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Youth Marijuana Use Prevention:
A Review of Thirteen Programs

Benefit-Cost & Meta-Analysis Results

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Multidimensional Treatment Foster Care

Benefit-cost estimates updated August 2014. Literature review updated June 2014.

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.

Benefit-Cost Summary

Program benefits		Summary statistics	
Participants	$1,931	Benefit to cost ratio	$2.13
Taxpayers	$4,256	Benefits minus costs	$9,175
Other (1)	$13,439	Probability of a positive net present value	67 %
Other (2)	($2,339)		
Total	$17,286		
Costs	($8,111)		
Benefits minus cost	$9,175		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2013). The economic discount rates and other relevant parameters are described in our technical manual.

Detailed Monetary Benefit Estimates

Source of benefits	Benefits to				
	Participants	Taxpayers	Other (1)	Other (2)	Total benefits
From primary participant					
Crime	$0	$3,368	$12,401	$1,675	$17,444
Labor market earnings (hs grad)	$1,905	$813	$942	$0	$3,661
Property loss (alcohol abuse/dependence)	$1	$0	$2	$0	$4
Health care (disruptive behavior disorder)	$24	$75	$93	$37	$230
Adjustment for deadweight cost of program	$0	$0	$0	($4,052)	($4,052)
Totals	$1,931	$4,256	$13,439	($2,339)	$17,286

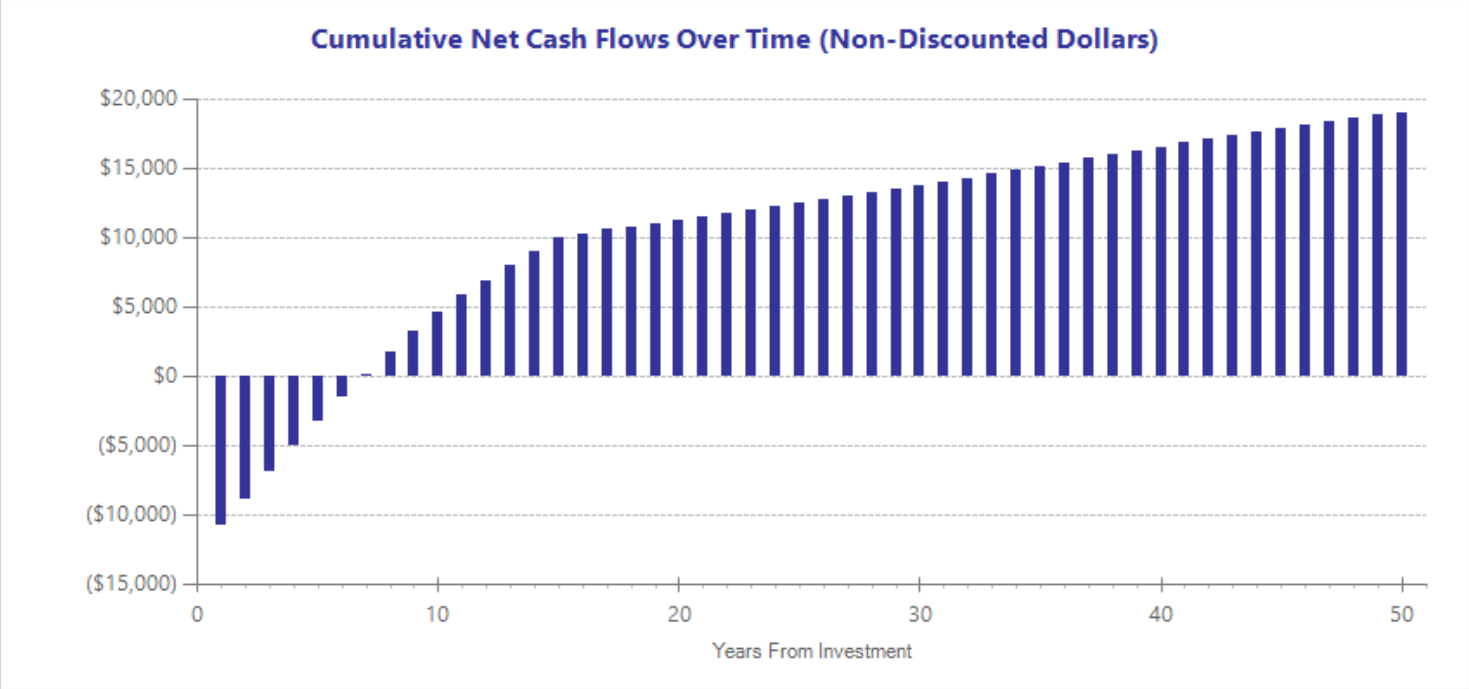
We created the two "other" categories to report results that do not fit neatly in the "participant" or "taxpayer" perspectives. In the "Other (1)" category we include the benefits of reductions in crime victimization and the economic spillover benefits of improvement in human capital outcomes. In the "Other (2)" category we include estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Cost Estimates

	Annual cost	Program duration	Year dollars	Summary statistics	
Program costs	$31,883	1	2007	Present value of net program costs (in 2013 dollars)	($8,111)
Comparison costs	$24,536	1	2007	Uncertainty (+ or - %)	10 %

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.

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 our technical manual.



Meta-Analysis of Program Effects

Outcomes measured	Primary or secondary participant	No. of effect sizes	Unadjusted effect size (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	Primary	3	-0.544	0.127	0.015	-0.111	0.127	17	-0.111	0.127	27
Teen pregnancy (under age 18)	Primary	1	-0.469	0.028	0.000	-0.352	0.028	17	-0.352	0.028	19
Smoking in high school	Primary	1	-0.190	0.240	0.429	-0.068	0.240	17	-0.068	0.240	18
Alcohol use in high school	Primary	1	-0.126	0.240	0.601	-0.045	0.240	17	-0.045	0.240	18
Cannabis use in high school	Primary	1	-0.230	0.240	0.015	-0.083	0.240	17	-0.083	0.240	18
Illicit drug use in high school	Primary	1	-0.261	0.240	0.279	-0.094	0.240	17	-0.094	0.240	18
Internalizing symptoms	Primary	1	-0.428	0.346	0.216	-0.428	0.346	17	-0.312	0.296	19
Externalizing behavior symptoms	Primary	1	-0.627	0.350	0.073	-0.627	0.350	17	-0.299	0.221	20

Citations Used in the Meta-Analysis

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Caring School Community (formerly Child Development Project)

Benefit-cost estimates updated August 2014. Literature review updated June 2014.

Program Description: Caring School Community, formerly called the Child Development Project, is a whole-school program aimed at promoting positive youth development. Designed for elementary schools, the program attempts to promote prosocial values, improve academic achievement, and prevent drug use, violence, and delinquency by encouraging collaboration among students, staff, and parents. Caring School Community includes four components designed to be implemented throughout the year: 1) Class Meetings, which promote communication and decision-making between teachers and students to improve the classroom climate; 2) Cross-Age Buddies, which pairs classes of younger and older students for academic and recreational activities to facilitate supportive relationships across ages; 3) Homeside Activities, which include parent-child activities completed at home that complement and reinforce the program's school components; and 4) School wide Community-Building Activities, which include a variety of activities designed to engage parents in the school environment and to link parents and their children to the greater community.

Benefit-Cost Summary

Program benefits		Summary statistics	
Participants	$4,696	Benefit to cost ratio	$7.06
Taxpayers	$2,171	Benefits minus costs	$7,393
Other (1)	$2,271	Probability of a positive net present value	62 %
Other (2)	($527)		
Total	$8,611		
Costs	($1,218)		
Benefits minus cost	$7,393		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2013). The economic discount rates and other relevant parameters are described in our technical manual.

Detailed Monetary Benefit Estimates

Source of benefits	Benefits to				
	Participants	Taxpayers	Other (1)	Other (2)	Total benefits
From primary participant					
Crime	$0	$16	$51	$8	$75
Labor market earnings (test scores)	$4,714	$2,011	$2,325	$0	$9,050
Property loss (alcohol abuse/dependence)	$1	$0	$2	$0	$3
Health care (educational attainment)	($19)	$144	($107)	$71	$90
Adjustment for deadweight cost of program	$0	$0	$0	($607)	($607)
Totals	$4,696	$2,171	$2,271	($527)	$8,611

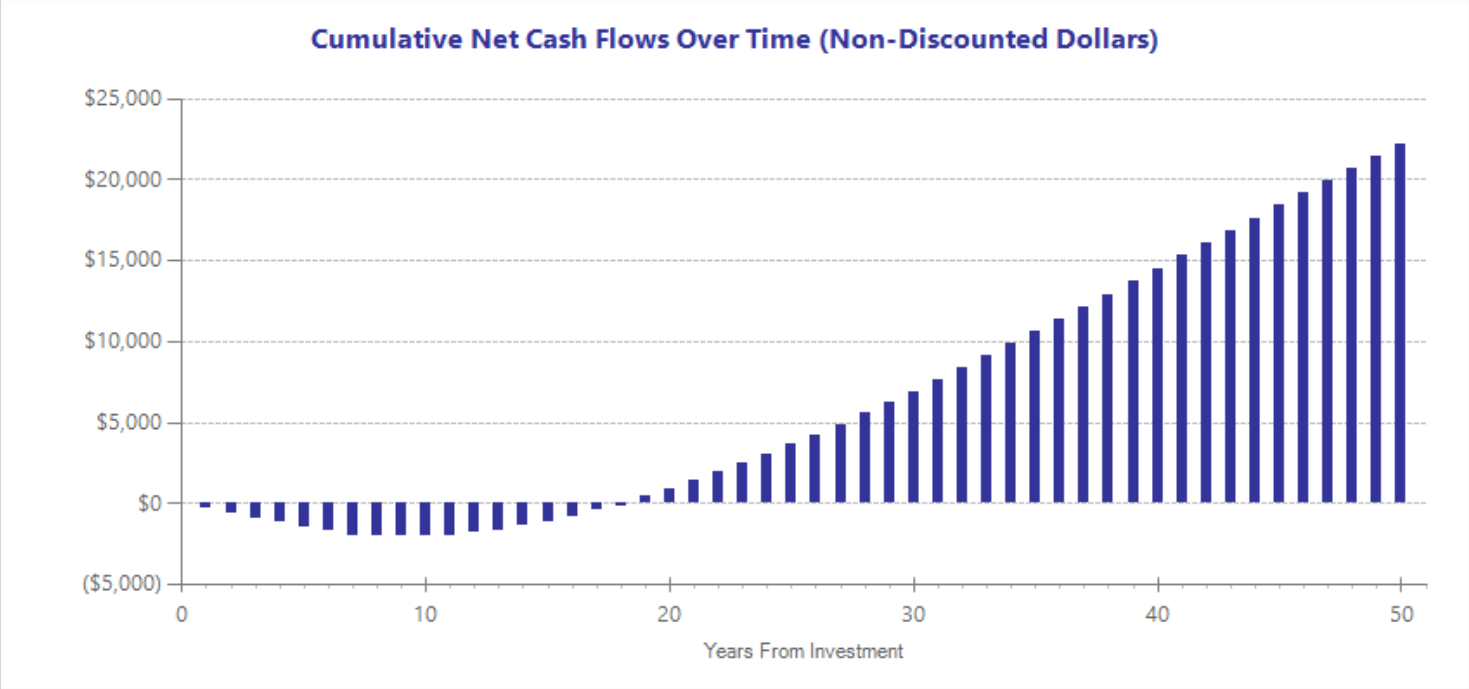
We created the two “other” categories to report results that do not fit neatly in the “participant” or “taxpayer” perspectives. In the “Other (1)” category we include the benefits of reductions in crime victimization and the economic spillover benefits of improvement in human capital outcomes. In the “Other (2)” category we include estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Cost Estimates

	Annual cost	Program duration	Year dollars	Summary statistics	
Program costs	$192	7	2013	Present value of net program costs (in 2013 dollars)	($1,218)
Comparison costs	$0	7	2013	Uncertainty (+ or - %)	10 %

Cost data come from CSC developer (http://www.devstu.org/caring-school-community) and WA Office of Superintendent of Public Instruction.

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 our technical manual.



Meta-Analysis of Program Effects

Outcomes measured	Primary or secondary participant	No. of effect sizes	Unadjusted effect size (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
Smoking before end of middle school	Primary	1	-0.018	0.146	0.902	-0.006	0.146	13	-0.006	0.146	18
Alcohol use before end of middle school	Primary	1	-0.178	0.146	0.221	-0.059	0.146	13	-0.059	0.146	18
Cannabis use before end of middle school	Primary	1	-0.149	0.146	0.306	-0.049	0.146	13	-0.049	0.146	18
Test scores	Primary	1	0.109	0.179	0.544	0.109	0.179	13	0.065	0.197	18
High school grad via test scores	Primary	n/a	n/a	n/a	n/a	0.018	0.052	18	0.018	0.052	18

Citations Used in the Meta-Analysis

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Life Skills Training

Benefit-cost estimates updated August 2014. Literature review updated June 2014.

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.

Benefit-Cost Summary

Program benefits		Summary statistics	
Participants	$1,593	Benefit to cost ratio	$35.66
Taxpayers	$804	Benefits minus costs	$3,363
Other (1)	$1,034	Probability of a positive net present value	93 %
Other (2)	$30		
Total	$3,461		
Costs	($97)		
Benefits minus cost	$3,363		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2013). The economic discount rates and other relevant parameters are described in our technical manual.

Detailed Monetary Benefit Estimates

Source of benefits	Benefits to				
	Participants	Taxpayers	Other (1)	Other (2)	Total benefits
From primary participant					
Crime	$0	$52	$173	$26	$250
Labor market earnings (hs grad)	$1,515	$646	$749	$0	$2,910
Health care (smoking)	$77	$106	$111	$53	$347
Property loss (alcohol abuse/dependence)	$1	$0	$1	$0	$2
Adjustment for deadweight cost of program	$0	$0	$0	($49)	($49)
Totals	$1,593	$804	$1,034	$30	$3,461

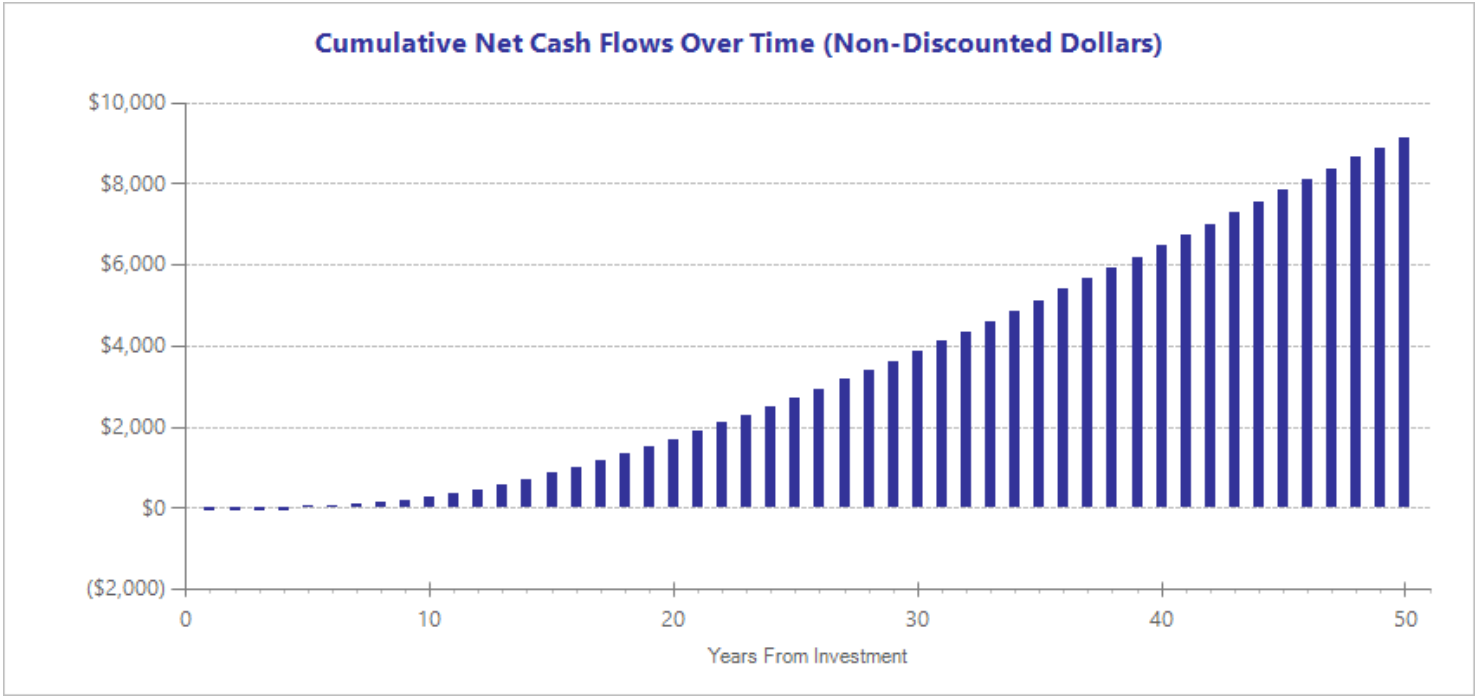
We created the two "other" categories to report results that do not fit neatly in the "participant" or "taxpayer" perspectives. In the "Other (1)" category we include the benefits of reductions in crime victimization and the economic spillover benefits of improvement in human capital outcomes. In the "Other (2)" category we include estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Cost Estimates

	Annual cost	Program duration	Year dollars	Summary statistics	
Program costs	$34	3	2013	Present value of net program costs (in 2013 dollars)	($97)
Comparison costs	$0	1	2013	Uncertainty (+ or - %)	10 %

Cost data come from Blueprints for Healthy Youth Development and developer website (http://www.blueprintsprograms.com/programCosts.php?pid=ac3478d69a3c81fa62e60f5c3696165a4e5e6ac4).

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 our technical manual.



Meta-Analysis of Program Effects

Outcomes measured	Primary or secondary participant	No. of effect sizes	Unadjusted effect size (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
Internalizing symptoms	Primary	4	-0.054	0.091	0.549	-0.018	0.091	14	-0.013	0.071	16
Alcohol use in high school	Primary	3	-0.022	0.109	0.843	-0.010	0.109	18	-0.010	0.109	28
Smoking in high school	Primary	4	-0.213	0.102	0.036	-0.136	0.102	18	-0.136	0.102	28
Cannabis use in high school	Primary	3	-0.096	0.121	0.427	-0.079	0.121	18	-0.079	0.121	28
Alcohol use before end of middle school	Primary	5	-0.088	0.110	0.422	-0.029	0.110	14	-0.029	0.110	24
Cannabis use before end of middle school	Primary	4	-0.051	0.113	0.647	-0.017	0.113	14	-0.017	0.113	24
Smoking before end of middle school	Primary	8	-0.138	0.099	0.163	-0.045	0.099	14	-0.045	0.099	24
Youth binge drinking	Primary	2	-0.154	0.244	0.593	-0.017	0.244	15	-0.017	0.244	25

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Vicary, J., Smith, E., Swisher, J., Hopkins, A., Elek, E., Bechtel, L., & Henry, K. (2006). Results of a 3-year study of two methods of delivery of life skills training. *Health Education & Behavior, 33*(3), 325-339.

SPORT

Benefit-cost estimates updated August 2014. Literature review updated June 2014.

Program Description: SPORT is a school-based brief intervention implemented in high schools designed to promote a healthy lifestyle via improved physical activity, diet, and sleep. Students participate in a 12-minute one-on-one counseling session with a fitness specialist during which they receive a booklet and tailored consultation. Students then complete a fitness plan designed to create behavior change and an improved self-image. Flyers that complement the intervention's core content are sent to parents for 4 weeks post-intervention.

Benefit-Cost Summary

Program benefits		Summary statistics	
Participants	$604	Benefit to cost ratio	$34.84
Taxpayers	$308	Benefits minus costs	$1,300
Other (1)	$414	Probability of a positive net present value	73 %
Other (2)	$13		
Total	$1,339		
Costs	($38)		
Benefits minus cost	$1,300		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2013). The economic discount rates and other relevant parameters are described in our technical manual.

Detailed Monetary Benefit Estimates

Source of benefits	Benefits to				
	Participants	Taxpayers	Other (1)	Other (2)	Total benefits
From primary participant					
Crime	$0	$26	$87	$13	$126
Labor market earnings (hs grad)	$574	$245	$284	$0	$1,104
Health care (smoking)	$28	$38	$40	$19	$124
Property loss (alcohol abuse/dependence)	$1	$0	$2	$0	$4
Adjustment for deadweight cost of program	$0	$0	$0	($19)	($19)
Totals	$604	$308	$414	$13	$1,339

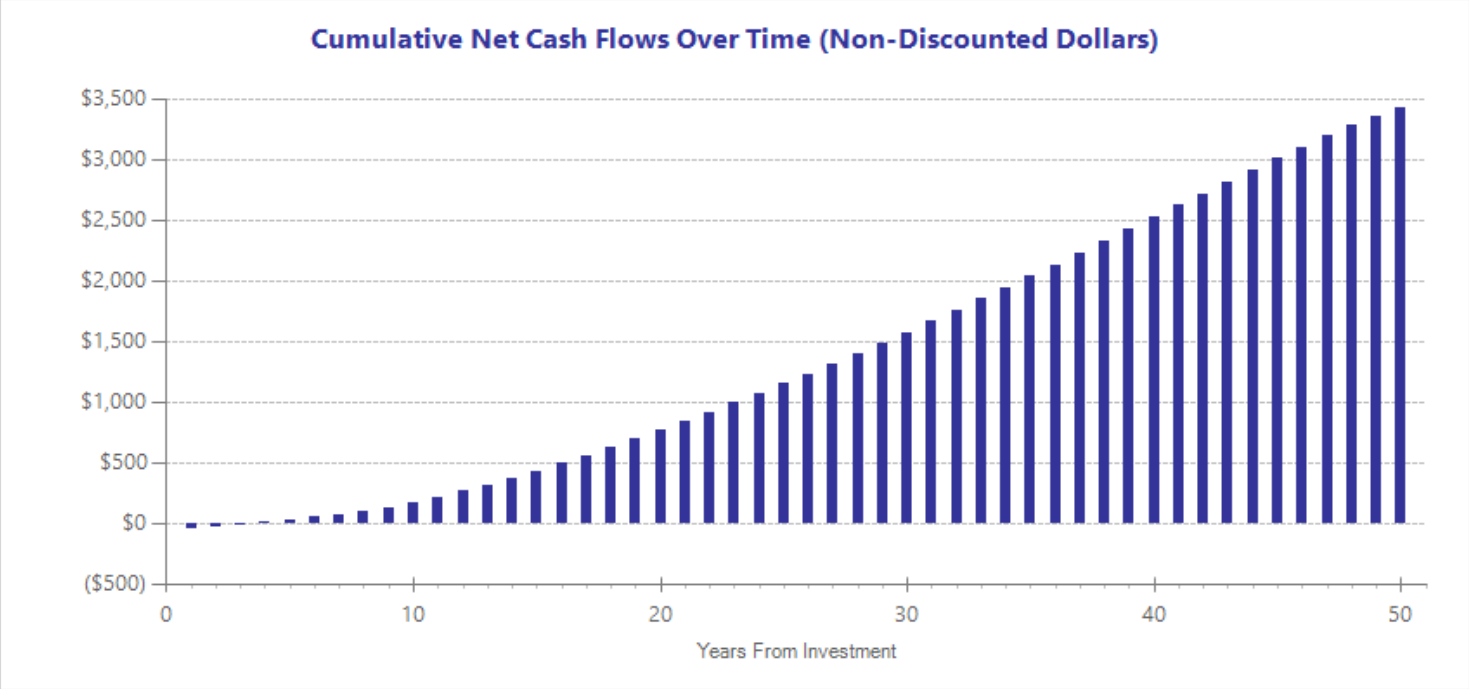
We created the two "other" categories to report results that do not fit neatly in the "participant" or "taxpayer" perspectives. In the "Other (1)" category we include the benefits of reductions in crime victimization and the economic spillover benefits of improvement in human capital outcomes. In the "Other (2)" category we include estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Cost Estimates

	Annual cost	Program duration	Year dollars	Summary statistics	
Program costs	$38	1	2013	Present value of net program costs (in 2013 dollars)	($38)
Comparison costs	$0	1	2013	Uncertainty (+ or - %)	10 %

Cost data come from developer website (http://preventionpluswellness.com/programs/inshape/).

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 our technical manual.



Meta-Analysis of Program Effects

Outcomes measured	Primary or secondary participant	No. of effect sizes	Unadjusted effect size (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
Smoking in high school	Primary	1	-0.144	0.088	0.103	-0.047	0.088	18	-0.047	0.088	18
Alcohol use in high school	Primary	1	-0.027	0.088	0.762	-0.009	0.088	18	-0.009	0.088	18
Youth binge drinking	Primary	1	-0.144	0.088	0.104	-0.047	0.088	18	-0.047	0.088	18
Cannabis use in high school	Primary	1	-0.083	0.088	0.346	-0.027	0.088	18	-0.027	0.088	18

Citations Used in the Meta-Analysis

Werch, C.C., Moore, M., DiClemente, C., Bledsoe, R., & Jobli, E. (2005). A Multihealth Behavior Intervention Integrating Physical Activity and Substance Use Prevention for Adolescents. *Prevention Science, 6*(3), 213-226.

Guiding Good Choices (formerly Preparing for the Drug Free Years)

Benefit-cost estimates updated August 2014. Literature review updated June 2014.

Program Description: Guiding Good Choices, formerly known as Preparing for the Drug-Free Years, is a skills-training program for middle school students and their parents typically implemented outside normal school hours. The five-session drug resistance and education program, implemented one night per week for five weeks, aims to improve parent-child interactions that reduce the risk for substance use initiation. Sessions typically last 2 hours each and include a mix of group discussions, workbook activities, role plays, and multimedia presentations. Program content includes education about the prevalence of substance use and risk and protective factors associated with use, and the development of strategies in the home to prevent use (Session 1), establishing expectations and guidelines within the home regarding substance use (Session 2), education and opportunities to practice refusal skills (Session 3), managing family conflict and constructively handling disputes between family members (Session 4), and strategies for engaging the adolescent in family activities and ways to create supportive networks among parents (Session 5). Parents are required to attend all five sessions while the adolescents is required to attend Session 3.

Benefit-Cost Summary

Program benefits		Summary statistics	
Participants	$1,243	Benefit to cost ratio	$2.99
Taxpayers	$653	Benefits minus costs	$1,296
Other (1)	$308	Probability of a positive net present value	64 %
Other (2)	($253)		
Total	$1,951		
Costs	($655)		
Benefits minus cost	$1,296		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2013). The economic discount rates and other relevant parameters are described in our technical manual.

Detailed Monetary Benefit Estimates

Source of benefits	Benefits to				
	Participants	Taxpayers	Other (1)	Other (2)	Total benefits
From primary participant					
Crime	$0	$66	$213	$32	$311
Labor market earnings (alcohol abuse/dependence)	$1,180	$503	$0	$1	$1,684
Property loss (alcohol abuse/dependence)	$2	$0	$4	$0	$7
Health care (illicit drug abuse/dependence)	$61	$84	$91	$44	$279
Adjustment for deadweight cost of program	$0	$0	$0	($330)	($330)
Totals	$1,243	$653	$308	($253)	$1,951

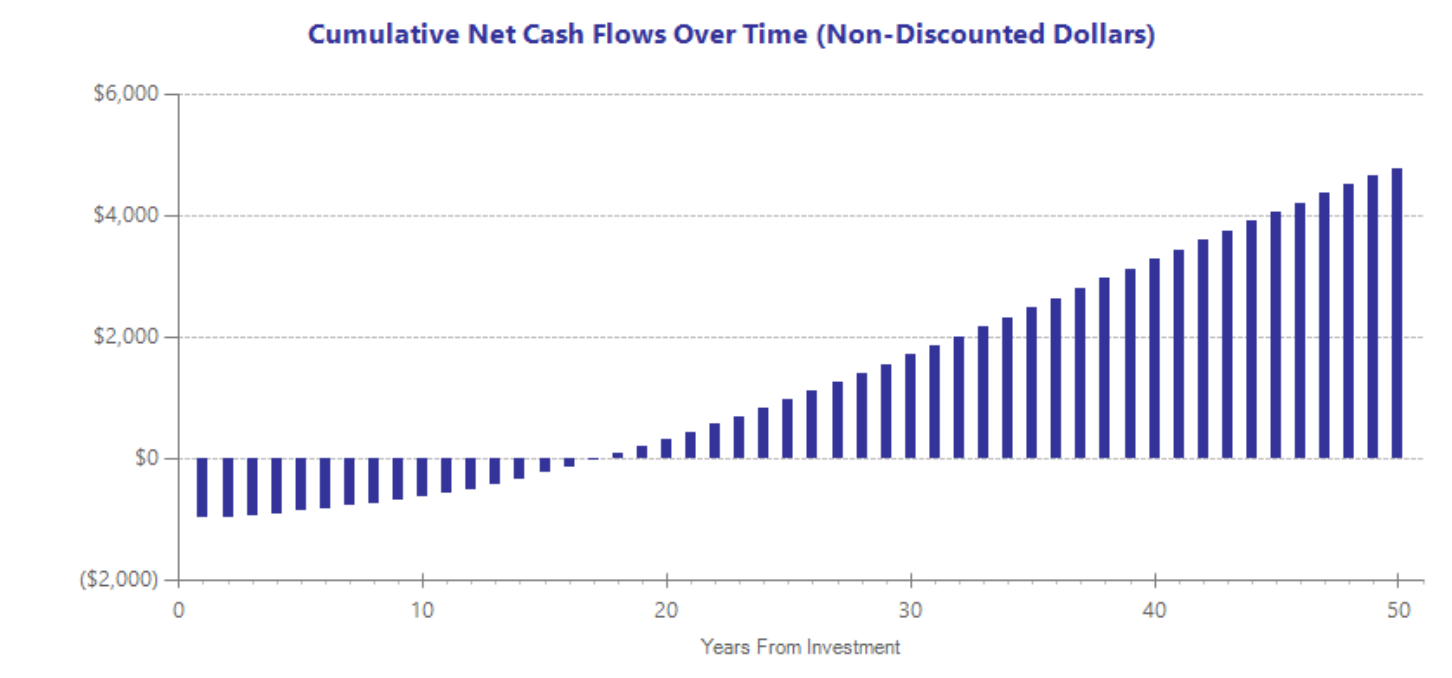
We created the two “other” categories to report results that do not fit neatly in the “participant” or “taxpayer” perspectives. In the “Other (1)” category we include the benefits of reductions in crime victimization and the economic spillover benefits of improvement in human capital outcomes. In the “Other (2)” category we include estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Cost Estimates

	Annual cost	Program duration	Year dollars	Summary statistics	
Program costs	$655	1	2013	Present value of net program costs (in 2013 dollars)	($655)
Comparison costs	$0	1	2012	Uncertainty (+ or - %)	10 %

Cost data come from Spoth, R. L., Guyll, M., & Day, S. X. (2002). Universal family-focused interventions in alcohol-use disorder prevention: Cost-effectiveness and cost-benefit analyses of two interventions. Journal of Studies on Alcohol and Drugs, 63(2), 219.

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 our technical manual.



Meta-Analysis of Program Effects

Outcomes measured	Primary or secondary participant	No. of effect sizes	Unadjusted effect size (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 use in high school	Primary	1	-0.256	0.118	0.030	-0.085	0.118	16	-0.085	0.118	18
Cannabis use in high school	Primary	1	-0.305	0.324	0.345	-0.101	0.324	16	-0.101	0.324	18
Smoking in high school	Primary	1	-0.187	0.138	0.175	-0.062	0.138	16	-0.062	0.138	18
Internalizing symptoms	Primary	1	-0.237	0.180	0.189	-0.078	0.180	18	-0.057	0.142	20
Illicit drug use in high school	Primary	2	-0.082	0.164	0.619	-0.027	0.164	16	-0.027	0.164	18

Citations Used in the Meta-Analysis

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Spoth, R. L., Clair, S., Shin, C., & Redmond, C. (2006). Long-term effects of universal preventive interventions on methamphetamine use among adolescents. *Archives of Pediatrics & Adolescent Medicine, 160*(9), 876-882.

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keepin' it REAL

Benefit-cost estimates updated August 2014. Literature review updated June 2014.

Program Description: Keepin' it REAL is a universal school-based substance use prevention program designed in multicultural settings for middle school students. The curriculum is taught by classroom teachers in 45-minute sessions once a week for 10 weeks. Classroom sessions include group discussions, role plays, games, and 5 videos produced by youth designed to teach students drug resistance skills. Our review of the program is limited to the curriculum as implemented by the original developers and does not reflect the alternative implementation model used by D.A.R.E. America.

Benefit-Cost Summary

Program benefits		Summary statistics	
Participants	$513	Benefit to cost ratio	$16.98
Taxpayers	$244	Benefits minus costs	$765
Other (1)	$65	Probability of a positive net present value	73 %
Other (2)	($9)		
Total	$813		
Costs	($48)		
Benefits minus cost	$765		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2013). The economic discount rates and other relevant parameters are described in our technical manual.

Detailed Monetary Benefit Estimates

Source of benefits	Benefits to				
	Participants	Taxpayers	Other (1)	Other (2)	Total benefits
From primary participant					
Crime	$0	$14	$46	$7	$67
Labor market earnings (alcohol abuse/dependence)	$504	$215	$0	$0	$719
Health care (alcohol abuse/dependence)	$8	$15	$17	$8	$48
Property loss (alcohol abuse/dependence)	$1	$0	$2	$0	$3
Adjustment for deadweight cost of program	$0	$0	$0	($24)	($24)
Totals	$513	$244	$65	($9)	$813

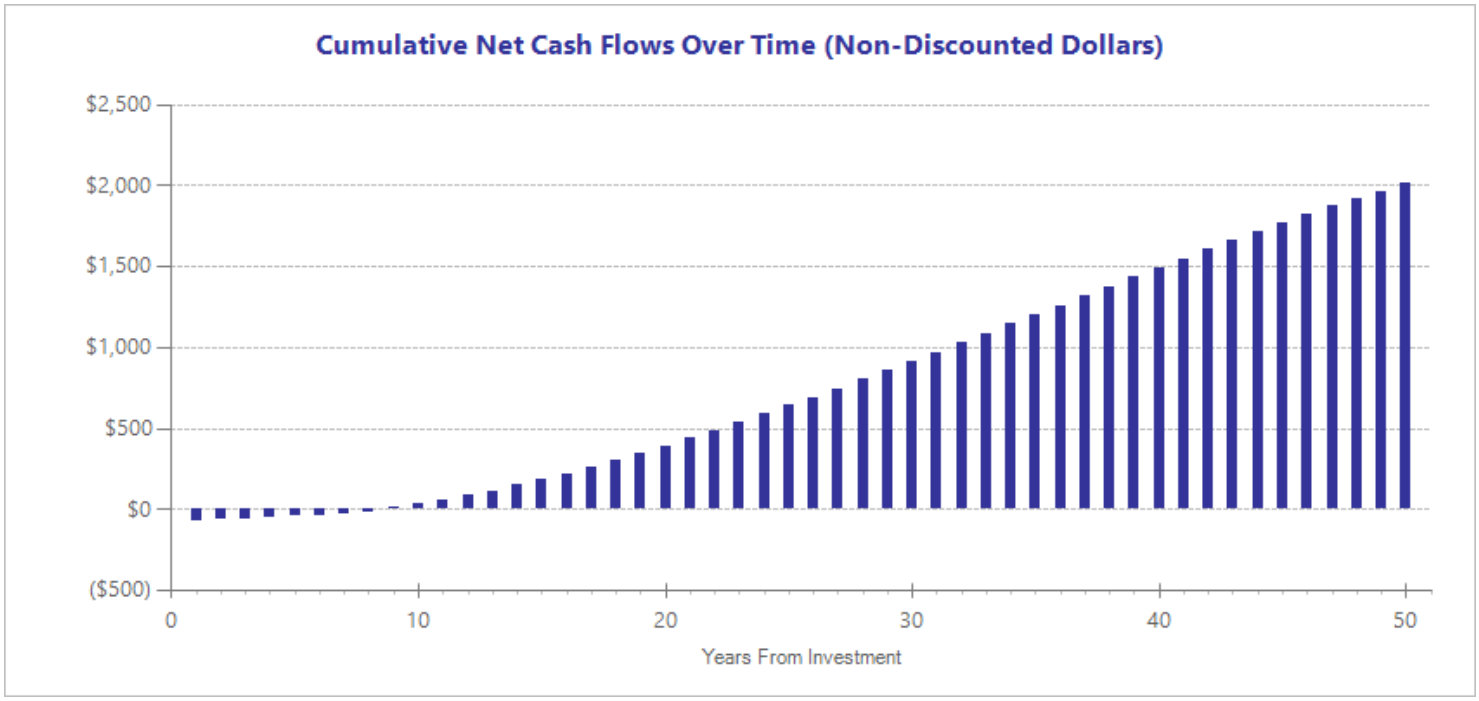
We created the two "other" categories to report results that do not fit neatly in the "participant" or "taxpayer" perspectives. In the "Other (1)" category we include the benefits of reductions in crime victimization and the economic spillover benefits of improvement in human capital outcomes. In the "Other (2)" category we include estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Cost Estimates

	Annual cost	Program duration	Year dollars	Summary statistics	
Program costs	$48	1	2014	Present value of net program costs (in 2013 dollars)	($48)
Comparison costs	$0	1	2014	Uncertainty (+ or - %)	10 %

Cost data come from developer website (http://www.kir.psu.edu/curriculum/order.shtml) and personal communication with developer.

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 our technical manual.



Meta-Analysis of Program Effects

Outcomes measured	Primary or secondary participant	No. of effect sizes	Unadjusted effect size (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
Smoking before end of middle school	Primary	2	-0.113	0.083	0.171	-0.037	0.083	15	-0.037	0.083	18
Alcohol use before end of middle school	Primary	2	-0.150	0.083	0.072	-0.050	0.083	15	-0.050	0.083	18
Cannabis use before end of middle school	Primary	1	-0.141	0.127	0.269	-0.046	0.127	15	-0.046	0.127	18

Citations Used in the Meta-Analysis

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Marsiglia, F.F., Booth, J. M., Ayers, S.L., Nuño-Gutierrez, B.L., Kulis, S., & Hoffman, S. (2013). Short-term effects on substance use of the keepin' it REAL pilot prevention program: Linguistically adapted for youth in Jalisco, Mexico. *Prevention Science.*

Project Northland

Benefit-cost estimates updated August 2014. Literature review updated June 2014.

Program Description: Project Northland is a multilevel, universal intervention designed to prevent substance use among adolescents in middle school. The 6th grade home component targets parent-child communication via homework assignments, group discussions, and the establishment of a communitywide task force. The 7th grade school-based curriculum, which focuses on improving resistance skills and social norms regarding teen alcohol use, includes class discussions, games, and role plays. The 8th grade components include the peer-led Powerlines curriculum, a mock town meeting, and a community action project. Our review of Project Northland is limited to the 6th-8th grade implementation model and does not include the Class Action high school component.

Benefit-Cost Summary

Program benefits		Summary statistics	
Participants	$366	Benefit to cost ratio	$3.87
Taxpayers	$184	Benefits minus costs	$532
Other (1)	$243	Probability of a positive net present value	65 %
Other (2)	($76)		
Total	$717		
Costs	($185)		
Benefits minus cost	$532		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2013). The economic discount rates and other relevant parameters are described in our technical manual.

Detailed Monetary Benefit Estimates

Source of benefits	Benefits to				
	Participants	Taxpayers	Other (1)	Other (2)	Total benefits
From primary participant					
Crime	$0	$14	$47	$7	$69
Labor market earnings (hs grad)	$351	$150	$174	$0	$675
Health care (smoking)	$14	$19	$20	$10	$64
Property loss (alcohol abuse/dependence)	$1	$0	$1	$0	$2
Adjustment for deadweight cost of program	$0	$0	$0	($93)	($93)
Totals	$366	$184	$243	($76)	$717

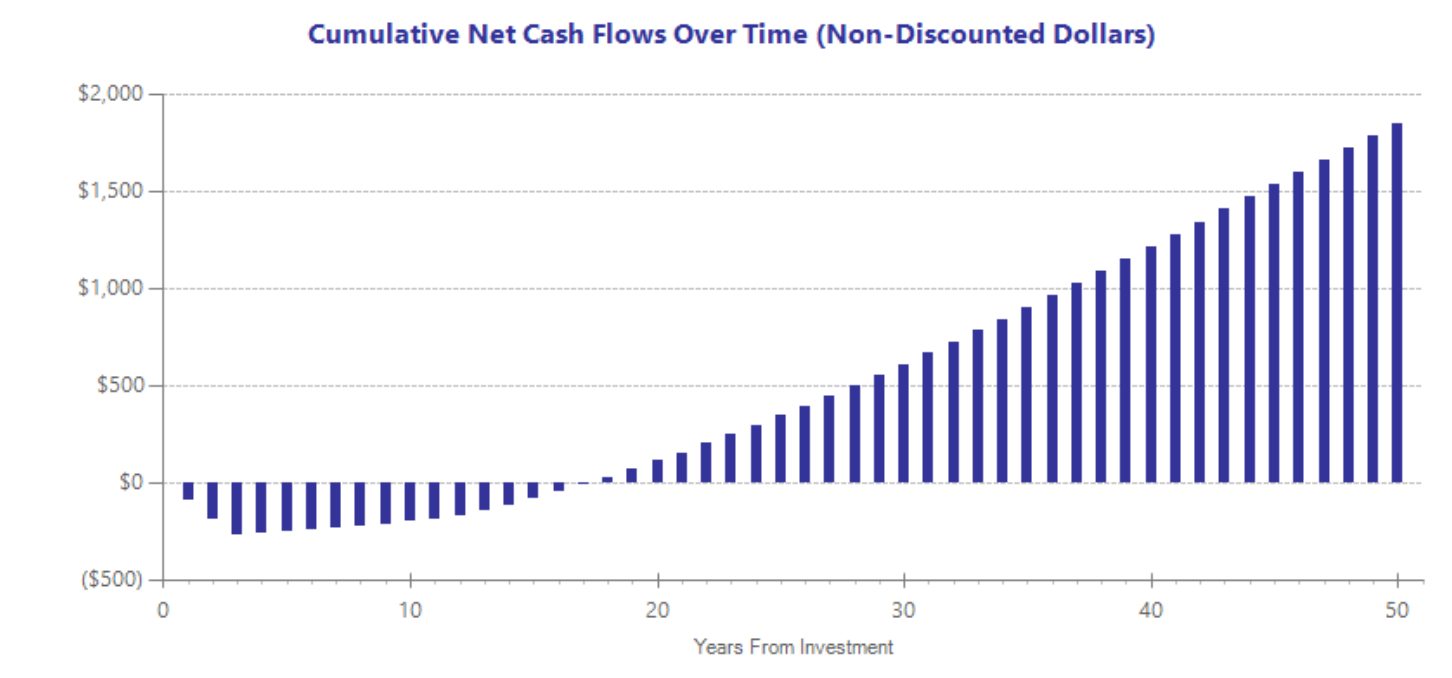
We created the two “other” categories to report results that do not fit neatly in the “participant” or “taxpayer” perspectives. In the “Other (1)” category we include the benefits of reductions in crime victimization and the economic spillover benefits of improvement in human capital outcomes. In the “Other (2)” category we include estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Cost Estimates

	Annual cost	Program duration	Year dollars	Summary statistics	
Program costs	$64	3	2013	Present value of net program costs (in 2013 dollars)	($185)
Comparison costs	$0	3	2013	Uncertainty (+ or - %)	10 %

Cost data come from NREPP and curriculum publisher (http://www.hazelden.org/OA_HTML/ibeCCtpItmDspRte.jsp?a=b&item=15546; http://www.nrepp.samhsa.gov/ViewIntervention.aspx?id=25#divContacts).

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 our technical manual.



Meta-Analysis of Program Effects

Outcomes measured	Primary or secondary participant	No. of effect sizes	Unadjusted effect size (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
Smoking before end of middle school	Primary	1	-0.179	0.097	0.065	-0.059	0.097	14	-0.059	0.097	18
Alcohol use before end of middle school	Primary	3	-0.096	0.067	0.154	-0.035	0.067	14	-0.035	0.067	18
Youth binge drinking	Primary	1	-0.076	0.155	0.624	-0.025	0.155	14	-0.025	0.155	18
Cannabis use before end of middle school	Primary	1	-0.099	0.159	0.535	-0.033	0.159	14	-0.033	0.159	18

Citations Used in the Meta-Analysis

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Lions Quest Skills for Adolescence

Benefit-cost estimates updated August 2014. Literature review updated June 2014.

Program Description: Lions Quest Skills for Adolescence is a school-based life skills education program designed for students in middle school grades. The curriculum's 45-minute sessions are designed to prevent substance use and bullying behaviors while also teaching anger and stress management skills. Although Lions Quest Skills for Adolescence typically comprises 80 or more sessions and may include whole-school components, our review is based on the 40-lesson version evaluated by Eisen et al. (2002).

Benefit-Cost Summary

Program benefits		Summary statistics	
Participants	$168	Benefit to cost ratio	$4.88
Taxpayers	$89	Benefits minus costs	$366
Other (1)	$245	Probability of a positive net present value	75 %
Other (2)	($41)		
Total	$461		
Costs	($95)		
Benefits minus cost	$366		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2013). The economic discount rates and other relevant parameters are described in our technical manual.

Detailed Monetary Benefit Estimates

Source of benefits	Benefits to				
	Participants	Taxpayers	Other (1)	Other (2)	Total benefits
From primary participant					
Crime	$0	$26	$85	$13	$123
Labor market earnings (hs grad)	$353	$150	$174	$0	$677
Labor market earnings (alcohol abuse/dependence)	($173)	($74)	$0	$0	($247)
Health care (alcohol abuse/dependence)	$6	$11	$12	$5	$34
Property loss (alcohol abuse/dependence)	$0	$0	$1	$0	$1
Health care (illicit drug abuse/dependence)	($18)	($24)	($26)	($12)	($80)
Adjustment for deadweight cost of program	$0	$0	$0	($47)	($47)
Totals	$168	$89	$245	($41)	$461

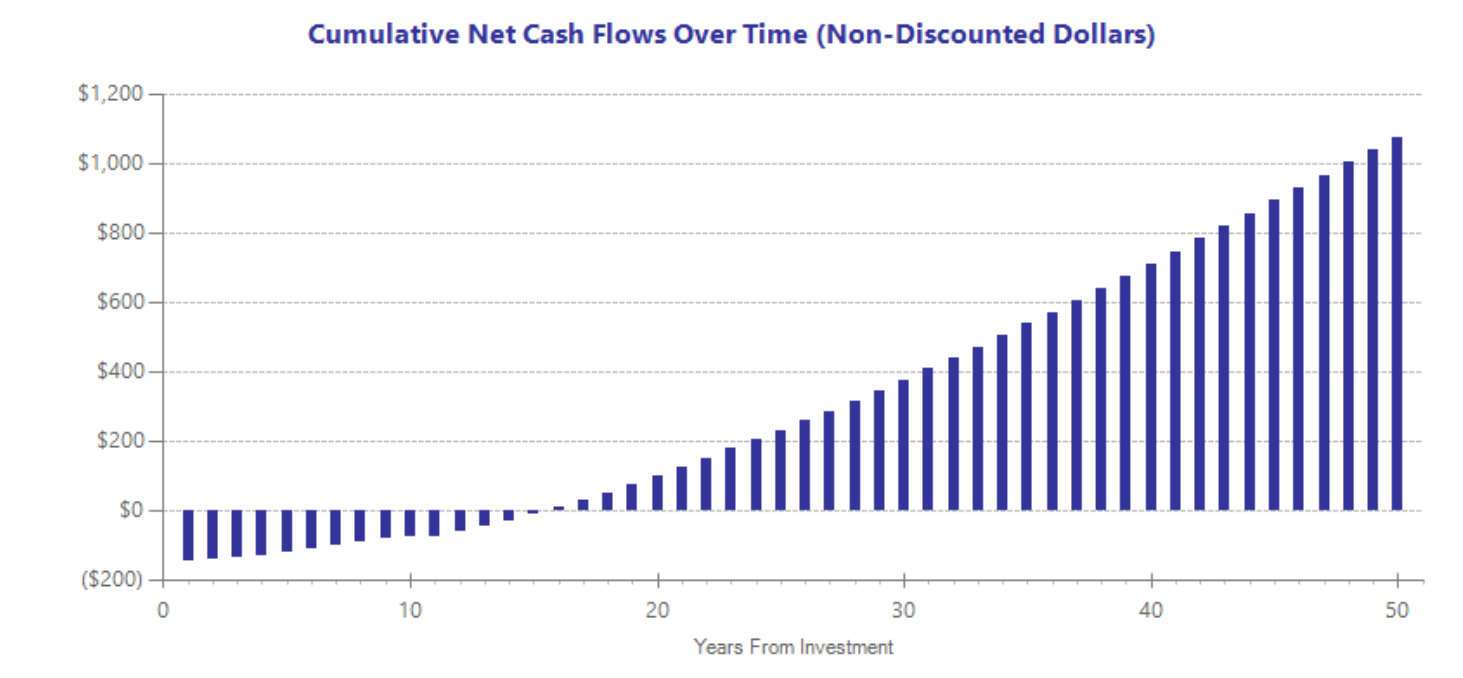
We created the two “other” categories to report results that do not fit neatly in the “participant” or “taxpayer” perspectives. In the “Other (1)” category we include the benefits of reductions in crime victimization and the economic spillover benefits of improvement in human capital outcomes. In the “Other (2)” category we include estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Cost Estimates

	Annual cost	Program duration	Year dollars	Summary statistics	
Program costs	$95	1	2013	Present value of net program costs (in 2013 dollars)	($95)
Comparison costs	$0	1	2013	Uncertainty (+ or - %)	10 %

Cost data come from NREPP and developer website (http://www.nrepp.samhsa.gov/ViewIntervention.aspx?id=24; http://www.lions-quest.org/ordermaterials.php).

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 our technical manual.



Meta-Analysis of Program Effects

Outcomes measured	Primary or secondary participant	No. of effect sizes	Unadjusted effect size (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 use before end of middle school	Primary	1	0.017	0.040	0.660	0.017	0.040	13	0.017	0.040	18
Smoking before end of middle school	Primary	1	0.015	0.039	0.698	0.015	0.039	13	0.015	0.039	18
Youth binge drinking	Primary	1	-0.024	0.056	0.671	-0.024	0.056	13	-0.024	0.056	18
Cannabis use before end of middle school	Primary	1	-0.096	0.050	0.053	-0.096	0.050	13	-0.096	0.050	18
Illicit drug use before end of middle school	Primary	1	0.020	0.046	0.661	0.020	0.046	13	0.020	0.046	18

Citations Used in the Meta-Analysis

Eisen, M., Zellman, G.L., & Murray, D.M. (2003). Evaluating the Lions-Quest Skills for Adolescence drug education program: Second-year behavior outcomes. *Addictive Behaviors, 28*(5), 883-897.

Project Towards No Drug Abuse (TND)

Benefit-cost estimates updated August 2014. Literature review updated June 2014.

Program Description: Project Towards No Drug Abuse is a substance use prevention program for youth in regular and alternative high schools. The curriculum comprises 12 45-minute lessons implemented in classroom settings by teachers or health educators. Using a variety of activities, the program aims to increase self-control, communication, decision-making, and motivation to not use substances.

Benefit-Cost Summary

Program benefits		Summary statistics	
Participants	$96	Benefit to cost ratio	$2.73
Taxpayers	$44	Benefits minus costs	$110
Other (1)	$65	Probability of a positive net present value	51 %
Other (2)	($31)		
Total	$174		
Costs	($64)		
Benefits minus cost	$110		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2013). The economic discount rates and other relevant parameters are described in our technical manual.

Detailed Monetary Benefit Estimates

Source of benefits	Benefits to				
	Participants	Taxpayers	Other (1)	Other (2)	Total benefits
From primary participant					
Crime	$0	$6	$21	$3	$30
Labor market earnings (hs grad)	$97	$41	$48	$0	$186
Property loss (alcohol abuse/dependence)	$0	$0	$0	$0	$0
Health care (disruptive behavior disorder)	($1)	($3)	($4)	($2)	($10)
Adjustment for deadweight cost of program	$0	$0	$0	($32)	($32)
Totals	$96	$44	$65	($31)	$174

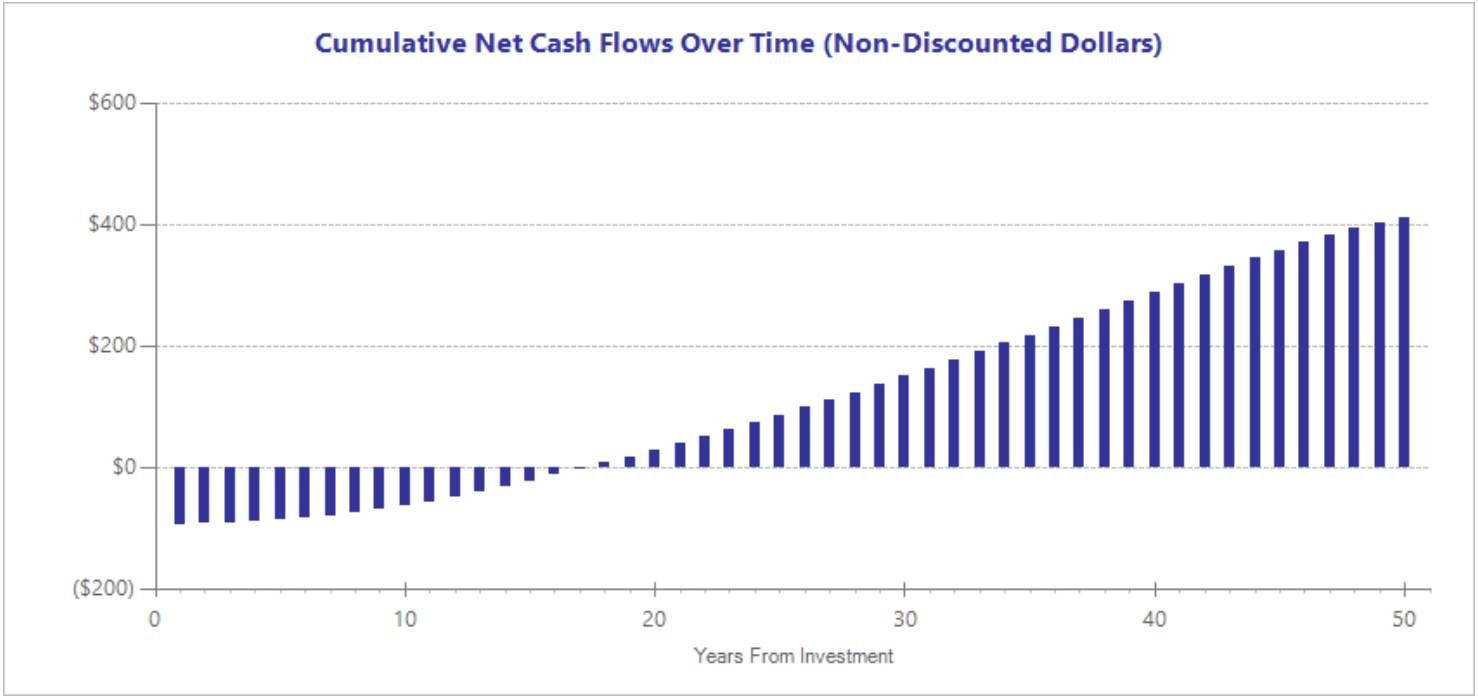
We created the two "other" categories to report results that do not fit neatly in the "participant" or "taxpayer" perspectives. In the "Other (1)" category we include the benefits of reductions in crime victimization and the economic spillover benefits of improvement in human capital outcomes. In the "Other (2)" category we include estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Cost Estimates

	Annual cost	Program duration	Year dollars	Summary statistics	
Program costs	$63	1	2012	Present value of net program costs (in 2013 dollars)	($64)
Comparison costs	$0	1	2012	Uncertainty (+ or - %)	10 %

Cost data come from program developer (http://tnd.usc.edu).

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 our technical manual.



Meta-Analysis of Program Effects

Outcomes measured	Primary or secondary participant	No. of effect sizes	Unadjusted effect size (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 use in high school	Primary	6	0.025	0.073	0.915	-0.003	0.073	18	-0.003	0.073	18
Illicit drug use in high school	Primary	6	-0.070	0.080	0.381	-0.023	0.080	18	-0.023	0.080	18
Cannabis use in high school	Primary	6	0.027	0.094	0.777	-0.009	0.094	18	-0.009	0.094	18
Smoking in high school	Primary	6	-0.033	0.092	0.723	-0.011	0.092	18	-0.011	0.092	18
Externalizing behavior symptoms	Primary	1	0.047	0.202	0.814	0.016	0.202	18	0.008	0.105	21

Citations Used in the Meta-Analysis

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Sussman, S., Sun, P., Rohrbach, L. A., & Spruijt-Metz, D. (2012). One-year outcomes of a drug abuse prevention program for older teens and emerging adults: evaluating a motivational interviewing booster component. *Health Psychology: Official Journal of the Division of Health Psychology, American Psychological Association, 31*(4), 476-85.

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Family Check-Up (also known as Positive Family Support)

Benefit-cost estimates updated August 2014. Literature review updated June 2014.

Program Description: Positive Family Support/Family Check-Up (formerly Adolescent Transitions Program) is a three-tiered intervention implemented in middle schools. The first level is a universal component that involves the establishment of a family resource center and the implementation of a 6-week prevention curriculum. The second tier is Family Check-Up, an assessment and brief motivational interview component for students identified as at-risk. The third tier is the Family Intervention Menu, which directs parents of substance-using adolescents to treatment options, parenting groups, and family therapy sessions. Our review is of the entire Positive Family Support model and not solely the second tier Family Check-Up component.

Benefit-Cost Summary

Program benefits		Summary statistics	
Participants	$0	Benefit to cost ratio	$0.24
Taxpayers	$53	Benefits minus costs	($244)
Other (1)	$161	Probability of a positive net present value	47 %
Other (2)	($135)		
Total	$79		
Costs	($323)		
Benefits minus cost	($244)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2013). The economic discount rates and other relevant parameters are described in our technical manual.

Detailed Monetary Benefit Estimates

Source of benefits	Benefits to				
	Participants	Taxpayers	Other (1)	Other (2)	Total benefits
From primary participant					
Crime	$0	$51	$154	$26	$230
Property loss (alcohol abuse/dependence)	$2	$0	$4	$0	$6
Labor market earnings (major depression)	($3)	($1)	$0	$0	($4)
Health care (major depression)	$1	$3	$4	$1	$9
Adjustment for deadweight cost of program	$0	$0	$0	($163)	($163)
Totals	$0	$53	$161	($135)	$79

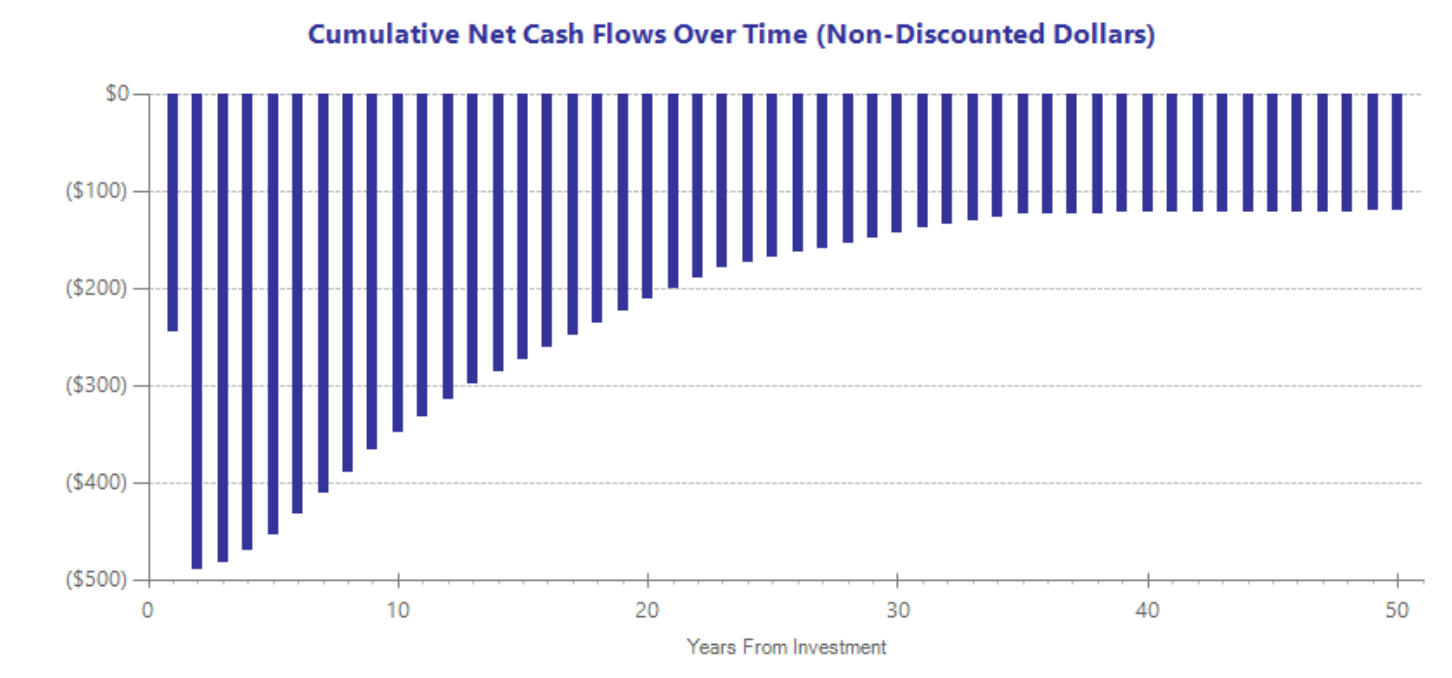
We created the two “other” categories to report results that do not fit neatly in the “participant” or “taxpayer” perspectives. In the “Other (1)” category we include the benefits of reductions in crime victimization and the economic spillover benefits of improvement in human capital outcomes. In the “Other (2)” category we include estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Cost Estimates

	Annual cost	Program duration	Year dollars	Summary statistics	
Program costs	$164	2	2013	Present value of net program costs (in 2013 dollars)	($323)
Comparison costs	$0	2	2013	Uncertainty (+ or - %)	10 %

Cost data come from Blueprints for Healthy Youth Development (http://www.blueprintsprograms.com/programCosts.php?pid=b16a457a3302d7c1f4563df2ffc96dccf3779af7).

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 our technical manual.



Meta-Analysis of Program Effects

Outcomes measured	Primary or secondary participant	No. of effect sizes	Unadjusted effect size (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
Smoking before end of middle school	Primary	1	-0.727	0.209	0.001	-0.240	0.209	13	-0.240	0.209	18
Smoking in high school	Primary	1	-0.145	0.153	0.342	-0.048	0.153	14	-0.048	0.153	18
Alcohol use before end of middle school	Primary	1	-0.350	0.208	0.092	-0.116	0.208	13	-0.116	0.208	18
Alcohol use in high school	Primary	1	-0.050	0.152	0.741	-0.017	0.152	18	-0.017	0.152	18
Cannabis use before end of middle school	Primary	1	-0.305	0.208	0.142	-0.101	0.208	13	-0.101	0.208	18
Cannabis use in high school	Primary	1	-0.126	0.153	0.410	-0.041	0.153	18	-0.041	0.153	18
Major depressive disorder	Primary	1	-0.296	0.469	0.527	-0.098	0.469	15	0.000	0.039	16
Externalizing behavior symptoms	Primary	1	-0.012	0.152	0.939	-0.004	0.152	19	-0.002	0.079	22
Crime	Primary	1	-0.039	0.152	0.932	-0.013	0.152	18	-0.013	0.152	28
Grade point average	Primary	1	-0.062	0.152	0.685	-0.020	0.152	18	-0.020	0.152	18

Citations Used in the Meta-Analysis

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Stormshak, E.A., Connell, A., & Dishion, T.J. (2009). An adaptive approach to family-centered intervention in schools: Linking intervention engagement to academic outcomes in middle and high school. *Prevention Science, 10*(3), 221-235.

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InShape

Benefit-cost estimates updated August 2014. Literature review updated June 2014.

Program Description: InShape is a college-based brief motivational interviewing intervention that aims to increase physical activity, diet, and stress management while reducing substance use through the promotion of positive self-image. The program components are typically delivered to young adults in a college health clinic setting by a designated fitness specialist. The first component includes a self-administered behavior image survey, followed by a brief (25-minute) motivational interview with the fitness specialist, and a set of recommendations to increase fitness and health through improved self-image.

Benefit-Cost Summary

Program benefits		Summary statistics	
Participants	($225)	Benefit to cost ratio	($21.00)
Taxpayers	($90)	Benefits minus costs	($324)
Other (1)	$25	Probability of a positive net present value	47 %
Other (2)	($19)		
Total	($309)		
Costs	($15)		
Benefits minus cost	($324)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2013). The economic discount rates and other relevant parameters are described in our technical manual.

Detailed Monetary Benefit Estimates

Source of benefits	Benefits to				
	Participants	Taxpayers	Other (1)	Other (2)	Total benefits
From primary participant					
Crime	$0	$13	$33	$6	$52
Labor market earnings (smoking)	($218)	($93)	$0	($13)	($325)
Health care (smoking)	($7)	($9)	($10)	($5)	($31)
Property loss (alcohol abuse/dependence)	$1	$0	$1	$0	$2
Adjustment for deadweight cost of program	$0	$0	$0	($7)	($7)
Totals	($225)	($90)	$25	($19)	($309)

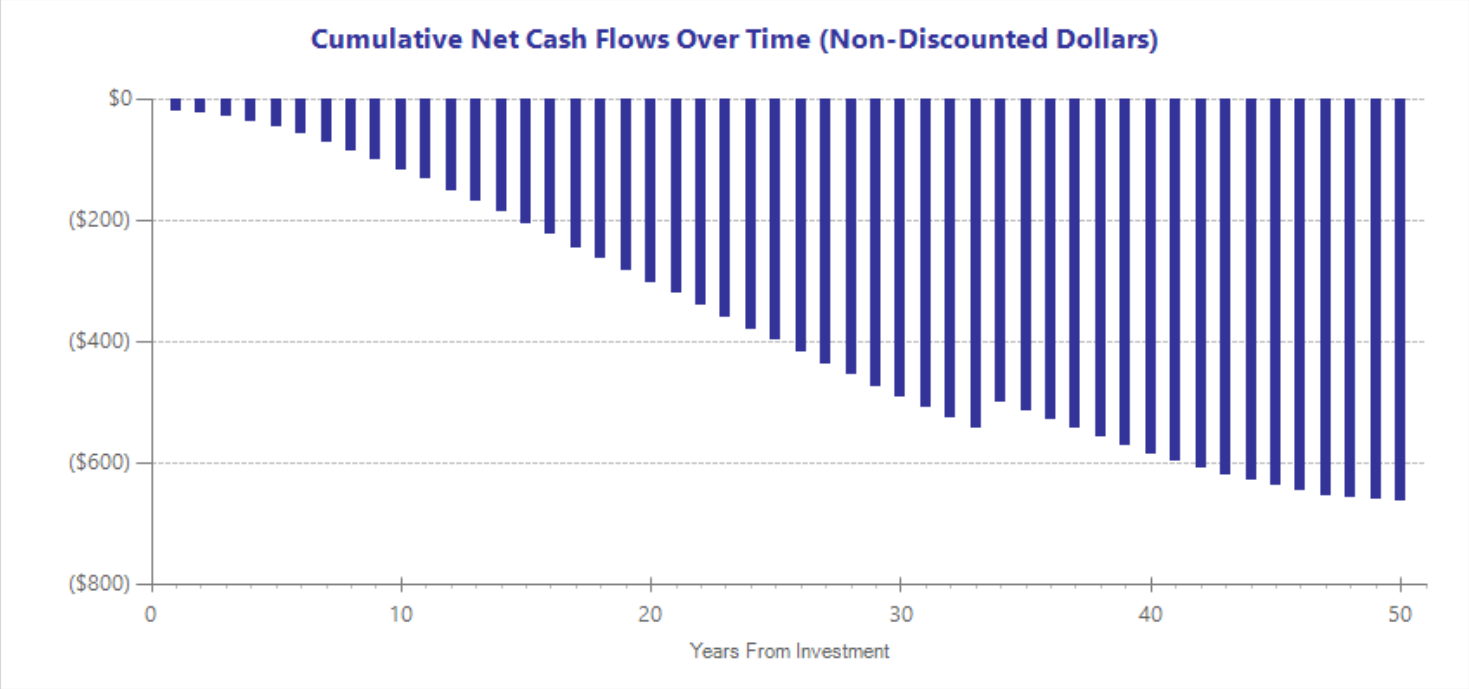
We created the two "other" categories to report results that do not fit neatly in the "participant" or "taxpayer" perspectives. In the "Other (1)" category we include the benefits of reductions in crime victimization and the economic spillover benefits of improvement in human capital outcomes. In the "Other (2)" category we include estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Cost Estimates

	Annual cost	Program duration	Year dollars	Summary statistics	
Program costs	$15	1	2014	Present value of net program costs (in 2013 dollars)	($15)
Comparison costs	$0	1	2014	Uncertainty (+ or - %)	10 %

Cost data come from developer website (http://preventionpluswellness.com/programs/inshape/).

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 our technical manual.



Meta-Analysis of Program Effects

Outcomes measured	Primary or secondary participant	No. of effect sizes	Unadjusted effect size (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	Primary	1	0.032	0.119	0.789	0.010	0.119	19	0.010	0.119	29
Alcohol use	Primary	1	-0.203	0.119	0.574	-0.067	0.119	19	-0.067	0.119	29
Youth binge drinking	Primary	1	-0.082	0.119	0.820	-0.027	0.119	19	-0.027	0.119	29
Cannabis use	Primary	1	0.093	0.119	0.433	0.031	0.119	19	0.031	0.119	29

Citations Used in the Meta-Analysis

Werch, C., Moore, M., Bian, H., DiClemente, C., Ames, S., Weiler, R., Thombs, D., ... Huang, I.-C. (2008). Efficacy of a brief image-based multiple-behavior intervention for college students. *Annals of Behavioral Medicine, 36*(2), 149-157.

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