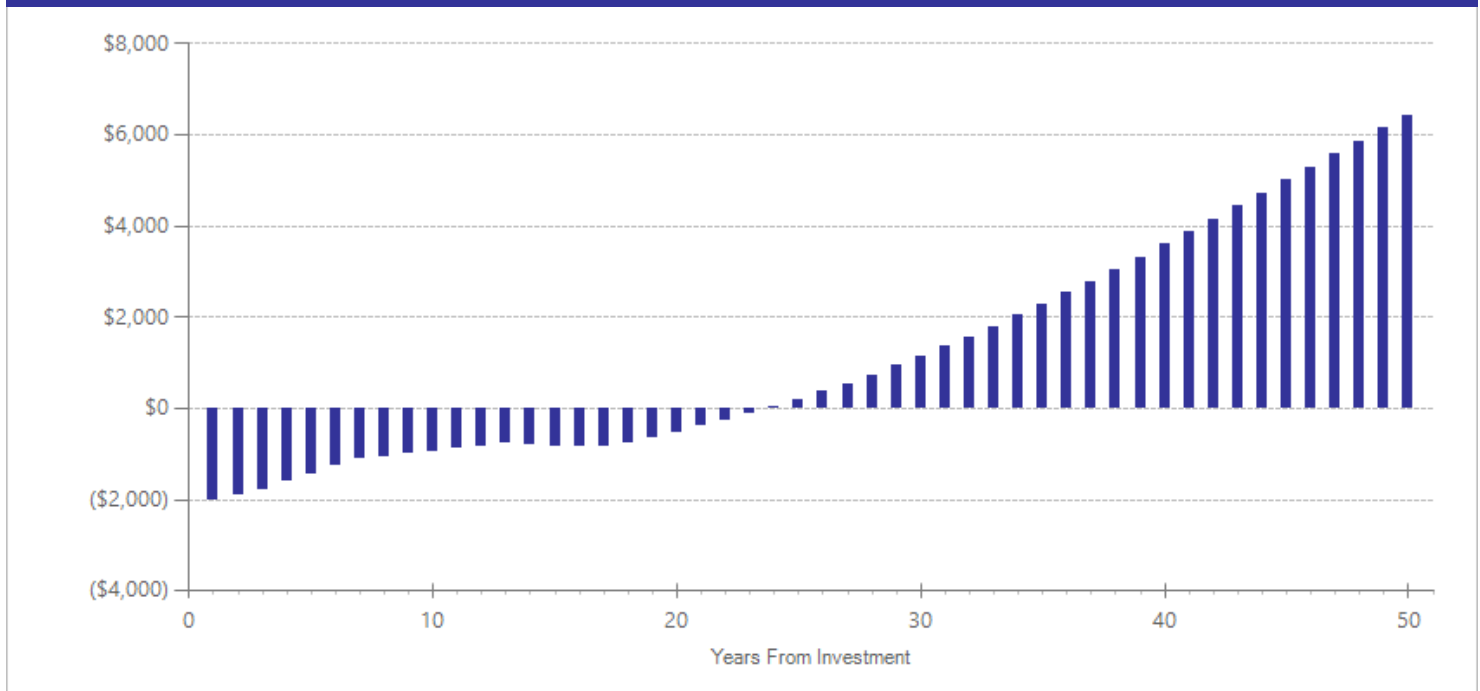
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,240	2007	Present value of net program costs (in 2016 dollars)	(\$1,414)
Comparison costs	\$1,000	2007	Cost range (+ or -)	10 %

This program is typically delivered over a three- to four-month period. Standard per-family PCIT expenditures provided by Washington State DSHS Children's Administration (average reimbursement rate for families receiving PCIT in Washington in 2007).

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	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	p-value
				ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	Primary	4	87	-0.273	0.175	6	-0.001	0.016	7	-0.720	0.001
Disruptive behavior disorder symptoms	Primary	10	213	-0.392	0.102	6	-0.187	0.095	9	-1.045	0.001
Parental stress <sup>^</sup>	Secondary	5	145	-0.860	0.129	31	-0.447	0.158	32	-0.860	0.001

<sup>^</sup>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

- 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.
- Bagner, D. M. & Eyberg, S. M. (2007). Parent-child interaction therapy for disruptive behavior in children with mental retardation: a randomized controlled trial. *Journal of Clinical Child & Adolescent Psychology, 36*, 418-429.
- 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.
- Matos, M., Bauermeister, J. J., & Bernal, G. (2009). Parent-Child Interaction Therapy for Puerto Rican preschool children with ADHD and behavior problems: A pilot efficacy study. *Family Process, 48*(2), 232-252.
- McCabe, K., & Yeh, M. (2009). Parent-Child Interaction Therapy for Mexican Americans: A randomized clinical trial. *Journal of Clinical Child and Adolescent Psychology, 38*(5), 753-759.
- McNeil, C. B., Capage, L. C., Bahl, A., & Blanc, H. (1999). Importance of early intervention for disruptive behavior problems: Comparison of treatment and waitlist-control groups. *Early Education and Development, 10*(4), 445-454.
- Nixon, R. D. V. (2001). Changes in hyperactivity and temperament in behaviourally disturbed preschoolers after parent-child interaction therapy (PCIT). *Behaviour Change, 18*(3), 168-176.
- Nixon, R. D., Sweeney, L., Erickson, D. B., & Touyz, S. W. (2003). Parent-child interaction therapy: A comparison of standard and abbreviated treatments for oppositional defiant preschoolers. *Journal of Consulting and Clinical Psychology, 71*(2), 251-260.
- Schuhmann, E.M., Foote, R.C., Eyberg, S.M., Boggs, S.R., & Algina, J. (1998). Efficacy of Parent-Child Interaction Therapy: Interim report of a randomized trial with short-term maintenance. *Journal of Clinical Child & Adolescent Psychology, 27*(1), 34-45.
- Solomon, M., Ono, M., Timmer, S., & Goodlin-Jones, B. (2008). The effectiveness of Parent-Child Interaction Therapy for families of children on the autism spectrum. *Journal of Autism and Developmental Disorders, 38*(9), 1767-1776.

# Parent Management Training—Oregon Model (treatment population)

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2017. Literature review updated May 2015.

Program Description: Parent Management Training—Oregon Model (PMTO) is a family-based program that focuses on teaching parents to apply five parenting practices: skill encouragement, appropriate discipline, monitoring, problem solving, and positive involvement. This analysis focuses on the use of PMTO in populations with emerging or identified conduct problems.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$698	Benefit to cost ratio	\$2.77
Participants	\$531	Benefits minus costs	\$1,234
Others	\$588	Chance the program will produce	
Indirect	\$115	benefits greater than the costs	84 %
<b>Total benefits</b>	<b>\$1,932</b>		
<b>Net program cost</b>	<b>(\$698)</b>		
<b>Benefits minus cost</b>	<b>\$1,234</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$43	\$105	\$22	\$169
Labor market earnings associated with high school graduation	\$497	\$226	\$228	\$228	\$1,180
K-12 grade repetition	\$0	\$6	\$0	\$3	\$8
K-12 special education	\$0	\$233	\$0	\$117	\$350
Health care associated with disruptive behavior disorder	\$70	\$215	\$266	\$108	\$658
Costs of higher education	(\$37)	(\$24)	(\$11)	(\$12)	(\$84)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$350)	(\$350)
<b>Totals</b>	<b>\$531</b>	<b>\$698</b>	<b>\$588</b>	<b>\$115</b>	<b>\$1,932</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

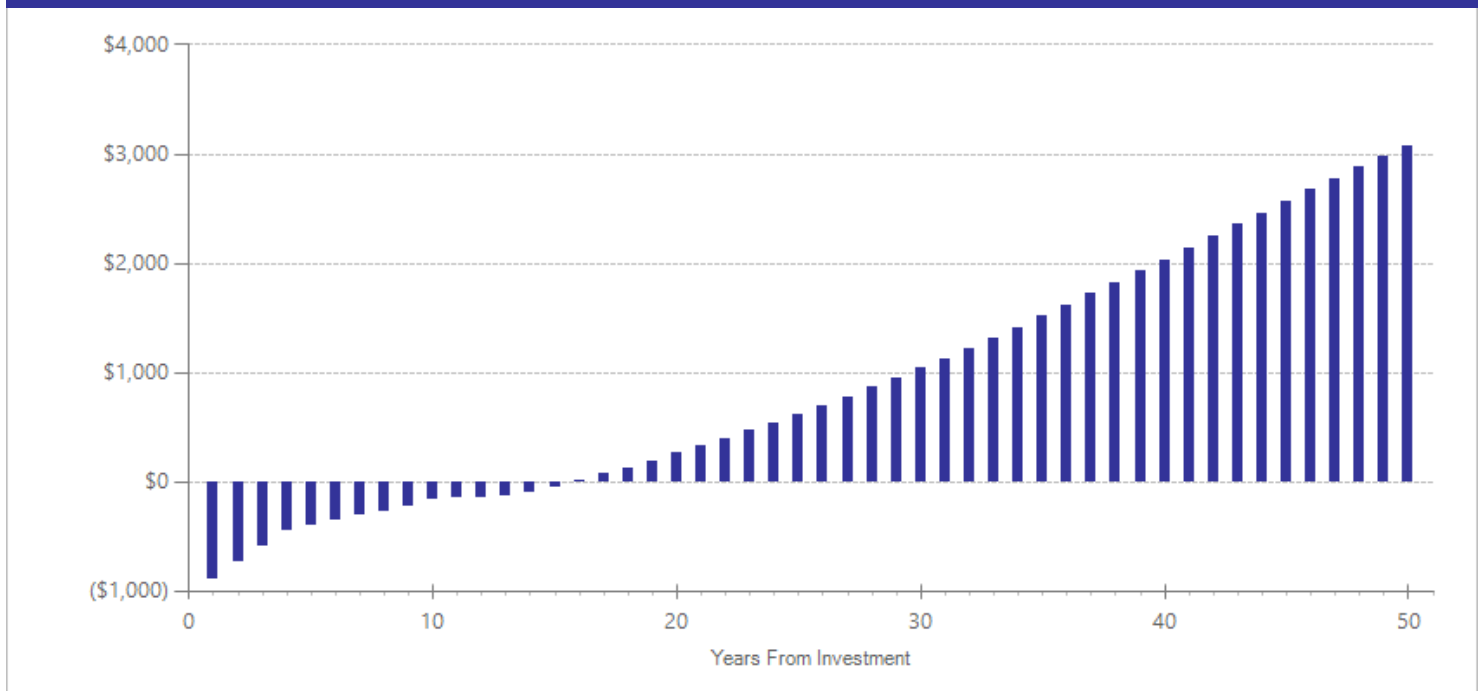
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,520	2011	Present value of net program costs (in 2016 dollars)	(\$698)
Comparison costs	\$863	2011	Cost range (+ or -)	10 %

This program was delivered in a group format and an individual family therapy format. An average of 14 staff hours were required to deliver the program to the families in the evaluations that we reviewed. The families in the comparison groups received an average of 7.95 staff hours. The type of provider varied widely depending on the delivery format and specific setting. We estimated the hourly staff costs from the reimbursement rates of therapeutic psychoeducation in the community for a non-disabled population, based on actuarial tables reported for disabled adults in Mercer. (2013). *Behavioral Health Data Book for the State of Washington for Rates Effective January 1, 2014*.

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Externalizing behavior symptoms	4	274	-0.271	0.090	8	-0.129	0.072	11	-0.271	0.003
Internalizing symptoms	3	232	-0.148	0.097	8	-0.108	0.086	10	-0.148	0.129

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.
- Bjørknes, R., & Manger, T. (2013). Can parent training alter parent practice and reduce conduct problems in ethnic minority children? A randomized controlled trial. *Prevention*, 14(1), 52-63.
- Kjøbli, J., & Ogden, T. (2012). A randomized effectiveness trial of brief parent training in primary care settings. *Prevention Science*, 13(6), 616-26.
- Kjøbli, J., Hukkelberg, S., & Ogden, T. (2013). A randomized trial of group parent training: reducing child conduct problems in real-world settings. *Behaviour Research and Therapy*, 51(3), 113-21.
- Ogden, T. & Hagen, K.A. (2008). Treatment effectiveness of Parent Management Training in Norway: a randomized controlled trial of children with conduct problems. *Journal of Consulting and Clinical Psychology*, 74(4), 607-21.

# Collaborative primary care for children with behavior disorders

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2017. 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	\$466	Benefit to cost ratio	\$5.10
Participants	\$541	Benefits minus costs	\$1,127
Others	\$422	Chance the program will produce	
Indirect	(\$28)	benefits greater than the costs	73 %
<b>Total benefits</b>	<b>\$1,401</b>		
<b>Net program cost</b>	<b>(\$275)</b>		
<b>Benefits minus cost</b>	<b>\$1,127</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$22	\$53	\$11	\$85
Labor market earnings associated with high school graduation	\$547	\$248	\$251	\$0	\$1,046
K-12 grade repetition	\$0	\$3	\$0	\$2	\$5
K-12 special education	\$0	\$115	\$0	\$57	\$172
Health care associated with disruptive behavior disorder	\$34	\$105	\$130	\$52	\$322
Costs of higher education	(\$40)	(\$27)	(\$12)	(\$13)	(\$92)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$137)	(\$137)
<b>Totals</b>	<b>\$541</b>	<b>\$466</b>	<b>\$422</b>	<b>(\$28)</b>	<b>\$1,401</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

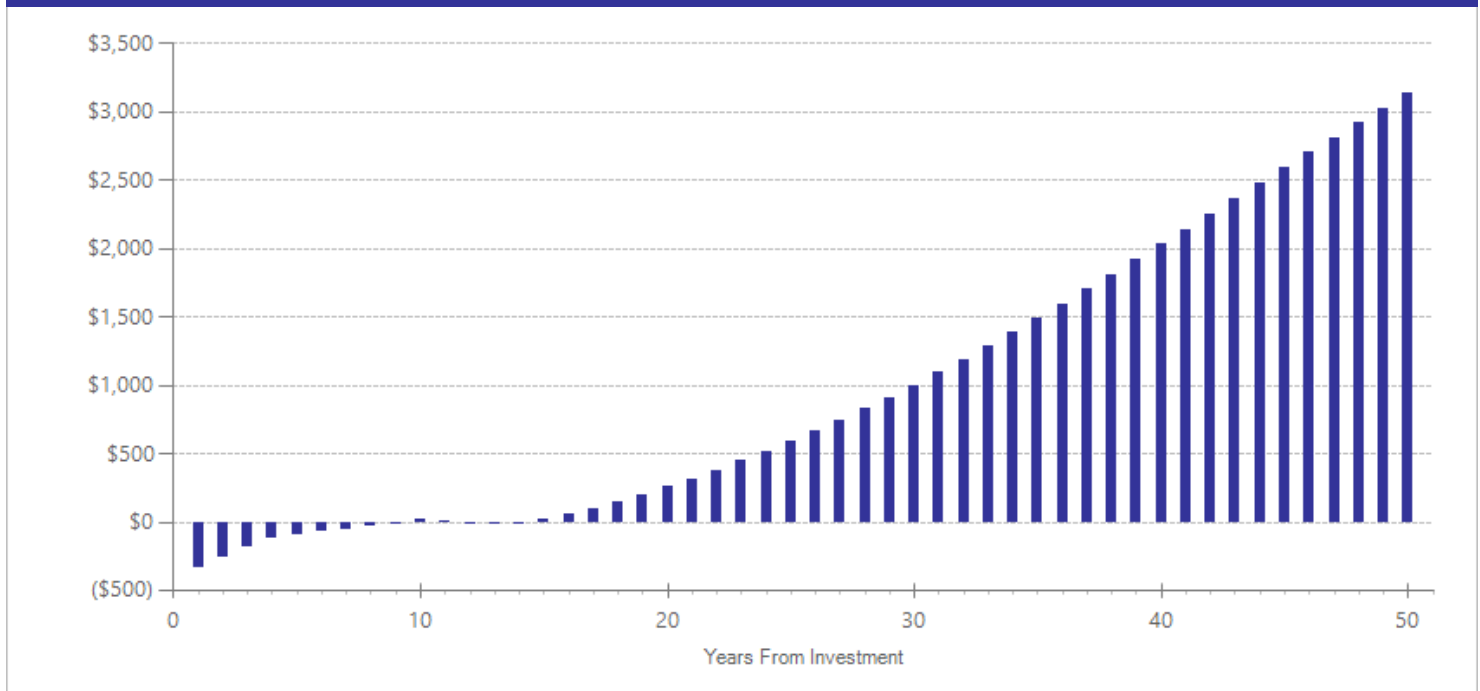
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$511	2010	Present value of net program costs (in 2016 dollars)	(\$275)
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	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	p-value
			ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	2	201	-0.161	0.141	8	0.000	0.010	9	-0.309	0.075
Disruptive behavior disorder symptoms	2	201	-0.138	0.141	8	-0.066	0.078	11	-0.247	0.081

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

- Kolko, D.J., Campo, J., Kilbourne, A.M., Hart, J., Sakolsky, D., & Wisniewski, S. (2014). Collaborative care outcomes for pediatric behavioral health problems: a cluster randomized trial. *Pediatrics*, *133*(4), 981-92.
- Kolko, D.J., Campo, J.V., Kilbourne, A.M., & Kelleher, K. (2012). Doctor-office collaborative care for pediatric behavioral problems: a preliminary clinical trial. *Archives of Pediatrics & Adolescent Medicine*, *166*(3), 224-31.



## Incredible Years: Parent training Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: Incredible Years Parent Training ([www.incredibleyears.com](http://www.incredibleyears.com)) is a group, skills-based behavioral intervention for parents of children with behavior problems. 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. Training classes include child care, a family meal, and transportation.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$934	Benefit to cost ratio	\$1.79
Participants	\$1,429	Benefits minus costs	\$1,039
Others	\$498	Chance the program will produce	
Indirect	(\$500)	benefits greater than the costs	55 %
<u>Total benefits</u>	<u>\$2,360</u>		
<u>Net program cost</u>	<u>(\$1,321)</u>		
Benefits minus cost	\$1,039		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$16	\$37	\$8	\$62
Labor market earnings associated with high school graduation	\$402	\$183	\$185	\$0	\$769
K-12 grade repetition	\$0	\$4	\$0	\$2	\$6
K-12 special education	\$0	\$75	\$0	\$38	\$113
Health care associated with disruptive behavior disorder	\$34	\$106	\$131	\$53	\$324
Costs of higher education	(\$28)	(\$19)	(\$8)	(\$9)	(\$64)
<b>Subtotals</b>	<b>\$408</b>	<b>\$365</b>	<b>\$345</b>	<b>\$92</b>	<b>\$1,210</b>
From secondary participant					
Labor market earnings associated with major depression	\$980	\$445	\$0	\$9	\$1,434
Health care associated with major depression	\$40	\$124	\$153	\$62	\$379
<b>Subtotals</b>	<b>\$1,021</b>	<b>\$569</b>	<b>\$153</b>	<b>\$70</b>	<b>\$1,813</b>
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$662)	(\$662)
<b>Totals</b>	<b>\$1,429</b>	<b>\$934</b>	<b>\$498</b>	<b>(\$500)</b>	<b>\$2,360</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"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

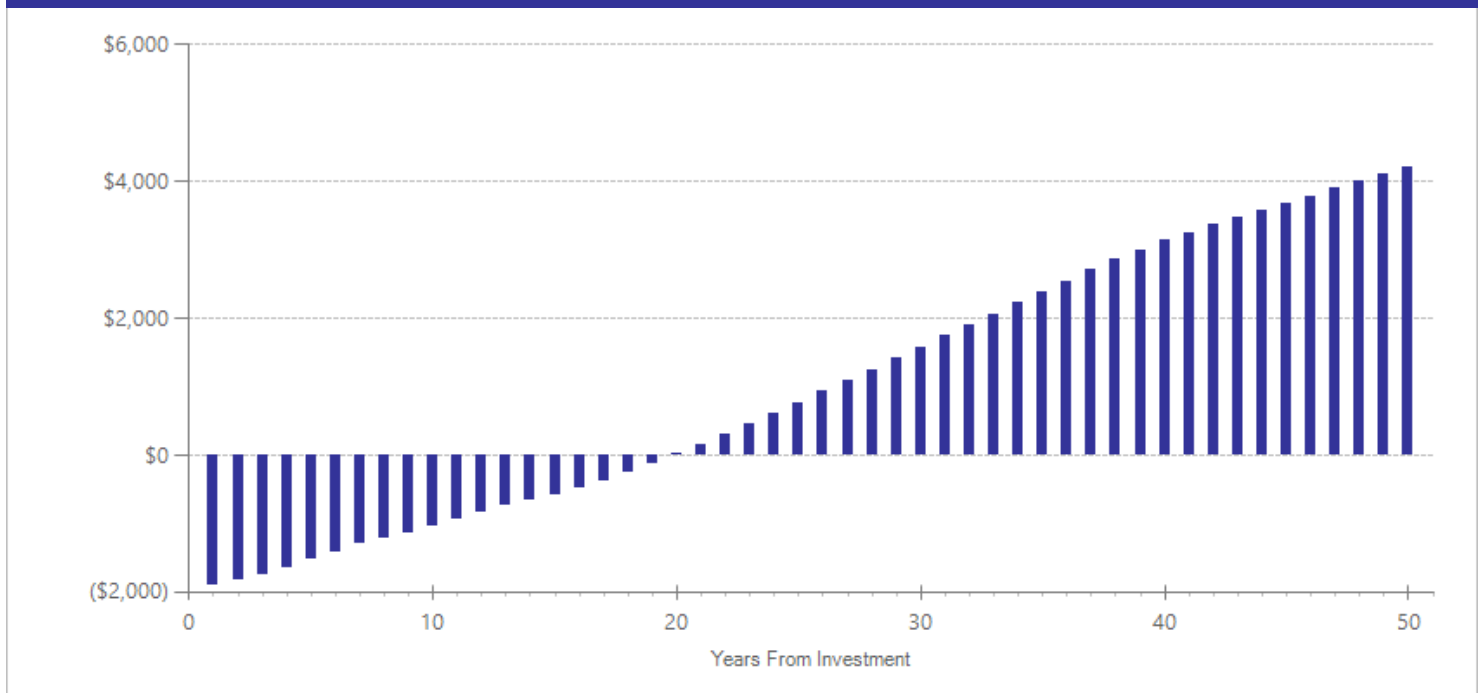
	Annual cost	Year dollars	Summary	
Program costs	\$2,215	2013	Present value of net program costs (in 2016 dollars)	(\$1,321)
Comparison costs	\$881	2010	Cost range (+ or -)	10 %

This intervention typically takes place over 12 to 16 weekly sessions. The costs to administer parent training classes per family were provided by Washington State DSHS Children's Administration, 2012. WSIPP also added costs for practitioner training and curriculum for the parent classes, based on the findings of Foster et al., 2007 (training and curricula costs are low on a per-family basis, as curricula are shared between practitioners and distributed across many families who receive the intervention). Based on personal communication with Lisa St. George from Incredible Years (June 2014), we assumed that a practitioner team might use their purchased training and curricula to serve 24 families per year on average, for about five years (120 families served per team).

Foster, E.M., Olchowski, A.E., & Webster-Stratton, C.H. (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(11).

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	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	Primary	1	50	-0.220	0.234	6	-0.001	0.015	7	-0.595	0.013
Disruptive behavior disorder symptoms	Primary	17	1280	-0.126	0.047	6	-0.060	0.035	9	-0.452	0.001
Internalizing symptoms	Primary	3	187	-0.103	0.116	6	-0.075	0.095	8	-0.348	0.003
Major depressive disorder	Secondary	4	210	-0.094	0.160	26	-0.049	0.195	27	-0.094	0.557
Parental stress <sup>^</sup>	Secondary	4	202	-0.407	0.168	26	-0.212	0.206	27	-0.605	0.016

<sup>^</sup>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

- Gardner, F., Burton, J., & Klimes, I. (2006). Randomised controlled trial of a parenting intervention in the voluntary sector for reducing child conduct problems: Outcomes and mechanisms of change. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 47(11), 1123-1132.
- Gross, D., Fogg, L., Webster-Stratton, C., Garvey, C., Julion, W., & Grady, J. (2003). Parent training of toddlers in day care in low-income urban communities. *Journal of Consulting and Clinical Psychology*, 71(2), 261-278.
- Herman, K.C., Borden, L., Reinke, W.M., & Webster-Stratton, C. (n.d.). *The impact of the Incredible Years parent, child, and teacher training programs on children's co-occurring internalizing symptoms*. Manuscript submitted for publication.
- Hutchings, J., Gardner, F., Bywater, T., Daley, D., Whitaker, C., Jones, K., . . . Edwards, R.T. (2007). Parenting intervention in Sure Start services for children at risk of developing conduct disorder: Pragmatic randomised controlled trial. *British Medical Journal*, 334(7595), 678-682.
- Jones, K., Daley, D., Hutchings, J., Bywater, T., & Eames, C. (2007). Efficacy of the Incredible Years basic parent training programme as an early intervention for children with conduct problems and ADHD. *Child: Care, Health And Development*, 33(6), 749-756.
- Kim, E., Cain, K.C., & Webster-Stratton, C. (2008). The preliminary effect of a parenting program for Korean American mothers: A randomized controlled experimental study. *International Journal of Nursing Studies*, 45(9), 1261-1273.
- 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.
- Lavigne, J.V., Lebailly, S.A., Gouze, K.R., Cicchetti, C., Pochyly, J., Arend, R., . . . Binns, H.J. (2008). Treating oppositional defiant disorder in primary care: A comparison of three models. *Journal of Pediatric Psychology*, 33(5), 449-461.
- Letarte, M.-J., Normandeau, S., & Allard, J. (2010). Effectiveness of a parent training program 'Incredible Years' in a child protection service. *Child Abuse & Neglect*, 34(4), 253-261.
- Linares, L.O., Montalto, D., Li, M.M., & Oza, V.S. (2006). A promising parenting intervention in foster care. *Journal of Consulting and Clinical Psychology*, 74(1), 32-41.
- McGilloway, S., Ni, M.G., Bywater, T., Furlong, M., Leckey, Y., Kelly, P., Comiskey, C., ... Donnelly, M. (2012). A parenting intervention for childhood behavioral problems: a randomized controlled trial in disadvantaged community-based settings. *Journal of Consulting and Clinical Psychology*, 80(1), 116-27.
- Perrin, E.C., Sheldrick, R.C., McMenamy, J.M., Henson, B.S., & Carter, A.S. (2014). Improving parenting skills for families of young children in pediatric settings: A randomized clinical trial. *Jama Pediatrics*, 168(1), 16-24.

- Reid, M.J., Webster-Stratton, C., & Beauchaine, T.P. (2001). Parent training in Head Start: A comparison of program response among African American, Asian American, Caucasian, and Hispanic mothers. *Prevention Science, 2*(4), 209-227.
- Scott, S., Spender, Q., Doolan, M., Jacobs, B., & Aspland, H. (2001). Multicentre controlled trial of parenting groups for childhood antisocial behaviour in clinical practice. *British Medical Journal, 323*(7306), 194-198.
- Scott, S., O'Connor, T. G., Futh, A., Matias, C., Price, J., & Doolan, M. (2010). Impact of a parenting program in a high-risk, multi-ethnic community: The PALS trial. *Journal of Child Psychology and Psychiatry, 51*(12), 1331-1341.
- Stewart-Brown, S., Patterson, J., Mockford, C., Barlow, J., Klimes, I., & Pyper, C. (2004). Impact of a general practice based group parenting programme: Quantitative and qualitative results from a controlled trial at 12 months. *Archives of Disease in Childhood, 89*(6), 519-525.
- Taylor, T. K., Schmidt, F., Pepler, D., & Hodgins, C. (1998). A comparison of eclectic treatment with Webster-Stratton's parents and children series in a children's mental health center: A randomized controlled trial. *Behavior Therapy, 29*(2), 221-240.
- 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., & Herman, K. C. (2008). The impact of parent behavior-management training on child depressive symptoms. *Journal of Counseling Psychology, 55*(4), 473-484.
- Webster-Stratton, C., Kolpacoff, M., & Hollinsworth, T. (1988). Self-administered videotape therapy for families with conduct-problem children: Comparison with two cost-effective treatments and a control group. *Journal of Consulting and Clinical Psychology, 56*(4), 558-566.
- Webster-Stratton, C. (1984). Randomized trial of two parent-training programs for families with conduct-disordered children. *Journal of Consulting and Clinical Psychology, 52*(4), 666-678.

# Multimodal Therapy (MMT) for children with disruptive behavior

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: These treatments target more than one setting with psychosocial interventions. For instance, many therapies intervene with both parents and teachers. In this analysis, all studies utilized either behavioral or cognitive-behavioral orientations. Interventions included in our review varied in intensity (multiple times per day to biweekly) and duration (three to nine months).

### Benefit-Cost Summary Statistics Per Participant

#### Benefits to:

Taxpayers	\$761	Benefit to cost ratio	\$1.70
Participants	\$1,446	Benefits minus costs	\$945
Others	\$726	Chance the program will produce	
Indirect	(\$629)	benefits greater than the costs	51 %
<u>Total benefits</u>	<u>\$2,303</u>		
<u>Net program cost</u>	<u>(\$1,358)</u>		
Benefits minus cost	\$945		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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:<sup>1</sup>

#### Benefits to:

	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$9	\$21	\$4	\$34
Labor market earnings associated with test scores	\$1,451	\$659	\$639	\$0	\$2,750
K-12 grade repetition	\$0	\$1	\$0	\$1	\$2
K-12 special education	\$0	\$49	\$0	\$24	\$74
Health care associated with disruptive behavior disorder	\$19	\$59	\$73	\$29	\$180
Costs of higher education	(\$25)	(\$17)	(\$8)	(\$7)	(\$57)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$680)	(\$680)
<u>Totals</u>	<u>\$1,446</u>	<u>\$761</u>	<u>\$726</u>	<u>(\$629)</u>	<u>\$2,303</u>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

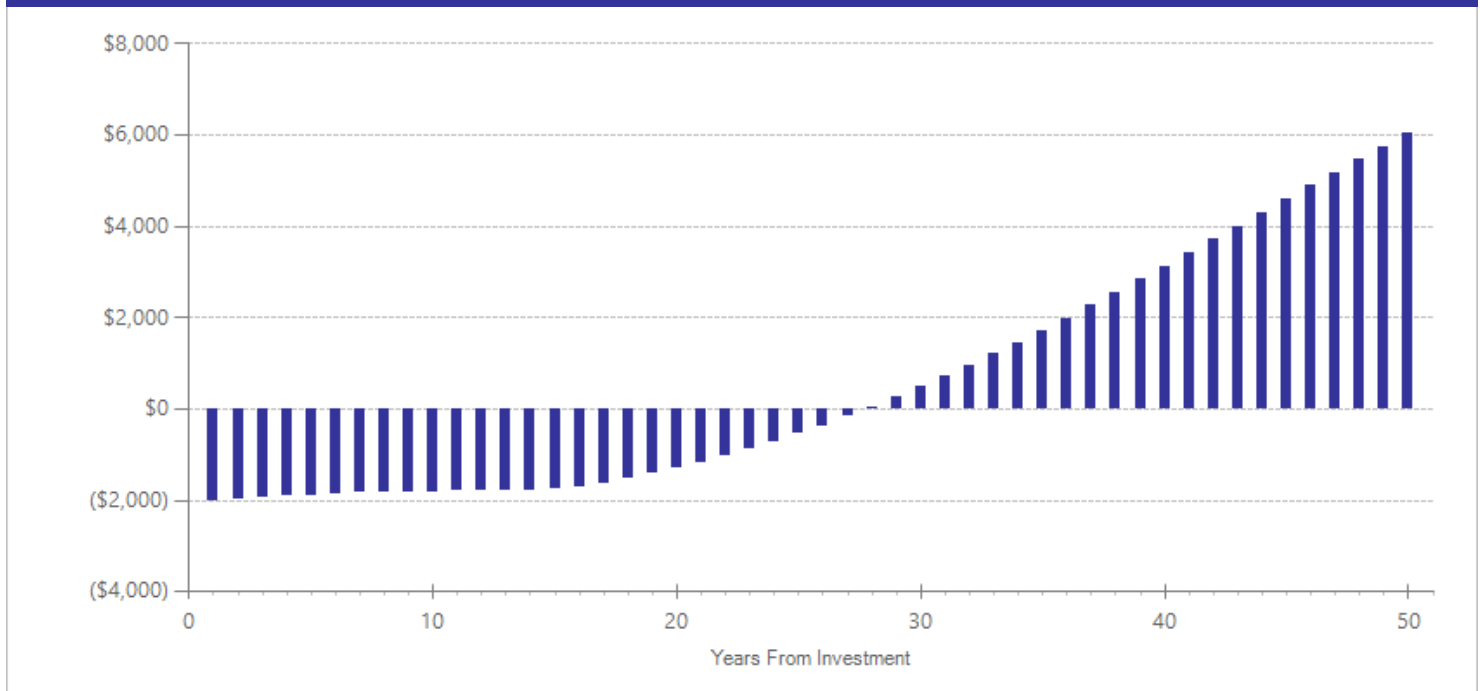
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,128	2010	Present value of net program costs (in 2016 dollars)	(\$1,358)
Comparison costs	\$881	2010	Cost range (+ or -)	10 %

These interventions vary in length, typically taking place over a three- to nine-month period. We estimated per-participant costs based on therapist time, as reported in the treatment studies. Hourly therapist cost was based on the actuarial estimates of reimbursement by modality Mercer, (2013). *Behavioral Health Data Book for the State of Washington for Rates Effective January 1, 2014*.

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	1	40	-0.027	0.221	6	0.000	0.011	9	-0.084	0.706
Disruptive behavior disorder symptoms	3	101	-0.054	0.174	8	-0.026	0.091	11	-0.274	0.524
Test scores	1	40	0.047	0.221	6	0.019	0.243	17	0.073	0.742

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

- Barkley, R.A., Shelton, T.L., Crosswait, C., Moorehouse, M., Fletcher, K., Barrett, S., . . . Metevia, L. (2000). Multi-method psycho-educational intervention for preschool children with disruptive behavior: Preliminary results at post-treatment. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 41(3), 319-332.
- Van de Wiel, N.M.H., Matthys, W., Cohen-Kettenis, P.T., Maassen, G.H., Lochman, J.E., & van Engeland, H. (2007). The effectiveness of an experimental treatment when compared to care as usual depends on the type of care as usual. *Behavior Modification*, 31(3), 298- 312.
- Walker, H.M., Kavanagh, K., Stiller, B., Golly, A., Severson, H.H., & Feil, E.D. (1998). First step to success: An early intervention approach for preventing school antisocial behavior. *Journal of Emotional and Behavioral Disorders*, 6(2), 66-80.

## Helping the Noncompliant Child

### Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2017. Literature review updated June 2015.

Program Description: In this program, a therapist directly observes a parent and child through a one-way mirror, and provides direct 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	\$574	Benefit to cost ratio	\$2.23
Participants	\$634	Benefits minus costs	\$857
Others	\$549	Chance the program will produce	
Indirect	(\$203)	benefits greater than the costs	65 %
<u>Total benefits</u>	<u>\$1,555</u>		
<u>Net program cost</u>	<u>(\$698)</u>		
Benefits minus cost	\$857		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$25	\$57	\$13	\$95
Labor market earnings associated with high school graduation	\$617	\$280	\$282	\$0	\$1,180
K-12 grade repetition	\$0	\$4	\$0	\$2	\$5
K-12 special education	\$0	\$112	\$0	\$56	\$168
Health care associated with disruptive behavior disorder	\$59	\$180	\$223	\$90	\$552
Costs of higher education	(\$42)	(\$28)	(\$12)	(\$14)	(\$96)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$350)	(\$350)
<b>Totals</b>	<b>\$634</b>	<b>\$574</b>	<b>\$549</b>	<b>(\$203)</b>	<b>\$1,555</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.



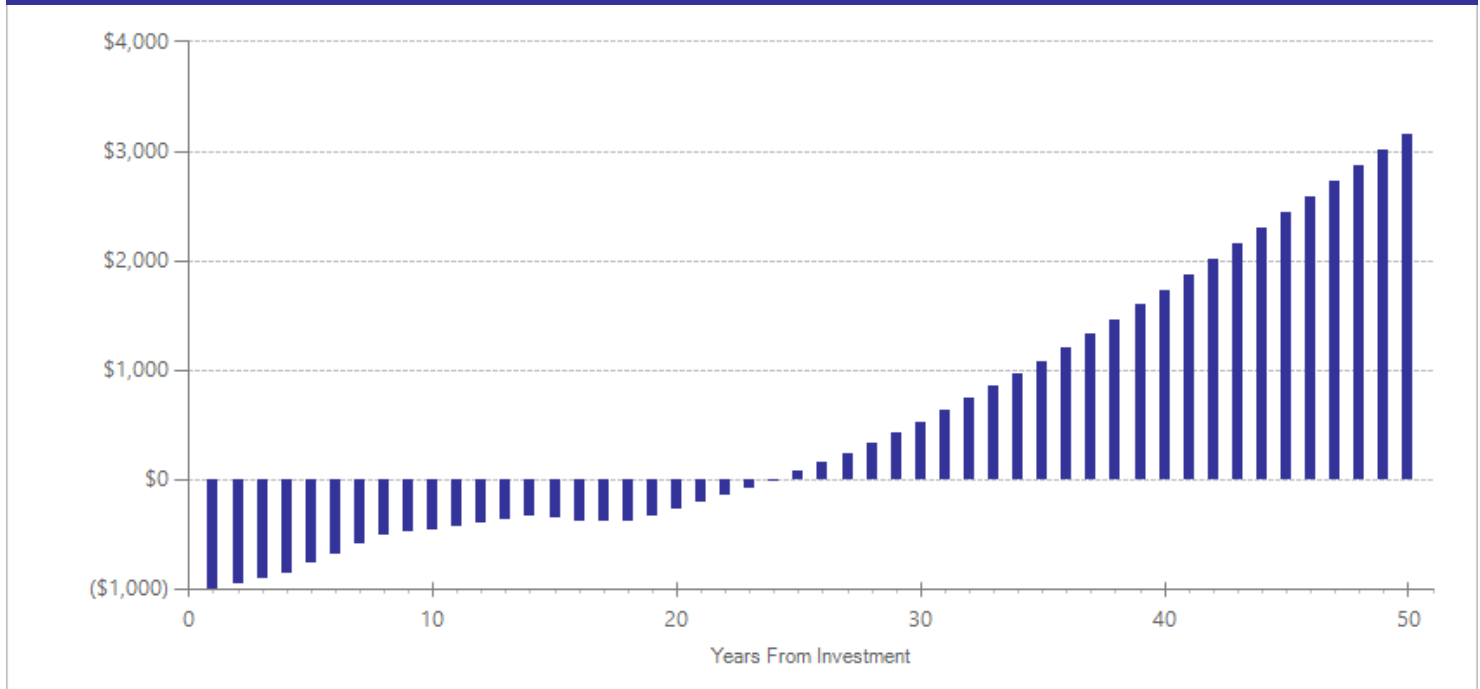
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,612	2007	Present value of net program costs (in 2016 dollars)	(\$698)
Comparison costs	\$1,000	2007	Cost range (+ or -)	10 %

This program is very similar to Parent-Child Interaction Therapy (PCIT), requiring similar equipment and therapist qualifications. In 2007, the standard PCIT expenditures provided by Children's Administration (average reimbursement rate for families receiving PCIT in Washington) was \$2,240. Helping the Noncompliant Child requires ten sessions, compared to an average of 13.9 sessions in the studies we reviewed for PCIT, so we estimate the cost for HNC to be 10/13.9 multiplied by \$2,240.

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	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	p-value
				ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	Primary	1	63	-0.590	0.271	4	0.000	0.001	5	-1.039	0.001
Disruptive behavior disorder symptoms	Primary	3	79	-0.529	0.377	4	-0.122	0.129	7	-0.811	0.030
Parental stress <sup>^</sup>	Secondary	1	63	-0.375	0.269	26	-0.179	0.158	28	-0.669	0.014

<sup>^</sup>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

- Abikoff, H.B., Thompson, M., Laver-Bradbury, C., Long, N., Forehand, R.L., Miller, B.L., Klein, R.G., ... Sonuga-Barke, E. (2015). Parent training for preschool ADHD: a randomized controlled trial of specialized and generic programs. *Journal of Child Psychology and Psychiatry*, 56(6), 618-631.
- Peed, S., Roberts, M., & Forehand, R. (1977). Evaluation of the effectiveness of a standardized parent training program in altering the interaction of mothers and their noncompliant children. *Behavior Modification*, 1(3), 323-350.
- Wells, K.C. & Egan, J. (1988). Social learning and systems family therapy for childhood oppositional disorder: Comparative treatment outcome. *Comprehensive Psychiatry*, 29(2), 138-146.

# Brief Strategic Family Therapy (BSFT)

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2017. Literature review updated June 2016.

**Program Description:** This intervention is aimed at children and adolescents who are at risk of developing serious behavior problems, including delinquency and substance abuse. Therapy targets maladaptive interactions and problems within each family. The program is typically 12 to 16 sessions of 60 to 90 minutes in length over a three- to four-month period. Because such risk can be defined in various ways, the studies in this analysis included participants with different types and severity of problems. This treatment has been extensively tested on ethnic minorities. More information is available at the program website. <http://brief-strategic-family-therapy.com/>

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$479	Benefit to cost ratio	\$0.59
Participants	(\$290)	Benefits minus costs	(\$224)
Others	\$162	Chance the program will produce	
Indirect	(\$31)	benefits greater than the costs	43 %
<b>Total benefits</b>	<b>\$320</b>		
<b>Net program cost</b>	<b>(\$544)</b>		
<b>Benefits minus cost</b>	<b>(\$224)</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	(\$197)	(\$394)	(\$98)	(\$690)
K-12 grade repetition	\$0	\$7	\$0	\$4	\$11
K-12 special education	\$0	\$412	\$0	\$206	\$617
Property loss associated with alcohol abuse or dependence	(\$5)	\$0	(\$9)	\$0	(\$14)
Labor market earnings associated with illicit drug abuse or dependence	\$0	\$0	\$0	\$0	\$0
Health care associated with disruptive behavior disorder	\$186	\$571	\$707	\$285	\$1,749
Costs of higher education	(\$471)	(\$313)	(\$141)	(\$156)	(\$1,081)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$272)	(\$272)
<b>Totals</b>	<b>(\$290)</b>	<b>\$479</b>	<b>\$162</b>	<b>(\$31)</b>	<b>\$320</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

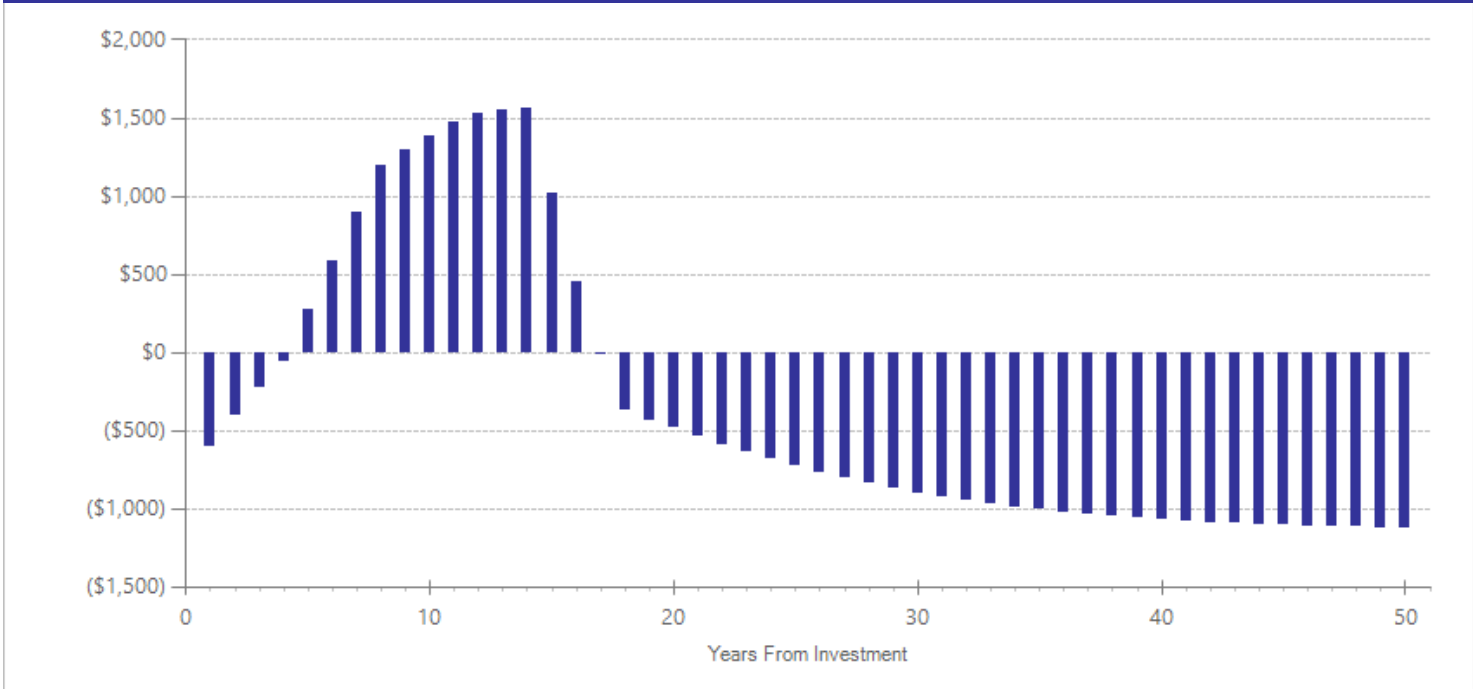
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,350	2010	Present value of net program costs (in 2016 dollars)	(\$544)
Comparison costs	\$850	2010	Cost range (+ or -)	10 %

This intervention usually takes place over a three- to four-month period. We estimated per-participant cost based on an average of 14.8 hours of therapist time, as reported in the treatment studies, multiplied by actuarial estimate of cost of hourly family therapy reported in Mercer. (2013). *Behavioral Health Data Book for the State of Washington for Rates Effective January 1, 2014*. Comparison cost is based on the average DSHS reimbursement for treatment of child disruptive behavior.

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Disruptive behavior disorder symptoms	3	124	-0.251	0.148	14	-0.119	0.092	17	-0.500	0.002
Illicit drug use disorder	2	301	-0.087	0.103	13	0.000	0.187	16	-0.086	0.405
Smoking in high school	1	20	-1.203	0.344	17	-1.203	0.344	18	-1.203	0.001
STD risky behavior <sup>^</sup>	1	20	-0.573	0.323	17	n/a	n/a	n/a	-0.573	0.076
Youth binge drinking	1	20	0.344	0.319	17	0.344	0.319	17	0.344	0.280

<sup>^</sup>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

- 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
- Nickel, M., Luley, J., Krawczyk, J., Nickel, C., Widermann, C., Lahmann, C., Muehlbacher, M., . . . Loew, T. (2006). Bullying girls—changes after Brief Strategic Family Therapy: A randomized, prospective, controlled trial with one-year follow-up. *Psychotherapy and Psychosomatics, 75*(1), 47-55.
- Robbins, M.S., Feaster, D.J., Horigian, V.E., Rohrbaugh, M., Shoham, V., Bachrach, K., Miller, M., ... & Szapocznik, J. (2011). Brief strategic family therapy versus treatment as usual: Results of a multisite randomized trial for substance using adolescents. *Journal of Consulting and Clinical Psychology, 79*(6), 713-727.
- Santisteban, D.A., Coatsworth, J.D., Perez-Vidal, A., Kurtines, W.M., Schwartz, S.J., LaPerriere, A., & Szapocznik, J. (2003). Efficacy of brief strategic family therapy in modifying Hispanic adolescent behavior problems and substance use. *Journal of Family Psychology, 17*(1), 121-133.
- Szapocznik, J., Rio, A., Murray, E., Cohen, R., Scopetta, M., Rivas-Vasquez, A., . . . Kurtines, W. (1989). Structural family versus psychodynamic child therapy for problematic Hispanic boys. *Journal of Consulting and Clinical Psychology, 57*(5), 571-578.

# Incredible Years: Parent training and child training

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: Incredible Years Parent Training ([www.incredibleyears.com](http://www.incredibleyears.com)) is a group, skills-based behavioral intervention for parents of children with behavior problems. 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. Training classes include child care, a family meal, and transportation. Studies in this category included a child skills training component as well as parent training. Children with behavioral problems 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	\$357	Benefit to cost ratio	\$0.18
Participants	\$388	Benefits minus costs	(\$1,413)
Others	\$335	Chance the program will produce	
Indirect	(\$763)	benefits greater than the costs	12 %
<u>Total benefits</u>	<u>\$316</u>		
<u>Net program cost</u>	<u>(\$1,729)</u>		
Benefits minus cost	(\$1,413)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$15	\$35	\$8	\$58
Labor market earnings associated with high school graduation	\$378	\$172	\$173	\$0	\$723
K-12 grade repetition	\$0	\$2	\$0	\$1	\$3
K-12 special education	\$0	\$76	\$0	\$37	\$113
Health care associated with disruptive behavior disorder	\$35	\$109	\$135	\$54	\$333
Costs of higher education	(\$26)	(\$17)	(\$8)	(\$8)	(\$60)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$854)	(\$854)
<b>Totals</b>	<b>\$388</b>	<b>\$357</b>	<b>\$335</b>	<b>(\$763)</b>	<b>\$316</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"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

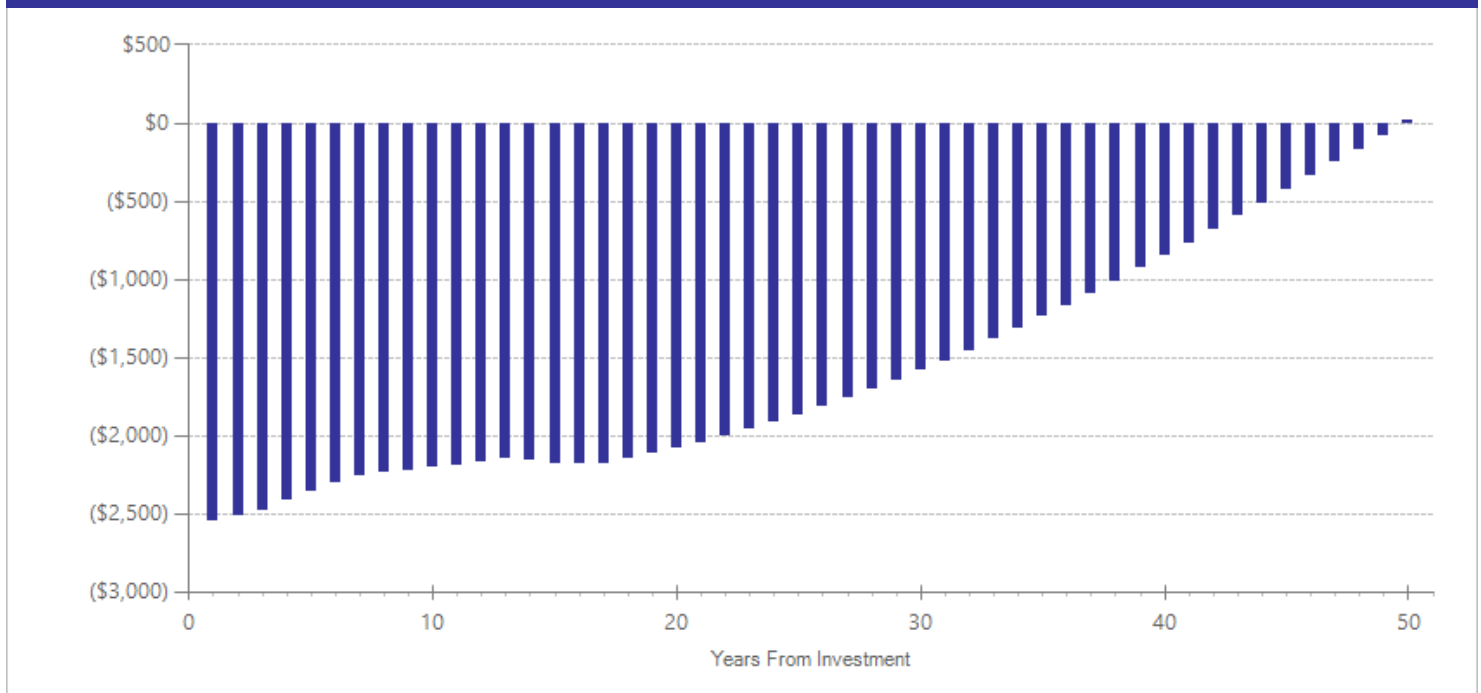
	Annual cost	Year dollars	Summary	
Program costs	\$2,610	2013	Present value of net program costs (in 2016 dollars)	(\$1,729)
Comparison costs	\$881	2010	Cost range (+ or -)	10 %

Cost of parent training class per family provided by Washington State DSHS Children's Administration, 2012. WSIPP also added costs of practitioner training and curriculum for the parent classes and child classes, based on the findings of Foster et al., 2007 (training and curricula costs are low on a per-family basis, as curricula are shared between practitioners and distributed across many families who receive the intervention). Based on conversations with Lisa St. George from Incredible Years (June 2014), we assumed that a practitioner team might use their purchased training and curricula to serve 24 families per year on average, for about five years (120 families served per team). In addition, we estimated an implementation cost (per child) for the child training component, based on the staff time and cost reported in Foster et al. (2007), and assuming each practitioner serves 120 children over five years.

Foster, E.M., Olchowski, A.E., & Webster-Stratton, C.H. (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*(11).

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	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	p-value
				ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	Primary	2	106	-0.170	0.140	7	-0.001	0.011	8	-0.566	0.001
Disruptive behavior disorder symptoms	Primary	5	319	-0.105	0.084	7	-0.050	0.048	10	-0.584	0.007
Internalizing symptoms	Primary	2	193	-0.067	0.106	7	-0.049	0.085	9	-0.245	0.200
Parental stress <sup>^</sup>	Secondary	1	20	-0.412	0.312	26	-0.214	0.382	27	-0.737	0.021

<sup>^</sup>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.
- Scott, S., Sylva, K., Doolan, M., Price, J., Jacobs, B., Crook, C., & Landau, S. (2010). Randomised controlled trial of parent groups for child antisocial behaviour targeting multiple risk factors: The SPOKES project. *Journal of Child Psychology and Psychiatry, 51*(1), 48-57.
- 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.



## Stop Now and Plan (SNAP) Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2017. Literature review updated December 2015.

Program Description: Stop Now and Plan (SNAP) is a program to reduce problem behavior and prevent criminal activity in children ages 6-11 with serious disruptive behavior problems. There are separate SNAP programs for girls and boys. SNAP includes a 12-week group program for children and parents. The group sessions are designed to teach children cognitive behavioral skills and give children structured time to practice to apply their skills in specific situations. In separate group sessions, parents learn parenting skills and strategies to cope with their own emotions. After the group sessions, SNAP provides additional services to meet individual family needs such as family counseling, school advocacy, or tutoring.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$567	Benefit to cost ratio	\$0.05
Participants	\$414	Benefits minus costs	(\$3,177)
Others	\$483	Chance the program will produce	
Indirect	(\$1,305)	benefits greater than the costs	4 %
<u>Total benefits</u>	<u>\$160</u>		
<u>Net program cost</u>	<u>(\$3,337)</u>		
Benefits minus cost	(\$3,177)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$42	\$113	\$21	\$177
Labor market earnings associated with high school graduation	\$390	\$177	\$179	\$179	\$925
K-12 grade repetition	\$0	\$5	\$0	\$2	\$7
K-12 special education	\$0	\$201	\$0	\$101	\$302
Health care associated with disruptive behavior disorder	\$53	\$162	\$200	\$81	\$495
Costs of higher education	(\$29)	(\$19)	(\$9)	(\$10)	(\$66)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$1,680)	(\$1,680)
<u>Totals</u>	<u>\$414</u>	<u>\$567</u>	<u>\$483</u>	<u>(\$1,305)</u>	<u>\$160</u>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"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

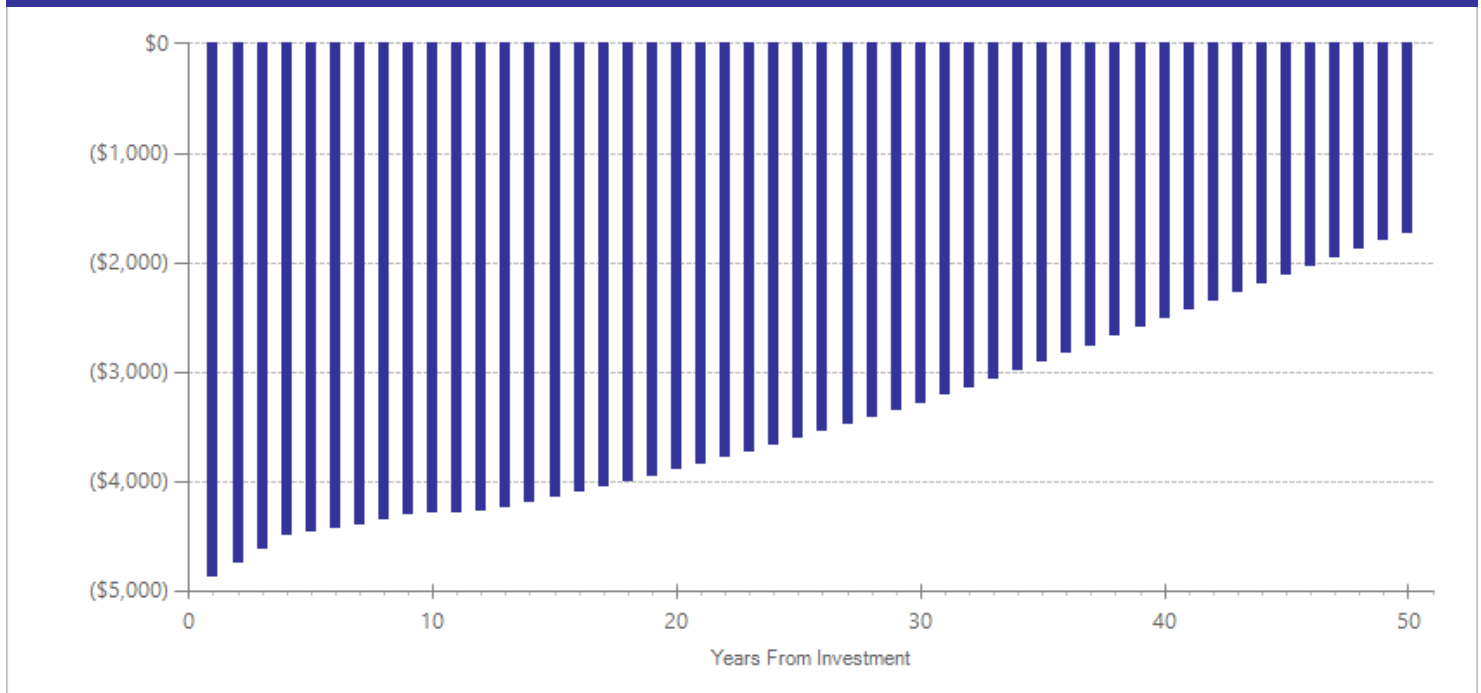
	Annual cost	Year dollars	Summary	
Program costs	\$4,795	2012	Present value of net program costs (in 2016 dollars)	(\$3,337)
Comparison costs	\$1,567	2011	Cost range (+ or -)	20 %

SNAP is a 12-week program. We estimated the cost of the treatment group using cost estimates in Farrington and Koegl, 2014 and the licensing and training costs described in SNAP Schedule C licensing description (Leena Augimeri, personal communication, September 18, 2015). The cost of the control group was calculated based on the units of wraparound services received by participants in the comparison group in Burke & Loeber, 2014. As reported in Burke & Loeber, 2014, 13.1% of the comparison group received 7.9 units of wraparound services during the first three months, and 35% of the comparison group received wraparound services in the subsequent year. We estimated that the average per-participant units of wrap around services remained the same for the next year. To estimate per-unit cost of wrap around services we used the individual treatment reimbursement rate from Mercer, (2013). *Behavioral Health Data Book for the State of Washington for Rates Effective January 1, 2014*. All 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. (2014). 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. Burke, J.D., & Loeber, R. (2014). The effectiveness of the Stop Now And Plan (SNAP) Program for boys at risk for violence and delinquency. *Prevention Science*, 16(2), 242-253

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Externalizing behavior symptoms	2	150	-0.167	0.119	10	-0.079	0.070	13	-0.450	0.001
Internalizing symptoms	2	150	-0.118	0.119	10	-0.086	0.099	12	-0.318	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

Burke, J.D., & Loeber, R. (2015). The Effectiveness of the Stop Now and Plan (SNAP) program for boys at risk for violence and delinquency. *Prevention Science, 16*(2), 242-253.

Pepler, D., Walsh, M., Yuile, A., Levene, K., Jiang, D., Vaughan, A., & Webber, J. (2010). Bridging the gender gap: interventions with aggressive girls and their parents. *Prevention Science: the Official Journal of the Society for Prevention Research, 11*(3), 229-38.

# Multisystemic Therapy (MST) for youth with serious emotional disturbance (SED)

## Children's Mental Health: Serious Emotional Disturbance

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: Multisystemic Therapy (MST) is an intensive family-focused treatment, which combines aspects of cognitive, behavioral, and family therapies. Therapists work in the child's home, school, and community to modify his or her environment. Although MST is often conducted with juvenile offenders, the studies included here focused on children with externalizing problems who were not involved with the juvenile justice system at the time of intervention.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$3,822	Benefit to cost ratio	\$1.38
Participants	\$4,293	Benefits minus costs	\$2,611
Others	\$3,708	Chance the program will produce	
Indirect	(\$2,305)	benefits greater than the costs	61 %
<b>Total benefits</b>	<b>\$9,517</b>		
<b>Net program cost</b>	<b>(\$6,906)</b>		
<b>Benefits minus cost</b>	<b>\$2,611</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$661	\$1,787	\$328	\$2,776
Labor market earnings associated with high school graduation	\$3,426	\$1,556	\$1,579	\$0	\$6,561
Child abuse and neglect	\$1,032	\$0	\$0	\$0	\$1,032
Out-of-home placement	\$0	\$941	\$0	\$467	\$1,408
K-12 grade repetition	\$0	\$29	\$0	\$14	\$44
K-12 special education	\$0	\$476	\$0	\$236	\$712
Health care associated with disruptive behavior disorder	\$112	\$343	\$425	\$171	\$1,051
Costs of higher education	(\$277)	(\$184)	(\$83)	(\$92)	(\$635)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$3,431)	(\$3,431)
<b>Totals</b>	<b>\$4,293</b>	<b>\$3,822</b>	<b>\$3,708</b>	<b>(\$2,305)</b>	<b>\$9,517</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

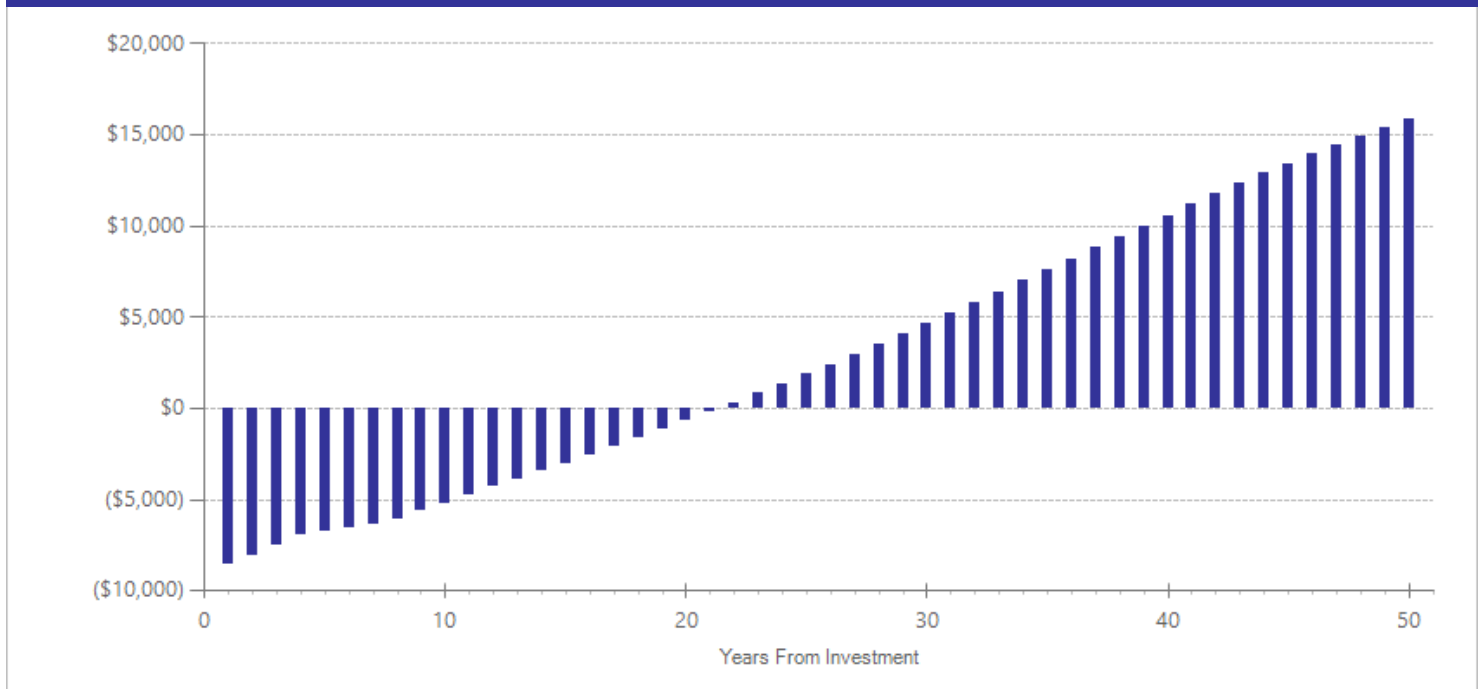
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$7,076	2008	Present value of net program costs (in 2016 dollars)	(\$6,906)
Comparison costs	\$850	2010	Cost range (+ or -)	10 %

MST-SED is typically provided for four to five months. Per-participant costs from Barnoski, R. (2009). *Providing evidence-based programs with fidelity in Washington state juvenile courts: Cost analysis*. Olympia: Washington State Institute for Public Policy, <http://www.wsipp.wa.gov/rptfiles/09-12-1201.pdf>.

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Crime	5	341	-0.062	0.081	16	-0.062	0.081	26	-0.060	0.502
Disruptive behavior disorder symptoms	6	443	-0.311	0.127	16	-0.148	0.091	19	-0.311	0.015
Hospitalization (psychiatric)	2	136	-0.415	0.344	16	-0.198	0.196	19	-0.719	0.256
Internalizing symptoms	2	72	-0.026	0.167	16	-0.019	0.130	18	-0.046	0.789
Out-of-home placement	4	451	-0.279	0.124	16	-0.279	0.124	17	-0.459	0.009
Substance misuse <sup>^</sup>	2	72	-0.044	0.167	16	0.000	0.187	19	-0.051	0.762
Suicidal ideation <sup>^</sup>	1	78	-0.017	0.160	16	-0.008	0.083	19	-0.031	0.877

<sup>^</sup>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

- Asscher, J.J., Dekovi, M., Manders, W.A., Laan, P.H., & Prins, P.J.M. (2013). A randomized controlled trial of the effectiveness of multisystemic therapy in the Netherlands: post-treatment changes and moderator effects. *Journal of Experimental Criminology*, 9, 169-187
- Glisson, C., Schoenwald, S. K., Hemmelgarn, A., Green, P., Dukes, D., Armstrong, K. S., & Chapman, J. E. (2010). Randomized trial of MST and ARC in a two-level evidence-based treatment implementation strategy. *Journal of Consulting and Clinical Psychology*, 78(4), 537-550.
- Henggeler, S. W., Rowland, M. D., Randall, J., Ward, D. M., Pickrel, S. G., Cunningham, P. B., . . . Santos, A. B. (1999). Home-based multisystemic therapy as an alternative to the hospitalization of youths in psychiatric crisis: Clinical outcomes. *Journal of the American Academy of Child & Adolescent Psychiatry*, 38(11), 1331-1339.
- Henggeler, S. W., Rowland, M. D., Halliday-Boykins, C., Sheidow, A. J., Ward, D. M., Randall, J., . . . Edwards, J. (2003). One-year follow-up of multisystemic therapy as an alternative to the hospitalization of youths in psychiatric crisis. *Journal of the American Academy of Child and Adolescent Psychiatry*, 42(5), 543-551.
- Ogden, T., & Halliday-Boykins, C. A. (2004). Multisystemic treatment of antisocial adolescents in Norway: Replication of clinical outcomes outside of the US. *Child and Adolescent Mental Health*, 9(2), 77-83.
- Rowland, M. D., Halliday-Boykins, C. A., Henggeler, S. W., Cunningham, P. B., Lee, T. G., Kruesi, M. J. P., & Shapiro, S. B. (2005). A randomized trial of multisystemic therapy with Hawaii's Felix Class youths. *Journal of Emotional and Behavioral Disorders*, 13(1), 13- 23.
- Sundell, K., Hansson, K., Lofholm, C. A., Olsson, T., Gustle, L. H., & Kadesjo, C. (2008). The transportability of multisystemic therapy to Sweden: Short-term results from a randomized trial of conduct-disordered youths. *Journal of Family Psychology*, 22(4), 550-560.
- Weiss, B., Han, S., Harris, V., Castron, T., Ngo, V. K., & Caron, A. (n.d.). *An independent evaluation of the MST treatment program*. Unpublished manuscript emailed to M. Miller by S. Henggeler on May 4, 2010.

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

## Children's Mental Health: Serious Emotional Disturbance

Benefit-cost estimates updated December 2017. 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	\$69	Benefit to cost ratio	\$0.97
Participants	\$27	Benefits minus costs	(\$5)
Others	\$13	Chance the program will produce	
Indirect	\$37	benefits greater than the costs	50 %
<b>Total benefits</b>	<b>\$146</b>		
<b>Net program cost</b>	<b>(\$151)</b>		
<b>Benefits minus cost</b>	<b>(\$5)</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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:<sup>1</sup>

#### Benefits to:

	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
K-12 grade repetition	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with major depression	\$27	\$12	\$0	\$85	\$123
Health care associated with psychiatric hospitalization	\$1	\$57	\$13	\$28	\$99
Costs of higher education	\$0	\$0	\$0	\$0	\$0
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$76)	(\$76)
<b>Totals</b>	<b>\$27</b>	<b>\$69</b>	<b>\$13</b>	<b>\$37</b>	<b>\$146</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

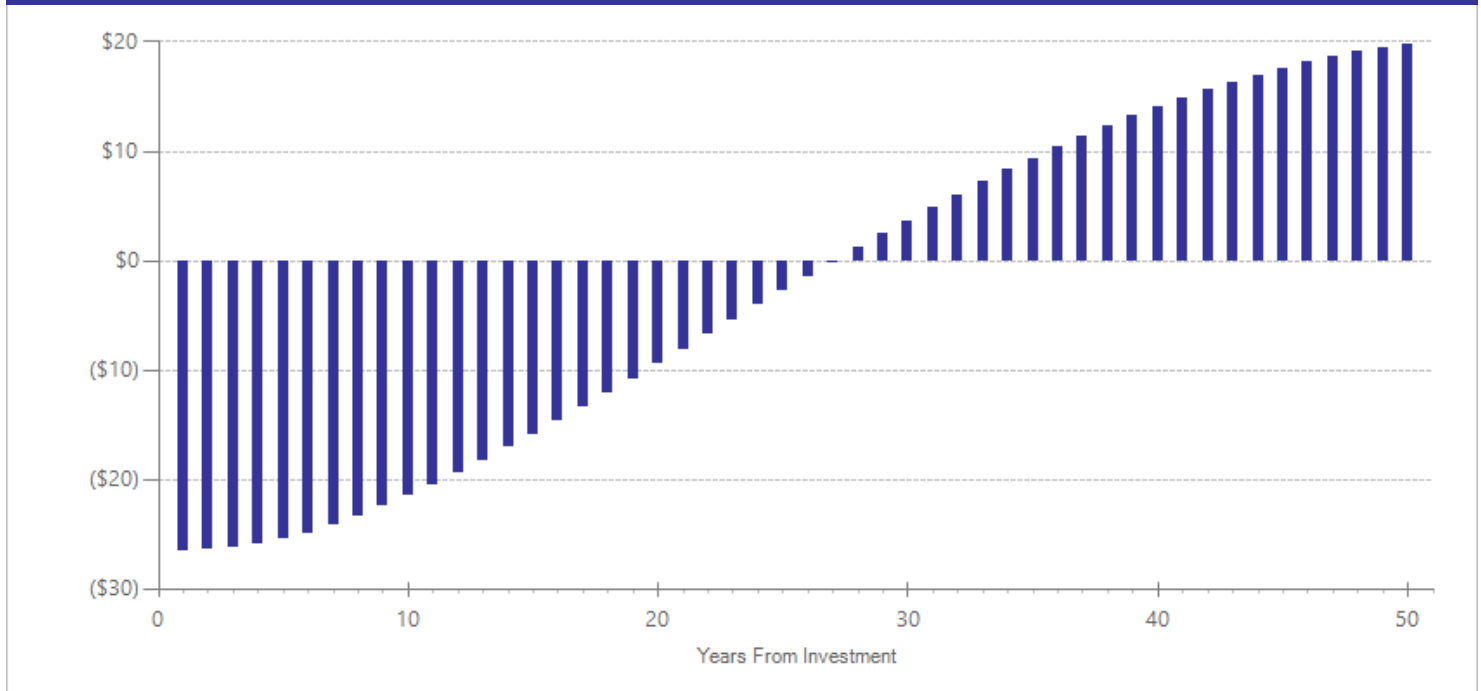
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,792	2016	Present value of net program costs (in 2016 dollars)	(\$151)
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.



## Meta-Analysis of Program Effects

Outcomes measured	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	p-value
			ES	SE	Age	ES	SE	Age		
Hope <sup>^</sup>	2	71	0.493	0.181	16	n/a	n/a	n/a	0.493	0.006
Hospitalization (psychiatric)	2	55	-0.086	0.643	16	0.000	0.118	17	-0.086	0.893
Major depressive disorder	2	71	-0.445	0.180	16	0.000	0.039	17	-0.445	0.014
Self-harming behavior <sup>^</sup>	1	39	-0.531	0.253	16	n/a	n/a	n/a	-0.531	0.036
Suicidal ideation <sup>^</sup>	2	71	-0.434	0.321	16	n/a	n/a	n/a	-0.434	0.176
Suicide attempts <sup>^</sup>	2	55	0.143	0.244	16	n/a	n/a	n/a	0.143	0.557

<sup>^</sup>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

- 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.
- Mehlum, L., Tørmøen, A.J., Ramberg, M., Haga, E., Diep, L.M., Laberg, S., . . . Grøholt, B. (2014). Dialectical behavior therapy for adolescents with repeated suicidal and self-harming behavior: a randomized trial. *Journal of the American Academy of Child & Adolescent Psychiatry*, 53(10), 1082-1091.
- Mehlum, L., Ramberg, M., Tormoen, A.J., Haga, E., Diep, L.M., Stanley, B.H., . . . Sund, A.M. (2016). Dialectical behavior therapy compared with enhanced usual care for adolescents with repeated suicidal and self-harming behavior: Outcomes over a one-year follow-up. *Journal of the American Academy of Child and Adolescent Psychiatry*, 55(4), 295-300.
- Rathus, J.H., & Miller, A.L. (2002). Dialectical behavior therapy adapted for suicidal adolescents. *Suicide and Life Threatening Behavior*, 32, 146-157.

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

## Children's Mental Health: Trauma

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

Program Description: Treatments include several components, such as 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 the studies included in this meta-analysis, treatment provided 5 to 27 therapeutic hours per client 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	\$6,873	Benefit to cost ratio	n/a
Participants	\$11,345	Benefits minus costs	\$21,837
Others	\$2,452	Chance the program will produce	
Indirect	\$1,058	benefits greater than the costs	100 %
<b>Total benefits</b>	<b>\$21,728</b>		
<b>Net program cost</b>	<b>\$109</b>		
<b>Benefits minus cost</b>	<b>\$21,837</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$12	\$31	\$6	\$49
K-12 grade repetition	\$0	\$9	\$0	\$5	\$14
K-12 special education	\$0	\$34	\$0	\$17	\$51
Labor market earnings associated with PTSD	\$10,734	\$4,875	\$0	\$0	\$15,608
Health care associated with PTSD	\$639	\$1,961	\$2,429	\$985	\$6,013
Costs of higher education	(\$27)	(\$18)	(\$8)	(\$9)	(\$62)
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$55	\$55
<b>Totals</b>	<b>\$11,345</b>	<b>\$6,873</b>	<b>\$2,452</b>	<b>\$1,058</b>	<b>\$21,728</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

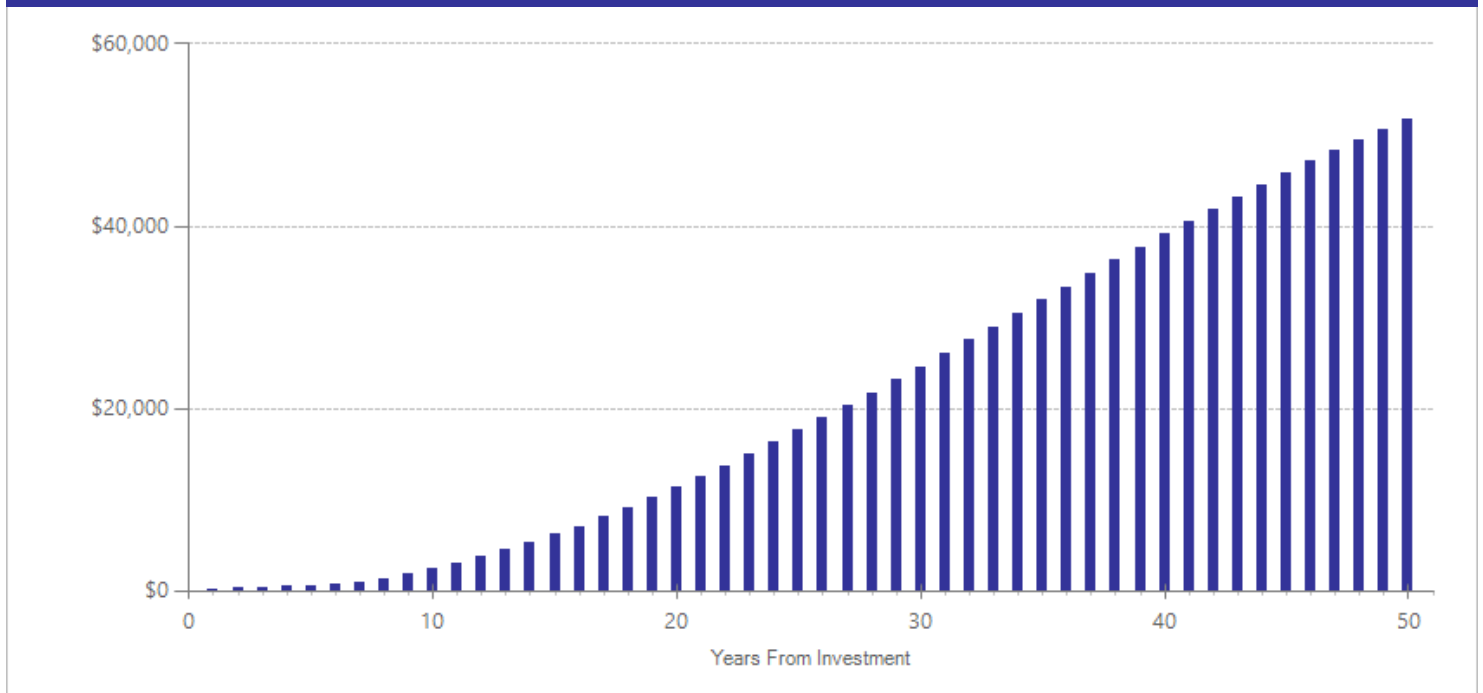
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,037	2016	Present value of net program costs (in 2016 dollars)	\$109
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). Comparison cost is based on the average reimbursement for treatment of child 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.

## Meta-Analysis of Program Effects

Outcomes measured	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	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	18	999	-0.166	0.047	12	-0.077	0.027	13	-0.307	0.001
Disruptive behavior disorder symptoms	4	290	-0.243	0.298	12	-0.116	0.162	15	-0.222	0.625
Externalizing behavior symptoms	9	340	-0.143	0.079	12	-0.068	0.050	15	-0.171	0.031
Global functioning <sup>^</sup>	4	165	0.161	0.136	12	n/a	n/a	n/a	0.490	0.038
Internalizing symptoms	9	296	-0.223	0.107	12	-0.163	0.105	14	-0.261	0.026
Major depressive disorder	24	1447	-0.380	0.076	12	0.000	0.031	13	-0.589	0.001
Post-traumatic stress	33	2053	-0.429	0.056	12	-0.429	0.056	13	-0.808	0.001
Suicidal ideation <sup>^</sup>	1	26	-0.106	0.283	19	n/a	n/a	n/a	-0.294	0.301

<sup>^</sup>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

- Barron, I.G., Abdallah, G., & Smith, P. (2013). Randomized control trial of a CBT trauma recovery program in Palestinian schools. *Journal of Loss and Trauma, 18*(4), 306-321.
- Berger, R., & Gekopf, M. (2009). School-based intervention for the treatment of tsunami-related distress in children: A quasi-randomized controlled trial. *Psychotherapy and Psychosomatics, 78*(6), 364-371.
- Berger, R., Pat-Horenczyk, R., & Gekopf, M. (2007). School-based intervention for prevention and treatment of elementary-students' terror-related distress in Israel: A quasi-randomized controlled trial. *Journal of Traumatic Stress, 20*(4), 541-551.
- Berkowitz, S.J., Stover, C.S., & Marans, S.R. (2011). The child and family traumatic stress intervention: Secondary prevention for youth at risk of developing PTSD. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 52*(6), 676-685.
- Berliner, L., & Saunders, B.E. (1996). Treating fear and anxiety in sexually abused children: Results of a controlled 2-year follow-up study. *Child Maltreatment, 1*(4), 294-309.
- Burke, M.M. (1988). Short-term group therapy for sexually abused girls: A learning-theory based treatment for negative effects. *Dissertation Abstract International, 49*, 1935.
- Celano, M., Hazzard, A., Webb, C., & McCall, C. (1996). Treatment of traumagenic beliefs among sexually abused girls and their mothers: An evaluation study. *Journal of Abnormal Child Psychology, 24*(1), 1-17.
- Cohen, J.A., Deblinger, E., Mannarino, A.P., & Steer, R.A. (2004). A multisite, randomized controlled trial for children with sexual abuse-related PTSD symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry, 43*(4), 393-402.
- Cohen, J.A., Mannarino, A.P., & Knudsen, K. (2005). Treating sexually abused children: 1 year follow-up of a randomized controlled trial. *Child Abuse & Neglect, 29*(2), 135-145.
- Cohen, J.A., Mannarino, A.P., & Iyengar, S. (2011). Community treatment of posttraumatic stress disorder for children exposed to intimate partner violence: A randomized controlled trial. *Archives of Pediatrics and Adolescent Medicine, 165*(1), 16-21.
- Deblinger, E., Lippmann, J., & Steer, R. (1996). Sexually abused children suffering posttraumatic stress symptoms: Initial treatment outcome findings. *Child Maltreatment, 1*(4), 310-321.

- Deblinger, E., Stauffer, L.B., & Steer, R.A. (2001). Comparative efficacies of supportive and cognitive behavioral group therapies for young children who have been sexually abused and their nonoffending mothers. *Child Maltreatment, 6*(4), 332-343.
- Ertl, V., Neuner, F., Pfeiffer, A., Elbert, T., & Schauer, E. (2011). Community-implemented trauma therapy for former child soldiers in Northern Uganda: A randomized controlled trial. *Jama - Journal of the American Medical Association, 306*(5), 503-512.
- Goenjian, A.K., Karayan, I., Pynoos, R.S., Minassian, D., Najarian, L.M., Steinberg, A.M., & Fairbanks, L.A. (1997). Outcome of psychotherapy among early adolescents after trauma. *American Journal of Psychiatry, 154*(4), 536-542.
- Goldbeck, L., Muche, R., Sachser, C., Tutus, D., & Rosner, R. (2016). Effectiveness of trauma-focused cognitive behavioral therapy for children and adolescents: A randomized controlled trial in eight German mental health clinics. *Psychotherapy and Psychosomatics, 85*(3), 159-170.
- Jensen, T.K., Holt, T., Ormhaug, S.M., Egeland, K., Granly, L., Hoaas, L.C., . . . Wentzel-Larsen, T. (2014). A randomized effectiveness study comparing trauma-focused cognitive behavioral therapy with therapy as usual for youth. *Journal of Clinical Child & Adolescent Psychology, 43*(3), 356-369.
- Jordans, M.J.D., Komproe, I.H., Tol, W.A., Kohrt, B.A., Luitel, N.P., Macy, R.D., & De Jong, J.T.V.M. (2010). Evaluation of a classroom-based psychosocial intervention in conflict-affected Nepal: a cluster randomized controlled trial. *Journal of Child Psychology and Psychiatry, 51*(7), 818-826.
- Kataoka, S., Stein, B.D., Jaycox, L.H., Wong M., Escudero, P., Tu, W., . . . Fink, A. (2003). A school-based mental health program for traumatized Latino immigrant children. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*(3), 311-318
- King, N.J., Tonge, B.J., Mullen, P., Myerson, N., Heyne, D., Rollings, S., . . . Ollendick, T.H. (2000). Treating sexually abused children with posttraumatic stress symptoms: A randomized clinical trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 39*(11), 1347-1355.
- Langley, A.K., Gonzalez, A., Sugar, C.A., Solis, D., & Jaycox, L. (2015). Bounce back: Effectiveness of an elementary school-based intervention for multicultural children exposed to traumatic events. *Journal of Consulting and Clinical Psychology, 83*(5), 853-65.
- Layne, C.M., Saltzman, W.R., Poppleton, L., Burlingame, G.M., Pasalić, A., Duraković, E. . . . Pynoos, R.S. (2008). Effectiveness of a school-based group psychotherapy program for war-exposed adolescents: A randomized controlled trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 47*(9), 1048-1062.
- McMullen, J., O'Callaghan, P., Shannon, C., Black, A., & Eakin, J. (2013). Group trauma-focused cognitive-behavioural therapy with former child soldiers and other war-affected boys in the DR Congo: a randomised controlled trial. *Journal of Child Psychology and Psychiatry, 54*(11), 1231-1241.
- Murray, L.K., Skavenski, S., Kane, J.C., Mayeya, J., Dorsey, S., Cohen, J.A., Michalopoulos, L.T.M., . . . Bolton, P.A. (2015). Effectiveness of trauma-focused cognitive behavioral therapy among trauma-affected children in Lusaka, Zambia. *Jama Pediatrics, 169*(8), 761.
- O'Callaghan, P., McMullen, J., Shannon, C., Rafferty, H., & Black, A. (2013). A randomized controlled trial of trauma-focused cognitive behavioral therapy for sexually exploited, war-affected Congolese girls. *Journal of the American Academy of Child and Adolescent Psychiatry, 52*(4), 359-369.
- Pityaratstian, N., Piyasil, V., Ketumarn, P., Sitdhiraksa, N., Ularntinon, S., & Pariwatcharakul, P. (2015). Randomized controlled trial of group cognitive behavioural therapy for post-traumatic stress disorder in children and adolescents exposed to tsunami in Thailand. *Behavioural and Cognitive Psychotherapy, 43*(5), 549-61.
- Qouta, S.R., Palosaari, E., Diab, M., & Punamaki, R.L. (2012). Intervention effectiveness among war-affected children: a cluster randomized controlled trial on improving mental health. *Journal of Traumatic Stress, 25*(3), 288-98.
- Ruf, M., Schauer, M., Schauer, E., Elbert, T., Neuner, F., & Catani, C. (2010). Narrative exposure therapy for 7- to 16-year-olds: A randomized controlled trial with traumatized refugee children. *Journal of Traumatic Stress, 23*(4), 437-445.
- Shein-Szydlo, J., Sukhodolsky, D.G., Ruchkin, V., Kon, D.S., Tejeda, M.M., Ramirez, E., Ruchkin, V., . . . Ruchkin, V. (2016). A randomized controlled study of cognitive-behavioral therapy for posttraumatic stress in street children in Mexico City. *Journal of Traumatic Stress, 29*(5), 406-414.
- Shooshtary, M.H., Moghadam, J.A., & Panaghi, L. (2008). Outcome of cognitive behavioral therapy in adolescents after natural disaster. *Journal of Adolescent Health, 42*(5), 466-472.
- Smith, P., Yule, W., Perrin, S., Tranah, T., Dalgleish, T., & Clark, D.M. (2007). Cognitive-behavioral therapy for PTSD in children and adolescents: a preliminary randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 46*(8), 1051-1061.
- Stein, B.D., Jaycox, L.H., Kataoka, S.H., Wong, M., Tu, W., Elliott, M.N., & Fink, A. (2003). A mental health intervention for schoolchildren exposed to violence: a randomized controlled trial. *Journal of the American Medical Association, 290*(5), 603-11.
- Tol, W.A., Komproe, I.H., Susanty, D., Jordans, M.J.D., Macy, R.D., & De Jong, J.T.V.M. (2008). School-based mental health intervention for children affected by political violence in Indonesia: a cluster randomized trial. *JAMA: The Journal of The American Medical Association, 300*, 655-662.

# Eye Movement Desensitization and Reprocessing (EMDR) for child trauma

## Children's Mental Health: Trauma

Benefit-cost estimates updated December 2017. Literature review updated April 2012.

Program Description: During this individual-based treatment, clients focus on a traumatic memory for 30 seconds at a time while the therapist provides a stimulus. For most clients, the therapist moves his hand slowly back and forth in front of the client (eye movement); for younger children, the therapist may, instead, tap the child's hand. The client reports on what thoughts come to mind and clients are guided to refocus on that thought in the next stimulus session. During therapy visits, clients report on the level of distress they feel. In later phases, a positive thought is emphasized during the stimulus sessions. Afterward, clients are asked to focus on residual physical tensions they may feel in order to enhance relaxation. The intervention is brief, typically one to two months of weekly or biweekly sessions. A more complete description of this therapy is available at: <http://www.emdrnetwork.org/description.html>.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$2,721	Benefit to cost ratio	n/a
Participants	\$4,906	Benefits minus costs	\$8,810
Others	\$656	Chance the program will produce	
Indirect	\$362	benefits greater than the costs	82 %
<u>Total benefits</u>	<u>\$8,645</u>		
<u>Net program cost</u>	<u>\$165</u>		
Benefits minus cost	\$8,810		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). 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: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$22	\$56	\$11	\$89
K-12 grade repetition	\$0	\$6	\$0	\$3	\$9
K-12 special education	\$0	\$53	\$0	\$26	\$79
Labor market earnings associated with anxiety disorder	\$4,768	\$2,165	\$0	\$0	\$6,933
Health care associated with PTSD	\$159	\$490	\$606	\$246	\$1,502
Costs of higher education	(\$22)	(\$14)	(\$7)	(\$7)	(\$50)
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$83	\$83
<b>Totals</b>	<b>\$4,906</b>	<b>\$2,721</b>	<b>\$656</b>	<b>\$362</b>	<b>\$8,645</b>

<sup>1</sup>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.

<sup>2</sup>"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.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

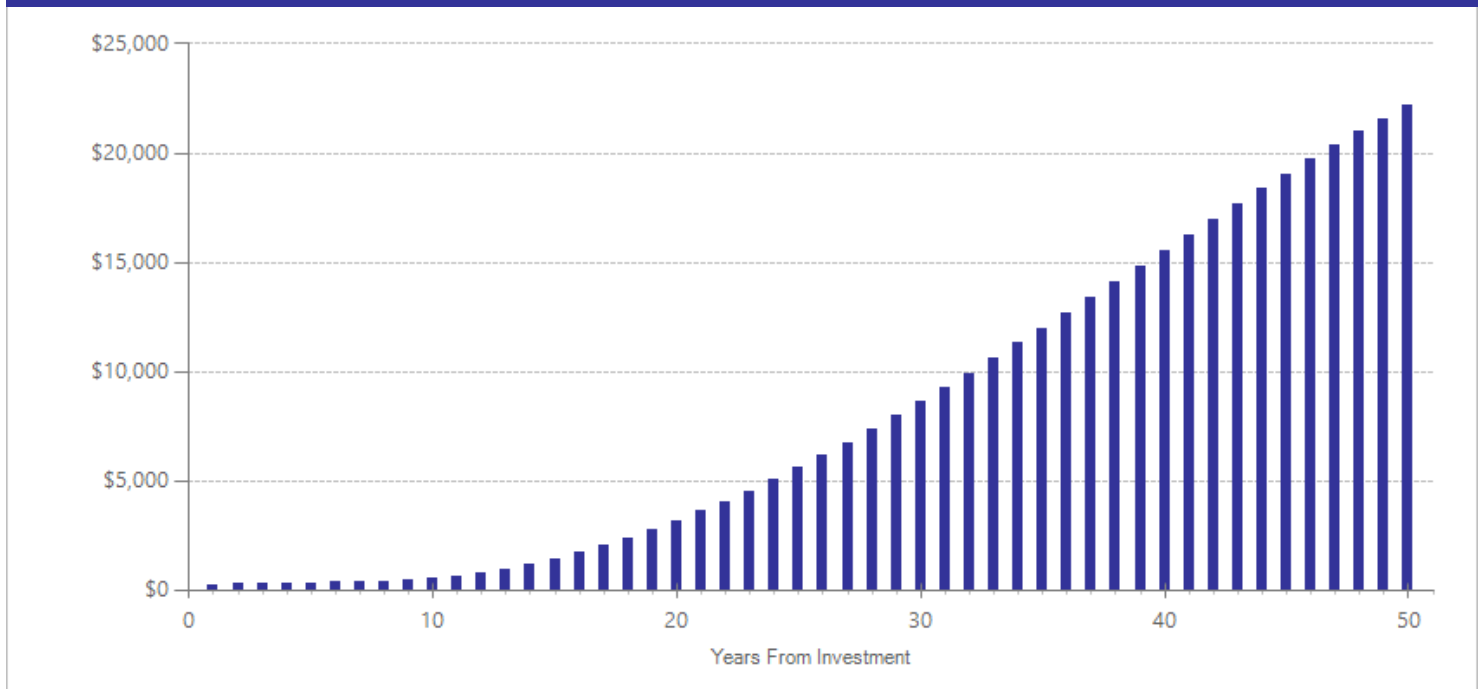
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$886	2009	Present value of net program costs (in 2016 dollars)	\$165
Comparison costs	\$1,035	2009	Cost range (+ or -)	10 %

This intervention typically takes place over one to two months. We estimated the per-participant cost by computing the average hours of therapy reported in the studies multiplied by the average Regional Support Network costs (for 2009) for individual therapy for child PTSD.

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	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	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	2	29	-0.226	0.269	11	-0.104	0.129	12	-0.184	0.521
Externalizing behavior symptoms	1	14	-0.512	0.378	11	-0.244	0.221	14	-0.512	0.175
Major depressive disorder	2	29	-0.228	0.269	11	0.000	0.029	12	-0.192	0.476
Post-traumatic stress	4	60	-0.356	0.277	11	-0.356	0.277	12	-0.510	0.134

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.
- Soberman, G.B., Greenwald, R., & Rule, D.M. (2002). A controlled study of eye movement desensitization and reprocessing (EMDR) for boys with conduct problems. *Journal of Aggression, Maltreatment, and Trauma 6*(1), 217-236.



# New Beginnings for children of divorce

## Children's Mental Health

Literature review updated June 2015.

Program Description: The New Beginnings program focuses on preventing adjustment problems for children whose parents have recently divorced. The single rigorous evaluation examines two variations of the program: a group intervention for mothers and a dual intervention program with groups for mothers and concurrent groups for children. In both variations of the program, the mothers' group focused on problem-solving, discipline strategies, mother-child relationship quality, and the mother's view of the child's relationship with the noncustodial father. In the dual intervention, the children's group focused on recognizing and labeling feelings, problem-solving, and positive re-framing.

### Meta-Analysis of Program Effects

Outcomes measured	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	p-value
			ES	SE	Age	ES	SE	Age		
Externalizing behavior symptoms	1	150	-0.135	0.163	17	-0.022	0.155	26	-0.240	0.141
Illicit drug use in high school	1	150	-0.036	0.593	17	-0.036	0.593	18	-0.064	0.767
Internalizing symptoms	1	150	0.084	0.163	17	-0.099	0.155	26	0.150	0.358
Problem alcohol use	1	164	0.076	0.155	26	0.076	0.155	27	0.136	0.378

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

Wolchik SA, Sandler IN, Millsap RE, Plummer BA, Greene SM, Anderson ER, et al. (2002). Six-year follow-up of preventive interventions for children of divorce: a randomized controlled trial. *JAMA*, 288 (15), 1874-81.

Wolchik, S.A., Sandler, I.N., Tein, J.-Y., Mahrer, N.E., Millsap, R.E., Winslow, E., Velez, C., ... Reed, A. (2013). Fifteen-year follow-up of a preventive intervention for divorced families: Effects on mental health and substance use outcomes in young adulthood. *Journal of Consulting and Clinical Psychology*, 81(4), 660-73.

# Collaborative primary care for children with depression

## Children's Mental Health: Depression

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.

Meta-Analysis of Program Effects										
Outcomes measured	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	p-value
			ES	SE	Age	ES	SE	Age		
Major depressive disorder	1	50	-0.575	0.485	16	-0.001	0.061	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.

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

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.

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

## Children's Mental Health: Depression

Literature review updated August 2014.

**Program Description:** This collection of studies evaluated the effect of adding cognitive behavioral therapy (cognitive restructuring, engagement in pleasurable activities, emotion regulation, communication skills, and problem-solving) to treatment with antidepressants compared to treatment with antidepressants only.

Meta-Analysis of Program Effects										
Outcomes measured	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	p-value
			ES	SE	Age	ES	SE	Age		
Externalizing behavior symptoms	2	184	-0.177	0.105	16	-0.084	0.065	19	-0.177	0.091
Global functioning	2	243	0.171	0.091	16	0.000	0.016	17	0.108	0.060
Major depressive disorder	5	444	-0.135	0.077	16	0.000	0.013	17	-0.135	0.078
Suicidal ideation	1	77	-0.074	0.095	16	0.000	0.010	17	-0.074	0.436
Suicide attempts	1	166	-0.087	0.146	16	0.000	0.014	17	-0.087	0.550

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

- 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.
- Clarke, G., Debar, L., Lynch, F., Powell, J., Gale, J., O'Connor, E., et al. (2005). A randomized effectiveness trial of brief cognitive-behavioral therapy for depressed adolescents receiving antidepressant medication. *Journal of the American Academy of Child & Adolescent Psychiatry*, 44(9), 888-898.
- Goodyer, I., Dubicka, B., Wilkinson, P., Kelvin, R., Roberts, C., Byford, S. et al. (2007). Selective serotonin reuptake inhibitors (SSRIs) and routine specialist care with and without cognitive behaviour therapy in adolescents with major depression: Randomised controlled trial. *British Medical Journal*, 335(7611), 142-146.
- Kennard, B., Silva, S., Vitiello, B., Curry, J., Kratochvil, C., Simons, A., et al. (2006). Remission and residual symptoms after short-term treatment in the Treatment of Adolescents with Depression Study (TADS). *Journal of the American Academy of Child & Adolescent Psychiatry*, 45(12), 1404-1411.
- March, J., Silva, S., Petrycki, S., Curry, J., Wells, K., Fairbank, J., et al. (2004). Fluoxetine, cognitive-behavioral therapy, and their combination for adolescents with depression: Treatment for Adolescents With Depression Study (TADS) randomized controlled trial. *JAMA*, 292(7), 807-820.
- Melvin, G.A., Tonge, B.J., King, N.J., Heyne, D., Gordon, M.S., & Klimkeit, E. (2006). A comparison of cognitive-behavioral therapy, sertraline, and their combination for adolescent depression. *Journal of the American Academy of Child & Adolescent Psychiatry*, 45(10), 1151-1161.

# Choice Theory/Reality Therapy

## Children's Mental Health: Disruptive Behavior

Literature review updated December 2015.

Program Description: Choice Theory/Reality Therapy is a program for parents of elementary students with repeated disciplinary referrals. The program is delivered in nine 90-minute group sessions. The program focuses on responding to child needs, teaching self-control by example, parenting in an authoritative (rather than authoritarian or permissive way) that sets limits in keeping with the child's development and creating a supportive environment in the home.

Meta-Analysis of Program Effects										
Outcomes measured	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	p-value
			ES	SE	Age	ES	SE	Age		
Externalizing behavior symptoms	1	15	-0.099	0.372	10	-0.047	0.193	13	-0.479	0.212
Internalizing symptoms	1	15	-0.091	0.372	10	-0.066	0.291	12	-0.441	0.248
Office discipline referrals	1	15	-0.526	0.378	10	-0.251	0.222	13	-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.

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

## Children's Mental Health: Serious Emotional Disturbance

Literature review updated June 2016.

**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 family within 24 hours of the crisis, staff accessibility round the clock, small caseload sizes, service duration of four to six weeks, 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, we have presented the effects of all services together. In the single study included here, youth were at imminent risk of psychiatric hospitalization.

Meta-Analysis of Program Effects										
Outcomes measured	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	p-value
			ES	SE	Age	ES	SE	Age		
Externalizing behavior symptoms	2	180	0.120	0.116	13	0.057	0.065	16	0.120	0.301
Hospitalization (psychiatric)	2	180	-0.239	0.181	13	n/a	n/a	n/a	-0.239	0.187
Internalizing symptoms	2	180	0.170	0.282	13	0.124	0.225	15	0.170	0.546

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

Evans, M.E., Boothroyd, R.A., Armstrong, M.I., Greenbaum, P.E., Brown, E.C., & Kuppinger, A.D. (2003). An experimental study of the effectiveness of intensive in-home crisis services for children and their families: Program outcomes. *Journal of Emotional and Behavioral Disorders, 11*(2), 92-102.

# Full fidelity wraparound for children with serious emotional disturbance (SED)

## Children's Mental Health: Serious Emotional Disturbance

Literature review updated January 2012.

Program Description: Wraparound is an intensive, individualized care planning and management process for children with complex emotional and behavioral needs. During the wraparound process, a team of people who are relevant to the life of 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.

### Meta-Analysis of Program Effects

Outcomes measured	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	p-value
			ES	SE	Age	ES	SE	Age		
Disruptive behavior disorder symptoms	4	199	-0.288	0.202	12	-0.137	0.119	15	-0.288	0.154
Externalizing behavior symptoms	4	199	-0.522	0.189	12	-0.249	0.143	15	-0.522	0.006
Internalizing symptoms	4	199	-0.222	0.125	12	-0.162	0.116	14	-0.222	0.075

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

- Clark, H.B., Prange, M.E., Lee, B., Stewart, E.S., McDonald, B.A., & Boyd, L.A. (1998) An individualized wraparound process for children in foster care with emotional/behavioral disturbances: follow-up findings and implications from a controlled study. In M. H. Epstein, K. Kutash, & A. Duchnowski (Eds.), *Outcomes for children and youth with emotional and behavioral disorders and their families: Programs and evaluation best practices* (pp. 513-542). Austin, TX: Pro-Ed.
- Evans, M. E., Armstrong, M. I., Kuppinger, A. D., Huz, S., & McNulty, T. L. (1998). Preliminary outcomes of an experimental study comparing treatment foster care and family-centered intensive case management. In M. H. Epstein, K. Kutash, & A. Duchnowski (Eds.), *Outcomes For Children And Youth With Emotional and Behavioral Disorders and Their Families: Programs and Evaluation Best Practices* (pp. 543-580). Austin, TX: Pro-Ed.
- Mears, S., Yaffe, J., & Harris, N. (2009). Evaluation of wraparound services for severely emotionally disturbed youths. *Research on Social Work Practice, 19*(6), 678-685.
- Rast, J., Bruns, E.J., Brown, E.C., & Peterson, C.R. (2007). *Wraparound for youth in child welfare custody: Results of a matched comparison study*. Unpublished program evaluation.

# Child-Parent Psychotherapy

## Children's Mental Health: Trauma

Literature review updated June 2013.

**Program Description:** This intervention is designed for parents (most frequently mothers) whose children have relationships to their parents that are characterized by less positive emotion and trust. 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 goal is to strengthen the relationship between parent and child, thereby increasing the child's sense of safety and attachment. The program is designed to consist of 50 weekly sessions.

### Meta-Analysis of Program Effects

Outcomes measured	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	p-value
				ES	SE	Age	ES	SE	Age		
Post-traumatic stress	Primary	1	36	-0.551	0.254	5	-0.551	0.254	6	-0.861	0.001
Test scores	Primary	1	43	0.282	0.206	5	0.087	0.227	17	0.282	0.170
Post-traumatic stress	Secondary	1	36	-0.309	0.251	28	-0.309	0.251	28	-0.483	0.056

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

- Cicchetti, D., Rogosch, F.A., & Toth, S. L. (2000). The Efficacy of Toddler-Parent Psychotherapy for Fostering Cognitive Development in Offspring of Depressed Mothers. *Journal of Abnormal Child Psychology*, 28(2), 135-148.
- Lieberman, A. F., Van Horn, P., & Ippen, C. G. (2005). Toward evidence-based treatment: Child-parent psychotherapy with preschoolers exposed to marital violence. *Journal of the American Academy of Child & Adolescent Psychiatry*, 44(12), 1241- 1247.

# Modularized Approaches to Treatment of Anxiety, Depression, and Behavior (MATCH)

Children's Mental Health: Other  
Literature review updated June 2013.

Program Description: Modular treatment consists of modules from the three standard treatment types for child anxiety (Coping Cat), depression (Primary and Secondary Control Enhancement Training), and disruptive behavior (Behavioral Parent Training/Defiant Child), but therapists are free to introduce modules from more than one of the types. For example, during depression treatment, a therapist could use the module for defiant behavior if the child's behavior warranted and return to the depression treatment later.

Meta-Analysis of Program Effects										
Outcomes measured	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	p-value
			ES	SE	Age	ES	SE	Age		
Externalizing behavior symptoms	1	62	-0.413	0.187	11	-0.197	0.128	13	-0.646	0.001
Internalizing symptoms	1	62	-0.350	0.187	11	-0.255	0.176	12	-0.546	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

Weisz, J.R., Chorpita, B.F., Palinkas, L.A., Schoenwald, S.K., Miranda, J., Bearman, S.K... (2012) Testing standard and modular designs for psychotherapy treating depression, anxiety, and conduct problems in youth. *Archives of General Psychiatry* 69(3), 274-282



# 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 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	p-value
			ES	SE	Age	ES	SE	Age		
Engagement/Retention	2	89	0.324	0.201	16	n/a	n/a	n/a	0.505	0.013
Major depressive disorder	1	39	0.007	0.304	16	0.000	0.025	17	0.011	0.970

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

- Dean, S., Collings, S., Britt, E., Bell, E., Bell, E., & Stanley, J. (2016). Motivational interviewing to enhance adolescent mental health treatment engagement: A randomized clinical trial. *Psychological Medicine, 46*(9), 1961-1969
- Van Voorhees, B.W., Fogel, J., Pomper, B.E., Marko, M., Reid, N., Watson, N. . . . Domanico, R. (2009). Adolescent dose and ratings of an internet-based depression prevention program: A randomized trial of primary care physician brief advice versus a motivational interview. *Journal of Cognitive and Behavioral Psychotherapies : the Official Journal of the International Institute for the Advanced Studies of Psychotherapy and Applied Mental Health, 9*(1), 1-19.
- Van Voorhees, B.W., Vanderplough-Booth, K., Fogel, J., Gladstone, T., Bell, C., Stuart, S., et al. (2008). Integrative internet-based depression prevention for adolescents: A randomized clinical trial in primary care for vulnerability and protective factors. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 17*(4), 184-196.

For further information, contact:  
(360) 664-9800, [institute@wsipp.wa.gov](mailto:institute@wsipp.wa.gov)

Printed on 11-14-2018



## Washington State Institute for Public Policy

The Washington State Legislature created the Washington State Institute 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.