Return on Investment: Evidence-Based Options to Improve Statewide Outcomes

Technical Appendix I
Detailed Tables

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The Washington Legislature created the Washington State Institute for Public Policy in 1983. The Institute is governed by a Board of Directors that represents the legislature, governor, and public universities. The Board guides the development of all Institute activities. The mission of the Institute is to assist policymakers, particularly those in the legislature, in making informed judgments about important, long-term issues facing Washington State.

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Contents

Overview **5**

Juvenile Justice **6**
- Aggression Replacement Training (state institutionalized population) 6
- Aggression Replacement Training (Probation) 8
- Coordination of Services 10
- Drug Court for Juvenile Offenders 12
- Family Integrated Transitions (state institutionalized population) 14
- Functional Family Therapy (state institutionalized population) 16
- Functional Family Therapy (Probation) 18
- Multisystemic Therapy 20
- Multidimensional Treatment Foster Care 22
- Scared Straight 24
- Victim Offender Mediation 26

Adult Criminal Justice **28**
- Cognitive Behavioral Therapy (in the community) 28
- Cognitive Behavioral Therapy (in prison) 31
- Correctional Education in Prison 34
- Correctional Industries in Prison 36
- Dangerously Mentally Ill Offenders 38
- Domestic Violence Perpetrator Treatment Programs 40
- Drug Court for Adult Offenders 42
- Drug Offender Sentencing Alternative (for drug offenders) 45
- Drug Offender Sentencing Alternative (for property offenders) 47
- Drug Treatment in the Community 49
- Drug Treatment in Prison 51
- Electronic Monitoring 53
- Employment Training/Job Assistance in the Community 55
- Intensive Supervision: Surveillance Only 57
- Intensive Supervision: WithTreatment 59
- Mental Health Courts 61
- Vocational Education in Prison 63
- Work Release 65

Child Welfare **67**
- Family Team Decision-Making 67
- Healthy Families America 68
- Intensive Family Preservation Services (Homebuilders®) 70
- Nurse Family Partnership for Low-Income Families 72
- Other Family Preservation Services (non-Homebuilders®) 74
- Other Home Visiting Programs for At-Risk Familes 76
- Parent-Child Home Program 79
- Parent Child Interaction Therapy for Families in the Child Welfare System 81
- Parents as Teachers 83
- Structured Decision-Making® Risk Assessment 85
- Incredible Years: Parent Training 86
- Incredible Years: Parent Training and Child Training 88
- Parent-Child Interaction Therapy for Children with Disruptive Behavior Problems 90
- Triple P Positive Parenting Program (Universal) 92
- Triple P Positive Parenting Program: Level 4, Group 94
- Triple P Positive Parenting Program: Level 4, Individual 96

Pre-K to 12 Education **98**
- Early Childhood Education for Low Income 3- and 4-Year Olds 98
- Early Head Start 102
- Even Start 104

K-12 Educator Professional Development ... 106
National Board for Professional Teaching Standards (NBPTS) Certification Bonuses ... 107
Additional Day of K-12 Instructional Time ... 109
K-12 Parent Involvement Programs ... 111
K-12 Tutoring by Adults ... 113
K-12 Tutoring by Peers ... 115
Reading Recovery (K-12 Tutoring) ... 117
Pre-K and Elementary Bilingual Instructional Programs (vs. English-based) for English Language Learners 119
Special Literacy Instruction for English Language Learner Students ... 123

Children's Mental Health ... 125
Cognitive Behavioral Therapy (CBT) for Depressed Adolescents ... 125
Individual Cognitive Behavioral Therapy (CBT) for Anxious Children ... 127
Parent Cognitive Behavioral Therapy (CBT) for Anxious Children ... 129
Group Cognitive Behavioral Therapy (CBT) for Anxious Children ... 131
Remote Cognitive Behavioral Therapy (CBT) for Anxious Children ... 133
Behavioral Parent Training for Children With ADHD ... 137
Multimodal Therapy (MMT) for Children With ADHD ... 139
Behavioral Parent Training (BPT) for Children With Disruptive Behavior Disorders ... 141
Multimodal Therapy (MMT) for Children With Disruptive Behavior ... 143
Brief Strategic Family Therapy (BSFT) ... 145
Multisystemic Therapy (MST) for Youth With Serious Emotional Disturbance (SED) ... 147

General Prevention ... 149
Children's Aid Society—Carrera ... 149
Fast Track Prevention Program ... 151
Good Behavior Game ... 153
Promoting Alternative Thinking Strategies (PATHS) ... 155
Quantum Opportunities Program ... 157
Seattle Social Development Project ... 159
Youth Mentoring Programs (total costs) ... 161
Youth Mentoring Programs (taxpayer costs only) ... 163

Substance Abuse ... 165
Life Skills Training ... 165
Project Towards No Drug Abuse (TND) ... 167
Motivational Interviewing/Motivational Enhancement Therapy for Smoking ... 169
Motivational Interviewing/Motivational Enhancement Therapy for Alcohol Abuse ... 171
Motivational Interviewing/Motivational Enhancement Therapy for Cannabis Abuse ... 174
Motivational Interviewing/Motivational Enhancement Therapy for Illicit Drug Abuse ... 176
Brief Alcohol Screening and Intervention for College Students (BASICS) ... 178

Adult Mental Health ... 180
Cognitive Behavioral Therapy (CBT) for Adult Anxiety ... 180
Cognitive Behavioral Therapy (CBT) for Adult Depression ... 182

Public Health ... 184
School-based Sexual Education ... 184
Postponing Sexual Involvement (c) ... 186
School-Based Service Learning ... 187
Teen Outreach Program ... 188
Adolescent Sibling Pregnancy Prevention ... 189
School Programs for Healthy Eating to Prevent Obesity ... 190
School Programs for Physical Activity to Prevent Obesity ... 191
School Programs for Healthy Eating and Physical Activity to Prevent Obesity ... 193

Housing ... 195
Housing Supports for Offenders Returning to the Community ... 195
Housing Supports for Serious Violent Offenders ... 197

Overview

The 2009 Washington State Legislature directed the Washington State Institute for Public Policy (Institute) "to calculate the return on investment to taxpayers from evidence-based prevention and intervention programs and policies."[1] Specifically, the Legislature asked the Institute to identify public policies that have been shown to improve these broad outcomes of public interest:

- ✓ Crime,
- ✓ Education,
- ✓ Child maltreatment,
- ✓ Substance abuse,
- ✓ Mental health,
- ✓ Public health,
- ✓ Public assistance,
- ✓ Employment, and
- ✓ Housing.

A principal objective of this work is to produce a "what works?" list of public policy options available to the Washington State legislature that can improve these particular outcomes. This technical appendix contains detailed meta-analysis and benefit-cost results for each program reviewed. Technical Appendix II provides a comprehensive description of our methods used compute the estimates.

Policy topics presented in this appendix follow the same general order as in Exhibit 1 of the main report; for example, juvenile justice programs are presented first, followed by adult criminal justice programs, and so on. To locate the results for specific programs within each topic area, refer to the Table of Contents.

For each program analyzed, this appendix provides:

- ✓ A brief description of the policy or program reviewed;
- ✓ Meta-analysis results for each outcome measured;
- ✓ A summary of benefit-cost estimates;
- ✓ A description of discount rates used in the meta-analysis; and
- ✓ Citations for all studies used in the meta-analysis.

[1] Laws of 2009, Ch. 564, § 610 (4), ESHB 1244.

Aggression Replacement Training (state institutionalized population)

Program description:

Aggression Replacement Training® (ART®) is a cognitive behavioral intervention program that specifically targets chronically aggressive children and adolescents. ART aims to help adolescents improve social skill competence and moral reasoning, better manage anger, and reduce aggressive behavior. In our analysis, we only include effect sizes from programs that were delivered competently and with fidelity to the program model.

Typical age of primary program participant: 16

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	4	-0.51	0.27	0.06	-0.30	0.27	16	-0.30	0.55	26

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$3,929	$13,669	$42,495	$6,862	$66,954	($1,473)	$45.50	n/e	$65,481	93%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$1,449	1	2008	$0	1	2008	$1,476	10%

Source: Barnoski, R. (2009, December). *Providing evidence-based programs with fidelity in Washington State juvenile courts: Cost analysis* (Document No. 09-12-1201). Olympia: Washington State Institute for Public Policy.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Barnoski, R. (2004, January). *Outcome evaluation of Washington State's research-based programs for juvenile offenders* (Document No. 04-01-1201). Olympia: Washington State Institute for Public Policy.

Gibbs, J. C. (1995). EQUIP: A peer-group treatment program for delinquents. In R. R. Ross, D. H. Antonowicz, & G. K. Dhaliwal (Eds.), *Going straight: Effective delinquency prevention & offender rehabilitation* (pp. 179-192). Ottawa, Ontario, Canada: AIR Training Publications.

Goldstein, A. P., & Glick, B. (1995). Aggression Replacement Training for delinquents. In R. R. Ross, D. H. Antonowicz, & G. K. Dhaliwal (Eds.), *Going straight: Effective delinquency prevention & offender rehabilitation* (pp. 135-161). Ottawa, Ontario, Canada: AIR Training Publications.

Aggression Replacement Training (Probation)

Program description:

Aggression Replacement Training® (ART®) is a cognitive behavioral intervention program that specifically targets chronically aggressive children and adolescents. ART aims to help adolescents improve social skill competence and moral reasoning, better manage anger, and reduce aggressive behavior. In our analysis, we only include effect sizes from programs that were delivered competently and with fidelity to the program model.

Typical age of primary program participant: 15

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	4	-0.51	0.27	0.06	-0.30	0.27	16	-0.30	0.55	26

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	$3,361	$8,144	$20,479	$4,058	$36,043	($1,476)	$24.44	n/e	$34,566	93%

Detailed Cost Estimates

	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	$1,449	1	2008	$0	1	2008	$1,476	10%

Source: Barnoski, R. (2009, December). *Providing evidence-based programs with fidelity in Washington State juvenile courts: Cost analysis* (Document No. 09-12-1201). Olympia: Washington State Institute for Public Policy.

Discount Rates Applied to the Meta-Analysis

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5- Well-done random assignment study.	1.00
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Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

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Studies Used in the Meta-Analysis

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Gibbs, J. C. (1995). EQUIP: A peer-group treatment program for delinquents. In R. R. Ross, D. H. Antonowicz, & G. K. Dhaliwal (Eds.), *Going straight: Effective delinquency prevention & offender rehabilitation* (pp. 179-192). Ottawa, Ontario, Canada: AIR Training Publications.

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Coordination of Services

Program description:

Coordination of Services (COS) provides an educational program to low-risk juvenile offenders and their parents. The goals of COS are to describe the consequences of continued delinquent behavior, stimulate goal setting, review the strengths of the youth and family, and explain what resources are available for helping to achieve a positive pro-social future for the youth.

Typical age of primary program participant: 15

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Second-ary Partici-pant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	-0.51	0.17	0.56	-0.10	0.17	17	-0.10	0.34	27

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Partici-pants	Tax-payers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Invest-ment	Benefits Minus Costs	Measure of Risk
	$1,076	$1,340	$2,175	$679	$5,270	($386)	$13.63	444%	$4,884	78%

Detailed Cost Estimates

	Program Costs			Comparison Costs			Summary 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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$379	1	2008	$0	0	2008	$386	10%

Source: Barnoski, R. (2009, December). *Providing evidence-based programs with fidelity in Washington State juvenile courts: Cost analysis* (Document No. 09-12-1201). Olympia: Washington State Institute for Public Policy.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
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3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
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5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Barnoski, R. (2004, January). *Outcome evaluation of Washington State's research-based programs for juvenile offenders* (Document No. 04-01-1201). Olympia: Washington State Institute for Public Policy.

Drug Court for Juvenile Offenders

Program description:

While each drug court is unique, they all share the primary goals of reducing criminal recidivism and substance abuse among participants. Drug courts use comprehensive supervision, drug testing, treatment services, and immediate sanctions and incentives in an attempt to modify the criminal behavior of certain drug-involved defendants. These meta-analytic results were last updated in 2006.

Typical age of primary program participant: 15

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	15	-0.12	0.07	0.12	-0.11	0.07	15	-0.11	0.14	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$1,154	$2,859	$7,315	$1,409	$12,737	($3,024)	$4.22	38%	$9,713	80%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$2,645	1	2004	$0	1	2004	$3,026	10%

Source: Anspach, D. F., Ferguson, A. S., & Phillips, L. L. (2003). *Evaluation of Maine's statewide juvenile drug treatment court program*. Augusta, ME: University of Southern Maine.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Anspach, D. F., Ferguson, A. S., & Phillips, L. L. (2003, September). *Evaluation of Maine's statewide juvenile drug treatment court program: Fourth year outcome evaluation report*. Augusta: University of Southern Maine.

Byrnes, E. C., & Hickert, A. O. (2004). *Process and outcome evaluation of the third district juvenile drug court in Dona Ana County, Nex Mexico*. Annapolis, MD: Glacier Consulting.

Carey, S. M. (2004, February). *Clackamas County Juvenile Drug Court outcome evaluation: Final report*. Portland, OR: NPC Research.

Gilmore, A. S., Rodriguez, N., & Webb, V. J. (2005). Substance abuse and drug courts: The role of social bonds in juvenile drug courts. *Youth Violence and Juvenile Justice, 3*(4), 287-315.

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Latessa, E. J., Shaffer, D. K., & Lowenkamp C. (2002, July). *Outcome evaluation of Ohio’s drug court efforts: Final report*. Cincinnati, OH: University of Cincinnati, Center for Criminal Justice Research, Division of Criminal Justice.

LeGrice, L. N. (2004). Effectiveness of juvenile drug court on reducing delinquency. *Dissertation Abstracts International, 64*(12), 4626A.

Nebraska Commission on Law Enforcement and Criminal Justice. (2004). Tri-county juvenile drug court evaluation study final report. Lincoln: Nebraska Crime Commission, Author. Retrieved June 27, 2011 from http://www.ncc.state.ne.us/pdf/juvenile_justice_materials/2004_DTC_Report.pdf

O'Connell, J. P., Nestlerode, E., & Miller, M. L. (1999, October). *Evaluation of the juvenile drug court diversion program*. Dover: State of Delaware Executive Department, Statistical Analysis Center.

Parsons, B. V., Byrnes, E. C. (n.d.). *Byrne evaluation partnership program: Final report*. Salt Lake City: University of Utah, Social Research Institute.

Pitts, W. J., & Guerin, P. (2004, June). *Evaluation of the Eleventh Judicial District Court San Juan County juvenile Drug Court: Quasi-experimental outcome study using historical information*. Albuquerque: University of New Mexico, Institute for Social Research.

Family Integrated Transitions (state institutionalized population)

Program description:

Family Integrated Transitions (FIT) is designed for juvenile offenders with the co-occurring disorders of mental illness and chemical dependency who are entering the community after being detained. Youth receive intensive family and community-based treatment targeted at the multiple determinants of serious antisocial behavior. The program strives to promote behavioral change in the youth's home environment, emphasizing the systemic strengths of family, peers, school, and neighborhoods to facilitate the change.

Typical age of primary program participant: 15

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	-0.21	0.12	0.76	-0.21	0.12	17	-0.21	0.25	27

Although the underlying program model for FIT is very similar to MST, we chose to separate the meta-analytic results for the two programs so that readers can see the difference in benefit-cost analysis. The meta-analytic results for FIT, however, uses the standard error for the combined FIT and MST meta-analysis based upon twelve effect sizes.

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$1,656	$5,448	$17,176	$2,740	$27,020	($10,968)	$2.47	17%	$16,052	86%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$10,795	1	2008	$0	0	2008	$10,993	10%

Source: Barnoski, R. (2009, December). *Providing evidence-based programs with fidelity in Washington State juvenile courts: Cost analysis* (Document No. 09-12-1201). Olympia: Washington State Institute for Public Policy.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Trupin, E. J., Kerns, S. E. U., & Walker, S. C. (in press). Family Integrated Transitions: A promising program for juvenile offenders with co-occurring disorders. *Journal of Substance Abuse Treatment*.

Functional Family Therapy (state institutionalized population)

Program description:

Functional Family Therapy (FFT) is a structured family-based intervention that uses a multi-step approach to enhance protective factors and reduce risk factors in the family. Functional Family Therapy is a Blueprint program identified by the University of Colorado's Center for the Study and Prevention of Violence. In our analysis, we only include effect sizes from programs that were delivered competently and with fidelity to the program model.

Typical age of primary program participant: 16

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	8	-0.59	0.15	0.00	-0.32	0.15	16	-0.32	0.29	26

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$4,302	$13,719	$42,518	($0)	$60,539	($3,198)	$18.98	n/e	$57,341	99%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$3,134	1	2008	$0	1	2008	$3,191	10%

Source: Barnoski, R. (2009, December). Providing evidence-based programs with fidelity in Washington State juvenile courts: Cost analysis (Document No. 09-12-1201). Olympia: Washington State Institute for Public Policy.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Alexander, J. F., & Parsons, B. V. (1973). Short-term behavioral intervention with delinquent families: Impact on family process and recidivism. *Journal of Abnormal Psychology, 81*(3), 219-225.

Barnoski, R. (2004, January). *Outcome evaluation of Washington State's research-based programs for juvenile offenders* (Document No. 04-01-1201). Olympia: Washington State Institute for Public Policy.

Barton, C., Alexander, J. F., Waldron, H., Turner, C. W., & Warburton, J. (1985). Generalizing treatment effects of functional family therapy: Three replications. *American Journal of Family Therapy, 13*(3), 16-26.

Gordon, D. A., Graves, K., & Arbuthnot, J. (1995). The effect of Functional Family Therapy for delinquents on adult criminal behavior. *Criminal Justice and Behavior, 22*(1), 60-73.

Gordon, D. A. (1995). Functional Family Therapy for delinquents. In R. R. Ross, D. H. Antonowicz, & G. K. Dhaliwal (Eds.), *Going straight: Effective delinquency prevention & offender rehabilitation* (pp. 163-178). Ottawa, Ontario, Canada: AIR Training Publications.

Alexander, J., Barton, C., Gordon, D., Grotpeter, J., Hansson, K., Harrison, R., . . . Sexton, T. (1998). Blueprints for violence prevention, book three: Functional Family Therapy (Document No. NCJ 174196). Boulder: University of Colorado, Boulder; Center for the Study and Prevention of Violence.

Klein, N. C., Alexander, J. F., & Parsons, B. V. (1977). Impact of family systems intervention on recidivism and sibling delinquency: A model of primary prevention and program evaluation. *Journal of Consulting and Clinical Psychology, 45*(3), 469-474.

Sexton, T., & Turner, C. W. (2010). The effectiveness of Functional Family Therapy for youth with behavioral problems in a community practice setting. *Journal of Family Psychology, 24*(3), 339-348.

Functional Family Therapy (Probation)

Program description:

Functional Family Therapy (FFT) is a structured family-based intervention that uses a multi-step approach to enhance protective factors and reduce risk factors in the family. Functional Family Therapy is a Blueprint program identified by the University of Colorado's Center for the Study and Prevention of Violence. In our analysis, we only include effect sizes from programs that were delivered competently and with fidelity to the program model.

Typical age of primary program participant: 15

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	8	-0.59	0.15	0.00	-0.32	0.15	16	-0.32	0.29	26

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$3,665	$8,536	$21,280	$4,258	$37,739	($3,190)	$11.86	641%	$34,549	99%

Detailed Cost Estimates

	Program Costs			Comparison Costs			Summary 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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$3,134	1	2008	$0	1	2008	$3,191	10%

Source: Barnoski, R. (2009, December). Providing evidence-based programs with fidelity in Washington State juvenile courts: Cost analysis (Document No. 09-12-1201). Olympia: Washington State Institute for Public Policy.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Alexander, J. F., & Parsons, B. V. (1973). Short-term behavioral intervention with delinquent families: Impact on family process and recidivism. *Journal of Abnormal Psychology, 81*(3), 219-225.

Barnoski, R. (2004, January). *Outcome evaluation of Washington State's research-based programs for juvenile offenders* (Document No. 04-01-1201). Olympia: Washington State Institute for Public Policy.

Barton, C., Alexander, J. F., Waldron, H., Turner, C. W., & Warburton, J. (1985). Generalizing treatment effects of functional family therapy: Three replications. *American Journal of Family Therapy, 13*(3), 16-26.

Gordon, D. A., Graves, K., & Arbuthnot, J. (1995). The effect of Functional Family Therapy for delinquents on adult criminal behavior. *Criminal Justice and Behavior, 22*(1), 60-73.

Gordon, D. A. (1995). Functional Family Therapy for delinquents. In R. R. Ross, D. H. Antonowicz, & G. K. Dhaliwal (Eds.), *Going straight: Effective delinquency prevention & offender rehabilitation* (pp. 163-178). Ottawa, Ontario, Canada: AIR Training Publications.

Alexander, J., Barton, C., Gordon, D., Grotpeter, J., Hansson, K., Harrison, R., . . . Sexton, T. (1998). Blueprints for violence prevention, book three: Functional Family Therapy (Document No. NCJ 174196). Boulder: University of Colorado, Boulder; Center for the Study and Prevention of Violence.

Klein, N. C., Alexander, J. F., & Parsons, B. V. (1977). Impact of family systems intervention on recidivism and sibling delinquency: A model of primary prevention and program evaluation. *Journal of Consulting and Clinical Psychology, 45*(3), 469-474.

Sexton, T., & Turner, C. W. (2010). The effectiveness of Functional Family Therapy for youth with behavioral problems in a community practice setting. *Journal of Family Psychology, 24*(3), 339-348.

Multisystemic Therapy

Program description:

Multisystemic Therapy (MST) is an intensive in-home program, which promotes the parent's ability to monitor and discipline their children and replace deviant peer relationships with pro-social friendships. In the juvenile justice setting, MST is designed for violent and chronic offenders. In our analysis, we only include effect sizes from programs that were delivered competently and with fidelity to the program model.

Typical age of primary program participant: 15

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	10	-0.45	0.12	0.00	-0.19	0.12	16	-0.19	0.25	26

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$2,336	$6,521	$17,196	$3,249	$29,302	($7,206)	$4.07	28%	$22,096	91%

Detailed Cost Estimates

	Program Costs			Comparison Costs			Summary 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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$7,076	1	2008	$0	1	2008	$7,206	10%

Source: Barnoski, R. (2009, December). Providing evidence-based programs with fidelity in Washington State juvenile courts: Cost analysis (Document No. 09-12-1201). Olympia: Washington State Institute for Public Policy.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Borduin, C. M., Henggeler, S. W., Blaske, D. M., & Stein, R. (1990). Multisystemic treatment of adolescent sexual offenders. *International Journal of Offender Therapy and Comparative Criminology, 35*(2), 105-113.

Borduin, C. M., Schaeffer, C. M., & Heiblum, N. (2009). A randomized clinical trial of multisystemic therapy with juvenile sexual offenders: Effects on youth social ecology and criminal activity. *Journal of Consulting and Clinical Psychology,* 77(1), 26-37.

Centre for Children and Families in the Justice System. (2006). *Randomized study of MST in Ontario, Canada: Final results*. Retrieved June 23, 2011 from http://www.lfcc.on.ca/mst_final_results.html

Henggeler, S. W., Clingempeel, W. G., Brondino, M. J., & Pickrel, S. G. (2002). Four-year follow-up of multisystemic therapy with substance-abusing and substance-dependent juvenile offenders. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*(7), 868-874.

Henggeler, S. W., Halliday-Boykins, C. A., Cunningham, P. B., Randall, J., Shapiro, S. B, & Chapman, J. E. (2006). Juvenile drug court: Enhancing outcomes by integrating evidence-based treatments. *Journal of Consulting and Clinical Psychology, 74*(1), 42-54.

Henggeler, S. W., Melton, G. B., Brondino, M. J., Scherer, D. G., & Hanley, J. H. (1997). Multisystemic therapy with violent and chronic juvenile offenders and their families: The role of treatment fidelity in successful dissemination. *Journal of Consulting and Clinical Psychology, 65*(5), 821-833.

Henggeler, S. W., Melton, G. B., Smith, L. A., Schoenwald, S. K., & Hanley, J. H. (1993). Family preservation using multisystemic therapy: Long-term follow-up to a clinical trial with serious juvenile offenders. *Journal of Child and Family Studies, 2*(4), 283-293.

Letourneau, E. J., Henggeler, S. W., Borduin, C. M., Schewe, P. A., McCart, M. R., Chapman, J. E., & Saldana, L. (2009). Multisystemic therapy for juvenile sexual offenders: 1-year results from a randomized effectiveness trial. *Journal of Family Psychology, 23*(1), 89-102.

Schaeffer, C. M., & Borduin, C. M. (2005). Long-term follow-up to a randomized clinical trial of multisystemic therapy with serious and violent juvenile offenders. *Journal of Consulting and Clinical Psychology, 73*(3), 445-453.

Timmons-Mitchell, J., Bender, M. B., Kishna, M. A., & Mitchell, C. C. (2006). An independent effectiveness trial of multisystemic therapy with juvenile justice youth. *Journal of Clinical Child and Adolescent Psychology, 35*(2), 227-236.

Multidimensional Treatment Foster Care

Program description:

Multidimensional Treatment Foster Care (MTFC) is an intensive therapeutic foster care alternative to institutional placement for adolescents who have problems with chronic antisocial behavior, emotional disturbance, and delinquency. MTFC activities include skills training and therapy for youth as well as behavioral parent training and support for foster parents and biological parents. In our analysis, we only include effect sizes from programs that were delivered competently and with fidelity to the program model.

Typical age of primary program participant: 16

Typical age of secondary program participant: -1

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	3	-0.61	0.22	0.01	-0.22	0.22	17	-0.22	0.44	27
Teen pregnancy (under age 18)	P	1	-0.47	0.03	0.00	-0.35	0.03	17	-0.35	0.06	19

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$2,645	$8,343	$25,459	$4,339	$40,787	($7,739)	$5.28	142%	$33,047	85%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$31,883	1	2010	$24,536	1	2007	$7,730	10%

Source: Estimate provided by the Juvenile Rehabilitation Administration is based on an average length in the program during 2010 and includes oversight, coordination, and administration of the program. Aftercare programming for MTFC is discretionary and the additional associated cost calculation formulas are currently in development. The MTFC cost estimate is compared with alternative cost for youth in group homes.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Chamberlain, P. (1990). Comparative evaluation of specialized foster care for seriously delinquent youths: A first step. *Community Alternatives: International Journal of Family Care, 2*(2), 21-36.

Chamberlain, P., Fisher, P. A., & Moore, K. (2002). Multidimensional treatment foster care: Applications of the OSLC intervention model to high-risk youth and their families. In J. B. Reid, G. R. Patterson, & J. Snyder (Eds.), *Antisocial behavior in children and adolescents: A developmental analysis and model for intervention* (pp. 203-218). Washington DC: American Psychological Association.

Chamberlain, P., Leve, L. D., & Degarmo, D. S. (2007). Multidimensional treatment foster care for girls in the juvenile justice system: 2-year follow-up of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 75*(1), 187-193.

Scared Straight

Program description:

The underlying goal of the Scared Straight program is to deter juvenile offenders, or children at-risk of becoming delinquent, through organized visits to adult prisons. These meta-analytic results were last updated in 2006.

Typical age of primary program participant: 15

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	10	0.11	0.05	0.05	0.09	0.05	17	0.09	0.10	27

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	($1,001)	($1,591)	($2,649)	($790)	($6,031)	($63)	($95.11)	n/e	($6,095)	1%

Detailed Cost Estimates

	Program Costs			Comparison Costs			Summary 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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$50	1	1999	$0	1	1999	$63	0%

Source: Estimated by the Washington State Institute for Public Policy.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Buckner, J. C., & Chesney-Lind, M. (1983.) Dramatic cures for juvenile crime: An evaluation of a prisoner-run delinquency prevention program. *Criminal Justice and Behavior, 10*(2), 227-247.

Cook D. D., & Spirrison, C. L. (1992). Effects of a prisoner-operated delinquency deterrence program: Mississippi's Project Aware. *Journal of Offender Rehabilitation, 17*(3-4), 89-99.

Finchkenauer, J. O., & Gavin, P. W. (with Hovland, A., & Storvoll, E.). (1999). *Scared Straight: the panacea phenomenon revisited*. Prospect Heights, IL: Waveland Press.

Lewis, R. V. (1983). Scared straight--California style: Evaluation of the San Quentin Squires program. *Criminal Justice and Behavior, 10*(2), 209-226.

Locke, T. P., Johnson, G. M., Kirigin-Ramp, K., Atwater, J. D., & Gerrard, M. (1986). An evaluation of a juvenile education program in a state penitentiary. *Evaluation Review, 10*(3), 281-298.

Michigan Department of Corrections. (1967, May). *A six month follow-up of juvenile delinquents visiting the Ionia Reformatory* (Research Report No. 4). Lansing: Michigan Department of Corrections.

Orchowsky, S., & Taylor, K. (1981). *The Insiders juvenile crime prevention program: An assessment of a juvenile awareness program* (Document No. NCJ 79768). Richmond: Virginia Department of Corrections, Division of Program Development and Evaluation, Research and Reporting Unit.

Vanzandt, J. (1979). *Menard Correctional Center: Juvenile tours impact study* (Document No. NCJ 062932). Marion, IL: Greater Egypt Regional Planning & Development Commission.

Vreeland, A. D. (1982). Evaluation of Face-to-Face: A juvenile aversion program. *Dissertation Abstracts International, 42*(10), 4597A.

Yarborough, J. C. (1979). *Evaluation of JOLT (Juvenile Offenders Learn Truth) as a deterrence program* (Document No. NCJ 060290). Lansing: Michigan Department of Corrections.

Victim Offender Mediation

Program description:

In this broad grouping of programs, the underlying characteristic is that the victim and the offender sit down together with a trained mediator in order to determine appropriate restitution for the harm done. The types of offenders, criminal justice setting, and degree of support to the victim and/or offender vary.

Typical age of primary program participant: 15

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	6	-0.09	0.06	0.13	-0.06	0.06	15	-0.06	0.12	25

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	$787	$977	$1,649	$510	$3,922	($566)	$6.94	89%	$3,357	90%

Detailed Cost Estimates

	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	$565	1	2010	$0	1	2010	$565	10%

Source: The Washington State Institute for Public Policy estimated the costs of victim offender mediation based on the literature reviewed. We also received a cost estimate from the victim offender mediation program in Clark County Washington. Our final cost estimate is the average of these two costs. The cost includes staff time, benefits, and volunteer time.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

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Cognitive Behavioral Therapy (in the community)

Program description:

Cognitive-behavioral therapy (CBT) emphasizes individual accountability and teaches offenders that cognitive deficits, distortions, and flawed thinking processes cause criminal behavior. For this broad grouping of studies, CBT was delivered to adults in either an institutional or community setting and included a variety of "brand name" programs (Moral Reconation Therapy, Reasoning and Rehabilitation, and Thinking 4 a Change). We excluded studies from this analysis that evaluated CBT delivered specifically as sex offender treatment. We investigated additional policy questions about CBT using multivariate regression analysis for the 36 effect sizes and found some variation in effectiveness across this broad grouping of programs. Although not statistically significant (p=0.154), results slightly favor brand name CBT programs. We also found that CBT programs delivered in an institutional setting performed better than those delivered in the community (p=0.574).

Typical age of primary program participant: 28

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	36	-0.15	0.05	0.01	-0.13	0.05	30	-0.13	0.11	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$0	$1,848	$4,998	$893	$7,739	($217)	$35.70	n/e	$7,522	99%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$217	1	2010	$0	1	2010	$217	10%

Source: Estimate provided by the Washington State Department of Corrections.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

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Hubbard, D. J., & Latessa, E. J. (2004, January). *Evaluation of cognitive-behavioral programs for offenders: A look at outcome and responsivity in five treatment programs* (Final report). Cincinnati: University of Cincinnati, Division of Criminal Justice, Center for Criminal Justice Research.

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Raynor, P., & Vanstone, M. (1996). Reasoning and rehabilitation in Britain: The results of the Straight Thinking on Probation (STOP) programme. *International Journal of Offender Therapy and Comparative Criminology, 40*(4), 272-284.

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Van Voorhis, P., Spruance, L. M., Ritchie, P. N, Johnson-Listwan, S., Seabrook, R., & Pealer, J. (2002). *The Georgia Cognitive Skills Experiment outcome evaluation phase II* (Final report). Cincinnati, OH: University of Cincinnati, Center for Criminal Justice Research.

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Cognitive Behavioral Therapy (in prison)

Program description:

Cognitive-behavioral therapy (CBT) emphasizes individual accountability and teaches offenders that cognitive deficits, distortions, and flawed thinking processes cause criminal behavior. For this broad grouping of studies, CBT was delivered to adults in either an institutional or community setting and included a variety of "brand name" programs (Moral Reconation Therapy, Reasoning and Rehabilitation, and Thinking 4 a Change). We excluded studies from this analysis that evaluated CBT delivered specifically as sex offender treatment. We investigated additional policy questions about CBT using multivariate regression analysis for the 36 effect sizes and found some variation in effectiveness across this broad grouping of programs. Although not statistically significant (p=0.154), results slightly favor brand name CBT programs. We also found that CBT programs delivered in an institutional setting performed better than those delivered in the community (p=0.574).

Typical age of primary program participant: 28

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Second-ary Partici-pant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	36	-0.15	0.05	0.01	-0.13	0.05	30	-0.13	0.11	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.	Program Benefits					Costs	Summary Statistics			
	Partici-pants	Tax-payers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Invest-ment	Benefits Minus Costs	Measure of Risk
	$0	$2,588	$6,875	$1,278	$10,741	($217)	$49.55	n/e	$10,524	99%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$217	1	2010	$0	0	2010	$217	10%

Source: Estimate provided by the Washington State Department of Corrections.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix B for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

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Hollin, C., McGuire, J., Hounsome, J., Hatcher, R., Bilby, C., & Palmer, E. (2008). Cognitive skills behavior programs for offenders in the community. *Criminal Justice and Behavior, 35*(3), 269-283.

Hubbard, D. J., & Latessa, E. J. (2004, January). *Evaluation of cognitive-behavioral programs for offenders: A look at outcome and responsivity in five treatment programs* (Final report). Cincinnati: University of Cincinnati, Division of Criminal Justice, Center for Criminal Justice Research.

Johnson, G., & Hunter, R. M. (1995). Evaluation of the Specialized Drug Offender Program. In R. R. Ross & R. D. Ross (Eds.), *Thinking straight: The Reasoning and Rehabilitation Program for delinquency prevention and offender rehabilitation* (pp. 214-234). Ottawa, Ontario, Canada: Air Training and Publications.

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Lowenkamp, C. T., Hubbard, D., Makarios, M. D., & Latessa, E. J. (2009). A quasi-experimental evaluation of thinking for a change: A "real-world" application. *Criminal Justice and Behavior, 36*(2), 137-146.

Martin, A. M., Hernandez, B., Hernandez-Fernaud, E., Arregui, J. L., & Hernandez, J. A. (2010). The enhancement effect of social and employment

Studies Used in the Meta-Analysis

integration on the delay of recidivism of released offenders trained with the R & R programme. *Psychology, Crime & Law, 16*(5), 401-413.

Ortmann, R. (2000). The effectiveness of social therapy in prison - a randomized experiment. *Crime & Delinquency, 46*(2), 214-232.

Palmer, E. J., McGuire, J., Hounsome, J. C., Hatcher, R. M., Bilby, C. A. L., & Hollin, C. R. (2007). Offending behaviour programmes in the community: The effects on reconviction of three programmes with adult male offenders. *Legal and Criminological Psychology, 12*(2), 251-264.

Porporino, F. J., & Robinson, D. (1995). An evaluation of the Reasoning and Rehabilitation program with Canadian federal offenders. In R. R. Ross & R. D. Ross (Eds.), *Thinking straight: The Reasoning and Rehabilitation program for delinquency prevention and offender rehabilitation* (pp. 155-191). Ottawa, Ontario, Canada: Air Training and Publications.

Raynor, P., & Vanstone, M. (1996). Reasoning and rehabilitation in Britain: The results of the Straight Thinking on Probation (STOP) programme. *International Journal of Offender Therapy and Comparative Criminology, 40*(4), 272-284.

Robinson, D. (1995, August). *The impact of cognitive skills training on post-release recidivism among Canadian federal offenders* (Research Report No. R-41). Ottawa, Ontario, Canada: Correctional Service Canada, Correctional Research and Development.

Robinson, K., Little, G., & Burnette, K. D. (1993). 5 recidivism results on MRT-treated DWI offenders released. Cognitive Behavioral *Treatment Review, 2*(4), 2.

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Taylor, R. (2000). *A seven-year reconviction study of HMP Grendon therapeutic community* (Research Findings No. 115). London: Home Office.

Van Voorhis, P., Spruance, L. M., Ritchie, P. N, Johnson-Listwan, S., Seabrook, R., & Pealer, J. (2002). *The Georgia Cognitive Skills Experiment outcome evaluation phase II* (Final report). Cincinnati, OH: University of Cincinnati, Center for Criminal Justice Research.

Van Voorhis, P., Spruance, L. M., Ritchey, P. N., Listwan, S. J., & Seabrook, R. (2004). The Georgia Cognitive Skills Experiment: A replication of Reasoning and Rehabilitation. *Criminal Justice and Behavior, 31*(3), 282-305.

Wilkinson, J. (2005). Evaluating evidence for the effectiveness of the Reasoning and Rehabilitation Programme. *The Howard Journal of Criminal Justice, 44*(1), 70-85.

Yessine, A. K., & Kroner, D. G. (2004, April). *Altering antisocial attitudes among federal male offenders on release: A preliminary analysis of the counter-point community program* (Research Report No. R-152). Ottawa, Ontario, Canada: Correctional Service Canada, Correctional Research and Development.

Correctional Education in Prison

Program description:

This broad category of programs are delivered to persons in prison, and typically consist of classes for offenders in Adult Basic Education, General Educational Development preparation, and post-secondary education.

Typical age of primary program participant: 28

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	11	-0.24	0.06	0.00	-0.24	0.06	30	-0.24	0.12	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$0	$4,785	$12,692	$2,446	$19,923	($1,102)	$18.11	n/e	$18,821	100%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$1,102	1	2010	$0	1	2010	$1,102	10%

Source: Estimate provided by the Washington State Department of Corrections.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

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Correctional Industries in Prison

Program description:

Correctional industries are prison jobs where offenders earn a wage for their work. In this broad grouping of programs, industries can include private sector, non-profit, or institutional support jobs.

Typical age of primary program participant: 28

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	9	-0.08	0.03	0.00	-0.08	0.03	30	-0.08	0.05	40

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$0	$1,546	$4,071	$780	$6,398	($1,387)	$4.63	36%	$5,011	100%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$1,387	1	2010	$0	0	2010	$1,387	10%

Source: Estimate provided by the Washington State Department of Corrections.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

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Dangerously Mentally Ill Offenders

Program description:

Washington State's Dangerous Mentally Ill Offender (DMIO) program identifies mentally ill prisoners who pose a threat to public safety and provides them opportunities to receive mental health treatment and other services up to five years after their release from prison. The program is currently called Offender Re-entry Community Safety.

Typical age of primary program participant: 28

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	-0.76	0.15	0.00	-0.76	0.15	30	-0.76	0.29	40

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$0	$24,391	$66,733	$12,472	$103,596	($31,626)	$3.28	19%	$71,969	100%

Detailed Cost Estimates

	Program Costs			Comparison Costs			Summary 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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$31,552	1	2010	$0	1	2010	$31,552	10%

Source: Mayfield, J. (2009, February). *The Dangerous Mentally Ill Offender program: Four-year felony recidivism and cost effectiveness* (Document No. 09-02-1901). Olympia: Washington State Institute for Public Policy.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Mayfield, J. (2009, February). *The Dangerous Mentally Ill Offender Program: Four-year felony recidivism and cost effectiveness* (Document No. 09-02-1901). Olympia: Washington State Institute for Public Policy.

Domestic Violence Perpetrator Treatment Programs

Program description:

Treatment programs for domestic violence offenders most frequently involve an educational component focusing on the historical oppression of women and emphasizing alternatives to violence. Treatment is commonly mandated by the court and paid for by the offender.

Typical age of primary program participant: 32
Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	9	0.06	0.10	0.54	0.06	0.10	33	0.07	0.21	43
Domestic violence	P	8	-0.01	0.13	0.95	-0.01	0.13	33	0.00	0.27	43

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$0	($886)	($2,411)	($428)	($3,724)	($1,335)	($2.91)	n/e	($5,059)	20%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$1,365	1	2011	$0	1	2011	$1,335	50%

Source: This is the middle of the range of costs, based on a survey of seven treatment providers in Olympia, Seattle, Bellingham, Yakima, Spokane, and Moses Lake on 6/16/2011. All offenders are on probation; program costs are in addition to the cost of probation.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.62
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

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Drug Court for Adult Offenders

Program description:

While each drug court is unique, they all share the primary goals of reducing criminal recidivism and substance abuse among participants. Drug courts use comprehensive supervision, drug testing, treatment services, and immediate sanctions and incentives in an attempt to modify the criminal behavior of certain drug-involved defendants.

Typical age of primary program participant: 28

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	67	-0.25	0.03	0.00	-0.25	0.03	30	-0.25	0.06	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$0	$2,644	$7,722	$1,384	$11,750	($4,099)	$2.87	18%	$7,651	100%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$11,227	1	2007	$7,335	1	2007	$4,095	10%

Source: Barnoski, R. & Aos, S. (2003, March). *Washington State's drug courts for adult defendants: Outcome evaluation and cost-benefit analysis* (Document No. 03-03-1201). Olympia: Washington State Institute for Public Policy.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

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Wiest, K. L., Martin, S. J., Waller, M., Cox, A., Linhares, R., Carey, S. M., & Finigan, M. W. (2007, April). Indiana drug courts: Vanderburgh County day reporting drug court: Process, outcome and cost evaluation (Final Report). Portland, OR: NPC Research.

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Drug Offender Sentencing Alternative (for drug offenders)

Program description:

Washington State's Drug Offender Sentencing Alternative (DOSA) allows certain offenders to receive reduced prison terms in exchange for completing chemical dependency treatment while incarcerated. Findings indicate DOSA is effective and significantly lowers recidivism rates for drug offenders, but has no statistically significant effect on recidivism rates of property offenders.

Typical age of primary program participant: 30

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	-0.27	0.11	0.02	-0.27	0.11	30	-0.27	0.22	40

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$0	$6,680	$17,984	$3,349	$28,013	($1,511)	$18.57	n/e	$26,502	99%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$1,319	1	2004	$0	1	2004	$1,509	10%

Source: Aos, S., Phipps, P., Barnoski, R. (2004). Washington's Drug Offender Sentencing Alternative: An evaluation of benefits and costs (Document No. 05-01-1901). Olympia: Washington State Institute for Public Policy.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Drake, E. K. (2006, December). *Washington's drug offender sentencing alternative: An update on recidivism findings* (Document No. 06-12-1901). Olympia: Washington State Institute for Public Policy.

Drug Offender Sentencing Alternative (for property offenders)

Program description:

Washington State's Drug Offender Sentencing Alternative (DOSA) allows certain offenders to receive reduced prison terms in exchange for completing chemical dependency treatment while incarcerated. Findings indicate DOSA is effective and significantly lowers recidivism rates for drug offenders, but has no statistically significant effect on recidivism rates of property offenders.

Typical age of primary program participant: 30

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	-0.15	0.23	0.50	-0.15	0.23	32	-0.15	0.45	42

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$0	$3,410	$9,188	$1,725	$14,324	($1,513)	$9.47	n/e	$12,811	76%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$1,319	1	2004	$0	1	2004	$1,509	10%

Source: Aos, S., Phipps, P., Barnoski, R. (2004). *Washington's Drug Offender Sentencing Alternative: An evaluation of benefits and costs* (Document No. 05-01-1901). Olympia: Washington State Institute for Public Policy.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Drake, E. K. (2006, December). *Washington's drug offender sentencing alternative: An update on recidivism findings* (Document No. 06-12-1901). Olympia: Washington State Institute for Public Policy.

Drug Treatment in the Community

Program description:

This broad grouping of programs includes outpatient and long-term residential programs in the community for offenders who are diagnosed as chemically dependent. These meta-analytic results were lasted updated in 2006.

Typical age of primary program participant: 28

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Second-ary Partici-pant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	6	-0.24	0.06	0.00	-0.24	0.06	30	-0.24	0.13	40

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Partici-pants	Tax-payers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Invest-ment	Benefits Minus Costs	Measure of Risk
	$0	$3,671	$9,958	$1,791	$15,419	($2,102)	$7.35	n/e	$13,317	100%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$2,102	1	2010	$0	0	2007	$2,102	10%

Source: Estimate provided by the Washington State Department of Corrections.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Aos, S., Phipps, P., & Barnoski, R. (2005, January). *Washington's drug offender sentencing alternative: An evaluation of benefits and costs* (Document No. 05-01-1901). Olympia: Washington State Institute for Public Policy.

Baird, C., Wagner, D., Decomo, B., & Aleman, T. (1994). *Evaluation of the effectiveness of supervision and community rehabilitation programs in Oregon*. San Francisco: National Council on Crime and Delinquency.

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Lattimore, P. K., Krebs, C. P., Koetse, W., Lindquist, C., & Cowell, A. J. (2004). Predicting the effect of substance abuse treatment on probationer recidivism. *Journal of Experimental Criminology, 1*(2), 159-189.

Drug Treatment in Prison

Program description:

This broad grouping of programs includes therapeutic communities and cognitive behavioral treatment for offenders who are diagnosed as chemically dependent. Therapeutic communities typically last 6 to 12 months in a structured, residential setting. These meta-analytic results were last updated in 2006.

Typical age of primary program participant: 28

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	21	-0.17	0.02	0.46	-0.17	0.02	30	-0.17	0.05	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$0	$3,467	$9,151	$1,732	$14,351	($3,894)	$3.69	25%	$10,456	100%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$3,893	1	2010	$0	1	2007	$3,893	10%

Source: Estimate provided by the Washington State Department of Corrections.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Aos, S., Phipps, P., & Barnoski, R. (2005, January). *Washington's drug offender sentencing alternative: An evaluation of benefits and costs* (Document No. 05-01-1901). Olympia: Washington State Institute for Public Policy.

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Welsh, W. N. (2003, May). *Evaluation of prison-based therapeutic community drug treatment programs in Pennsylvania*. Harrisburg: Pennsylvania Commission on Crime and Delinquency.

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Electronic Monitoring

Program description:

A computer-based tracking device electronically monitors the location of an offender. Electronic monitoring devices are either radio frequency or Global Positioning System (GPS) units. Offenders are generally required to remain at home except for approved activities such as work, school, or treatment. Electronic monitoring is used for probationers, parolees, or pre-trial defendants and can be used in lieu of, or in addition to, confinement. The use of electronic monitoring varies from lower to higher risk offenders.

Typical age of primary program participant: 30
Typical age of secondary program participant:
N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	16	-0.27	0.08	0.00	-0.26	0.08	32	-0.26	0.15	42

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$0	$4,068	$10,937	$2,062	$17,068	$1,044	$12.43	n/e	$18,112	100%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$377	1	2009	$1,405	1	2009	($1,045)	10%

Source: Electronic monitoring costs per day were provided by the Department of Corrections. The Washington State Institute for Public Policy calculated the total cost per participant assuming 30 days on electronic monitoring in lieu of 30 days in confinement (average daily cost for jail and prison).

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Baird, C., Wagner, D., Decomo, B., & Aleman, T. (1994). *Evaluation of the effectiveness of supervision and community rehabilitation programs in Oregon*. San Francisco: National Council on Crime and Delinquency.

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Employment Training/Job Assistance in the Community

Program description:

Employment and job training programs teach job preparedness and skills that are necessary for the workplace, such as effective job searches, applications, and resumes. Some programs may specifically address barriers to employment for convicted offenders. These meta-analytic results were last updated in 2006.

Typical age of primary program participant: 28

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	16	-0.07	0.03	0.02	-0.07	0.03	30	-0.07	0.06	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$0	$1,104	$2,959	$578	$4,641	($132)	$35.13	n/e	$4,509	100%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$132	1	2010	$0	0	2007	$132	10%

Source: Estimate provided by the Washington State Department of Corrections.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

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Uggen, C. (2000). Work as a turning point in the life course of criminals: A duration model of age, employment, and recidivism. *American Sociological Review, 65*(4), 529–546.

Intensive Supervision: Surveillance Only

Program description:

In this broad grouping of programs, intensive supervision probation/parole (ISP) emphasizes a higher degree of surveillance than traditional supervision in the community. The average number of face-to-face monthly contacts for studies included in our meta-analysis was 12. ISP could be delivered in lieu of incarceration, as a conditional release from incarceration in the form of parole, or as a probation sentence. Conditions of supervision vary across the studies, but some characteristics include urinalysis testing, increased face-to-face or collateral contacts, or required participation in treatment.

Typical age of primary program participant: 28
Typical age of secondary program participant:
N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Second-ary Partici-pant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	14	0.01	0.06	0.82	0.02	0.06	30	0.02	0.13	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Partici-pants	Tax-payers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Invest-ment	Benefits Minus Costs	Measure of Risk
	$0	($132)	($368)	($56)	($556)	($4,050)	($0.14)	n/e	($4,606)	10%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$3,747	1	2006	$0	1	2010	$4,053	10%

Source: Estimate provided by the Washington State Department of Corrections.

Additional Notes

We investigated additional policy questions regarding surveillance and treatment using multivariate regression analysis for the 31 effect sizes. Results indicate that contacts alone do not impact the effectiveness of ISP. We tested for the possibility of an “interaction”, which is the simultaneous effect of two variables—monthly contacts and treatment. The interaction term indicates that more contacts, coupled with treatment, result in a bigger reduction in crime. The two variables (treatment and treatment with contacts) were jointly significant (p=.014).

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Bagdon, W. & Ryan, J. E. (1993). Intensive supervision of offenders on prerelease furlough: An evaluation of the Vermont experience. *FORUM on Corrections Research, 5*(2). Retrieved June 23, 2011 from http://www.csc-scc.gc.ca/text/pblct/forum/e052/052j_e.pdf

Brown, K. L. (2007). Effects of supervision philosophy on intensive probationers. *Justice Policy Journal, 4*(1). Retrieved June 23, 2011 from http://www.cjcj.org/files/effects_of_0.pdf

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Petersilia, J., & Turner, S. (1990, December). *Intensive supervision for high-risk probationers: Findings from three California experiments*. Santa Monica, CA: RAND.

Petersilia, J., Turner, S., & Deschenes, E. P. (1992). Intensive supervision programs for drug offenders. In J. M. Byrne, A. J. Lurigio, & J. Petersilia (Eds.), *Smart sentencing: The emergence of intermediate sanctions* (pp. 18-37). Newbury Park, CA: Sage.

Smith, L. G., & Akers, R. L. (1993). A comparison of recidivism of Florida's community control and prison: A five-year survival analysis. *Journal of Research in Crime & Delinquency, 30*(3), 267-292.

Turner, S., & Petersilia, J. (1992). Focusing on high-risk parolees: An experiment to reduce commitments to the Texas Department of Corrections. *Journal of Research on Crime & Delinquency, 29*(1), 34-61.

Intensive Supervision: WithTreatment

Program description:

In this broad grouping of programs, intensive supervision probation/parole (ISP) emphasizes a higher degree of surveillance than traditional supervision in the community. The average number of face-to-face monthly contacts for studies included in our meta-analysis was 12. ISP could be delivered in lieu of incarceration, as a conditional release from incarceration in the form of parole, or as a probation sentence. Conditions of supervision vary across the studies, but some characteristics include urinalysis testing, increased face-to-face or collateral contacts, or required participation in treatment.

Typical age of primary program participant: 28

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	17	-0.21	0.07	0.00	-0.21	0.07	30	-0.21	0.14	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$0	$4,216	$11,194	$2,111	$17,521	($7,712)	$2.28	11%	$9,809	96%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$7,124	1	2006	$0	1	2009	$7,707	10%

Source: Estimate provided by the Washington State Department of Corrections.

Additional Notes

We investigated additional policy questions regarding surveillance and treatment using multivariate regression analysis for the 31 effect sizes. Results indicate that contacts alone do not impact the effectiveness of ISP. We tested for the possibility of an “interaction”, which is the simultaneous effect of two variables—monthly contacts and treatment. The interaction term indicates that more contacts, coupled with treatment, result in a bigger reduction in crime. The two variables (treatment and treatment with contacts) were jointly significant (p=.014).

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Bonta, J., Wallace-Capretta, S., & Rooney, J. (2000). A quasi-experimental evaluation of an intensive rehabilitation supervision program. *Criminal Justice and Behavior, 27*(3), 312-329.

Deschenes, E. P., Turner, S., & Petersilia, J. (1995, May). *Intensive community supervision in Minnesota: A dual experiment in prison diversion and enhanced supervised release*. Santa Monica, CA: RAND.

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Fulton, B., Stichman, A., Latessa, E., & Travis, L. (1998, October). *Evaluating the prototypical ISP: Iowa Correctional Services Second Judicial District* (Final Report). Cincinnati, OH: University of Cincinnati, Division of Criminal Justice.

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Lichtman, C. M., & Smock, S. M. (1981). The effects of social services on probationer recidivism: A field experiment. *Journal of Research in Crime & Deliquency, 18*(1), 81-100.

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Petersilia, J., & Turner, S. (1990, December). *Intensive supervision for high-risk probationers: Findings from three California experiments*. Santa Monica, CA: RAND.

Petersilia, J., Turner, S., & Deschenes, E. P. (1992). Intensive supervision programs for drug offenders. In J. M. Byrne, A. J. Lurigio, & J. Petersilia (Eds.), *Smart sentencing: The emergence of intermediate sanctions* (pp. 18-37). Newbury Park, CA: Sage.

Stichman, A., Fulton, B., Latessa, E., & Travis, L. (1998, December). *Evaluating the prototypical ISP: Hartford Intensive Supervision Unit Connecticut Office of Adult Probation Administrative Office of the Courts* (Final Report). Cincinnati, OH: University of Cincinnati, Division of Criminal Justice.

Mental Health Courts

Program description:

Mental health courts divert offenders with mental health issues from incarceration to community-based treatment. These courts utilize mental health assessments, individualized treatment plans, and judicial monitoring to address the mental health needs of offenders and public safety concerns.

Typical age of primary program participant: 28
Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	6	-0.22	0.07	0.00	-0.22	0.07	30	-0.22	0.14	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$0	$3,424	$9,125	$1,681	$14,230	($2,878)	$4.95	44%	$11,352	100%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$2,656	1	2006	$0	1	2006	$2,873	10%

Source: Ridgely, M. S., Engberg, J., Greenberg, M. D., Turner, S., DeMartini, C., & Dembosky, J. W. (2007). *Justice, treatment, and cost: An evaluation of the fiscal impact of Allegheny County Mental Health Court*. Santa Monica, CA: RAND.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Christy, A., Poythress, N. G., Boothroyd, R. A., Petrila, J., & Mehra, S. (2005), Evaluating the efficiency and community safety goals of the Broward County Mental Health Court. *Behavioral Sciences & the Law, 23*(2), 227-243.

Cosden, M., Ellens, J., Schnell, J. & Yamini-Diouf, J. (2004, July). *Evaluation of the Santa Barbara County Mental Health Treatment Court with intensive case management*. Santa Barbara: University of California, Santa Barbara; Gervitz Graduate School of Education.

Dirks-Linhorst, P. A., & Linhorst, D. M. (2010). Recidivism outcomes for suburban mental health court defendants. *American Journal of Criminal Justice*. Advance online publication. DOI 10.1007/s12103-010-9092-0

McNiel, D. E., & Binder, R. L. (2007). Effectiveness of a mental health court in reducing criminal recidivism and violence. *American Journal of Psychiatry, 164*(9), 1395-1403.

Moore, M. E., & Hiday, V. A. (2006). Mental health court outcomes: A comparison of re-arrest and re-arrest severity between mental health court and traditional court participants. *Law and Human Behavior, 30*(6), 659-674.

Steadman, H. J., Redlich, A., Callahan, L., Robbins, P. C., & Vesselinov, R. (2011). Effect of mental health courts on arrests and jail days: A multisite study. *Archives of General Psychiatry, 68*(2), 167-172.

Vocational Education in Prison

Program description:

Vocational education programs delivered in prison involve instruction for a specific trade, occupation, or vocation such as welding, auto repair, building maintenance, and graphic arts. The primary goal of vocational education is to help offenders develop marketable job skills upon release to the community. Certificates or college credit can be earned for some vocational programs.

Typical age of primary program participant: 28

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	3	-0.26	0.04	0.00	-0.23	0.04	30	-0.23	0.08	40

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$0	$4,634	$12,163	$2,286	$19,083	($1,537)	$12.43	n/e	$17,547	100%

Detailed Cost Estimates

	Program Costs			Comparison Costs			Summary 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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$1,536	1	2010	$0	1	2010	$1,536	10%

Source: Estimate provided by the Washington State Department of Corrections.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Callan, V., & Gardner, J. (2005, July). *Vocational education and training provision and recidivism in Queensland correctional institutions*. Queensland, Australia: National Center for Vocational Education Research.

Lattimore, P. K., Witte, A. D., & Baker, J. R. (1990). Experimental assessment of the effect of vocational training on youthful property offenders. *Evaluation Review, 14*(2), 115-133.

Saylor, W. G., Gaes, G. G. (1996, September). *PREP: Training inmates through industrial work participation, and vocational and apprenticeship instruction*. Washington, DC: United States Federal Bureau of Prisons.

Work Release

Program description:

Work release programs are a form of partial confinement that enables certain offenders to serve all or a portion of their prison/jail sentence in a residential facility while employed in the community.

Typical age of primary program participant: 28

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	7	-0.08	0.04	0.03	-0.08	0.04	30	-0.08	0.08	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$0	$1,552	$4,127	$787	$6,466	($649)	$9.97	n/e	$5,817	97%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$43,071	1	2007	$42,456	1	2007	$647	10%

Source: Drake, E. (2007, November). Does participation in Washington's work release facilities reduce recidivism? (Document No. 07-11-1201). Olympia: Washington State Institute for Public Policy.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.36
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.8

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 96 effect sizes from evaluations of adult and juvenile justice programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor greater than 1 and research design 4 should have a discount factor of approximately 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation. Similar findings, although not statistically significant, indicated that studies using weak outcome measures (such as technical violations) were higher.

Studies Used in the Meta-Analysis

Berk, J. (2008, May). *Does work release work?* Unpublished manuscript, Brown University, Providence, RI. Retrieved June 28, 2011 from http://client.norc.org/jole/soleweb/8318.pdf

Drake, E. (2007, November). *Does participation in Washington's work release facilities reduce recidivism?* (Document No. 07-11-1201). Olympia: Washington State Institute for Public Policy.

Jeffrey, R., & Woolpert, S. (1974). Work furlough as an alternative to incarceration. *The Journal of Criminal Law & Criminology, 65*(3), 405-415.

LeClair, D., & Guarino-Ghezzi, S. (1991). Does incapacitation guarantee public safety? Lessons from the Massachusetts furlough and prerelease programs. *Justice Quarterly, 8*(1), 9-36.

Turner, S., & Petersilia, J. (1996). Work release in Washington: Effects on recidivism and corrections costs. *Prison Journal, 76*(2), 138-164.

Waldo, G. P., & Chiricos, T. G. (1977). Work release and recidivism: An empirical evaluation of a social policy. *Evaluation Quarterly, 1*(1), 87-108.

Family Team Decision-Making

Program description:

Family Team Decision-Making, used in Washington State's child welfare system, involves meetings with parents and other family members, the child (when appropriate), friends, foster parents, caseworkers, and other professionals to make decisions involving child removal, change of placement, and reunification or other permanency plans.

Typical age of primary program participant: 8

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Out-of-home placement	P	1	-0.005	.02	.75	-0.004	.02	9	-0.004	.02	9

Benefits and costs were not estimated for Family Team Decision-Making.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.81
4- Random assignment, with some RA implementation issues.	0.81
5- Well-done random assignment study.	1.00
Program developer = researcher	0.25
Unusual (not "real world") setting	0.5
Weak measurement used	0.54

The discount factors for these studies are based on a multivariate regression analysis of 106 effect sizes from evaluations of home visiting programs within child welfare or at-risk populations. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1 and 2 have effect sizes about twice the size of studies rated as a 5, and research designs 3 and 4 have effect sizes about 24 percent higher than a 5.

The analysis also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation, or when a weak outcome measure was used.

Studies Used in the Meta-Analysis

Miller, M. (2011, March). *Family Team Decision-making: Does it reduce racial disproportionality in Washington's child welfare system?* (Document No. 11-03-3901). Olympia: Washington State Institute for Public Policy.

Healthy Families America

Program description:

Healthy Families America (http://www.healthyfamiliesamerica.org) is a network of programs that grew out of the Hawaii Healthy Start program. At-risk mothers are identified and enrolled either during pregnancy or shortly after the birth of a child. The intervention involves home visits by trained paraprofessionals who provide information on parenting and child development, parenting classes, and case management.

Typical age of primary program participant: 23

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Second-ary Partici-pant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Alcohol abuse or dependence	P	1	-0.15	0.17	0.37	-0.15	0.17	25	-0.15	0.34	35
Public assistance	P	2	-0.03	0.08	0.70	-0.03	0.08	25	-0.03	0.16	35
Major depressive disorder	P	3	-0.03	0.02	0.25	-0.03	0.02	25	-0.01	0.05	30
Test scores	S	3	0.10	0.08	0.23	0.06	0.08	5	0.03	0.08	17
Child abuse and neglect	S	7	-0.13	0.13	0.31	-0.08	0.13	2	-0.08	0.27	12
K-12 grade repetition	S	1	-0.02	0.12	0.90	-0.02	0.12	7	-0.02	0.25	17
K-12 special education	S	1	-0.22	0.12	0.06	-0.22	0.12	7	-0.22	0.23	17
Disruptive behavior disorder symptoms	S	2	-0.19	0.12	0.11	-0.19	0.12	5	-0.10	0.24	10
Internalizing symptoms	S	1	-0.13	0.05	0.01	-0.13	0.05	5	-0.07	0.01	10

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.	Program Benefits					Costs	Summary Statistics			
	Partici-pants	Tax-payers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Invest-ment	Benefits Minus Costs	Measure of Risk
	$5,622	$4,330	$1,582	$2,255	$13,790	($4,508)	$3.07	7%	$9,282	98%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$3,348	1	2004	$0	1	2004	$4,506	10%

Source: Average annual cost per family from HFA survey of sites, FY2004 (available from: http://www.healthyfamiliesamerica.org/network_resources/hfa_state_of_state_systems.pdf). Average length of service provided by Prevent Child Abuse America, conversation in September, 2004.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.81
4- Random assignment, with some RA implementation issues.	0.81
5- Well-done random assignment study.	1.00
Program developer = researcher	0.25
Unusual (not “real world”) setting	0.5
Weak measurement used	0.54

The discount factors for these studies are based on a multivariate regression analysis of 106 effect sizes from evaluations of home visiting programs within child welfare or at-risk populations. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1 and 2 have effect sizes about twice the size of studies rated as a 5, and research designs 3 and 4 have effect sizes about 24 percent higher than a 5.

The analysis also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation, or when a weak outcome measure was used.

Studies Used in the Meta-Analysis

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Caldera, D., Burrell, L., Rodriguez, K., Crowne, S. S., Rohde, C., & Duggan, A. (2007). Impact of a statewide home visiting program on parenting and on child health and development. *Child Abuse & Neglect, 31*(8), 829-852.

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Earle, R. B. (1995). *Helping to prevent child abuse and future criminal consequences: Hawai'i Healthy Start*. Washington, DC: National Institute of Justice. (ERIC Document Reproduction Service No. ED 394651).

Galano, J., & Huntington, L. (1999). *Year VI evaluation of the Hampton, Virginia Healthy Families Partnership: 1992-1998*. Hampton, VA: Virginia Healthy Families Partnership.

Landsverk, J., Carrilio, T., Connelly, C. D., Ganger, W. C., Slymen, D. J., Newton, R. R., . . . Jones, C. (2002). *Healthy Families San Diego clinical trial: Technical report*. San Diego, CA: The Stuart Foundation.

Intensive Family Preservation Services (Homebuilders®)

Program description:

Intensive Family Preservation Services are short-term, home-based crisis intervention services that emphasize placement prevention. The original program, Homebuilders®, was developed in 1974 in Federal Way, Washington. The program emphasizes contact with the family within 24 hours of the crisis, staff accessibility round the clock, small caseload sizes, service duration of four to six weeks, and provision of intensive, concrete services and counseling. These programs are intended to prevent removal of a child from his or her biological home (or to promote his or her return to that home) by improving family functioning. For this analysis, we have presented the effects of all such programs together.

Typical age of primary program participant: 10

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Child abuse and neglect	P	2	-0.23	0.11	0.04	-0.19	0.11	11	-0.19	0.23	17
Out-of-home placement	P	4	-0.55	0.15	0.00	-0.44	0.15	11	-0.44	0.30	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$1,498	$5,889	$674	$2,935	$10,995	($3,224)	$3.41	4%	$7,771	99%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$3,547	1	2008	$392	1	2008	$3,213	10%

Source: Program costs per family provided by DSHS Children's Administration, 2008. The Institute adjusted for multiple children per family. Comparison group costs calculated based on social worker time.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.81
4- Random assignment, with some RA implementation issues.	0.81
5- Well-done random assignment study.	1.00
Program developer = researcher	0.25
Unusual (not “real world”) setting	0.5
Weak measurement used	0.54

The discount factors for these studies are based on a multivariate regression analysis of 106 effect sizes from evaluations of home visiting programs within child welfare or at-risk populations. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1 and 2 have effect sizes about twice the size of studies rated as a 5, and research designs 3 and 4 have effect sizes about 24 percent higher than a 5.

The analysis also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation, or when a weak outcome measure was used.

Studies Used in the Meta-Analysis

Blythe, B., & Jayaratne, S. (2002, March). *Michigan families first effectiveness study*. Retrieved December 5, 2003, from http://www.michigan.gov/printerFriendly/0,1687,7-124--21887--,00.html

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Nurse Family Partnership for Low-Income Families

Program description:

The Nurse Family Partnership program provides intensive visitation by nurses during a woman's pregnancy and the first two years after birth; the program was developed by Dr. David Olds. The goal is to promote the child's development and provide support and instructive parenting skills to the parents. The program is designed to serve low-income, at-risk pregnant women bearing their first child.

Typical age of primary program participant: 1

Typical age of secondary program participant: 17

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	-0.70	0.21	0.00	-0.17	0.21	15	-0.16	0.23	19
High school graduation	P	1	0.04	0.16	0.81	0.01	0.16	19	0.01	0.16	19
Test scores	P	2	0.13	0.07	0.04	0.13	0.07	5	0.08	0.13	17
Child abuse and neglect	P	1	-0.88	0.22	0.00	-0.22	0.22	15	-0.22	0.43	17
K-12 grade repetition	P	1	0.14	0.12	0.26	0.14	0.12	12	0.14	0.25	17
K-12 special education	P	1	0.29	0.16	0.07	0.29	0.16	12	0.29	0.32	17
Disruptive behavior disorder symptoms	P	1	-0.22	0.09	0.01	-0.22	0.09	12	-0.11	0.17	17
Crime	S	2	-0.26	0.37	0.48	-0.05	0.37	31	-0.05	0.74	35
High school graduation	S	2	0.10	0.09	0.27	0.10	0.09	23	0.10	0.09	23
Public assistance	S	3	-0.17	0.12	0.16	-0.09	0.12	28	-0.09	0.23	38
Substance abuse	S	3	-0.27	0.31	0.38	-0.07	0.31	28	-0.07	0.62	38
Employment	S	3	0.12	0.09	0.18	0.09	0.09	26	0.09	0.18	36

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$14,131	$8,527	$3,321	$4,347	$30,325	($9,421)	$3.23	7%	$20,905	89%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$5,383	2	2007	$0	1	2007	$9,405	10%

Source: Average annual expenditures per family and average length of service provided by Kristen Rogers at Nurse Family Partnership, Northwest Regional Office July, 08.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.81
4- Random assignment, with some RA implementation issues.	0.81
5- Well-done random assignment study.	1.00
Program developer = researcher	0.25
Unusual (not “real world”) setting	0.5
Weak measurement used	0.54

The discount factors for these studies are based on a multivariate regression analysis of 106 effect sizes from evaluations of home visiting programs within child welfare or at-risk populations. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1 and 2 have effect sizes about twice the size of studies rated as a 5, and research designs 3 and 4 have effect sizes about 24 percent higher than a 5.

The analysis also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation, or when a weak outcome measure was used.

Studies Used in the Meta-Analysis

Eckenrode, J., Henderson, C. R., Jr., Powers, J., Campa, M., Lucky, D. W., Olds, D., . . . Sidora-Arcoleo, K. (2010). Long-term effects of prenatal and infancy nurse home visitation on the life course of youths: 19-year follow-up of a randomized trial. *Archives of Pediatrics and Adolescent Medicine, 164*(1), 9-15.

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Other Family Preservation Services (non-Homebuilders®)

Program description:

"Other" Family Preservation Services Programs have the same goals as "intensive" family preservation services: 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. However, "other" FPS programs lack the rigorous criteria for implementation as defined by the Homebuilders® model.

Typical age of primary program participant: 10

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Child abuse and neglect	P	7	0.09	0.05	0.11	0.07	0.05	11	0.07	0.11	17
Out-of-home placement	P	11	0.00	0.08	0.99	0.03	0.08	11	0.03	0.16	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$114	($52)	($105)	($26)	($70)	($2,982)	($0.02)	n/e	($3,052)	0%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$2,846	1	2003	$314	1	2003	$2,974	10%

Source: Program costs per family provided by DSHS Children's Administration, 2008. The Institute adjusted for multiple children per family. Comparison group costs calculated based on social worker time.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.81
4- Random assignment, with some RA implementation issues.	0.81
5- Well-done random assignment study.	1.00
Program developer = researcher	0.25
Unusual (not “real world”) setting	0.5
Weak measurement used	0.54

The discount factors for these studies are based on a multivariate regression analysis of 106 effect sizes from evaluations of home visiting programs within child welfare or at-risk populations. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1 and 2 have effect sizes about twice the size of studies rated as a 5, and research designs 3 and 4 have effect sizes about 24 percent higher than a 5.

The analysis also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation, or when a weak outcome measure was used.

Studies Used in the Meta-Analysis

Halper, G., & Jones, M. A. (1981). *Serving families at risk of dissolution: Public preventive services in New York City*. New York: Human Resources Administration, Special Services for Children.

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Lewandowski, C. A., & Pierce, L. (2002). Assessing the effect of family-centered out-of-home care on reunification outcomes. *Research on Social Work Practice, 12*(2), 205-221.

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Schuerman, J. R., Rzepnicki, T. L., & Littell, J. H. (1994). *Putting families first: An experiment in family preservation*. New York: Aldine de Gruyter.

Szykula, S. A., & Fleischman, M. J. (1985). Reducing out-of-home placements of abuse children: Two controlled field studies. *Child Abuse & Neglect, 9*(2), 277-283.

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Other Home Visiting Programs for At-Risk Familes

Program description:

This broad grouping of programs focuses on mothers considered to be at risk for parenting problems, based on factors such as maternal age, marital status and education, low household income, lack of social supports, or in some programs, mothers testing positive for drugs at the child's birth. Depending on the program, the content of the home visits consists of instruction in child development and health, referrals for service, or social and emotional support. Some programs provide additional services, such as preschool. This group of programs also includes a subset that is specifically targeted toward preventing repeat pregnancy and birth in the adolescent years.

Typical age of primary program participant: 19

Typical age of secondary program participant: 1

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Major depressive disorder	P	4	-0.08	0.09	0.00	-0.07	0.09	24	-0.03	0.18	29
Repeat teen pregnancy	P	6	-0.11	0.12	0.38	-0.04	0.12	19	-0.04	0.12	19
Repeat teen birth	P	6	-0.32	0.11	0.00	-0.19	0.11	19	-0.19	0.11	19
Test scores	S	6	0.30	0.13	0.02	0.08	0.13	2	0.04	0.25	17
Child abuse and neglect	S	11	-0.41	0.21	0.05	-0.22	0.21	10	-0.22	0.42	17
Out-of-home placement	S	6	-0.11	0.23	0.64	-0.10	0.23	8	-0.10	0.45	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$8,717	$3,668	$660	$1,851	$14,896	($5,453)	$2.73	5%	$9,444	84%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$5,368	1	2008	$0	1	2008	$5,466	10%

Source: Institute analysis, based on costs published in Black, M.M., H. Dubowitz, J. Hutcheson, J. Berenson-Howard, and R.H. Starr Jr. (1995) "A randomized clinical trial of home intervention for children with failure to thrive." Pediatrics 95(6): 807-814; Dawson, P., Van Doorninck, W.J., Robinson, J.L. (1989) Effects of home-based, informal social support on child health. Developmental and Behavioral Pediatrics 10(2):63-67; Ernst, C.C., T.M. Grant, A.P. Streissguth, and P.D alcohol and drug-abusing mothers: II. Three-year findings from the. Sampson. (1999) "Intervention with high risk Seattle model of paraprofessional advocacy." Journal of Community Psychology 27(1): 19-38; and Hardy, J.B. and Streett, R. (1989) "Family support and parenting education in the home: An effective extension of clinic-based preventive health care services for poor children." Journal of Pediatrics 115: 927-931.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.81
4- Random assignment, with some RA implementation issues.	0.81
5- Well-done random assignment study.	1.00
Program developer = researcher	0.25
Unusual (not “real world”) setting	0.5
Weak measurement used	0.54

The discount factors for these studies are based on a multivariate regression analysis of 106 effect sizes from evaluations of home visiting programs within child welfare or at-risk populations. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1 and 2 have effect sizes about twice the size of studies rated as a 5, and research designs 3 and 4 have effect sizes about 24 percent higher than a 5.

The analysis also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation, or when a weak outcome measure was used.

Studies Used in the Meta-Analysis

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Quinlivan, J. A., Box, H., & Evans, S. F. (2003). Postnatal home visits in teenage mothers: A randomised controlled trial. *Lancet, 361*(9361), 893-900.

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Velasquez, J., Christensen, L., & Schommer, B. L. (1984). Part II: Intensive services help prevent child abuse. *American Journal of Maternity and Child Nursing, 9*(2), 113-117.

Parent-Child Home Program

Program description:

The Parent-Child Home Program (http://www.parent-child.org/) is targeted at two- and three- year olds whose parents have a limited education or who have other obstacles to educational success. The program involves twice weekly, half-hour visits from trained paraprofessionals over a period of two years. Each week, the visitor brings a new toy or book which she uses to demonstrate verbal interaction techniques and encourage learning through play.

Typical age of primary program participant: 2

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores	P	4	0.21	0.16	0.19	0.08	0.16	4	0.04	0.32	17
K-12 grade repetition	P	1	-0.29	0.35	0.42	-0.06	0.35	8	-0.06	0.71	17
K-12 special education	P	1	-0.63	0.27	0.02	-0.13	0.27	8	0.02	0.54	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$3,095	$1,137	$0	$623	$4,855	($5,386)	$0.88	n/e	($531)	48%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$2,800	2	2011	$0	1	2011	$5,384	10%

Source: Average annual cost per family provided by The Parent-Child Home Program's National Center, June, 2011.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.81
4- Random assignment, with some RA implementation issues.	0.81
5- Well-done random assignment study.	1.00
Program developer = researcher	0.25
Unusual (not “real world”) setting	0.5
Weak measurement used	0.54

The discount factors for these studies are based on a multivariate regression analysis of 106 effect sizes from evaluations of home visiting programs within child welfare or at-risk populations. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1 and 2 have effect sizes about twice the size of studies rated as a 5, and research designs 3 and 4 have effect sizes about 24 percent higher than a 5.

The analysis also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation, or when a weak outcome measure was used.

Studies Used in the Meta-Analysis

Levenstein, P., O'Hara, J., & Madden, J. (1983). The Mother-Child Home Program of the Verbal Interaction Project. In The Consortium for Longitudinal Studies (Contributors), *As the twig is bent . . .: Lasting effects of preschool programs* (pp. 237-263). Hillsdale, NJ: Lawrence Erlbaum Associates.

Levenstein, P., Levenstein, S., Shiminski, J. A., & Stolzberg, J. E. (1998). Long-term impact of a verbal interaction program for at-risk toddlers: An exploratory study of high school outcomes in a replication of the Mother-Child Home Program. *Journal of Applied Developmental Psychology, 19*(2), 267-285.

Madden, J., O'Hara, J., & Levenstein, P. (1984). Home again: Effects of the Mother-Child Home Program on mother and child. *Child Development, 55*(2), 636-647.

Scarr, S., & McCartney, K. (1988). Far from home: An experimental evaluation of the mother-child home program in Bermuda. *Child Development, 59*(3), 531-543.

Parent Child Interaction Therapy for Families in the Child Welfare System

Program description:

PCIT in child welfare populations has been successfully tested with addition of a group motivational component to increase engagement and success of the parent. As in standard PCIT, a therapist directly observes a parent and child through a one-way mirror, and provides direct coaching to the parent through a radio earphone. The focus is building the skills of the parent to more positively interact with the child and manage his or her behavior.

Typical age of primary program participant: 8

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Child abuse and neglect	P	2	-0.71	0.20	0.00	-0.47	0.20	10	-0.47	0.39	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$5,647	$1,892	$1,005	$955	$9,498	($1,516)	$6.27	15%	$7,982	100%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$2,440	1	2007	$1,000	1	2007	$1,515	10%

Source: Standard PCIT expenditures provided by Children's Administration (average reimbursement rate for families receiving PCIT in Washington in 2007). Institute estimate of additional motivational component costs calculated on extra therapist time required.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.81
4- Random assignment, with some implementation issues.	0.81
5- Well-done random assignment study.	1.00
Program developer = researcher	0.25
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.54

The discount factors for these studies are based on a multivariate regression analysis of 106 effect sizes from evaluations of home visiting programs within child welfare or at-risk populations. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1 and 2 have effect sizes about twice the size of studies rated as a 5, and research designs 3 and 4 have effect sizes about 24 percent higher than a 5.

The analysis also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation, or when a weak outcome measure was used.

Studies Used in the Meta-Analysis

Chaffin, M., Funderburk, B., Bard, D., Valle, L.A., & Gurwitch, R. (2010). A combined motivation and parent-child interaction therapy package reduces child welfare recidivism in a randomized dismantling field trial. Journal of Consulting and Clinical Psychology. DOI: 10.1037/a0021227.

Chaffin, M., Silovsky, J. F., Funderburk, B., Valle, L. A., Brestan, E. V., Balachova, T., . . . Bonner, B. L. (2004). Parent-child interaction therapy with physically abusive parents: Efficacy for reducing future abuse reports. *Journal of Consulting and Clinical Psychology, 72*(3), 500-510.

Parents as Teachers

Program description:

Parents as Teachers (http://www.parentsasteachers.org/) is is a home visiting program for parents and children with a main goal of having children ready to learn by the time they go to school. Parents are visited monthly by parent educators with some college education. Visits typically begin during the mother's pregnancy and may continue until the child enters kindergarten.

Typical age of primary program participant: 20

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
High school graduation	P	1	-0.02	0.19	0.93	-0.02	0.19	22	-0.02	0.19	22
Repeat teen birth	P	1	0.09	0.22	0.68	0.09	0.22	22	0.09	0.22	22
Test scores	S	5	0.11	0.08	0.15	0.07	0.08	4	0.03	0.08	17
Child abuse and neglect	S	1	-0.38	0.54	0.48	-0.38	0.54	3	-0.38	1.07	13

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$4,768	$1,616	$35	$816	$7,236	($4,138)	$1.75	5%	$3,099	74%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$1,450	3	2003	$0	3	2003	$4,150	10%

Source: Average annual cost provided by Parents as Teachers National Center in 2003. Average length of program estimated by the Institute.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.81
4- Random assignment, with some RA implementation issues.	0.81
5- Well-done random assignment study.	1.00
Program developer = researcher	0.25
Unusual (not “real world”) setting	0.5
Weak measurement used	0.54

The discount factors for these studies are based on a multivariate regression analysis of 106 effect sizes from evaluations of home visiting programs within child welfare or at-risk populations. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1 and 2 have effect sizes about twice the size of studies rated as a 5, and research designs 3 and 4 have effect sizes about 24 percent higher than a 5.

The analysis also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation, or when a weak outcome measure was used.

Studies Used in the Meta-Analysis

Drotar, D., Robinson, J., Jeavons, L., & Kirchner, H. L. (2009). A randomized, controlled evaluation of early intervention: The Born to Learn curriculum. *Child: Care, Health & Development, 35*(5), 643-649.

Pfannenstiel, J. C., & Seltzer, D. A. (1989). New parents as teachers: Evaluation of an early parent education program. *Early Childhood Research Quarterly, 4*(1), 1-18.

Wagner, M. M., & Clayton, S. L. (1999). The Parents as Teachers program: Results from two demonstrations. *The Future of Children, 9*(1), 91-115.

Wagner, M., Cameto, R., & Gerlach-Downie, S. (1996, March). *Intervention in support of adolescent parents and their children: A final report on the Teen Parents as Teachers Demonstration*. Menlo Park, CA. SRI International.

Wagner, M., Spiker, D. (with Hernandez, F., Song, J., & Gerlach-Downie, S.). (2001, June). *Multisite Parents as Teachers evaluation: Experiences and outcomes for children and families* (SRI Project P07283). Menlo Park, CA: SRI International.

Structured Decision-Making® Risk Assessment

Program description:

The Structured Decision Making® (SDM) model is a system of assessment tools used at various decision points in the child welfare system. Washington State's child welfare system has implemented the SDM risk assessment tool to classify families on their risk of further child maltreatment. This effect size is specific to Washington's implementation of the risk assessment, and should not be interpreted as a statement on the effectiveness of Structured Decision Making® as a whole.

Typical age of primary program participant: 8

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Out-of-home placement	P	1	-0.006	.02	.69	-0.005	.02	9	-.005	.02	9

Benefits and costs were not estimated for Structured Decision Making.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.81
4- Random assignment, with some RA implementation issues.	0.81
5- Well-done random assignment study.	1.00
Program developer = researcher	0.25
Unusual (not "real world") setting	0.5
Weak measurement used	0.54

The discount factors for these studies are based on a multivariate regression analysis of 106 effect sizes from evaluations of home visiting programs within child welfare or at-risk populations. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1 and 2 have effect sizes about twice the size of studies rated as a 5, and research designs 3 and 4 have effect sizes about 24 percent higher than a 5.

The analysis also found that effect sizes were statistically significantly higher when the program developer was involved in the research evaluation, or when a weak outcome measure was used.

Studies Used in the Meta-Analysis

Miller, M. (2011, May). *Structured Decision-making risk assessment: Does it reduce racial disproportionality in Washington's child welfare system?* (Document No. 11-05-3901). Olympia: Washington State Institute for Public Policy.

Incredible Years: Parent Training

Program description:

Incredible Years Parent Training (www.incredibleyears.com) is a group, skills-based behavioral intervention for parents of children with behavior problems. The curriculum focuses on strengthening parenting skills (monitoring, positive discipline, confidence) and fostering parents' involvement in children's school experiences in order to promote children's academic, social, and emotional competencies and reduce conduct problems. Training classes include child care, a family meal, and transportation.

Typical age of primary program participant: 5

Typical age of secondary program participant: 28

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Major depressive disorder	S	4	-0.03	0.06	0.54	-0.03	0.06	28	0.02	0.11	33
Disruptive behavior disorder symptoms	P	15	-0.49	0.09	0.00	-0.21	0.09	5	-0.10	0.19	10
Attention deficit hyperactivity disorder symptoms	P	1	-0.54	0.24	0.02	-0.27	0.24	5	-0.13	0.47	10
Internalizing symptoms	P	5	-0.11	0.04	0.00	-0.05	0.04	5	-0.02	0.08	10

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$3,324	$2,449	$1,503	$1,212	$8,488	($2,022)	$4.20	12%	$6,466	76%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$2,023	1	2010	$0	1	2010	$2,026	10%

Source: Cost of parent training class per family provided by Washington State DSHS Children's Administration, 2011. The Institute added costs of training and curriculum for the parent classes (nominal, as these are shared between practitioners and distributed across many families who receive the service), as well as an estimated cost (per child) for the child training component. As child training is mainly done in the classroom, the child training costs primarily comprised curriculum and materials.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.64
Unusual (not “real world”) setting	1.00
Weak measurement used	0.5

Discount factors were generated by examining studies for the treatment of children or adolescents with disruptive behavior problems. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Because research design rating and unusual setting were not significant predictors of effect size, no discounts were assigned. The involvement of a program developer in the research study was a statistically significant predictor of effect size, indicating that such studies had larger effects than studies in which the developer was not involved. This coefficient was used to determine the 0.64 discount factor. Finally, we coded as weak measures outcomes that were based solely on the report of individuals who were involved in the intervention (such as parents in a parenting program). Due to concern that such measures might be biased in favor of the programs reviewed, we used the standard Institute discount (0.5).

Studies 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-occuring internalizing symptoms*. Manuscripted submitted for publication. Retrieved June 29, 2011 from http://67.199.123.90/Library/items/the-impact-of-the-incredible-years_10.pdf

Hutchings, J., Gardner, F., Bywater, T., Daley, D., Whitaker, C., Jones, K., . . . Edwards, R. T. (2007). Parenting intervention in Sure Start services for children at risk of developing conduct disorder: Pragmatic randomised controlled trial. *British Medical Journal, 334*(7595), 678-682.

Jones, K., Daley, D., Hutchings, J., Bywater, T., & Eames, C. (2007). Efficacy of the Incredible Years basic parent training programme as an early intervention for children with conduct problems and ADHD. *Child: Care, Health And Development, 33*(6), 749-756.

Kim, E., Cain, K. C., & Webster-Stratton, C. (2008). The preliminary effect of a parenting program for Korean American mothers: A randomized controlled experimental study. *International Journal of Nursing Studies, 45*(9), 1261-1273.

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Reid, M. J., Webster-Stratton, C., & Beauchaine, T. P. (2001). Parent training in Head Start: A comparison of program response among African American, Asian American, Caucasian, and Hispanic mothers. *Prevention Science, 2*(4), 209-227.

Scott, S., Spender, Q., Doolan, M., Jacobs, B., & Aspland, H. (2001). Multicentre controlled trial of parenting groups for childhood antisocial behaviour in clinical practice. *British Medical Journal, 323*(7306), 194-198.

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.

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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., 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., & 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. (1984). Randomized trial of two parent-training programs for families with conduct-disordered children. *Journal of Consulting and Clinical Psychology, 52*(4), 666-678.

Incredible Years: Parent Training and Child Training

Program description:

See Incredible Years Parent Training (previous entry) for a description of the parent intervention. Studies in this category included a child skills training component as well as parent training. Children with behavioral problems are taught social, emotional and academic skills, such as understanding and communicating feelings, using effective problem solving strategies, managing anger, practicing friendship and conversational skills, as well as appropriate classroom behaviors. This component can be conducted in a therapeutic setting or in a classroom. Note: The test score outcomes may not be representative of typical Incredible Years implementation. The sites in which test scores were measured had an adjunct early literacy program, so we have adjusted the test score outcome downward by 50%.

Typical age of primary program participant: 5

Typical age of secondary program participant: 28

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores	P	2	0.22	0.19	0.19	0.11	0.19	6	0.06	0.19	17
Disruptive behavior disorder symptoms	P	6	-0.45	0.19	0.02	-0.18	0.19	5	-0.09	0.37	10
Attention deficit hyperactivity disorder symptoms	P	2	-0.57	0.14	0.00	-0.24	0.14	5	-0.12	0.29	10
Internalizing symptoms	P	2	-0.09	0.07	0.08	-0.04	0.07	5	0.02	0.13	10

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$8,119	$4,083	$1,346	$2,022	$15,571	($2,085)	$7.50	12%	$13,486	93%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$2,083	1	2010	$0	1	2010	$2,083	10%

Source: Cost of parent training class per family provided by Washington State DSHS Children's Administration, 2011. The Institute added costs of training and curriculum for the parent classes (nominal, as these are shared between practitioners and distributed across many families who receive the service), as well as an estimated cost (per child) for the child training component. As child training is mainly done in the classroom, the child training costs primarily comprised curriculum and materials.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.64
Unusual (not “real world”) setting	1.00
Weak measurement used	0.5

Discount factors were generated by examining studies for the treatment of children or adolescents with disruptive behavior problems. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Because research design rating and unusual setting were not significant predictors of effect size, no discounts were assigned. The involvement of a program developer in the research study was a statistically significant predictor of effect size, indicating that such studies had larger effects than studies in which the developer was not involved. This coefficient was used to determine the 0.64 discount factor. Finally, we coded as weak measures outcomes that were based solely on the report of individuals who were involved in the intervention (such as parents in a parenting program). Due to concern that such measures might be biased in favor of the programs reviewed, we used the standard Institute discount (0.5).

Studies Used in the Meta-Analysis

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

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

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

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.

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.

Parent-Child Interaction Therapy for Children with Disruptive Behavior Problems

Program description:

In this program, a therapist directly observes a parent and child through a one-way mirror, and provides direct coaching to the parent through a radio earphone. The focus is building the skills of the parent to more positively interact with the child and manage his or her behavior. Therapists aim to ultimately restructure the parent-child relationship and provide the child with a more secure attachment to the parent.

Typical age of primary program participant: 5

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Second-ary Partici-pant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Disruptive behavior disorder symptoms	P	10	-1.05	0.18	0.00	-0.53	0.18	5	-0.26	0.35	10
Attention deficit hyperactivity disorder symptoms	P	5	-0.69	0.16	0.00	-0.35	0.16	5	-0.17	0.33	10

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.	Program Benefits					Costs	Summary Statistics			
	Partici-pants	Tax-payers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Invest-ment	Benefits Minus Costs	Measure of Risk
	$2,606	$3,026	$2,458	$1,494	$9,584	($1,302)	$7.37	31%	$8,282	91%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$2,240	1	2007	$1,000	1	2007	$1,281	10%

Source: Standard PCIT expenditures provided by Children's Administration (average reimbursement rate for families receiving PCIT in Washington in 2007).

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.64
Unusual (not “real-world”) setting	1.00
Weak measurement used	0.5

Discount factors were generated by examining studies for the treatment of children or adolescents with disruptive behavior problems. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Because research design rating and unusual setting were not significant predictors of effect size, no discounts were assigned. The involvement of a program developer in the research study was a statistically significant predictor of effect size, indicating that such studies had larger effects than studies in which the developer was not involved. This coefficient was used to determine the 0.64 discount factor. Finally, we coded as weak measures outcomes that were based solely on the report of individuals who were involved in the intervention (such as parents in a parenting program). Due to concern that such measures might be biased in favor of the programs reviewed, we used the standard Institute discount (0.5).

Studies 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.

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

Matos, M., Bauermeister, J. J., & Bernal, G. (2009). Parent-Child Interaction Therapy for Puerto Rican preschool children with ADHD and behavior problems: A pilot efficacy study. *Family Process, 48*(2), 232-252.

McCabe, K., & Yeh, M. (2009). Parent-Child Interaction Therapy for Mexican Americans: A randomized clinical trial. *Journal of Clinical Child and Adolescent Psychology, 38*(5), 753-759.

McNeil, C. B., Capage, L. C., Bahl, A., & Blanc, H. (1999). Importance of early intervention for disruptive behavior problems: Comparison of treatment and waitlist-control groups. *Early Education and Development, 10*(4), 445-454.

Nixon, R. D. V. (2001). Changes in hyperactivity and temperament in behaviourally disturbed preschoolers after parent-child interaction therapy (PCIT). *Behaviour Change, 18*(3), 168-176.

Schuhmann, E. M., Foote, R. C., Eyberg, S. M., Boggs, S. R., & Algina, J. (1998). Efficacy of Parent-Child Interaction Therapy: Interim report of a randomized trial with short-term maintenance. *Journal of Clinical Child & Adolescent Psychology, 27*(1), 34-45.

Solomon, M., Ono, M., Timmer, S., & Goodlin-Jones, B. (2008). The effectiveness of Parent-Child Interaction Therapy for families of children on the autism spectrum. *Journal of Autism and Developmental Disorders, 38*(9), 1767-1776.

Triple P Positive Parenting Program (Universal)

Program description:

Triple P – Positive Parenting Program (all levels) is a universal prevention program that aims to increase the skills and confidence of parents in order to prevent the development of serious behavioral and emotional problems in their children. Triple P has five levels of intensity. The base level is a media campaign that aims to increase awareness of parenting resources and inform parents about solutions to common behavioral problems. Levels two and three are primary health care interventions for children with mild behavioral difficulties, whereas levels four and five are more intensive individual- or class-based parenting programs for families of children with more challenging behavior problems. The evaluation in this study was a population-based trial that provided all levels of the program.

Typical age of primary program participant: 4

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Second-ary Partici-pant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Child abuse and neglect	P	4	-0.14	0.00	0.00	-0.14	0.00	6	-0.14	0.01	16
Out-of-home placement	P	4	-0.31	0.00	0.00	-0.31	0.00	6	-0.31	0.01	16

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.	Program Benefits					Costs	Summary Statistics			
	Partici-pants	Tax-payers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Invest-ment	Benefits Minus Costs	Measure of Risk
	$285	$580	$114	$297	$1,277	($139)	$9.22	8%	$1,137	100%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$137	1	2008	$0	1	2008	$140	20%

Source: Training costs estimated from Foster, E. M., Prinz, R. J., Sanders, M. R., & Shapiro, C. J. (2008). The costs of a public health infrastructure for delivering parenting and family support. Children and Youth Services Review, 30(5), 493-501; parenting program costs estimated by multiplying average Washington cost per family by 10 percent of the population assumed to receive the parenting program, distributed over 100 percent of the population.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.64
Unusual (not “real world”) setting	1.00
Weak measurement used	0.5

Discount factors were generated by examining studies for the treatment of children or adolescents with disruptive behavior problems. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Because research design rating and unusual setting were not significant predictors of effect size, no discounts were assigned. The involvement of a program developer in the research study was a statistically significant predictor of effect size, indicating that such studies had larger effects than studies in which the developer was not involved. This coefficient was used to determine the 0.64 discount factor. Finally, we coded as weak measures outcomes that were based solely on the report of individuals who were involved in the intervention (such as parents in a parenting program). Due to concern that such measures might be biased in favor of the programs reviewed, we used the standard Institute discount (0.5).

Studies Used in the Meta-Analysis

Prinz, R. J., Sanders, M. R., Shapiro, C. J., Whitaker, D. J., & Lutzker, J. R. (2009). Population-based prevention of child maltreatment: The U.S. Triple P system population trial. *Prevention Science, 10*(1), 1-12.

Triple P Positive Parenting Program: Level 4, Group

Program description:

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

Typical age of primary program participant: 5

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Disruptive behavior disorder symptoms	P	9	-0.49	0.09	0.00	-0.24	0.09	5	-0.12	0.17	10

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$747	$1,230	$1,152	$611	$3,740	($365)	$10.32	95%	$3,374	89%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$367	1	2010	$0	1	2010	$367	20%

Source: Based on current Washington expenditures per family for individual behavioral treatment with Triple P, under the assumption that with group training, eight families could receive training at the same time from the same therapist. We also added an estimated cost for venue rental (a cost that is unecessary when conducting the program with individual families).

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.64
Unusual (not “real world”) setting	1.00
Weak measurement used	0.5

Discount factors were generated by examining studies for the treatment of children or adolescents with disruptive behavior problems. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Because research design rating and unusual setting were not significant predictors of effect size, no discounts were assigned. The involvement of a program developer in the research study was a statistically significant predictor of effect size, indicating that such studies had larger effects than studies in which the developer was not involved. This coefficient was used to determine the 0.64 discount factor. Finally, we coded as weak measures outcomes that were based solely on the report of individuals who were involved in the intervention (such as parents in a parenting program). Due to concern that such measures might be biased in favor of the programs reviewed, we used the standard Institute discount (0.5).

Studies Used in the Meta-Analysis

Hahlweg, K., Heinrichs, N., Kuschel, A., Bertram, H., & Naumann, S. (2010). Long-term outcome of a randomized controlled universal prevention trial through a positive parenting program: Is it worth the effort? *Child and Adolescent Psychiatry and Mental Health, 4*, 14-27.

Leung, C., Sanders, M. R., Leung, S., Mak, R., & Lau, J. (2003). An outcome evaluation of the implementation of the Triple P-Positive Parenting Program in Hong Kong. *Family Process, 42*(4), 531-544.

Matsumoto, Y., Sofronoff, K., & Sanders, M. R. (2007). The efficacy and acceptability of the Triple P-Positive Parenting Program with Japanese parents. *Behaviour Change, 24*(4), 205-218.

Matsumoto, Y., Sofronoff, K., & Sanders, M. R. (2010). Investigation of the effectiveness and social validity of the Triple P Positive Parenting Program in Japanese society. *Journal of Family Psychology, 24*(1), 87-91.

Morawska, A., & Sanders, M. (2009). An evaluation of a behavioural parenting intervention for parents of gifted children. *Behaviour Research and Therapy, 47*(6), 463-470.

Turner, K. M. T., Richards, M., & Sanders, M. R. (2007). Randomised clinical trial of a group parent education programme for Australian indigenous families. *Journal of Paediatrics and Child Health, 43*(6), 429-437.

Whittingham, K., Sofronoff, K., Sheffield, J., & Sanders, M. R. (2009). Stepping stones Triple P: An RCT of a parenting program with parents of a child diagnosed with an autism spectrum disorder. *Journal of Abnormal Child Psychology, 37*(4), 469-480.

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.

Zubrick, S. R., Ward, K. A., Silburn, S. R., Lawrence, D., Williams, A. A., Blair, E., et al. (2005). Prevention of child behavior problems through universal implementation of a group behavioral family intervention. *Prevention Science, 6*(4), 287-304.

Triple P Positive Parenting Program: Level 4, Individual

Program description:

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

Typical age of primary program participant: 5

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Disruptive behavior disorder symptoms	P	5	-0.85	0.21	0.00	-0.39	0.21	5	-0.20	0.42	10

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$1,558	$2,371	$2,211	$1,097	$7,237	($1,790)	$4.06	19%	$5,447	79%

Detailed Cost Estimates

	Program Costs			Comparison Costs			Summary 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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$1,792	1	2010	$0	1	2010	$1,792	10%

Source: Expenditures per family provided by Washington State DSHS Children's Administration, June 2011; based on 10-16 sessions of individual family behavioral training.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.64
Unusual (not “real world”) setting	1.00
Weak measurement used	0.5

Discount factors were generated by examining studies for the treatment of children or adolescents with disruptive behavior problems. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Because research design rating and unusual setting were not significant predictors of effect size, no discounts were assigned. The involvement of a program developer in the research study was a statistically significant predictor of effect size, indicating that such studies had larger effects than studies in which the developer was not involved. This coefficient was used to determine the 0.64 discount factor. Finally, we coded as weak measures outcomes that were based solely on the report of individuals who were involved in the intervention (such as parents in a parenting program). Due to concern that such measures might be biased in favor of the programs reviewed, we used the standard Institute discount (0.5).

Studies Used in the Meta-Analysis

Connell, S., Sanders, M. R., Markie-Dadds, C. (1997). Self-directed behavioral family intervention for parents of oppositional children in rural and remote areas. *Behavior Modification, 21*(4), 379-408.

Markie-Dadds, C., & Sanders, M. R. (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.

Markie-Dadds, C., & Sanders, M. R. (2006b). Self-directed Triple P (Positive Parenting Program) for mothers with children at-risk of developing conduct problems. *Behavioural and Cognitive Psychotherapy, 34*(3), 259-276.

Nicholson, J. M., & Sanders, M. R. (1999). Randomized controlled trial of behavioral family intervention for the treatment of child behavior problems in stepfamilies. *Journal of Divorce and Remarriage, 30*(3/4), 1-23.

Sanders, M. R., Markie-Dadds, C., Tully, L. A., & Bor, W. (2000). The Triple P-Positive Parenting Program: A comparison of enhanced, standard, and self-directed behavioral family intervention for parents of children with early onset conduct problems. *Journal of Consulting and Clinical Psychology, 68*(4), 624-640.

Early Childhood Education for Low Income 3- and 4-Year Olds

Program description:

Early childhood education programs for low-income 3- and 4-year-olds analyzed include model programs (Perry Preschool, Abecedarian, and Chicago Parent Child Centers) and larger scale programs (such as Head Start and state-funded programs).

Typical age of primary program participant: 4

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	11	-0.23	0.13	0.06	-0.23	0.13	16	-0.22	0.06	21
High school graduation	P	11	0.16	0.03	0.00	0.16	0.03	20	0.16	0.03	20
Test scores	P	26	0.27	0.03	0.00	0.27	0.03	5	0.13	0.06	17
Child abuse and neglect	P	1	-0.47	0.13	0.00	-0.47	0.13	15	-0.47	0.26	18
K-12 grade repetition	P	23	-0.36	0.11	0.00	-0.36	0.11	11	-0.36	0.22	18
K-12 special education	P	18	-0.26	0.08	0.00	-0.26	0.08	13	-0.26	0.15	18
Out-of-home placement	P	1	-0.40	0.14	0.00	-0.40	0.14	16	-0.40	0.28	16
Employment	P	2	0.26	0.15	0.18	0.26	0.15	30	0.26	0.29	40
Teen pregnancy (under age 18)	P	5	-0.19	0.13	0.13	-0.19	0.13	21	-0.19	0.13	21

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$11,373	$7,244	$4,182	$3,680	$26,480	($7,420)	$3.60	7%	$19,060	100%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$6,662	2	2010	$1,679	2	2008	$7,365	25%

Source: The program cost is the average per-child payment for Washington State's Early Childhood Education and Assistance Program (ECEAP). The comparison group cost is the average per-child payment for Washington State's Working Connections Child Care subsidy. The 25 percent uncertainty around the cost estimate reflects the higher per-child costs for the model programs included in this analysis.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	1.00
Unusual (not “real-world”) setting	1.00
Weak measurement used	1.00

The discount factors for these studies are based a multivariate regression analysis of 336 effect sizes from evaluations of early childhood education programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 2, 3, and 4 should have a discount factor greater than 1 and research design 1 should have a discount factor of slightly less than 1. Using a conservative approach, we set all the discount rates to 1.

The analysis also found that effect sizes were statistically significantly lower when the program developer was involved in the research evaluation, when the program was implemented on a pilot basis, or when a weak outcome measure (such as self-reported behavior) was used. We also set these discount rates equal to 1.

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Early Head Start

Program description:

Early Head Start is a federally funded program for low-income pregnant women and families with infants or toddlers that aims to enhance children's development and health and strengthen families. Families can receive services until the children are three years old. Early Head Start accounts for 10 percent of the Head Start budget; program providers determine the specific services offered following Head Start guidelines.

Typical age of primary program participant: 1

Typical age of secondary program participant: 20

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	0.00	0.05	1.00	0.00	0.05	10	0.00	0.10	20
Test scores	P	1	0.01	0.05	0.87	0.01	0.05	10	0.01	0.10	17
K-12 grade repetition	P	1	-0.04	0.09	0.55	-0.04	0.09	10	-0.04	0.18	17
K-12 special education	P	1	-0.09	0.08	0.18	-0.09	0.08	10	-0.09	0.16	17
Externalizing behavior symptoms	P	1	-0.04	0.05	0.59	-0.04	0.05	10	-0.02	0.10	15
Internalizing symptoms	P	1	-0.05	0.05	0.46	-0.05	0.05	10	-0.03	0.10	15
Years of education	S	1	0.00	0.05	1.00	0.00	0.05	29	0.00	0.10	39
Public assistance	S	1	-0.07	0.06	0.29	-0.07	0.06	29	-0.07	0.12	39
Substance abuse	S	1	-0.01	0.11	0.90	-0.01	0.11	29	-0.01	0.22	39
Employment	S	1	0.00	0.05	1.00	0.00	0.05	29	0.00	0.10	39
Major depressive disorder	S	1	-0.05	0.05	0.52	-0.05	0.05	29	-0.02	0.10	39
Earnings	S	1	0.02	0.06	0.77	0.02	0.06	29	0.02	0.12	39

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$6,588	$4,413	$613	$2,179	$13,793	($10,230)	$1.35	n/e	$3,563	47%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$7,600	2	2010	$1,679	2	2010	$10,230	0%

Source: U.S. Department of Health and Human Services, Administration for Children & Families, http://www.acf.hhs.gov/programs/ohs/about/fy2010.html.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	1.00
Unusual (not “real-world”) setting	1.00
Weak measurement used	1.00

The discount factors for these studies are based a multivariate regression analysis of 336 effect sizes from evaluations of early childhood education programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 2, 3, and 4 should have a discount factor greater than 1 and research design 1 should have a discount factor of slightly less than 1. Using a conservative approach, we set all the discount rates to 1.

The analysis also found that effect sizes were statistically significantly lower when the program developer was involved in the research evaluation, when the program was implemented on a pilot basis, or when a weak outcome measure was used. We also set these discount rates equal to 1.

Studies Used in the Meta-Analysis

Roggman, L. A., Boyce, L. K., & Cook, G. A. (2009). Keeping kids on track: Impacts of a parenting-focused early head start program on attachment security and cognitive development. *Early Education and Development, 20*(6), 920-941.

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Even Start

Program description:

Even Start is a federally funded program that provides adult education, parenting education, and parent-child literacy activities to low-income families.

Typical age of primary program participant: 1

Typical age of secondary program participant: 29

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores	P	2	-0.03	0.12	0.83	-0.03	0.12	6	-0.01	0.24	17
Employment	S	2	0.05	0.20	0.79	0.05	0.20	31	0.05	0.40	41
GED attainment	S	2	0.09	0.15	0.56	0.09	0.15	31	0.09	0.31	41

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
($979)	($360)	$0	($172)	($1,511)	($4,050)	($0.37)	6%	($5,561)	37%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$4,708	1	2001	$1,679	1	2010	$4,037	10%

Source: St. Pierre, R.G., A. Ricciuti, F. Tao, C. Creps, J. Swartz, W. Lee, A. Parsad, and T. Rimdzius. (2003) "Third National Even Start Evaluation: Program Impacts and Implications for Improvement." Cambridge, MA. Abt Associates, Inc.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	1.00
Unusual (not “real-world”) setting	1.00
Weak measurement used	1.00

The discount factors for these studies are based on a multivariate regression analysis of 336 effect sizes from evaluations of early childhood education programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 2, 3, and 4 should have a discount factor greater than 1 and research design 1 should have a discount factor of slightly less than 1. Using a conservative approach, we set all the discount rates to 1.

The analysis also found that effect sizes were statistically significantly lower when the program developer was involved in the research evaluation, when the program was implemented on a pilot basis, or when a weak outcome measure was used. We also set these discount rates equal to 1.

Studies Used in the Meta-Analysis

St. Pierre, R., Ricciuti, A., Tao, F., Creps, C., Swartz, J., Lee, W., . . . Rimdzius, T. (2003). *Third national Even Start evaluation: Program impacts and implications for improvement*. Cambridge: Abt Associates.

St. Pierre, R., Swartz, J., Gamse, B., Murray, S., Deck, D., & Nickel, P. (1995). *National evaluation of the Even Start Family Literacy Program*. Cambridge: Abt Associates.

K-12 Educator Professional Development

Program description:

Professional development for K-12 teachers includes activities such as workshops, conferences, summer institutes, and time set aside during the school year for general staff development. In this analysis, we estimate the impact of providing one additional day of professional development time.

Typical age of primary program participant: 10 (for the outcomes measured)

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores	P	10	0.00	0.00	0.95	0.00	0.00	11	0.00	0.00	17

Benefits and costs were not estimated for K-12 educator professional development program, because we found no effect on student test scores.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.75
4- Random assignment, with some RA implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Angrist, J. D., & Lavy, V. (2001). Does teacher training affect pupil learning? Evidence from matched comparisons in Jerusalem public schools. *Journal of Labor Economics, 19*(2), 343-369.

Borman, G. D., Gamoran, A., & Bowdon, J. (2008). A randomized trial of teacher development in elementary science: First-year achievement effects. *Journal of Research on Educational Effectiveness, 1*(4), 237-264.

Garet, M. S., Cronen, S., Eaton, M., Kurki, A., Ludwig, M., Jones, W., . . . Silverberg, M. (2008, September). *The impact of two professional development interventions on early reading instruction and achievement*. Washington, DC: National Center for Education Evaluation and Regional Assistance.

Garet, M. S., Wayne, A. J., Stancavage, F., Taylor, J., Walters, K., Song, M., . . . Warner, E. (2010, April). *Middle school mathematics professional development impact study: Findings after the first year of implementation*. Washington, DC: National Center for Education Evaluation and Regional Assistance.

Harris, D. N., & Sass, T. R. (2011). Teacher training, teacher quality and student achievement. *Journal of Public Economics, 95*(7-8), 798-812.

Jacob, B. A., & Lefgren, L. (2004). Remedial education and student achievement: A regression-discontinuity analysis. *The Review of Economics and Statistics, 86*(1), 226-244.

Johnson, C. C., Kahle, J. B., & Fargo, J. D. (2007). A study of the effect of sustained, whole-school professional development on student achievement in science. *Journal of Research in Science Teaching, 44*(6), 775-786.

Santagata, R., Kersting, N., Givvin, K. B., & Stigler, J. W. (2011). Problem implementation as a lever for change: An experimental study of the effects of a professional development program on students' mathematics learning. *Journal of Research on Educational Effectiveness, 4*(1), 1-24.

National Board for Professional Teaching Standards (NBPTS) Certification Bonuses

Program description:

National Board for Professional Teaching Standards (NBPTS) certification is an advanced teaching credential that complements (and does not replace) state certification. Teachers earn NBPTS certification upon completion of a one to three year assessment process. Washington State provides a $5,000 bonus to NBPTS-certified teachers. In the 2009-10 school year, 3,686 Washington teachers were NBPTS-certified. This analysis includes taxpayer costs only (the state-funded NBPTS bonus) and does not reflect the investments individual teachers make to attain certification.

Typical age of primary program participant: 10 (for the outcomes measured)

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores	P	9	0.03	0.02	0.06	0.02	0.02	11	0.01	0.03	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$1,045	$384	$0	$193	$1,622	($67)	$24.28	19%	$1,555	69%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$67	1	2010	$0	1	2010	$67	10%

Source: Washington State provides NBPTS-certified teachers with a $5,000 annual bonus. To calculate a per-student annual cost, we assume that each teacher has an average of three classrooms with an average of 25 students per classroom. This cost estimate does not include the additional bonus provided to teachers who work in high-poverty schools or the private costs teachers incur when they apply for and participate in the certification process.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Aarons, S. J., Jenkins, R. R., Raine, T. R., El-Khorazaty, M. N., Woodward, K. M., Williams, R. L., . . . Wingrove, B. K. (2000). Postponing sexual intercourse among urban junior high school students-a randomized controlled evaluation. *Journal of Adolescent Health, 27*(4), 236-247.

Cantrell, S., Fullerton, J., Kane, T. J., & Staiger, D. O. (2008, December). *National board certification and teacher effectiveness: Evidence from a random assignment experiment* (Working Paper No. 14608). Cambridge: National Bureau of Economic Research.

Cavalluzzo, L. C. (2004, November). *Is national board certification an effective signal of teacher quality?* Alexandria, VA: The CNA Corporation.

Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2006). Teacher-student matching and the assessment of teacher effectiveness. *The Journal of Human Resources, 41*(4), 778-820.

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Goldhaber, D., & Anthony, E. (2007). Can teacher quality be effectively assessed? National board certification as a signal of effective teaching. *The Review of Economics and Statistics, 89*(1), 134-150.

Harris, D. N., & Sass, T. R. (2007, March). *The effects of NBPTS-certified teachers on student achievement* (Working Paper 4). Washington, DC: The Urban Institute, National Center for Analysis of Longitudinal Data in Education Research.

Howard, M., & McCabe, J. A. (1992). An information and skills approach for younger teens: Postponing Sexual Involvement program. In B. C. Miller, J. J. Card, R. L. Paikoff, & J. L. Peterson (Eds.), *Preventing adolescent pregnancy: Model programs and evaluations* (pp. 83-109). Thousand Oaks, CA: Sage.

Kirby, D., Korpi, M., Barth, R. P., & Cagampang, H. H. (1997). The impact of the Postponing Sexual Involvement curriculum among youths in California. *Family Planning Perspectives, 29*(3), 100-108.

Ladd, H. F., Sass, T. R., & Harris, D. N. (2007, February). *The impact of national board certified teachers on student achievement in Florida and North Carolina: A summary of the evidence prepared for the National Academies Committee on the evaluation of the impact of teacher certification by NBPTS*. Unpublished manuscript.

Mellanby, A. R., Phelps, F. A., Crichton, N. J., & Tripp, J. H. (1995). School sex education: An experimental programme with educational and medical benefit. *British Medical Journal, 311*(7002), 414-417.

Sanders, W. L., Ashton, J. J., Wright, S. P. (2005, March). *Comparison of the effects of NBPTS certified teachers with other teachers on the rate of student academic progress* (Final report). Retrieved from ERIC database. (ED491846)

Stronge, J. H., Ward, T. J., Tucker, P. D., Hindman, J. L., McColsky, W., & Howard, B. (2007). National Board certified teachers and non-national board certified teachers: Is there a difference in teacher effectiveness and student achievement? *Journal of Personnel Evaluation in Education, 20*(3-4), 185-210.

Vandevoort, L. G., Amrein-Beardsley, A., & Berliner, D. C. (2004). National Board Certified teachers and their students' achievement. *Education Policy Analysis Archives, 12*(46).

Additional Day of K-12 Instructional Time

Program description:

The evaluations included in this analysis measure changes in the amount of instructional time in K-12 schools and subsequent impacts on student test scores and labor market earnings in adulthood. Some of the studies measured the effects of an average day and some measured the effects of additional time at the end of the year. We standardized those measures to approximate a change of one additional day.

Typical age of primary program participant: 10

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores	P	11	0.00	0.00	0.54	0.00	0.00	11	0.00	0.01	17
Earnings	P	10	0.00	0.00	0.72	0.00	0.00	40	0.00	0.01	1

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$69	$25	$0	$11	$105	($26)	$3.90	15%	$79	53%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$27	1	2011	$0	1	2011	$26	10%

Source: Estimates for the per-student annual cost of adding one day to the school year were provided by Washington State legislative budget committee staff.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Aarons, S. J., Jenkins, R. R., Raine, T. R., El-Khorazaty, M. N., Woodward, K. M., Williams, R. L., . . . Wingrove, B. K. (2000). Postponing sexual intercourse among urban junior high school students-a randomized controlled evaluation. *Journal of Adolescent Health, 27*(4), 236-247.

Betts, J. R. (1996). Do school resources matter only for older workers? *The Review of Economics and Statistics, 78*(4), 638-652.

Card, D., & Krueger, A. B. (1992a). Does school quality matter? Returns to education and the characteristics of public schools in the United States. *Journal of Political Economy, 100*(1), 1-40.

Coates, D. (December 01, 2003). Education production functions using instructional time as an input. *Education Economics, 11*(3), 273-292.

Eide, E., & Showalter, M. H. (1998). The effect of school quality on student performance: A quantile regression approach. *Economics Letters, 58*(3), 345-350.

Fuchs, T., & Wößmann, L. (2007). What accounts for international differences in student performance? A re-examination using PISA data. *Empirical Economics, 32*(2), 433-464.

Heckman, J., Layne-Farrar, A., & Todd, P. (1996). Human capital pricing equations with an application to estimating the effect of schooling quality on earnings. *The Review of Economics and Statistics, 78*(4), 562-610.

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Konstantopoulos, S. (2006). Trends of school effects on student achievement: Evidence from NLS:72, HSB:82, and NELS:92. *Teachers College Record, 108*(12), 2550-2581.

Lavy, V. (2010, May). *Differences across and within countries in instructional time and achievements in math, science, and reading: A causal link?* Unpublished manuscript, University of London, Hebrew University and Royal Holloway, Department of Economics.

Link, C. R., & Mulligan, J. G. (1986). The merits of a longer school day. *Economics of Education Review, 5*(4), 373-381.

Loeb, S., & Bound, J. (1996). The effect of measured school inputs on academic achievement: Evidence from the 1920s, 1930s, and 1940s birth cohorts. *The Review of Economics and Statistics, 78*(4), 653-664.

Marcotte, D. E. (2007). Schooling and test scores: A mother-natural experiment. *Economics of Education Review, 26(*5), 629.

McHenry, P. (2011). The effect of school inputs on labor market returns that account for selective migration. *Economics of Education Review, 30*(1), 39-54.

Mellanby, A. R., Phelps, F. A., Crichton, N. J., & Tripp, J. H. (1995). School sex education: An experimental programme with educational and medical benefit. *British Medical Journal, 311*(7002), 414-417.

Olson, C. A., & Ackerman, D. (2000, March). *High school inputs and labor market outcomes for male workers in their mid-thirties: New data and new estimates from Wisconsin* (Discussion Paper No. 1205-00). Madison: University of Wisconsin-Madison; Institute for Research on Poverty.

Pischke, J.-S. (2007). The impact of length of the school year on student performance and earnings: Evidence from the German short school years. *The Economic Journal, 117*(523), 1216-1242.

Rizzuto, R., & Wachtel, P. (1980). Further evidence on the returns to school quality. *The Journal of Human Resources, 15*(2), 240-254.

Sims, D. P. (2008). Strategic responses to school accountability measures: It's all in the timing. *Economics of Education Review, 27(*1), 58.

Wößmann, L. (2003). Schooling resources, educational institutions and student performance: The international evidence. *Oxford Bulletin of Economics and Statistics, 65*(2), 117-170.

K-12 Parent Involvement Programs

Program description:

In a typical K-12 parent involvement program, teachers meet with parents in person and maintain contact over the phone to train and encourage parents to engage in planned, structured academic activities with their children at home, often in the form of tutoring. This review does not include the impact on children's academic achievement from parent involvement in general; only school-based programs are included.

Typical age of primary program participant: 6

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores	P	9	0.13	0.10	0.12	0.06	0.10	7	0.03	0.20	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$2,320	$854	$0	$453	$3,627	($813)	$4.62	12%	$2,814	56%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$813	1	2010	$0	1	2010	$813	20%

Source: To estimate costs, we assumed that teachers spend an average of one-half hour per week to maintain contact with parents during the school year, based on the evaluations included in our analysis. We calculated the value of teacher time using average teacher salaries (including benefits) in Washington State.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

The discount factors for these studies are based a multivariate regression analysis of 61 effect sizes from evaluations of tutoring and parent involvement programs (many parent involvement programs are tutoring-based). The analysis examined the relative magnitude of effect sizes for studies rated a 1, 3, or 4 for research design quality, in comparison with a 5 (there were no level studies; see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size and included the type of outcome and program as control variables. The results indicated that research designs 1 through 4 should have a discount factor equal to a 5.

Studies Used in the Meta-Analysis

Epstein, J. L. (1991). Effects on student achievement of teachers' practices of parent involvement. In S. B. Silvern (Ed.), *Advances in reading/language research* (vol. 5, pp. 261-276). Stamford, CT: JAI Press.

Erion, R. J. (1994). Parent tutoring, reading instruction and curricular assessment. *Dissertation Abstracts International, 54*(11), 4035A.

Fantuzzo, J. W., Davis, G. Y., & Ginsburg, M. D. (1995). Effects of parent involvement in isolation or in combination with peer tutoring on student self-concept and mathematics achievement. *Journal of Educational Psychology, 87*(2), 272-281.

Heller, L. R., & Fantuzzo, J. W. (1993). Reciprocal peer tutoring and parent partnership: Does parent involvement make a difference? *School Psychology Review, 22*(3), 517-534.

Mehran, M., & White, K. R. (1988). Parent tutoring as a supplement to compensatory education for first-grade children. *Remedial and Special Education, 9*(3), 35-41.

Miller, B. V., & Kratochwill, T. R. (1996). An evaluation of the Paired Reading Program using competency-based training. *School Psychology International, 17*(3), 269-291.

Powell-Smith, K. A., Shinn, M. R., Stoner, G., & Good, R. H., III. (2000). Parent tutoring in reading using literature and curriculum materials: Impact on student reading achievement. *School Psychology Review, 29*(1), 5-27.

Rodick, J. D., & Henggeler, S. W. (1980). The short-term and long-term amelioration of academic and motivational deficiencies among low-achieving inner-city adolescents. *Child Development, 51*(4), 1126-1132.

K-12 Tutoring by Adults

Program description:

Most of the tutoring programs included in this review used adult community volunteers, often pre-service teachers in training, to provide one-on-one assistance to first graders struggling to learn to read. Three studies examined the use of certified teachers as tutors, but we did not have sufficient evaluations to separately examine the impact of using teachers as tutors.

Typical age of primary program participant: 6

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores	P	28	0.21	0.05	0.00	0.12	0.05	7	0.06	0.10	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$4,610	$1,697	$0	$834	$7,140	($1,940)	$3.69	8%	$5,200	66%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$1,953	1	2010	$0	1	2010	$1,953	20%

Source: Cost estimates are based on the following assumptions derived from the programs described in the studies included in the meta-analysis: on average, the programs lasted for 8 months, with 63 sessions of about 40 minutes each. The programs provide 1 to 5 hours of training and typically use unpaid adults volunteering their time. We use average teacher salaries (including benefits) in Washington State to compute the value of volunteers' time.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

The discount factors for these studies are based on a multivariate regression analysis of 61 effect sizes from evaluations of tutoring and parent involvement programs (many parent involvement programs are tutoring-based). The analysis examined the relative magnitude of effect sizes for studies rated a 1, 3, or 4 for research design quality, in comparison with a 5 (there were no level studies; see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size and included the type of outcome and program as control variables. The results indicated that research designs 1 through 4 should have a discount factor equal to a 5.

Studies Used in the Meta-Analysis

Allor, J., & McCathren, R. (2004). The efficacy of an early literacy tutoring program implemented by college students. *Learning Disabilities Research and Practice, 19*(2), 116-129.

Baker, S., Gersten, R., & Keating, T. (2000). When less may be more: A 2-year longitudinal evaluation of a volunteer tutoring program requiring minimal training. *Reading Research Quarterly, 35*(4), 494-519.

Cobb, J. B. (2001). The effects of an early intervention program with preservice teachers as tutors on the reading achievement of primary grade at risk children. *Reading Horizons, 41*(3), 155-173.

Cook, J. A. (2001). Every moment counts: Pairing struggling young readers with minimally trained tutors. *Dissertation Abstracts International, 62*(08), 2714A.

Kemp, S.C. (2006). Teaching to Read Naturally: Examination of a fluency training program for third grade students. *Dissertation Abstracts International, 67*(07A), 2447A.

Mantzicopoulos, P., Morrison, D., Stone, E., & Setrakian, W. (1992). Use of the SEARCH/TEACH tutoring approach with middle-class students at risk for reading failure. *Elementary School Journal, 92*(5), 573-586.

Mayfield, L. G. (2000). The effects of structured one-on-one tutoring in sight word recognition of first-grade students at-risk for reading failure. *Dissertation Abstracts International, 61*(02), 481A.

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McKinney, A. D. (1995). The effects of an after-school tutorial and enrichment program on the academic achievement and self-concept of below grade level first and second grade students. *Dissertation Abstracts International, 56*(06), 2176A.

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Nielson, B. B. (1992). Effects of parent and volunteer tutoring on reading achievement of third grade at-risk students. *Dissertation Abstracts International, 52*(10), 3570A.

Pullen, P. C., Lane, H. B., & Monaghan, M. C. (2004). Effects of a volunteer tutoring model on the early literacy development of struggling first grade students. *Reading Research and Instruction, 43*(4), 21-40.

Rimm-Kaufman, S. E., Kagan, J., & Byers, H. (1999). The effectiveness of adult volunteer tutoring on reading among "at risk" first grade children. *Reading Research and Instruction, 38*(2), 143-152.

Ritter, G. W. (2000). The academic impact of volunteer tutoring in urban public elementary schools: Results of an experimental design evaluation. *Dissertation Abstracts International, 61*(03), 890A.

Rodick, J. D., & Henggeler, S. W. (1980). The short-term and long-term amelioration of academic and motivational deficiencies among low-achieving inner-city adolescents. *Child Development, 51*(4), 1126-1132.

Vadasy, P. F., Jenkins, J. R., Antil, L. R., Wayne, S. K., & O'Connor, R. E. (1997). The effectiveness of one-to-one tutoring by community tutors for at-risk beginning readers. *Learning Disability Quarterly, 20*(2), 126-139.

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Vadasy, P. F., Sanders, E. A., & Tudor, S. (2007). Effectiveness of paraeducator-supplemented individual instruction: Beyond basic decoding skills. *Journal of Learning Disabilities, 40*(6), 508-525.

Weiss, J. A., Thurlow, M. L., Christenson, S. L., & Ysseldyke, J. E. (1989, March). *Paired reading with adult volunteer tutors as a reading intervention for students with reading difficulties*. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA. Retrieved from ERIC database. (ED305606)

Zimmer, R., Hamilton, L., & Christina, R. (2010). After-school tutoring in the context of no Child Left Behind: Effectiveness of two programs in the Pittsburgh Public Schools. Economics of Education Review, 29(1), 18-28.

K-12 Tutoring by Peers

Program description:

Peer tutoring programs use students from the same classroom, or sometimes from higher grade levels, to provide one-on-one assistance to other students who are struggling to learn to read. Classroom teachers provide guidance and oversight.

Typical age of primary program participant: 6

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores	P	9	0.27	0.08	0.00	0.22	0.08	7	0.12	0.16	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$7,712	$2,838	$0	$1,387	$11,937	($995)	$12.00	12%	$10,942	74%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$995	1	2010	$0	1	2010	$995	0%

Source: To estimate costs, we assumed that teachers spend an average of one-half hour per day each week to oversee an 8-week peer tutoring program, based on the evaluations included in our analysis. We calculated the value of teacher time using average teacher salaries (including benefits) in Washington State.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

The discount factors for these studies are based on a multivariate regression analysis of 61 effect sizes from evaluations of tutoring and parent involvement programs (many parent involvement programs are tutoring-based). The analysis examined the relative magnitude of effect sizes for studies rated a 1, 3, or 4 for research design quality, in comparison with a 5 (there were no level studies; see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size and included the type of outcome and program as control variables. The results indicated that research designs 1 through 4 should have a discount factor equal to a 5.

Studies Used in the Meta-Analysis

Dion, E., Roux, C., Landry, D., Fuchs, D., Wehby, J., & Dupere, V. (2011). Improving attention and preventing reading difficulties among low-income first-graders: A randomized study. *Prevention Science, 12*(1), 70-79.

Fuchs, D., Fuchs, L. S., Mathes, P. G., & Simmons, D. C. (1997). Peer-assisted learning strategies: Making classrooms more responsive to diversity. *American Educational Research Journal, 34*(1), 174-206.

Fuchs, L., Fuchs, D., & Kazdan, S. (1999). Effects of peer-assisted learning strategies on high school students with serious reading problems. *Remedial and Special Education, 20*(5), 309-318.

Fuchs, L. S., Fuchs, D., Kazdan, S., & Allen, S. (1999). Effects of peer-assisted learning strategies in reading with and without training in elaborated help giving. *The Elementary School Journal, 99*(3), 201-219.

Greenwood, C. R., & Terry, B. (1993). Achievement, placement, and services: Middle school benefits of classwide peer tutoring used at the elementary school. *School Psychology Review, 22*(3), 497-516.

Lamport, K. C. (1983). The effects of inverse tutoring on reading disabled students in a public school setting. *Dissertation Abstracts International, 44*(03), 729A.

Mathes, P. G., & Fuchs, L. S. (1993). Peer-mediated reading instruction in special education resource rooms. *Learning Disabilities Research and Practice, 8*(4), 233-243.

Trovato, J., & Bucher, B. (1980). Peer tutoring with or without home-based reinforcement, for reading remediation. *Journal of Applied Behavior Analysis, 13*(1), 129-41.

Reading Recovery (K-12 Tutoring)

Program description:

Reading Recovery is a structured early literacy intervention for struggling readers, typically in first grade. The program was developed in New Zealand and has been implemented and evaluated in other countries, including the United States. Teachers trained in Reading Recovery techniques provide the tutoring.

Typical age of primary program participant: 6

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores	P	6	0.48	0.09	0.00	0.34	0.09	7	0.18	0.18	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$12,199	$4,489	$0	$2,329	$19,017	($1,863)	$10.25	11%	$17,154	83%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$1,853	1	2010	$0	1	2010	$1,853	20%

Source: Reading Recovery is provided for 12 to 20 weeks for 1/2 hour per day, five days per week. We assumed an average of 16 weeks of tutoring with one hour of training. We use average teacher salaries (including benefits) in Washington State to compute the value of tutors' time.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

The discount factors for these studies are based a multivariate regression analysis of 61 effect sizes from evaluations of tutoring and parent involvement programs (many parent involvement programs are tutoring-based). The analysis examined the relative magnitude of effect sizes for studies rated a 1, 3, or 4 for research design quality, in comparison with a 5 (there were no level studies; see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size and included the type of outcome and program as control variables. The results indicated that research designs 1 through 4 should have a discount factor equal to a 5.

Studies Used in the Meta-Analysis

Iversen, S., & Tunmer, W. E. (1993). Phonological processing skills and the Reading Recovery program. *Journal of Educational Psychology, 85*(1), 112-126.

Pinnell, G. S., DeFord, D. E., & Lyons, C. A. (1988). *Reading recovery: Early intervention for at-risk first graders*. Arlington, VA: Educational Research Service. (ERIC Document Reproduction Service No. ED 303790)

Pinnell, G. S., Lyons, C. A., DeFord, D. E., Bryk, A. S., & Seltzer, M. (1994). Comparing instructional models for the literacy education of high-risk first graders. *Reading Research Quarterly, 29*(1), 9-39.

Schwartz, R. M. (2005). Literacy learning of at-risk first-grade students in the reading recovery early intervention. *Journal of Educational Psychology, 97*(2), 257-267.

Pre-K and Elementary Bilingual Instructional Programs (vs. English-based) for English Language Learners

Program description:

Bilingual instructional programs provide English language learner (ELL) students with instruction partially in their native language and partially in English. The evaluations included in this analysis compare programs that use bilingual instruction to those in which instruction is conducted entirely in English, such as English as a Second Language (ESL) or "sheltered" English. The results suggest that the language of instruction does not matter; there is no statistically significant difference in reading test scores between the two general types of programs.

Typical age of primary program participant: 6

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores	P	23	0.00	.01	0.9372	0.00	.01	7	0.00	.03	17

Benefits and costs were not estimated because we found no difference in test scores between the two types of programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Alvarez, J. M. (1975). Comparison of academic aspirations and achievement in bilingual versus monolingual classrooms. *Dissertation Abstracts International, 36*(02), 693A.

Bacon, H. L., Kidd, G. D., & Seaberg, J. J. (1982). The effectiveness of bilingual instruction with Cherokee Indian students. *Journal of American Indian Education, 21*(2), 34-43.

Barnett, W. S., Yarosz, D. J., Thomas, J., Jung, K., & Blanco, D. (2007). Two-way and monolingual English immersion in preschool education: An experimental comparison. *Early Childhood Research Quarterly, 22*(3), 277-293.

Caldero´n, M., Hertz-Lazarowitz, R., & Slavin, R. (1998). Effects of bilingual cooperative integrated reading and composition on students making the transition from Spanish to English reading. *The Elementary School Journal, 99*(2), 153-165.

Carlisle, J. F., & Beeman, M. M. (2000). The effects of language of instruction on the reading and writing achievement of first-grade Hispanic children. *Scientific Studies of Reading, 4*(4), 331-353.

Covey, D. D. (1973). An analytical study of secondary freshmen bilingual education and its effect on academic achievement and attitude of Mexican American students. *Dissertation Abstracts International, 33*(09), 4789A.

Danoff, M. N., Coles, G. J., McLaughlin, D. H., & Reynolds, D. J. (1978, January). *Evaluation of the impact of ESEA Title VII Spanish/English Bilingual Education Program. Volume III: Year two impact data, educational process, and in-depth analysis*. Palo Alto, CA: American Institutes for Research. (ERIC Document Reproduction Service No. ED 154635)

Duran, L. K., Roseth, C. J., & Hoffman, P. (2010). An experimental study comparing English-only and Transitional Bilingual Education on Spanish-speaking preschoolers' early literacy development. *Early Childhood Research Quarterly, 25*(2), 207-217.

Elizondo de Weffer, R. C. (1973). Effects of first language instruction in academic and psychological development of bilingual children. *Dissertation Abstracts International, 33*(11), 5991A.

Farver, J. A. M., Lonigan, C. J., & Eppe, S. (2009). Effective early literacy skill development for young Spanish-speaking English language learners: An experimental study of two methods. *Child Development, 80*(3), 703-719.

Huzar, H. (1973). *The effects of an English-Spanish primary-grade reading program on second- and third-grade students* (Master's thesis, Rutgers University). (ERIC Document Reproduction Service No. ED 085683)

Jepsen, C. (2010). Bilingual education and English proficiency. *Education Finance and Policy, 5*(2). 200-227.

Kaufman, M. (1968). Will instruction in reading Spanish affect ability in reading English? *Journal of Reading, 11*(7), 521-527.

Lampman, H. P. (1973). *Southeastern New Mexico bilingual program: Final report*. Artesia, NM: Artesia Public Schools. (ERIC Document Reproduction Service No. ED 081529)

Layden, R. G. (1973). The relationship between the language of instruction and the development of self-concept, classroom climate, and achievement of Spanish speaking Puerto Rican children. *Dissertation Abstracts International, 33*(12), 6733A.

Lopez, M. G., & Tashakkori, A. (2006). Differential outcomes of two bilingual education programs on English language learners. *Bilingual Research Journal, 30*(1), 123-145.

Matsudaira, J. D. (2005, December). *Sinking or swimming? Evaluating the impact of English immersion versus bilingual education*. Berkeley: University of California, Berkeley; Robert Wood Johnson Scholars in Health Policy Program.

Plante, A. J. (1976, January). *A study of the effectiveness of the Connecticut "Pairing" model of bilingual-bicultural education*. Hamden, CT: Connecticut Staff Development Cooperative. (ERIC Document Reproduction Service No. ED 125260)

Ryan, A. M. (2007). Two tests of the effectiveness of bilingual education in preschool. *Journal of Research in Childhood Education, 21*(4), 352-363.

Slavin, R. E., Madden, N., Calderon, M., Chamberlain, A., & Hennessy, M. (2010, January). *Reading and language outcomes of a five-year randomized evaluation of transitional bilingual education*. Unpublished manuscript. Retrieved June 16, 2011 from http://www.edweek.org/media/bilingual_pdf.pdf

Tong, F., Irby, B., Lara-Alecio, R., & Mathes, P. (2008). English and Spanish acquisition by Hispanic second graders in developmental bilingual programs. *Hispanic Journal of Behavioral Sciences, 30*(4), 500-529.

Tutoring (vs. no tutoring) for English Language Learner Students

Program description:

One-on-one tutoring programs for ELL students are analyzed, in comparison with instruction-as-usual for ELL students.

Typical age of primary program participant: 6

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores	P	4	0.30	0.16	0.06	0.20	0.16	7	0.10	0.32	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$8,633	$3,177	$0	$1,433	$13,243	($1,333)	$10.05	13%	$11,910	65%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$2,612	1	2009	$1,298	1	2009	$1,336	20%

Source: Cost estimates are based on the following assumptions derived from the programs described in the studies included in the meta-analysis: on average, the programs lasted for 4.5 months, with 60 sessions of about 25 minutes each. The programs provide 1 to 3 hours of training. We use average teacher salaries (including benefits) in Washington State to compute the value of tutors' time. We assume that tutoring costs are in addition to regular classroom instruction, for which the cost estimate reflects the sum of local, state, and federal dollars allocated per-student (averaged across Washington State school districts) for the 2008-09 school year. We increased the uncertainty around the cost estimate to 20 percent. Source for dollars allocated per-student: Office of Superintendent of Public Instruction.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Calhoon, M. B., Al Otaiba, S., Cihak, D., King, A., & Avalos, A. (2007). Effects of a peer-mediated program on reading skill acquisition for two-way bilingual first-grade classrooms. *Learning Disability Quarterly, 30*(3), 169-184.

Denton, C. A., Anthony, J. L., Parker, R., & Hasbrouck, J. E. (2004). Effects of two tutoring programs on the English reading development of Spanish-English bilingual students. *The Elementary School Journal, 104*(4), 289-305.

Kemp, S.C. (2006). Teaching to Read Naturally: Examination of a fluency training program for third grade students. *Dissertation Abstracts International, 67*(07A), 2447A.

Special Literacy Instruction for English Language Learner Students

Program description:

English-based literacy programs in these evaluations involve a structured, direct instruction approach to teaching reading to ELL students. Some of the programs are multi-media (e.g., involving computer-based instruction). These programs are compared with literacy instruction-as-usual.

Typical age of primary program participant: 6

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores	P	6	0.32	0.09	0.00	0.13	0.09	7	0.07	0.19	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$4,981	$1,833	$0	$870	$7,684	($275)	$28.20	19%	$7,409	67%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$1,398	3	2009	$1,298	3	2009	$276	20%

Source: The cost estimate reflects the sum of local, state, and federal dollars allocated per-student (averaged across Washington State school districts) for the 2008-09 school year. All students who qualify for the state Transitional Bilingual Instructional Program (TBIP) receive some form of services, so the comparison group cost is the same as the program group cost. Because specialized literacy programs may require supplemental materials and training, we added $100 to the cost estimate and increased the uncertainty around the cost estimate to 20 percent. Source for dollars allocated per-student: Office of Superintendent of Public Instruction.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Chambers, B., Cheung, A. C. K., Madden, N. A., Slavin, R. E., & Gifford, R. (2006). Achievement effects of embedded multimedia in a Success for All Reading program. *Journal of Educational Psychology, 98*(1), 232-237.

Farver, J. A. M., Lonigan, C. J., & Eppe, S. (2009). Effective early literacy skill development for young Spanish-speaking English language learners: An experimental study of two methods. *Child Development, 80*(3), 703-719.

Solari, E. J., & Gerber, M. M. (2008). Early comprehension instruction for Spanish-speaking English language learners: Teaching text-level reading skills while maintaining effects on word-level skills. *Learning Disabilities Research & Practice, 23*(4), 155-168.

Troia, G. A. (2004). Migrant students with limited English proficiency: Can Fast ForWord Language make a difference in their language skills and academic achievement? *Remedial and Special Education, 25*(6), 353-366.

Vaughn, S., Cirino, P. T., Tolar, T., Fletcher, J. M., Cardenas-Hagan, E., Carlson, C. D., & Francis, D. J. (2008). Long-term follow-up of Spanish and English interventions for first-grade English language learners at risk for reading problems. *Journal of Research on Educational Effectiveness, 1*(3), 179-214.

Cognitive Behavioral Therapy (CBT) for Depressed Adolescents

Program description:

Treatments include various components, such as cognitive restructuring, behavioral activation, emotion regulation, communication skills, and problem-solving. Most commonly, studies offering this treatment provided 10-20 therapeutic hours per client in individual or group modality. One well-known example is the Adolescent Coping With Depression (CWD-A) program.

Typical age of primary program participant: 15

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Major depressive disorder	P	15	-0.30	0.08	0.00	-0.16	0.08	15	-0.08	0.16	20
Externalizing symptoms	P	8	-0.07	0.07	0.27	-0.08	0.07	15	-0.04	0.13	20
Global functioning	P	9	0.16	0.06	0.01	0.09	0.06	15	0.05	0.11	20

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$3,110	$2,500	$1,566	$1,335	$8,511	($474)	$17.93	33%	$8,036	90%

Detailed Cost Estimates

	Program Costs			Comparison Costs			Summary 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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$1,207	1	2010	$733	1	2010	$474	10%

Source: Based on therapist time, as reported in the treatment studies, as well as training costs and a flat fee for materials (e.g., manuals). Hourly therapist cost is based on the latest actuarial estimates of reimbursement by modality in WA State (DSHS).

Additional Notes

The studies included in this analysis have samples that are both medicated and unmedicated. The effect of CBT may be different depending on whether the adolescents are medicated; however, there are too few studies to draw a definitive conclusion at this time.

Some studies included in this analysis compared the program (CBT) to control conditions that did not consist of an active treatment. Because policymakers in Washington are interested in the impact of this program above and beyond currently implemented treatments (i.e., treatment as usual), we reduced the effect size of studies utilizing a no treatment or waitlist control group in half to reflect a smaller impact that would be expected if these studies compared CBT to treatment as usual.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.42
Unusual (not “real world”) setting	1.00
Weak measurement used	1.00

Discounts were generated by examining studies for the treatment of children or adolescents with internalizing problems. Because weak measurement and unusual setting designations were extremely rare among these studies, no discounts were assigned. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Dummy variables for research design were not significant, indicating that this factor did not impact effect sizes. However, the involvement of program developers in the research was a significant predictor of effect size (B=-.482, p=.077), suggesting that such studies have larger effect sizes than studies in which the developer was not involved in the evaluation. The regression coefficient was used to generate the 0.42 discount.

Studies Used in the Meta-Analysis

Brent, D. A., Emslie, G., Clarke, G., Wagner, K. D., Asarnow, J. R., Keller, M., . . . Zelazny, J. (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.

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., Lynch, F., Powell, J., Gale, J., O'Connor, E., . . . Hertert, S. (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.

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.

Goodyer, I., Dubicka, B., Wilkinson, P., Kelvin, R., Roberts, C., Byford, S., . . . Harrington, R. (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.

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., . . . TADS Team. (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.

March, J., Silva, S., Petrycki, S., Curry, J., Wells, K., Fairbank, J., . . . 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.

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.

Reynolds, W. M., & Coats, K. I. (1986). A comparison of cognitive-behavioral therapy and relaxation training for the treatment of depression in adolescents. *Journal of Consulting and Clinical Psychology, 54*(5), 653-660.

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.

Vitiello, B., Rohde, P., Silva, S., Wells, K., Casat, C., Waslick, B., . . . TADS Team. (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.

Individual Cognitive Behavioral Therapy (CBT) for Anxious Children

Program description:

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

Typical age of primary program participant: 11

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Anxiety Disorder	P	9	-0.73	0.18	0.00	-0.28	0.18	11	-0.14	0.37	16

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$4,691	$3,913	$2,513	$1,930	$13,047	($718)	$18.21	24%	$12,330	83%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$1,661	1	2010	$943	1	2010	$718	10%

Source: Based on therapist time, as reported in the treatment studies, as well as training costs and a flat fee for materials (e.g., manuals). Hourly therapist cost is based on the latest actuarial estimates of reimbursement by modality in WA State (DSHS).

Additional Notes

Some studies included in this analysis compared the program (CBT) to control conditions that did not consist of an active treatment. Because policymakers in Washington are interested in the impact of this program above and beyond currently implemented treatments (i.e., treatment as usual), we reduced the effect size of studies utilizing a no treatment or waitlist control group in half to reflect a smaller impact that would be expected if these studies compared CBT to treatment as usual.

We conducted a meta-regression to test for differences among various formats of CBT for anxious children (remote, individual, group, and parent CBT). The results showed that there were no statistically significant differences in the effect of various formats of CBT on anxiety. These treatments are presented separately, however, because each format is associated with a different program cost.

Head-to-head studies comparing one format of CBT to another were meta-analyzed. There were no differences between individual and group CBT, family and child CBT, and child versus child plus parent CBT. This suggests that all formats are equally efficacious in alleviating anxiety.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.42
Unusual (not “real world”) setting	1.00
Weak measurement used	1.00

Discounts were generated by examining studies for the treatment of children or adolescents with internalizing problems. Because weak measurement and unusual setting designations were extremely rare among these studies, no discounts were assigned. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Dummy variables for research design were not significant, indicating that this factor did not impact effect sizes. However, the involvement of program developers in the research was a significant predictor of effect size (B=-.482, p=.077), suggesting that such studies have more negative (i.e., larger) effect sizes than studies in which the developer is not involved in the evaluation. The regression coefficient was used to generate the 0.42 discount.

Studies Used in the Meta-Analysis

Barrett, P. M., Dadds, M. R., & Rapee, R. M. (1996). Family treatment of childhood anxiety: A controlled trial. *Journal of Consulting and Clinical Psychology, 64*(2), 333-342.

Flannery-Schroeder, E. D., & Kendall, P. C. (2000). Group and individual cognitive-behavioral treatments for youth with anxiety disorders: A randomized clinical trial. *Cognitive Therapy and Research, 24*(3), 251-278.

Kendall, P. C., Flannery-Schroeder, E., Panichelli-Mindel, S. M., Southam-Gerow, H., Henin, A., & Warman, M. (1997). Therapy for youths with anxiety disorders: A second randomized clinical trial. *Journal of Consulting and Clinical Psychology, 65*(3), 366-380.

Kendall, P. C., Hudson, J. L., Gosch, E., Flannery-Schroeder, E., & Suveg, C. (2008). Cognitive-behavioral therapy for anxiety disordered youth: A randomized clinical trial evaluating child and family modalities. *Journal of Consulting and Clinical Psychology, 76*(2), 282-297.

Kendall, P. C. (1994). Treating anxiety disorders in children: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 62*(1), 100-110.

Nauta, M. H., Scholing, A., Emmelkamp, P. M. G., & Minderaa, R. B. (2003). Cognitive-behavioral therapy for children with anxiety disorders in a clinical setting: No additional effect of a cognitive parent training. *Journal of the American Academy of Child & Adolescent Psychiatry, 42*(11), 1270-1278.

Southam-Gerow, M. A., McLeod, B. D., Weisz, J. R., Chu, B. C., Gordis, E. B., & Connor-Smith, J. K. (2010). Does cognitive behavioral therapy for youth anxiety outperform usual care in community clinics? An initial effectiveness test. *Journal of the American Academy of Child & Adolescent Psychiatry, 49*(10), 1043-1052.

Walkup, J. T., Albano, A. M., Piacentini, J., Birmaher, B., Compton, S. N., Sherrill, J. T., . . . Kendall, P. C. (2008). Cognitive behavioral therapy, sertraline, or a combination in childhood anxiety. *The New England Journal of Medicine, 359*(26), 2753-2766.

Parent Cognitive Behavioral Therapy (CBT) for Anxious Children

Program description:

Treatments usually include multiple components, such as somatic management, cognitive restructuring and self-talk, exposure to feared stimuli, and positive reinforcement. This brief therapy can be administered in individual, group, or family format. Well-known examples include the Coping Cat and Coping Koala programs.

Typical age of primary program participant: 5

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Second-ary Partici-pant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Anxiety disorder	P	3	-0.86	0.36	0.02	-0.18	0.36	5	-0.09	0.73	10

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Partici-pants	Tax-payers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Invest-ment	Benefits Minus Costs	Measure of Risk
	$4,934	$4,807	$3,431	$2,414	$15,587	$595	n/e	n/e	$16,182	83%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$348	1	2010	$943	1	2010	($595)	10%

Source: Based on therapist time, as reported in the treatment studies, as well as training costs and a flat fee for materials (e.g., manuals). Hourly therapist cost is based on the latest actuarial estimates of reimbursement by modality in WA State (DSHS).

Additional Notes

Some studies included in this analysis compared the program (CBT) to control conditions that did not consist of an active treatment. Because policymakers in Washington are interested in the impact of this program above and beyond currently implemented treatments (i.e., treatment as usual), we reduced the effect size of studies utilizing a no treatment or waitlist control group in half to reflect a smaller impact that would be expected if these studies compared CBT to treatment as usual.

We conducted a meta-regression to test for differences among various formats of CBT for anxious children (remote, individual, group, and parent CBT). The results showed that there were no statistically significant differences in the effect of various formats of CBT on anxiety. These treatments are presented separately, however, because each format is associated with a different program cost.

Head-to-head studies comparing one format of CBT to another were meta-analyzed. There were no differences between individual and group CBT, family and child CBT, and child versus child plus parent CBT. This suggests that all formats are equally efficacious in alleviating anxiety.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.42
Unusual (not “real world”) setting	1.00
Weak measurement used	1.00

Discounts were generated by examining studies for the treatment of children or adolescents with internalizing problems. Because weak measurement and unusual setting designations were extremely rare among these studies, no discounts were assigned. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Dummy variables for research design were not significant, indicating that this factor did not impact effect sizes. However, the involvement of program developers in the research was a significant predictor of effect size (B=-.482, p=.077), suggesting that such studies have more negative (i.e., larger) effect sizes than studies in which the developer is not involved in the evaluation. The regression coefficient was used to generate the 0.42 discount.

Studies Used in the Meta-Analysis

Kennedy, S. J., Rapee, R. M., & Edwards, S. L. (2009). A selective intervention program for inhibited preschool-aged children of parents with an anxiety disorder: Effects on current anxiety disorders and temperament. *Journal of the American Academy of Child & Adolescent Psychiatry, 48*(6), 602-609.

Rapee, R. M., Kennedy, S. J., Ingram, M., Edwards, S. L., & Sweeney, L. (2010). Altering the trajectory of anxiety in at-risk young children. *American Journal of Psychiatry, 167*(12), 1518-1525.

Waters, A. M., Ford, L. A., Wharton, T. A., & Cobham, V. E. (2009). Cognitive-behavioural therapy for young children with anxiety disorders: Comparison of a child + parent condition versus a parent only condition. *Behaviour Research and Therapy, 47*(8), 654-662.

Group Cognitive Behavioral Therapy (CBT) for Anxious Children

Program description:

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

Typical age of primary program participant: 10

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Anxiety Disorder	P	13	-0.94	0.16	0.00	-0.30	0.16	10	-0.15	0.32	15

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$4,307	$3,563	$2,261	$1,778	$11,909	$384	n/e	n/e	$12,293	90%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$559	1	2010	$943	1	2010	($384)	10%

Source: Based on therapist time, as reported in the treatment studies, as well as training costs and a flat fee for materials (e.g., manuals). Hourly therapist cost is based on the latest actuarial estimates of reimbursement by modality in WA State (DSHS).

Additional Notes

Some studies included in this analysis compared the program (CBT) to control conditions that did not consist of an active treatment. Because policymakers in Washington are interested in the impact of this program above and beyond currently implemented treatments (i.e., treatment as usual), we reduced the effect size of studies utilizing a no treatment or waitlist control group in half to reflect a smaller impact that would be expected if these studies compared CBT to treatment as usual.

We conducted a meta-regression to test for differences among various formats of CBT for anxious children (remote, individual, group, and parent CBT). The results showed that there were no statistically significant differences in the effect of various formats of CBT on anxiety. These treatments are presented separately, however, because each format is associated with a different program cost.

Head-to-head studies comparing one format of CBT to another were meta-analyzed. There were no differences between individual and group CBT, family and child CBT, and child versus child plus parent CBT. This suggests that all formats are equally efficacious in alleviating anxiety.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.42
Unusual (not “real world”) setting	1.00
Weak measurement used	1.00

Discounts were generated by examining studies for the treatment of children or adolescents with internalizing problems. Because weak measurement and unusual setting designations were extremely rare among these studies, no discounts were assigned. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Dummy variables for research design were not significant, indicating that this factor did not impact effect sizes. However, the involvement of program developers in the research was a significant predictor of effect size (B=-.482, p=.077), suggesting that such studies have more negative (i.e., larger) effect sizes than studies in which the developer is not involved in the evaluation. The regression coefficient was used to generate the 0.42 discount.

Studies Used in the Meta-Analysis

Barrett, P. M. (1998). Evaluation of cognitive-behavioral group treatments for childhood anxiety disorders. *Journal of Clinical Child Psychology, 27*(4), 459-468.

Bernstein, G. A., Layne, A. E., Egan, E. A., & Tennison, D. M. (2005). School-based interventions for anxious children. *Journal of the American Academy of Child & Adolescent Psychiatry, 44*(11), 1118-1127.

Dadds, M. R., Spence, S. H., Holland, D. E., Barrett, P. M., & Laurens, K. R. (1997). Prevention and early intervention for anxiety disorders: A controlled trial. *Journal of Consulting and Clinical Psychology, 65*(4), 627-635.

Gallagher, H. M., Rabian, B. A., & McCloskey, M. S. (2004). A brief group cognitive-behavioral intervention for social phobia in childhood. *Journal of Anxiety Disorders, 18*(4), 459-479.

Hudson, J. L., Rapee, R. M., Deveney, C., Schniering, C. A., Lyneham, H. J., & Bovopoulos, N. (2009). Cognitive-behavioral treatment versus an active control for children and adolescents with anxiety disorders: A randomized trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 48*(5), 533-544.

Lau, W.-Y., Chan, C. K.-Y., Li, J. C.-H., & Au, T. K.-F. (2010). Effectiveness of group cognitive-behavioral treatment for childhood anxiety in community clinics. *Behaviour Research and Therapy, 48*(11), 1067-1077.

Muris, P., Meesters, C., & van Melick, M. (2002). Treatment of childhood anxiety disorders: A preliminary comparison between cognitive-behavioral group therapy and a psychological placebo intervention. *Journal of Behavior Therapy and Experimental Psychiatry, 33*(3-4), 143-158.

Rapee, R. M., Abbott, M. J., & Lyneham, H. J. (2006). Bibliotherapy for children with anxiety disorders using written materials for parents: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 74*(3), 436-444.

Rapee, R. (2000). Group treatment of children with anxiety disorders: Outcome and predictors of treatment response. *Australian Journal of Psychology, 52*(3), 125-129.

Shortt, A. L., Barrett, P. M., & Fox, T. L. (2001). Evaluating the FRIENDS program: A cognitive-behavioral group treatment for anxious children and their parents. *Journal of Clinical Child Psychology, 30*(4), 525-535.

Silverman, W. K., Kurtines, W. M., Ginsburg, G. S., Weems., C. F., Lumpkin, P. W., & Carmichael, D. H. (1999). Treating anxiety disorders in children with group cognitive-behavioral therapy: A randomized clinical trial. *Journal of Consulting and Clinical Psychology, 67*(6), 995-1003.

Spence, S. H., Donovan, C., & Breechman-Toussaint, M. (2000). The treatment of childhood social phobia: The effectiveness of a social skills training-based, cognitive behavioural intervention, with and without prenatal involvement. *Journal of Child Psychology and Psychiatry, 41*(6), 713-726.

Spence, S. H., Holmes, J. M., March, S., & Lipp, O. V. (2006). The feasibility and outcome of clinic plus internet delivery of cognitive-behavior therapy for childhood anxiety. *Journal of Consulting and Clinical Psychology, 74*(3), 614-621.

Remote Cognitive Behavioral Therapy (CBT) for Anxious Children

Program description:

These treatments utilize the same principles and techniques as those of other CBT treatments for anxiety; however, they are unique insofar as clients have reduced (if any) face-to-face time with therapists. Clients are supported remotely via email or phone contact. A manual or online program helps to guide progress of the intervention.

Typical age of primary program participant: 10

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Anxiety Disorder	P	5	-1.14	0.26	0.00	-0.30	0.26	10	-0.15	0.52	15

Benefits and costs were not estimated for remote CBT programs.

Additional Notes

Some studies included in this analysis compared the program (CBT) to control conditions that did not consist of an active treatment. Because policymakers in Washington are interested in the impact of this program above and beyond currently implemented treatments (i.e., treatment as usual), we reduced the effect size of studies utilizing a no treatment or waitlist control group in half to reflect a smaller impact that would be expected if these studies compared CBT to treatment as usual.

We conducted a meta-regression to test for differences among various formats of CBT for anxious children (remote, individual, group, and parent CBT). The results showed that there were no statistically significant differences in the effect of various formats of CBT on anxiety. These treatments are presented separately, however, because each format is associated with a different program cost.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.42
Unusual (not “real world”) setting	1.00
Weak measurement used	1.00

Discounts were generated by examining studies for the treatment of children or adolescents with internalizing problems. Because weak measurement and unusual setting designations were extremely rare among these studies, no discounts were assigned. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Dummy variables for research design were not significant, indicating that this factor did not impact effect sizes. However, the involvement of program developers in the research was a significant predictor of effect size (B=-.482, p=.077), suggesting that such studies have more negative (i.e., larger) effect sizes than studies in which the developer is not involved in the evaluation. The regression coefficient was used to generate the 0.42 discount.

Studies Used in the Meta-Analysis

Khanna, M. S., & Kendall, P. C. (2010). Computer-assisted cognitive behavioral therapy for child anxiety: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 78*(5), 737-745.

Lyneham, H. J., & Rapee, R. M. (2006). Evaluation of therapist-supported parent-implemented CBT for anxiety disorders in rural children. *Behaviour Research and Therapy, 44*(9), 1287-1300.

March, S., Spence, S. H., & Donovan, C. L. (2009). The efficacy of an internet-based cognitive-behavioral therapy intervention for child anxiety disorders. *Journal of Pediatric Psychology, 34*(5), 474-487.

Rapee, R. M., Abbott, M. J., & Lyneham, H. J. (2006). Bibliotherapy for children with anxiety disorders using written materials for parents: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 74*(3), 436-444.

Spence, S. H., Holmes, J. M., March, S., & Lipp, O. V. (2006). The feasibility and outcome of clinic plus internet delivery of cognitive-behavior therapy for childhood anxiety. *Journal of Consulting and Clinical Psychology, 74*(3), 614-621.

Cognitive Behavioral Therapy (CBT) for Children with ADHD

Program description:

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

Typical age of primary program participant: 9

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Attention Deficit Hyperactivity Disorder symptoms	P	7	0.04	0.15	0.80	0.01	0.15	9	0.01	0.30	14

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix 2.	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$806	$528	$404	$256	$1,993	($963)	$2.08	8%	$1,031	51%

Detailed Cost Estimates

	Program Costs			Comparison Costs			Summary 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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$1,913	1	2010	$950	1	2010	$963	10%

Source: Based on therapist time, as reported in the treatment studies, as well as training costs and a flat fee for materials (e.g., manuals). Hourly therapist cost was based on the latest actuarial estimates of reimbursement by modality in WA State (DSHS).

Additional Notes

Some studies included in this analysis compared the program (CBT) to control conditions that did not consist of an active treatment. Because policymakers in Washington are interested in the impact of this program above and beyond currently implemented treatments (i.e., treatment as usual), we reduced the effect size of studies utilizing a no treatment or waitlist control group in half to reflect a smaller impact that would be expected if these studies compared CBT to treatment as usual.

Although the sample size of this analysis is slightly smaller than other analyses of mental health treatments, we felt confident drawing a conclusion about the efficacy of CBT for ADHD because the 7 studies included were methodologically rigorous.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.64
Unusual (not “real world”) setting	1.00
Weak measurement used	0.5

Discounts were generated by examining studies for the treatment of children or adolescents with externalizing problems. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Because research design rating and unusual setting were not significant predictors of effect size, no discounts were assigned. A dummy variable representing involvement of a program developer in the research study was a statistically significant predictor (B=-.189, p=.056), indicating that such studies had significantly more negative (i.e., larger) effect sizes than studies in which the developer was not involved. This coefficient was used to determine the 0.64 discount. Finally, we coded as weak measures outcomes that were based solely on the report of individuals who were involved in the intervention (either delivered it, as in the case of teachers, or received it, such as parents in a parenting program). Due to concern that such measures might be biased in favor of the programs reviewed, we utilized the standard Institute discount (0.5).

Studies Used in the Meta-Analysis

Abikoff, H. & Gittelman, R. (1985). Hyperactive children treated with stimulants: Is cognitive training a useful adjunct? *Archives of General Psychiatry, 42*(10), 953-961.

Abikoff, H., Ganeles, D., Reiter, G., Blum, C., Foley, C., & Klein, R. G. (1988). Cognitive training in academically deficient ADDH boys receiving stimulant medication. *Journal of Abnormal Child Psychology, 16*(4), 411-432.

Bloomquist, M. L., August, G. J., & Ostrander, R. (1991). Effects of a school-based cognitive-behavioral intervention for ADHD children. *Journal of Abnormal Child Psychology, 19*(5), 591-605.

Brown, R. T., Wynne, M. E., Borden, K. A., Clingerman, S. R., Geniesse, R., & Spunt, A. L. (1986). Methylphenidate and cognitive therapy in children with attention deficit disorder: A double-blind trial. *Journal of Developmental and Behavioral Pediatrics, 7*(3), 163-174.

Fehlings, D. L., Roberts, W., Humphries, T., & Dawe, G. (1991). Attention deficit hyperactivity disorder: Does cognitive behavioral therapy improve home behavior? *Journal of Developmental and Behavioral Pediatrics, 12*(4), 223-228.

Kaduson, H. G., & Finnerty, K. (1995). Self-control game interventions for attention-deficit hyperactivity disorder. *International Journal of Play Therapy, 4*(2), 15-29.

Behavioral Parent Training for Children With ADHD

Program description:

This is a brief intervention (spanning a couple of months) that involves psychoeducation and teaching parents behavior management techniques, such as reinforcement and teacher correspondence. Many studies utilize or build on Barkley's Defiant Children program.

Typical age of primary program participant: 6

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Disruptive Behavior Disorder symptoms	P	3	-0.46	0.13	0.00	-0.12	0.13	7	-0.06	0.27	12
Attention Deficit Hyperactivity Disorder symptoms	P	6	-0.40	0.10	0.00	-0.11	0.10	6	-0.06	0.21	11

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$1,081	$1,122	$908	$571	$3,683	$104	n/e	n/e	$3,786	84%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$846	1	2010	$950	1	2010	($104)	10%

Source: Based on therapist time, as reported in the treatment studies, as well as training costs and a flat fee for materials (e.g., manuals). Hourly therapist cost was based on the latest actuarial estimates of reimbursement by modality in WA State (DSHS).

Additional Notes

Some studies included in this analysis compared the program (BPT) to control conditions that did not consist of an active treatment. Because policymakers in Washington are interested in the impact of this program above and beyond currently implemented treatments (i.e., treatment as usual), we reduced the effect size of studies utilizing a no treatment or waitlist control group in half to reflect a smaller impact that would be expected if these studies compared BPT to treatment as usual.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.64
Unusual (not “real world”) setting	1.00
Weak measurement used	0.5

Discounts were generated by examining studies for the treatment of children or adolescents with externalizing problems. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Because research design rating and unusual setting were not significant predictors of effect size, no discounts were assigned. A dummy variable representing involvement of a program developer in the research study was a statistically significant predictor (B=-.189, p=.056), indicating that such studies had significantly more negative (i.e., larger) effect sizes than studies in which the developer was not involved. This coefficient was used to determine the 0.64 discount. Finally, we coded as weak measures outcomes that were based solely on the report of individuals who were involved in the intervention (either delivered it, as in the case of teachers, or received it, such as parents in a parenting program). Due to concern that such measures might be biased in favor of the programs reviewed, we utilized the standard Institute discount (0.5).

Studies Used in the Meta-Analysis

Anastopoulos, A. D., Shelton, T. L., DuPaul, G. J., & Guevremont, D. C. (1993). Parent training for attention-deficit hyperactivity disorder: Its impact on parent functioning. *Journal of Abnormal Child Psychology, 21*(5), 581-596.

Chacko, A., Wymbs, B. T., Wymbs, F. A., Pelham, W. E., Swanger-Gagne, M. S., 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.

Sonuga-Barke, E. J. S., Daley, D., Thompson, M., Laver-Bradbury, C., & Weeks, A. (2001). Parent-based therapies for preschool attention-deficit/hyperactivity disorder: A randomized, controlled trial with a community sample. *Journal of the American Academy of Child & Adolescent Psychiatry, 40*(4), 402-408.

Sonuga-Barke, E. J. S., Thompson, M., Daley, D., & Laver-Bradbury, C. (2004). Parent training for Attention Deficit/Hyperactivity Disorder: Is it as effective when delivered as routine rather than as specialist care? *British Journal of Clinical Psychology, 43*(4), 449-457.

Thompson, M. J. J., Laver-Bradbury, C., Ayres, M., Le Poidevin, E., Mead, S., Dodds, C., . . . Sonuga-Barke, E. J. S. (2009). A small-scale randomized controlled trial of the revised new forest parenting programme for preschoolers with attention deficit hyperactivity disorder. *European Child & Adolescent Psychiatry, 18*(10), 605-616.

van den Hoofdakker, B. J., van der Veen-Mulders, L., Sytema, S., Emmelkamp, P. M. G., Minderaa, R. B., & Nauta, M. H. (2007). Effectiveness of behavioral parent training for children with ADHD in routine clinical practice: A randomized controlled study. *Journal of the American Academy of Child & Adolescent Psychiatry, 46*(10), 1263-1271.

Multimodal Therapy (MMT) for Children With ADHD

Program description:

These treatments target more than one setting with psychosocial interventions. For instance, many therapies intervene with both parents and teachers or children. In this analysis, all studies utilized either behavioral or cognitive-behavioral orientations.

Typical age of primary program participant: 8

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Test scores (academic)	P	5	0.02	0.08	0.79	0.03	0.08	8	0.01	0.16	17
Disruptive Behavior Disorder symptoms	P	7	-0.29	0.13	0.02	-0.19	0.13	8	-0.09	0.25	13
Attention Deficit Hyperactivity Disorder symptoms	P	9	-0.18	0.12	0.14	-0.08	0.12	8	-0.04	0.24	13

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$5,988	$3,066	$1,073	$1,551	$11,677	($8,167)	$1.45	5%	$3,510	48%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$9,120	1	2010	$950	1	2010	$8,170	20%

Source: Based on therapist time, as reported in the treatment studies, as well as training costs and a flat fee for materials (e.g., manuals). Hourly therapist cost was based on the latest actuarial estimates of reimbursement by modality in WA State (DSHS).

Additional Notes

Some studies included in this analysis compared the program (MMT) to control conditions that did not consist of an active treatment. Because policymakers in Washington are interested in the impact of this program above and beyond currently implemented treatments (i.e., treatment as usual), we reduced the effect size of studies utilizing a no treatment or waitlist control group in half to reflect a smaller impact that would be expected if these studies compared MMT to treatment as usual.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.64
Unusual (not “real world”) setting	1.00
Weak measurement used	0.5

Discounts were generated by examining studies for the treatment of children or adolescents with externalizing problems. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Because research design rating and unusual setting were not significant predictors of effect size, no discounts were assigned. A dummy variable representing involvement of a program developer in the research study was a statistically significant predictor (B=-.189, p=.056), indicating that such studies had significantly more negative (i.e., larger) effect sizes than studies in which the developer was not involved. This coefficient was used to determine the 0.64 discount. Finally, we coded as weak measures outcomes that were based solely on the report of individuals who were involved in the intervention (either delivered it, as in the case of teachers, or received it, such as parents in a parenting program). Due to concern that such measures might be biased in favor of the programs reviewed, we utilized the standard Institute discount (0.5).

Studies Used in the Meta-Analysis

Abikoff, H., Hechtman, L., Klein, R. G., Weiss, G., Fleiss, K., Etcovitch, J., . . . Pollack, S. (2004). Symptomatic improvement in children with ADHD treated with long-term methylphenidate and multimodal psychosocial treatment. *Journal of the American Academy of Child & Adolescent Psychiatry, 43*(7), 802-811.

Chacko, A., Wymbs, B. T., Wymbs, F. A., Pelham, W. E., Swanger-Gagne, M. S., Girio, E., . . . O'Connor, B. (2009). Enhancing traditional behavioral parent training for single mothers of children with ADHD. *Journal of Clinical Child and Adolescent Psychology, 38*(2), 206-218.

Hechtman, L., Abikoff, H., Klein, R. G., Weiss, G., Respitz, C., Kouri, J., . . . Pollack, S. (2004). Academic achievement and emotional status of children with ADHD treated with long-term methylphenidate and multimodal psychosocial treatment. *Journal of the American Academy of Child & Adolescent Psychiatry, 43*(7), 812-819.

Hechtman, L., Etcovitch, J., Platt, R., Arnold, L. E., Abikoff, H. B., Newcorn, J. H., . . . Wigal, T. (2005). Does multimodal treatment of ADHD decrease other diagnoses? *Clinical Neuroscience Research, 5*(5-6), 273-282.

Horn, W. F., Ialongo, N. S., Pascoe, J. M., Greenberg, G., Packard, T., Lopez, M., . . . Puttler, L. (1991). Additive effects of psychostimulants, parent training, and self-control therapy with ADHD children. *Journal of the American Academy of Child & Adolescent Psychiatry, 30*(2), 233-240.

Klein, R. G., & Abikoff, H. (1997). Behavior therapy and methylphenidate in the treatment of children with ADHD. *Journal of Attention Disorders, 2*(2), 89-114.

MTA Cooperative Group. (1999). A 14-month randomized clinical trial of treatment strategies for attention-deficit hyperactivity disorder. *Archives of General Psychiatry, 56*(12), 1073-1086.

Pfiffner, L. J., Yee Mikami, A., Huang-Pollock, C., Easterlin, B., Zalecki, C., & McBurnett, K. (2007). A randomized, controlled trial of integrated home-school behavioral treatment for ADHD, predominantly inattentive type. *Journal of the American Academy of Child & Adolescent Psychiatry, 46*(8), 1041-1050.

van der Oord, S., Prins, P. J. M., Oosterlaan, J., & Emmelkamp, P. M. G. (2007). Does brief, clinically based, intensive multimodal behavior therapy enhance the effects of methylphenidate in children with ADHD? *European Child & Adolescent Psychiatry, 16*(1), 48-57.

Behavioral Parent Training (BPT) for Children With Disruptive Behavior Disorders

Program description:

In addition to several "brand name" parenting programs, we have grouped other brief treatments in which parents are taught behavior management skills and communication either alone or with their children (in a family format).

Typical age of primary program participant: 7

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Disruptive Behavior Disorder symptoms	P	7	-0.46	0.24	0.06	-0.07	0.24	9	-0.03	0.48	14

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$448	$1,136	$1,282	$578	$3,443	$103	n/e	n/e	$3,546	73%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$778	1	2010	$881	1	2010	($103)	10%

Source: Based on therapist time, as reported in the treatment studies, as well as training costs and a flat fee for materials (e.g., manuals). Hourly therapist cost was based on the latest actuarial estimates of reimbursement by modality in WA State (DSHS).

Additional Notes

Some studies included in this analysis compared the program (BPT) to control conditions that did not consist of an active treatment. Because policymakers in Washington are interested in the impact of this program above and beyond currently implemented treatments (i.e., treatment as usual), we reduced the effect size of studies utilizing a no treatment or waitlist control group in half to reflect a smaller impact that would be expected if these studies compared BPT to treatment as usual.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.64
Unusual (not “real world”) setting	1.00
Weak measurement used	0.5

Discounts were generated by examining studies for the treatment of children or adolescents with externalizing problems. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Because research design rating and unusual setting were not significant predictors of effect size, no discounts were assigned. A dummy variable representing involvement of a program developer in the research study was a statistically significant predictor (B=-.189, p=.056), indicating that such studies had significantly more negative (i.e., larger) effect sizes than studies in which the developer was not involved. This coefficient was used to determine the 0.64 discount. Finally, we coded as weak measures outcomes that were based solely on the report of individuals who were involved in the intervention (either delivered it, as in the case of teachers, or received it, such as parents in a parenting program). Due to concern that such measures might be biased in favor of the programs reviewed, we utilized the standard Institute discount (0.5).

Studies Used in the Meta-Analysis

Behan, J., Fitzpatrick, C., Sharry, J., Carr, A., & Waldron, B. (2001). Evaluation of the Parenting Plus Programme. *The Irish Journal of Psychology, 22*(3-4), 238-256.

Coughlin, M., Sharry, J., Fitzpatrick, C., Guerin, S., & Drumm, M. (2009). A controlled clinical evaluation of the parents plus children's programme: A video-based programme for parents of children aged 6 to 11 with behavioural and developmental problems. *Clinical Child Psychology and Psychiatry, 14*(4), 541-558.

Hamilton, S. B., & MacQuiddy, S. L. (1984). Self-administered behavioral parent training: Enhancement of treatment efficacy using a time-out signal seat. *Journal of Clinical Child & Adolescent Psychology, 13*(1), 61-69.

Landy, S., & Menna, R. (2006). An evaluation of a group intervention for parents with aggressive young children: Improvements in child functioning, maternal confidence, parenting knowledge and attitudes. *Early Child Development and Care, 176*(6), 605-620.

Luk, E. S. L., Staiger, P., Mathai, J., Field, D., & Adler, R. (1998). Comparison of treatments of persistent conduct problems in primary school children: A preliminary evaluation of a modified cognitive-behavioural approach. *Australian and New Zealand Journal of Psychiatry, 32*(3), 379-386.

Sayger, T. V., Horne, A. M., Walker, J. M., & Passmore, J. L. (1988). Social learning family therapy with aggressive children: Treatment outcome and maintenance. *Journal of Family Psychology, 1(3)*, 261-285.

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

Multimodal Therapy (MMT) for Children With Disruptive Behavior

Program description:

These treatments target more than one setting with psychosocial interventions. For instance, many therapies intervene with both parents and teachers or children. In this analysis, all studies utilized either behavioral or cognitive-behavioral orientations.

Typical age of primary program participant: 7

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Disruptive Behavior Disorder symptoms	P	3	-0.25	0.43	0.55	-0.05	0.43	8	-0.02	0.86	13

Benefit-Cost Summary

	Program Benefits					Costs	Summary Statistics			
The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$621	$1,703	$1,993	$860	$5,176	($1,245)	$4.16	24%	$3,931	63%

Detailed Cost Estimates

	Program Costs			Comparison Costs			Summary 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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$2,128	1	2010	$881	1	2010	$1,247	10%

Source: Based on therapist time, as reported in the treatment studies, as well as training costs and a flat fee for materials (e.g., manuals). Hourly therapist cost was based on the latest actuarial estimates of reimbursement by modality in WA State (DSHS).

Additional Notes

Some studies included in this analysis compared the program (MMT) to control conditions that did not consist of an active treatment. Because policymakers in Washington are interested in the impact of this program above and beyond currently implemented treatments (i.e., treatment as usual), we reduced the effect size of studies utilizing a no treatment or waitlist control group in half to reflect a smaller impact that would be expected if these studies compared MMT to treatment as usual.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.64
Unusual (not “real world”) setting	1.00
Weak measurement used	0.5

Discounts were generated by examining studies for the treatment of children or adolescents with externalizing problems. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Because research design rating and unusual setting were not significant predictors of effect size, no discounts were assigned. A dummy variable representing involvement of a program developer in the research study was a statistically significant predictor (B=-.189, p=.056), indicating that such studies had significantly more negative (i.e., larger) effect sizes than studies in which the developer was not involved. This coefficient was used to determine the 0.64 discount. Finally, we coded as weak measures outcomes that were based solely on the report of individuals who were involved in the intervention (either delivered it, as in the case of teachers, or received it, such as parents in a parenting program). Due to concern that such measures might be biased in favor of the programs reviewed, we utilized the standard Institute discount (0.5).

Studies Used in the Meta-Analysis

Barkley, R. A., Shelton, T. L., Crosswait, C., Moorehouse, M., Fletcher, K., Barrett, S., . . . Metevia, L. (2000). Multi-method psycho-educational intervention for preschool children with disruptive behavior: Preliminary results at post-treatment. *Journal of Child Psychology and Psychiatry, and Allied Disciplines, 41*(3), 319-332.

van de Wiel, N. M. H., Matthys, W., Cohen-Kettenis, P. T., Maassen, G. H., Lochman, J. E., & van Engeland, H. (2007). The effectiveness of an experimental treatment when compared to care as usual depends on the type of care as usual. *Behavior Modification, 31*(3), 298-312.

Walker, H. M., Kavanagh, K., Stiller, B., Golly, A., Severson, H. H., & Feil, E. D. (1998). First step to success: An early intervention approach for preventing school antisocial behavior. *Journal of Emotional and Behavioral Disorders, 6*(2), 66-80.

Brief Strategic Family Therapy (BSFT)

Program description:

This intervention is aimed at youth who are at risk of developing serious behavior problems, including delinquency and substance abuse. Because such risk can be defined in various ways, the studies in this analysis included participants with different types and severity of problems. This treatment has been extensively tested on ethnic minorities.

Typical age of primary program participant: 13

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Externalizing symptoms	P	3	-0.49	0.20	0.01	-0.24	0.20	14	-0.12	0.40	19

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$1,221	$1,438	$1,264	$730	$4,652	($501)	$9.27	n/e	$4,151	82%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$1,350	1	2010	$850	1	2010	$500	10%

Source: Based on therapist time, as reported in the treatment studies, as well as training costs and a flat fee for materials (e.g., manuals). Hourly therapist cost was based on the latest actuarial estimates of reimbursement by modality in WA State (DSHS).

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.64
Unusual (not “real world”) setting	1.00
Weak measurement used	0.5

Discounts were generated by examining studies for the treatment of children or adolescents with externalizing problems. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Because research design rating and unusual setting were not significant predictors of effect size, no discounts were assigned. A dummy variable representing involvement of a program developer in the research study was a statistically significant predictor (B=-.189, p=.056), indicating that such studies had significantly more negative (i.e., larger) effect sizes than studies in which the developer was not involved. This coefficient was used to determine the 0.64 discount. Finally, we coded as weak measures outcomes that were based solely on the report of individuals who were involved in the intervention (either delivered it, as in the case of teachers, or received it, such as parents in a parenting program). Due to concern that such measures might be biased in favor of the programs reviewed, we utilized the standard Institute discount (0.5).

Studies 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

Santisteban, D. A., Coatsworth, J. D., Perez-Vidal, A., Kurtines, W. M., Schwartz, S. J., LaPerriere, A., & Szapocznik, J. (2003). Efficacy of brief strategic family therapy in modifying Hispanic adolescent behavior problems and substance use. *Journal of Family Psychology, 17*(1), 121-133.

Szapocznik, J., Rio, A., Murray, E., Cohen, R., Scopetta, M., Rivas-Vasquez, A., . . . Kurtines, W. (1989). Structural family versus psychodynamic child therapy for problematic Hispanic boys. *Journal of Consulting and Clinical Psychology, 57*(5), 571-578.

Multisystemic Therapy (MST) for Youth With Serious Emotional Disturbance (SED)

Program description:

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

Typical age of primary program participant: 14

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Out-of-home placement	P	5	-0.71	0.24	0.00	-0.51	0.24	15	-0.51	0.24	15
Substance abuse	P	3	-0.08	0.12	0.51	-0.06	0.12	15	-0.06	0.24	25
Externalizing symptoms	P	4	-0.24	0.10	0.02	-0.18	0.10	15	-0.22	0.10	16
Crime	P	4	-0.06	0.14	0.69	-0.03	0.14	15	-0.03	0.28	25

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$1,585	$2,936	$1,355	$1,485	$7,361	($6,366)	$1.16	2%	$994	67%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$7,076	1	2008	$850	1	2010	$6,356	10%

Source: For estimation of MST, see: R. Barnoski (2009). Providing evidence-based programs with fidelity in Washington state juvenile courts: Cost analysis, Olympia: Washington State Institute for Public Policy, http://www.wsipp.wa.gov/rptfiles/09-12-1201.pdf.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.64
Unusual (not “real world”) setting	1.00
Weak measurement used	0.5

Discounts were generated by examining studies for the treatment of children or adolescents with externalizing problems. Meta-regressions were conducted to test for the impact of different methodological factors on unadjusted effect size. Because research design rating and unusual setting were not significant predictors of effect size, no discounts were assigned. A dummy variable representing involvement of a program developer in the research study was a statistically significant predictor (B=-.189, p=.056), indicating that such studies had significantly more negative (i.e., larger) effect sizes than studies in which the developer was not involved. This coefficient was used to determine the 0.64 discount. Finally, we coded as weak measures outcomes that were based solely on the report of individuals who were involved in the intervention (either delivered it, as in the case of teachers, or received it, such as parents in a parenting program). Due to concern that such measures might be biased in favor of the programs reviewed, we utilized the standard Institute discount (0.5).

Studies Used in the Meta-Analysis

Glisson, C., Schoenwald, S. K., Hemmelgarn, A., Green, P., Dukes, D., Armstrong, K. S., & Chapman, J. E. (2010). Randomized trial of MST and ARC in a two-level evidence-based treatment implementation strategy. Journal of Consulting and Clinical Psychology, 78(4), 537-550.

Henggeler, S. W., Rowland, M. D., Randall, J., Ward, D. M., Pickrel, S. G., Cunningham, P. B., . . . Santos, A. B. (1999). Home-based multisystemic therapy as an alternative to the hospitalization of youths in psychiatric crisis: Clinical outcomes. *Journal of the American Academy of Child & Adolescent Psychiatry, 38*(11), 1331-1339.

Henggeler, S. W., Rowland, M. D., Halliday-Boykins, C., Sheidow, A. J., Ward, D. M., Randall, J., . . . Edwards, J. (2003). One-year follow-up of multisystemic therapy as an alternative to the hospitalization of youths in psychiatric crisis. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*(5), 543-551.

Ogden, T., & Hagen, K. A. (2006). Multisystemic treatment of serious behaviour problems in youth: Sustainability of effectiveness two years after intake. *Child and Adolescent Mental Health, 11*(3), 142-149.

Ogden, T., & Halliday-Boykins, C. A. (2004). Multisystemic treatment of antisocial adolescents in Norway: Replication of clinical outcomes outside of the US. *Child and Adolescent Mental Health, 9*(2), 77-83.

Rowland, M. D., Halliday-Boykins, C. A., Henggeler, S. W., Cunningham, P. B., Lee, T. G., Kruesi, M. J. P., & Shapiro, S. B. (2005). A randomized trial of multisystemic therapy with Hawaii’s Felix Class youths. *Journal of Emotional and Behavioral Disorders, 13*(1), 13-23.

Sundell, K., Hansson, K., Lofholm, C. A., Olsson, T., Gustle, L. H., & Kadesjo, C. (2008). The transportability of multisystemic therapy to Sweden: Short-term results from a randomized trial of conduct-disordered youths. *Journal of Family Psychology, 22*(4), 550-560.

Weiss, B., Han, S., Harris, V., Castron, T., Ngo, V. K., & Caron, A. (n.d.). *An independent evaluation of the MST treatment program*. Unpublished manuscript emailed to M. Miller by S. Henggeler on May 4, 2010.

Children's Aid Society—Carrera

Program description:

Children's Aid Society – Carrera Project provides after-school activities five days a week for teens 13 and older. Program activities include Job Club (students receive stipends and employment experience), academic assistance (available every day), classes in family life and sexuality, an arts component, and individual sports one could continue throughout life. In addition, the program provides mental health care, medical care, and full dental care.

Typical age of primary program participant: 14

Typical age of secondary program participant: -2

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	-0.04	0.74	0.59	-0.04	0.74	17	-0.04	1.47	27
High school graduation	P	1	0.08	0.15	0.50	0.08	0.15	17	0.08	0.29	27
Teen pregnancy (under age 18)	P	1	-0.27	0.31	0.38	-0.27	0.31	17	-0.27	0.63	27
Initiation of sexual activity	P	1	-0.23	0.12	0.06	-0.23	0.12	17	-0.23	0.25	27
Teen births under age 18	P	1	-0.06	0.09	0.54	-0.06	0.09	17	-0.06	0.18	27
Underage alcohol use	P	1	-0.12	0.06	0.06	-0.12	0.06	17	-0.12	0.13	27
Teen births (second generation)	S	1	-0.06	0.09	0.54	-0.06	0.09	17	-0.06	0.18	27

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$4,906	$2,285	($741)	$1,162	$7,612	($13,919)	$0.55	n/e	($6,308)	38%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$4,000	3	2002	$0	1	2002	$13,901	10%

Source: Source: Philliber S et al. Preventing Pregnancy and Improving Health Care Access Among Teenagers: An Evaluation fo the Children's Aid Society-Carrera Program, 2002, Perspectives on Sexual and Reproductive Health, 34(5) page 251.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Philliber, S., Kaye, J., & Herrling, S. (2001, May). *The national evaluation of the Children's Aid Society Carrera-Model program to prevent teen pregnancy*. Accord, NY: Philliber Research Associates.

Philliber, S., Kaye, J. W., Herrling, S., & West, E. (2002). Preventing pregnancy and improving health care access among teenagers: An evaluation of the Children's Aid Society-Carrera program. *Perspectives on Sexual and Reproductive Health, 34*(5), 244-251.

Fast Track Prevention Program

Program description:

This is a comprehensive prevention program, delivered over the course of 10 years, that seeks to reduce multiple risk factors in children's lives (e.g., school, family). The program consists of various developmentally appropriate interventions at different ages, with the most intensive intervention taking place at younger ages.

Typical age of primary program participant: 6
Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	-0.17	0.07	0.52	-0.04	0.07	15	-0.05	0.07	18
Disruptive behavior disorder symptoms	P	1	-0.20	0.07	0.15	-0.10	0.07	15	-0.01	0.07	18
Attention deficit hyperactivity disorder symptoms	P	1	-0.15	0.12	0.27	-0.08	0.12	15	-0.01	0.08	18
Hospitalization (general)	P	1	-0.18	0.07	0.19	-0.09	0.07	19	-0.09	0.13	29
Hospitalization (psychiatric)	P	1	0.01	0.17	0.96	0.00	0.17	19	0.00	0.34	24

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$544	$1,018	$1,630	$500	$3,693	($57,492)	$0.06	n/e	($53,800)	0%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$5,828	10	2004	$0	10	2004	$57,399	10%

Source: Costs derived from estimate reported in Foster, E.M., Jones, D.E., & the Conduct Problems Prevention Research Group (2006). Can a costly intervention be cost-effective? An analysis of violence prevention. Archives of General Psychiatry, 63(11), 1284-1291.

Additional Notes

The analysis of this program included only 1 study; however, we feel confident drawing conclusions from this study because it was methodologically rigorous and included a large sample from which to generalize.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.75
4- Random assignment, with some RA implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Conduct Problems Prevention Research Group. (2007). Fast track randomized controlled trial to prevent externalizing psychiatric disorders: Findings from grades 3 to 9. *Journal of the American Academy of Child & Adolescent Psychiatry, 46*(10), 1250-1262.

Conduct Problems Prevention Research Group. (2010). Fast Track intervention effects on youth arrests and delinquency. *Journal of Experimental Criminology, 6*(2), 131-157.

Conduct Problems Prevention Research Group. (2011). The effects of the Fast Track preventive intervention on the development of conduct disorder across childhood. *Child Development, 82*(1), 331-345.

Jones, D., Godwin, J., Dodge, K. A., Bierman, K. L., Coie, J. D., Greenberg, M. T., . . . Pinderhughes, E. E. (2010). Impact of the fast track prevention program on health services use by conduct-problem youth. *Pediatrics, 125*(1), e130-e136.

Good Behavior Game

Program description:

The Good Behavior Game is a 2-year classroom management strategy designed to improve aggressive/disruptive classroom behavior and prevent later criminality. The program is universal and can be applied to general populations of early elementary school children (grades 1 and 2).

Typical age of primary program participant: 6

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	-0.11	0.10	0.27	-0.06	0.10	20	-0.06	0.20	30
High school graduation	P	1	0.16	0.09	0.07	0.08	0.09	20	0.08	0.18	30
Age of initiation (tobacco)	P	2	-0.23	0.07	0.00	-0.09	0.07	12	-0.09	0.15	22
Regular smoking	P	1	-0.57	0.31	0.06	-0.28	0.31	20	-0.28	0.61	30
Alcohol abuse or dependence	P	1	-0.41	0.17	0.01	-0.21	0.17	20	-0.21	0.33	30
Major depressive disorder	P	2	-0.22	0.08	0.01	-0.21	0.08	20	-0.10	0.17	25
Other illicit drug abuse or dependence	P	1	-0.32	0.09	0.00	-0.16	0.09	20	-0.16	0.18	30
Anxiety disorder	P	2	-0.24	0.09	0.01	-0.24	0.09	20	-0.12	0.18	25
Externalizing behavior symptoms	P	2	-0.31	0.07	0.00	-0.25	0.07	12	-0.13	0.13	17
Suicide attempts	P	1	-0.45	0.18	0.01	-0.23	0.18	20	-0.11	0.36	25
Antisocial personality disorder	P	1	-0.29	0.14	0.03	-0.15	0.14	20	-0.07	0.27	25

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$5,699	$4,137	$2,622	$2,051	$14,508	($150)	$96.80	79%	$14,358	100%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$78	2	2011	$0	1	2011	$150	10%

Source: Costs include teacher training, classroom supplies, district GBG coach training, subcontractor support, and travel costs. The estimate is based on training for 30 teachers and one coach over two years and a cumulative 3,375 students served in GBG classrooms over five years. Information for this costs estimate was provided by Jeanne Poduska, Sc D, American Institutes for Research.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.75
4- Random assignment, with some RA implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Ialongo, N., Poduska, J., Werthamer, L., & Kellam, S. (2001). The distal impact of two first-grade preventive interventions on conduct problems and disorder in early adolescence. *Journal of Emotional and Behavioral Disorders, 9*(3), 146-160.

Kellam, S. G., & Anthony, J. C. (1998). Targeting early antecedents to prevent tobacco smoking: Findings from an epidemiologically based randomized field trial. *American Journal of Public Health, 88*(10), 1490-1495.

Kellam, S. G., Reid, J., & Balster, R. L. (2008). Effects of a universal classroom behavior program in first and second grades on young adult problem outcomes. *Drug and Alcohol Dependence, 95*(Suppl. 1), S1-S4.

Storr, C. L., Ialongo, N. S., Kellam, S. G., & Anthony, J. C. (2002). A randomized controlled trial of two primary school intervention strategies to prevent early onset tobacco smoking. *Drug and Alcohol Dependence, 66*(1), 51-60.

Vuijk, P., van Lier, P. A. C., Crijnen, A. A. M., & Huizink, A. C. (2007). Testing sex-specific pathways from peer victimization to anxiety and depression in early adolescents through a randomized intervention trial. *Journal of Affective Disorders, 100*(1-3), 221-226.

Witvliet, M., van Lier, P. A. C., Cuijpers, P., & Koot, H. M. (2009). Testing links between childhood positive peer relations and externalizing outcomes through a randomized controlled intervention study. *Journal of Consulting and Clinical Psychology, 77*(5), 905-915.

Promoting Alternative Thinking Strategies (PATHS)

Program description:

The PATHS Curriculum is a classroom socioemotional learning (SEL) program designed to improve self-control, emotional understanding, interpersonal relationships, and social problem-solving skills. We consider PATHS to be a prevention program based on the assumption that when SEL skills taught in this program are applied, serious emotional and behavioral problems are prevented.

Typical age of primary program participant: 6

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Externalizing symptoms	P	4	-0.05	0.14	0.74	0.00	0.14	7	0.00	0.27	17
Internalizing symptoms	P	3	-0.06	0.12	0.62	0.00	0.12	7	0.00	0.23	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$116	$483	$614	$248	$1,460	($112)	$13.04	30%	$1,348	66%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$30	3	1998	$0	3	1998	$112	10%

Source: Based on midpoint of annual per-student costs from Blueprints for Violence Prevention: http://www.colorado.edu/cspv/blueprints/modelprograms/PATHS.html.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.75
4- Random assignment, with some RA implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Conduct Problems Prevention Research Group. (1999). Initial impact of the Fast Track prevention trial for conduct problems: II. Classroom effects. *Journal of Consulting and Clinical Psychology, 67*(5), 648-657.

Domitrovich, C., Cortes, R., & Greenberg, M. (2007). Improving young children's social and emotional competence: A randomized trial of the preschool "PATHS" curriculum. *Journal of Primary Prevention, 28*(2), 67-91.

Greenberg, M. T., & Kusché, C. A. (1998). Preventive intervention for school-age deaf children: The PATHS curriculum. *Journal of Deaf Studies and Deaf Education, 3*(1), 49-63.

Riggs, N., Greenberg, M., Kusché C. A., C., & Pentz, M. (2006). The mediational role of neurocognition in the behavioral outcomes of a social-emotional prevention program in elementary school students: Effects of the PATHS curriculum. *Prevention Science, 7*(1), 91-102.

Quantum Opportunities Program

Program description:

The Quantum Opportunities Program provides disadvantaged high school students education, service, and development activities, as well as financial incentives (stipends) for youths' continuing participation. Mentoring is one component of the services provided. The program begins in ninth grade and continues through students' high school graduation.

Typical age of primary program participant: 14
Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	2	-0.34	0.43	0.43	-0.26	0.43	20	0.38	0.06	24
High school graduation	P	3	0.32	0.14	0.02	0.30	0.14	18	0.30	0.14	18
Public assistance	P	3	0.03	0.37	0.93	0.07	0.37	24	0.07	0.74	34
Teen births under age 18	P	2	-0.12	0.24	0.62	-0.12	0.24	18	-0.12	0.24	18
Teen births (second generation)	S	2	-0.12	0.24	0.62	-0.12	0.24	18	-0.12	0.24	18

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$19,678	$7,670	($6,823)	$3,852	$24,377	($25,262)	$0.98	4%	($885)	47%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$5,000	5	2006	$0	1	2006	$25,276	30%

Source: Average cost per youth is $25,000 for five years. We put a 30% uncertainty estimate around this figure because the average costs vary widely by site. Maxfield, M., Schirm, A., & Rodriguez-Planas, N. (2003). The Quantum Opportunity Program demonstration: Implementation and short-term impacts (Document No. PR03-18). Princeton, NJ: Mathematica Policy Research, p. 12.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Aarons, S. J., Jenkins, R. R., Raine, T. R., El-Khorazaty, M. N., Woodward, K. M., Williams, R. L., . . . Wingrove, B. K. (2000). Postponing sexual intercourse among urban junior high school students-a randomized controlled evaluation. *Journal of Adolescent Health, 27*(4), 236-247.

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Howard, M., & McCabe, J. A. (1992). An information and skills approach for younger teens: Postponing Sexual Involvement program. In B. C. Miller, J. J. Card, R. L. Paikoff, & J. L. Peterson (Eds.), *Preventing adolescent pregnancy: Model programs and evaluations* (pp. 83-109). Thousand Oaks, CA: Sage.

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Maxfield, M., Schirm, A., & Rodriguez-Planas, N. (2003, August). *The Quantum Opportunity Program demonstration: Implementation and short-term impacts* (Document No. PR03-18). Princeton, NJ: Mathematica Policy Research.

Mellanby, A. R., Phelps, F. A., Crichton, N. J., & Tripp, J. H. (1995). School sex education: An experimental programme with educational and medical benefit. *British Medical Journal, 311*(7002), 414-417.

Schirm, A., Stuart, E., & McKie, A. (2006, July). *The Quantum Opportunity Program Demonstration: Final impacts* (Document No. PR06-70). Princeton, NJ: Mathematica Policy Research.

Seattle Social Development Project

Program description:

The Seattle Social Development Project (SSDP) targets youth in grades 1 to 6 to increase bonding to school and family as a protective measure against school failure, delinquency, drug abuse, teen pregnancy, and violence. The SSDP is a school-based program with annual teacher training in communication, effective classroom management, and cooperative learning. The program also includes child skill development in communication, negotiation, conflict resolution, and refusal skills. Parents are trained in behavior management, academic support, and skills to reduce risks for drug use.

Typical age of primary program participant: 8

Typical age of secondary program participant: -8

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	-0.21	0.16	0.00	-0.05	0.16	19	-0.05	0.32	29
High school graduation	P	1	0.25	0.16	0.00	0.06	0.16	19	0.06	0.16	19
K-12 grade repetition	P	1	-0.36	0.17	0.00	-0.09	0.17	19	-0.09	0.35	29
Teen pregnancy (under age 18)	P	1	-0.33	0.16	0.00	-0.08	0.16	19	-0.08	0.33	29
Initiation of sexual activity	P	1	-0.38	0.16	0.00	-0.10	0.16	19	-0.10	0.32	29
Teen births under age 18	P	1	-0.30	0.21	0.00	-0.08	0.21	19	-0.08	0.21	19
Underage alcohol use	P	1	-0.03	0.15	0.00	-0.01	0.15	19	-0.01	0.29	29
Teen births (second generation)	S	1	-0.30	0.21	0.00	-0.08	0.21	19	-0.08	0.21	19

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$2,934	$1,952	$338	$1,013	$6,237	($2,959)	$2.11	9%	$3,279	61%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$499	5	1999	$0	1	1999	$2,957	10%

Source: Hawkins JD, Catalano RF et al. 1999, Prevention of Adolescent Health-Risk Behaviors, p. 234.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Hawkins, J. D., Catalano, R. F., Kosterman, R., Abbott, R., & Hill, K. G. (1999). Preventing adolescent health-risk behaviors by strengthening protection during childhood. *Archives of Pediatrics & Adolescent Medicine, 153*(3), 226-234.

Hawkins, J. D., Kosterman, R., Catalano, R. F., Hill, K. G., & Abbott, R. D. (2005). Promoting positive adult functioning through social development intervention in childhood: Long-term effects from the Seattle Social Development Project. *Archives of Pediatrics & Adolescent Medicine, 159*(1), 25-31.

Youth Mentoring Programs (total costs)

Program description:

Youth mentoring programs include school- and community-based programs such as Big Brothers/Big Sisters. A typical program matches an adult volunteer with a middle school-aged at-risk youth to meet one to four times per month for activities and guidance. This set of results includes our estimates for the cost of volunteer time.

Typical age of primary program participant: 13

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	-0.07	0.06	0.27	-0.07	0.06	14	-0.07	0.13	24
High school graduation	P	2	0.28	0.38	0.27	0.09	0.38	18	0.09	0.38	18
Age of initiation (alcohol)	P	1	0.41	0.14	0.00	0.41	0.14	14	0.41	0.29	24
Age of initiation (other illicit drugs)	P	1	0.25	0.09	0.01	0.25	0.09	14	0.25	0.19	24
Grade point average	P	9	0.15	0.08	0.05	0.10	0.08	14	0.10	0.15	17
School attendance	P	4	0.08	0.03	0.01	0.06	0.03	14	0.06	0.06	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$12,795	$6,672	$1,942	$3,376	$24,785	($4,650)	$5.39	10%	$20,135	82%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$3,245	1	1992	$0	1	1992	$4,682	20%

Source: Cost estimates are based on Institute estimates derived from the Big Brothers/Big Sisters program, as described in J.B. Grossman and J.P. Tierney (1998). Does mentoring work? An impact study of the Big Brothers Big Sisters Program. Evaluation Review, 22(3): 403-426. Excluding the cost of using volunteers, the taxpayer-only cost was approximately $1,000 in 1992.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Aarons, S. J., Jenkins, R. R., Raine, T. R., El-Khorazaty, M. N., Woodward, K. M., Williams, R. L., . . . Wingrove, B. K. (2000). Postponing sexual intercourse among urban junior high school students-a randomized controlled evaluation. *Journal of Adolescent Health, 27*(4), 236-247.

Aiello, H. S. (1989). Assessment of a mentor program on self-concept and achievement variables of middle school underachievers. *Dissertation Abstracts International, 49*(07), 1699A.

Bernstein, L., Rappaport, C. D., Olsho, L., Hunt, D., Levin, M. (with Dyous, C., . . . Rhodes, W.). (2009, March). *Impact evaluation of the U.S. Department of Education's Student Mentoring Program: Final report*. Washington, DC : National Center for Education Evaluation and Regional Assistance.

DeSocio, J., VanCura, M., Nelson, L. A., Hewitt, G., Kitzman, H., & Cole, R. (2007). Engaging truant adolescents: Results from a multifaceted intervention pilot. *Preventing School Failure, 51*(3), 3-9.

Flaherty, B. P. (1985). An experiment in mentoring for high school students assigned to basic courses. *Dissertation Abstracts International, 46*(02), 352A.

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Harmon, M. A. (1996). Reducing drug use among pregnant and parenting teens: A program evaluation and theoretical examination. *Dissertation Abstracts International, 56*(08), 3319A.

Herrera, C., Grossman, J. B., Kauh, T. J., & McMaken, J. (2011). Mentoring in schools: An impact study of Big Brothers Big Sisters school-based mentoring. *Child Development, 82*(1), 346-361.

Howard, M., & McCabe, J. A. (1992). An information and skills approach for younger teens: Postponing Sexual Involvement program. In B. C. Miller, J. J. Card, R. L. Paikoff, & J. L. Peterson (Eds.), *Preventing adolescent pregnancy: Model programs and evaluations* (pp. 83-109). Thousand Oaks, CA: Sage.

Johnson, A. (1999, December). *Sponsor-a-Scholar: Long-term impacts of a youth mentoring program on student performance* (Document No. PR99-99). Princeton, NJ: Mathematica Policy Research.

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Reyes, O., & Jason, L. A. (1991). An evaluation of a high school dropout prevention program. *Journal of Community Psychology, 19*(3), 221-230.

Schinke, S. P., Cole, K. C., & Poulin, S. R. (2000). Enhancing the educational achievement of at-risk youth. *Prevention Science, 1*(1), 51-60.

Sinclair, M. F., Christenson, S. L., & Thurlow, M. L. (2005). Promoting school completion of urban secondary youth with emotional or behavioral disabilities. *Exceptional Children, 71*(4), 465-482.

Youth Mentoring Programs (taxpayer costs only)

Program description:

Youth mentoring programs include school- and community-based programs such as Big Brothers/Big Sisters. A typical program matches an adult volunteer with a middle school-aged at-risk youth to meet one to four times per month for activities and guidance. This set of results includes our estimates for taxpayer costs only (and excludes the cost of volunteer time).

Typical age of primary program participant: 13

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	-0.07	0.06	0.27	-0.07	0.06	14	-0.07	0.13	24
High school graduation	P	2	0.28	0.38	0.27	0.09	0.38	18	0.09	0.38	18
Age of initiation (alcohol)	P	1	0.41	0.14	0.00	0.41	0.14	14	0.41	0.29	24
Age of initiation (other illicit drugs)	P	1	0.25	0.09	0.01	0.25	0.09	14	0.25	0.19	24
Grade point average	P	9	0.15	0.08	0.05	0.10	0.08	14	0.10	0.15	17
School attendance	P	4	0.08	0.03	0.01	0.06	0.03	14	0.06	0.06	17

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$12,181	$6,229	$1,905	$3,131	$23,445	($1,434)	$16.52	16%	$22,010	94%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$1,000	1	1992	$0	1	1992	$1,443	20%

Source: Cost estimates are based on Institute estimates derived from the Big Brothers/Big Sisters program, as described in J.B. Grossman and J.P. Tierney (1998). Does mentoring work? An impact study of the Big Brothers Big Sisters Program. Evaluation Review, 22(3): 403-426. Excluding the cost of using volunteers, the taxpayer-only cost was approximately $1,000 in 1992.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Aarons, S. J., Jenkins, R. R., Raine, T. R., El-Khorazaty, M. N., Woodward, K. M., Williams, R. L., . . . Wingrove, B. K. (2000). Postponing sexual intercourse among urban junior high school students-a randomized controlled evaluation. *Journal of Adolescent Health, 27*(4), 236-247.

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Bernstein, L., Rappaport, C. D., Olsho, L., Hunt, D., Levin, M. (with Dyous, C., . . . Rhodes, W.). (2009, March). *Impact evaluation of the U.S. Department of Education's Student Mentoring Program: Final report*. Washington, DC : National Center for Education Evaluation and Regional Assistance.

DeSocio, J., VanCura, M., Nelson, L. A., Hewitt, G., Kitzman, H., & Cole, R. (2007). Engaging truant adolescents: Results from a multifaceted intervention pilot. *Preventing School Failure, 51*(3), 3-9.

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Grossman, J. B., & Tierney, J. P. (1998). Does mentoring work? An impact study of the Big Brothers Big Sisters program. *Evaluation Review, 22*(3), 403-426.

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Howard, M., & McCabe, J. A. (1992). An information and skills approach for younger teens: Postponing Sexual Involvement program. In B. C. Miller, J. J. Card, R. L. Paikoff, & J. L. Peterson (Eds.), *Preventing adolescent pregnancy: Model programs and evaluations* (pp. 83-109). Thousand Oaks, CA: Sage.

Johnson, A. (1999, December). *Sponsor-a-Scholar: Long-term impacts of a youth mentoring program on student performance* (Document No. PR99-99). Princeton, NJ: Mathematica Policy Research.

Kirby, D., Korpi, M., Barth, R. P., & Cagampang, H. H. (1997). The impact of the Postponing Sexual Involvement curriculum among youths in California. *Family Planning Perspectives, 29*(3), 100-108.

Mellanby, A. R., Phelps, F. A., Crichton, N. J., & Tripp, J. H. (1995). School sex education: An experimental programme with educational and medical benefit. *British Medical Journal, 311*(7002), 414-417.

Reyes, O., & Jason, L. A. (1991). An evaluation of a high school dropout prevention program. *Journal of Community Psychology, 19*(3), 221-230.

Schinke, S. P., Cole, K. C., & Poulin, S. R. (2000). Enhancing the educational achievement of at-risk youth. *Prevention Science, 1*(1), 51-60.

Sinclair, M. F., Christenson, S. L., & Thurlow, M. L. (2005). Promoting school completion of urban secondary youth with emotional or behavioral disabilities. *Exceptional Children, 71*(4), 465-482.

Life Skills Training

Program description:

Life Skills Training (LST) is a school-based classroom intervention to reduce the risks of alcohol, tobacco, drug abuse, and violence by targeting social and psychological factors associated with initiation of risky behaviors. Teachers deliver the program to middle/junior high school students in 24 to 30 sessions over three years. Students in the program are taught general self-management and social skills and skills related to avoiding substance use.

Typical age of primary program participant: 13

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	1	-0.19	0.03	0.00	-0.05	0.03	13	-0.05	0.06	23
Age of initiation (tobacco)	P	16	0.16	0.03	0.00	0.08	0.03	14	0.08	0.05	24
Underage alcohol use	P	9	-0.10	0.03	0.00	-0.04	0.03	14	-0.04	0.07	24
Cannabis use	P	7	-0.06	0.02	0.01	-0.04	0.02	15	-0.04	0.05	25
Illicit drug use	P	5	-0.11	0.02	0.00	-0.04	0.02	14	-0.04	0.05	24

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$313	$360	$554	$188	$1,415	($34)	$42.13	n/e	$1,382	88%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$9	3	1998	$0	1	1998	$34	10%

Source: Cost estimates for materials and per-teacher on-line training are from the LST website (http://www.lifeskillstraining.com). We also included a per-student estimate for the cost of training teachers. This estimate assumes that each trained teacher provides LST instruction to an average of 375 students over 5 years.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Botvin, G. J., & Eng, A. (1982). The efficacy of a multicomponent approach to the prevention of cigarette smoking. *Preventive Medicine, 11*(2), 199-211.

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Spoth, R. L., Redmond, C., Trudeau, L., & Shin, C. (2002). Longitudinal substance initiation outcomes for a universal preventive intervention combining family and school programs. *Psychology of Addictive Behaviors, 16*(2), 129-134.

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Project Towards No Drug Abuse (TND)

Program description:

This is a drug abuse prevention program with a focus on high school youth who are at risk for drug abuse. It has been tested at traditional and alternative high schools. A set of 12 in-class interactive sessions addresses the use of cigarettes, alcohol, marijuana, and hard drug use.

Typical age of primary program participant: 16

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Regular smoking	P	6	-0.05	0.05	0.29	-0.02	0.05	18	-0.02	0.09	28
Age of initiation (other illicit drugs)	P	6	0.25	0.08	0.00	0.11	0.08	18	0.11	0.16	28
Underage alcohol use	P	6	-0.05	0.03	0.07	-0.02	0.03	18	-0.02	0.05	28
Cannabis use	P	6	-0.06	0.03	0.03	-0.02	0.03	18	-0.02	0.05	28

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$36	$60	$53	$94	$243	($14)	$17.31	n/e	$229	99%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$14	1	2010	$0	1	2010	$14	10%

Source: Cost estimates for student materials ($12) and per-teacher training provided by Project TND. The per-student estimate for the cost of training teachers is based on an average $1,650 one- to two-day training fee plus trainer travel costs of $1,065 trainer (http://tnd.usc.edu/training_cost.php). The estimate assumes that each trained teacher provides TND to an average of 375 students over 5 years.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.75
4- Random assignment, with some RA implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Dent, C. W., Sussman, S., & Stacy, A. W. (2001). Project Towards No Drug Abuse: Generalizability to a general high school sample. *Preventive Medicine, 32*(6), 514-520.

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Motivational Interviewing/Motivational Enhancement Therapy for Smoking

Program description:

Motivational Interviewing is a client-centered approach to counseling that helps clients overcome their ambivalence or lack of resolve for behavioral change. In a collaborative and supportive setting, counselors elicit motivation to change from the client rather than through direction or persuasion. Motivational enhancement therapy incorporates structured assessments and follow-up sessions for personal feedback regarding assessment findings.

Typical age of primary program participant: 30

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Second-ary Partici-pant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Regular smoking	P	24	-0.25	0.08	0.00	-0.19	0.08	30	-0.19	0.16	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Partici-pants	Tax-payers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Invest-ment	Benefits Minus Costs	Measure of Risk
	$183	$277	$317	$6,352	$7,129	($201)	$35.44	n/e	$6,928	89%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$155	1	1997	$0	1	1997	$202	10%

Source: Costs are based on an average of 110 minutes of counseling by a trained therapist per intervention. The length of the motivational intervening intervention is the average number of minutes reported in the meta-analyzed studies. The hourly rate was reported in Office of Applied Studies. (2004, June). Alcohol and drug services study (ADSS) cost study. Rockville, MD: Department of Health & Human Services, Substance Abuse and Mental Health Services Administration, Author, p. 23. Another 12 percent was added to costs for administration.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.75
4- Random assignment, with some RA implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

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Effect size adapted from Lundahl et al., 2010.

Motivational Interviewing/Motivational Enhancement Therapy for Alcohol Abuse

Program description:

Motivational Interviewing is a client-centered approach to counseling that helps clients overcome their ambivalence or lack of resolve for behavioral change. In a collaborative and supportive setting, counselors elicit motivation to change from the client rather than through direction or persuasion. Motivational enhancement therapy incorporates structured assessments and follow-up sessions for personal feedback regarding assessment findings.

Typical age of primary program participant: 30

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Alcohol abuse or dependence	P	68	-0.15	0.03	0.00	-0.11	0.03	30	-0.11	0.06	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$3,156	$1,408	$268	$1,936	$6,768	($202)	$33.56	n/e	$6,566	99%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$155	1	1997	$0	1	1997	$202	10%

Source: Costs are based on an average of 110 minutes of counseling by a trained therapist per intervention. The length of the motivational intervening intervention is the average number of minutes reported in the meta-analyzed studies. The hourly rate was reported in Office of Applied Studies. (2004, June). Alcohol and drug services study (ADSS) cost study. Rockville, MD: Department of Health & Human Services, Substance Abuse and Mental Health Services Administration, Author, p. 23. Another 12 percent was added to costs for administration.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.75
4- Random assignment, with some RA implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

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Studies Used in the Meta-Analysis

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Effect size adapted from Lundahl et al., 2010.

Motivational Interviewing/Motivational Enhancement Therapy for Cannabis Abuse

Program description:

Motivational Interviewing is a client-centered approach to counseling that helps clients overcome their ambivalence or lack of resolve for behavioral change. In a collaborative and supportive setting, counselors elicit motivation to change from the client rather than through direction or persuasion. Motivational enhancement therapy incorporates structured assessments and follow-up sessions for personal feedback regarding assessment findings.

Typical age of primary program participant: 30

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Cannabis abuse or dependence	P	17	-0.26	0.09	0.00	-0.20	0.09	30	-0.20	0.17	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.	Program Benefits					Costs	Summary Statistics			
	Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
	$2,309	$1,042	$0	$516	$3,867	($202)	$19.18	n/e	$3,665	93%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
	$155	1	1997	$0	1	1997	$202	0%

Source: Costs are based on an average of 110 minutes of counseling by a trained therapist per intervention. The length of the motivational intervening intervention is the average number of minutes reported in the meta-analyzed studies. The hourly rate was reported in Office of Applied Studies. (2004, June). Alcohol and drug services study (ADSS) cost study. Rockville, MD: Department of Health & Human Services, Substance Abuse and Mental Health Services Administration, Author, p. 23. Another 12 percent was added to costs for administration.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.75
4- Random assignment, with some RA implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Golin, C. E., Earp, J., Tien, H. C., Stewart, P., Porter, C., & Howie, L. (2006). A 2-arm, randomized, controlled trial of a motivational interviewing-based intervention to improve adherence to antiretroviral therapy (ART) among patients failing or initiating ART. *Journal of Acquired Immune Deficiency Syndromes, 42*(1), 42-51.

Gray, E., McCambridge, J., & Strang, J. (2005). The effectiveness of motivational interviewing delivered by youth workers in reducing drinking, cigarette and cannabis smoking among young people: Quasi-experimental pilot study. *Alcohol and Alcoholism, 40*(6), 535-539.

Lundahl, B. W., Kunz, C., Brownell, C., Tollefson, D., & Burke, B. L. (2010). A meta-analysis of motivational interviewing: Twenty-five years of empirical studies. *Research on Social Work Practice, 20*(2), 137-160.

The Marijuana Treatment Project Research Group. (2004). Brief treatments for cannabis dependence: Findings from a randomized multisite trial. *Journal of Consulting and Clinical Psychology, 72*(3), 455-466.

McCambridge, J., & Strang, J. (2004). The efficacy of single-session motivational interviewing in reducing drug consumption and perceptions of drug-related risk and harm among young people: Results from a multi-site cluster randomized trial. *Addiction, 99*(1), 39-52.

McCambridge, J., & Strang, J. (2005). Deterioration over time in effect of motivational interviewing in reducing drug consumption and related risk among young people. *Addiction, 100*(4), 470-478.

Naar-King, S., Wright, K., Parsons, J. T., Frey, M., Templin, T., Lam, P., & Murphy, D. (2006). Healthy choices: Motivational enhancement therapy for health risk behaviors in HIV-positive youth. *Aids Education and Prevention, 18*(1), 1-11.

Peterson, P. L., Baer, J. S., Wells, E. A., Ginzler, J. A., & Garrett, S. B. (2006). Short-term effects of a brief motivational intervention to reduce alcohol and drug risk among homeless adolescents. *Psychology of Addictive Behaviors, 20*(3), 254-264.

Stein, L. A. R., Colby, S. M., Barnett, N. P., Monti, P. M., Golembeske, C., & Lebeau-Craven, R. (2006). Effects of motivational interviewing for incarcerated adolescents on driving under the influence after release. *American Journal on Addictions, 15*(1), 50-57.

Stephens, R. S., Roffman, R. A., & Curtin, L. (2000). Comparison of extended versus brief treatments for marijuana use. *Journal of Consulting and Clinical Psychology, 68*(5), 898–908.

Stephens, R. S., Roffman, R. A., Fearer, S. A., Williams, C., Picciano, J. F., & Burke, R. S. (2004). The Marijuana Check-up: Reaching users who are ambivalent about change. *Addiction, 99*(10), 1323-1332.

Effect size adapted from Lundahl et al., 2010

Motivational Interviewing/Motivational Enhancement Therapy for Illicit Drug Abuse

Program description:

Motivational Interviewing is a client-centered approach to counseling that helps clients overcome their ambivalence or lack of resolve for behavioral change. In a collaborative and supportive setting, counselors elicit motivation to change from the client rather than through direction or persuasion. Motivational enhancement therapy incorporates structured assessments and follow-up sessions for personal feedback regarding assessment findings.

Typical age of primary program participant: 30
Typical age of secondary program participant:
N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Other illicit drug abuse or dependence	P	27	-0.08	0.06	0.15	-0.06	0.06	30	-0.06	0.12	40

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$554	$596	$407	$452	$2,010	($202)	$9.96	n/e	$1,808	80%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$155	1	1997	$0	1	1997	$202	10%

Source: Costs are based on an average of 110 minutes of counseling by a trained therapist per intervention. The length of the motivational intervening intervention is the average number of minutes reported in the meta-analyzed studies. The hourly rate was reported in Office of Applied Studies. (2004, June). Alcohol and drug services study (ADSS) cost study. Rockville, MD: Department of Health & Human Services, Substance Abuse and Mental Health Services Administration, Author, p. 23. Another 12 percent was added to costs for administration.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.75
4- Random assignment, with some RA implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Bernstein, J., Bernstein, E., Tassiopoulos, K., Heeren, T., Levenson, S., & Hingson, R. (2005). Brief motivational intervention at a clinic visit reduces cocaine and heroin use. *Drug and Alcohol Dependence, 77*(1), 49-59.

Carroll, K. M., Ball, S. A., Nich, C., Martino, S., Frankforter, T. L., Farentinos, C., . . . Woody, G. E. (2006). Motivational interviewing to improve treatment engagement and outcome in individuals seeking treatment for substance abuse: A multisite effectiveness study. *Drug and Alcohol Dependence, 81*(3), 301-312.

Golin, C. E., Earp, J., Tien, H. C., Stewart, P., Porter, C., & Howie, L. (2006). A 2-arm, randomized, controlled trial of a motivational interviewing-based intervention to improve adherence to antiretroviral therapy (ART) among patients failing or initiating ART. *Journal of Acquired Immune Deficiency Syndromes, 42*(1), 42-51.

Haug, N. A., Svikis, D. S., & DiClemente, C. (2004). Motivational enhancement therapy for nicotine dependence in methadone-maintained pregnant women. *Psychology of Addictive Behaviors, 18*(3), 289-292.

Helstrom, A., Hutchison, K., & Bryan, A. (2007). Motivational enhancement therapy for high-risk adolescent smokers. *Addictive Behaviors, 32*(10), 2404-2410.

Lundahl, B. W., Kunz, C., Brownell, C., Tollefson, D., & Burke, B. L. (2010). A meta-analysis of motivational interviewing: Twenty-five years of empirical studies. *Research on Social Work Practice, 20*(2), 137-160.

Martino, S., Carroll, K. M., Nich, C., & Rounsaville, B. J. (2006). A randomized controlled pilot study of motivational interviewing for patients with psychotic and drug use disorders. *Addiction, 101*(10), 1479-1492.

McCambridge, J., & Strang, J. (2004). The efficacy of single-session motivational interviewing in reducing drug consumption and perceptions of drug-related risk and harm among young people: Results from a multi-site cluster randomized trial. *Addiction, 99*(1), 39-52.

McCambridge, J., & Strang, J. (2005). Deterioration over time in effect of motivational interviewing in reducing drug consumption and related risk among young people. *Addiction, 100*(4), 470-478.

Mitcheson, L., McCambridge, J., & Byrne, S. (2007). Pilot cluster-randomised trial of adjunctive motivational interviewing to reduce crack cocaine use in clients on methadone maintenance. *European Addiction Research, 13*(1), 6-10.

Mullins, S. M., Suarez, M., Ondersma, S. J., & Page, M. C. (2004). The impact of motivational interviewing on substance abuse treatment retention: A randomized control trial of women involved with child welfare. *Journal of Substance Abuse Treatment, 27*(1), 51-58.

Peterson, P. L., Baer, J. S., Wells, E. A., Ginzler, J. A., & Garrett, S. B. (2006). Short-term effects of a brief motivational intervention to reduce alcohol and drug risk among homeless adolescents. *Psychology of Addictive Behaviors, 20*(3), 254-264.

Rosenblum, A., Foote, J., Cleland, C., Magura, S., Mahmood, D., & Kosanke, N. (2005). Moderators of effects of motivational enhancements to cognitive behavioral therapy. *The American Journal of Drug and Alcohol Abuse, 31*(1), 35-58.

Saunders, B., Wilkinson, C., & Phillips, M. (1995). The impact of a brief motivational intervention with opiate users attending a methadone programme. *Addiction, 90*(3), 415-424.

Schneider, R. J., Casey, J., & Kohn, R. (2000). Motivational versus confrontational interviewing: A comparison of substance abuse assessment practices at employee assistance programs. *The Journal of Behavioral Health Services & Research, 27*(1), 60-74.

Stotts, A. L., Schmitz, J. M., Rhoades, H. M., & Grabowski, J. (2001). Motivational interviewing with cocaine-dependent patients: A pilot study. *Journal of Consulting and Clinical Psychology, 69*(5), 858-862.

Stotts, A., Potts, G., Ingersoll, G., George, M., & Martin, L. (2006). Preliminary feasibility and efficacy of a brief motivational intervention with psychophysiological feedback for cocaine abuse. *Substance Abuse, 27*(4), 9-20.

Effect size adapted from Lundahl et al., 2010.

Brief Alcohol Screening and Intervention for College Students (BASICS)

Program description:

Brief Alcohol Screening and Intervention for College Students (BASICS) is a prevention program for heavy-drinking college students who are at risk for alcohol-related problems. At-risk students are identified and provided two 1-hour motivational interviews and an assessment with customized feedback.

Typical age of primary program participant: 19

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Alcohol abuse or dependence	P	7	-0.26	0.07	0.00	-0.13	0.07	19	-0.13	0.14	29

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2010). The economic discount rates and other relevant parameters are described in Technical Appendix II.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Measure of Risk
$1,224	$555	$129	$309	$2,216	($221)	$10.04	n/e	$1,995	86%

Detailed Cost Estimates

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 uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix II.

Program Costs			Comparison Costs			Summary Statistics	
Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2010 dollars)	Uncertainty (+ or – %)
$170	1	1997	$0	1	1997	$221	10%

Source: Costs are based on an average of 2 hours of counseling by a trained therapist per intervention. The hourly rate was reported in Office of Applied Studies. (2004, June). Alcohol and drug services study (ADSS) cost study. Rockville, MD: Department of Health & Human Services, Substance Abuse and Mental Health Services Administration, Author, p. 23. Another 12 percent was added to costs for administration.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.75
4- Random assignment, with some RA implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Baer, J. S., Kivlahan, D. R., Blume, A. W., McKnight, P., & Marlatt, G. A. (2001). Brief intervention for heavy-drinking college students: 4-year follow-up and natural history. *American Journal of Public Health, 91*(8), 1310-1316.

Borsari, B., & Carey, K. B. (2000). Effects of a brief motivational intervention with college student drinkers. *Journal of Consulting and Clinical Psychology, 68*(4), 728-733.

Juarez, P., Walters, S. T., Daugherty, M., & Radi, C. (2006). A randomized trial of motivational interviewing and feedback with heavy drinking college students. *Journal of Drug Education, 36*(3), 233-246.

Larimer, M. E., Turner, A. P., Anderson, B. K., Fader, J. S., Kilmer, J. R., Palmer, R. S., & Cronce, J. M. (2001). Evaluating a brief alcohol intervention with fraternities. *Journal of Studies on Alcohol, 62*(3), 370-380.

Murphy, J. G., Duchnick, J. J., Vuchinich, R. E., Davison, J. W., Karg, R. S., Olson, A. M., . . . Coffey, T. T. (2001). Relative efficacy of a brief motivational intervention for college student drinkers. *Psychology of Addictive Behaviors, 15*(4), 373-379.

Schaus, J. F., Sole, M. L., McCoy, T. P., Mullett, N., & O'Brien, M. C. (2009). Alcohol screening and brief intervention in a college student health center: A randomized controlled trial. *Journal of Studies on Alcohol and Drugs, Suppl. 16*, 131-141.

Cognitive Behavioral Therapy (CBT) for Adult Anxiety

Program description:

Cognitive-behavioral therapies include various components, such as cognitive restructuring, behavioral activation, emotion regulation, exposure, communication skills, and problem-solving. Most commonly, studies offering this treatment provided 10-20 therapeutic hours per client in individual or group modality. Most studies in this analysis focused on a single anxiety disorder (generalized anxiety, obsessive-compulsive, panic, social phobia, or posttraumatic stress) with aspects of the treatment tailored to the specific disorder.

Typical age of primary program participant: 31

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Anxiety disorder	P	33	-0.86	0.08	0.00	-0.79	0.08	31	-0.40	0.17	33

Benefits and costs were not estimated for adult mental health programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.74
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate meta-regression analysis of 74 effect sizes from evaluations of cognitive-behavioral therapy for depression or anxiety. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor of approximately 1, and research design 4 should have a discount factor of greater than 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the authors were also the program developer or were also the therapists. Based on regression results, we set the discount rate at 0.74.

Studies Used in the Meta-Analysis

Barlow, D. H., Cohen, A. S., Waddell, M. T., Vermilyea, B. B., Klosko, J. S., Blanchard, E. B., & Di Nardo, P. A. (1984). Panic and generalized anxiety disorders: Nature and treatment. *Behavior Therapy, 15*(5), 431-449.

Barlow, D. H., Gorman, J. M., Shear, M. K., & Woods, S. W. (2000) Cognitive-behavioral therapy, imipramine, or their combination for panic disorder: A randomized controlled trial. *JAMA, 283*(19), 2529-2536.

Beck, A. T., Sokol, L., Clark, D. A., Berchick, R., & Wright, F. (1992). A crossover study of focused cognitive therapy for panic disorder. *American Journal of Psychiatry, 149*(6), 778-783.

Beck, J. G., Coffey, S. F., Foy, D. W., Keane, T. M., & Blanchard, E. B. (2009). Group cognitive behavior therapy for chronic posttraumatic stress disorder: An initial randomized pilot study. *Behavior Therapy, 40*(1), 82-92.

Borkovec, T. D., & Mathews, A. M. (1988). Treatment of nonphobic anxiety disorders: A comparison of nondirective, cognitive and coping desensitization therapy. *Journal of Consulting and Clinical Psychology, 56*(6), 877-884.

Studies Used in the Meta-Analysis

Borkovec, T. D., Mathews, A. M., Chambers, A., Ebrahimi, S., Lytle, R., & Nelson, R. (1987). The effects of relaxation training with cognitive or nondirective therapy and the role of relaxation-induced anxiety in the treatment of generalized anxiety. *Journal of Consulting and Clinical Psychology, 55*(6), 883-888.

Borkovec, T.D., & Costello, E. (1993). Efficacy of applied relaxation and cognitive-behavioral therapy in the treatment of generalized anxiety disorder. *Journal of Consulting and Clinical Psychology, 61*(4), 611-619.

Bryant, R. A., Harvey, A. G., Dang, S. T., Sackville, T., & Basten, C. (1998). Treatment of acute stress disorder: A comparison of cognitive-behavioral therapy and supportive counseling. *Journal of Consulting and Clinical Psychology, 66*(5), 862-866.

Bryant, R. A., Mastrodomenico, J., Felmingham, K. L., Hopwood, S., Kenny, L., Kandris, E., . . . Creamer, M. (2008). Treatment of acute stress disorder: A randomized controlled trial. *Archives of General Psychiatry, 65*(6), 659-667.

Bryant, R. A., Moulds, M. L., Guthrie, R. M., & Nixon, R. D. V. (2005). The additive benefit of hypnosis and cognitive-behavioral therapy in treating acute stress disorder. *Journal of Consulting and Clinical Psychology, 73*(2), 334-340.

Butler, G., Fennell, M., Robson, P., & Gelder, M. (1991). Comparison of behavior therapy and cognitive behavior therapy in the treatment of generalized anxiety disorder. *Journal of Consulting and Clinical Psychology, 59*(1), 167-175.

Chard, K. M. (2005). An evaluation of cognitive processing therapy for the treatment of posttraumatic stress disorder related to childhood sexual abuse. *Journal of Consulting and Clinical Psychology, 73*(5), 965-971.

Cordioli, A. V., Heldt, E., Braga, B. D. Margis, R., Basso de Sousa, M., Tonello, J. F., . . . Kapczinski, F. (2003). Cognitive-behavioral group therapy in obsessive-compulsive disorder: A randomized clinical trial. *Psychotherapy and Psychosomatics, 72*(4), 211-216.

Dugas, M. J., Ladouceur, R., Leger, E., Freeston, M. H., Langolis, F., Provencher, M. D., & Boisvert, J.-M. (2003). Group cognitive-behavioral therapy for generalized anxiety disorder: Treatment outcome and long-term follow-up. *Journal of Consulting and Clinical Psychology,* 71(4), 821-825.

Ehlers, A., Clark, D. M., Hackmann, A., McManus, F., Fennell, M., Herbert, C., & Mayou, R. (2003). A randomized controlled trial of cognitive therapy, a self-help booklet, and repeated assessments as early interventions for posttraumatic stress disorder. *Archives of General Psychiatry, 60*(10), 1024-1032.

Feske, U. (2008). Treating low-income and minority women with posttraumatic stress disorder: A pilot study comparing prolonged exposure and treatment as usual conducted by community therapists. *Journal of Interpersonal Violence, 23*(8), 1027-1040.

Foa, E. B., Liebowitz, M. R., Kozak, M. J., Davies, S., Campeas, R., Franklin, M. E., . . . Tu, X. (2005). Randomized, placebo-controlled trial of exposure and ritual prevention, clomipramine, and their combination in the treatment of obsessive-compulsive disorder. *The American Journal of Psychiatry, 162*(1), 151-161.

Foa, E. B., Rothbaum, B. O., Riggs, D. S., & Murdock, T. B. (1991). Treatment of posttraumatic stress disorder in rape victims: A comparison between cognitive-behavioral procedures and counseling. *Journal of Consulting and Clinical Psychology, 59*(5), 715-723.

Freeston, M. H., Ladouceur, R., Gagnon, F., Thibodeau, N., Rheaume, J., Letarte, H., & Bujold, A. (1997). Cognitive-behavioral treatment of obsessive thoughts: A controlled study. *Journal of Consulting and Clinical Psychology, 65*(3), 405-413.

Koszycki, D., Benger, M., Shlik, J., & Bradwejn, J. (2007). Randomized trial of a meditation-based stress reduction program and cognitive behavior therapy in generalized social anxiety disorder. *Behaviour Research and Therapy, 45*(10), 2518-2526.

Ladouceur, R., Dugas, M. J., Freeston, M. H., Leger, E., Gagnon, F., & Thibodeau, N. (2000). Efficacy of a cognitive-behavioral treatment for generalized anxiety disorder: Evaluation in a controlled clinical trial. *Journal of Consulting and Clinical Psychology, 68*(6), 957-964.

Lidren, D. M., Watkins, P. L., Gould, R. A., Clum, G. A., Asterino, M., & Tulloch, H. L. (1994). A comparison of bibliotherapy and group therapy in the treatment of panic disorder. *Journal of Consulting and Clinical Psychology, 62*(4), 865-869.

Lindsay, W. R., Gamsu, C. V., McLaughlin, E., Hood, E. M., & Espie, C. A. (1987). A controlled trial of treatments for generalized anxiety. *British Journal of Clinical Psychology, 26*(Pt 1), 3-15.

Monson, C. M., Schnurr, P. P., Resick, P. A., Friedman, M. J., Young-Xu, Y., & Stevens, S. P. (2006). Cognitive processing therapy for veterans with military-related posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 74*(5), 898-907.

Mörtberg, E., Karlsson, A., Fyring, C., & Sundin, O. (2006). Intensive cognitive-behavioral group treatment (CBGT) of social phobia: A randomized controlled study. *Journal of Anxiety Disorders, 20*(5), 646-660.

Resick, P. A., Nishith, P., Weaver, T. L., Astin, M. C., & Feuer, C. A. (2002). A comparison of cognitive-processing therapy with prolonged exposure and a waiting condition for the treatment of chronic posttraumatic stress disorder in female rape victims. *Journal of Consulting and Clinical Psychology, 70*(4), 867-879.

Sharp, D. M., Power, K. G, Simpson, R. J., Swanson, V., Moodie, E., Anstee, J. A., & Ashford, J. J. (1996). Fluvoxamin, placebo, and cognitive behaviour therapy used alone and in combination in the treatment of panic disorder and agoraphobia. *Journal of Anxiety Disorders, 10*(4), 219-242.

van Emmerik, A. A. P., Kamphuis, J. H., & Emmelkamp, P. M. G. (2008). Treating acute stress disorder and posttraumatic stress disorder with cognitive behavioral therapy or structured writing therapy: A randomized controlled trial. *Psychotherapy and Psychosomatics, 77*(2), 93-100.

White, J., Keenan, M., & Brooks, N. (1992). Stress control: A controlled comparative investigation of large group therapy for generalized anxiety disorder. *Behavioural Psychotherapy, 20*(2), 97-114.

Cognitive Behavioral Therapy (CBT) for Adult Depression

Program description:

Cognitive-behavioral therapies include various components, such as cognitive restructuring, behavioral activation, emotion regulation, communication skills, and problem-solving. Treatment is goal-oriented and generally of limited duration. Most commonly, studies offering this treatment provided 10-20 therapeutic hours per client in individual or group modality.

Typical age of primary program participant: 35

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Major depressive disorder	P	41	-0.71	0.09	0.00	-0.62	0.09	35	-0.31	0.18	37

Benefits and costs were not estimated for adult mental health programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	1.00
4- Random assignment, with some RA implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	0.74
Unusual (not “real world”) setting	0.50
Weak measurement used	0.50

The discount factors for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate meta-regression analysis of 74 effect sizes from evaluations of cognitive-behavioral therapy for depression or anxiety. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (see Technical Appendix II for a description of these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 1, 2, and 3 should have a discount factor of approximately 1 and research design 4 should have a discount factor of greater than 1. Using a conservative approach, we set all the discount rates to 1.

In this analysis, we also found that effect sizes were statistically significantly higher when the authors were also the program developer or were also the therapists. Based on regression results, we set the discount rate at 0.74. Regression results also indicated that among studies of CBT for depression, effect sizes were significantly greater when the comparison group was a wait-list, rather than attention or active treatment. We applied a discount of 0.40 to studies with wait-list comparison groups.

Studies Used in the Meta-Analysis

Barnhofer, T., Crane, C., Hargus, E., Amarasinghe, M., Winder, R., & Williams, J. M. (2009). Mindfulness-based cognitive therapy as a treatment for chronic depression: A preliminary study. *Behaviour Research and Therapy, 47*(5), 366-373.

Barrera, M. J. (1979). An evaluation of a brief group therapy for depression. *Journal of Consulting and Clinical Psychology, 47*(2), 413-415.

Beutler, L. E., Engle, D., Mohr, D., Daldrup, R. J., Bergan, J., Meredith, K., & Merry, W. (1991). Predictors of differential response to cognitive, experiential, and self-directed psychotherapeutic procedures. *Journal of Consulting and Clinical Psychology, 59*(2), 333-340.

Blackburn, I. M., Bishop, S., Glen, A. I., Whalley, L. J., & Christie, J. E. (1981). The efficacy of cognitive therapy in depression: A treatment trial using cognitive therapy and pharmacotherapy, each alone and in combination. *The British Journal of Psychiatry, 139*(3), 181-189.

Bockting, C. L., Schene, A. H., Spinhoven, P., Koeter, M. W., Wouters, L. F., Huyser, J., & Kamphuis, J. H. (2005). Preventing relapse/recurrence in recurrent depression with cognitive therapy: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 73*(4), 647-657.

Bowers, W. A. (1990). Treatment of depressed in-patients. Cognitive therapy plus medication, relaxation plus medication, and medication alone. *The British Journal of Psychiatry, 156*(1), 73-78.

Comas-Diaz, L. (1981). Effects of cognitive and behavioral group treatment on the depressive symptomatology of Puerto Rican women. *Journal of Consulting and Clinical Psychology, 49*(5), 627-632.

Cooper, P. J., Murray, L., Wilson, A., & Romaniuk, H. (2003). Controlled trial of the short- and long-term effect of psychological treatment of post-partum depression: 1. Impact on maternal mood. *The British Journal of Psychiatry, 182*(5), 412-419.

Studies Used in the Meta-Analysis

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School-based Sexual Education

Program description:

School-based sex education curricula provide information about and instruct students in skills for sexual abstinence; many programs also provide students information about birth control and ways to protect against sexually transmitted diseases (STD). We did not include programs that focused only on HIV or STD risk reduction because we focused on the prevention of teen pregnancy. We analyzed 14 studies of abstinence-only programs and comprehensive sexual health programs and found no significant differences (p=.65) in effects on teens initiating sexual activity; only comprehensive programs measured pregnancy outcomes. Usually the programs lasted less than 2 months, however, a few were offered over 2 school years. Students were typically middle-school to early high school age and most programs were lead by teachers who received training in the curriculum. An exception was abstinence-only programs, which were usually offered by trained outside facilitators and trained student peer-leaders. Programs evaluated included Draw the Line/Respect the Line (Coyle 2004), Safer Choices (Coyle 2001), Reducing the Risk (Barth 1992), Sexual Health and Relationships (Henderson 2007), Promoting Health Among Teens comprehensive education (Jermmott 2010), Project Taking Charge (Jorgenson 1991), McMasters Teen Program (Mitchell-DiCenso 1997), Randomized Intervention Trial of Pupil Led Sex Education (Stephenson 2008), It's Your Game: Keep It Real (Tortolero 2009), Managing Pressures Before Marriage (Blake 2001), For Keeps (Borawski 2005), Skills and Knowledge for AIDS and Pregnancy Prevention (Kirby 1997), and abstinence education (Treholm 2007).

Typical age of primary program participant: 13

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Teen pregnancy (under age 18)	P	4	0.02	0.06	0.00	0.01	0.06	17	0.01	0.11	27
Initiation of sexual activity	P	14	-0.06	0.04	0.00	-0.03	0.04	15	-0.03	0.08	25

Benefits and costs were not estimated for teen pregnancy prevention programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Barth, R. P., Leland, N., Kirby, D., & Fetro, J. V. (1992). Enhancing social and cognitive skills. In B. C. Miller, J. J. Card, R. L. Paikoff, & J. L. Peterson (Eds.), *Preventing adolescent pregnancy: Model programs and evaluations* (pp. 53-82). Thousand Oaks, CA: Sage.

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Coyle, K. K., Kirby, D. B., Marin, B. V., Gomez, C. A., & Gregorich, S. E. (2004). Draw the line/respect the line: A randomized trial of a middle school intervention to reduce sexual risk behaviors. *American Journal of Public Health, 94*(5), 843-851.

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Tortolero, S. R., Markham, C. M., Peskin, M. F., Shegog, R., Addy, R. C., Escobar-Chaves, S. L., & Baumler, E. R. (2009). It’s your game: Keep it real: Delaying sexual behavior with an effective middle school program. *Journal of Adolescent Health, 46*(2), 169-179.

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Postponing Sexual Involvement (c)

Program description:

Postponing Sexual Involvement (PSI) is a two-stage program typically offered to 8th and 9th grade students. The program consists of five classes on human sexuality taught by a classroom teacher, followed by five classes on refusal skills taught by trained peer educators (11th- and 12-grade students).

Typical age of primary program participant: 13

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Initiation of sexual activity	P	5	-0.19	0.10	0.00	-0.04	0.10	14	-0.04	0.20	24

Benefits and costs were not estimated for teen pregnancy prevention programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Aarons, S. J., Jenkins, R. R., Raine, T. R., El-Khorazaty, M. N., Woodward, K. M., Williams, R. L., . . . Wingrove, B. K. (2000). Postponing sexual intercourse among urban junior high school students-a randomized controlled evaluation. *Journal of Adolescent Health, 27*(4), 236-247.

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Kirby, D., Korpi, M., Barth, R. P., & Cagampang, H. H. (1997). The impact of the Postponing Sexual Involvement curriculum among youths in California. *Family Planning Perspectives, 29*(3), 100-108.

Mellanby, A. R., Phelps, F. A., Crichton, N. J., & Tripp, J. H. (1995). School sex education: An experimental programme with educational and medical benefit. *British Medical Journal, 311*(7002), 414-417.

School-Based Service Learning

Program description:

School-based service learning programs promote integration of service-learning in the school curriculum and deliver services to the community. Students are involved in community field experiences in nursing homes, senior centers, and child centers, among other locations. This program is coupled with classroom discussions of their experiences to reinforce social and critical skills and help students develop as individuals and as engaged citizens. Health education and/or social studies may be included in the curriculum. Typically, these programs target higher risk student populations.

Typical age of primary program participant: 15

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Teen pregnancy (under age 18)	P	3	-0.20	0.19	0.00	-0.16	0.19	16	-0.16	0.39	26

Benefits and costs were not estimated for teen pregnancy prevention programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Coyle, K. K., Kirby, D. B., Robin, L. E., Banspach, S. W., Baumler, E., & Glassman, J. R. (2006). All4You! A randomized trial of an HIV, other STDs, and pregnancy prevention intervention for alternative school students. *AIDS Education and Prevention, 18*(3), 187-203.

Melchior, A. (1998, July). *National evaluation of learn and serve America school and community-based programs: Final report*. Cambridge, MA: Abt Associates.

O'Donnell, L., Stueve, A., O'Donnell, C., Duran, R., San Doval, A., Wilson, R. F., . . . Pleck, J. H. (2002) Long-term reductions in sexual initiation and sexual activity among urban middle schoolers in the Reach for Health service learning program. *Journal of Adolescent Health, 31*(1), 93-100.

Teen Outreach Program

Program description:

Teen Outreach Program (TOP) is a volunteer service learning program for high school students, aimed at high risk adolescents, and consisting of supervised community volunteer experience (e.g. in nursing homes, senior centers, child care centers) of between 20 to 40 hours per school year to increase students' social engagement with peers, teachers, and community adults. This is coupled with classroom discussions of the volunteer experience as well as other topics (15 percent or less on sexuality) with trained teachers/facilitators. Trained program staff coordinate the placements of students with community agencies.

Typical age of primary program participant: 16

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Teen pregnancy (under age 18)	P	2	-0.55	0.21	0.00	-0.27	0.21	17	-0.27	0.42	27

Benefits and costs were not estimated for teen pregnancy prevention programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not "real-world") setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Allen, J. P., Philliber, S., Herrling, S., & Kuperminc, G. P. (1997). Preventing teen pregnancy and academic failure: Experimental evaluation of a developmentally based approach. *Child Development, 64*(4), 729-742.

Philliber, S., & Allen, J. P. (1992). Life options and community service: Teen outreach program. In B. C. Miller, J. J. Card, R. L. Paikoff, & J. L. Peterson (Eds.), *Preventing adolescent pregnancy: Model programs and evaluations* (pp. 139-155). Thousand Oaks, CA: Sage.

Adolescent Sibling Pregnancy Prevention

Program description:

Adolescent Sibling Pregnancy Prevention Project was conducted in California to prevent pregnancy among adolescents with a pregnant or parenting teenage sibling, a group identified as high risk of early pregnancy. The intervention is delivered by non-profit social service agencies, school districts, and public health departments to youth 11 to 17 years old. There is no prescribed intervention except for a once-a-month face-to-face meeting with the youth and a case manager; most locations offer a variety of activities.

Typical age of primary program participant: 14

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Teen pregnancy (under age 18)	P	1	-0.19	0.05	0.00	-0.09	0.05	14	-0.09	0.10	24
Initiation of sexual activity	P	1	-0.28	0.06	0.00	-0.14	0.06	14	-0.14	0.12	24
Truancy	P	1	-0.08	0.04	0.07	-0.04	0.04	14	-0.04	0.09	24

Benefits and costs were not estimated for teen pregnancy prevention programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

East, P., Kiernan, E., & Chavez, G. (2003). An evaluation of California's Adolescent Sibling Pregnancy Prevention Program. *Perspectives on Sexual and Reproductive Health, 35*(2), 62-70.

School Programs for Healthy Eating to Prevent Obesity

Program description:

School-based programs for healthy eating include those that discourage children from consuming sweetened carbonated drinks and more comprehensive curricula that increase children's knowledge about healthy food choices, including the USDA's recommended food groups for a well-balanced meal: whole grains, lean proteins, and low-fat dairy. Some programs try to build self-monitoring skills such as keeping a food diary or recognizing cues that prompt intake of less healthy foods. In some programs, educational materials are sent to parents; typically, this content is part of the overall health education curriculum and taught by classroom teachers who have received brief training in nutrition guidelines and strategies for healthy eating for children. In the evaluation of these programs they are usually compared to the standard health education curriculum, which may also contain content on healthy eating.

Typical age of primary program participant: 8

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Child obesity – body mass index	P	3	-0.099	0.01	0.00	-0.099	0.01	10	-0.099	0.01	20

Benefits and costs were not estimated for obesity prevention programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not "real-world") setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

James, J., Thomas, P., & Kerr, D. (2007). Preventing childhood obesity: Two year follow-up results from the Christchurch obesity prevention programme in schools (CHOPPS). *British Medical Journal, 335*(7623), 762-764.

Moore, J. B., Pawloski, L. R., Goldberg, P., Oh, K. M., Stoehr, A., & Baghi, H. (2009). Childhood obesity study: A pilot study of the effect of the nutrition education program "Color My Pyramid." *The Journal of School Nursing, 25*(3), 230-239.

Muckelbauer, R., Libuda, L., Clausen, K., Reinehr, T., & Kersting, M. (2009). A simple dietary intervention in the school setting decreased incidence of overweight in children. *Obesity Facts, 2*(5), 282-285.

School Programs for Physical Activity to Prevent Obesity

Program description:

Programs in school that aim to increase children's physical activity and reduce sedentary behaviors include increasing knowledge about the benefits of physical activity; incorporating physical activity in the classroom with short periods of movement, exercise, dance, etc., interspersed between academic lessons; or increased time, frequency, and/or intensity of the physical education curriculum. Typically these programs are taught by classroom or physical education teachers who receive brief (< 1 day) training to deliver the intervention. The evaluations usually compare these programs to the standard health education and physical activity curriculum, which also provide opportunities to exercise and contain content on the importance of physical activity.

Typical age of primary program participant: 10

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Child obesity – body mass index	P	12	-0.07	0.03	0.04	-0.05	0.03	12	-0.05	0.03	22

Benefits and costs were not estimated for obesity prevention programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	1.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Donnelly, J. E., Greene, J. L., Gibson, C. A., Smith, B. K., Washburn, R. A., Sullivan, D. K., . . . Williams, S. L. (2009). Physical Activity Across the Curriculum (PAAC): A randomized controlled trial to promote physical activity and diminish overweight and obesity in elementary school children. *Preventive Medicine, 49*(4), 336-341.

Ewart, C. K., Young, D. R., & Hagberg, J. M. (1998). Effects of school-based aerobic exercise on blood pressure in adolescent girls at risk for hypertension. *American Journal of Public Health, 88*(6), 949-951.

Gortmaker, S. L., Peterson, K., Wiecha, J., Sobol, A. M., Dixit, S., Fox, M. K., & Laird, N. (1999). Reducing obesity via a school-based interdisciplinary intervention among youth: Planet Health. *Archives of Pediatrics & Adolescent Medicine, 153*(4), 409-418.

Graf, C., Koch, B., Falkowski, G., Jouck, S., Christ, H., Staudenmaier, K., . . . Dordel, S. (2008). School-based prevention: Effects on obesity and physical performance after 4 years. *Journal of Sports Sciences, 26*(10), 987-994.

Kriemler, S., Zahner, L., Schindler, C., Meyer, U., Hartmann, T., Hebestreit, H., . . . Puder, J. J. (2010). Effect of school based physical activity programme (KISS) on fitness and adiposity in primary schoolchildren: Cluster randomised controlled trial. *BMJ, 340*(c785). doi: 10.1136/bmj.c785

Lazaar, N., Aucouturier, J., Ratel, S., Rance, M., Meyer, M., & Duche, P. (2007). Effect of physical activity intervention on body composition in young children: Influence of body mass index status and gender. *Acta Paediatrica, 96*(9), 1321-1325.

Reed, K. E., Warburton, D. E., Macdonald, H. M., Naylor, P. J., & McKay, H. A. (2008). Action Schools! BC: A school-based physical activity intervention designed to decrease cardiovascular disease risk factors in children. *Preventive Medicine, 46*(6), 525-531.

Robinson, T. N. (1999). Reducing children's television viewing to prevent obesity: A randomized controlled trial. *Journal of the American Medical Association, 282*(16), 1561-1567.

Salmon, J., Ball, K., Hume, C., Booth, M., & Crawford, D. (2008). Outcomes of a group-randomized trial to prevent excess weight gain, reduce screen behaviours and promote physical activity in 10-year-old children: Switch-play. *International Journal of Obesity, 32*(4), 601-612.

Simon, C., Schweitzer, B., Oujaa, M., Wagner, A., Arveiler, D., Triby, E., . . . Platat, C. (2008). Successful overweight prevention in adolescents by increasing physical activity: A 4-year randomized controlled intervention. *International Journal of Obesity, 32*(10), 1489-1498.

Sollerhed, A.-C., & Ejlertsson, G. (2008). Physical benefits of expanded physical education in primary school: findings from a 3-year intervention study in Sweden. *Scandinavian Journal of Medicine & Science in Sports, 18*(1), 102-107.

Young, D. R., Phillips, J. A., Yu, T., & Haythornthwaite, J. A. (2006). Effects of a life skills intervention for increasing physical activity in adolescent girls. *Archives of Pediatrics & Adolescent Medicine, 160*(12), 1255-1261.

School Programs for Healthy Eating and Physical Activity to Prevent Obesity

Program description:

Programs that focus on healthy eating and physical activity emphasize the balance between energy consumed and energy expended to stay healthy. These programs emphasize well-balanced meals, avoidance of energy-dense, low-nutrient foods and beverages, and the importance of daily physical activity and decreased sedentary behaviors (TV, computer games, etc.). The programs may also focus on self-awareness (e.g. exercise logs) and behavioral skills. These programs are typically taught by classroom or physical education teachers and compared to the standard health curriculum. In some school-based programs, integrated school-wide strategies to alter the school environment to support healthy eating and physical activity are used; such strategies include improving the nutritional content of cafeteria food or school vending machines, banning advertising of energy-dense products in school space, improving exercise facilities and play equipment, promoting events like “bike to school” days, and changing school policies (e.g. not selling candy for fundraising).

Typical age of primary program participant: 9

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Second-ary Partici-pant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Child obesity – body mass index	P	20	-0.07	0.03	0.05	-0.05	0.03	11	-0.05	0.03	21

Benefits and costs were not estimated for obesity prevention programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real-world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Angelopoulos, P. D., Milionis, H. J., Grammatikaki, E., Moschonis, G., & Manios, Y. (2009). Changes in BMI and blood pressure after a school based intervention: The CHILDREN study. *European Journal of Public Health, 19*(3), 319-325.

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Burke, V., Milligan, R. A., Thompson, C., Taggart, A. C., Dunbar, D. L., Spencer, M. J., . . . Beilin, L. J. (1998). A controlled trial of health promotion programs in 11-year-olds using physical activity "enrichment" for higher risk children. *The Journal of Pediatrics, 132*(5), 840-848.

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Johnston, C. A., Tyler, C., Fullerton, G., Poston, W. S., Haddock, C. K., McFarlin, B., . . . Foreyt, J. P. (2007). Results of an intensive school-based weight loss program with overweight Mexican American children. *International Journal of Pediatric Obesity, 2*(3), 144-152.

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Lionis, C., Kafatos, A., Vlachonikolis, J., Vakaki, M., Tzortzi, M., & Petraki, A. (1991). The effects of a health education intervention program among Cretan adolescents. *Preventive Medicine, 20*(6), 685-699.

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Singh, A. S., Chin A Paw, M. J. M., Brug, J., & van Mechelen, W. (2009). Dutch obesity intervention in teenagers: Effectiveness of a school-based program on body composition and behavior. *Archives of Pediatrics and Adolescent Medicine, 163*(4), 309-317.

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Housing Supports for Offenders Returning to the Community

Program description:

This set of studies evaluated the effects of providing housing supports and case management to offenders at risk of homeless upon re-entry into the community. We excluded halfway houses where offenders were technically in the custody of the state.

Typical age of primary program participant: 41

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	4	0.03	0.09	0.38	0.03	0.09	42	0.03	0.18	52

Benefits and costs were not estimated for housing programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.75
4- Random assignment, with some RA implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Lutze, F. E., Bouffard, J., & Rosky, J. W. (2010, September). *Washington State's reentry housing pilot program evaluation: Year 2 report*. Pullman, WA: Washington State University, Criminal Justice Program. Emailed from F. E. Lutze to M. Miller on June 22, 2011.

Roman, J., Brooks, L., Lagerson, E., Chalfin, A., & Tereschchenko, B. (2007, January). *Impact and cost benefit analysis of the Maryland Reentry Partnership Initiative*. Washington, DC: The Urban Institute.

Wilson, J. A., & Davis, R. C. (2006). Good intentions meet hard realities: An evaluation of the Project Greenlight reentry program. *Criminology and Public Policy*, *5*(2), 303-338.

Worcel, S. D., Burrus, S. W. M., & Finigan, M. W. (2009, January). *A study of substance-free transitional housing and community corrections in Washington County, Oregon*. Portland, OR: NPC Research.

Housing Support for Adults With Mental Illness

Program description:

This group of studies evaluated the effects of housing supports for mentally ill adults at risk of homelessness. A common theme underlying housing support programs for mentally ill adults is the concurrent provision of housing assistance plus support services such as health care, mental health treatment, and substance abuse treatment.

Typical age of primary program participant: 30

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	2	-0.04	0.07	0.53	-0.01	0.07	30	-0.01	0.14	34
Hospitalization (general)	P	4	-0.19	0.06	0.00	-0.13	0.06	31	-0.13	0.11	41

Benefits and costs were not estimated for housing programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.75
4- Random assignment, with some RA implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Culhane, D. P., Metraux, S., & Hadley, T. (2002). Public service reductions associated with placement of homeless persons with severe mental illness in supportive housing. *Housing Policy Debate, 13*(1), 107-163.

Lipton, F. R., Nutt, S., & Sabatini, A. (1988). Housing the homeless mentally ill: A longitudinal study of a treatment approach. *Hospital & Community Psychiatry, 39*(1), 40-45.

Rosenheck, R., Kasprow, W., Frisman, L., & Liu-Mares, W. (2003). Cost-effectiveness of supported housing for homeless persons with mental illness. *Archives of General Psychiatry, 60*(9), 940-951.

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Shern, D. L., Felton, C. J., Hough, R. L., Lehman, A. F., Goldfinger, S., Valencia, E., & Wood, P. A. (1997). Housing outcomes for homeless adults with mental illness: Results from the second-round McKinney Program. *Psychiatric Services, 48*(2), 239-241.

Housing Supports for Serious Violent Offenders

Program description:

These studies evaluated effects of housing supports, in addition to intensive case management, treatment and other community supports for ex-offenders at high risk of reoffense.

Typical age of primary program participant: 29

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	4	-0.23	0.09	0.01	-0.23	0.09	31	-0.23	0.17	41

Benefits and costs were not estimated for housing programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., IV, regression discontinuity).	0.75
4- Random assignment, with some RA implementation issues.	0.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not “real world”) setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

Bouffard, J. A., & Bergeron, L. E. (2006). Reentry works: The implementation and effectiveness of a serious and violent offender reentry initiative. *Journal of Offender Rehabilitation, 44*(2/3), 1-29.

Jacobs, E., & Western, B. (2007, October). *Report on the evaluation of the ComALERT prisoner reentry program*. Brooklyn, NY: Office of the King's County District Attorney.

Mayfield, J. (2009, February). *The Dangerous Mentally Ill Offender program: Four-year felony recidivism and cost effectiveness* (Document No. 09-02-1901). Olympia: Washington State Institute for Public Policy.

McLean, M., & Butler, S. (2008, June). *Recidivism survival analysis of the serious and violent offender reentry initiative 2003-2007*. Laramie: University of Wyoming, Wyoming Survey & Analysis Center.