

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 2019. Literature review updated May 2018.

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

#### Benefit-Cost Summary Statistics Per Participant

##### Benefits to:

Taxpayers	\$3,836	Benefit to cost ratio	n/a
Participants	\$5,782	Benefits minus costs	\$12,766
Others	\$1,550	Chance the program will produce	
Indirect	\$1,051	benefits greater than the costs	95 %
<b>Total benefits</b>	<b>\$12,219</b>		
<b>Net program cost</b>	<b>\$547</b>		
<b>Benefits minus cost</b>	<b>\$12,766</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$54	\$0	\$27	\$81
Labor market earnings associated with anxiety disorder	\$5,357	\$2,281	\$0	\$0	\$7,638
Health care associated with internalizing symptoms	\$425	\$1,502	\$1,550	\$751	\$4,227
Mortality associated with depression	\$0	\$0	\$0	\$0	\$0
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$273	\$273
<b>Totals</b>	<b>\$5,782</b>	<b>\$3,836</b>	<b>\$1,550</b>	<b>\$1,051</b>	<b>\$12,219</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.

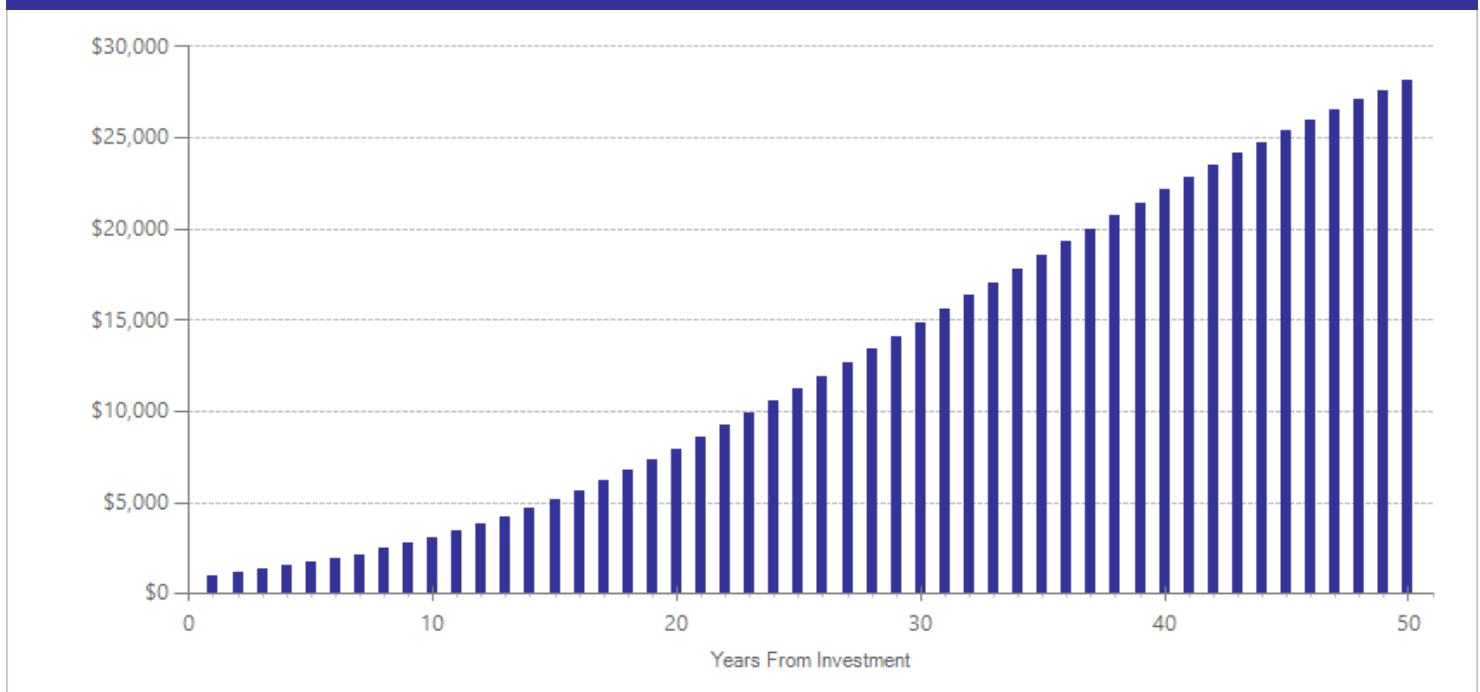
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$477	2015	Present value of net program costs (in 2018 dollars)	\$547
Comparison costs	\$927	2010		Cost range (+ or -)

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

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

## Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects											
Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Anxiety disorder	11	8	217	-0.615	0.217	11	-0.243	0.199	12	-1.080	0.001
Global functioning <sup>^</sup>	11	2	66	0.456	0.246	11	n/a	n/a	n/a	0.825	0.053
Internalizing symptoms	11	5	110	-0.506	0.158	11	-0.506	0.158	13	-0.854	0.001
Major depressive disorder	11	3	82	-0.225	0.184	11	0.000	0.310	13	-0.377	0.041

<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

- Cobham, V.E. (2012). Do anxiety-disordered children need to come into the clinic for efficacious treatment? *Journal of Consulting and Clinical Psychology, 80*(3), 465.
- Conaughton, R.J., Donovan, C.L., & March, S. (2017). Efficacy of an internet-based CBT program for children with comorbid High Functioning Autism Spectrum Disorder and anxiety: A randomised controlled trial. *Journal of Affective Disorders, 218*, 260-268.
- Lenhard, F., Andersson, E., Mataix-Cols, D., Rück, C., Vigerland, S., Högström, J., Hillborg, M., Brander, G., Ljungstrom, M., Ljotsson, B., & Serlachius, E. (2017). Therapist-guided, internet-delivered cognitive-behavioral therapy for adolescents with obsessive-compulsive disorder: A randomized controlled trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 56*(1), 10-19.
- 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.
- 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.
- Vigerland, S., Ljótsson, B., Thulin, U., Öst, L.G., Andersson, G., & Serlachius, E. (2016). Internet-delivered cognitive behavioural therapy for children with anxiety disorders: A randomised controlled trial. *Behaviour Research and Therapy, 76*, 47-56.
- Wuthrich, V.M., Rapee, R.M., Cunningham, M.J., Lyneham, H.J., Hudson, J.L., & Schniering, C.A. (2012). A randomized controlled trial of the Cool Teens CD-ROM computerized program for adolescent anxiety. *Journal of the American Academy of Child & Adolescent Psychiatry, 51*(3), 261-270.

# Exposure response prevention for youth with obsessive-compulsive disorder (OCD)

## Children's Mental Health: Anxiety

Benefit-cost estimates updated December 2019. Literature review updated July 2019.

Program Description: Exposure-response prevention (ERP) uses exposure to feared stimuli to treat obsessive-compulsive disorder (OCD) in children and adolescents. In this treatment, the patient is exposed to stimuli that reliably trigger obsessive or compulsive behaviors. The patient is encouraged to resist engaging in these behaviors, thereby learning to reduce their anxiety without relying on the obsessions or compulsions. ERP interventions are typically delivered by therapists in individual or family format in an outpatient setting. ERP is frequently included as an element in cognitive behavioral therapy (CBT), however, this meta-analysis focuses on evaluations of ERP as a stand-alone intervention, rather than as part of CBT. The ERP interventions in this analysis provided an average of 11 hours of therapy over eight weeks.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$3,632	Benefit to cost ratio	\$25.24
Participants	\$7,181	Benefits minus costs	\$11,108
Others	\$656	Chance the program will produce	
Indirect	\$97	benefits greater than the costs	87 %
<b>Total benefits</b>	<b>\$11,566</b>		
<b>Net program cost</b>	<b>(\$458)</b>		
<b>Benefits minus cost</b>	<b>\$11,108</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$16	\$0	\$8	\$24
Labor market earnings associated with anxiety disorder	\$7,001	\$2,981	\$0	\$0	\$9,982
Health care associated with anxiety disorder	\$180	\$636	\$656	\$318	\$1,789
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$229)	(\$229)
<b>Totals</b>	<b>\$7,181</b>	<b>\$3,632</b>	<b>\$656</b>	<b>\$97</b>	<b>\$11,566</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.

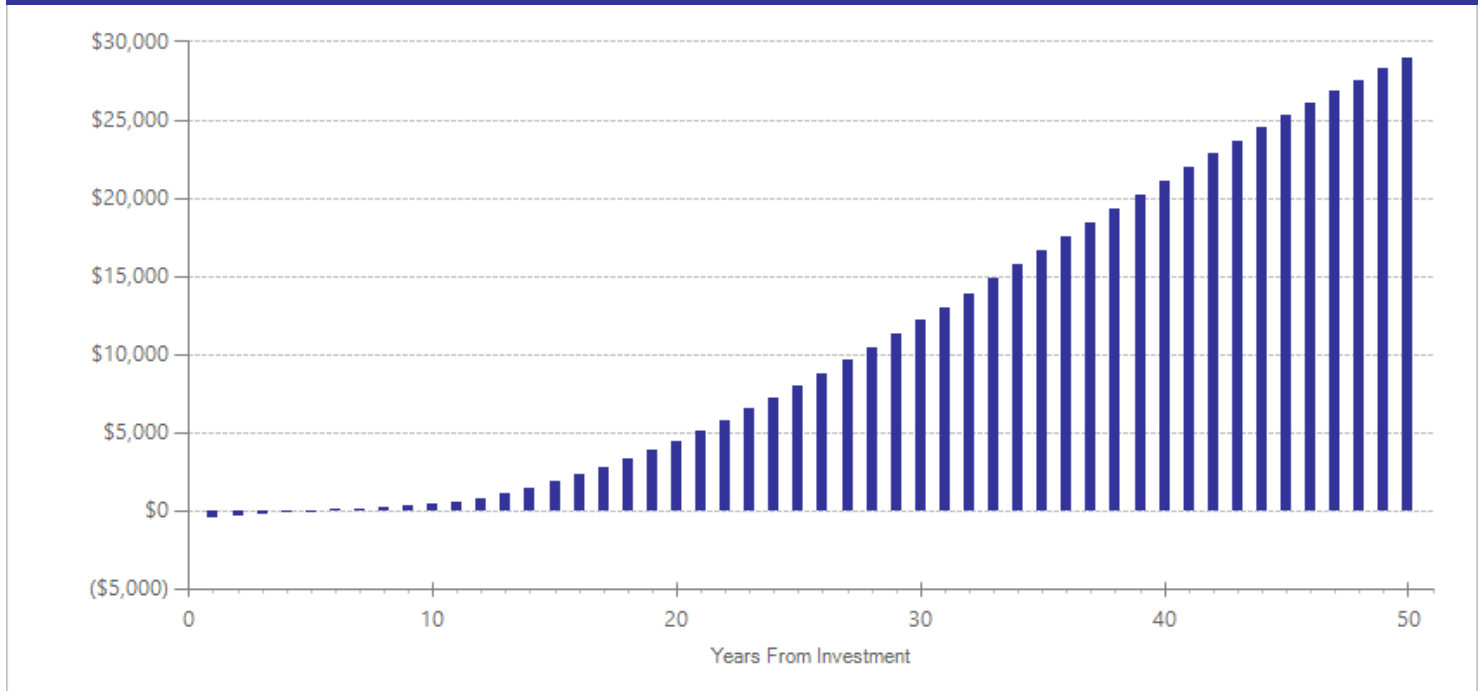
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,585	2016	Present value of net program costs (in 2018 dollars)	(\$458)
Comparison costs	\$1,144	2016	Cost range (+ or -)	20 %

In studies included in this analysis, participants in the treatment group received an average of 11 hours of therapist time. Per-participant cost estimates are based on the weighted average therapist time, as reported in the treatment studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer (2016). Mental health and substance use disorder services data book for the state of Washington). Comparison group costs were calculated in the same way, based on the weighted average therapist time.

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Anxiety disorder	9	3	32	-0.923	0.347	9	-0.365	0.305	10	-0.968	0.001
Major depressive disorder^^	9	1	5	-0.333	0.617	9	n/a	n/a	n/a	-0.333	0.590

^^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

- Bolton, D., & Perrin, S. (2008). Evaluation of exposure with response-prevention for obsessive compulsive disorder in childhood and adolescence. *Journal of Behavior Therapy and Experimental Psychiatry, 39*, 11-22.
- Lewin, A.B., Park, J.M., Jones, A.M., Crawford, E .A., De Nadai, A.S., Menzel, J., . . . Storch, E.A. (2014). Family-based exposure and response prevention therapy for preschool-aged children with obsessive-compulsive disorder: A pilot randomized controlled trial. *Behavior Research and Therapy, 56*,30-38.
- Simons, M., Schneider, S., & Herpertz-Dahlmann, B. (2006). Metacognitive therapy versus exposure and response prevention for pediatric obsessive-compulsive disorder. *Psychotherapy and Psychosomatics, 75*, 257-264.

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

## Children's Mental Health: Anxiety

Benefit-cost estimates updated December 2019. Literature review updated May 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$3,509	Benefit to cost ratio	\$23.54
Participants	\$5,688	Benefits minus costs	\$10,241
Others	\$1,125	Chance the program will produce	
Indirect	\$374	benefits greater than the costs	94 %
<b>Total benefits</b>	<b>\$10,696</b>		
<b>Net program cost</b>	<b>(\$454)</b>		
<b>Benefits minus cost</b>	<b>\$10,241</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$58	\$139	\$29	\$225
K-12 grade repetition	\$0	\$32	\$0	\$16	\$48
K-12 special education	\$0	\$156	\$0	\$78	\$234
Labor market earnings associated with anxiety disorder	\$5,418	\$2,307	\$0	\$0	\$7,725
Health care associated with internalizing symptoms	\$270	\$956	\$986	\$478	\$2,690
Mortality associated with depression	\$0	\$0	\$0	\$0	\$0
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$227)	(\$227)
<b>Totals</b>	<b>\$5,688</b>	<b>\$3,509</b>	<b>\$1,125</b>	<b>\$374</b>	<b>\$10,696</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.

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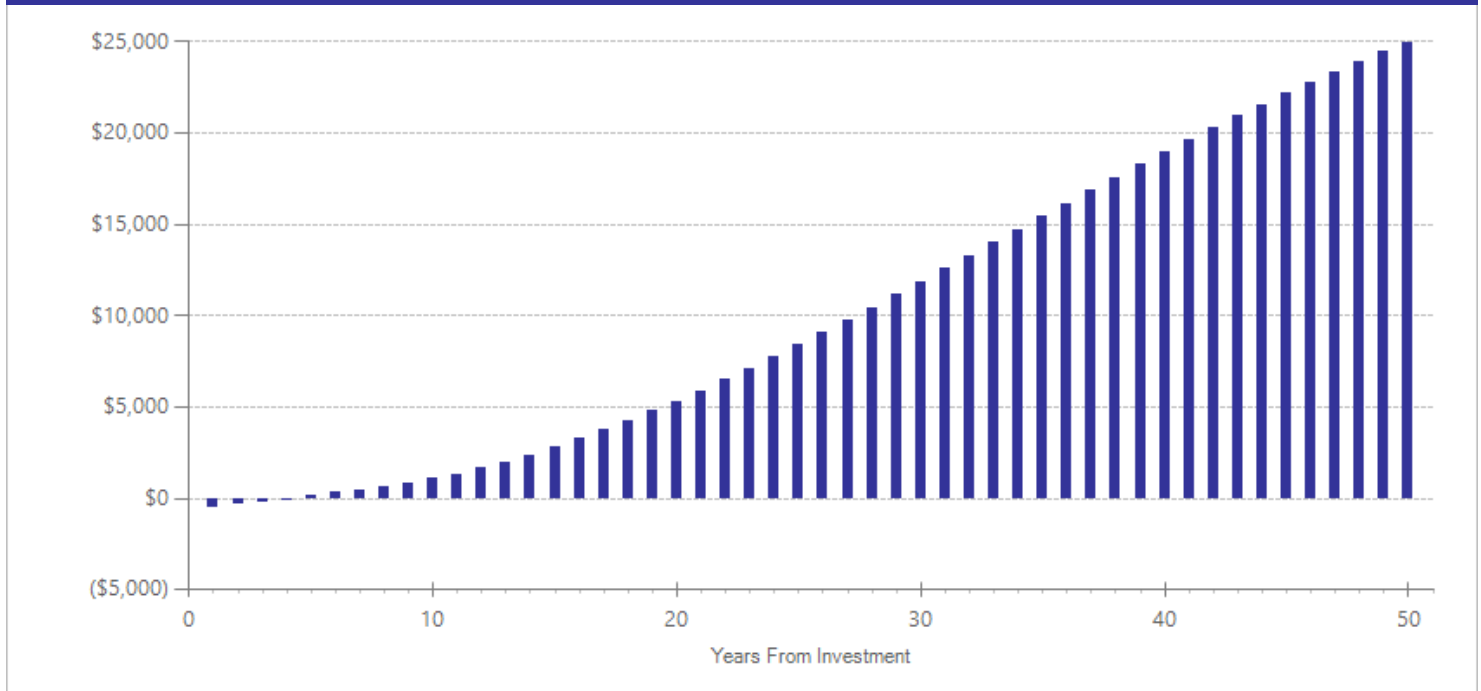
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,431	2015	Present value of net program costs (in 2018 dollars)	(\$454)
Comparison costs	\$927	2010	Cost range (+ or -)	30 %

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

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

## Detailed Annual Cost Estimates Per Participant



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



## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Anxiety disorder	10	39	1342	-0.681	0.059	10	-0.269	0.190	11	-0.914	0.001
Attention-deficit/hyperactivity disorder symptoms	10	1	42	-0.683	0.219	10	0.000	0.141	11	-0.683	0.002
Emergency department visits <sup>^^</sup>	10	1	19	0.000	0.457	10	n/a	n/a	n/a	0.000	1.000
Externalizing behavior symptoms	10	9	495	-0.258	0.073	10	-0.142	0.075	13	-0.292	0.001
Global functioning <sup>^</sup>	10	3	173	0.775	0.307	10	n/a	n/a	n/a	0.775	0.011
Health care costs <sup>***</sup>	10	1	24	0.046	79.057	10	n/a	n/a	n/a	0.046	1.000
Hospitalization <sup>^^</sup>	10	1	140	-0.082	0.168	10	n/a	n/a	n/a	-0.082	0.627
Hospitalization (psychiatric) <sup>^^</sup>	10	2	182	0.000	0.145	10	n/a	n/a	n/a	0.000	1.000
Internalizing symptoms	10	12	600	-0.338	0.065	10	-0.338	0.065	12	-0.379	0.001
Major depressive disorder	10	14	605	-0.187	0.068	10	0.000	0.310	12	-0.224	0.001
School attendance <sup>^</sup>	10	1	24	0.019	0.286	10	n/a	n/a	n/a	0.019	0.948
Suicidal ideation <sup>^</sup>	10	2	182	0.186	0.145	10	n/a	n/a	n/a	0.186	0.199
Suicide attempts <sup>^</sup>	10	2	182	0.000	0.115	10	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.

<sup>\*</sup>The effect size for this outcome indicates percentage change, not a standardized mean difference effect size.

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

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## Citations Used in the Meta-Analysis

- Albano, A.M., Comer, J.S., Compton, S.N., Piacentini, J., Kendall, P.C., Birmaher, B., . . . Sherrill, J.T. (2018). Secondary outcomes from the child/adolescent anxiety multimodal study: Implications for clinical practice. *Evidence-Based Practice in Child and Adolescent Mental Health*, 3(1), 30-41.
- Arendt, K., Thastum, M., & Hougaard, E. (2016). Efficacy of a Danish version of the Cool Kids program: A randomized waitlist controlled trial. *Acta Psychiatrica Scandinavica*, 133(2), 109-121.
- Barrett, P.M. (1998). Evaluation of cognitive-behavioral group treatments for childhood anxiety disorders. *Journal of Clinical Child Psychology*, 27(4), 459-468.
- 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.
- 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.
- Chiu, A.W., Langer, D.A., McLeod, B.D., Har, K., Drahota, A., Galla, B.M., . . . Wood, J.J. (2013). Effectiveness of modular CBT for child anxiety in elementary schools. *School Psychology Quarterly*, 28(2), 141.

- Cobham, V.E. (2012). Do anxiety-disordered children need to come into the clinic for efficacious treatment? *Journal of Consulting and Clinical Psychology, 80*(3), 465.
- Conelea, C.A., Selles, R.R., Benito, K.G., Walther, M.M., Machan, J.T., Garcia, A.M., . . . Freeman, J.B. (2017). Secondary outcomes from the pediatric obsessive compulsive disorder treatment study II. *Journal of Psychiatric Research, 92*, 94-100.
- 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.
- Franklin, M.E., Sapyta, J., Freeman, J.B., Khanna, M., Compton, S., Almirall, D., . . . March, J.S. (2011). Cognitive behavior therapy augmentation of pharmacotherapy in pediatric obsessive-compulsive disorder: The Pediatric OCD Treatment Study II (POTS II) randomized controlled trial. *JAMA, 306*(11), 1224-1232.
- 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.
- Ginsburg, G.S., Becker, K.D., Drazdowski, T.K., & Tein, J.Y. (2012). Treating anxiety disorders in inner city schools: Results from a pilot randomized controlled trial comparing CBT and usual care. *Child and Youth Care Forum, 41*(1), 1-19.
- Ginsburg, G.S., Kendall, P.C., Sakolsky, D., Compton, S.N., Piacentini, J., Albano, A.M., . . . Birmaher, B. (2011). Remission after acute treatment in children and adolescents with anxiety disorders: Findings from the CAMS. *Journal of Consulting and Clinical Psychology, 79*(6), 806.
- Hayward, C., Varady, S., Albano, A.M., Thienemann, M., Henderson, L., & Schatzberg, A.F. (2000). Cognitive-behavioral group therapy for social phobia in female adolescents: Results of a pilot study. *Journal of the American Academy of Child and Adolescent Psychiatry, 39*(6), 721-726.
- 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.
- 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.
- 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.
- 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.
- McNally Keehn, R.H., Lincoln, A.J., Brown, M.Z., & Chavira, D.A. (2013). The Coping Cat program for children with anxiety and autism spectrum disorder: A pilot randomized controlled trial. *Journal of Autism and Developmental Disorders, 43*(1), 57-67.
- 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.
- 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.
- 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.
- Santucci, L.C., & Ehrenreich-May, J. (2013). A randomized controlled trial of the Child Anxiety Multi-Day Program (CAMP) for separation anxiety disorder. *Child Psychiatry & Human Development, 44*(3), 439-451.
- Sevi Tok, E.S., Arkar, H., & Bildik, T. (2016). The effectiveness of cognitive behavioral therapy, medication, or combined treatment for childhood anxiety disorders. *Turk Psikiyatri Dergisi, 27*(2), 1-8.
- Sharma, P., Mehta, M., & Sagar, R. (2017). Efficacy of transdiagnostic cognitive-behavioral group therapy for anxiety disorders and headache in adolescents. *Journal of Anxiety Disorders, 46*, 78-84.
- 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.
- 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.
- 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.
- Storch, E.A., Arnold, E.B., Lewin, A.B., Nadeau, J.M., Jones, A.M., De Nadai, A.S., . . . Murphy, T.K. (2013). The effect of cognitive-behavioral therapy versus treatment as usual for anxiety in children with autism spectrum disorders: A randomized, controlled trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 52*(2), 132-142.
- Storch, E.A., Lewin, A.B., Collier, A.B., Arnold, E., De Nadai, A.S., Dane, B.F., . . . Murphy, T.K. (2015). A randomized controlled trial of cognitive-behavioral therapy versus treatment as usual for adolescents with autism spectrum disorders and comorbid anxiety. *Depression and Anxiety, 32*(3), 174-181.
- Storch, E.A., Salloum, A., King, M.A., Crawford, E.A., Andel, R., McBride, N.M., & Lewin, A.B. (2015). A randomized controlled trial in community mental health centers of computer-assisted cognitive behavioral therapy versus treatment as usual for children with anxiety. *Depression and Anxiety, 32*(11), 843-852.
- Suveg, C., Hudson, J.L., Brewer, G., Flannery-Schroeder, E., Gosch, E., & Kendall, P.C. (2009). Cognitive-behavioral therapy for anxiety-disordered youth: Secondary outcomes from a randomized clinical trial evaluating child and family modalities. *Journal of Anxiety Disorders, 23*(3), 341-349.
- Van Steensel, F.J.A., Dirksen, C.D., & Bögels, S.M. (2014). Cost-effectiveness of cognitive-behavioral therapy versus treatment as usual for anxiety disorders in children with autism spectrum disorder. *Research in Autism Spectrum Disorders, 8*(2), 127-137.
- 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.
- 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.
- Wergeland, G.J.H., Fjermestad, K.W., Marin, C.E., Haugland, B.S.M., Bjaastad, J.F., Oeding, K., . . . Heiervang, E.R. (2014). An effectiveness study of individual vs. group cognitive behavioral therapy for anxiety disorders in youth. *Behaviour Research and Therapy, 57*, 1-12.
- Wood, J.J., Ehrenreich-May, J., Alessandri, M., Fujii, C., Renno, P., Laugeson, E., . . . Storch, E.A. (2015). Cognitive behavioral therapy for early adolescents with autism spectrum disorders and clinical anxiety: A randomized, controlled trial. *Behavior Therapy, 46*(1), 7-19.

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

## Children's Mental Health: Anxiety

Benefit-cost estimates updated December 2019. Literature review updated May 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,323	Benefit to cost ratio	n/a
Participants	\$2,583	Benefits minus costs	\$5,111
Others	\$255	Chance the program will produce	
Indirect	\$401	benefits greater than the costs	91 %
<b>Total benefits</b>	<b>\$4,562</b>		
<b>Net program cost</b>	<b>\$549</b>		
<b>Benefits minus cost</b>	<b>\$5,111</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$8
Labor market earnings associated with anxiety disorder	\$2,513	\$1,070	\$0	\$0	\$3,583
Health care associated with anxiety disorder	\$70	\$247	\$255	\$124	\$697
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$274	\$274
<b>Totals</b>	<b>\$2,583</b>	<b>\$1,323</b>	<b>\$255</b>	<b>\$401</b>	<b>\$4,562</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.

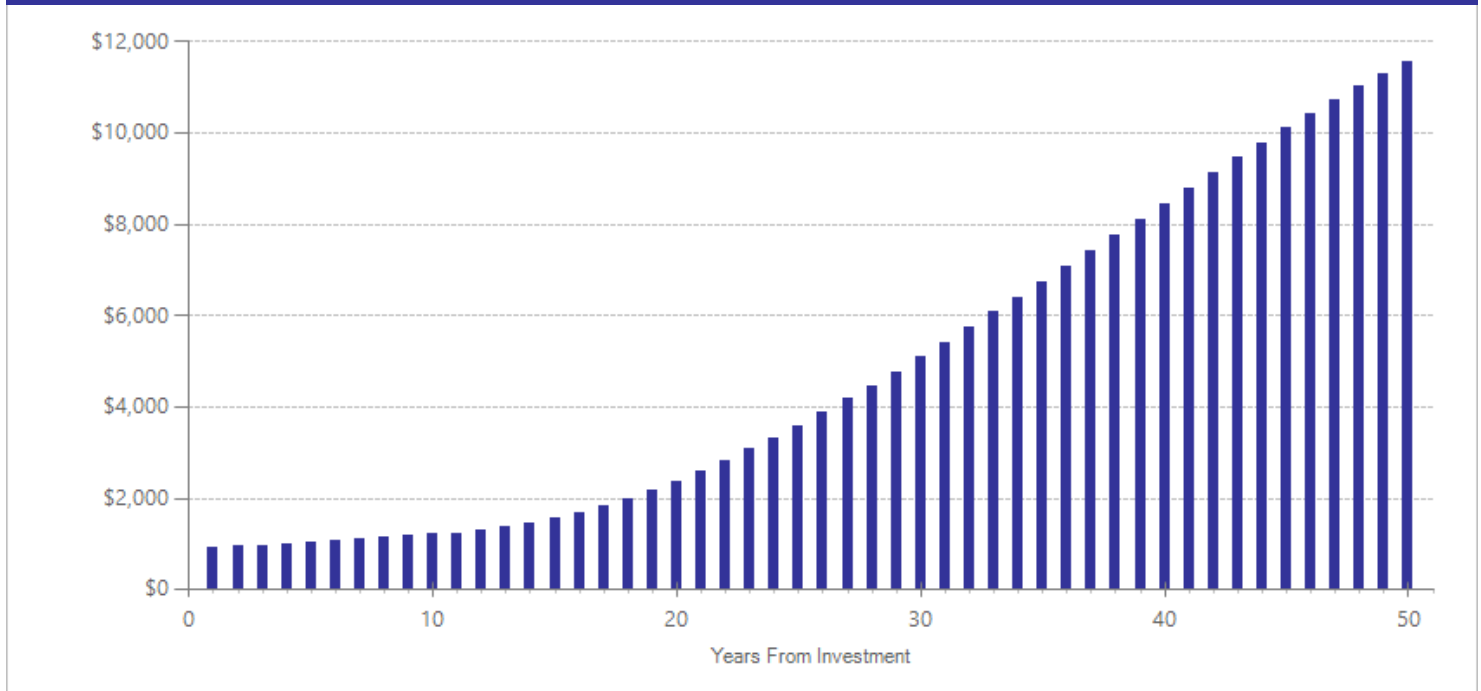
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$475	2015	Present value of net program costs (in 2018 dollars)	\$549
Comparison costs	\$927	2010	Cost range (+ or -)	20 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Anxiety disorder	7	3	137	-0.476	0.199	7	-0.188	0.163	8	-0.796	0.001

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

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

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

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

## Citations Used in the Meta-Analysis

- 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.
- Thirlwall, K., Cooper, P.J., Karalus, J., Voysey, M., Willetts, L., & Creswell, C. (2013). Treatment of child anxiety disorders via guided parent-delivered cognitive-behavioural therapy: Randomised controlled trial. *The British Journal of Psychiatry, 203*(6), 436-444.
- 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.

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

## Children's Mental Health: Anxiety

Benefit-cost estimates updated December 2019. 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	\$1,070	Benefit to cost ratio	n/a
Participants	\$2,161	Benefits minus costs	\$4,029
Others	\$171	Chance the program will produce	
Indirect	\$266	benefits greater than the costs	86 %
<b>Total benefits</b>	<b>\$3,668</b>		
<b>Net program cost</b>	<b>\$362</b>		
<b>Benefits minus cost</b>	<b>\$4,029</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$5	\$0	\$3	\$8
Labor market earnings associated with anxiety disorder	\$2,114	\$900	\$0	\$0	\$3,014
Health care associated with anxiety disorder	\$47	\$165	\$171	\$83	\$465
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$181	\$181
<b>Totals</b>	<b>\$2,161</b>	<b>\$1,070</b>	<b>\$171</b>	<b>\$266</b>	<b>\$3,668</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.

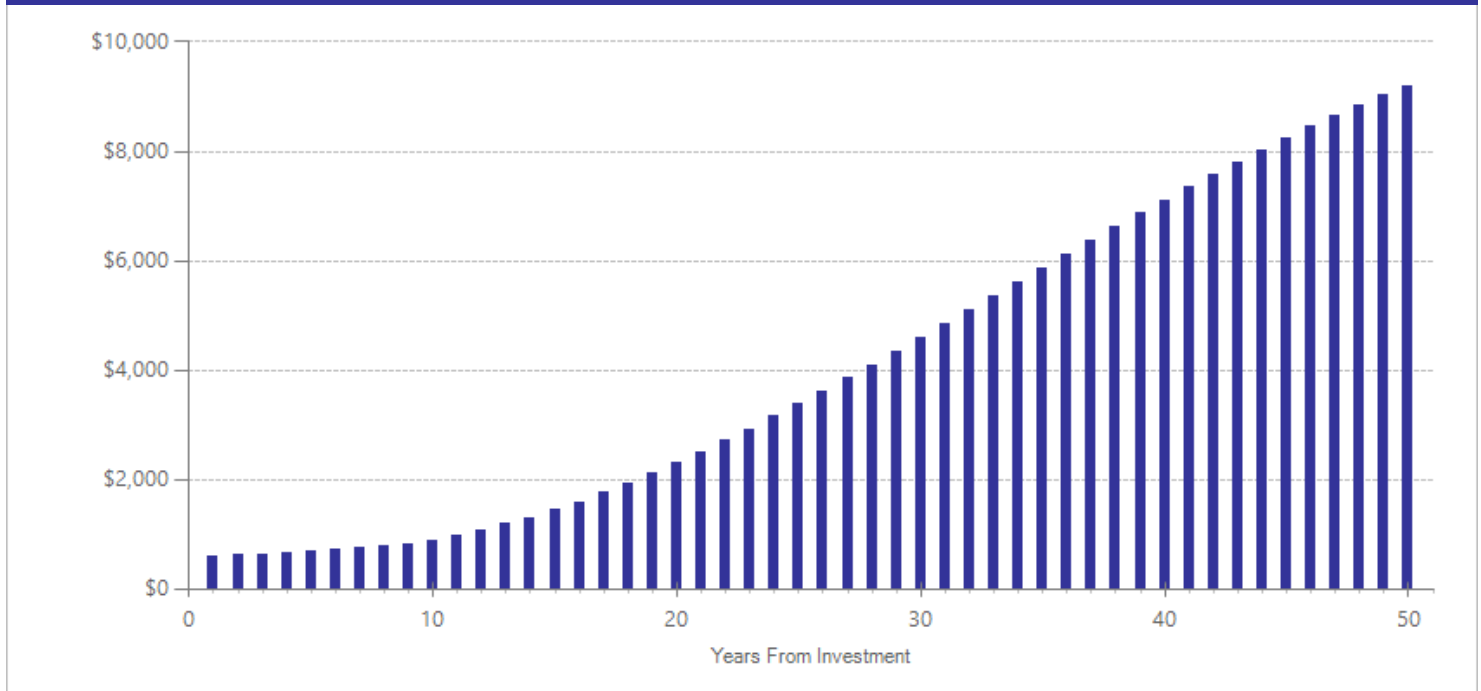
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$660	2016	Present value of net program costs (in 2018 dollars)	\$362
Comparison costs	\$927	2010	Cost range (+ or -)	15 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Anxiety disorder	11	1	68	-0.266	0.196	11	-0.105	0.119	12	-0.450	0.022

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

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

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

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

## Citations Used in the Meta-Analysis

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



# Behavioral parent training (BPT) for children with ADHD

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

Benefit-cost estimates updated December 2019. Literature review updated April 2018.

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

### Benefit-Cost Summary Statistics Per Participant

#### Benefits to:

Taxpayers	\$3,013	Benefit to cost ratio	\$20.31
Participants	\$3,768	Benefits minus costs	\$8,888
Others	\$1,706	Chance the program will produce	
Indirect	\$861	benefits greater than the costs	74 %
<u>Total benefits</u>	<u>\$9,348</u>		
<u>Net program cost</u>	<u>(\$460)</u>		
Benefits minus cost	\$8,888		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$97	\$209	\$48	\$354
Labor market earnings associated with high school graduation	\$547	\$233	\$298	\$298	\$1,376
K-12 grade repetition	\$0	\$6	\$0	\$3	\$9
K-12 special education	\$0	\$284	\$0	\$142	\$426
Health care associated with externalizing behavior symptoms	\$218	\$770	\$795	\$385	\$2,168
Costs of higher education	(\$56)	(\$37)	(\$17)	(\$18)	(\$127)
<b>Subtotals</b>	<b>\$709</b>	<b>\$1,353</b>	<b>\$1,286</b>	<b>\$858</b>	<b>\$4,206</b>
From secondary participant					
Labor market earnings associated with major depression	\$2,942	\$1,252	\$0	\$0	\$4,194
Health care associated with major depression	\$115	\$407	\$420	\$204	\$1,147
Mortality associated with depression	\$2	\$1	\$0	\$29	\$32
<b>Subtotals</b>	<b>\$3,059</b>	<b>\$1,661</b>	<b>\$420</b>	<b>\$233</b>	<b>\$5,373</b>
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$230)	(\$230)
<b>Totals</b>	<b>\$3,768</b>	<b>\$3,013</b>	<b>\$1,706</b>	<b>\$861</b>	<b>\$9,348</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.

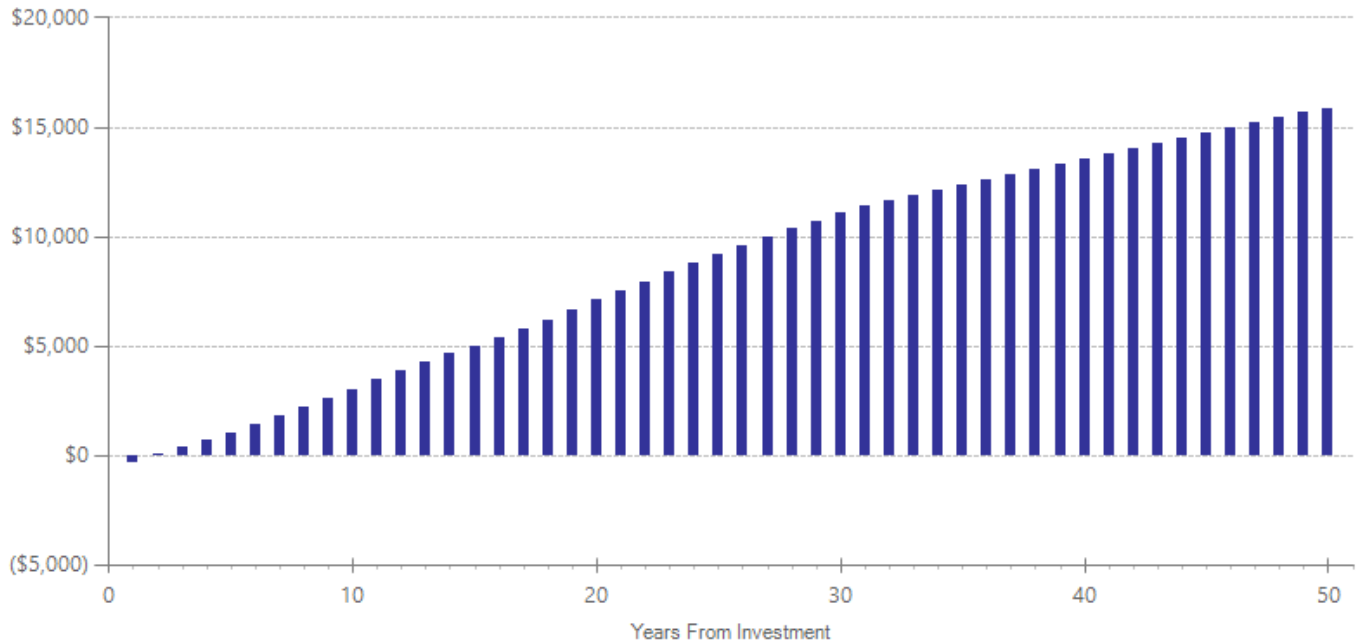
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,468	2015	Present value of net program costs (in 2018 dollars)	(\$460)
Comparison costs	\$956	2010	Cost range (+ or -)	20 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
					First time ES is estimated			Second time ES is estimated			ES	p-value
					ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	5	Primary	14	781	-0.144	0.073	5	0.000	0.141	6	-0.391	0.001
Disruptive behavior disorder symptoms	5	Primary	13	610	-0.137	0.086	5	-0.076	0.061	8	-0.490	0.001
Externalizing behavior symptoms	5	Primary	1	47	-0.475	0.229	5	-0.261	0.178	8	-0.475	0.029
Global functioning <sup>^</sup>	5	Primary	1	71	0.272	0.188	5	n/a	n/a	n/a	0.533	0.005
Internalizing symptoms	5	Primary	1	47	-0.417	0.217	5	-0.417	0.217	7	-0.417	0.054
Anxiety disorder <sup>^^</sup>	35	Secondary	1	14	-0.762	0.442	35	n/a	n/a	n/a	-1.904	0.001
Major depressive disorder	35	Secondary	3	55	-0.333	0.297	35	-0.173	0.364	37	-1.057	0.123
Parental stress <sup>^</sup>	35	Secondary	7	285	-0.093	0.118	35	n/a	n/a	n/a	-0.327	0.006

<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

- Abikoff, H.B., Thompson, M., Laver-Bradbury, C., Long, N., Forehand, R.L., Miller, B.L., . . . Sonuga-Barke, E. (2014). Parent training for preschool ADHD: A randomized controlled trial of specialized and generic programs. *Journal of Child Psychology and Psychiatry*, 56(6), 618-631.
- Aghebati, A., Gharraee, B., Shoshtari, M.H., & Gohari, M.R. (2014). Triple P–Positive Parenting Program for mothers of ADHD children. *Iranian Journal of Psychiatry and Behavioral Sciences*, 8(1), 59-65.
- Au, A., Lau, K.M., Wong, A.H.C., Lam, C., Leung, C., Lau, J., & Lee, Y.K. (2014). The efficacy of a group Triple P (Positive Parenting Program) for Chinese parents with a child diagnosed with ADHD in Hong Kong: A pilot randomised controlled study. *Australian Psychologist*, 49(3), 151-162.
- Bor, W., Sanders, M. R., & Markie-Dadds, C. (2002). The effects of the Triple P–Positive Parenting Program on preschool children with co-occurring disruptive behavior and attentional/hyperactive difficulties. *Journal of Abnormal Child Psychology*, 30(6), 571-587.
- Chacko, A., Wymbs, B.T., Wymbs, F.A., Pelham, W.E., Swanger-Gagne, M.S., Girio, 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.
- DuPaul, G. J., Kern, L., Belk, G., Custer, B., Daffner, M., Hatfield, A., & Peek, D. (2017). Face-to-face versus online behavioral parent training for young children at risk for ADHD: Treatment engagement and outcomes. *Journal of Clinical Child and Adolescent Psychology*, 1-15.
- Fabiano, G.A., Pelham, W.E., Cunningham, C.E., Yu, J., Gangloff, B., Buck, M., . . . Gera, S. (2012). A waitlist-controlled trial of behavioral parent training for fathers of children with ADHD. *Journal of Clinical Child and Adolescent Psychology*, 41(3), 337-345.
- 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.
- 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.
- Pfiffner, L.J., Zalecki, C., Kaiser, N.M., Villodas, M., McBurnett, K., Hinshaw, S.P., . . . Zalecki, C. (2014). A two-site randomized clinical trial of integrated psychosocial treatment for ADHD-inattentive type. *Journal of Consulting and Clinical Psychology*, 82(6), 1115-1127.
- Sonuga-Barke, E.J.S., Barton, J., Daley, D., Hutchings, J., Maishman, T., Raftery, J., . . . Thompson, M.J.J. (2018). A comparison of the clinical effectiveness and cost of specialised individually delivered parent training for preschool attention-deficit/hyperactivity disorder and a generic, group-based programme: A multi-centre, randomised controlled trial of the New Forest Parenting Programme versus Incredible Years. *European Child & Adolescent Psychiatry*, 17(6), 797-809.
- 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.
- 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.

# Multimodal therapy (MMT) for children with ADHD

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

Benefit-cost estimates updated December 2019. Literature review updated April 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$2,290	Benefit to cost ratio	\$1.27
Participants	\$3,748	Benefits minus costs	\$1,080
Others	\$666	Chance the program will produce	
Indirect	(\$1,623)	benefits greater than the costs	53 %
<b>Total benefits</b>	<b>\$5,081</b>		
<b>Net program cost</b>	<b>(\$4,001)</b>		
<b>Benefits minus cost</b>	<b>\$1,080</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$63	\$149	\$32	\$244
K-12 grade repetition	\$0	\$7	\$0	\$4	\$11
K-12 special education	\$0	\$184	\$0	\$92	\$276
Labor market earnings associated with anxiety disorder	\$3,606	\$1,535	\$0	\$0	\$5,141
Health care associated with externalizing behavior symptoms	\$142	\$501	\$517	\$250	\$1,410
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$2,001)	(\$2,001)
<b>Totals</b>	<b>\$3,748</b>	<b>\$2,290</b>	<b>\$666</b>	<b>(\$1,623)</b>	<b>\$5,081</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.

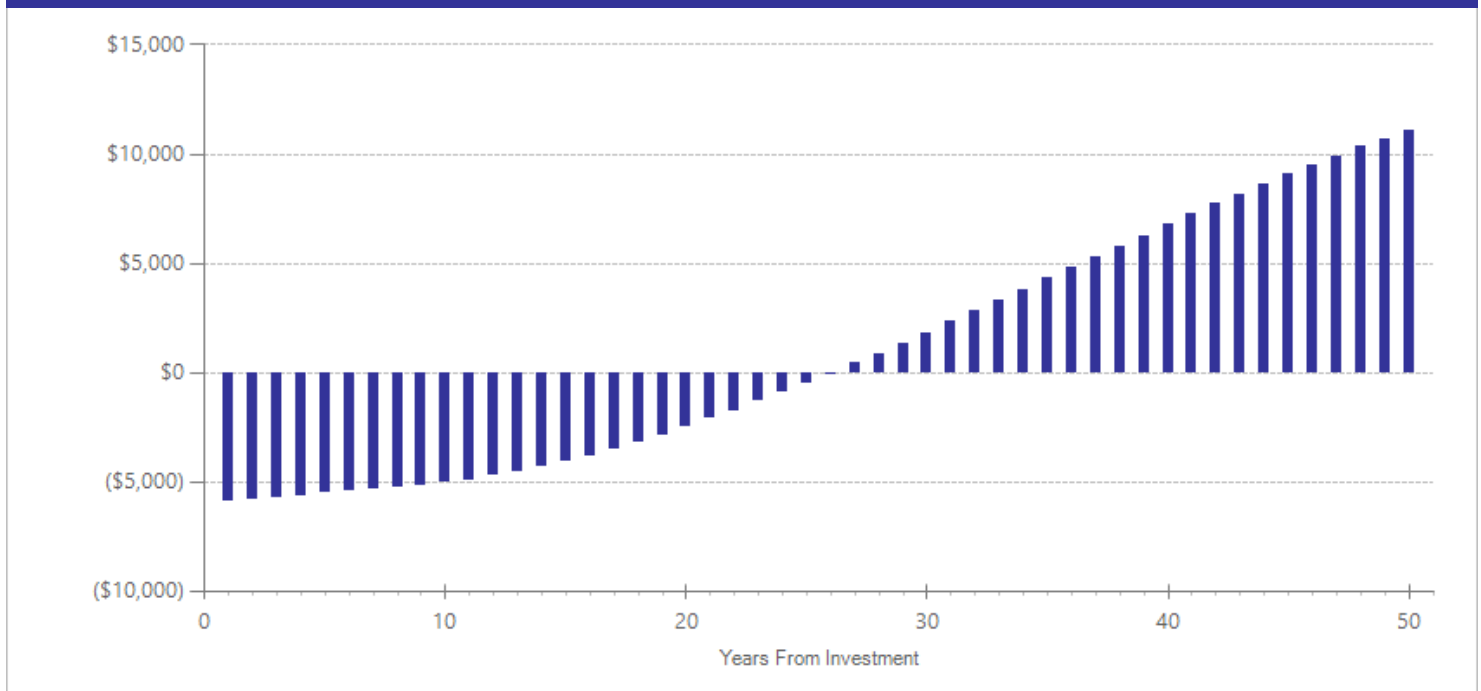
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$3,676	2000	Present value of net program costs (in 2018 dollars)	(\$4,001)
Comparison costs	\$956	2010	Cost range (+ or -)	40 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

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

<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.
- 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.
- Huang, Y.H., Chung, C.Y., Ou, H.Y., Tzang, R.F., Huang, K.Y., Liu, H.C., . . . Liu, S.I. (2015). Treatment effects of combining social skill training and parent training in Taiwanese children with attention deficit hyperactivity disorder. *Journal of the Formosan Medical Association, 114*(3), 260-267.
- 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.
- Pfiffner, L.J., Zalecki, C., Kaiser, N.M., Villodas, M., McBurnett, K., Hinshaw, S.P., . . . Zalecki, C. (2014). A two-site randomized clinical trial of integrated psychosocial treatment for ADHD-inattentive type. *Journal of Consulting and Clinical Psychology, 82*(6), 1115-1127.
- Power, T.J., Mautone, J.A., Soffer, S.L., Clarke, A.T., Marshall, S.A., Sharman, J., . . . Jawad, A.F. (2012). A family-school intervention for children with ADHD: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 80*(4), 611-623.
- Sibley, M.H., Graziano, P.A., Kuriyan, A.B., Coxe, S., Pelham, W.E., Rodriguez, L., . . . Ward, A. (2016). Parent-teen behavior therapy + motivational interviewing for adolescents with ADHD. *Journal of Consulting and Clinical Psychology, 84*(8), 699-712.

- Sibley, M.H., Pelham, W.E., Derefinko, K.J., Kuriyan, A.B., Sanchez, F., & Graziano, P.A. (2013). A pilot trial of Supporting Teens' Academic Needs Daily (STAND): A parent-adolescent collaborative intervention for ADHD. *Journal of Psychopathology and Behavioral Assessment*, 35(4), 436-449.
- 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.
- 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.



# Cognitive behavioral therapy (CBT) for children with ADHD

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

Benefit-cost estimates updated December 2019. Literature review updated April 2018.

Program Description: Cognitive behavioral therapy (CBT) for children with attention-deficit hyperactivity disorder (ADHD) aims to teach children strategies for altering thinking patterns and behavior. Examples of CBT methods used with an ADHD population include relaxation training, self-verbalization, a self-control game, or social problem-solving activities. CBT generally also includes a homework component intended to support generalizing skills learned in therapy to everyday life. Programs in this review may have included modules for parents either alone or in combination with their child, but children were the focus of interventions. All children in the included studies were diagnosed with ADHD or met clinical levels of ADHD symptoms. Programs were delivered in individual or group format and lasted on average four months, with an average of 4.5 total sessions per month.

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	(\$442)	Benefit to cost ratio	(\$2.73)
Participants	(\$1,331)	Benefits minus costs	(\$3,833)
Others	(\$588)	Chance the program will produce	
Indirect	(\$445)	benefits greater than the costs	47 %
<b>Total benefits</b>	<b>(\$2,806)</b>		
<b>Net program cost</b>	<b>(\$1,027)</b>		
<b>Benefits minus cost</b>	<b>(\$3,833)</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$10	\$26	\$5	\$41
Labor market earnings associated with test scores	(\$1,359)	(\$579)	(\$717)	\$0	(\$2,655)
K-12 grade repetition	\$0	\$2	\$0	\$1	\$4
K-12 special education	\$0	\$25	\$0	\$12	\$37
Labor market earnings associated with major depression	\$0	\$0	\$0	\$0	\$0
Health care associated with disruptive behavior disorder	\$28	\$99	\$102	\$50	\$279
Mortality associated with depression	\$0	\$0	\$0	\$0	\$0
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$514)	(\$514)
<b>Totals</b>	<b>(\$1,331)</b>	<b>(\$442)</b>	<b>(\$588)</b>	<b>(\$445)</b>	<b>(\$2,806)</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.

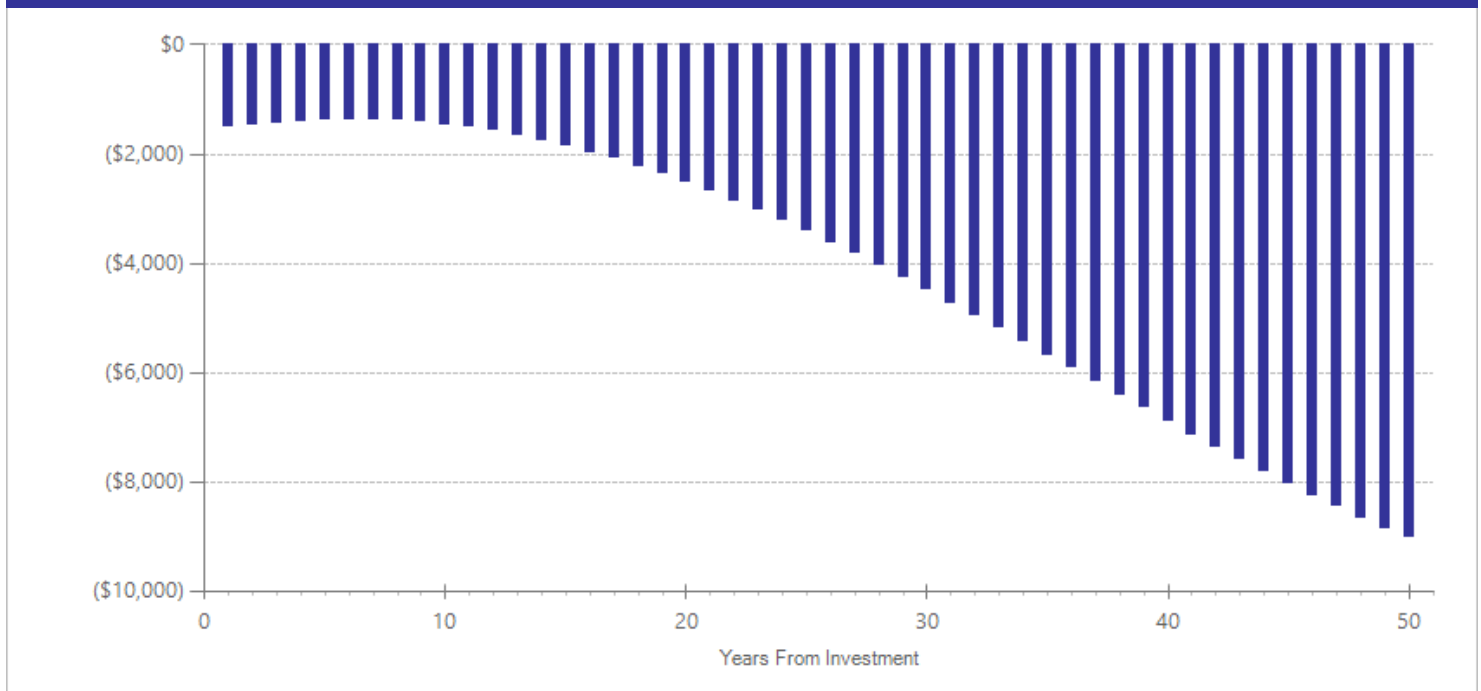
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,008	2015	Present value of net program costs (in 2018 dollars)	(\$1,027)
Comparison costs	\$956	2010	Cost range (+ or -)	20 %

This program is typically delivered over a three- or four- month period, with sessions delivered on a weekly basis. Per-participant cost estimates are based on weighted average therapist time, as reported in the treatment studies. Hourly therapist cost is based on the actuarial estimates of reimbursement by modality (Mercer. (2016). Behavioral health data nook for the state of Washington for rates effective January 1, 2017). For comparison group costs, we used 2010 Washington State DSHS data to estimate the average reimbursement rate for treatment of child and adolescent attention-deficit hyperactivity disorder (ADHD).

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	13	8	173	-0.081	0.111	13	0.000	0.141	14	-0.232	0.224
Disruptive behavior disorder symptoms	13	2	51	-0.100	0.220	13	-0.055	0.134	16	-0.196	0.375
Global functioning <sup>^</sup>	13	1	59	0.192	0.195	13	n/a	n/a	n/a	0.942	0.001
Internalizing symptoms <sup>^^</sup>	13	1	30	-0.019	0.258	13	n/a	n/a	n/a	-0.038	0.884
Major depressive disorder	13	1	59	-0.034	0.204	13	0.000	0.310	15	-0.165	0.421
Test scores	13	4	52	-0.017	0.214	13	-0.014	0.235	17	-0.038	0.868

<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

- 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.
- Abikoff, H. & Gittelman, R. (1985). Hyperactive children treated with stimulants: Is cognitive training a useful adjunct? *Archives of General Psychiatry*, 42(10), 953-961.
- 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.
- Coelho, L.F., Barbosa, D.L.F., Rizzutti, S., Bueno, O.F.A., & Miranda, M.C. (2018). Group cognitive behavioral therapy for children and adolescents with ADHD. *Psicologia: Reflexão e Crítica*, 30(1), 11.
- 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.
- Sprich, S.E., Safren, S.A., Finkelstein, D., Remmert, J.E., & Hammerness, P. (2016). A randomized controlled trial of cognitive behavioral therapy for ADHD in medication-treated adolescents. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 57(11), 1218-1226.
- Vidal, R., Castells, J., Richarte, V., Palomar, G., Garcia, M., Nicolau, R., . . . Ramos-Quiroga, J.A. (2015). Group therapy for adolescents with attention-deficit/hyperactivity disorder: A randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, 54(4), 275-282.

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

## Children's Mental Health: Depression

Benefit-cost estimates updated December 2019. Literature review updated May 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$6	Benefit to cost ratio	(\$0.44)
Participants	\$2	Benefits minus costs	(\$343)
Others	\$5	Chance the program will produce	
Indirect	(\$116)	benefits greater than the costs	48 %
<u>Total benefits</u>	<u>(\$104)</u>		
<u>Net program cost</u>	<u>(\$239)</u>		
Benefits minus cost	(\$343)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$1	\$0	\$1	\$2
Labor market earnings associated with major depression	\$0	\$0	\$0	\$0	\$0
Health care associated with major depression	\$1	\$4	\$5	\$2	\$12
Mortality associated with depression	\$0	\$0	\$0	\$1	\$1
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$119)	(\$119)
<u>Totals</u>	<u>\$2</u>	<u>\$6</u>	<u>\$5</u>	<u>(\$116)</u>	<u>(\$104)</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.

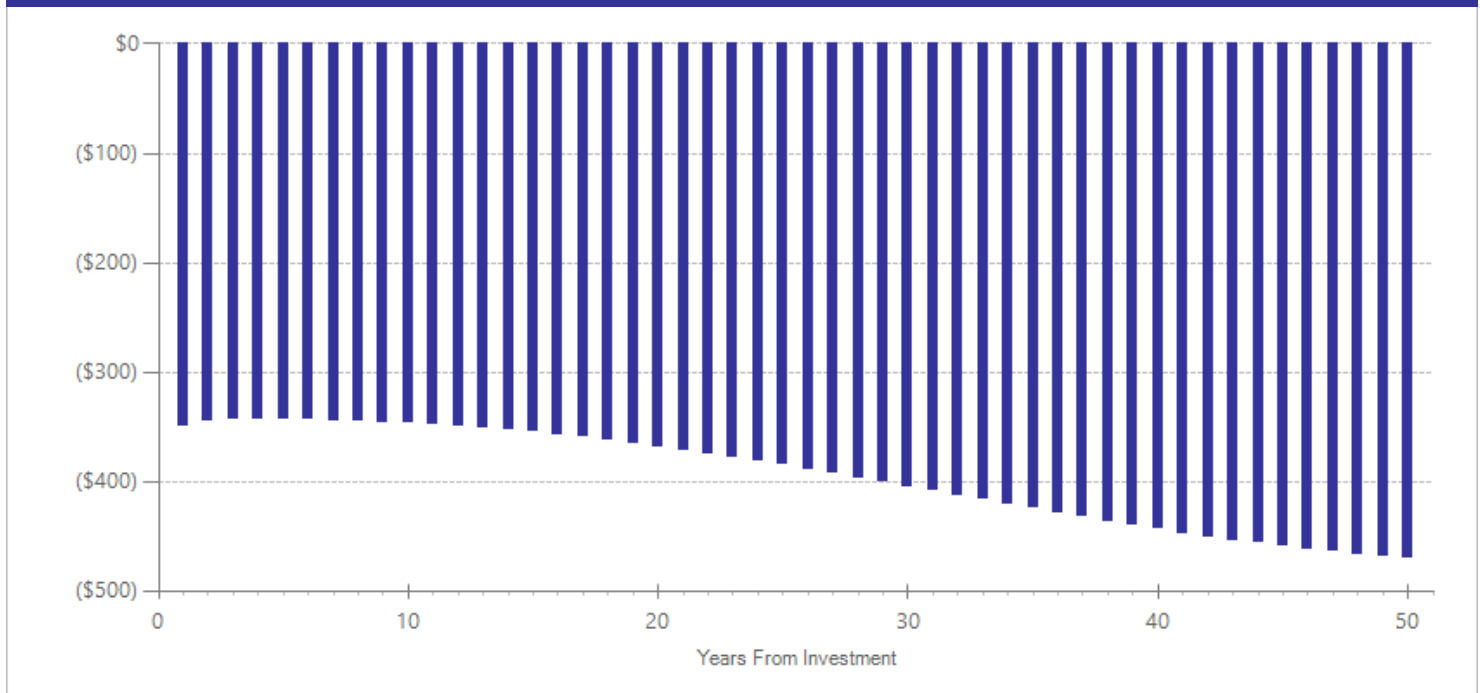
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$234	2017	Present value of net program costs (in 2018 dollars)	(\$239)
Comparison costs	\$0	2017	Cost range (+ or -)	20 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Major depressive disorder	16	4	290	-0.149	0.090	16	0.000	0.310	18	-0.389	0.001
Substance use <sup>^</sup>	16	3	240	-0.065	0.096	16	n/a	n/a	n/a	-0.171	0.365

<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

- 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., Seeley, J.R., & Gau, J.M. (2008). Brief cognitive-behavioral depression prevention program for high-risk adolescents outperforms two alternative interventions: A randomized efficacy trial. *Journal of Consulting and Clinical Psychology*, 76(4), 595-606.

# Collaborative primary care for children with depression

## Children's Mental Health: Depression

Benefit-cost estimates updated December 2019. Literature review updated August 2017.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$277	Benefit to cost ratio	\$0.60
Participants	\$114	Benefits minus costs	(\$389)
Others	\$268	Chance the program will produce	
Indirect	(\$76)	benefits greater than the costs	48 %
<u>Total benefits</u>	<u>\$583</u>		
<u>Net program cost</u>	<u>(\$972)</u>		
Benefits minus cost	(\$389)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$0	\$0	\$0	\$0	\$0
Health care associated with major depression	\$73	\$259	\$268	\$130	\$730
Mortality associated with depression	\$40	\$17	\$0	\$281	\$338
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$486)	(\$486)
<b>Totals</b>	<b>\$114</b>	<b>\$277</b>	<b>\$268</b>	<b>(\$76)</b>	<b>\$583</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.

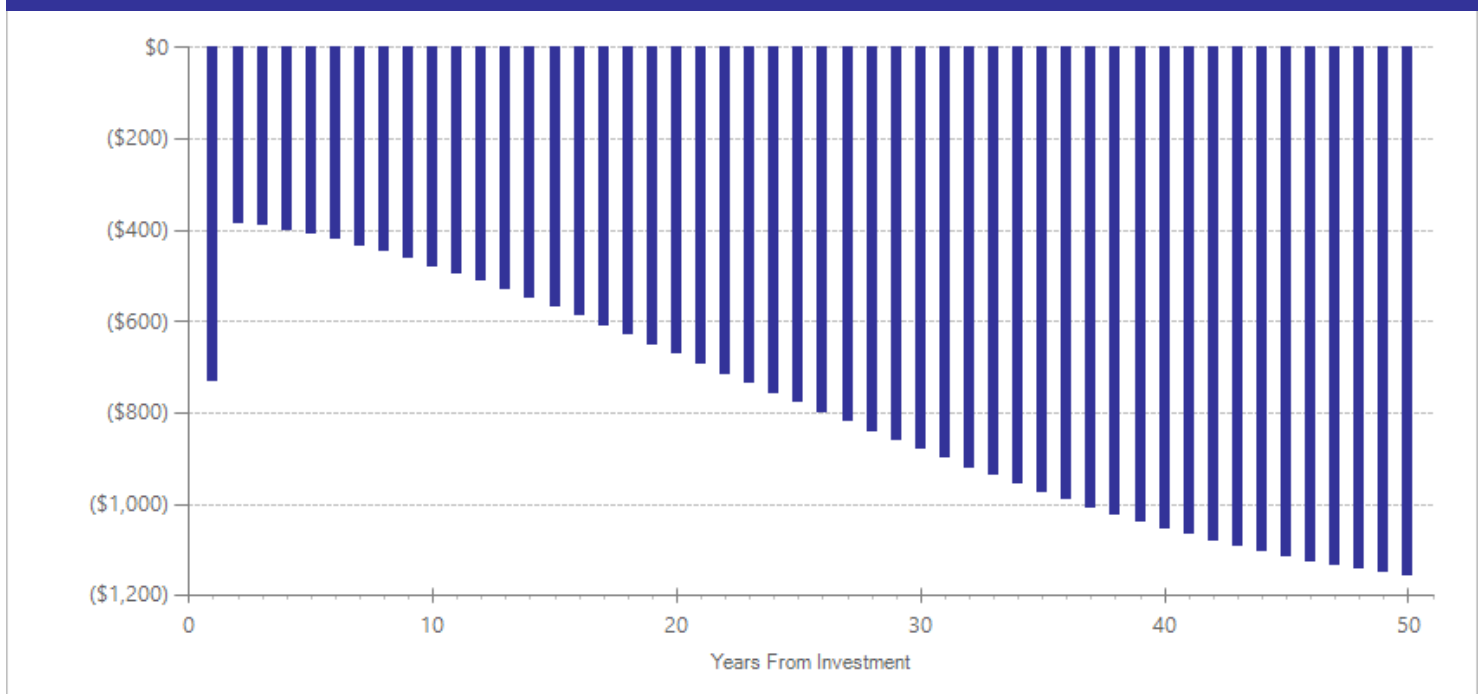
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,475	2014	Present value of net program costs (in 2018 dollars)	(\$972)
Comparison costs	\$551	2014	Cost range (+ or -)	15 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Major depressive disorder	15	1	50	-0.898	0.332	15	0.000	0.310	17	-0.898	0.007



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

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.

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

## Children's Mental Health: Depression

Benefit-cost estimates updated December 2019. Literature review updated August 2017.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$86	Benefit to cost ratio	\$0.08
Participants	\$24	Benefits minus costs	(\$420)
Others	\$84	Chance the program will produce	
Indirect	(\$158)	benefits greater than the costs	48 %
<b>Total benefits</b>	<b>\$36</b>		
<b>Net program cost</b>	<b>(\$456)</b>		
<b>Benefits minus cost</b>	<b>(\$420)</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$0	(\$1)	\$0	(\$1)
K-12 grade repetition	\$0	\$1	\$0	\$1	\$2
K-12 special education	\$0	\$0	\$0	\$0	(\$1)
Labor market earnings associated with major depression	\$0	\$0	\$0	\$0	\$0
Health care associated with major depression	\$21	\$74	\$76	\$37	\$207
Health care associated with externalizing behavior symptoms	(\$1)	(\$2)	(\$2)	(\$1)	(\$7)
Mortality associated with depression	\$4	\$2	\$0	\$27	\$33
Adjustment for deadweight cost of program	\$0	\$13	\$11	(\$222)	(\$197)
<b>Totals</b>	<b>\$24</b>	<b>\$86</b>	<b>\$84</b>	<b>(\$158)</b>	<b>\$36</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.

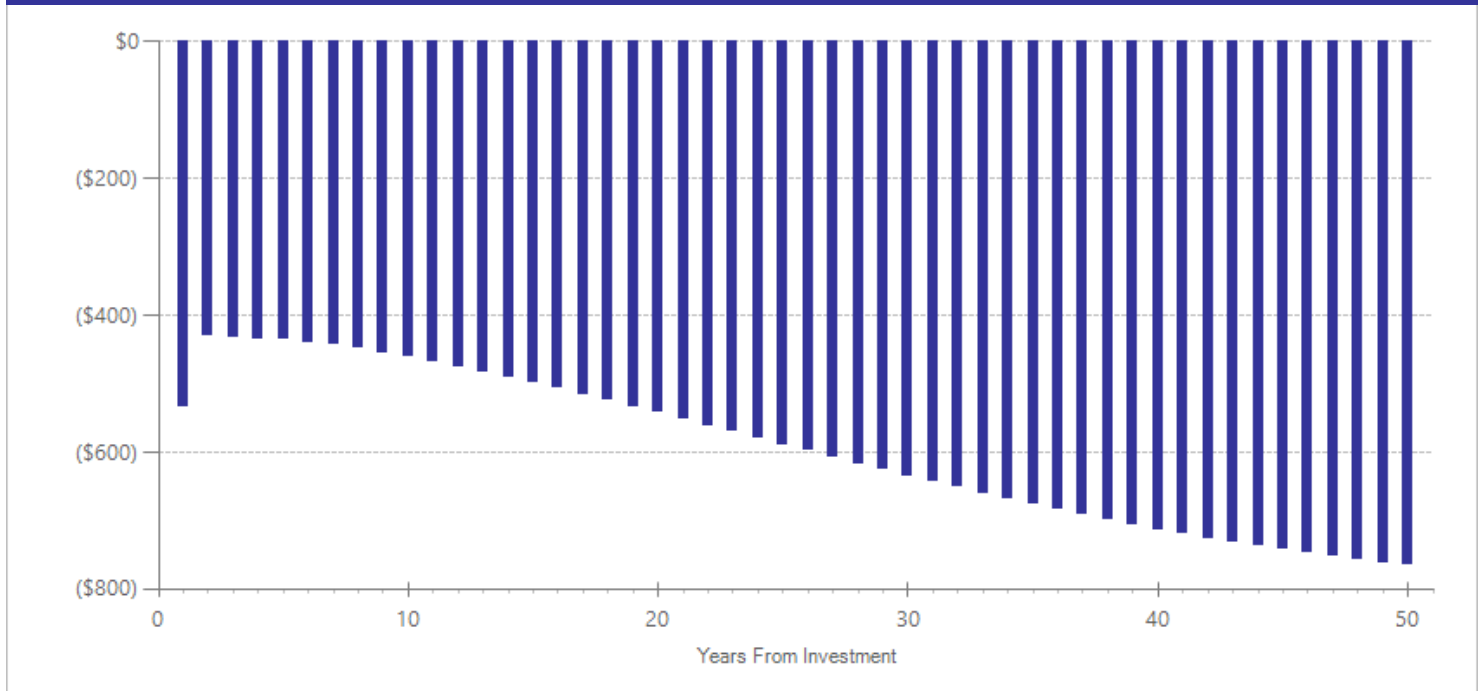
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,245	2015	Present value of net program costs (in 2018 dollars)	(\$456)
Comparison costs	\$753	2010	Cost range (+ or -)	15 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Anxiety disorder <sup>^^</sup>	14	5	79	-0.201	0.202	14	n/a	n/a	n/a	-0.249	0.218
Disruptive behavior disorder symptoms	14	3	184	-0.042	0.121	14	-0.023	0.073	17	-0.042	0.730
Externalizing behavior symptoms	14	4	208	0.001	0.101	14	0.001	0.061	17	0.031	0.760
Global functioning <sup>^</sup>	14	6	357	0.172	0.109	14	n/a	n/a	n/a	0.192	0.078
Hospitalization (psychiatric) <sup>^^</sup>	14	1	41	-0.143	0.214	14	n/a	n/a	n/a	-0.143	0.504
Internalizing symptoms <sup>^^</sup>	14	5	183	0.084	0.109	14	n/a	n/a	n/a	0.104	0.341
Major depressive disorder	14	19	580	-0.299	0.076	14	0.000	0.310	16	-0.488	0.001
Specialist visits <sup>^</sup>	14	1	41	-0.135	0.214	14	n/a	n/a	n/a	-0.135	0.529
Suicidal ideation <sup>^</sup>	14	3	252	-0.302	0.093	14	n/a	n/a	n/a	-0.302	0.001
Suicide attempts <sup>^</sup>	14	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 2019. 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	\$125	Benefit to cost ratio	\$0.27
Participants	\$51	Benefits minus costs	(\$452)
Others	\$120	Chance the program will produce	
Indirect	(\$126)	benefits greater than the costs	49 %
<u>Total benefits</u>	<u>\$170</u>		
<u>Net program cost</u>	<u>(\$622)</u>		
Benefits minus cost	(\$452)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$0	\$0	\$0	\$0	\$0
Health care associated with major depression	\$33	\$117	\$120	\$58	\$329
Mortality associated with depression	\$18	\$8	\$0	\$126	\$152
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$311)	(\$311)
<b>Totals</b>	<b>\$51</b>	<b>\$125</b>	<b>\$120</b>	<b>(\$126)</b>	<b>\$170</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.

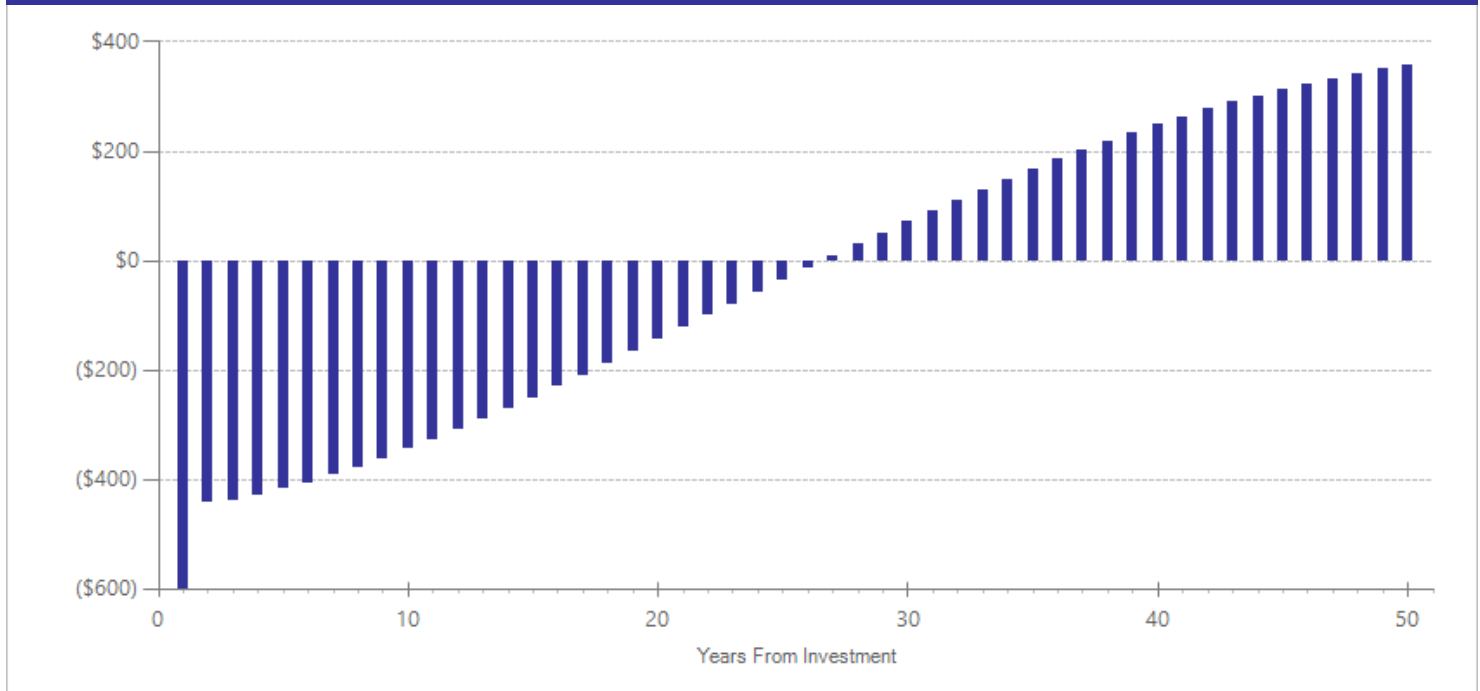
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,417	2016	Present value of net program costs (in 2018 dollars)	(\$622)
Comparison costs	\$753	2010	Cost range (+ or -)	15 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Major depressive disorder	15	2	46	-0.438	0.234	15	0.000	0.310	17	-0.438	0.061

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

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.



# Stop Now and Plan (SNAP)

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2019. Literature review updated July 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$5,103	Benefit to cost ratio	\$4.02
Participants	\$3,375	Benefits minus costs	\$12,759
Others	\$8,821	Chance the program will produce	
Indirect	(\$312)	benefits greater than the costs	85 %
<b>Total benefits</b>	<b>\$16,987</b>		
<b>Net program cost</b>	<b>(\$4,228)</b>		
<b>Benefits minus cost</b>	<b>\$12,759</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$2,726	\$6,230	\$1,363	\$10,319
Labor market earnings associated with high school graduation	\$3,518	\$1,498	\$1,922	\$0	\$6,938
K-12 grade repetition	\$0	\$10	\$0	\$5	\$14
K-12 special education	\$0	\$354	\$0	\$177	\$531
Health care associated with disruptive behavior disorder	\$212	\$750	\$774	\$375	\$2,112
Costs of higher education	(\$355)	(\$235)	(\$106)	(\$117)	(\$814)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$2,114)	(\$2,114)
<b>Totals</b>	<b>\$3,375</b>	<b>\$5,103</b>	<b>\$8,821</b>	<b>(\$312)</b>	<b>\$16,987</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.

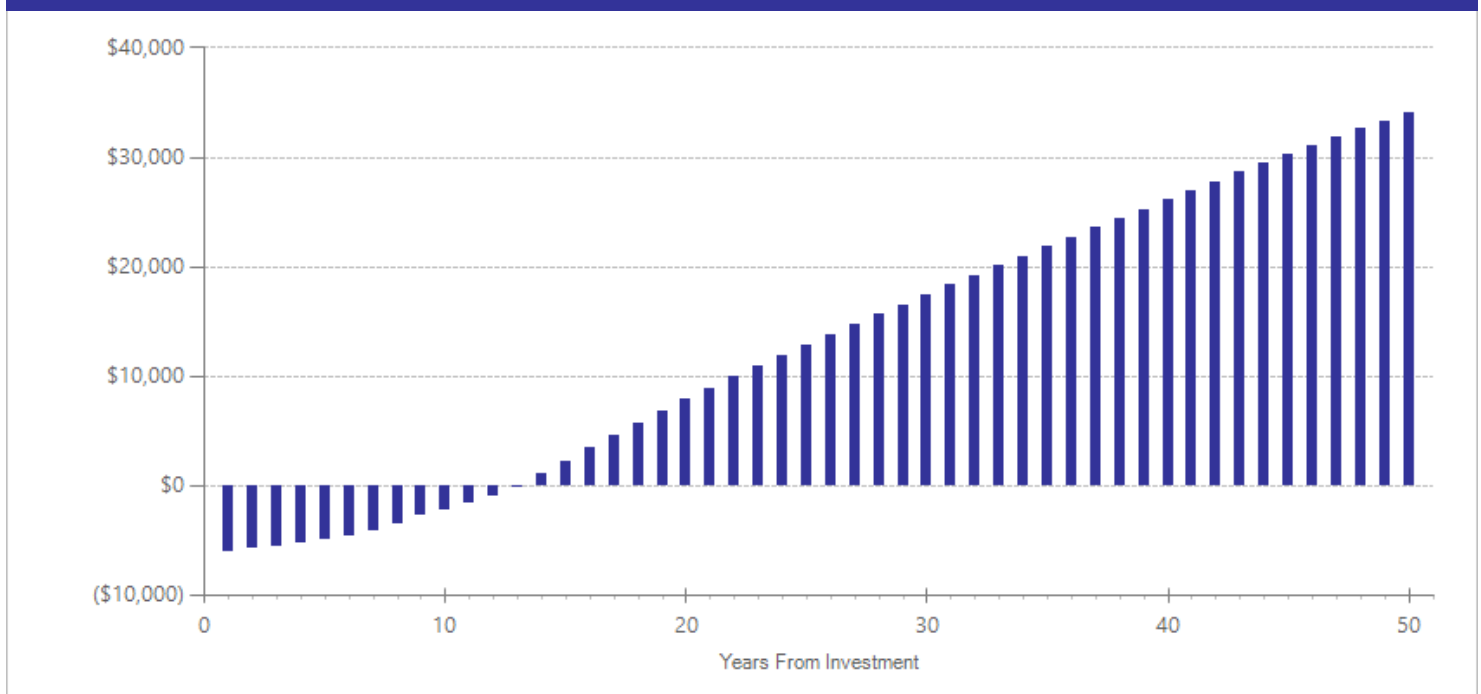
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$4,817	2012	Present value of net program costs (in 2018 dollars)	(\$4,228)
Comparison costs	\$868	2010	Cost range (+ or -)	30 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	9	1	40	-0.062	0.237	9	0.000	0.141	10	-0.141	0.556
Crime	9	1	80	-0.441	0.273	10	-0.441	0.273	20	-0.441	0.106
Disruptive behavior disorder symptoms	9	3	166	-0.233	0.114	9	-0.128	0.088	12	-0.479	0.001
Internalizing symptoms	9	2	150	-0.284	0.120	9	-0.284	0.120	11	-0.319	0.008

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

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

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

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

## Citations Used in the Meta-Analysis

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

# Multimodal therapy (MMT) for children with disruptive behavior

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2019. Literature review updated July 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$2,615	Benefit to cost ratio	\$6.43
Participants	\$5,210	Benefits minus costs	\$8,922
Others	\$3,348	Chance the program will produce	
Indirect	(\$608)	benefits greater than the costs	57 %
<b>Total benefits</b>	<b>\$10,566</b>		
<b>Net program cost</b>	<b>(\$1,644)</b>		
<b>Benefits minus cost</b>	<b>\$8,922</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$46	\$9	\$74
Labor market earnings associated with test scores	\$5,753	\$2,449	\$3,035	\$0	\$11,237
K-12 grade repetition	\$0	(\$1)	\$0	(\$1)	(\$2)
K-12 special education	\$0	\$148	\$0	\$74	\$222
Labor market earnings associated with anxiety disorder	(\$616)	(\$262)	\$0	\$0	(\$879)
Health care associated with anxiety disorder	(\$13)	(\$45)	(\$47)	(\$23)	(\$127)
Health care associated with disruptive behavior disorder	\$86	\$304	\$314	\$152	\$855
Mortality associated with depression	\$0	\$0	\$0	\$0	\$0
Adjustment for deadweight cost of program	\$0	\$4	\$0	(\$820)	(\$816)
<b>Totals</b>	<b>\$5,210</b>	<b>\$2,615</b>	<b>\$3,348</b>	<b>(\$608)</b>	<b>\$10,566</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.

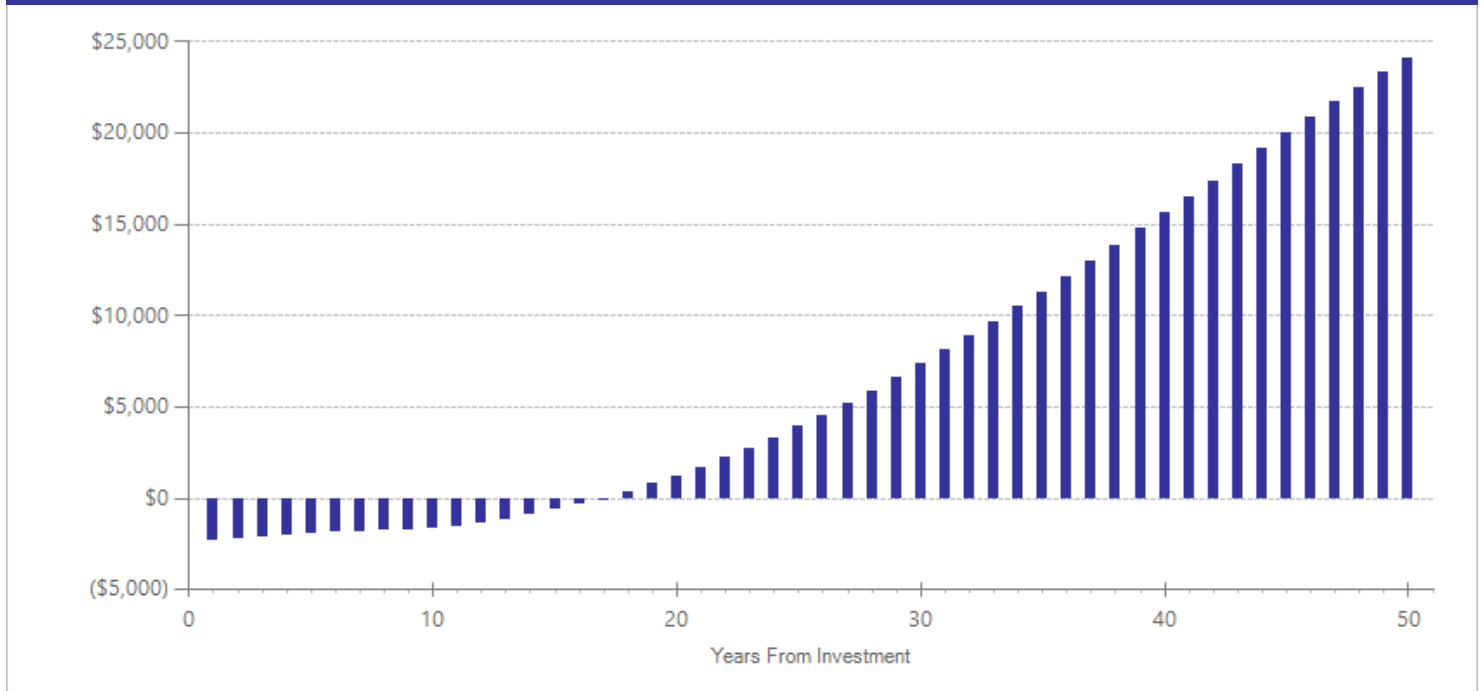
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,501	2015	Present value of net program costs (in 2018 dollars)	(\$1,644)
Comparison costs	\$868	2010	Cost range (+ or -)	50 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Anxiety disorder	9	1	40	0.031	0.221	9	0.012	0.107	10	0.135	0.647
Attention-deficit/hyperactivity disorder symptoms	9	1	40	-0.019	0.221	9	0.000	0.141	10	-0.083	0.706
Disruptive behavior disorder symptoms	9	5	195	-0.081	0.109	10	-0.045	0.068	13	-0.270	0.157
Global functioning <sup>^</sup>	9	1	64	0.951	0.182	9	n/a	n/a	n/a	0.951	0.001
Internalizing symptoms	9	3	127	-0.222	0.182	9	-0.222	0.182	11	-0.260	0.115
Major depressive disorder	9	1	40	0.000	0.294	9	0.000	0.310	11	0.000	1.000
Test scores	9	2	70	0.096	0.176	10	0.063	0.194	17	0.132	0.456

<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

- 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.
- Guzder, J., Paisley, V., Hickling, F.W., & Robertson-Hickling, H. (2013). Promoting resilience in high-risk children in Jamaica: A pilot study of a multimodal intervention. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 22(2), 125-130.
- Masi, G., Milone, A., Paciello, M., Lenzi, F., Muratori, P., Manfredi, A., . . . Muratori, F. (2014). Efficacy of a multimodal treatment for disruptive behavior disorders in children and adolescents: Focus on internalizing problems. *Psychiatry Research*, 219(3), 617-624.
- 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.

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

Benefit-cost estimates updated December 2019. Literature review updated July 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$2,154	Benefit to cost ratio	\$5.65
Participants	\$4,105	Benefits minus costs	\$6,493
Others	\$2,099	Chance the program will produce	
Indirect	(\$469)	benefits greater than the costs	59 %
<b>Total benefits</b>	<b>\$7,889</b>		
<b>Net program cost</b>	<b>(\$1,396)</b>		
<b>Benefits minus cost</b>	<b>\$6,493</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$11	\$24	\$5	\$40
Labor market earnings associated with test scores	\$3,303	\$1,406	\$1,742	\$0	\$6,452
K-12 grade repetition	\$0	\$2	\$0	\$1	\$3
K-12 special education	\$0	\$110	\$0	\$55	\$166
Health care associated with disruptive behavior disorder	\$63	\$223	\$230	\$111	\$627
<b>Subtotals</b>	<b>\$3,366</b>	<b>\$1,752</b>	<b>\$1,996</b>	<b>\$173</b>	<b>\$7,287</b>
From secondary participant					
Labor market earnings associated with major depression	\$710	\$302	\$0	\$0	\$1,012
Health care associated with major depression	\$28	\$100	\$103	\$50	\$281
Mortality associated with depression	\$1	\$0	\$0	\$6	\$7
<b>Subtotals</b>	<b>\$739</b>	<b>\$402</b>	<b>\$103</b>	<b>\$56</b>	<b>\$1,301</b>
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$698)	(\$698)
<b>Totals</b>	<b>\$4,105</b>	<b>\$2,154</b>	<b>\$2,099</b>	<b>(\$469)</b>	<b>\$7,889</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.

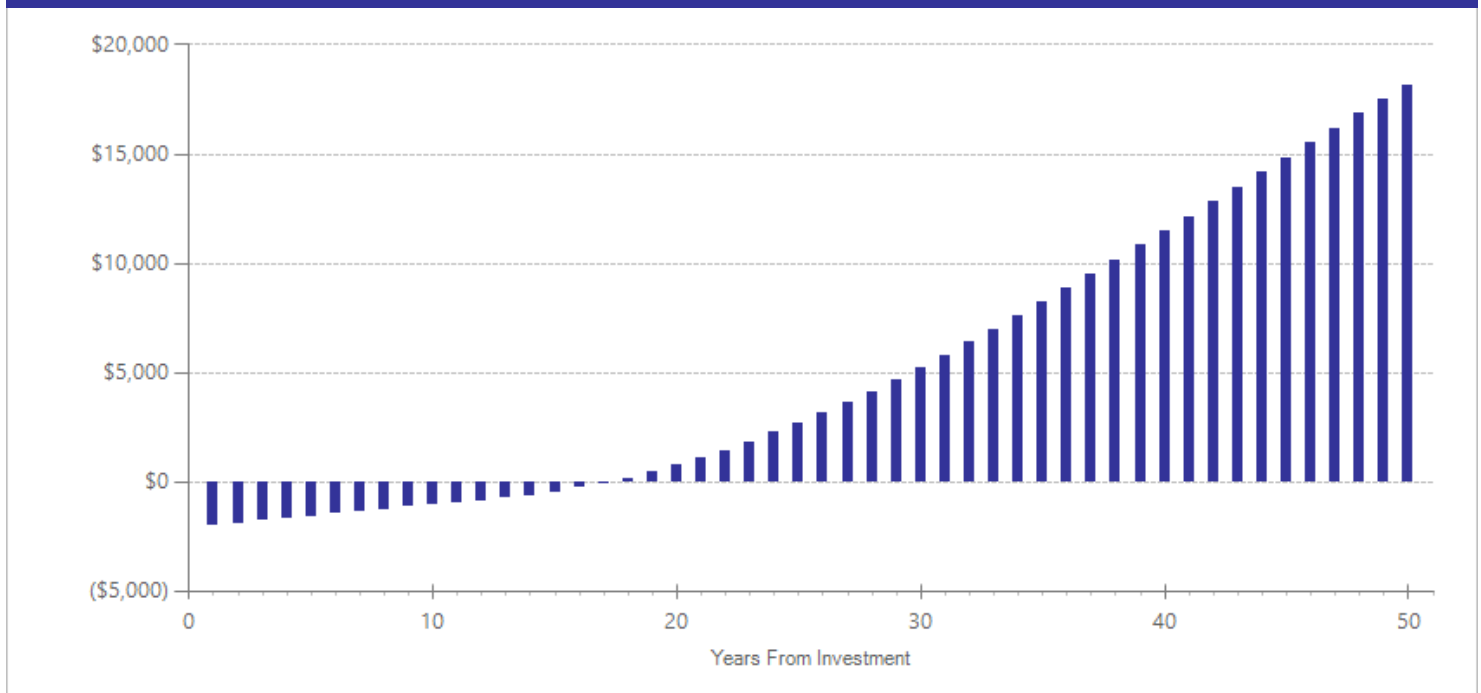
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,265	2015	Present value of net program costs (in 2018 dollars)	(\$1,396)
Comparison costs	\$868	2010	Cost range (+ or -)	40 %

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

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

## Detailed Annual Cost Estimates Per Participant



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



## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
					First time ES is estimated			Second time ES is estimated			ES	p-value
					ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	5	Primary	4	354	-0.112	0.094	5	0.000	0.141	6	-0.461	0.001
Disruptive behavior disorder symptoms	5	Primary	21	1507	-0.079	0.045	5	-0.043	0.033	8	-0.380	0.001
Internalizing symptoms	5	Primary	4	287	-0.099	0.098	5	-0.099	0.098	7	-0.294	0.003
Test scores	5	Primary	2	144	0.084	0.123	7	0.039	0.135	17	0.227	0.257
Major depressive disorder	28	Secondary	4	210	-0.068	0.118	28	-0.035	0.145	30	-0.115	0.462
Parental stress <sup>^</sup>	28	Secondary	5	236	-0.184	0.109	28	n/a	n/a	n/a	-0.497	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.

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## 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.
- 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., & Mørch, 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., Lebaillly, 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.
- Little, M., Berry, V., Morpeth, L., Blower, S., Axford, N., Lehtonen, M., . . . Bywater, T. (2012). The impact of three evidence-based programmes delivered in public systems in Birmingham, UK. *International Journal of Conflict and Violence*, 6(2), 260-72.
- 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., 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.
- 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., 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.
- Seabra-Santos, M.J., Gaspar, M.F., Azevedo, A.F., Homem, T.C., Guerra, J., Martins, V., . . . Moura-Ramos, M. (2016). Incredible Years parent training: What changes, for whom, how, for how long? *Journal of Applied Developmental Psychology*, *44*, 93-104.
- 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.

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

Benefit-cost estimates updated December 2019. Literature review updated June 2018.

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

### Benefit-Cost Summary Statistics Per Participant

#### Benefits to:

Taxpayers	\$1,914	Benefit to cost ratio	\$7.11
Participants	\$3,094	Benefits minus costs	\$4,800
Others	\$641	Chance the program will produce	
Indirect	(\$63)	benefits greater than the costs	59 %
<u>Total benefits</u>	<u>\$5,585</u>		
<u>Net program cost</u>	<u>(\$785)</u>		
Benefits minus cost	\$4,800		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$17	\$39	\$8	\$64
Labor market earnings associated with high school graduation	\$252	\$107	\$138	\$0	\$497
K-12 grade repetition	\$0	\$3	\$0	\$2	\$5
K-12 special education	\$0	\$181	\$0	\$90	\$271
Health care associated with disruptive behavior disorder	\$93	\$331	\$341	\$165	\$931
Costs of higher education	(\$26)	(\$17)	(\$8)	(\$9)	(\$60)
<b>Subtotals</b>	<b>\$319</b>	<b>\$621</b>	<b>\$510</b>	<b>\$257</b>	<b>\$1,708</b>
From secondary participant					
Health care associated with major depression	\$36	\$127	\$131	\$63	\$357
Labor market earnings associated with anxiety disorder	\$2,738	\$1,166	\$0	\$0	\$3,904
Mortality associated with depression	\$1	\$0	\$0	\$9	\$10
<b>Subtotals</b>	<b>\$2,774</b>	<b>\$1,293</b>	<b>\$131</b>	<b>\$72</b>	<b>\$4,270</b>
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$393)	(\$393)
<b>Totals</b>	<b>\$3,094</b>	<b>\$1,914</b>	<b>\$641</b>	<b>(\$63)</b>	<b>\$5,585</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.

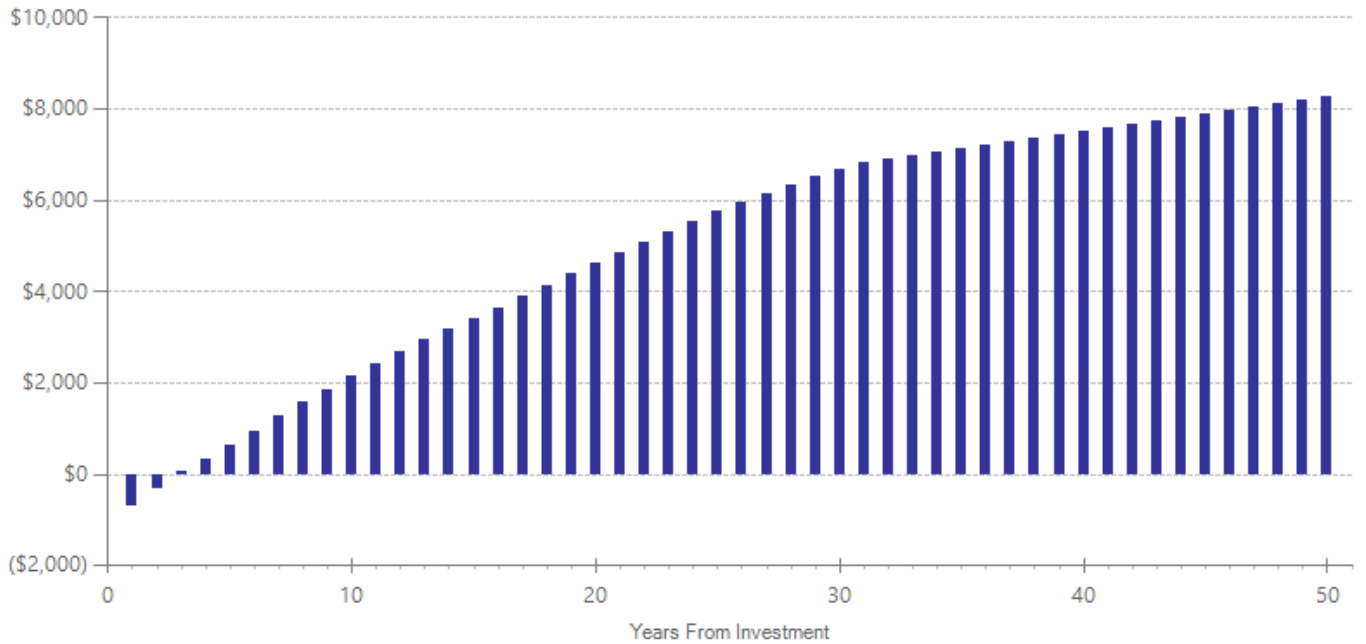
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,730	2017	Present value of net program costs (in 2018 dollars)	(\$785)
Comparison costs	\$868	2010	Cost range (+ or -)	30 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
					First time ES is estimated			Second time ES is estimated				
					ES	SE	Age	ES	SE	Age	ES	p-value
Anxiety disorder <sup>^^</sup>	6	Primary	1	26	-0.070	0.991	6	n/a	n/a	n/a	-0.306	0.776
Disruptive behavior disorder symptoms	6	Primary	7	311	-0.112	0.096	6	-0.062	0.064	9	-0.761	0.001
Major depressive disorder <sup>^^</sup>	6	Primary	1	26	-0.208	0.495	6	n/a	n/a	n/a	-0.910	0.124
Anxiety disorder	35	Secondary	2	79	-0.100	0.201	35	-0.052	0.246	37	-0.438	0.031
Major depressive disorder	35	Secondary	2	79	-0.094	0.201	35	-0.049	0.246	37	-0.411	0.043
Parental stress <sup>^</sup>	35	Secondary	2	171	-0.300	0.129	35	n/a	n/a	n/a	-0.458	0.001

<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

- Day, J.J., & Sanders, M.R. (2018). Do parents benefit from help when completing a self-guided parenting program online? A randomized controlled trial comparing Triple P Online with and without telephone support. *Behavior Therapy*.
- 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.
- Kleefman, M., Jansen, D.E., Stewart, R.E., & Reijneveld, S.A. (2014). The effectiveness of Stepping Stones Triple P parenting support in parents of children with borderline to mild intellectual disability and psychosocial problems: A randomized controlled trial. *BMC Medicine*, 12, 191.
- Markie-Dadds, C., & Sanders, M.R. (2006a). 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.
- 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.
- Plant, K.M., & Sanders, M.R. (2007). Reducing problem behavior during care-giving in families of preschool-aged children with developmental disabilities. *Research in Developmental Disabilities*, 28(4), 362-385.
- 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 2019. Literature review updated June 2018.

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

#### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,022	Benefit to cost ratio	n/a
Participants	\$523	Benefits minus costs	\$3,589
Others	\$837	Chance the program will produce	
Indirect	\$684	benefits greater than the costs	97 %
<u>Total benefits</u>	<u>\$3,067</u>		
<u>Net program cost</u>	<u>\$522</u>		
Benefits minus cost	\$3,589		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$28	\$64	\$14	\$105
Labor market earnings associated with high school graduation	\$412	\$175	\$225	\$0	\$813
K-12 grade repetition	\$0	\$5	\$0	\$2	\$7
K-12 special education	\$0	\$298	\$0	\$149	\$448
Health care associated with disruptive behavior disorder	\$154	\$544	\$561	\$272	\$1,530
Costs of higher education	(\$43)	(\$28)	(\$13)	(\$14)	(\$97)
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$261	\$261
<b>Totals</b>	<b>\$523</b>	<b>\$1,022</b>	<b>\$837</b>	<b>\$684</b>	<b>\$3,067</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.

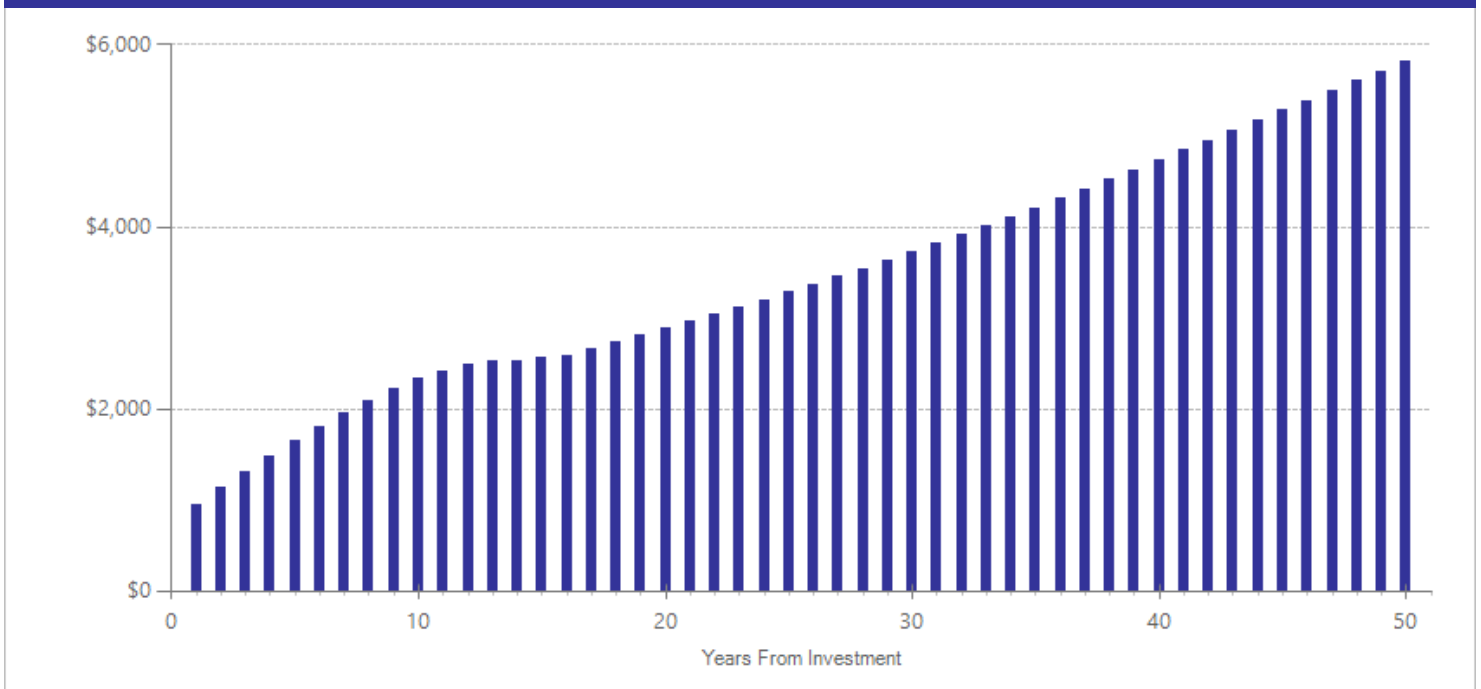
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$449	2017	Present value of net program costs (in 2018 dollars)	\$522
Comparison costs	\$868	2010	Cost range (+ or -)	30 %

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

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

## Detailed Annual Cost Estimates Per Participant



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



## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
					First time ES is estimated			Second time ES is estimated			ES	p-value
					ES	SE	Age	ES	SE	Age		
Disruptive behavior disorder symptoms	6	Primary	7	249	-0.183	0.094	6	-0.101	0.071	9	-0.676	0.001
Internalizing symptoms	6	Primary	2	97	-0.109	0.162	6	-0.109	0.162	8	-0.259	0.356
Major depressive disorder <sup>^</sup>	35	Secondary	1	20	0.208	0.326	35	n/a	n/a	n/a	0.401	0.222
Parental stress <sup>^^</sup>	35	Secondary	2	62	-0.314	0.208	35	n/a	n/a	n/a	-0.513	0.218

<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

- Leung, C., Fan, A., & Sanders, M.R. (2013). The effectiveness of a Group Triple P with Chinese parents who have a child with developmental disabilities: A randomized controlled trial. *Research in Developmental Disabilities, 34*(3), 976-984.
- 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.
- Little, M., Berry, V., Morpeth, L., Blower, S., Axford, N., Lehtonen, M., . . . Bywater, T. (2012). The impact of three evidence-based programmes delivered in public systems in Birmingham, UK. *International Journal of Conflict and Violence, 6*(2), 260-272.
- Roux, G., Sofronoff, K., & Sanders, M. (2013). A randomized controlled trial of Group Stepping Stones Triple P: A mixed-disability trial. *Family Process, 52*(3), 411-424.
- 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.
- Wiggins, T.L., Sofronoff, K., & Sanders, M.R. (2009). Pathways Triple P-Positive Parenting Program: Effects on parent-child relationships and child behavior problems. *Family Process, 48*(4), 517-530.

# Mentoring: Community-based for children with disruptive behavior

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2019. 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	\$1,721	Benefit to cost ratio	\$2.50
Participants	\$1,138	Benefits minus costs	\$2,549
Others	\$1,597	Chance the program will produce	
Indirect	(\$203)	benefits greater than the costs	66 %
<b>Total benefits</b>	<b>\$4,253</b>		
<b>Net program cost</b>	<b>(\$1,704)</b>		
<b>Benefits minus cost</b>	<b>\$2,549</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$62	\$158	\$31	\$251
Labor market earnings associated with high school graduation	\$993	\$423	\$543	\$0	\$1,958
K-12 grade repetition	\$0	\$13	\$0	\$6	\$19
K-12 special education	\$0	\$394	\$0	\$197	\$591
Health care associated with disruptive behavior disorder	\$255	\$901	\$930	\$450	\$2,535
Costs of higher education	(\$110)	(\$72)	(\$33)	(\$36)	(\$251)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$852)	(\$852)
<b>Totals</b>	<b>\$1,138</b>	<b>\$1,721</b>	<b>\$1,597</b>	<b>(\$203)</b>	<b>\$4,253</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.

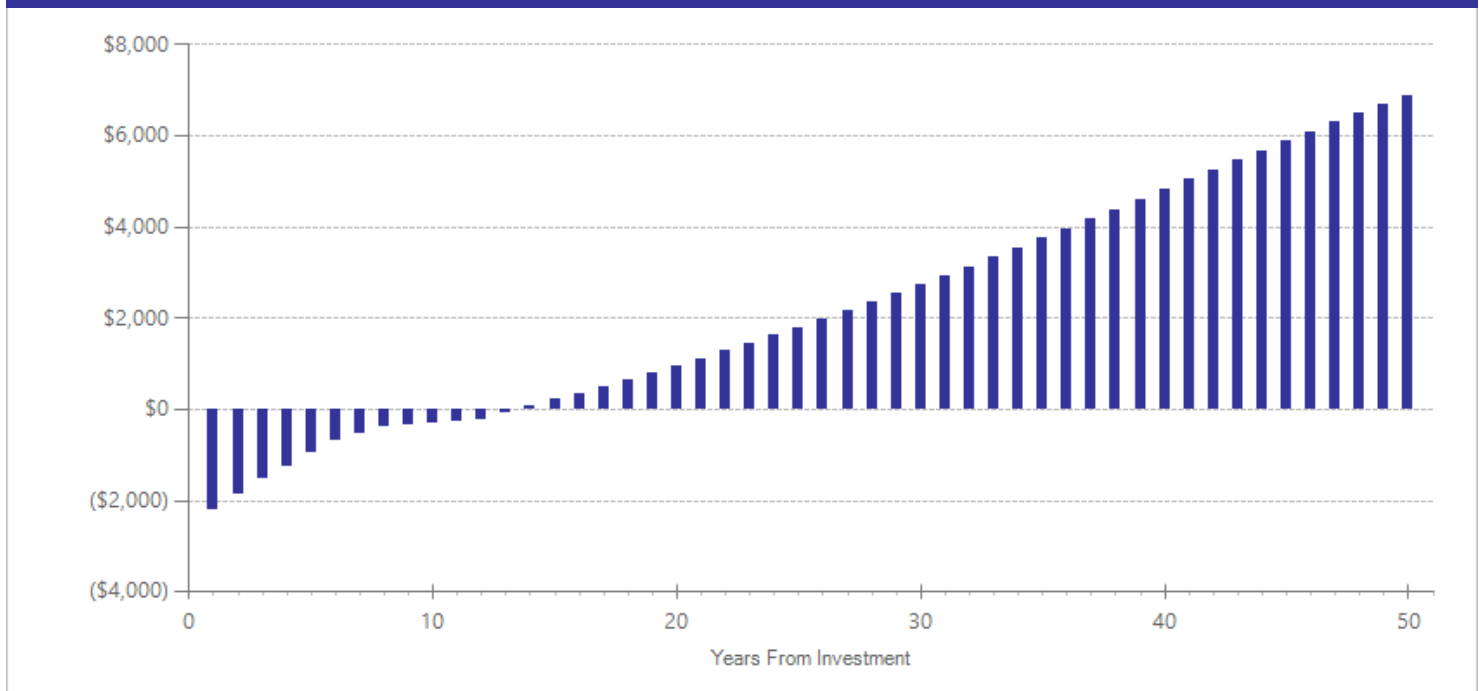
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,640	2016	Present value of net program costs (in 2018 dollars)	(\$1,704)
Comparison costs	\$0	2016	Cost range (+ or -)	50 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Disruptive behavior disorder symptoms	10	2	72	-0.275	0.256	10	-0.151	0.167	13	-0.782	0.003
Internalizing symptoms	10	2	72	-0.329	0.257	10	-0.329	0.257	12	-0.746	0.004

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

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

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

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

## Citations Used in the Meta-Analysis

- Jent, J.F., & Niec, L.N. (2006). Mentoring youth with psychiatric disorders: The impact on child and parent functioning. *Child & Family Behavior Therapy*, 28(3), 43-58.
- Jent, J.F., & Niec, L.N. (2009). Cognitive behavioral principles within group mentoring: A randomized pilot study. *Child & Family Behavior Therapy*, 31(3), 203-219.

# Other behavioral parent training (BPT) for children with disruptive behavior

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2019. Literature review updated July 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$855	Benefit to cost ratio	\$30.47
Participants	\$465	Benefits minus costs	\$2,271
Others	\$720	Chance the program will produce	
Indirect	\$309	benefits greater than the costs	95 %
<b>Total benefits</b>	<b>\$2,348</b>		
<b>Net program cost</b>	<b>(\$77)</b>		
<b>Benefits minus cost</b>	<b>\$2,271</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$58	\$12	\$96
Labor market earnings associated with high school graduation	\$376	\$160	\$205	\$0	\$742
K-12 grade repetition	\$0	\$5	\$0	\$2	\$7
K-12 special education	\$0	\$238	\$0	\$119	\$357
Health care associated with disruptive behavior disorder	\$128	\$453	\$468	\$227	\$1,275
Costs of higher education	(\$40)	(\$26)	(\$12)	(\$13)	(\$90)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$39)	(\$39)
<b>Totals</b>	<b>\$465</b>	<b>\$855</b>	<b>\$720</b>	<b>\$309</b>	<b>\$2,348</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.

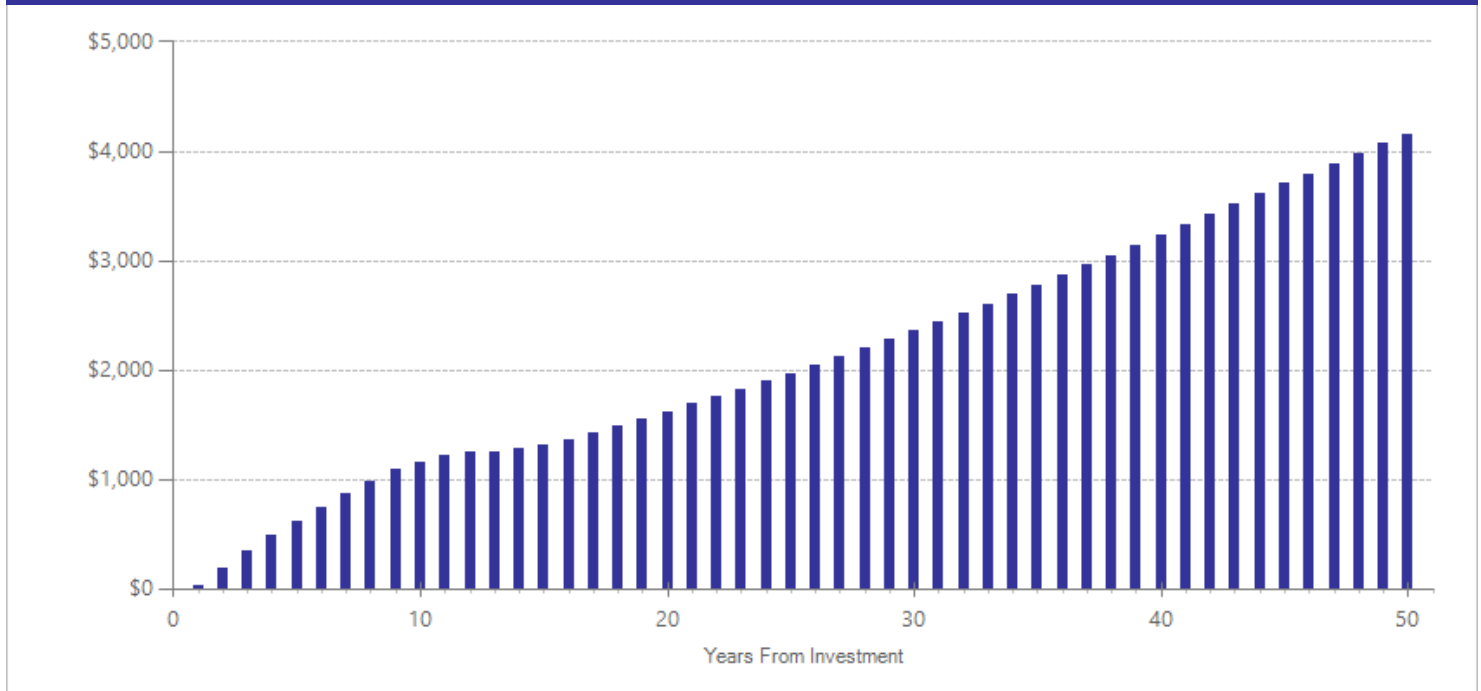
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,008	2015	Present value of net program costs (in 2018 dollars)	(\$77)
Comparison costs	\$868	2010	Cost range (+ or -)	20 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
					First time ES is estimated			Second time ES is estimated			ES	p-value
					ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	7	Primary	4	158	-0.072	0.119	7	0.000	0.141	8	-0.310	0.035
Disruptive behavior disorder symptoms	7	Primary	13	754	-0.149	0.057	7	-0.082	0.049	10	-0.526	0.001
Internalizing symptoms	7	Primary	6	355	-0.194	0.078	7	-0.194	0.078	9	-0.334	0.009
Parental stress <sup>^</sup>	38	Secondary	3	126	-0.134	0.139	38	n/a	n/a	n/a	-0.291	0.038

<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

- 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.
- Chacko, A., Gopalan, G., Franco, L., Dean-Assael, K., Jackson, J., Marcus, S., Hoagwood, K., ... McKay, M. (2015). Multiple family group service model for children with disruptive behavior disorders: Child outcomes at post-treatment. *Journal of Emotional and Behavioral Disorders, 23*(2), 67-77.
- 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.
- Day, C., Michelson, D., Thomson, S., Penney, C., & Draper, L. (2012). Evaluation of a peer led parenting intervention for disruptive behaviour problems in children: Community based randomised controlled trial. *BMJ (Clinical Research Ed.), 344*.
- Enebrink, P., Hogstrom, J., Forster, M., & Ghaderi, A. (2012). Internet-based parent management training: A randomized controlled study. *Behaviour Research and Therapy, 50*, 240-249.
- Gavita, O.A., David, D., Bujoreanu, S., Tiba, A., & Ionutiu, D.R. (2012). The efficacy of a short cognitive-behavioral parent program in the treatment of externalizing behavior disorders in Romanian foster care children: Building parental emotion-regulation through unconditional self- and child-acceptance strategies. *Children and Youth Services Review, 34*(7), 1290-1297.
- 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.
- Kierfeld, F., Ise, E., Hanisch, C., Gortz-Dorten, A., & Dopfner, M. (2013). Effectiveness of telephone-assisted parent-administered behavioural family intervention for preschool children with externalizing problem behaviour: A randomized controlled trial. *European Child & Adolescent Psychiatry, 22*(9), 553-565.
- 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.
- Sourander, A., McGrath, P. J., Ristkari, T., Cunningham, C., Huttunen, J., Lingley-Pottie, P., Hinkka-Yli-Salomaki, S., ... Unruh, A. (2016). Internet-assisted parent training intervention for disruptive behavior in 4-year-old children: A randomized clinical trial. *JAMA Psychiatry, 73*(4), 378.

Zangwill, W.M. (1983). An evaluation of a parent training program. *Child and Family Behavior Therapy*, 5(4), 1-16.



# Brief Strategic Family Therapy (BSFT)

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2019. Literature review updated July 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,119	Benefit to cost ratio	\$2.25
Participants	(\$820)	Benefits minus costs	\$2,171
Others	\$3,777	Chance the program will produce	
Indirect	(\$163)	benefits greater than the costs	58 %
<b>Total benefits</b>	<b>\$3,914</b>		
<b>Net program cost</b>	<b>(\$1,743)</b>		
<b>Benefits minus cost</b>	<b>\$2,171</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$1,104	\$2,749	\$552	\$4,405
Labor market earnings associated with high school graduation	\$1,239	\$527	\$679	\$0	\$2,445
K-12 grade repetition	\$0	\$12	\$0	\$6	\$18
K-12 special education	\$0	\$45	\$0	\$23	\$68
Labor market earnings associated with alcohol abuse or dependence	(\$2,029)	(\$864)	\$0	\$0	(\$2,892)
Property loss associated with alcohol abuse or dependence	(\$3)	\$0	(\$6)	\$0	(\$9)
Health care associated with disruptive behavior disorder	\$108	\$383	\$395	\$191	\$1,077
Costs of higher education	(\$132)	(\$87)	(\$40)	(\$44)	(\$303)
Mortality associated with alcohol	(\$3)	(\$1)	\$0	(\$20)	(\$24)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$871)	(\$871)
<b>Totals</b>	<b>(\$820)</b>	<b>\$1,119</b>	<b>\$3,777</b>	<b>(\$163)</b>	<b>\$3,914</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.

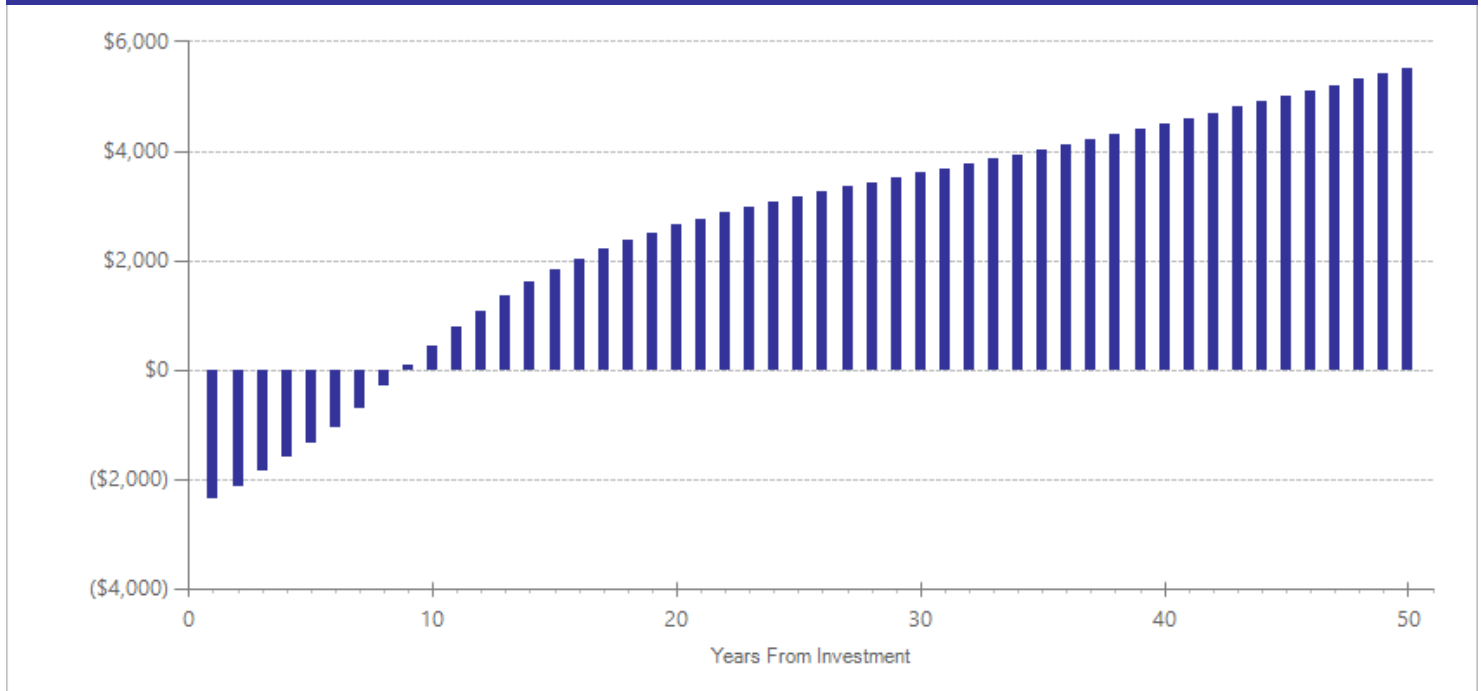
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,595	2015	Present value of net program costs (in 2018 dollars)	(\$1,743)
Comparison costs	\$868	2010	Cost range (+ or -)	20 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use before end of high school	15	1	56	0.134	0.229	15	0.134	0.229	18	0.258	0.261
Cannabis use before end of high school	15	1	56	-0.123	0.229	15	-0.123	0.229	18	-0.237	0.301
Crime	15	1	140	-0.174	0.124	20	-0.174	0.124	30	-0.335	0.007
Disruptive behavior disorder symptoms	15	2	93	-0.112	0.175	15	-0.062	0.108	18	-0.374	0.160
Illicit drug use before end of high school	15	2	169	-0.339	0.369	15	-0.339	0.369	18	-0.864	0.310
Problem alcohol use <sup>^^</sup>	15	1	20	-0.829	0.330	15	n/a	n/a	n/a	-1.884	0.001
Smoking before end of high school <sup>^^</sup>	15	1	20	-0.529	0.322	15	n/a	n/a	n/a	-1.203	0.001
STD risky behavior <sup>^</sup>	15	1	20	-1.042	0.337	15	n/a	n/a	n/a	-2.369	0.001

<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.

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

## Citations Used in the Meta-Analysis

- 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
- Horigian, V.E., Feaster, D.J., Brincks, A.M., Ucha, J., Szapocznik, J., Robbins, M.S., . . . Werstlein, R. (2015). A cross-sectional assessment of the long term effects of brief strategic family therapy for adolescent substance use. *American Journal on Addictions, 24*(7) 637-645.
- 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.

## Child Parent Relationship Therapy Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2019. Literature review updated May 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$669	Benefit to cost ratio	n/a
Participants	\$338	Benefits minus costs	\$1,893
Others	\$555	Chance the program will produce	
Indirect	\$297	benefits greater than the costs	79 %
<u>Total benefits</u>	<u>\$1,858</u>		
<u>Net program cost</u>	<u>\$35</u>		
Benefits minus cost	\$1,893		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$18	\$40	\$9	\$66
Labor market earnings associated with high school graduation	\$259	\$110	\$141	\$0	\$511
K-12 grade repetition	\$0	\$4	\$0	\$2	\$6
K-12 special education	\$0	\$183	\$0	\$92	\$275
Health care associated with disruptive behavior disorder	\$105	\$370	\$382	\$185	\$1,043
Costs of higher education	(\$26)	(\$17)	(\$8)	(\$9)	(\$60)
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$18	\$18
<u>Totals</u>	<u>\$338</u>	<u>\$669</u>	<u>\$555</u>	<u>\$297</u>	<u>\$1,858</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.

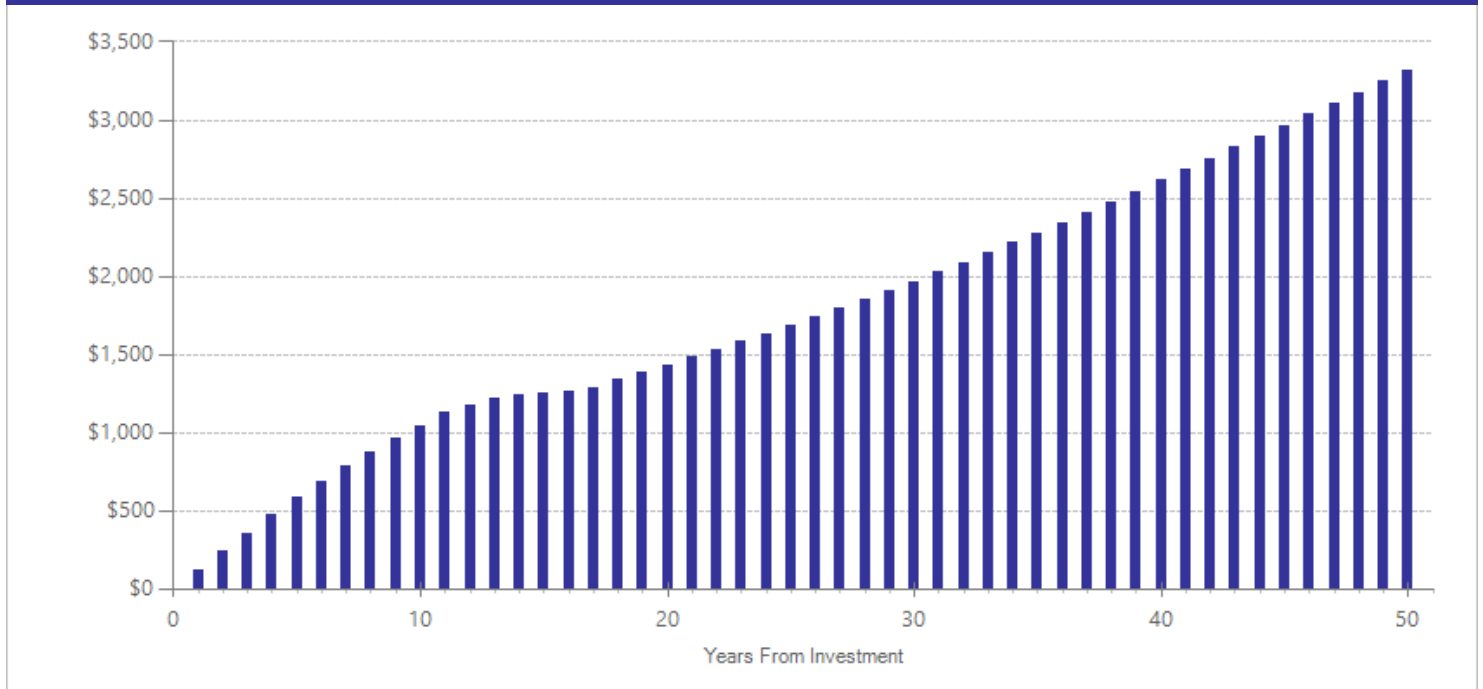
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$901	2015	Present value of net program costs (in 2018 dollars)	\$35
Comparison costs	\$868	2010	Cost range (+ or -)	20 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
					First time ES is estimated			Second time ES is estimated			ES	p-value
					ES	SE	Age	ES	SE	Age		
Disruptive behavior disorder symptoms	5	Primary	5	104	-0.130	0.145	5	-0.072	0.092	8	-0.849	0.001
Internalizing symptoms	5	Primary	3	55	-0.256	0.200	5	-0.256	0.200	7	-0.871	0.106
Parental stress <sup>^</sup>	35	Secondary	2	49	-0.417	0.211	35	n/a	n/a	n/a	-1.301	0.013

<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.

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

## Citations Used in the Meta-Analysis

- Carnes-Holt, K., & Bratton, S.C. (2014). The efficacy of Child Parent Relationship Therapy for adopted children with attachment disruptions. *Journal of Counseling & Development, 92*(3), 328-337.
- Ceballos, P.L., & Bratton, S.C. (2010). Empowering Latino families: Effects of a culturally responsive intervention for low-income immigrant Latino parents on children's behaviors and parental stress. *Psychology in the Schools, 47*(8), 761-775.
- Johnson-Clark, K.A. (1997). *The effect of filial therapy on child conduct behavior problems and the quality of the parent-child relationship*. (Unpublished doctoral dissertation). California School of Professional Psychology, San Diego, CA.
- Opiola, K.K., & Bratton, S.C. (2018). The efficacy of Child Parent Relationship Therapy for adoptive families: A replication study. *Journal of Counseling & Development, 96*(2), 155-166.
- Villarreal, C.E. (2008). *School-based child parent relationship therapy (CPRT) with Hispanic parents*. (Unpublished doctoral dissertation). Regent University, Virginia Beach, Virginia.

# Parent Management Training—Oregon Model (treatment population)

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2019. Literature review updated March 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,091	Benefit to cost ratio	\$1.83
Participants	\$630	Benefits minus costs	\$1,101
Others	\$945	Chance the program will produce	
Indirect	(\$233)	benefits greater than the costs	69 %
<u>Total benefits</u>	<u>\$2,434</u>		
<u>Net program cost</u>	<u>(\$1,333)</u>		
Benefits minus cost	\$1,101		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$34	\$82	\$17	\$133
Labor market earnings associated with high school graduation	\$524	\$223	\$286	\$0	\$1,032
K-12 grade repetition	\$0	\$7	\$0	\$3	\$10
K-12 special education	\$0	\$289	\$0	\$144	\$433
Health care associated with disruptive behavior disorder	\$163	\$576	\$594	\$288	\$1,621
Costs of higher education	(\$56)	(\$37)	(\$17)	(\$18)	(\$128)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$667)	(\$667)
<u>Totals</u>	<u>\$630</u>	<u>\$1,091</u>	<u>\$945</u>	<u>(\$233)</u>	<u>\$2,434</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.

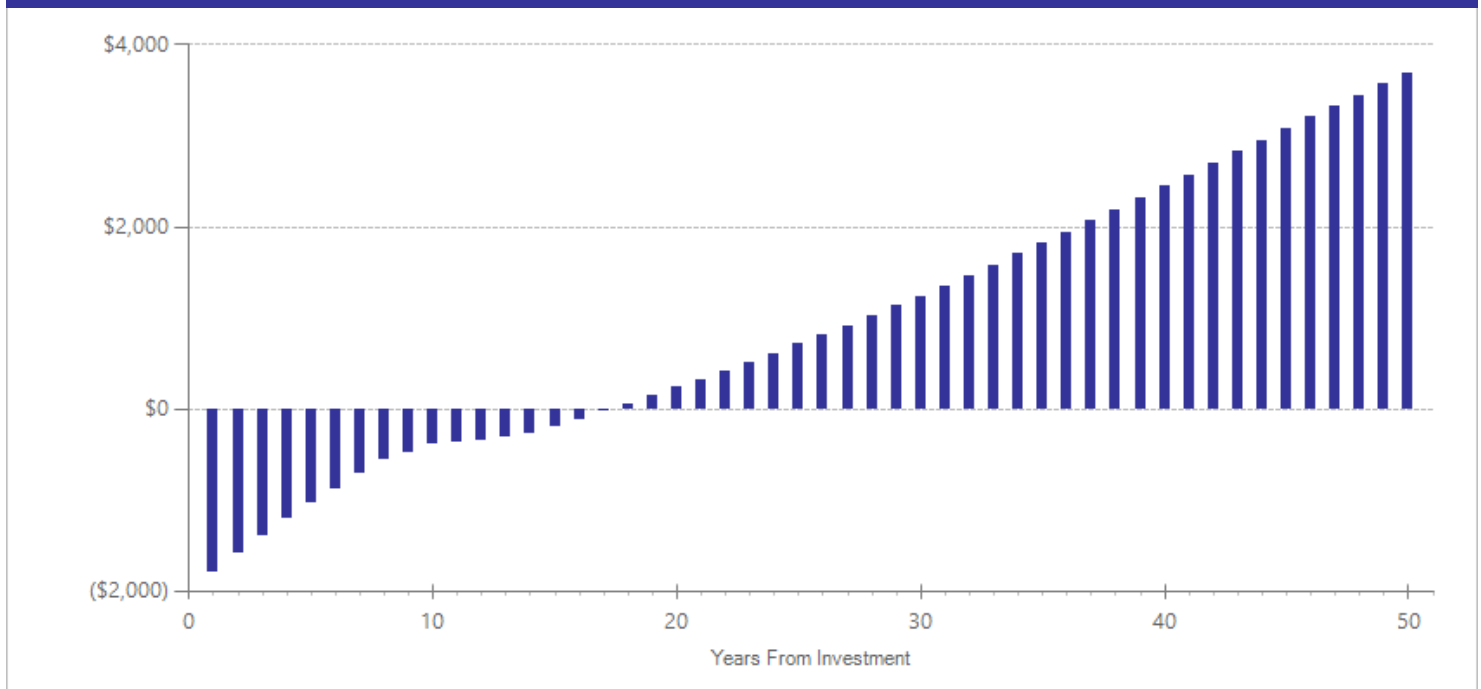
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,205	2015	Present value of net program costs (in 2018 dollars)	(\$1,333)
Comparison costs	\$868	2010	Cost range (+ or -)	30 %

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

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

## Detailed Annual Cost Estimates Per Participant



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



## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
					First time ES is estimated			Second time ES is estimated			ES	p-value
					ES	SE	Age	ES	SE	Age		
Disruptive behavior disorder symptoms	8	Primary	6	417	-0.183	0.075	8	-0.101	0.063	11	-0.199	0.007
Internalizing symptoms	8	Primary	5	374	-0.059	0.077	8	-0.059	0.077	10	-0.062	0.424
Major depressive disorder <sup>^</sup>	8	Primary	1	37	-0.030	0.236	8	n/a	n/a	n/a	-0.057	0.808
Parental stress <sup>^</sup>	37	Secondary	1	91	-0.147	0.173	37	n/a	n/a	n/a	-0.147	0.393

<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

- 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.
- Bjorknes, 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 2019. 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	\$375	Benefit to cost ratio	\$3.25
Participants	\$218	Benefits minus costs	\$641
Others	\$326	Chance the program will produce	
Indirect	\$7	benefits greater than the costs	59 %
<b>Total benefits</b>	<b>\$926</b>		
<b>Net program cost</b>	<b>(\$285)</b>		
<b>Benefits minus cost</b>	<b>\$641</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$28	\$6	\$46
Labor market earnings associated with high school graduation	\$182	\$77	\$99	\$0	\$358
K-12 grade repetition	\$0	\$2	\$0	\$1	\$3
K-12 special education	\$0	\$98	\$0	\$49	\$148
Health care associated with disruptive behavior disorder	\$56	\$198	\$204	\$99	\$557
Costs of higher education	(\$19)	(\$13)	(\$6)	(\$6)	(\$44)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$142)	(\$142)
<b>Totals</b>	<b>\$218</b>	<b>\$375</b>	<b>\$326</b>	<b>\$7</b>	<b>\$926</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.

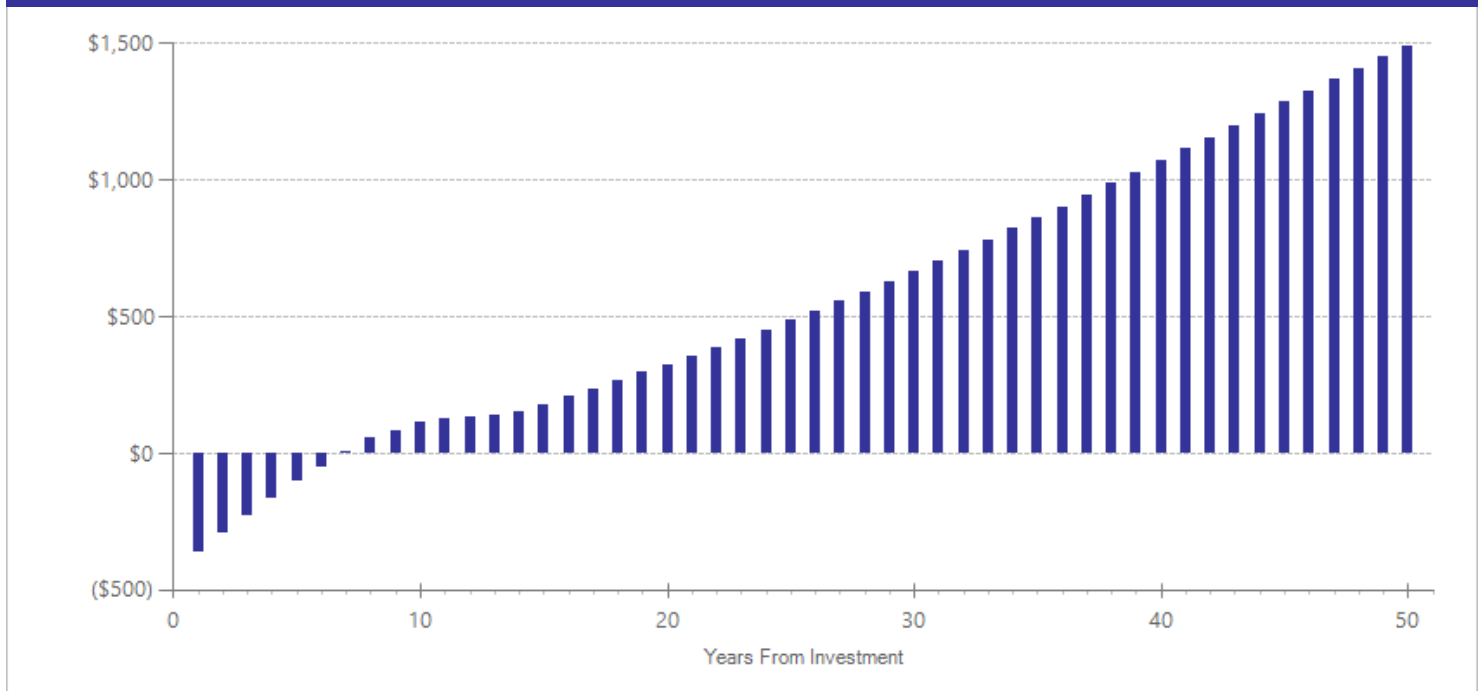
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$511	2010	Present value of net program costs (in 2018 dollars)	(\$285)
Comparison costs	\$259	2010	Cost range (+ or -)	15 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	8	2	201	-0.149	0.141	8	0.000	0.141	9	-0.309	0.075
Disruptive behavior disorder symptoms	8	2	201	-0.064	0.141	8	-0.035	0.086	11	-0.227	0.108

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

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

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

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

## Citations Used in the Meta-Analysis

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.

# Helping the Noncompliant Child for children with disruptive behavior

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2019. Literature review updated June 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$319	Benefit to cost ratio	\$1.35
Participants	\$159	Benefits minus costs	\$166
Others	\$269	Chance the program will produce	
Indirect	(\$104)	benefits greater than the costs	51 %
<u>Total benefits</u>	<u>\$643</u>		
<u>Net program cost</u>	<u>(\$477)</u>		
Benefits minus cost	\$166		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$18	\$4	\$30
Labor market earnings associated with high school graduation	\$119	\$51	\$65	\$0	\$235
K-12 grade repetition	\$0	\$1	\$0	\$1	\$2
K-12 special education	\$0	\$83	\$0	\$42	\$125
Health care associated with disruptive behavior disorder	\$52	\$184	\$190	\$92	\$517
Costs of higher education	(\$12)	(\$8)	(\$4)	(\$4)	(\$27)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$238)	(\$238)
<u>Totals</u>	<u>\$159</u>	<u>\$319</u>	<u>\$269</u>	<u>(\$104)</u>	<u>\$643</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.

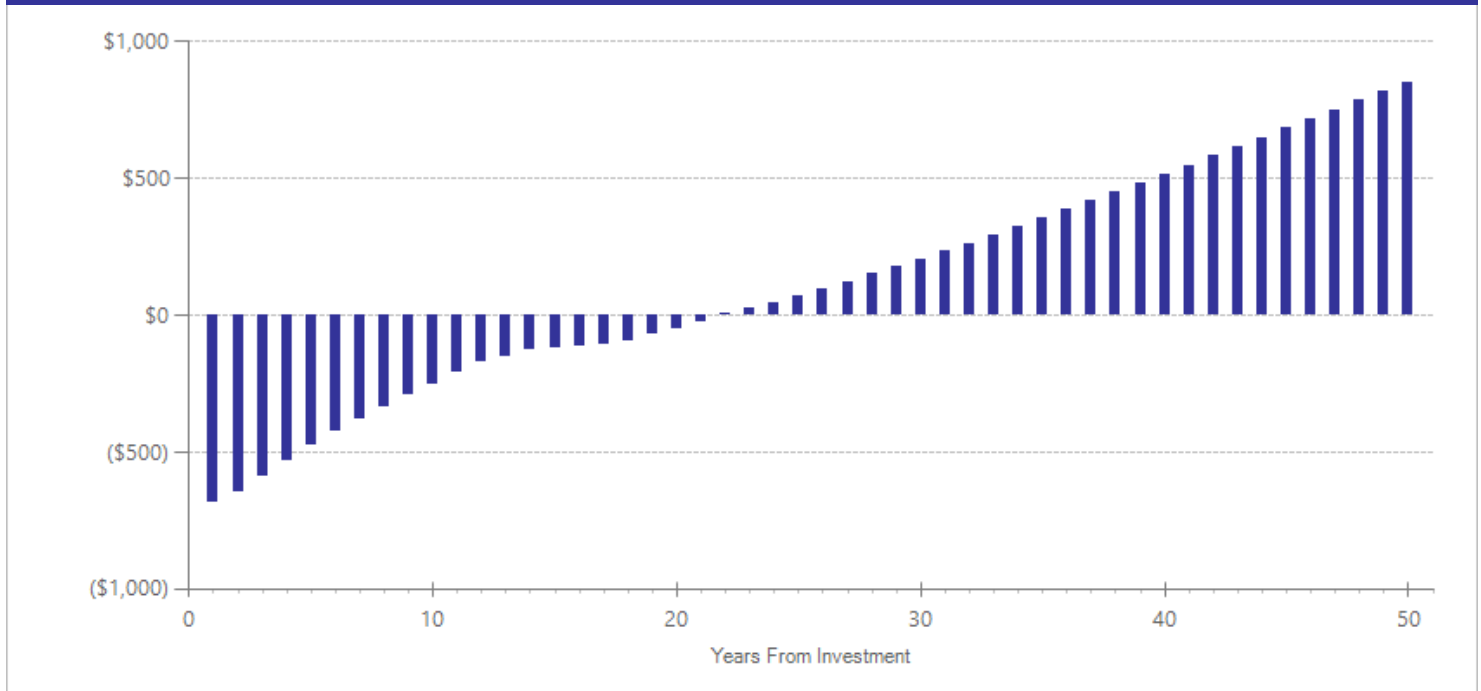
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,389	2015	Present value of net program costs (in 2018 dollars)	(\$477)
Comparison costs	\$868	2010	Cost range (+ or -)	40 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
					First time ES is estimated			Second time ES is estimated			ES	p-value
					ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	4	Primary	1	63	-0.176	0.268	4	0.000	0.141	5	-0.771	0.005
Disruptive behavior disorder symptoms	4	Primary	1	63	-0.068	0.268	4	-0.037	0.161	7	-0.298	0.269
Major depressive disorder	34	Secondary	1	9	-0.762	0.475	34	n/a	n/a	n/a	-0.762	0.109
Parental stress <sup>^</sup>	34	Secondary	1	63	-0.153	0.268	34	n/a	n/a	n/a	-0.669	0.014

<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

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

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

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2019. Literature review updated June 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$788	Benefit to cost ratio	\$0.55
Participants	\$392	Benefits minus costs	(\$937)
Others	\$664	Chance the program will produce	
Indirect	(\$706)	benefits greater than the costs	27 %
<b>Total benefits</b>	<b>\$1,138</b>		
<b>Net program cost</b>	<b>(\$2,075)</b>		
<b>Benefits minus cost</b>	<b>(\$937)</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$20	\$44	\$10	\$75
Labor market earnings associated with high school graduation	\$293	\$125	\$160	\$0	\$577
K-12 grade repetition	\$0	\$3	\$0	\$2	\$5
K-12 special education	\$0	\$205	\$0	\$102	\$307
Health care associated with disruptive behavior disorder	\$128	\$454	\$469	\$227	\$1,278
Costs of higher education	(\$29)	(\$19)	(\$9)	(\$10)	(\$67)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$1,037)	(\$1,037)
<b>Totals</b>	<b>\$392</b>	<b>\$788</b>	<b>\$664</b>	<b>(\$706)</b>	<b>\$1,138</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.



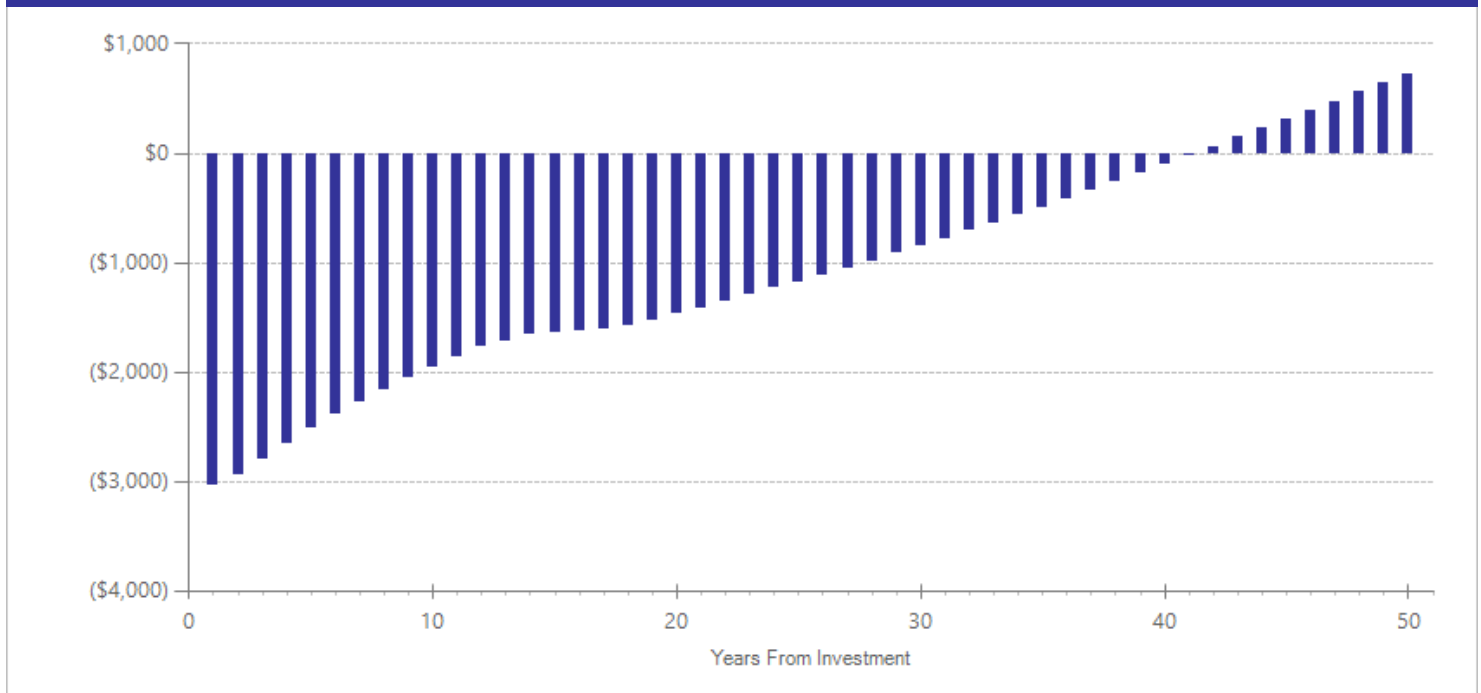
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,993	2017	Present value of net program costs (in 2018 dollars)	(\$2,075)
Comparison costs	\$868	2010	Cost range (+ or -)	20 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
					First time ES is estimated			Second time ES is estimated			ES	p-value
					ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	4	Primary	5	87	-0.123	0.175	4	0.000	0.141	5	-0.670	0.001
Disruptive behavior disorder symptoms	4	Primary	12	340	-0.166	0.093	4	-0.091	0.068	7	-0.792	0.001
Internalizing symptoms	4	Primary	4	183	-0.087	0.138	4	-0.087	0.138	6	-0.383	0.010
Major depressive disorder	37	Secondary	2	27	-0.114	0.304	37	n/a	n/a	n/a	-0.426	0.320
Parental stress <sup>^</sup>	37	Secondary	8	308	-0.168	0.101	37	n/a	n/a	n/a	-0.470	0.001

<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

- Bagner, D. M., Sheinkopf, S. J., Vohr, B. R., & Lester, B. M. (2010). Parenting intervention for externalizing behavior problems in children born premature: An initial examination. *Journal of Developmental and Behavioral Pediatrics, 31*(3), 209-216.
- Danko, C.M. (2014). *The effect of parent-child interaction therapy on strengthening the attachment relationship with foster parents and children in foster care.*
- Leung, C., Tsang, S., Heung, K., & Yiu, I. (2009). Effectiveness of Parent-Child Interaction Therapy (PCIT) among Chinese families. *Research on Social Work Practice, 19*(3), 304-313.
- 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.
- Mersky, J.P., Topitzes, J., Grant-Savelle, S.D., Brondino, M.J., & McNeil, C.B. (2014). Adapting Parent-Child Interaction Therapy to foster care: outcomes from a randomized trial. *Research on Social Work Practice, 26*(2), 157-167.
- Mersky, J.P., Topitzes, J., Janczewski, C.E., & McNeil, C.B. (2015). Enhancing foster parent training with Parent-Child Interaction Therapy: evidence from a randomized field experiment. *Journal of the Society for Social Work and Research, 6*(4), 591-616.
- 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.
- 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.
- Webb, H.J., Thomas, R., McGregor, L., Avdagic, E., & Zimmer-Gembeck, M.J. (2017). An evaluation of Parent-Child Interaction Therapy with and without motivational enhancement to reduce attrition. *Journal of Clinical Child and Adolescent Psychology : the Official Journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53, 46*(4).

# Incredible Years Parent Training with Incredible Years Child Training

## Children's Mental Health: Disruptive Behavior

Benefit-cost estimates updated December 2019. Literature review updated July 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$317	Benefit to cost ratio	(\$0.22)
Participants	\$173	Benefits minus costs	(\$3,891)
Others	\$268	Chance the program will produce	
Indirect	(\$1,464)	benefits greater than the costs	2 %
<u>Total benefits</u>	<u>(\$705)</u>		
<u>Net program cost</u>	<u>(\$3,186)</u>		
Benefits minus cost	(\$3,891)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$22	\$5	\$36
Labor market earnings associated with high school graduation	\$141	\$60	\$77	\$0	\$277
K-12 grade repetition	\$0	\$2	\$0	\$1	\$3
K-12 special education	\$0	\$88	\$0	\$44	\$132
Health care associated with disruptive behavior disorder	\$48	\$168	\$174	\$84	\$473
Costs of higher education	(\$15)	(\$10)	(\$4)	(\$5)	(\$34)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$1,593)	(\$1,593)
<u>Totals</u>	<u>\$173</u>	<u>\$317</u>	<u>\$268</u>	<u>(\$1,464)</u>	<u>(\$705)</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.

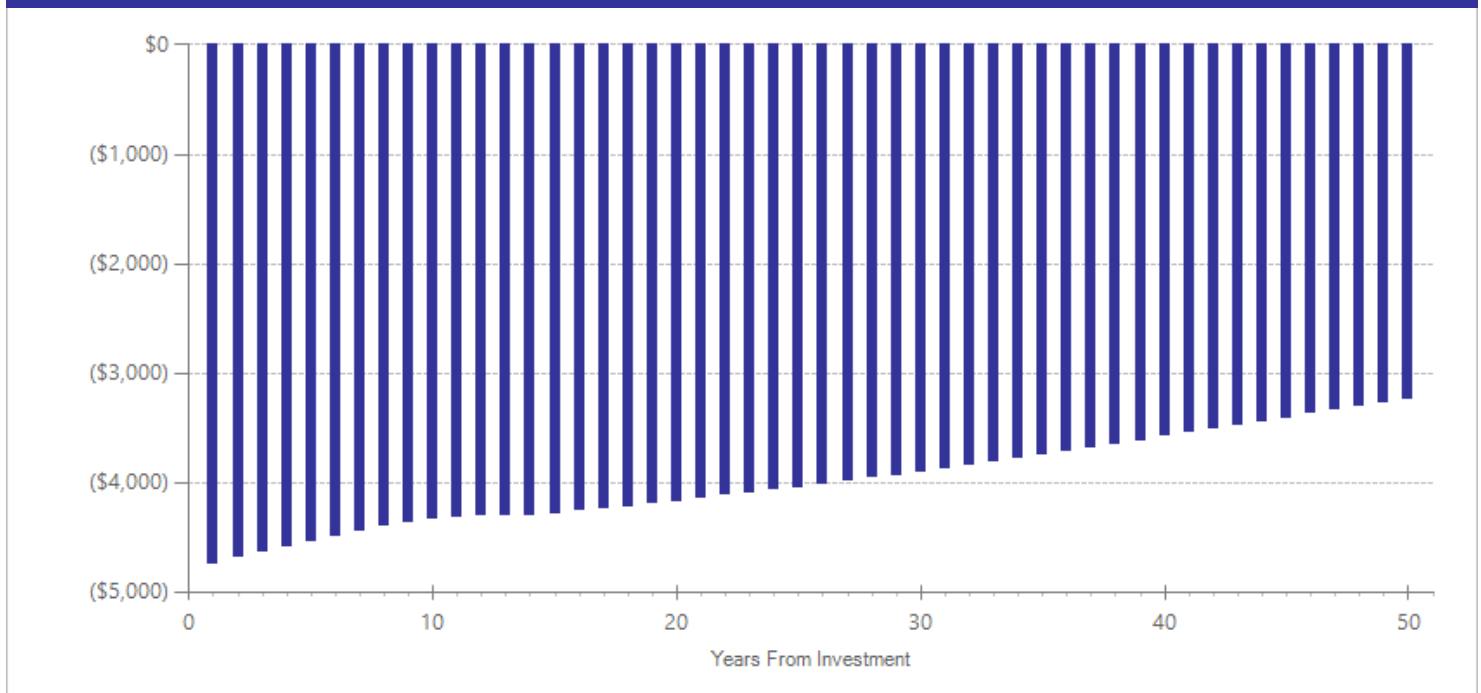
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$3,970	2015	Present value of net program costs (in 2018 dollars)	(\$3,186)
Comparison costs	\$868	2010	Cost range (+ or -)	40 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
					First time ES is estimated			Second time ES is estimated			ES	p-value
					ES	SE	Age	ES	SE	Age		
Attention-deficit/hyperactivity disorder symptoms	7	Primary	1	48	-0.064	0.204	7	0.000	0.141	8	-0.517	0.019
Disruptive behavior disorder symptoms	7	Primary	4	259	-0.056	0.091	7	-0.031	0.056	10	-0.549	0.025
Internalizing symptoms	7	Primary	3	241	-0.067	0.096	7	-0.067	0.096	9	-0.197	0.098
Parental stress <sup>^</sup>	33	Secondary	2	69	-0.258	0.197	34	n/a	n/a	n/a	-0.780	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

- Barrera, M., Biglan, A., Taylor, T.K., Gunn, B.K., Smolkowski, K., Black, C., . . . Fowler, R.C. (2002). Early elementary school intervention to reduce conduct problems: A randomized trial with Hispanic and non-Hispanic children. *Prevention Science, 3*(2), 83-94.
- Larsson, B., Fossum, S., Clifford, G., Drugli, M.B., Handegard, B.H., & Morch, W.T. (2009). Treatment of oppositional defiant and conduct problems in young Norwegian children: Results of a randomized controlled trial. *European Child & Adolescent Psychiatry, 18*(1), 42-52.
- Webster-Stratton, C., & Hammond, M. (1997). Treating children with early-onset conduct problems: A comparison of child and parent training interventions. *Journal of Consulting and Clinical Psychology, 65*(1), 93-100.
- Webster-Stratton, C., Reid, M.J., & Beauchaine, T.P. (2011). Combining parent and child training for young children with ADHD. *Journal of Clinical Child and Adolescent Psychology, 40*(2), 191-203.

# Child-Parent Psychotherapy

## Children's Mental Health: Trauma

Benefit-cost estimates updated December 2019. Literature review updated June 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$20,272	Benefit to cost ratio	\$13.80
Participants	\$34,081	Benefits minus costs	\$57,671
Others	\$6,762	Chance the program will produce	
Indirect	\$1,060	benefits greater than the costs	96 %
<b>Total benefits</b>	<b>\$62,175</b>		
<b>Net program cost</b>	<b>(\$4,504)</b>		
<b>Benefits minus cost</b>	<b>\$57,671</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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 PTSD	\$9,800	\$4,172	\$0	\$0	\$13,972
Health care associated with PTSD	\$830	\$2,935	\$3,029	\$1,468	\$8,262
Mortality associated with depression	\$0	\$0	\$0	\$0	\$0
<b>Subtotals</b>	<b>\$10,630</b>	<b>\$7,108</b>	<b>\$3,029</b>	<b>\$1,468</b>	<b>\$22,235</b>
From secondary participant					
Labor market earnings associated with PTSD	\$22,425	\$9,547	\$0	\$0	\$31,972
Health care associated with PTSD	\$1,022	\$3,617	\$3,732	\$1,808	\$10,180
Mortality associated with depression	\$3	\$1	\$0	\$36	\$41
<b>Subtotals</b>	<b>\$23,451</b>	<b>\$13,165</b>	<b>\$3,732</b>	<b>\$1,844</b>	<b>\$42,192</b>
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$2,252)	(\$2,252)
<b>Totals</b>	<b>\$34,081</b>	<b>\$20,272</b>	<b>\$6,762</b>	<b>\$1,060</b>	<b>\$62,175</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.

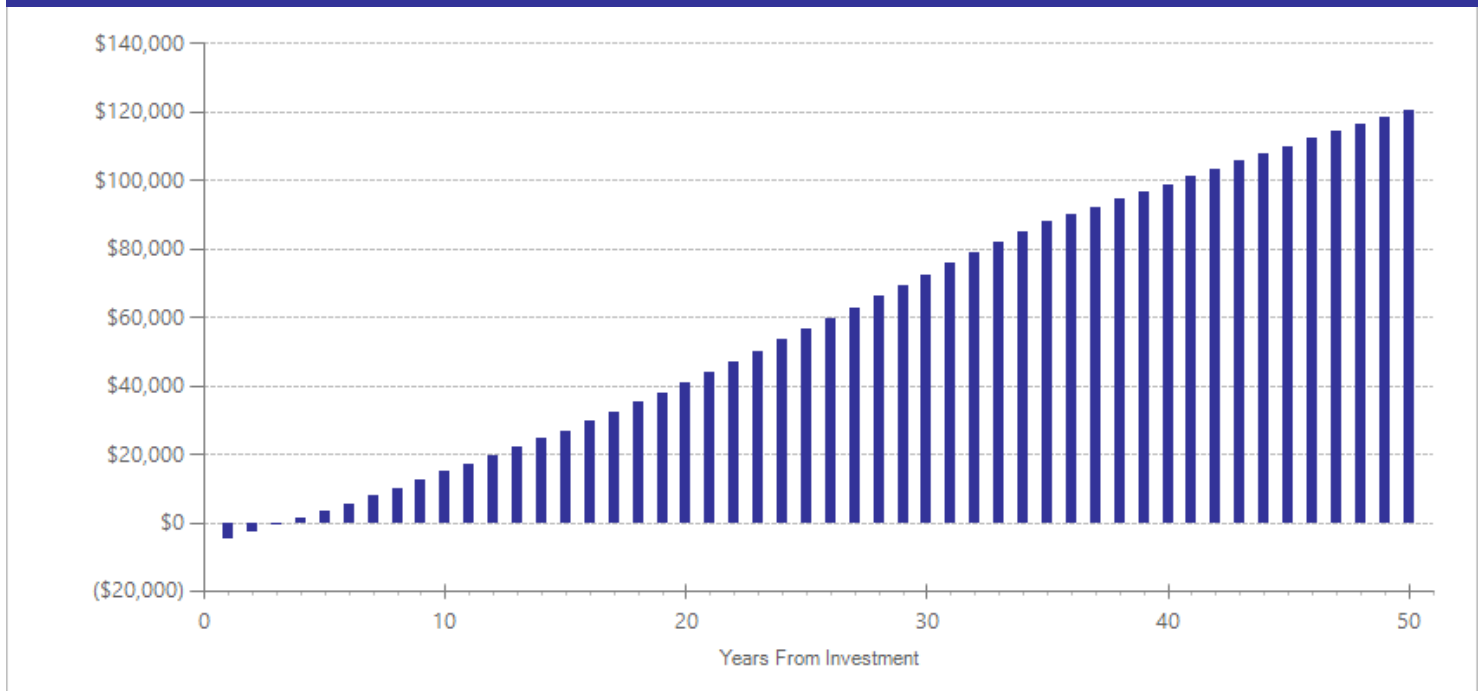
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$5,406	2015	Present value of net program costs (in 2018 dollars)	(\$4,504)
Comparison costs	\$1,035	2010	Cost range (+ or -)	20 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
					First time ES is estimated			Second time ES is estimated			ES	p-value
					ES	SE	Age	ES	SE	Age		
Major depressive disorder	3	Primary	1	42	-0.385	0.238	3	0.000	0.310	5	-0.385	0.106
Post-traumatic stress	3	Primary	1	42	-0.629	0.239	3	-0.629	0.239	4	-0.629	0.008
Preschool test scores <sup>^</sup>	3	Primary	1	43	0.242	0.205	3	n/a	n/a	n/a	0.484	0.020
Major depressive disorder	31	Secondary	1	42	-0.433	0.236	31	-0.225	0.289	33	-0.433	0.066
Post-traumatic stress	31	Secondary	1	42	-0.440	0.237	31	-0.440	0.237	32	-0.440	0.063

<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

- 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.
- Ghosh Ippen, C., Harris, W.W., Van, H.P., & Lieberman, A.F. (2011). Traumatic and stressful events in early childhood: Can treatment help those at highest risk? *Child Abuse & Neglect*, 35(7), 504-513.



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

## Children's Mental Health: Trauma

Benefit-cost estimates updated December 2019. Literature review updated August 2017.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$7,560	Benefit to cost ratio	n/a
Participants	\$12,023	Benefits minus costs	\$23,935
Others	\$2,805	Chance the program will produce	
Indirect	\$1,436	benefits greater than the costs	100 %
<b>Total benefits</b>	<b>\$23,823</b>		
<b>Net program cost</b>	<b>\$112</b>		
<b>Benefits minus cost</b>	<b>\$23,935</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$29	\$76	\$14	\$119
K-12 grade repetition	\$0	\$7	\$0	\$4	\$11
K-12 special education	\$0	\$80	\$0	\$40	\$119
Labor market earnings associated with PTSD	\$11,275	\$4,800	\$0	\$0	\$16,075
Health care associated with PTSD	\$747	\$2,644	\$2,729	\$1,322	\$7,442
Mortality associated with depression	\$0	\$0	\$0	\$0	\$0
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$56	\$56
<b>Totals</b>	<b>\$12,023</b>	<b>\$7,560</b>	<b>\$2,805</b>	<b>\$1,436</b>	<b>\$23,823</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.

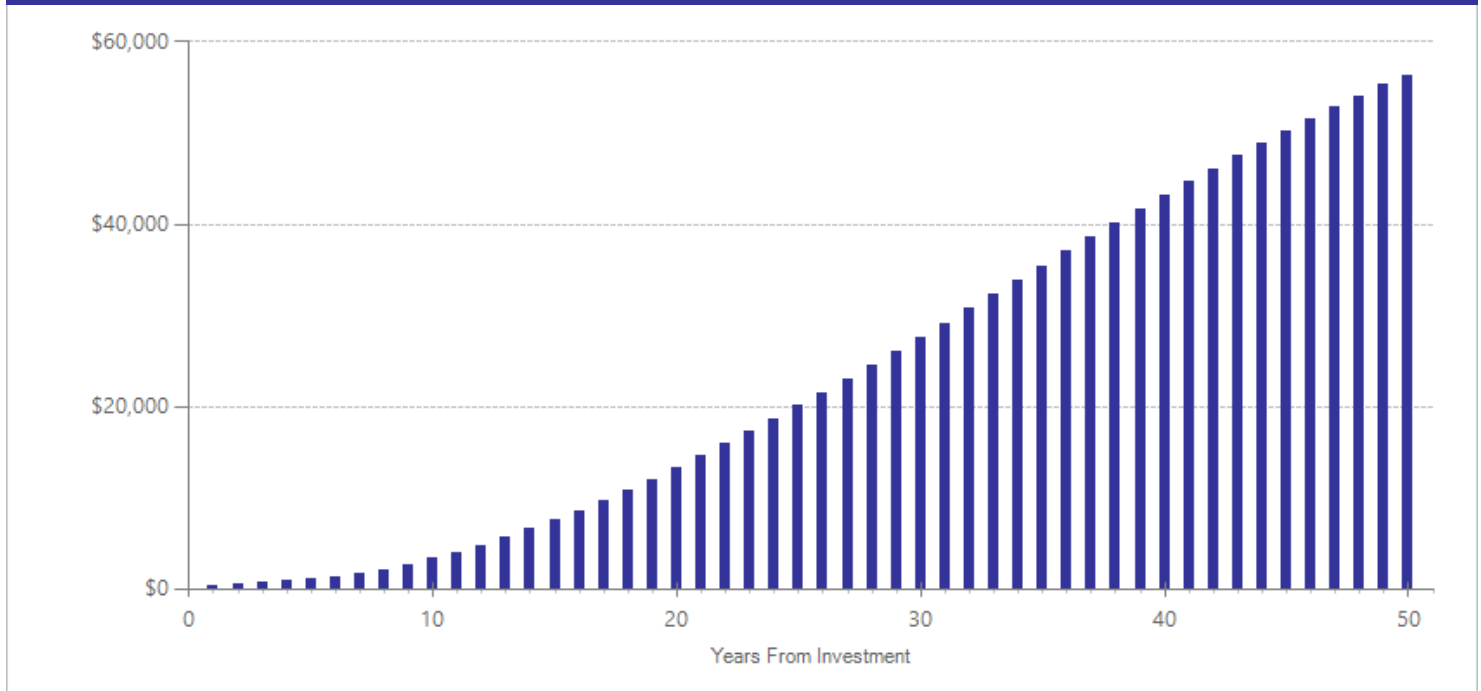
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,037	2016	Present value of net program costs (in 2018 dollars)	\$112
Comparison costs	\$1,035	2009	Cost range (+ or -)	30 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Anxiety disorder	12	18	999	-0.166	0.047	12	-0.066	0.051	13	-0.307	0.001
Disruptive behavior disorder symptoms	12	3	102	-0.324	0.150	12	-0.178	0.119	15	-0.759	0.016
Externalizing behavior symptoms	12	10	528	-0.008	0.077	12	-0.004	0.046	15	0.064	0.636
Global functioning <sup>^</sup>	12	4	165	0.239	0.141	12	n/a	n/a	n/a	0.490	0.038
Internalizing symptoms	12	9	296	-0.181	0.085	12	-0.181	0.085	14	-0.261	0.026
Major depressive disorder	12	25	1483	-0.308	0.054	12	0.000	0.310	14	-0.581	0.001
Post-traumatic stress	12	35	2187	-0.449	0.064	12	-0.449	0.064	13	-0.733	0.001
Suicidal ideation <sup>^</sup>	12	1	26	-0.147	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., & Gelkopf, 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., & Gelkopf, 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-Szyldo, 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.

## Kids Club & Moms Empowerment

### Children's Mental Health: Trauma

Benefit-cost estimates updated December 2019. Literature review updated July 2018.

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

#### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$5,386	Benefit to cost ratio	\$24.90
Participants	\$9,463	Benefits minus costs	\$16,219
Others	\$1,618	Chance the program will produce	
Indirect	\$430	benefits greater than the costs	81 %
<u>Total benefits</u>	<u>\$16,898</u>		
<u>Net program cost</u>	<u>(\$679)</u>		
Benefits minus cost	\$16,219		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$5	\$1	\$9
Labor market earnings associated with high school graduation	\$64	\$27	\$35	\$0	\$127
K-12 grade repetition	\$0	\$3	\$0	\$2	\$5
K-12 special education	\$0	\$7	\$0	\$4	\$11
Health care associated with internalizing symptoms	\$23	\$82	\$85	\$41	\$231
Costs of higher education	(\$7)	(\$5)	(\$2)	(\$2)	(\$16)
<b>Subtotals</b>	<b>\$81</b>	<b>\$117</b>	<b>\$123</b>	<b>\$45</b>	<b>\$366</b>
From secondary participant					
Labor market earnings associated with PTSD	\$8,973	\$3,820	\$0	\$0	\$12,793
Health care associated with PTSD	\$410	\$1,449	\$1,496	\$725	\$4,079
<b>Subtotals</b>	<b>\$9,382</b>	<b>\$5,269</b>	<b>\$1,496</b>	<b>\$725</b>	<b>\$16,872</b>
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$339)	(\$339)
<b>Totals</b>	<b>\$9,463</b>	<b>\$5,386</b>	<b>\$1,618</b>	<b>\$430</b>	<b>\$16,898</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.

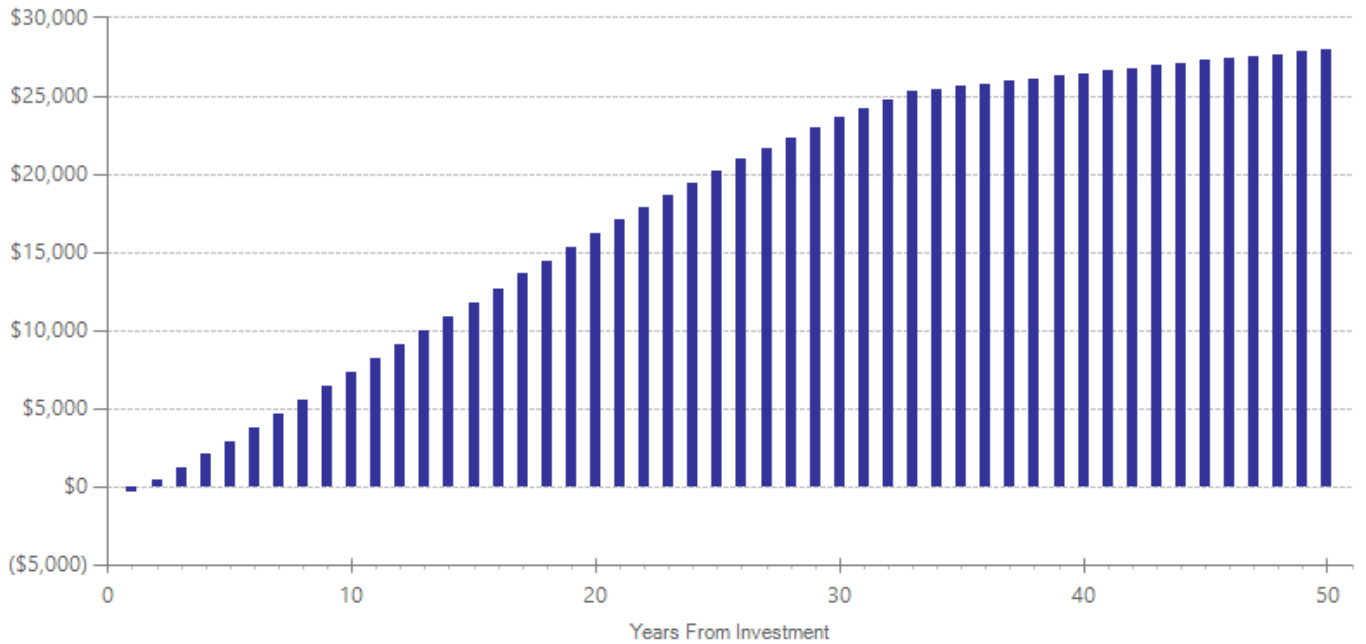
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,761	2015	Present value of net program costs (in 2018 dollars)	(\$679)
Comparison costs	\$1,035	2010	Cost range (+ or -)	10 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
					First time ES is estimated			Second time ES is estimated				
					ES	SE	Age	ES	SE	Age	ES	p-value
Externalizing behavior symptoms	8	Primary	1	61	-0.009	0.201	8	-0.005	0.120	11	-0.019	0.921
Internalizing symptoms	8	Primary	1	61	-0.163	0.191	8	-0.163	0.191	10	-0.327	0.088
Post-traumatic stress	33	Secondary	1	61	-0.190	0.196	33	-0.190	0.196	34	-0.380	0.054

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

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

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

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

## Citations Used in the Meta-Analysis

- Graham-Bermann, S.A., Lynch, S., Banyard, V., DeVoe, E.R., & Halabu, H. (2007). Community-based intervention for children exposed to intimate partner violence: an efficacy trial. *Journal of Consulting and Clinical Psychology, 75*(2), 199-209.
- Graham-Bermann, S.A., & Miller, L.E. (2013). Intervention to reduce traumatic stress following intimate partner violence: an efficacy trial of the Moms' Empowerment Program (MEP). *Psychodynamic Psychiatry, 41*(2), 329-350.



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

## Children's Mental Health: Trauma

Benefit-cost estimates updated December 2019. Literature review updated June 2018.

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

### Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$2,152	Benefit to cost ratio	n/a
Participants	\$3,392	Benefits minus costs	\$7,712
Others	\$830	Chance the program will produce	
Indirect	\$714	benefits greater than the costs	82 %
<b>Total benefits</b>	<b>\$7,088</b>		
<b>Net program cost</b>	<b>\$624</b>		
<b>Benefits minus cost</b>	<b>\$7,712</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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
Labor market earnings associated with PTSD	\$3,165	\$1,347	\$0	\$0	\$4,512
Health care associated with PTSD	\$227	\$804	\$830	\$402	\$2,264
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$312	\$312
<b>Totals</b>	<b>\$3,392</b>	<b>\$2,152</b>	<b>\$830</b>	<b>\$714</b>	<b>\$7,088</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.

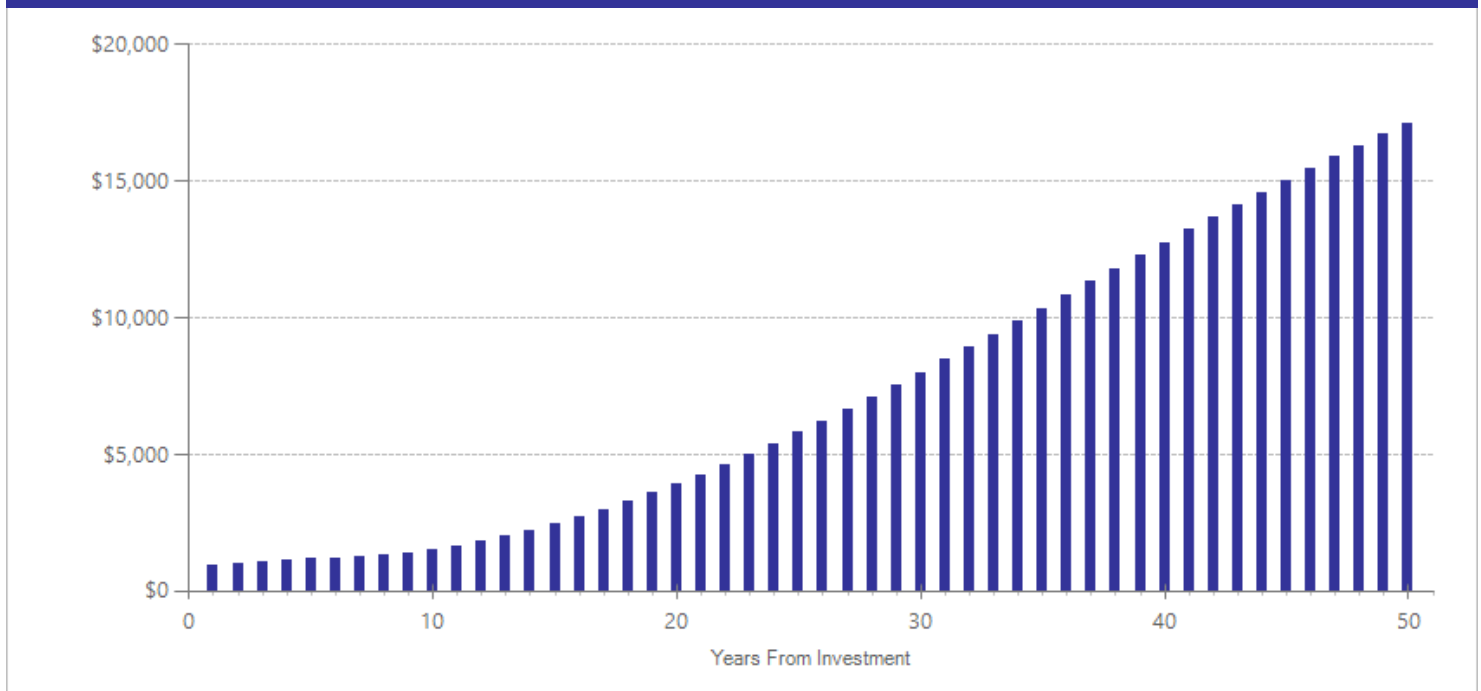
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$520	2015	Present value of net program costs (in 2018 dollars)	\$624
Comparison costs	\$1,035	2010	Cost range (+ or -)	20 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Anxiety disorder^^	9	2	29	0.103	0.271	9	n/a	n/a	n/a	0.206	0.449
Major depressive disorder^^	9	2	29	0.016	0.271	9	n/a	n/a	n/a	0.033	0.904
Post-traumatic stress	9	3	46	-0.179	0.221	9	-0.179	0.221	10	-0.371	0.273

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

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

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

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

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

## Citations Used in the Meta-Analysis

- Ahmad, A., Larsson, B., & Sundelin-Wahlsten, V. (2007). EMDR treatment for children with PTSD: results of a randomized controlled trial. *Nordic Journal of Psychiatry, 6*(5), 349-54.
- Chemtob, C.M., Nakashima, J., & Carlson, J.G. (2002). Brief treatment for elementary school children with disaster-related posttraumatic stress disorder: A field study. *Journal of Clinical Psychology, 58*(1), 99-112.
- Kemp, M., Drummond, P., & McDermott, B. (2010). A wait-list controlled pilot study of eye movement desensitization and reprocessing (EMDR) for children with post-traumatic stress disorder (PTSD) symptoms from motor vehicle accidents. *Clinical Child Psychology and Psychiatry, 15*(1), 5-25.

# Modular Approach to Therapy for Children with Anxiety, Depression, Trauma, or Conduct Problems (MATCH-ADTC)

Children's Mental Health: Other

Benefit-cost estimates updated December 2019. Literature review updated July 2018.

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

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

## Benefit-Cost Summary Statistics Per Participant

### Benefits to:

Taxpayers	\$1,383	Benefit to cost ratio	n/a
Participants	\$709	Benefits minus costs	\$5,140
Others	\$1,277	Chance the program will produce	
Indirect	\$1,176	benefits greater than the costs	97 %
<b>Total benefits</b>	<b>\$4,544</b>		
<b>Net program cost</b>	<b>\$595</b>		
<b>Benefits minus cost</b>	<b>\$5,140</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$91	\$220	\$45	\$356
Labor market earnings associated with high school graduation	\$560	\$238	\$306	\$306	\$1,411
K-12 grade repetition	\$0	\$24	\$0	\$12	\$36
K-12 special education	\$0	\$325	\$0	\$162	\$487
Health care associated with externalizing behavior symptoms	\$211	\$746	\$769	\$373	\$2,099
Costs of higher education	(\$62)	(\$41)	(\$19)	(\$20)	(\$142)
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$298	\$298
<b>Totals</b>	<b>\$709</b>	<b>\$1,383</b>	<b>\$1,277</b>	<b>\$1,176</b>	<b>\$4,544</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.

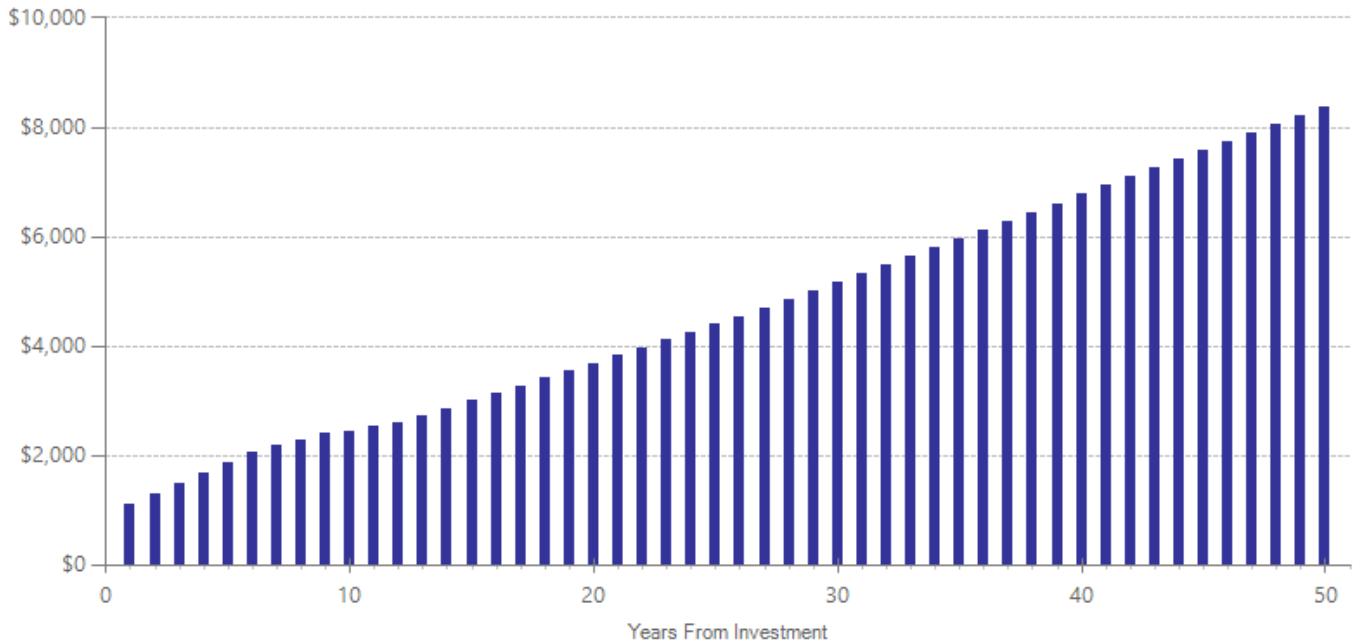
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,709	2015	Present value of net program costs (in 2018 dollars)	\$595
Comparison costs	\$3,276	2015	Cost range (+ or -)	20 %

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

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

## Detailed Annual Cost Estimates Per Participant



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

## Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Externalizing behavior symptoms	10	2	140	-0.280	0.128	10	-0.154	0.102	13	-0.537	0.001
Internalizing symptoms	10	2	140	-0.260	0.128	10	-0.260	0.128	12	-0.501	0.001

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

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

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

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

## Citations Used in the Meta-Analysis

- Chorpita, B.F., Park, A.L., Levy, M.C., Krull, J.L., Daleiden, E.L., Cromley, T., Ward, . . . Tsai, K.H. (2017). Child STEPs in California: A cluster randomized effectiveness trial comparing modular treatment with community implemented treatment for youth with anxiety, depression, conduct problems, or traumatic stress. *Journal of Consulting and Clinical Psychology, 85*(1), 13-25.
- 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

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

## Children's Mental Health: Other

Benefit-cost estimates updated December 2019. 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	\$983	Benefit to cost ratio	\$11.28
Participants	\$32	Benefits minus costs	\$1,614
Others	\$213	Chance the program will produce	
Indirect	\$542	benefits greater than the costs	50 %
<b>Total benefits</b>	<b>\$1,771</b>		
<b>Net program cost</b>	<b>(\$157)</b>		
<b>Benefits minus cost</b>	<b>\$1,614</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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	\$29	\$0	\$14	\$43
Labor market earnings associated with major depression	\$0	\$0	\$0	\$0	\$0
Health care associated with psychiatric hospitalization	\$13	\$946	\$213	\$473	\$1,644
Mortality associated with depression	\$19	\$8	\$0	\$134	\$161
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$79)	(\$79)
<b>Totals</b>	<b>\$32</b>	<b>\$983</b>	<b>\$213</b>	<b>\$542</b>	<b>\$1,771</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.



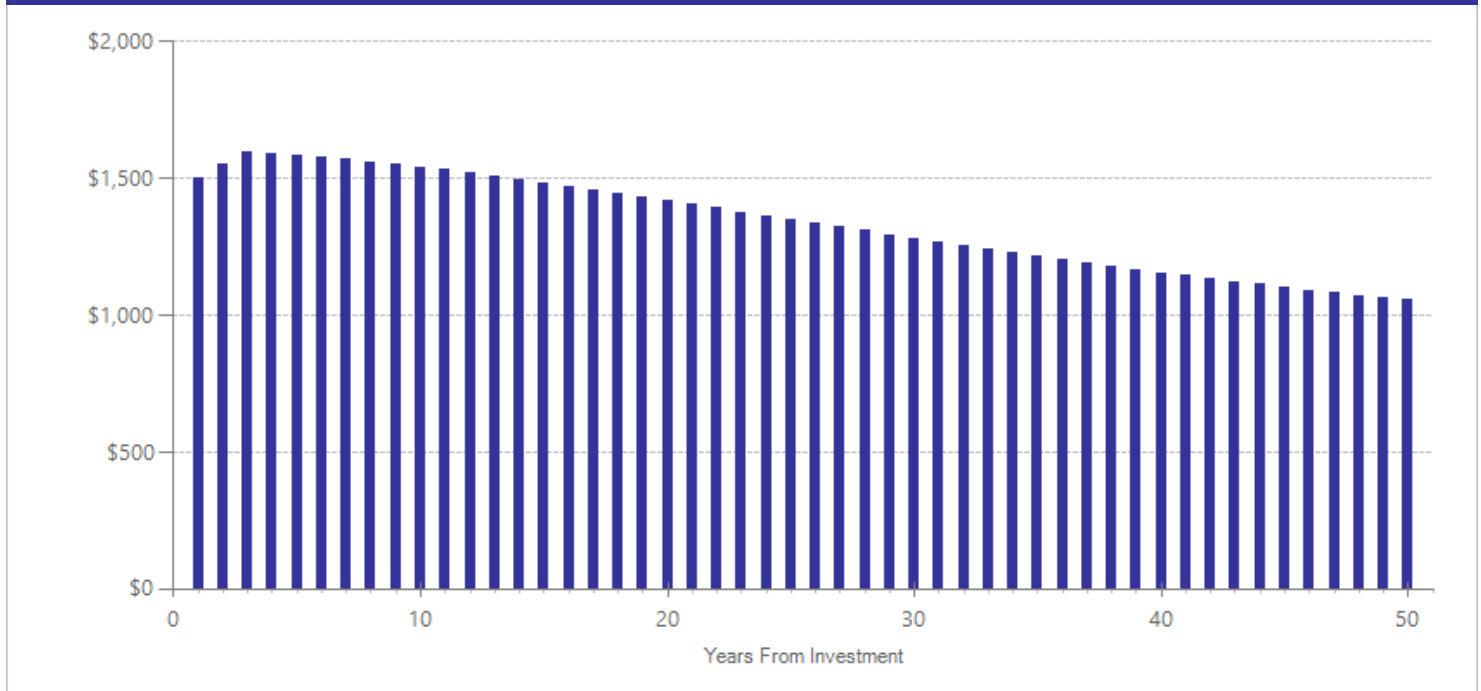
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,792	2016	Present value of net program costs (in 2018 dollars)	(\$157)
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	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Hope <sup>^</sup>	16	2	71	0.493	0.181	16	n/a	n/a	n/a	0.493	0.006
Hospitalization (psychiatric)	16	2	55	-0.606	0.231	16	0.000	0.118	17	-0.606	0.009
Major depressive disorder	16	2	71	-0.445	0.180	16	0.000	0.310	18	-0.445	0.014
Self-harming behavior <sup>^</sup>	16	1	39	-0.531	0.253	16	n/a	n/a	n/a	-0.531	0.036
Suicidal ideation <sup>^</sup>	16	2	71	-0.434	0.321	16	n/a	n/a	n/a	-0.434	0.176
Suicide attempts <sup>^</sup>	16	2	55	-0.116	0.258	16	n/a	n/a	n/a	-0.116	0.652

<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.

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

Children's Mental Health: Depression  
Literature review updated June 2018.

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

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

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

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

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## Citations Used in the Meta-Analysis

- Brent, D.A., Emslie, G., Clarke, G., Wagner, K.D., Asarnow, J.R., Keller, M., et al. (2008). Switching to another SSRI or to venlafaxine with or without cognitive behavioral therapy for adolescents with SSRI-resistant depression: The TORDIA randomized controlled trial. *JAMA*, 299(8), 901-913.
- 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.
- Iftene, F., Predescu, E., Stefan, S., & David, D. (2015). Rational-emotive and cognitive-behavior therapy (REBT/CBT) versus pharmacotherapy versus REBT/CBT plus pharmacotherapy in the treatment of major depressive disorder in youth: a randomized clinical trial. *Psychiatry Research*, 225(3), 687-694.
- 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.
- 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.
- Treatment for Adolescents With Depression Study (TADS) Team. (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.

# Choice Theory/Reality Therapy for children with disruptive behavior

## Children's Mental Health: Disruptive Behavior

Literature review updated July 2018.

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

### Meta-Analysis of Program Effects

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

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

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

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

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

## Citations Used in the Meta-Analysis

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

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

## Children's Mental Health: Serious Emotional Disturbance

Literature review updated July 2018.

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

### Meta-Analysis of Program Effects

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

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.

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## 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
- Asscher, J.J., Dekovic, M., Manders, W., van der Laan, P.H., Prins, P.J.M., & van Arum, S. (2014). Sustainability of the effects of Multisystemic Therapy for juvenile delinquents in The Netherlands: Effects on delinquency and recidivism. *Journal of Experimental Criminology*, 10, 227-243.
- 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.
- Fonagy, P., Butler, S., Cottrell, D., Scott, S., Pilling, S., Eisler, I., Fuggle, P., ... Goodyer, I.M. (2018). Multisystemic therapy versus management as usual in the treatment of adolescent antisocial behaviour (START): A pragmatic, randomised controlled, superiority trial. *The Lancet. Psychiatry*, 5(2), 119-133.
- 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.
- Huey, S.J., Jr., Henggeler, S., Rowland, M., Halliday-Boykins, C.A., Cunningham, P.B., Pickrel, S., & Edwards, J. (2004). Multisystemic therapy effects on attempted suicide by youths presenting psychiatric emergencies. *Journal of the American Academy of Child and Adolescent Psychiatry*, 43(2), 183-190.
- Lofholm, C.A., Olsson, T., Sundell, K., Hansson, K. (2009) Multisystemic therapy with conduct-disordered young people: Stability of treatment outcomes two years after intake. *Evidence and Policy*, 5(4), 373-397
- 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.
- Schoenwald, S.K., Ward, D.M., Henggeler, S.W., & Rowland, M.D. (2000). Multisystemic therapy versus hospitalization for crisis stabilization of youth: Placement outcomes 4 months post referral. *Mental Health Services Research*, 2(1), 3-12.
- 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.
- Vidal, S., Steeger, C.M., Caron, C., Lasher, L., & Connell, C.M. (2017). Placement and delinquency outcomes among system-involved youth referred to Multisystemic Therapy: A propensity score matching analysis. *Administration and Policy in Mental Health*, 44(6), 853-866.
- 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.

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

## Children's Mental Health: Serious Emotional Disturbance

Literature review updated July 2018.

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

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

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

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## 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 youth with serious emotional disturbance (SED)

## Children's Mental Health: Serious Emotional Disturbance

Literature review updated July 2018.

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

### Meta-Analysis of Program Effects

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

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## Citations Used in the Meta-Analysis

- 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.
- Swenson, C.C., Randall, J., Henggeler, S.W., & Ward, D. (2000). The outcomes and costs of an interagency partnership to serve maltreated children in state custody. *Children's Services, 3*(4), 191-209.

# Family-based treatment for adolescents with eating disorders

## Children's Mental Health: Eating Disorders

Literature review updated July 2019.

Program Description: Family-based treatment engages the family system to address eating disorders in adolescents. This treatment approach typically progresses through several stages, including empowering parents to disrupt disordered eating behavior patterns, engaging adolescents in more collaborative relationships with parents to facilitate change in behavior, transitioning control of eating back to adolescents, and helping families to support adolescents' developmental processes. Family-based treatment for eating disorders is typically delivered by child psychologists or child psychiatrists in an outpatient setting. All of the studies included in this analysis compare family-based treatment to individual therapeutic approaches focusing on the adolescent. In some studies, the comparison group also received a limited number of family sessions. Adolescents in family-based treatment received a weighted average of 21 hours of therapy over ten months in the studies included in this analysis.

### Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Eating disorder	5	199	-0.473	0.169	16	-0.473	0.005
Hospitalization	3	148	-0.340	0.218	16	-0.340	0.118
Major depressive disorder	2	94	-0.290	0.179	16	-0.290	0.105

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## Citations Used in the Meta-Analysis

- Godart, N., Berthoz, S., Curt, F., Perdereau, F., Rein, Z., Wallier, J., . . . Jeammet, P. (2012). A randomized controlled trial of adjunctive family therapy and treatment as usual following inpatient treatment for anorexia nervosa adolescents. *PLoS ONE*, *7*.
- le Grange, D., Crosby, R.D., Rathouz, P.J., & Leventhal, B.L. (2007). A randomized controlled comparison of family-based treatment and supportive psychotherapy for adolescent bulimia nervosa. *Archives of General Psychiatry*, *64*, 1049-1056.
- le Grange, D., Lock, J., Agras, W.S., Bryson, S.W., & Jo, B. (2015). Randomized clinical trial of family-based treatment and cognitive-behavioral therapy for adolescent bulimia nervosa. *Journal of the American Academy of Child and Adolescent Psychiatry*, *54*, 886-894.
- Lock, J., le Grange, D., Agras, W.S., Moyer, A., Bryson, S.W., & Jo, B. (2010). Randomized clinical trial comparing family-based treatment with adolescent-focused individual therapy for adolescents with anorexia nervosa. *Archives of General Psychiatry*, *67*, 1025-1032.
- Russell, G.F., Szukler, G.I., Dare, C., & Eisler, I. (1987). An evaluation of family therapy in anorexia nervosa and bulimia nervosa. *Archives of General Psychiatry*, *44*, 1047-1056.

# Great Life Mentoring (formerly 4Results Mentoring)

## Children's Mental Health: Other

Literature review updated November 2018.

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

### Meta-Analysis of Program Effects

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

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## Citations Used in the Meta-Analysis

DuBois, D.L., Herrera, C., & Higley, E. (2018). Investigation of the reach and effectiveness of a mentoring program for youth receiving outpatient mental health services. *Children and Youth Services Review, 91*, 85-93.

# Motivational interviewing to engage children in mental health treatment

## Children's Mental Health: Other

Literature review updated August 2017.

Program Description: Motivational interviewing is a method of communication intended to increase participants' motivation for change. In clinical practice, motivational interviewing can be used with the goal of increasing engagement in treatment.

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

### Meta-Analysis of Program Effects

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

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## Citations Used in the Meta-Analysis

- 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.

# Partners for Change Outcome Management System (PCOMS) for youth

## Children's Mental Health: Other

Literature review updated July 2019.

Program Description: Partners for Change Outcome Management System (PCOMS) is a tool for using systematic client feedback to facilitate routine monitoring and encourage therapeutic conversations about the client's experience of therapy. Brief youth-appropriate feedback measures are completed by clients at the beginning and/or end of a therapy session. The brevity of measures is intended to allow for their routine and expected integration into therapy. This analysis includes studies that utilize PCOMS in a child or adolescent sample. In the included study, children in the intervention group received PCOMS as an adjunct to play-based therapy in a school counseling context for children with a range of presenting concerns or diagnoses, including anxiety, depression, attention difficulties, and externalizing behavior problems. Youth in the comparison group received play-based therapy in a school counseling context, without PCOMS.

### Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Externalizing behavior symptoms	1	18	-0.600	0.339	9	-0.600	0.077
Internalizing symptoms	1	18	-0.184	0.333	9	-0.184	0.579

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## Citations Used in the Meta-Analysis

Cooper, M., Duncan, B., Golden, S., & Toth, K. (2019). Systematic client feedback in therapy for children with psychological difficulties: Pilot cluster randomized controlled trial. *Counseling Psychology Quarterly*.

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## Washington State Institute for Public Policy

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