

The WSIPP benefit-cost analysis examines, on an apples-to-apples basis, the monetary value of programs or policies to determine whether the benefits from the program exceed its costs. WSIPP's research approach to identifying evidence-based programs and policies has three main steps. First, we determine "what works" (and what does not work) to improve outcomes using a statistical technique called meta-analysis. Second, we calculate whether the benefits of a program exceed its costs. Third, we estimate the risk of investing in a program by testing the sensitivity of our results. For more detail on our methods, see our [Technical Documentation](#).

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

Teen Intervene

Substance Use Disorders: Early Intervention

Benefit-cost estimates updated December 2019. Literature review updated June 2016.

Program Description: Teen Intervene is a brief motivational intervention for students using alcohol or drugs. School counselors identify youth suspected of using alcohol or drugs. Youth are then screened for substance abuse. Those meeting eligibility receive two 60-minute motivational interviews 7 to 10 days apart. In some of the studies included here the counselor also met separately with the parent, typically in the home.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	\$975	Benefit to cost ratio	\$7.85
Participants	\$2,043	Benefits minus costs	\$2,735
Others	\$206	Chance the program will produce	
Indirect	(\$91)	benefits greater than the costs	60 %
Total benefits	\$3,134		
Net program cost	(\$399)		
Benefits minus cost	\$2,735		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$44	\$116	\$22	\$181
Labor market earnings associated with problem alcohol use	\$2,017	\$858	\$0	\$0	\$2,875
Property loss associated with problem alcohol use	\$7	\$0	\$13	\$0	\$20
Health care associated with problem alcohol use	\$13	\$70	\$78	\$35	\$197
Mortality associated with problem alcohol	\$6	\$3	\$0	\$52	\$61
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$200)	(\$200)
Totals	\$2,043	\$975	\$206	(\$91)	\$3,134

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

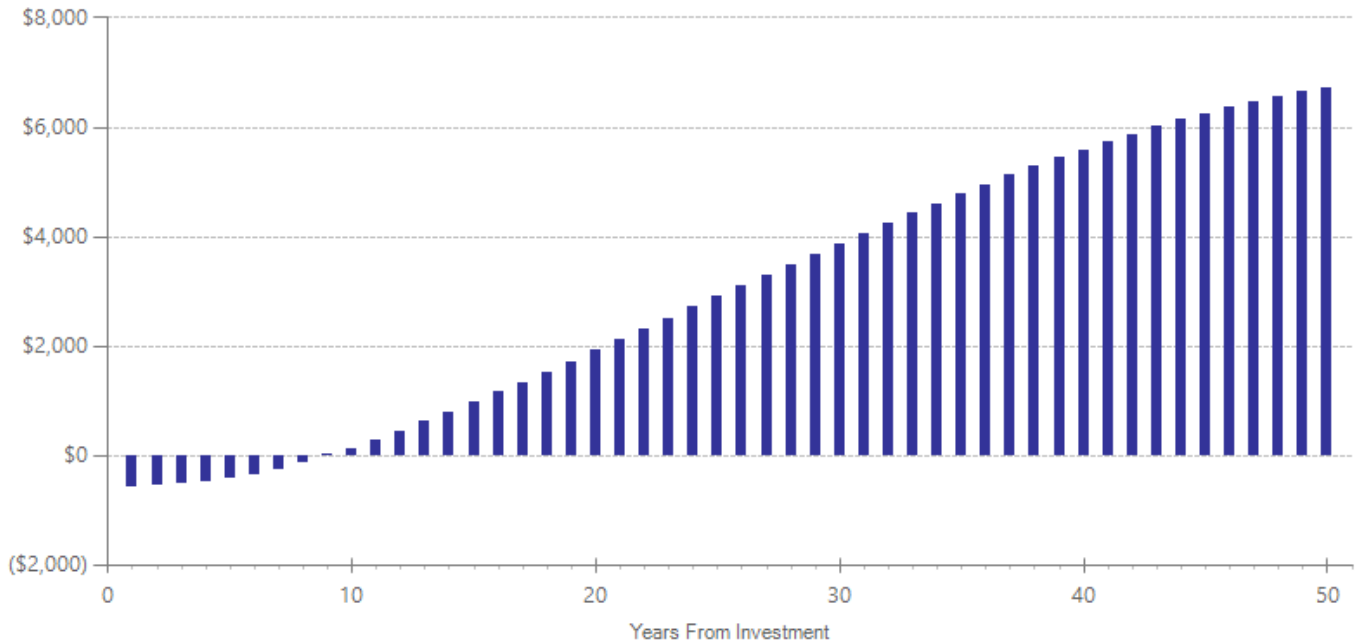
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$379	2014	Present value of net program costs (in 2018 dollars)	(\$399)
Comparison costs	\$0	2014	Cost range (+ or -)	10 %

Per-participant cost was estimated by multiplying the therapist time for two interviews times the rates for family therapy based on actuarial tables reported for non-disabled adults in Mercer (2013) Behavioral Health Data Book for the State of Washington For Rates Effective January 1, 2014. Half of the families in the studies also received a parent visit with the therapist. Family visits were estimated assuming therapist visits last 1 hour 30 minutes. Additional costs were added to account for screening, assuming 15 minutes of therapist time to screen students and that 70% of those screened are eligible for the intervention (personal communication with Ken Winters, Univ. of Minnesota, May 26, 2016.)

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Cannabis use before end of high school	16	2	259	-0.292	0.183	17	-0.040	0.274	18	-0.292	0.109
Problem alcohol use	16	4	311	-0.844	0.172	17	-0.116	0.258	19	-0.844	0.001
Substance use disorder [^]	16	2	52	-0.759	0.265	17	n/a	n/a	n/a	-0.759	0.004

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

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

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

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

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

Citations Used in the Meta-Analysis

Winters, K. C., & Leitten, W. (2007). Brief intervention for drug-abusing adolescents in a school setting. *Psychology of Addictive Behaviors: Journal of the Society of Psychologists in Addictive Behaviors*, 21(2), 249-54.

Winters, K.C., Fahnhorst, T., Botzet, A., Lee, S., & Lalone, B. (2012). Brief intervention for drug-abusing adolescents in a school setting: Outcomes and mediating factors. *Journal of Substance Abuse Treatment*, 42(3), 279-288.

Brief intervention in primary care Substance Use Disorders: Early Intervention

Benefit-cost estimates updated December 2019. Literature review updated September 2016.

Program Description: Patients in primary care are screened for "hazardous" alcohol and/or drug use (not dependence). Those screening positive receive a brief intervention. The intervention, commonly delivered by the primary care provider, includes feedback on the patients' consumption compared to their peers and motivational interview to encourage reduction in consumption. Patients typically receive a single intervention lasting 15 minutes to one hour. Some interventions included up to two brief telephone booster calls.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$742	Benefit to cost ratio	\$8.46
Participants	\$1,519	Benefits minus costs	\$2,114
Others	\$170	Chance the program will produce	
Indirect	(\$34)	benefits greater than the costs	72 %
<u>Total benefits</u>	<u>\$2,397</u>		
<u>Net program cost</u>	<u>(\$283)</u>		
Benefits minus cost	\$2,114		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$2	\$0	\$2
Labor market earnings associated with problem alcohol use	\$1,481	\$631	\$0	\$0	\$2,112
Property loss associated with problem alcohol use	\$4	\$0	\$7	\$0	\$11
Health care associated with emergency department visits	\$30	\$109	\$161	\$55	\$354
Mortality associated with problem alcohol	\$4	\$2	\$0	\$53	\$60
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$142)	(\$142)
Totals	\$1,519	\$742	\$170	(\$34)	\$2,397

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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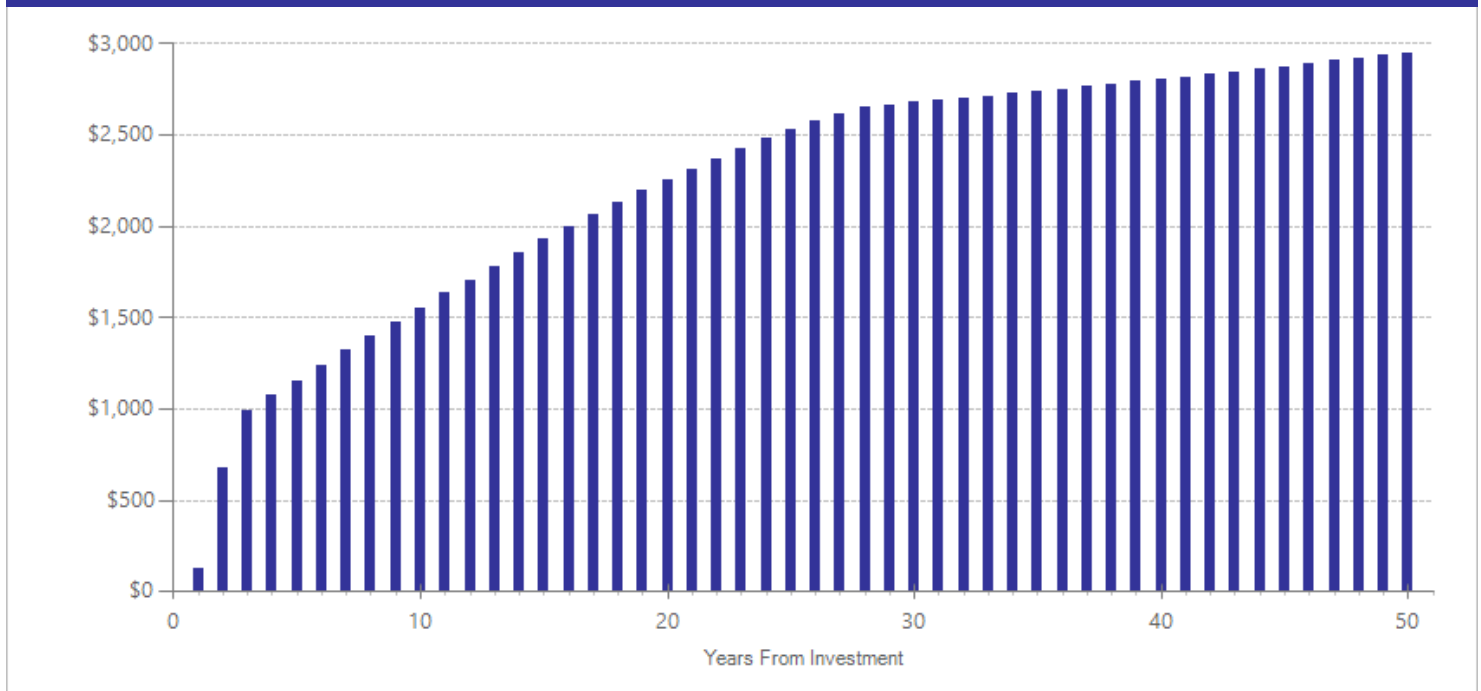
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$205	2000	Present value of net program costs (in 2018 dollars)	(\$283)
Comparison costs	\$0	2000	Cost range (+ or -)	20 %

This program consists of a single brief intervention during a visit to the doctor. Per-participant cost from Fleming, M.F., Mundt, M.P., French, M.T., Manwell, L.B., Stauffacher, E.A. & Barry, K.L. (2002). Brief physician advice for problem drinkers: Long-term efficacy and benefit-cost analysis. *Alcoholism: Clinical and Experimental Research*, 26(1), 36-43.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Cannabis use [^]	38	7	519	-0.262	0.153	39	n/a	n/a	n/a	-0.262	0.088
Drinking and driving [^]	38	2	543	-0.307	0.284	39	n/a	n/a	n/a	-0.307	0.279
Emergency department visits	38	2	784	-0.125	0.071	39	-0.017	0.107	41	-0.125	0.078
Hospitalization	38	2	652	-0.261	0.332	39	-0.036	0.498	41	-0.261	0.432
Illicit drug use [^]	38	9	1773	-0.155	0.073	39	n/a	n/a	n/a	-0.155	0.033
Opioid drug use [^]	38	4	249	-0.396	0.184	39	n/a	n/a	n/a	-0.396	0.031
Problem alcohol use	38	48	7318	-0.195	0.024	39	-0.027	0.037	41	-0.195	0.001

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

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

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Citations Used in the Meta-Analysis

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Brief intervention in emergency department (SBIRT)

Substance Use Disorders: Early Intervention

Benefit-cost estimates updated December 2019. Literature review updated September 2016.

Program Description: Screening, Brief Intervention, and Referral to Treatment (SBIRT) for patients in emergency departments is used to identify and address "hazardous" alcohol use (not alcohol dependence). Those screening positive receive a brief intervention, delivered by health care staff or other professional. The intervention includes feedback on the patients' consumption compared to their peers and a motivational interview to encourage reduction in consumption. Patients typically receive a single intervention lasting 15 minutes to one hour. Some interventions included up to two brief telephone booster calls. Patients meeting diagnostic criteria for abuse or dependence would be referred to chemical dependency treatment in lieu of brief intervention.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$757	Benefit to cost ratio	\$5.16
Participants	\$1,214	Benefits minus costs	\$1,874
Others	\$411	Chance the program will produce	
Indirect	(\$57)	benefits greater than the costs	57 %
Total benefits	\$2,325		
Net program cost	(\$451)		
Benefits minus cost	\$1,874		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$4	\$0	\$4
Labor market earnings associated with problem alcohol use	\$1,134	\$483	\$0	\$0	\$1,616
Property loss associated with problem alcohol use	\$3	\$0	\$6	\$0	\$9
Health care associated with emergency department visits	\$74	\$273	\$401	\$136	\$884
Mortality associated with problem alcohol	\$3	\$1	\$0	\$32	\$37
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$225)	(\$225)
Totals	\$1,214	\$757	\$411	(\$57)	\$2,325

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

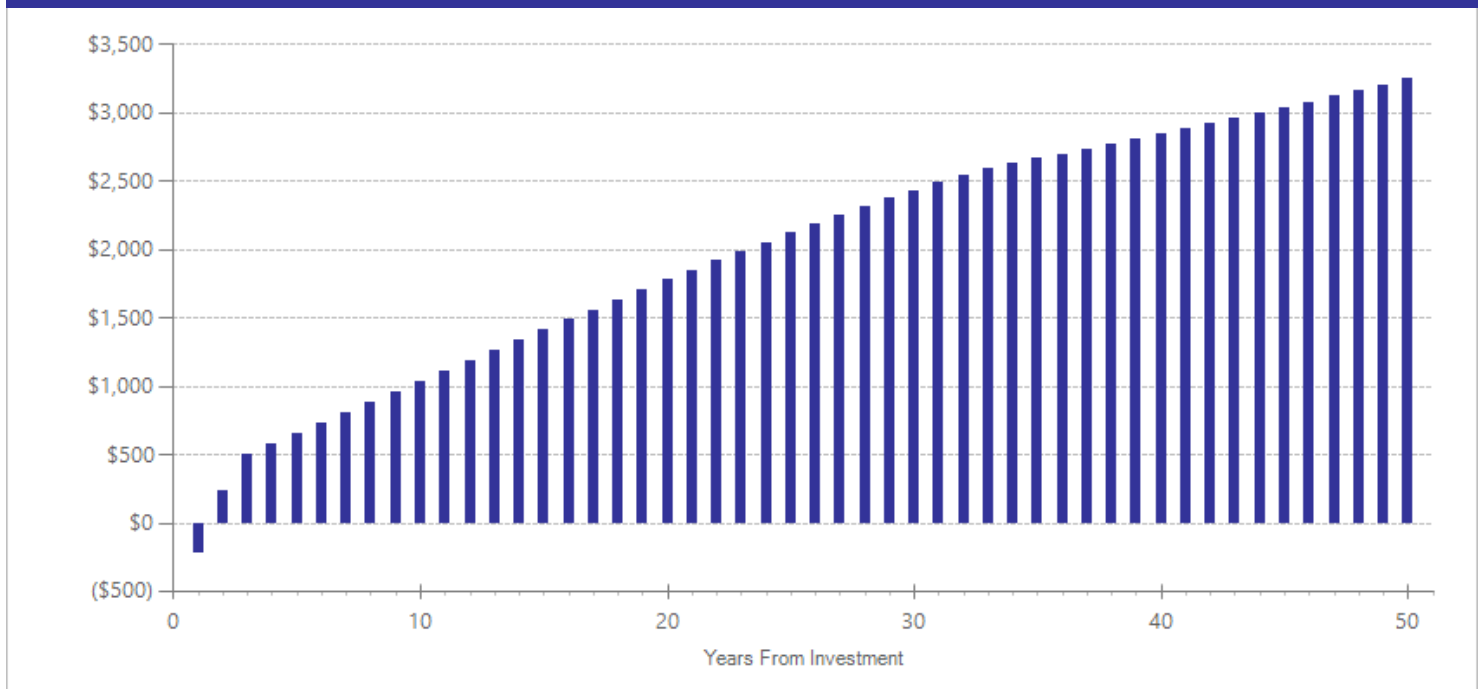
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$362	2005	Present value of net program costs (in 2018 dollars)	(\$451)
Comparison costs	\$0	2005	Cost range (+ or -)	20 %

This program consists of a single brief intervention during a visit to the emergency department. According to one multisite US study, of 7,751 patients screened, 1,132 were eligible and consented. (Academic ED SBIRT Research Collaborative. (2007). The impact of screening, brief intervention, and referral for treatment on emergency department patients' alcohol use. *Annals of Emergency Medicine*, 50(6), 699-710). In Washington State, cost estimates from 2005 indicate \$53 per patient screened based on an analysis by Washington State Division of Alcohol and Substance Abuse, presented at the 2006 Co-Occurring Disorders Conference.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Cannabis use [^]	33	2	371	-0.012	0.073	34	n/a	n/a	n/a	-0.012	0.867
Drinking and driving [^]	33	4	776	-0.158	0.080	34	n/a	n/a	n/a	-0.158	0.048
Emergency department visits	33	1	52	-0.317	0.321	34	-0.043	0.481	36	-0.317	0.322
Illicit drug use [^]	33	2	721	-0.065	0.071	34	n/a	n/a	n/a	-0.065	0.362
Injuries [^]	33	1	122	-0.266	0.127	34	n/a	n/a	n/a	-0.266	0.037
Opioid drug use [^]	33	1	87	0.000	0.150	34	n/a	n/a	n/a	0.000	1.000
Problem alcohol use	33	27	4591	-0.139	0.032	34	-0.019	0.047	36	-0.139	0.001

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

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

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

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

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

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Brief intervention in a medical hospital Substance Use Disorders: Early Intervention

Benefit-cost estimates updated December 2019. Literature review updated September 2016.

Program Description: Inpatients in medical hospitals are screened for "hazardous" alcohol use (not dependence). Those screening positive receive a brief intervention, delivered by health care staff or other professionals. The intervention includes feedback on the patients' consumption compared to their peers and a motivational interview to encourage reduction in consumption. Patients typically receive a single intervention lasting 15 minutes to one hour. Some interventions included up to two brief telephone booster calls.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$572	Benefit to cost ratio	\$11.24
Participants	\$1,283	Benefits minus costs	\$1,706
Others	\$40	Chance the program will produce	
Indirect	(\$23)	benefits greater than the costs	66 %
Total benefits	\$1,873		
Net program cost	(\$167)		
Benefits minus cost	\$1,706		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$2	\$0	\$2
Labor market earnings associated with problem alcohol use	\$1,271	\$541	\$0	\$0	\$1,812
Property loss associated with problem alcohol use	\$3	\$0	\$6	\$0	\$10
Health care associated with problem alcohol use	\$5	\$29	\$32	\$15	\$82
Mortality associated with problem alcohol	\$4	\$2	\$0	\$46	\$51
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$83)	(\$83)
Totals	\$1,283	\$572	\$40	(\$23)	\$1,873

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

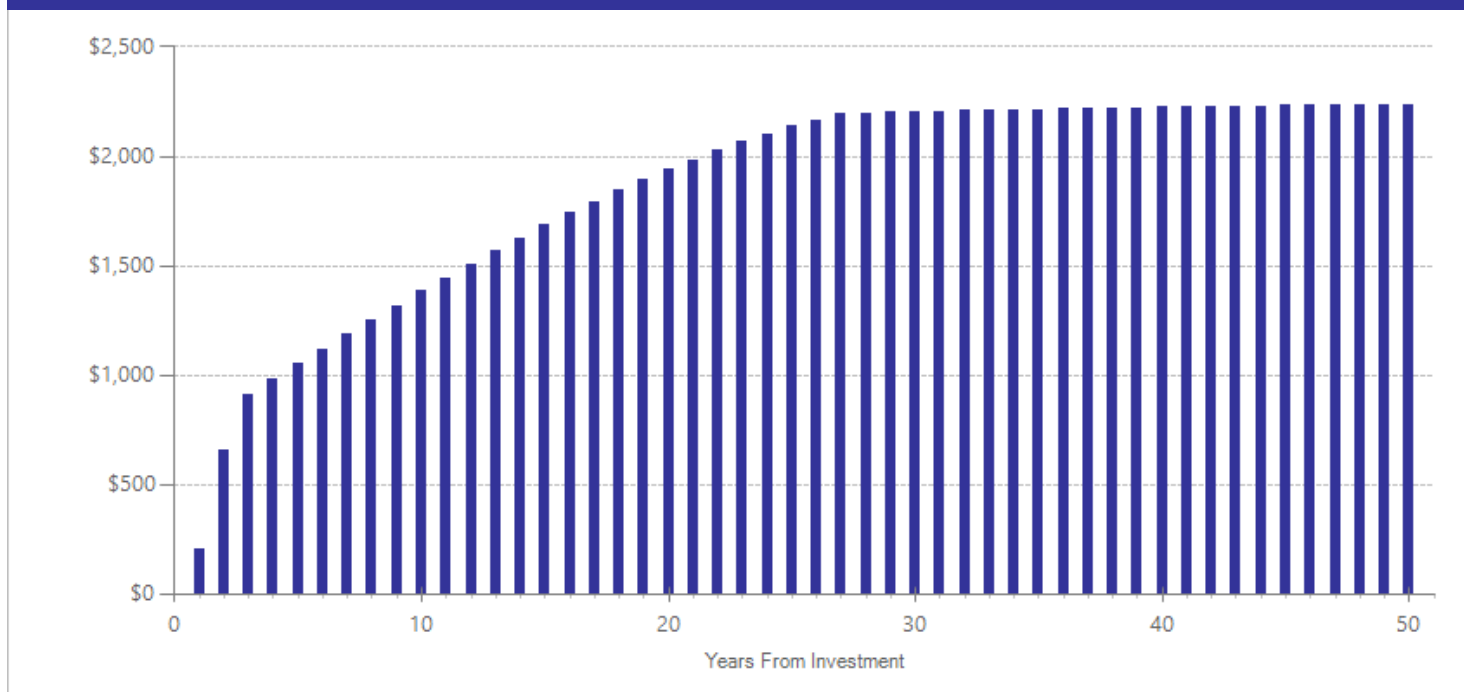
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$151	2011	Present value of net program costs (in 2018 dollars)	(\$167)
Comparison costs	\$0	2011	Cost range (+ or -)	20 %

This program consists of a single brief intervention during a visit to the hospital. The average duration of intervention in these studies was 0.65 hours. We assume it takes 15 minutes to screen patients and 20% of the screened patients meet eligibility requirements. We further assume that nurses conduct the screens and the intervention. To compute the cost per screened individual, we use salary information from the Bureau of Labor Statistics for registered nurses in surgical medical hospitals in 2011 multiplied by the time required by the intervention.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Death	39	1	59	-0.045	0.701	40	0.000	0.000	42	-0.045	0.949
Drinking and driving [^]	39	1	62	-0.686	0.340	40	n/a	n/a	n/a	-0.686	0.043
Problem alcohol use	39	15	1403	-0.170	0.050	40	-0.023	0.075	42	-0.170	0.001

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

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

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

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

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

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Brief Alcohol Screening and Intervention of College Students (BASICS): A Harm Reduction Approach

Substance Use Disorders: Early Intervention

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: College students recruited or referred are screened for "hazardous" drinking (not alcohol dependence.) Those reporting high rates of consumption receive one to two brief motivational sessions that include comparison of the students' alcohol consumption relative to their peers. Interventions are typically delivered by graduate students or counselors.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$283	Benefit to cost ratio	\$12.48
Participants	\$613	Benefits minus costs	\$872
Others	\$61	Chance the program will produce	
Indirect	(\$9)	benefits greater than the costs	65 %
Total benefits	\$948		
Net program cost	(\$76)		
Benefits minus cost	\$872		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$28	\$0	\$28
Labor market earnings associated with problem alcohol use	\$604	\$257	\$0	\$0	\$861
Property loss associated with problem alcohol use	\$3	\$0	\$5	\$0	\$8
Health care associated with problem alcohol use	\$5	\$25	\$27	\$12	\$69
Mortality associated with problem alcohol	\$2	\$1	\$0	\$17	\$20
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$38)	(\$38)
Totals	\$613	\$283	\$61	(\$9)	\$948

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

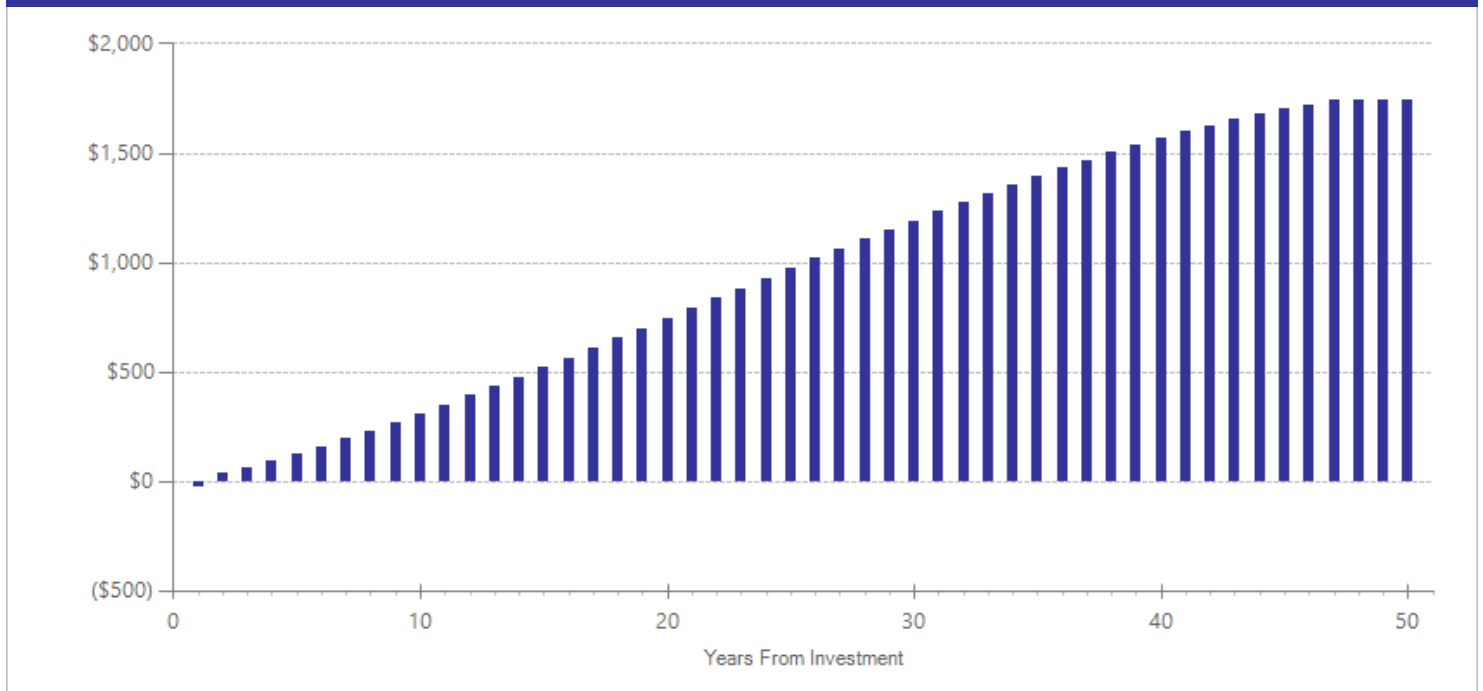
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$72	2014	Present value of net program costs (in 2018 dollars)	(\$76)
Comparison costs	\$0	2014	Cost range (+ or -)	20 %

The average duration of the intervention in these studies was 1.5 hours. We assume the following: (1) 36% of screened students are eligible and agree to the intervention (per Carey et al., 2006); (2) screening takes 30 minutes to administer the screen, score, and identify those with hazardous drinking; and (3) graduate students or counselors receive \$25 per hour (2014 dollars) to administer the screening and intervention.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Cannabis use [^]	19	1	118	0.000	0.205	19	n/a	n/a	n/a	0.000	1.000
Problem alcohol use	19	20	3296	-0.166	0.031	19	-0.023	0.047	21	-0.166	0.001
Regular smoking	19	1	118	0.000	0.205	19	0.000	0.308	21	0.000	1.000

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

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

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Brief intervention for youth in medical settings

Substance Use Disorders: Early Intervention

Benefit-cost estimates updated December 2019. Literature review updated February 2015.

Program Description: This category of treatment for youth using alcohol, marijuana, or other drugs is defined by several features: (1) substance abusing youth are identified in primary care or emergency department settings, often using a structured substance abuse screening instrument, and (2) interventions are brief, typically one session of less than one hour duration, and often utilize motivational interviewing techniques.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$141	Benefit to cost ratio	\$0.92
Participants	\$262	Benefits minus costs	(\$29)
Others	\$64	Chance the program will produce	
Indirect	(\$151)	benefits greater than the costs	46 %
Total benefits	\$316		
Net program cost	(\$345)		
Benefits minus cost	(\$29)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$21	\$52	\$10	\$83
Labor market earnings associated with problem alcohol use	\$259	\$110	\$0	\$0	\$369
Property loss associated with problem alcohol use	\$1	\$0	\$2	\$0	\$3
Health care associated with problem alcohol use	\$2	\$9	\$10	\$5	\$26
Mortality associated with problem alcohol	\$1	\$0	\$0	\$7	\$8
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$172)	(\$172)
Totals	\$262	\$141	\$64	(\$151)	\$316

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

Detailed Annual Cost Estimates Per Participant

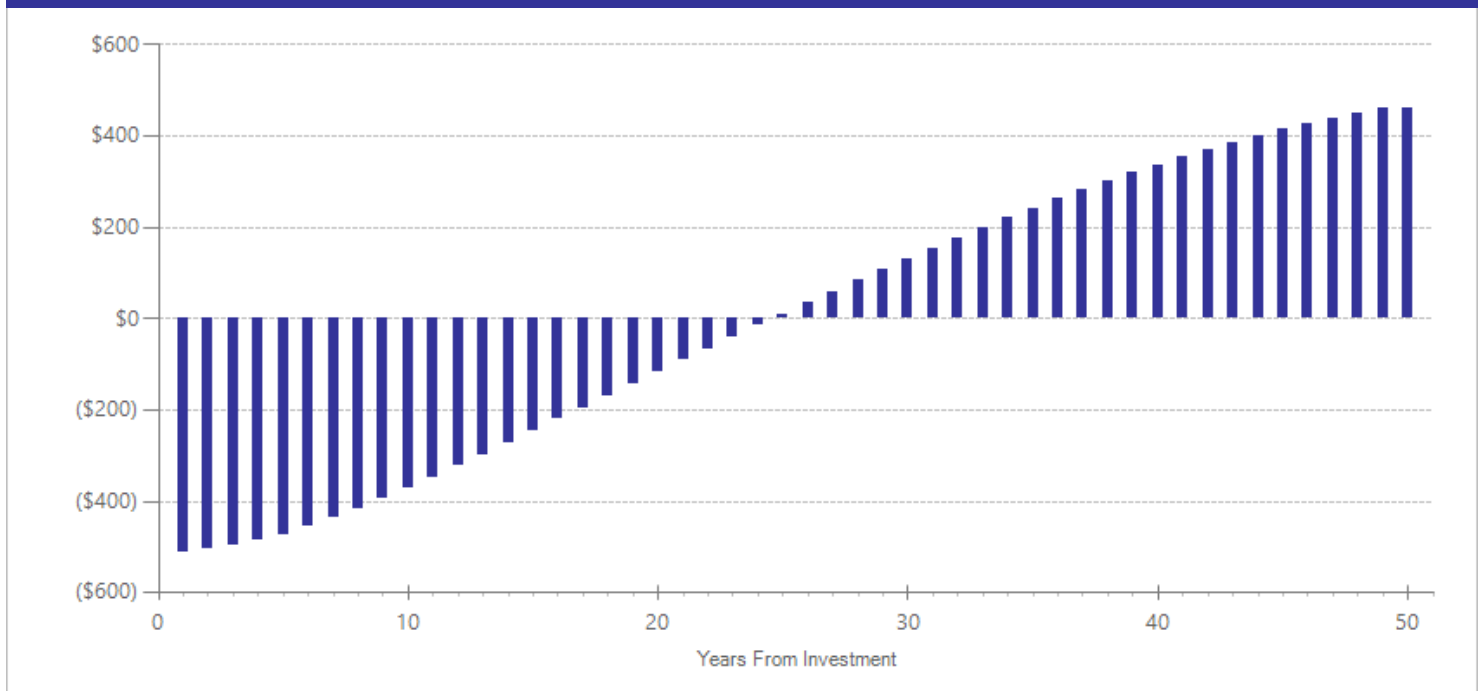
	Annual cost	Year dollars	Summary	
Program costs	\$328	2014	Present value of net program costs (in 2018 dollars)	(\$345)
Comparison costs	\$0	2014	Cost range (+ or -)	10 %

These interventions typically take place during a single visit to a primary care or emergency department setting. We estimate the per-participant cost for youth based on similar programs for adults. For primary care, we use the estimate from Fleming, M.F., Mundt, M.P., French, M.T., Manwell, L.B., Stauffacher, E.A. & Barry, K.L. (2002). Brief physician advice for problem drinkers: Long-term efficacy and benefit-cost analysis. *Alcoholism: Clinical and Experimental Research*, 26(1), 36-43.

In emergency departments, we use a cost estimate from a study in Washington State of \$53 per person screened. O'Neil, S. (2006). *Expanding the continuum— Improving care: Washington State brief intervention and referral to treatment program*, paper delivered at the Co-occurring Disorder Conference. In the collection of studies in our meta-analysis, 11,613 patients were screened to identify 2,171 youth eligible for the intervention. Our cost estimate is weighted by the numbers in treatment groups in these studies.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Cannabis use before end of high school	17	4	596	-0.025	0.113	18	-0.003	0.170	18	-0.025	0.825
Problem alcohol use	17	5	854	-0.099	0.068	17	-0.014	0.102	19	-0.099	0.145

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

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

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

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

Citations Used in the Meta-Analysis

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Alcohol Literacy Challenge (for college students)

Substance Use Disorders: Early Intervention

Benefit-cost estimates updated December 2019. Literature review updated June 2016.

Program Description: Alcohol Literacy Challenge is a universal intervention for high school students and college students. In a single 60 to 90 minute group session, the intervention provides information about standard drinks, the range of alcohol expectancies, the difference between pharmacological effects and placebo effects, and efforts by alcohol companies to portray positive alcohol expectancies in advertisements. Part of the lesson involves watching video clips of commercials advertising alcohol. Students deconstruct the advertisements, identifying the positive alcohol expectancies conveyed and discussing the contradictions between those expectancies and alcohol's pharmacological and behavioral effects. In the high school version of ALC, students also divide into teams and assess the alcohol effects portrayed in alcohol-related video clips, earning points for correct answers.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	(\$29)	Benefit to cost ratio	(\$25.63)
Participants	(\$64)	Benefits minus costs	(\$108)
Others	(\$6)	Chance the program will produce	
Indirect	(\$5)	benefits greater than the costs	50 %
Total benefits	(\$104)		
Net program cost	(\$4)		
Benefits minus cost	(\$108)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	(\$3)	\$0	(\$3)
Labor market earnings associated with problem alcohol use	(\$63)	(\$27)	\$0	\$0	(\$89)
Property loss associated with problem alcohol use	\$0	\$0	\$0	\$0	(\$1)
Health care associated with problem alcohol use	\$0	(\$2)	(\$3)	(\$1)	(\$7)
Mortality associated with problem alcohol	\$0	\$0	\$0	(\$2)	(\$2)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$2)	(\$2)
Totals	(\$64)	(\$29)	(\$6)	(\$5)	(\$104)

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

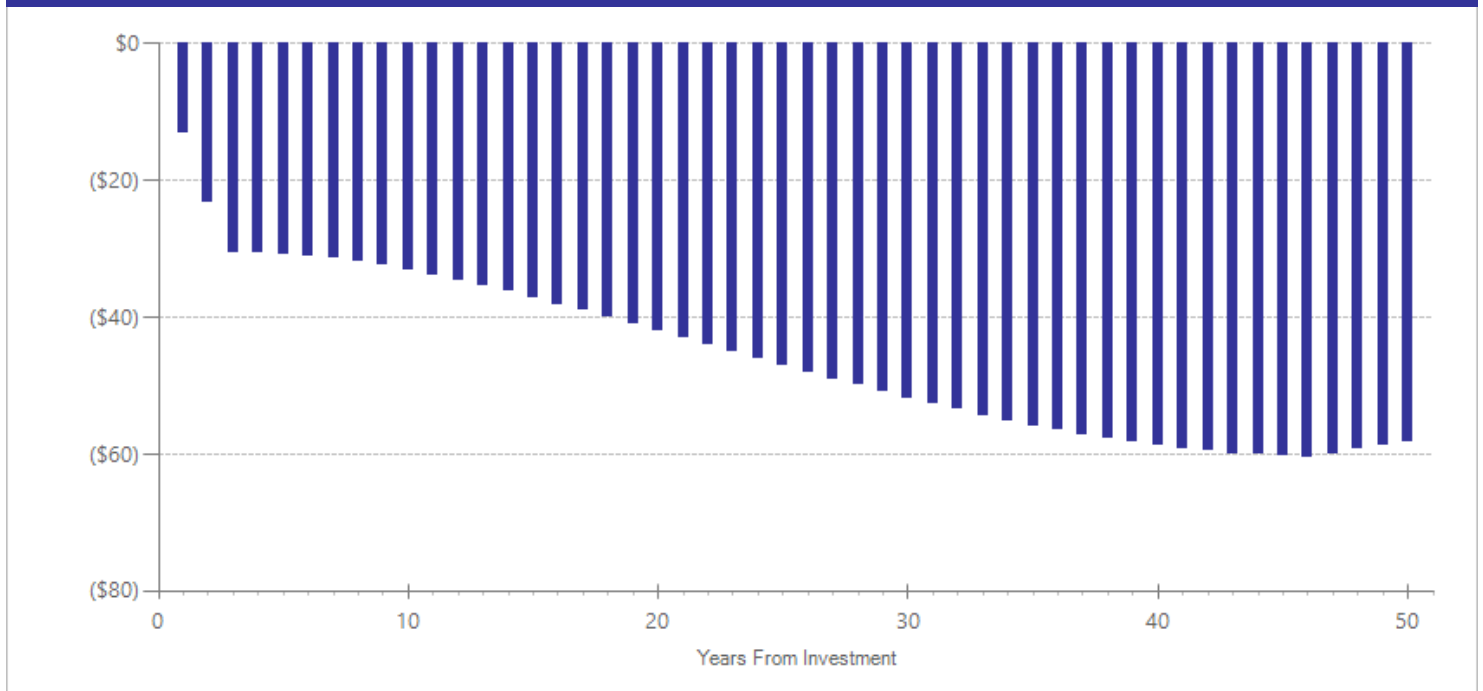
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$4	2014	Present value of net program costs (in 2018 dollars)	(\$4)
Comparison costs	\$0	2014	Cost range (+ or -)	15 %

We estimate per-participant costs assuming a training cost of \$5000 plus \$1500 for travel, that 5 school counselors would be trained at one time (training amortized over 3 years), and that one facilitator would provide the intervention to 200 students each year. An additional cost of \$1 per student is required by the program license. More information is available at: <http://medialiteracy.net/alcohol-literacy-challenge-curricula/>.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use [^]	20	2	297	-0.203	0.152	21	n/a	n/a	n/a	-0.615	0.001
Problem alcohol use	20	1	54	0.020	0.191	21	0.003	0.286	23	0.059	0.757

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

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

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

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

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

Citations Used in the Meta-Analysis

- Fried, A.B., & Dunn, M.E. (2012). The Expectancy Challenge Alcohol Literacy Curriculum (ECALC): a single session group intervention to reduce alcohol use. *Psychology of Addictive Behaviors: Journal of the Society of Psychologists in Addictive Behaviors*, 26(3), 615-20.
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- Fried, A.B. (2013). *Evaluation of digitally enhanced Expectancy Challenge Alcohol Literacy Curriculum (ECALC) for use with mandated college students*. Orlando, Fla: University of Central Florida.

Teen Marijuana Check-Up (TMCU) Substance Use Disorders: Treatment for Youth

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

Program Description: Teen Marijuana Check-Up (TMCU) is a brief, school-based intervention for youth meeting diagnostic criteria for cannabis use disorder. Youth are introduced to the program via classroom presentations, and those who report an interest in the program and are concerned with reducing cannabis use are screened for eligibility. Participants receive two 45- to 60-minute motivational enhancement therapy (MET) interviews one and two weeks after a youth is accepted to participate. These interviews are provided by counselors trained in the “no pressure to change” philosophy of the TMCU program. The intervention is provided during the school day without parental involvement. Four optional sessions of cognitive behavioral therapy are offered to both TMCU participants and participants in the comparison group for those interested in the cessation of their cannabis use.

Benefit-Cost Summary Statistics Per Participant

Benefit-Cost Summary Statistics Per Participant			
Benefits to:			
Taxpayers	\$24	Benefit to cost ratio	\$0.12
Participants	\$12	Benefits minus costs	(\$100)
Others	\$23	Chance the program will produce	
Indirect	(\$46)	benefits greater than the costs	49 %
<u>Total benefits</u>	<u>\$13</u>		
<u>Net program cost</u>	<u>(\$113)</u>		
Benefits minus cost	(\$100)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Detailed Monetary Benefit Estimates Per Participant					
Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with cannabis abuse or dependence	\$7	\$3	\$0	\$0	\$10
Health care associated with cannabis abuse or dependence	\$4	\$21	\$23	\$11	\$59
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$57)	(\$57)
Totals	\$12	\$24	\$23	(\$46)	\$13

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²“Others” includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

³“Indirect benefits” includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

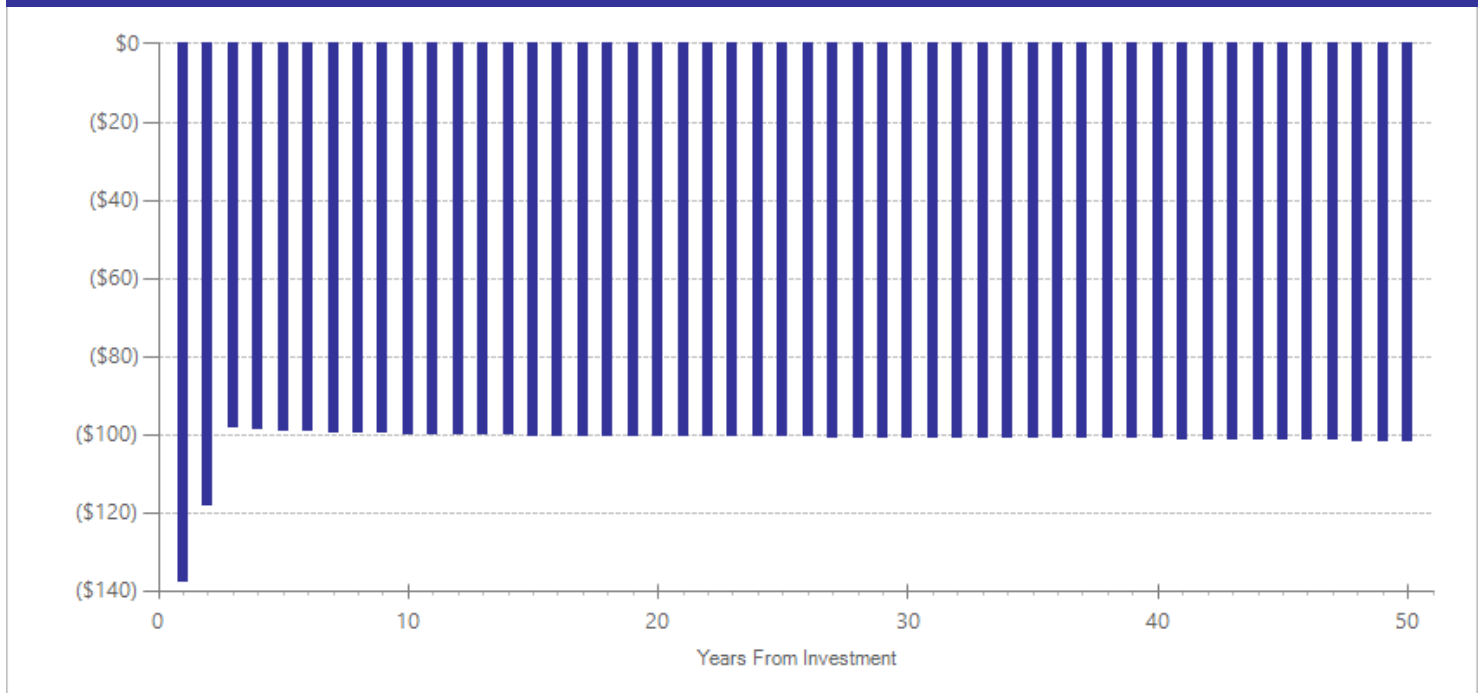
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$106	2013	Present value of net program costs (in 2018 dollars)	(\$113)
Comparison costs	\$0	2013	Cost range (+ or -)	20 %

Per-participant cost data was provided by the program developer (email from Denise Walker to Marna Miller, 10/9/2014). The cost includes recruitment, screening, and direct intervention hours. The treatment cost represents the cost of providing only Teen Marijuana Check-Up (TMCU) and does not include the costs of the optional sessions of cognitive-behavioral therapy offered to both treatment and comparison participants.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Cannabis use disorder	16	2	148	-0.284	0.142	16	0.000	0.187	19	-0.284	0.045

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

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

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

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

Citations Used in the Meta-Analysis

Walker, D.D., Roffman, R.A., Stephens, R.S., Wakana, K., Berghuis, J., & Kim, W. (2006). Motivational enhancement therapy for adolescent marijuana users: a preliminary randomized controlled trial. *Journal of Consulting and Clinical Psychology, 74*(3), 628-32.

Walker, D.D., Stephens, R., Roffman, R., Demarce, J., Lozano, B., Towe, S., & Berg, B. (2011). Randomized controlled trial of motivational enhancement therapy with nontreatment-seeking adolescent cannabis users: a further test of the Teen Marijuana Check-Up. *Psychology of Addictive Behaviors, 25*(3), 474-84.

Adolescent Assertive Continuing Care (ACC)

Substance Use Disorders: Treatment for Youth

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

Program Description: Adolescent Assertive Continuing Care (ACC) is a home-based program for youth with substance use disorders returning to the community following substance use treatment. ACC combines the Adolescent Community Reinforcement Approach (A-CRA) with case management services. Trained providers deliver weekly in-home support to youth and their caregivers to improve abstinence and risk reduction skills, encourage youth to engage in more pro-social behavior, and refer youth to additional community services. On average, sessions last for an hour and treatment typically occurs over 12-14 weeks.

Among studies included in this analysis, youth in the comparison groups engaged in the same substance use treatment as the ACC youth but do not receive Assertive Continuing Care following substance use treatment.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$19	Benefit to cost ratio	(\$0.45)
Participants	\$17	Benefits minus costs	(\$2,997)
Others	\$20	Chance the program will produce	
Indirect	(\$988)	benefits greater than the costs	39 %
<u>Total benefits</u>	<u>(\$932)</u>		
<u>Net program cost</u>	<u>(\$2,065)</u>		
Benefits minus cost	(\$2,997)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$2	\$7	\$1	\$10
Labor market earnings associated with alcohol abuse or dependence	\$8	\$3	\$0	\$0	\$11
Property loss associated with alcohol abuse or dependence	\$1	\$0	\$2	\$0	\$3
Health care associated with cannabis abuse or dependence	\$2	\$11	\$12	\$5	\$30
Mortality associated with alcohol	\$5	\$2	\$0	\$39	\$46
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$1,033)	(\$1,033)
Totals	\$17	\$19	\$20	(\$988)	(\$932)

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

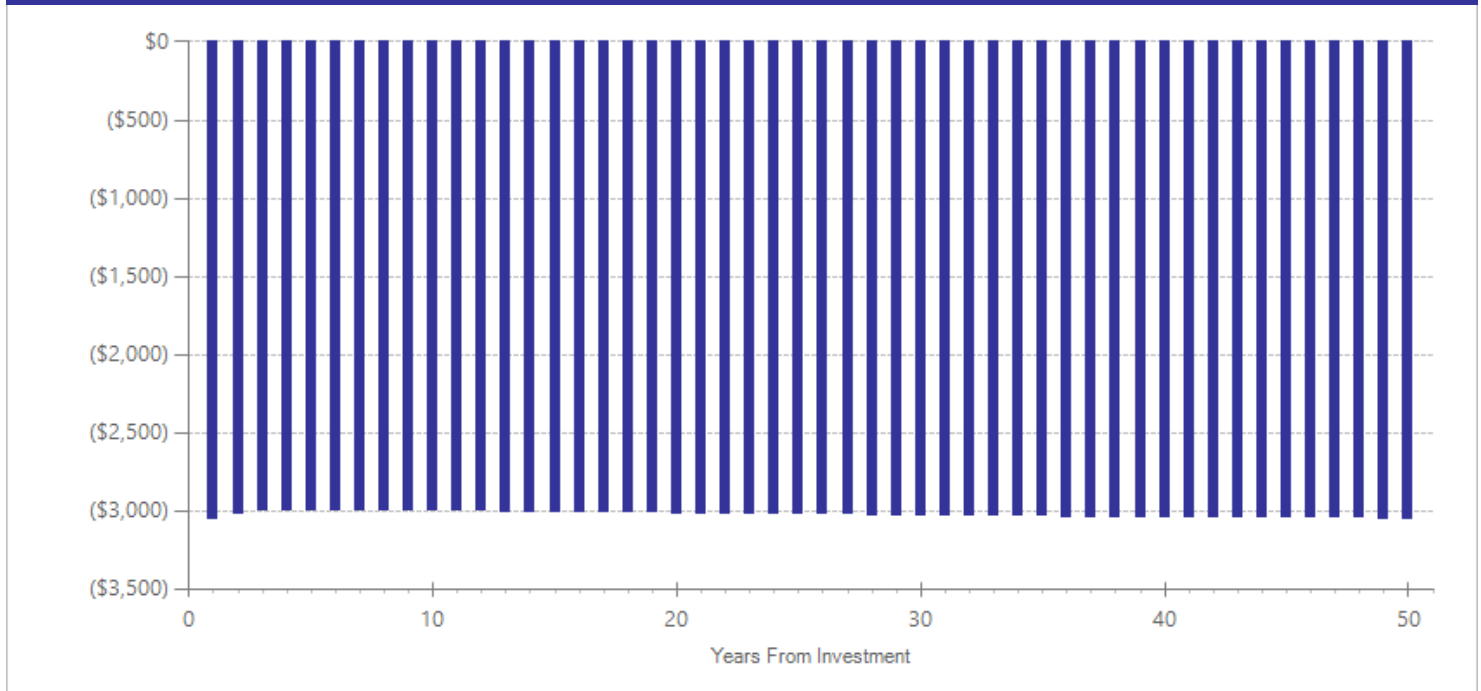
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,968	2015	Present value of net program costs (in 2018 dollars)	(\$2,065)
Comparison costs	\$0	2015	Cost range (+ or -)	10 %

Per-participant costs are based on the weighted average therapist time as reported in the studies (approximately 12 hours of individual treatment and 2 hours of family treatment), multiplied by DSHS reimbursement rates reported in Mercer. (2016). Behavioral health data book for the state of Washington for rates effective October 7, 2016. The treatment cost represents the cost of providing only Adolescent Assertive Continuing Care and does not include the costs of residential substance use treatment received by both the treatment and comparison groups.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use disorder	16	3	249	-0.296	0.111	16	0.000	0.187	19	-0.296	0.008
Cannabis use before end of high school ^{^^}	16	1	80	-0.340	0.262	16	n/a	n/a	n/a	-0.340	0.194
Cannabis use disorder	16	2	169	-0.154	0.150	16	0.000	0.187	19	-0.154	0.304
Substance use disorder [^]	16	3	397	-0.141	0.128	16	n/a	n/a	n/a	-0.141	0.272

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

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

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

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

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

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

Citations Used in the Meta-Analysis

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Functional Family Therapy (FFT) for adolescents with substance use disorder

Substance Use Disorders: Treatment for Youth

Benefit-cost estimates updated December 2019. Literature review updated June 2016.

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.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	\$31	Benefit to cost ratio	(\$0.35)
Participants	\$97	Benefits minus costs	(\$4,866)
Others	\$49	Chance the program will produce	
Indirect	(\$1,444)	benefits greater than the costs	35 %
<u>Total benefits</u>	<u>(\$1,267)</u>		
<u>Net program cost</u>	<u>(\$3,599)</u>		
Benefits minus cost	(\$4,866)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:¹

Benefits to:

	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	(\$11)	(\$29)	(\$6)	(\$45)
K-12 grade repetition	\$0	\$2	\$0	\$1	\$3
K-12 special education	\$0	(\$8)	\$0	(\$4)	(\$12)
Labor market earnings associated with alcohol abuse or dependence	\$47	\$20	\$0	\$0	\$67
Health care associated with alcohol abuse or dependence	\$12	\$63	\$69	\$31	\$175
Property loss associated with alcohol abuse or dependence	\$8	\$0	\$15	\$0	\$24
Health care associated with externalizing behavior symptoms	(\$21)	(\$75)	(\$77)	(\$37)	(\$211)
Mortality associated with alcohol	\$51	\$22	\$0	\$360	\$433
Adjustment for deadweight cost of program	\$0	\$20	\$71	(\$1,789)	(\$1,699)
<u>Totals</u>	<u>\$97</u>	<u>\$31</u>	<u>\$49</u>	<u>(\$1,444)</u>	<u>(\$1,267)</u>

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

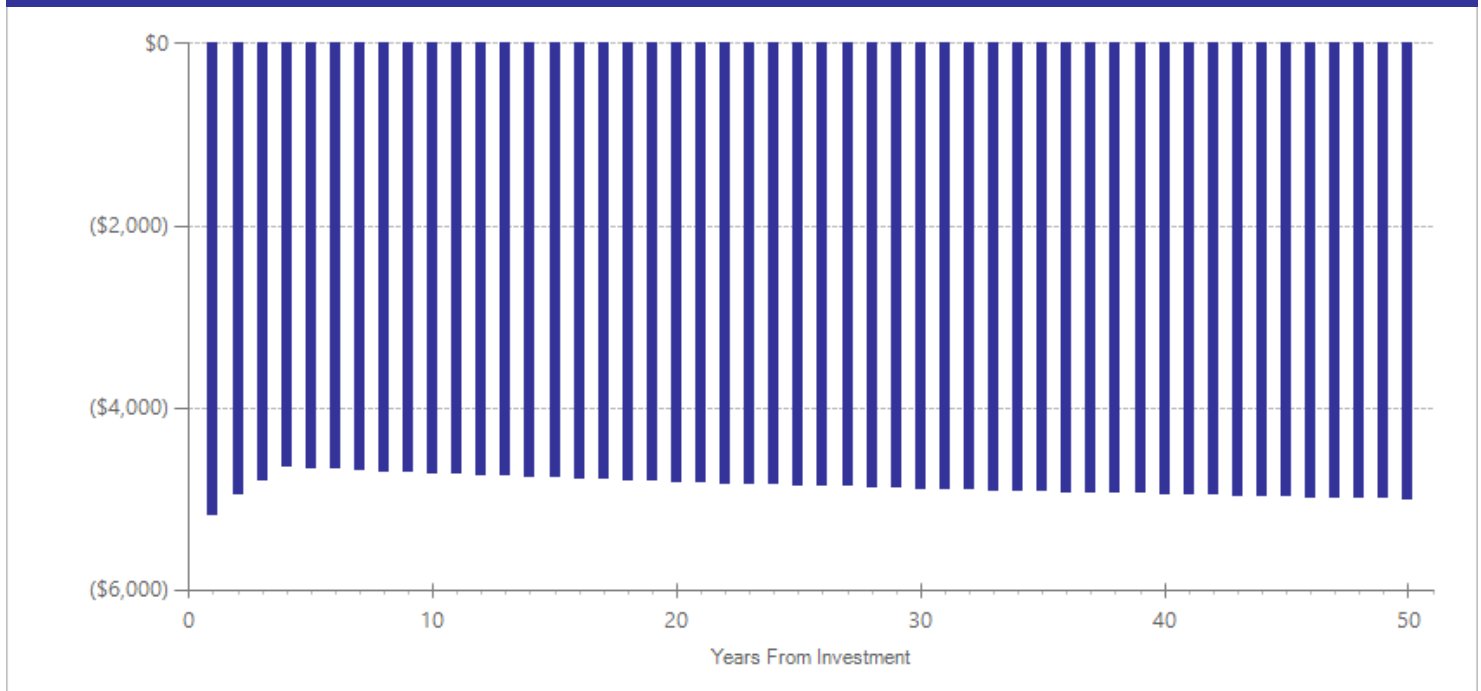
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$3,134	2008	Present value of net program costs (in 2018 dollars)	(\$3,599)
Comparison costs	\$0	2008	Cost range (+ or -)	10 %

Per-participant cost from 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.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use disorder	15	1	40	-0.664	0.228	16	0.000	0.187	19	-0.664	0.004
Cannabis use disorder ^{^^}	15	1	30	-0.745	0.653	16	n/a	n/a	n/a	-0.745	0.254
Externalizing behavior symptoms	15	1	40	0.040	0.221	16	0.022	0.133	19	0.040	0.855
Internalizing symptoms	15	1	40	0.058	0.221	16	0.058	0.221	18	0.058	0.795
Major depressive disorder	15	1	40	-0.247	0.222	16	0.000	0.310	18	-0.247	0.265
Substance use disorder [^]	15	1	85	0.099	0.230	16	n/a	n/a	n/a	0.099	0.667

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

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

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

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

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

Citations Used in the Meta-Analysis

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Multidimensional Family Therapy (MDFT)

Substance Use Disorders: Treatment for Youth

Benefit-cost estimates updated December 2019. Literature review updated May 2015.

Program Description: Multidimensional Family Therapy (MDFT) is an integrative, family-based, multiple systems treatment for youth with drug abuse and related behavior problems. The therapy consists of four domains: (1) engage adolescent in treatment, (2) increase parental involvement with youth and improve limit-setting, (3) decrease family-interaction conflict, and (4) collaborate with extra-familial social systems. Youth are generally aged 11 to 16 and have been clinically referred to outpatient treatment. For this meta-analysis, two studies measured the effects of MDFT on delinquency and ten measured the effects on subsequent substance use. All 12 studies included youth who were referred from the juvenile justice system as well as schools, child welfare agencies, health and mental health agencies, and parents.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,776	Benefit to cost ratio	\$0.29
Participants	\$136	Benefits minus costs	(\$5,918)
Others	\$3,842	Chance the program will produce	
Indirect	(\$3,307)	benefits greater than the costs	28 %
Total benefits	\$2,448		
Net program cost	(\$8,365)		
Benefits minus cost	(\$5,918)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$1,431	\$3,565	\$716	\$5,713
K-12 special education	\$0	\$51	\$0	\$25	\$76
Labor market earnings associated with cannabis abuse or dependence	\$61	\$26	\$0	\$0	\$86
Health care associated with externalizing behavior symptoms	\$76	\$268	\$277	\$134	\$755
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$4,183)	(\$4,183)
Totals	\$136	\$1,776	\$3,842	(\$3,307)	\$2,448

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

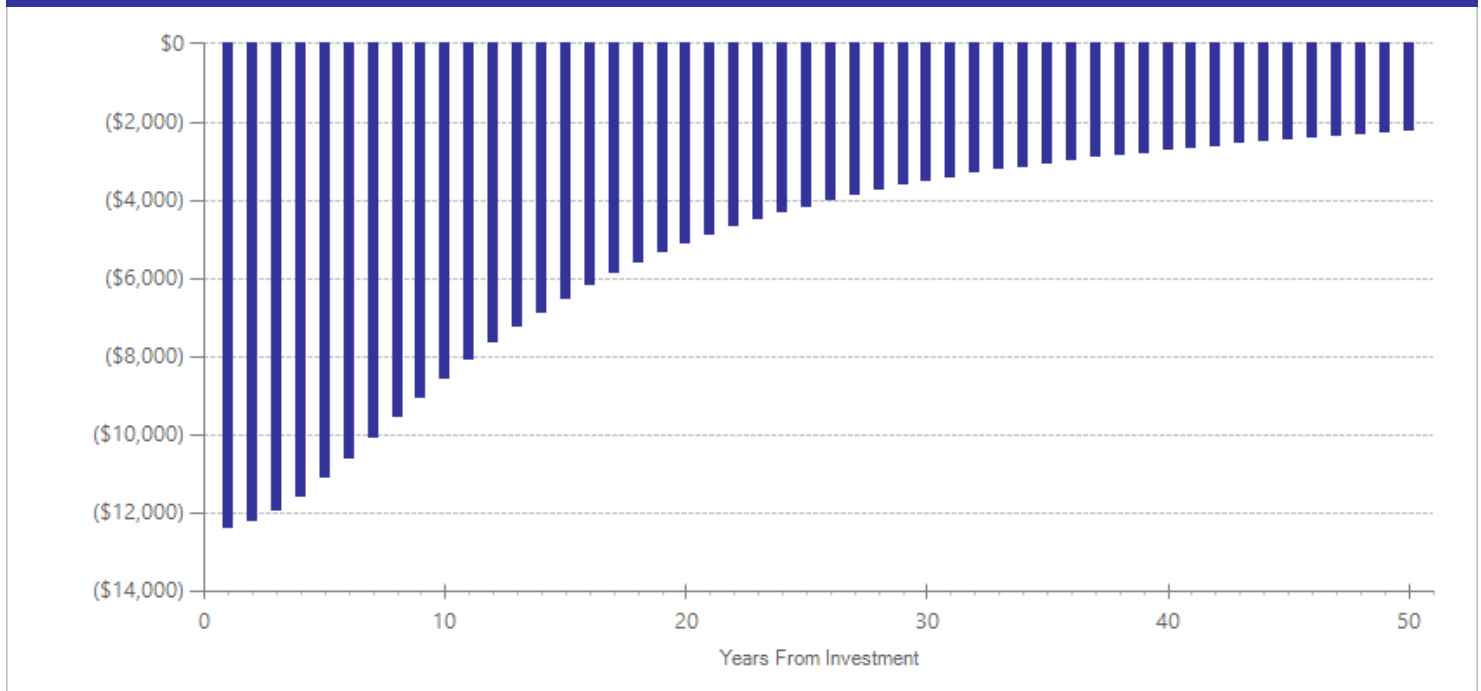
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$6,168	2001	Present value of net program costs (in 2018 dollars)	(\$8,365)
Comparison costs	\$0	2001	Cost range (+ or -)	10 %

This program is typically administered over a three-month period. Per-participant costs from Zavala, S. K., French, M. T., Henderson, C. E., Alberga, L., Rowe, C., & Liddle, H.A. (2005). Guidelines and challenges for estimating the economic costs and benefits of adolescent substance abuse treatments. *Journal of Substance Abuse Treatment*, 29(3), 191-205.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Cannabis use disorder	14	6	251	-0.308	0.128	17	0.000	0.187	20	-0.308	0.016
Crime	14	3	151	-0.215	0.157	17	-0.215	0.157	27	-0.215	0.169
Externalizing behavior symptoms	14	4	346	-0.145	0.084	17	-0.080	0.061	20	-0.145	0.085
Grade point average [^]	14	1	40	0.168	0.301	17	n/a	n/a	n/a	0.168	0.577
Internalizing symptoms	14	3	290	-0.049	0.132	17	-0.049	0.132	19	-0.049	0.710
Substance use disorder [^]	14	7	354	-0.406	0.102	17	n/a	n/a	n/a	-0.406	0.001

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

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

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

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

Citations Used in the Meta-Analysis

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Contingency management (higher cost) for substance use disorders

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: Contingency management is a supplement to counseling treatment that rewards participants for attending treatment and/or abstaining from substance use. The intervention reviewed here focused on those with drug and/or alcohol substance use disorder (excluding marijuana use disorder) where contingencies were provided for remaining abstinent. Two methods of contingency management were reviewed: (1) A voucher system where abstinence earned vouchers that were exchangeable for goods provided by the clinic or counseling center, and (2) a prize or raffle system where clients who remained abstinent could earn the opportunity to draw from a prize bowl. Higher-cost contingency management was determined by maximum voucher or maximum expected value of prizes possible. Based on a statistical analysis of contingency management studies, we determined that programs with a maximum value of vouchers or prizes greater than \$500 (in 2012 dollars) represent higher-cost contingency management. Treatment lasted two to three months and reward opportunities occurred two to three times per week.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$3,148	Benefit to cost ratio	\$39.27
Participants	\$4,060	Benefits minus costs	\$22,682
Others	\$1,563	Chance the program will produce	
Indirect	\$14,504	benefits greater than the costs	77 %
Total benefits	\$23,275		
Net program cost	(\$593)		
Benefits minus cost	\$22,682		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$1	\$4	\$1	\$6
Labor market earnings associated with illicit drug abuse or dependence	\$2,763	\$1,176	\$0	\$0	\$3,940
Health care associated with illicit drug abuse or dependence	\$235	\$1,517	\$1,559	\$759	\$4,070
Mortality associated with illicit drugs	\$1,062	\$452	\$0	\$14,041	\$15,555
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$296)	(\$296)
Totals	\$4,060	\$3,148	\$1,563	\$14,504	\$23,275

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

Detailed Annual Cost Estimates Per Participant

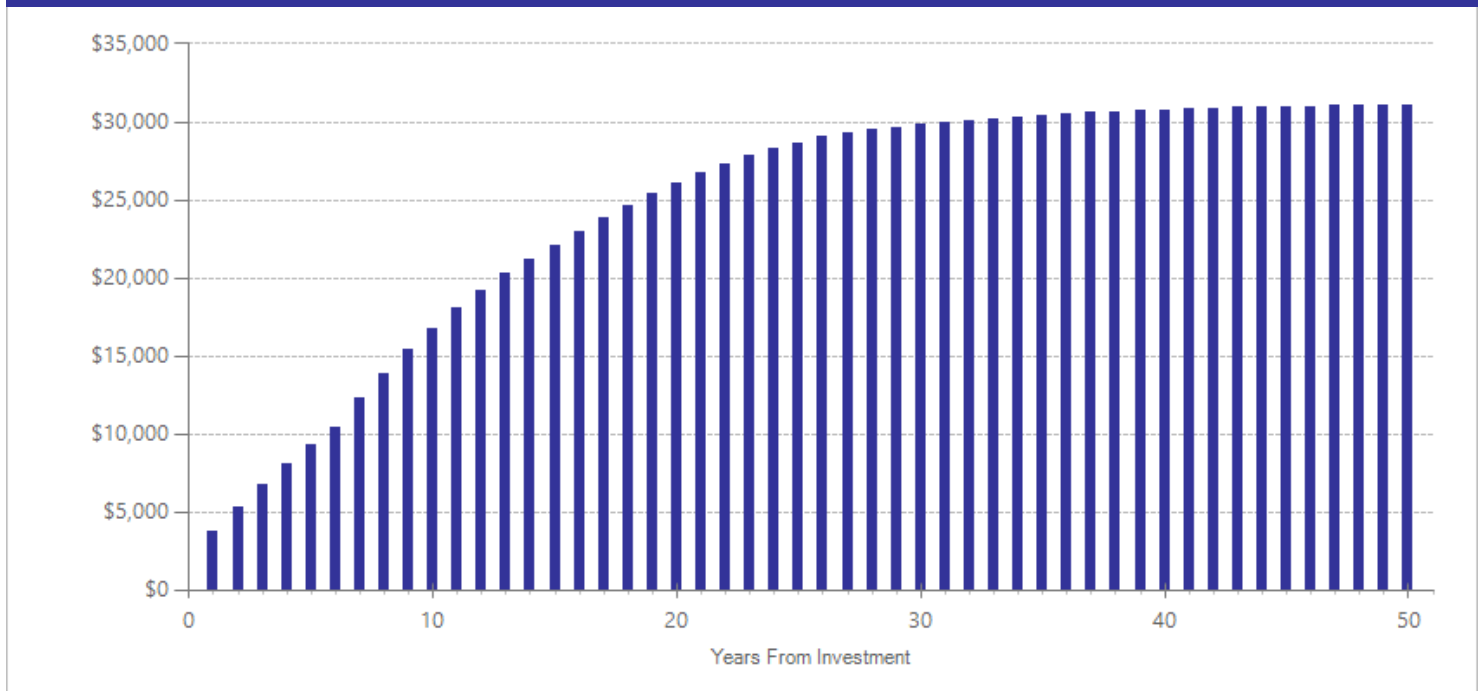
	Annual cost	Year dollars	Summary	
Program costs	\$548	2012	Present value of net program costs (in 2018 dollars)	(\$593)
Comparison costs	\$0	2012	Cost range (+ or -)	20 %

Contingency management is typically provided for less than a year. We calculated the weighted average of the variable per-participant treatment and comparison group costs across studies estimating the cost-effectiveness of an incentive program with an average cost of greater than \$500 in 2012 (Olmstead & Petry, 2009; Olmstead, Sindelar, & Petry, 2007; Olmstead et al., 2007). Costs of administering the incentive program include staff costs to inventory, shop, and restock prizes; material cost of items; counseling session costs; and toxicology screens. All staff costs include salary, benefits, and overhead. All costs are calculated from the clinic perspective. Note that because treatment group participants have higher retention rates than the control group, costs also reflect the increased number of counseling sessions attended and urinalysis tests performed for the treated group.

Olmstead, T.A., & Petry, N.M. (2009). The cost-effectiveness of prize-based and voucher-based contingency management in a population of cocaine- or opioid-dependent outpatients. *Drug and Alcohol Dependence*, 102(1), 108-115. Olmstead, T.A., Sindelar, J.L., & Petry, N.M. (2007). Cost-effectiveness of prize-based incentives for stimulant abusers in outpatient psychosocial treatment programs. *Drug and Alcohol Dependence*, 87(2), 175-182. Olmstead, T.A., Sindelar, J.L., Easton, C.J., & Carroll, K.M. (2007). The cost-effectiveness of four treatments for marijuana dependence. *Addiction*, 102(9), 1443-1453.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use disorder ^{^^}	39	1	19	-0.096	0.310	39	n/a	n/a	n/a	-0.096	0.758
Cannabis use [^]	39	1	19	-0.301	0.312	39	n/a	n/a	n/a	-0.301	0.334
Illicit drug use disorder	39	37	1323	-0.519	0.060	39	-0.154	0.238	40	-0.519	0.001

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

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

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

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Seeking Safety

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: Seeking Safety is a manualized, standalone therapy designed to treat comorbid trauma/PTSD and substance use disorders. Seeking Safety covers 25 topics over two to three months. In the included studies, each topic is independent of the others, and allows for flexible use (mixed settings, fewer topics, etc.). The five main principles of Seeking Safety are (1) safety in relationships, thinking, behavior, and emotions; (2) treating trauma/PTSD and substance abuse at the same time; (3) a focus on ideals; (4) four content areas: cognitive, behavioral, interpersonal, and case management; and (5) attention to clinician processes (e.g. clinician self-care).

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$5,648	Benefit to cost ratio	\$44.80
Participants	\$9,855	Benefits minus costs	\$17,993
Others	\$1,704	Chance the program will produce	
Indirect	\$1,196	benefits greater than the costs	71 %
Total benefits	\$18,404		
Net program cost	(\$411)		
Benefits minus cost	\$17,993		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with alcohol abuse or dependence	(\$33)	(\$14)	\$0	\$0	(\$47)
Health care associated with alcohol abuse or dependence	\$0	\$0	\$0	\$0	(\$1)
Property loss associated with alcohol abuse or dependence	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with PTSD	\$9,370	\$3,989	\$0	\$0	\$13,359
Health care associated with PTSD	\$467	\$1,652	\$1,705	\$826	\$4,649
Mortality associated with illicit drugs	\$52	\$22	\$0	\$576	\$649
Mortality associated with alcohol	\$0	\$0	\$0	\$0	(\$1)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$205)	(\$205)
Totals	\$9,855	\$5,648	\$1,704	\$1,196	\$18,404

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

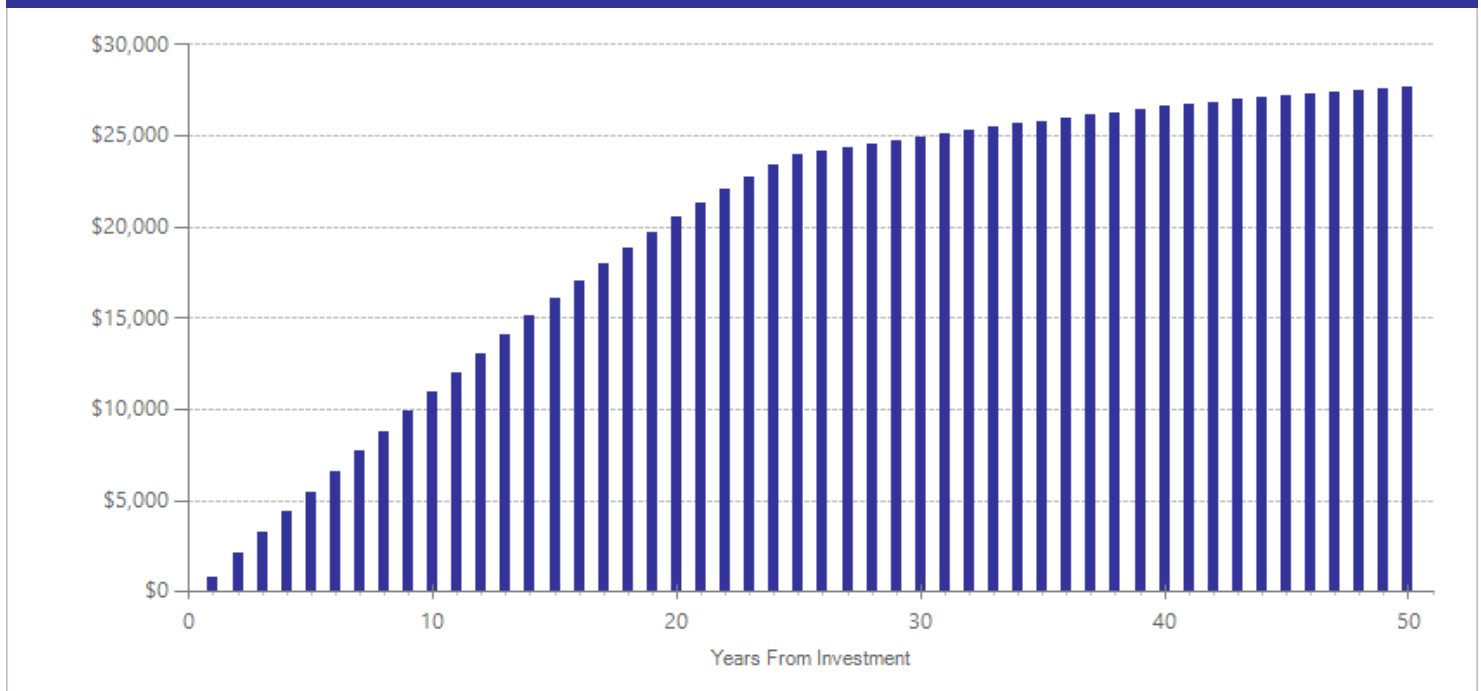
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$526	2013	Present value of net program costs (in 2018 dollars)	(\$411)
Comparison costs	\$141	2013	Cost range (+ or -)	10 %

In the included studies, Seeking Safety was administered over a two- to three-month period. The per-participant cost of treatment is the weighted average estimate of the individual or group therapy sessions provided in the studies included in the analysis. We calculated this average estimate using Washington's Medicaid hourly reimbursement rate for outpatient individual and group therapy multiplied by the weighted average of the total hours of these therapies across the studies (averaging 24 total hours). Comparison group costs are computed in a similar manner based on treatment received in the studies (no treatment or standard group treatment).

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use disorder	41	2	72	0.009	0.175	41	0.000	0.187	44	0.009	0.957
Illicit drug use disorder	41	5	346	-0.058	0.093	41	0.000	0.187	44	-0.058	0.535
Post-traumatic stress	41	6	409	-0.211	0.102	41	-0.211	0.102	42	-0.211	0.039
Psychiatric symptoms [^]	41	2	84	0.057	0.305	41	n/a	n/a	n/a	0.057	0.852

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

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

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

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

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

Citations Used in the Meta-Analysis

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Contingency management (higher cost) for marijuana use

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: Contingency management is a supplement to counseling treatment that rewards participants for attending treatment and/or abstaining from substance use. The intervention reviewed here focused on those with marijuana abuse or dependence where contingencies were provided for remaining abstinent. Two methods of contingency management were reviewed: (1) A voucher system where abstinence earned vouchers that were exchangeable for goods provided by the clinic or counseling center, and (2) a prize or raffle system where clients who remained abstinent could earn the opportunity to draw from a prize bowl. Higher-cost contingency management was determined by maximum voucher or maximum expected value of prizes possible. Based on a statistical analysis of contingency management studies, we determined that programs with a maximum value of vouchers or prizes greater than \$500 (in 2012 dollars) represent higher-cost contingency management. Treatment in the included studies lasted between 1 and 6.5 months with a weighted average of three months of contingency management and reward opportunities occurring two times per week, on average.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$4,293	Benefit to cost ratio	\$23.36
Participants	\$9,207	Benefits minus costs	\$13,254
Others	\$439	Chance the program will produce	
Indirect	(\$92)	benefits greater than the costs	78 %
Total benefits	\$13,847		
Net program cost	(\$593)		
Benefits minus cost	\$13,254		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with cannabis abuse or dependence	\$9,125	\$3,885	\$0	\$0	\$13,010
Health care associated with cannabis abuse or dependence	\$82	\$408	\$439	\$204	\$1,133
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$296)	(\$296)
Totals	\$9,207	\$4,293	\$439	(\$92)	\$13,847

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

Detailed Annual Cost Estimates Per Participant

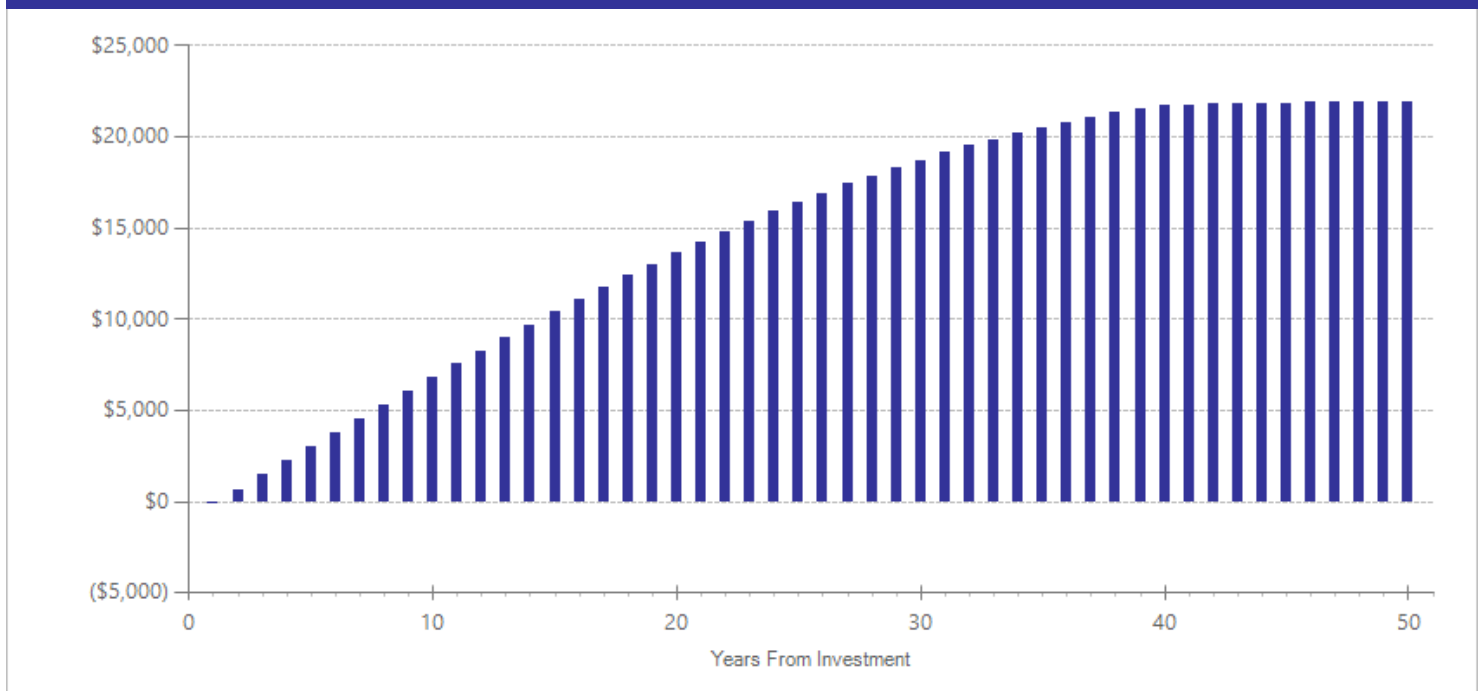
	Annual cost	Year dollars	Summary	
Program costs	\$548	2012	Present value of net program costs (in 2018 dollars)	(\$593)
Comparison costs	\$0	2012	Cost range (+ or -)	20 %

Contingency management is typically provided for less than a year. We calculated the weighted average of the variable per-participant treatment and comparison group costs across studies estimating the cost-effectiveness of an incentive program with an average cost of greater than \$500 in 2012 (Olmstead & Petry, 2009; Olmstead, Sindelar, & Petry, 2007; Olmstead et al., 2007). Costs of administering the incentive program include staff costs to inventory, shop for, and restock prizes; material cost of items; counseling session costs; and toxicology screens. All staff costs include salary, benefits, and overhead. All costs are calculated from the clinic perspective. Note that because treatment group participants have higher retention rates than the control group, costs also reflect the increased number of counseling sessions attended and urinalysis tests performed for the treated group.

Olmstead, T.A., & Petry, N.M. (2009). The cost-effectiveness of prize-based and voucher-based contingency management in a population of cocaine- or opioid-dependent outpatients. *Drug and Alcohol Dependence*, 102(1), 108-115. Olmstead, T.A., Sindelar, J.L., & Petry, N.M. (2007). Cost-effectiveness of prize-based incentives for stimulant abusers in outpatient psychosocial treatment programs. *Drug and Alcohol Dependence*, 87(2), 175-182. Olmstead, T.A., Sindelar, J.L., Easton, C.J., & Carroll, K.M. (2007). The cost-effectiveness of four treatments for marijuana dependence. *Addiction*, 102(9), 1443-1453.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Cannabis use disorder	26	4	116	-0.354	0.154	26	-0.325	0.412	27	-0.354	0.021

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

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

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

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

Citations Used in the Meta-Analysis

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Brief marijuana dependence counseling Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: Brief marijuana dependence counseling is a standalone treatment that combines motivational enhancement therapy (usually two sessions) and cognitive-behavioral therapy (usually seven sessions) as well as case management. Sessions are generally individual in nature and focus on motivations and readiness for change; building cognitive, behavioral, and emotional skills; and assisting the client with access to additional support services.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$4,049	Benefit to cost ratio	\$22.60
Participants	\$8,738	Benefits minus costs	\$12,486
Others	\$387	Chance the program will produce	
Indirect	(\$109)	benefits greater than the costs	91 %
<u>Total benefits</u>	<u>\$13,064</u>		
<u>Net program cost</u>	<u>(\$578)</u>		
Benefits minus cost	\$12,486		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with cannabis abuse or dependence	\$8,666	\$3,689	\$0	\$0	\$12,355
Health care associated with cannabis abuse or dependence	\$72	\$359	\$387	\$180	\$998
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$289)	(\$289)
Totals	\$8,738	\$4,049	\$387	(\$109)	\$13,064

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

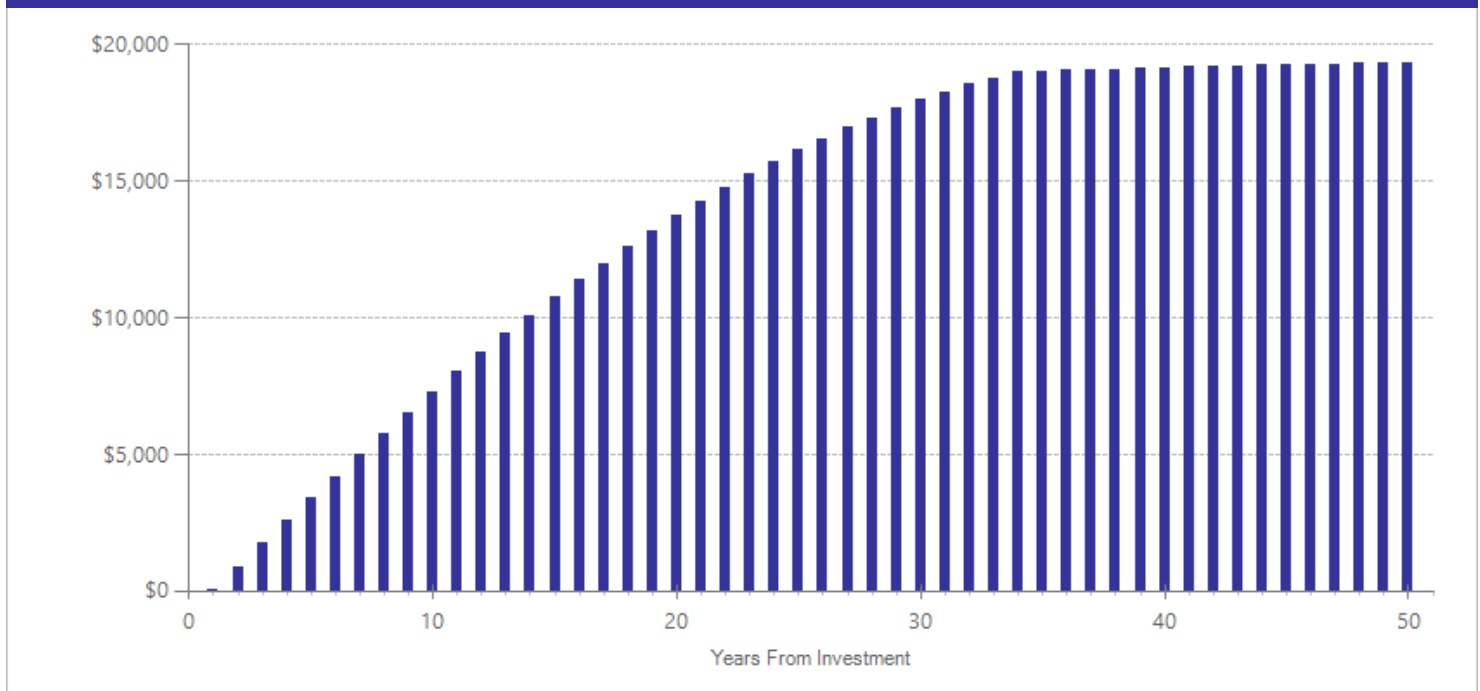
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$822	2013	Present value of net program costs (in 2018 dollars)	(\$578)
Comparison costs	\$280	2013	Cost range (+ or -)	10 %

Brief marijuana dependence counseling was provided over a two- to three-month period in the included studies. The per-participant cost of treatment is the weighted average estimate for studies included in the analysis. We calculated this average estimate using Washington's Medicaid hourly reimbursement rates for individual and/or group outpatient therapy multiplied by the weighted average of total hours of outpatient individual and/or group therapy across the studies (averaging 12 total hours). Comparison group costs are computed in a similar manner based on treatment received in the studies (individual or group treatment as usual or no treatment).

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Cannabis use disorder	32	8	506	-0.364	0.138	32	-0.323	0.226	33	-0.364	0.009

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

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

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

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

Citations Used in the Meta-Analysis

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Brief cognitive behavioral intervention for amphetamine users

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: Brief cognitive behavioral interventions for amphetamine users is a manualized, standalone treatment that consists of two to four individual weekly sessions of cognitive-behavioral therapy. Key approaches included in this intervention include motivational interviewing, coping skills, controlling thoughts, and relapse prevention. While the manual focuses on a four-session model, the developer indicates that practitioners may use a two-session model according to client needs.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$2,314	Benefit to cost ratio	\$52.57
Participants	\$2,675	Benefits minus costs	\$11,253
Others	\$1,301	Chance the program will produce	
Indirect	\$5,181	benefits greater than the costs	64 %
Total benefits	\$11,471		
Net program cost	(\$218)		
Benefits minus cost	\$11,253		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$5	\$14	\$3	\$22
Labor market earnings associated with illicit drug abuse or dependence	\$1,920	\$817	\$0	\$0	\$2,738
Health care associated with illicit drug abuse or dependence	\$194	\$1,252	\$1,287	\$626	\$3,359
Mortality associated with illicit drugs	\$561	\$239	\$0	\$4,662	\$5,462
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$109)	(\$109)
Totals	\$2,675	\$2,314	\$1,301	\$5,181	\$11,471

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

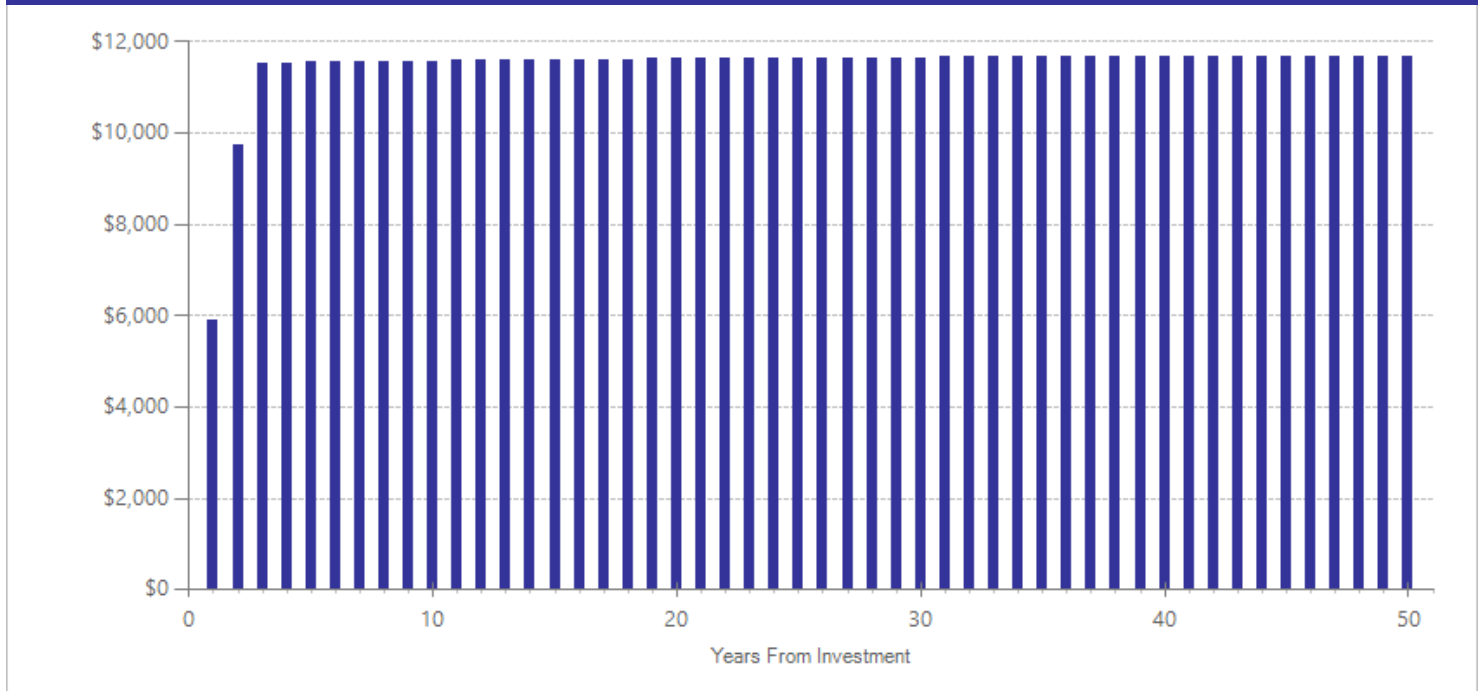
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$204	2013	Present value of net program costs (in 2018 dollars)	(\$218)
Comparison costs	\$0	2013	Cost range (+ or -)	10 %

This program is administered over a two- to four-week period. The per-participant cost of treatment is the weighted average estimate for studies included in the analysis. We calculated this average estimate using Washington's Medicaid hourly reimbursement rates for individual outpatient therapy multiplied by the weighted average of total hours of outpatient individual therapy across the studies. Treatment group therapy costs are in addition to the costs of a self-help book provided to both the comparison and treated groups.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Illicit drug use disorder	30	2	172	-0.703	0.193	30	0.000	0.187	33	-0.703	0.001

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

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

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

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

Citations Used in the Meta-Analysis

- Baker, A., Boggs, T.G., Lewin, T.J. (2001) Randomized controlled trial of brief cognitive-behavioural interventions among regular users of amphetamine. *Addiction* 96(9), 1279-1287.
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12-Step Facilitation Therapy Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: 12-Step Facilitation Therapy is a stand-alone program that encourages patients' active participation in 12-step programs such as Alcoholics Anonymous or Narcotics Anonymous. The intervention involves a brief, structured, and manual-driven approach, typically delivered in 12 to 15 weekly individual sessions.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,744	Benefit to cost ratio	n/a
Participants	\$3,039	Benefits minus costs	\$9,427
Others	\$504	Chance the program will produce	
Indirect	\$3,806	benefits greater than the costs	60 %
<u>Total benefits</u>	<u>\$9,094</u>		
<u>Net program cost</u>	<u>\$333</u>		
Benefits minus cost	\$9,427		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$1	\$0	\$2
Labor market earnings associated with alcohol abuse or dependence	\$2,637	\$1,122	\$0	\$0	\$3,759
Property loss associated with alcohol abuse or dependence	\$3	\$0	\$6	\$0	\$10
Health care associated with illicit drug abuse or dependence	\$75	\$483	\$497	\$242	\$1,296
Mortality associated with illicit drugs	\$324	\$138	\$0	\$3,398	\$3,860
Adjustment for deadweight cost of program	\$0	\$0	\$0	\$167	\$167
Totals	\$3,039	\$1,744	\$504	\$3,806	\$9,094

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

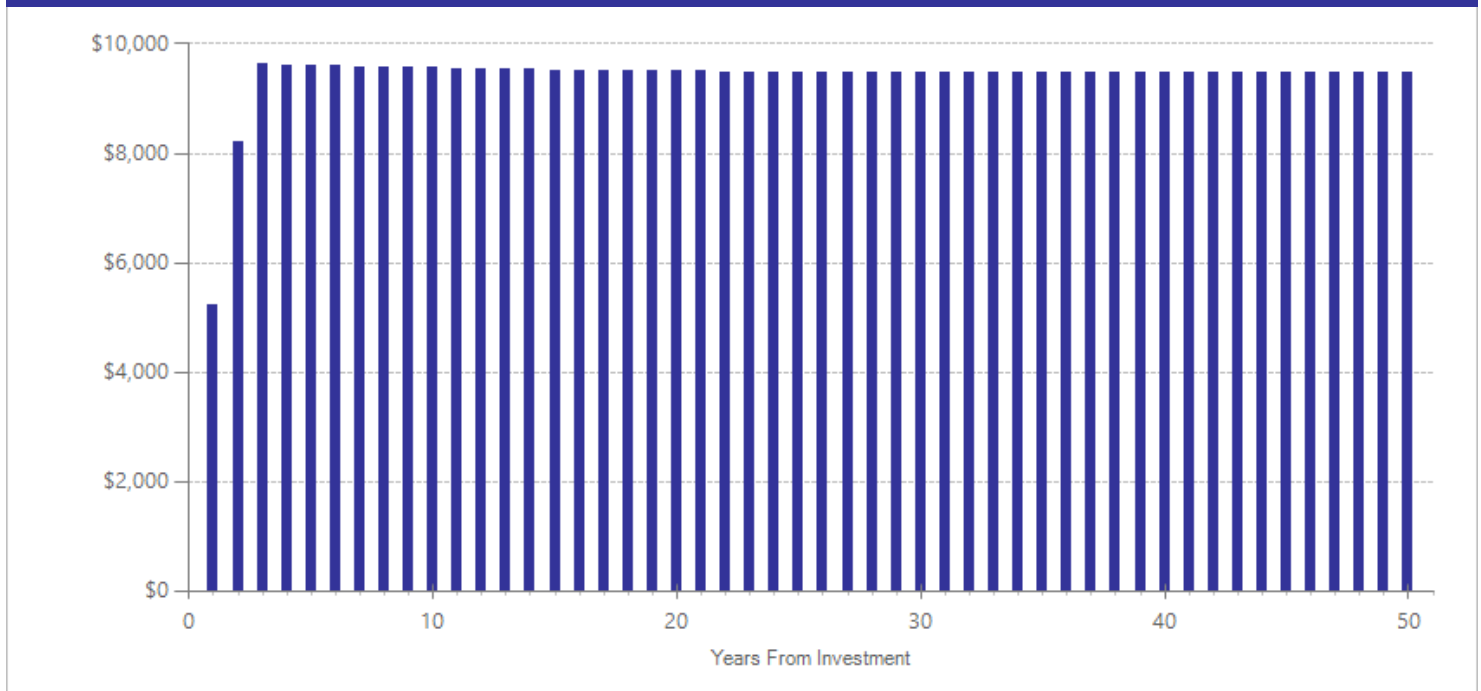
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$407	1993	Present value of net program costs (in 2018 dollars)	\$333
Comparison costs	\$924	2014	Cost range (+ or -)	10 %

12-Step Facilitation Therapy typically takes place over a three- to four-month period. Our per-participant costs are based on Cisler, R., Holder, H.D., Longabaugh, R., Stout, R.L., & Zweben, A., et al., (1998). Actual and estimated replication costs for alcohol treatment modalities: Case study from Project MATCH. *Journal of Studies on Alcohol*, 59(5), 503-12. Comparison groups in the largest studies received 12 individual hour-long sessions. We estimated the cost of this with Washington's Medicaid reimbursement rate for substance abuse treatment.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use disorder	39	6	627	-0.331	0.132	39	0.000	0.187	42	-0.317	0.016
Illicit drug use disorder	39	5	545	-0.360	0.118	39	0.000	0.187	42	-0.374	0.002

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

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

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

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

Citations Used in the Meta-Analysis

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- Kahler, C.W., Read, J.P., Ramsey, S.E., Stuart, G. L., McCrady, B.S., & Brown, R.A. (2004). Motivational enhancement for 12-step involvement among patients undergoing alcohol detoxification. *Journal of Consulting and Clinical Psychology, 72*(4), 736-741.
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Community Reinforcement Approach (CRA) with vouchers

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: This intervention combines the Community Reinforcement Approach with contingency management. The Community Reinforcement Approach to therapy is relatively intensive and consists of four main topics: (1) minimizing contact with known antecedents to substance use and recognizing consequences of use, (2) counseling to find alternative activities, (3) employment counseling (if needed), and (4) reciprocal relationship counseling if partner was not involved in substance use. Counseling generally occurs twice a week for the first three months and once a week for the next three months. The contingency management portion of the intervention rewards clients with vouchers if they have negative urinalysis exams. These vouchers can be exchanged for prizes that range in value.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$2,004	Benefit to cost ratio	\$7.53
Participants	\$2,317	Benefits minus costs	\$8,158
Others	\$1,127	Chance the program will produce	
Indirect	\$3,958	benefits greater than the costs	58 %
Total benefits	\$9,406		
Net program cost	(\$1,248)		
Benefits minus cost	\$8,158		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$4	\$12	\$2	\$19
Labor market earnings associated with illicit drug abuse or dependence	\$1,663	\$708	\$0	\$0	\$2,371
Health care associated with illicit drug abuse or dependence	\$168	\$1,085	\$1,114	\$542	\$2,909
Mortality associated with illicit drugs	\$486	\$207	\$0	\$4,038	\$4,731
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$624)	(\$624)
Totals	\$2,317	\$2,004	\$1,127	\$3,958	\$9,406

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

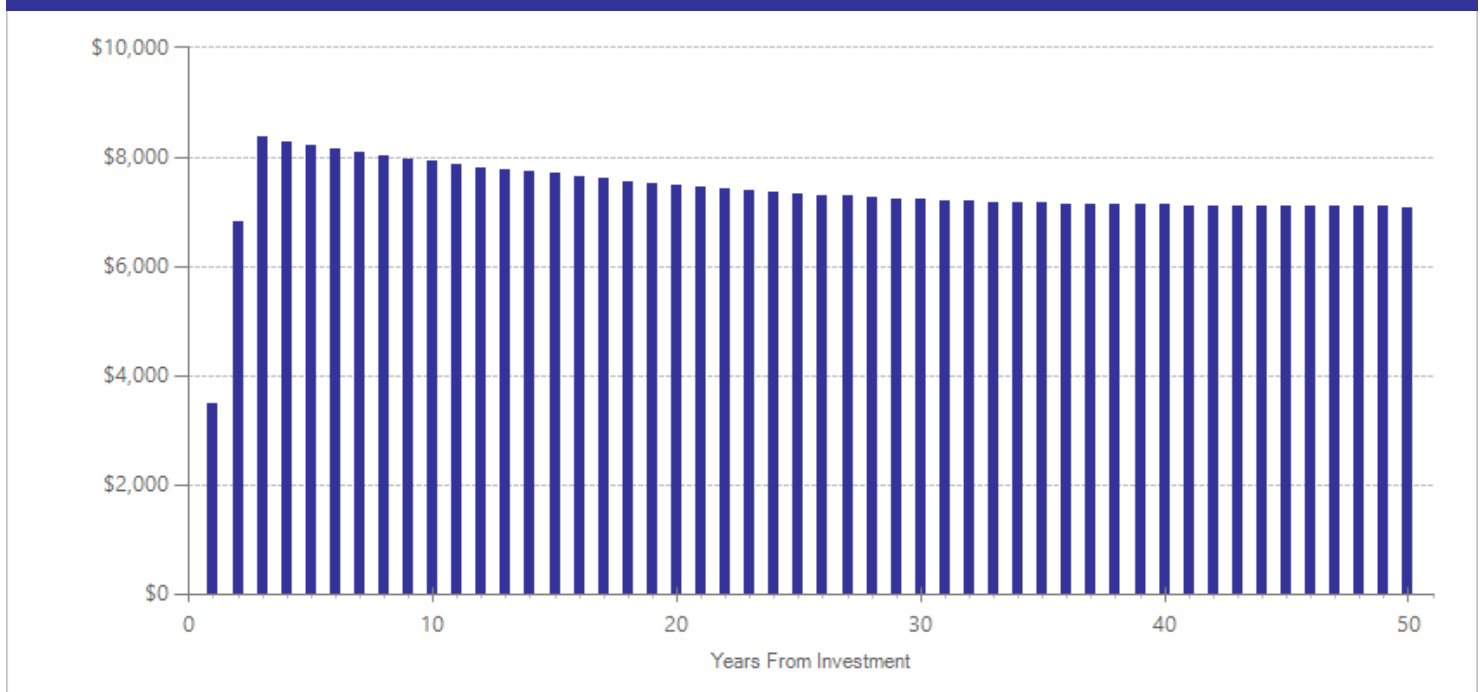
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,602	2013	Present value of net program costs (in 2018 dollars)	(\$1,248)
Comparison costs	\$1,432	2013	Cost range (+ or -)	20 %

The cost of treatment is the weighted average cost for studies included in the analysis. We calculate this average cost using Washington's Medicaid hourly reimbursement rates for individual or group outpatient therapy times the weighted average of total hours of outpatient individual or group therapy across the studies. Treatment group costs also include the cost of the vouchers. These costs are estimated from the studies included in the analysis. We used the average voucher received when available and the maximum possible voucher when an average was not reported. Comparison group costs are computed in a similar manner based on treatment received in the studies (individual or group treatment as usual or no treatment).

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Anxiety disorder ^{^^}	30	1	19	-0.641	0.470	30	n/a	n/a	n/a	-0.641	0.173
Illicit drug use disorder	30	8	248	-0.580	0.129	30	0.000	0.187	33	-0.580	0.001
Major depressive disorder ^{^^}	30	1	19	0.002	0.472	30	n/a	n/a	n/a	0.002	0.996

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

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

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

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

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

Citations Used in the Meta-Analysis

- Bickel, W.K., Marsch, L.A., Buchhalter, A.R., & Badger, G.J. (2008). Computerized behavior therapy for opioid-dependent outpatients: a randomized controlled trial. *Experimental and Clinical Psychopharmacology*, *16*(2), 132-143.
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- Garcia-Rodriguez, O., Secades-Villa, R., Higgins, S.T., Fernandez-Hermida, J.R., Carballo, J.L., Errasti, P.J.M., & Al-halabi, D.S. (2009). Effects of voucher-based intervention on abstinence and retention in an outpatient treatment for cocaine addiction: a randomized controlled trial. *Experimental and Clinical Psychopharmacology*, *17*(3), 131-138.
- Higgins, S.T., Delaney, D.D., Budney, A.J., Bickel, W.K., Hughes, J.R., Foerg, F., & Fenwick, J.W. (1991). A behavioral approach to achieving initial cocaine abstinence. *The American Journal of Psychiatry*, *148*(9), 1218-1224.
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Supportive-expressive psychotherapy for substance use disorders

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: Supportive-expressive psychotherapy (SEP) is a manualized, time-limited psychotherapy originally developed for treating psychiatric disorders that has been adapted for use with individuals with heroin and cocaine addictions. In the studies reviewed for this analysis, clients also had co-morbid psychiatric disorders. SEP generally lasts about six months and is provided in an individual format with two components: (1) supportive techniques to allow patients to feel comfortable discussing experiences, and (2) an expressive component to help patients to understand problematic relationship patterns.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$3,566	Benefit to cost ratio	\$4.09
Participants	\$9,053	Benefits minus costs	\$6,536
Others	(\$322)	Chance the program will produce	
Indirect	(\$3,650)	benefits greater than the costs	60 %
Total benefits	\$8,648		
Net program cost	(\$2,112)		
Benefits minus cost	\$6,536		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	(\$4)	(\$11)	(\$2)	(\$17)
Labor market earnings	\$9,149	\$3,895	\$0	\$0	\$13,044
Property loss associated with alcohol abuse or dependence	\$0	\$0	\$1	\$0	\$1
Health care associated with illicit drug abuse or dependence	(\$48)	(\$312)	(\$321)	(\$156)	(\$837)
Health care associated with major depression	\$3	\$9	\$10	\$5	\$26
Mortality associated with illicit drugs	(\$50)	(\$21)	\$0	(\$2,444)	(\$2,516)
Mortality associated with alcohol	\$0	\$0	\$0	\$3	\$4
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$1,056)	(\$1,056)
Totals	\$9,053	\$3,566	(\$322)	(\$3,650)	\$8,648

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

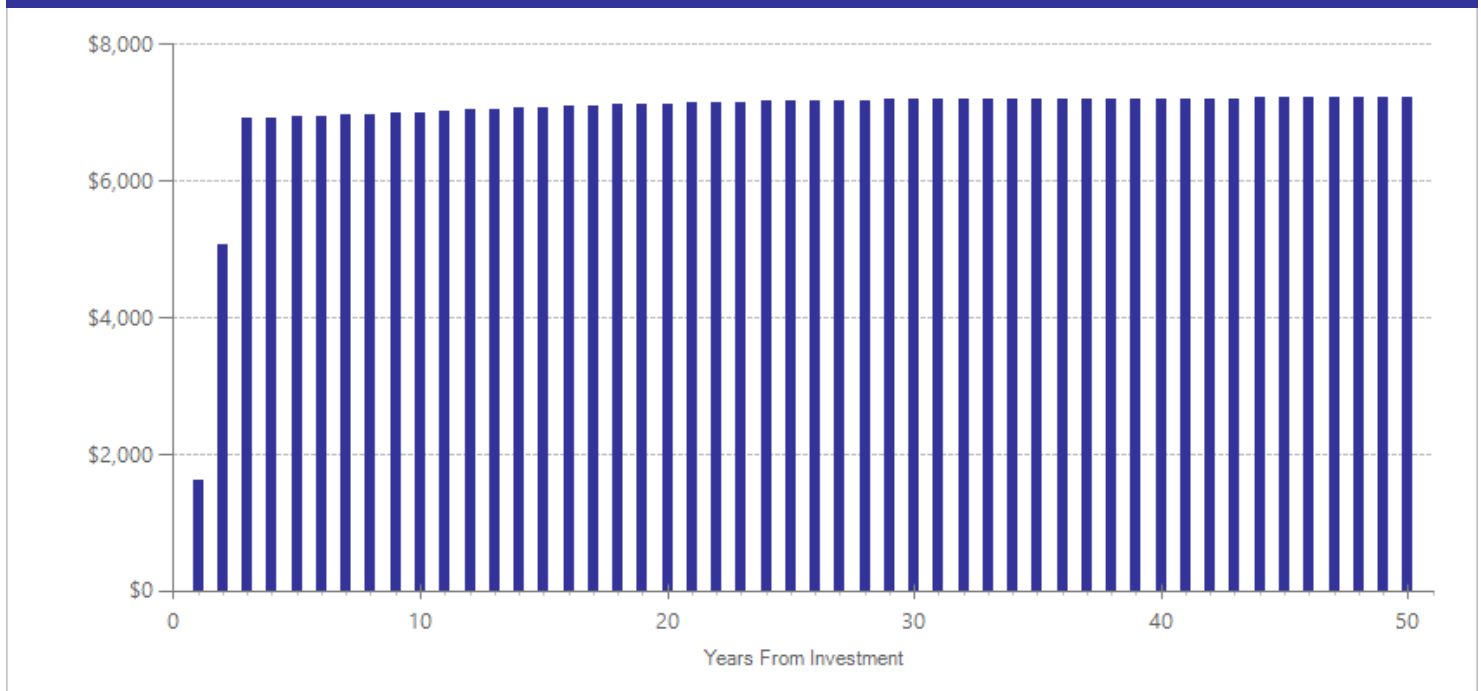
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,979	2013	Present value of net program costs (in 2018 dollars)	(\$2,112)
Comparison costs	\$0	2013	Cost range (+ or -)	20 %

Supportive-expressive psychotherapy lasts about six months. The per-participant cost of treatment is the weighted average estimate of the individual sessions provided in the studies included in the analysis. We calculated this average estimate using Washington’s Medicaid hourly reimbursement rate for outpatient individual therapy multiplied by the weighted average of the total hours of therapy across the studies (averaging 25 total hours). The costs of this intervention are in addition to the individual drug counseling and methadone treatment provided to both the treated and comparison groups in the reviewed studies.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use disorder	36	3	176	-0.057	0.126	36	0.000	0.000	39	-0.057	0.652
Anxiety disorder	36	2	123	0.120	0.143	36	0.000	0.000	39	0.120	0.401
Crime	36	2	89	0.157	0.309	36	0.000	0.000	39	0.157	0.611
Employment	36	2	89	0.364	0.245	36	0.000	0.000	39	0.364	0.138
Illicit drug use disorder	36	3	213	0.161	0.150	36	0.000	0.187	39	0.161	0.211
Major depressive disorder	36	3	180	-0.056	0.242	36	0.000	0.000	39	-0.056	0.953
Psychiatric symptoms [^]	36	3	180	-0.146	0.215	36	n/a	n/a	n/a	-0.146	0.497

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

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

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

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

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

Citations Used in the Meta-Analysis

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Motivational interviewing to enhance treatment engagement

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated December 2014.

Program Description: Motivational interviewing is a non-confrontational technique, used early in treatment, to help clients increase their motivation and commitment to change. Most commonly, motivation interviewing involves one or two individual sessions.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,554	Benefit to cost ratio	\$23.04
Participants	\$3,037	Benefits minus costs	\$6,086
Others	\$299	Chance the program will produce	
Indirect	\$1,472	benefits greater than the costs	56 %
Total benefits	\$6,363		
Net program cost	(\$276)		
Benefits minus cost	\$6,086		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$1	\$4	\$1	\$6
Labor market earnings associated with alcohol abuse or dependence	\$2,828	\$1,204	\$0	\$0	\$4,032
Property loss associated with alcohol abuse or dependence	\$4	\$0	\$7	\$0	\$11
Health care associated with illicit drug abuse or dependence	\$43	\$280	\$288	\$140	\$751
Mortality associated with illicit drugs	\$162	\$69	\$0	\$1,469	\$1,699
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$138)	(\$138)
Totals	\$3,037	\$1,554	\$299	\$1,472	\$6,363

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

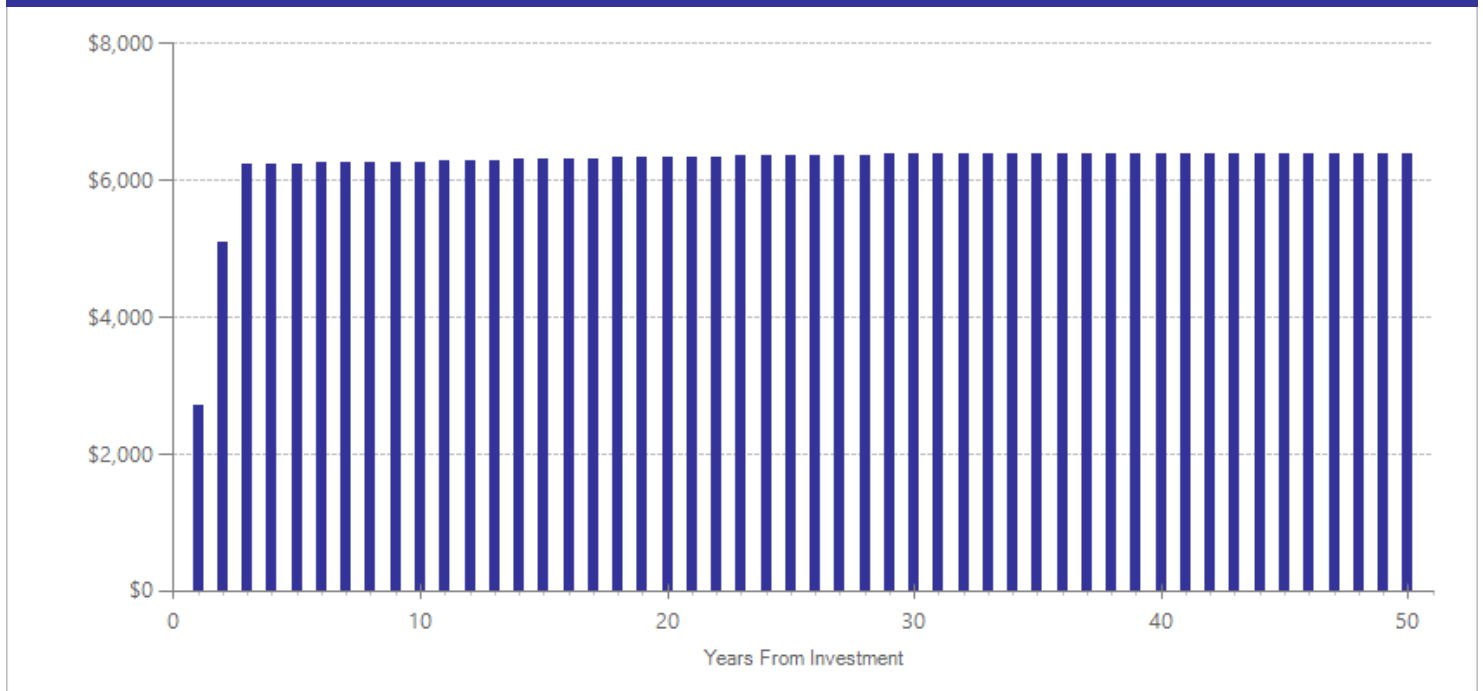
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$263	2014	Present value of net program costs (in 2018 dollars)	(\$276)
Comparison costs	\$0	2014	Cost range (+ or -)	10 %

This program typically consists of one or two individual sessions. Our per-participant cost is the weighted average estimate of the individual and group sessions provided in the studies included in the analysis, using rates for Medicaid clients paid by Washington State for substance abuse treatment in 2014. The costs of this intervention are in addition to other treatment clients might receive.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use disorder	34	4	238	-0.378	0.187	34	0.000	0.187	37	-0.378	0.043
Engagement/Retention [^]	34	19	1024	0.156	0.071	34	n/a	n/a	n/a	0.156	0.035
Illicit drug use disorder	34	9	650	-0.150	0.064	34	0.000	0.187	37	-0.150	0.020
Opioid use disorder	34	1	52	-0.392	0.201	34	0.000	0.187	37	-0.392	0.051
Substance use disorder [^]	34	5	250	-0.083	0.105	34	n/a	n/a	n/a	-0.083	0.428

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

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

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

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

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

Citations Used in the Meta-Analysis

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Cognitive-behavioral coping-skills therapy for alcohol or drug use disorders

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated September 2016.

Program Description: Cognitive-behavioral coping-skills therapy is a manualized, standalone treatment for alcohol and/or drug abuse or dependence. This intervention emphasizes identifying high-risk situations that could lead to relapse such as social situations, depression, etc. and developing skills to cope with those situations. Clients engage in problem solving, role playing, and homework practice. The intervention is often provided in an individual therapy format but can be conducted in groups as well. Treatment in the included studies occurred over an average of three months.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,250	Benefit to cost ratio	\$23.08
Participants	\$2,143	Benefits minus costs	\$6,083
Others	\$379	Chance the program will produce	
Indirect	\$2,586	benefits greater than the costs	56 %
Total benefits	\$6,358		
Net program cost	(\$275)		
Benefits minus cost	\$6,083		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$1	\$2	\$0	\$3
Labor market earnings associated with alcohol abuse or dependence	\$1,819	\$774	\$0	\$0	\$2,593
Property loss associated with alcohol abuse or dependence	\$2	\$0	\$5	\$0	\$7
Health care associated with illicit drug abuse or dependence	\$56	\$363	\$373	\$181	\$972
Mortality associated with illicit drugs	\$265	\$113	\$0	\$2,543	\$2,921
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$138)	(\$138)
Totals	\$2,143	\$1,250	\$379	\$2,586	\$6,358

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

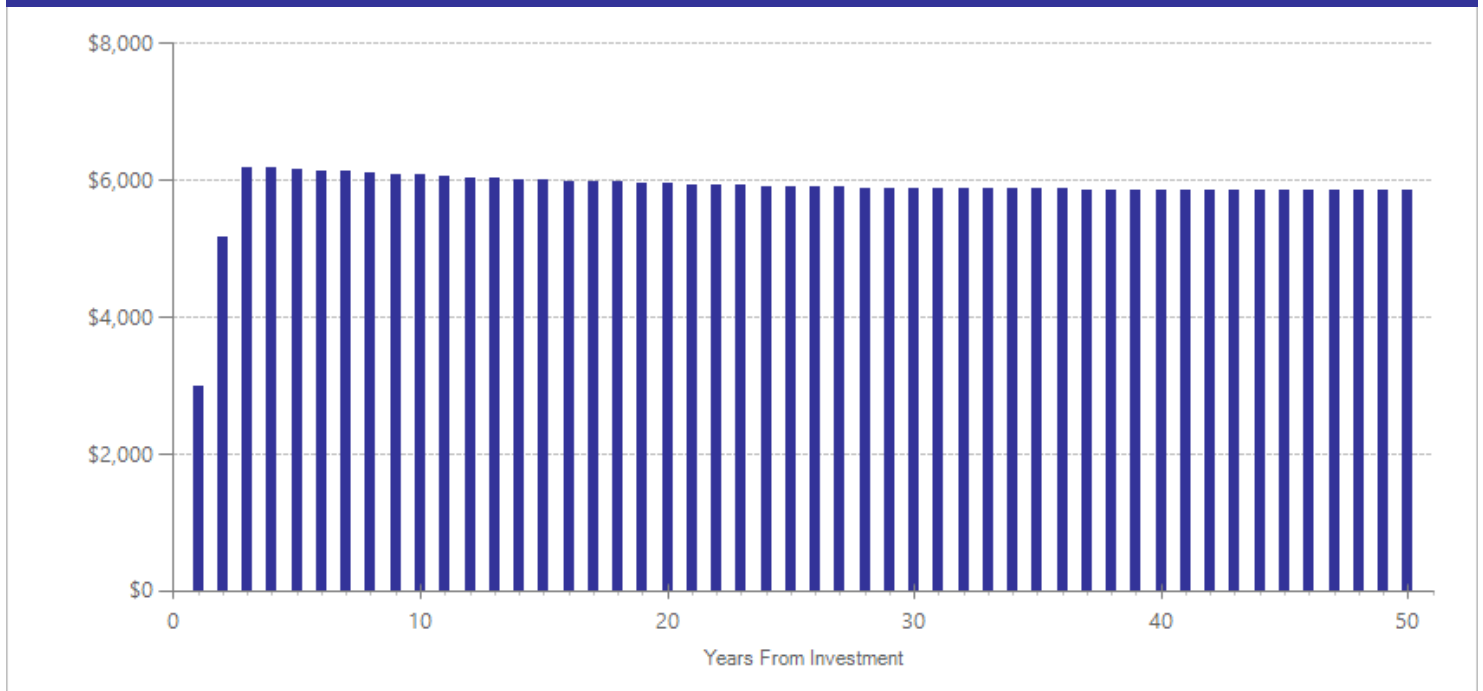
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$842	2013	Present value of net program costs (in 2018 dollars)	(\$275)
Comparison costs	\$584	2013	Cost range (+ or -)	10 %

The per-participant cost of treatment is the weighted average estimate for studies included in the analysis. We calculated this average estimate using Washington's Medicaid hourly reimbursement rates for individual and group outpatient therapy multiplied by the weighted average of total hours of outpatient individual and group therapy across the studies (averaging 18 total hours). Comparison group costs are computed in a similar manner based on treatment received in the studies (individual or group treatment as usual or no treatment).

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use disorder	36	7	190	-0.229	0.122	36	0.000	0.187	39	-0.229	0.060
Employment^^	36	2	44	0.363	0.291	36	n/a	n/a	n/a	0.363	0.673
Illicit drug use disorder	36	6	312	-0.218	0.095	36	0.000	0.187	39	-0.218	0.021
Post-traumatic stress^^	36	1	34	-0.269	0.247	36	n/a	n/a	n/a	-0.269	0.276

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

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

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

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

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

Citations Used in the Meta-Analysis

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Relapse Prevention Therapy Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: This intervention, developed by Marlatt & Gordon, uses a cognitive-behavioral approach to help patients anticipate problems and identify strategies to avoid using alcohol and drugs. Typically patients are receiving outpatient treatment; sometimes Relapse Prevention is part of aftercare following inpatient treatment and sometimes as a stand-alone intervention. In the studies used in this meta-analysis, the intervention was delivered in various modalities. In some of the studies all sessions were individual treatment, others studies examined a mix of group and individual treatment. Duration varied from eight sessions in four weeks to weekly sessions for several months.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,193	Benefit to cost ratio	n/a
Participants	\$2,148	Benefits minus costs	\$5,896
Others	\$312	Chance the program will produce	
Indirect	\$2,243	benefits greater than the costs	55 %
<u>Total benefits</u>	<u>\$5,896</u>		
<u>Net program cost</u>	<u>\$0</u>		
Benefits minus cost	\$5,896		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$1	\$0	\$1
Labor market earnings associated with alcohol abuse or dependence	\$1,906	\$811	\$0	\$0	\$2,717
Property loss associated with alcohol abuse or dependence	\$2	\$0	\$4	\$0	\$7
Health care associated with illicit drug abuse or dependence	\$46	\$299	\$307	\$149	\$801
Mortality associated with illicit drugs	\$194	\$82	\$0	\$2,094	\$2,370
<u>Totals</u>	<u>\$2,148</u>	<u>\$1,193</u>	<u>\$312</u>	<u>\$2,243</u>	<u>\$5,896</u>

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

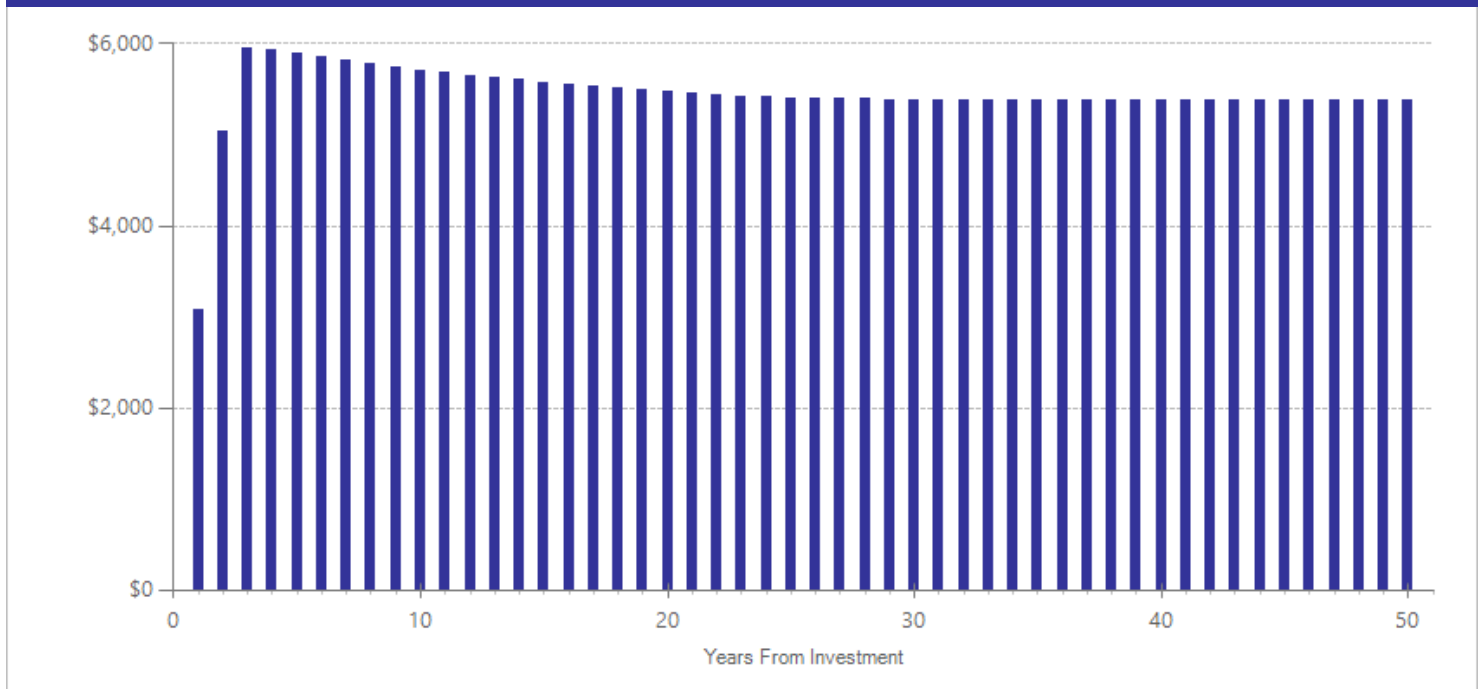
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,050	2014	Present value of net program costs (in 2018 dollars)	\$0
Comparison costs	\$1,050	2014	Cost range (+ or -)	15 %

This treatment varies in length, from four weeks to several months. We calculated a weighted average per-participant cost based on hours of individual and group counseling reported in the studies, assuming reimbursement at Washington's 2014 Medicaid rates.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use disorder	40	4	156	-0.234	0.153	40	0.000	0.187	43	-0.234	0.126
Cannabis use disorder	40	1	80	-0.130	0.248	40	0.000	0.187	43	-0.103	0.677
Illicit drug use disorder	40	3	118	-0.217	0.288	40	0.000	0.187	43	-0.217	0.577
Opioid use disorder ^{^^}	40	1	13	-1.340	0.575	40	n/a	n/a	n/a	-1.340	0.020

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

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

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

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

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

Citations Used in the Meta-Analysis

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Holistic Harm Reduction Program (HHRP+)

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: The Holistic Harm Reduction Program (HHRP+), also called Holistic Health Recovery Program, is a manualized treatment for those with drug abuse or dependence who are HIV positive. The primary goals of HHRP+ are harm reduction, health promotion, and improving quality of life. These goals are achieved by providing the knowledge, motivation, and skills necessary to make choices that reduce harm to oneself and others. HHRP+ also addresses medical, emotional, social, and spiritual problems that can impede harm reduction. The treatment is generally provided in 12 group sessions over three to six months. In the reviewed studies, HHRP+ was provided in addition to methadone treatment and standard counseling.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$916	Benefit to cost ratio	\$6.38
Participants	\$1,211	Benefits minus costs	\$4,531
Others	\$441	Chance the program will produce	
Indirect	\$2,805	benefits greater than the costs	57 %
Total benefits	\$5,374		
Net program cost	(\$842)		
Benefits minus cost	\$4,531		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$1	\$0	\$2
Labor market earnings associated with illicit drug abuse or dependence	\$858	\$365	\$0	\$0	\$1,223
Health care associated with illicit drug abuse or dependence	\$66	\$428	\$440	\$214	\$1,149
Mortality associated with illicit drugs	\$287	\$122	\$0	\$3,012	\$3,422
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$421)	(\$421)
Totals	\$1,211	\$916	\$441	\$2,805	\$5,374

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

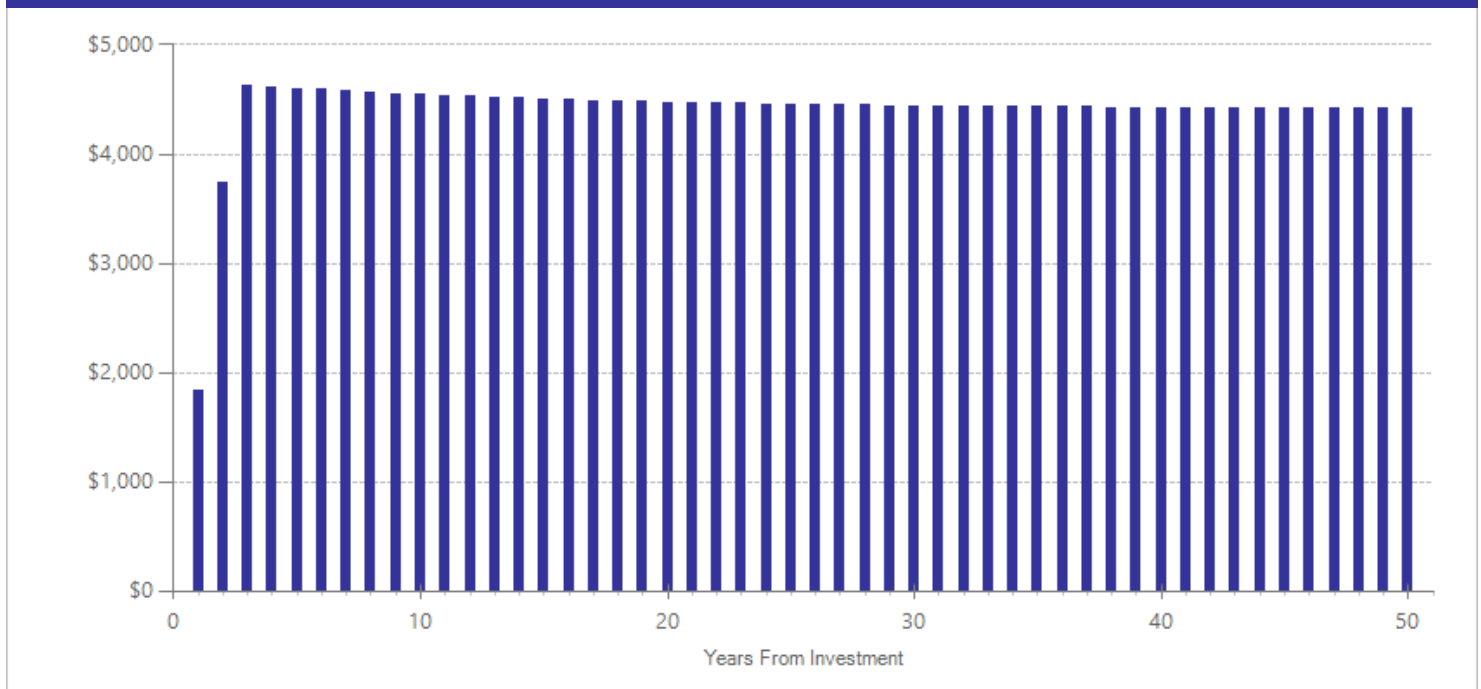
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$789	2013	Present value of net program costs (in 2018 dollars)	(\$842)
Comparison costs	\$0	2013	Cost range (+ or -)	25 %

This program is typically administered over a three- to six-month period. The per-participant cost of treatment is the weighted average estimate of the additional group therapy sessions provided in the studies included in the analysis. We calculated this average estimate using Washington's Medicaid hourly reimbursement rate for outpatient group therapy multiplied by the weighted average of total hours of outpatient group therapy across the studies (averaging 40 total hours). The costs of the intervention are in addition to the costs of methadone treatment and standard counseling provided to both the treated and comparison groups in the reviewed studies.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Illicit drug use disorder	39	2	153	-0.311	0.144	39	0.000	0.187	42	-0.311	0.031
STD risky behavior [^]	39	2	153	-0.260	0.134	39	n/a	n/a	n/a	-0.260	0.053

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

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

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

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

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

Citations Used in the Meta-Analysis

Avants, S.K., Margolin, A., Usubiaga, M.H. & Doebrick, C. (2004). Targeting HIV-Related Outcomes With Intravenous Drug Users Maintained on Methadone: A Randomized Clinical Trial of a Harm Reduction Group Therapy. *Journal of Substance Abuse Treatment, 26*(2), 67-78.

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Contingency management (lower cost) for opioid use disorder

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated December 2016.

Program Description: Contingency management is a supplement to counseling treatment that rewards participants for attending treatment and/or abstaining from substance use. The intervention reviewed here focused on those with opiate abuse or dependence who were also receiving medicated-assisted drug treatment (methadone, buprenorphine or naloxone) and counseling. Contingencies were provided for remaining abstinent. Two methods of contingency management were reviewed: (1) A voucher system where abstinence earned vouchers that were exchangeable for goods provided by the clinic or counseling center, (2) a prize or raffle system where clients who remained abstinent could earn the opportunity to draw from a prize bowl. Treatment in the included studies lasted between 1 and 6 months with a weighted average of 3.3 months of contingency management and reward opportunities occurring two to three times per week, on average. The value of contingencies in the programs reviewed ranged from \$59-\$253 per participant, with an average of \$168 (in 2016 dollars).

Based on a statistical analysis of contingency management studies, we determined that programs with a maximum value of vouchers or prizes less than or equal to \$500 (in 2012 dollars) represent lower-cost contingency management.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$668	Benefit to cost ratio	\$11.39
Participants	\$820	Benefits minus costs	\$3,837
Others	\$341	Chance the program will produce	
Indirect	\$2,378	benefits greater than the costs	60 %
Total benefits	\$4,206		
Net program cost	(\$369)		
Benefits minus cost	\$3,837		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with opioid drug abuse or dependence	\$534	\$227	\$0	\$0	\$762
Health care associated with opioid drug abuse or dependence	\$49	\$340	\$341	\$170	\$898
Mortality associated with opioids	\$237	\$101	\$0	\$2,393	\$2,731
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$185)	(\$185)
Totals	\$820	\$668	\$341	\$2,378	\$4,206

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

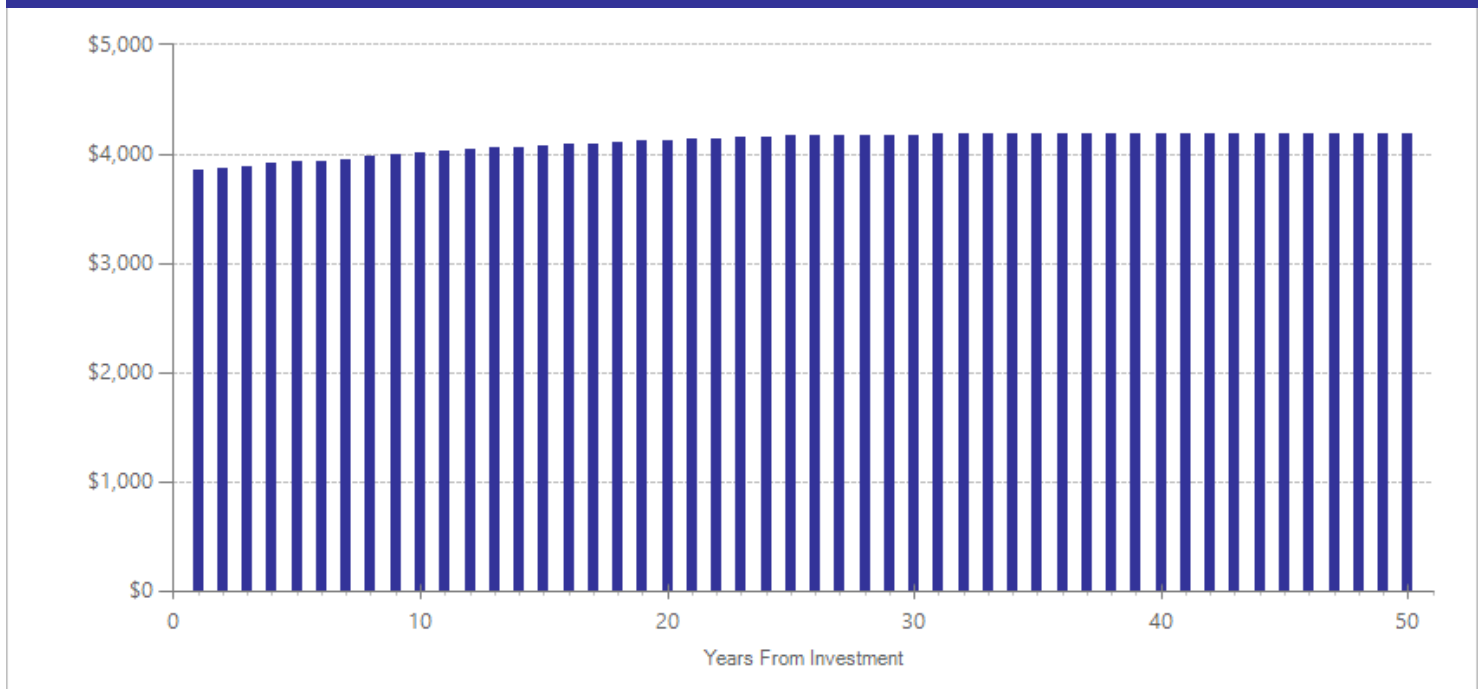
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,007	2016	Present value of net program costs (in 2018 dollars)	(\$369)
Comparison costs	\$651	2016	Cost range (+ or -)	10 %

Program cost estimates reflect costs beyond treatment as usual. The per-participant cost of treatment is based on physician/therapist time, multiplied by Medicaid reimbursement rates, plus the average amount of incentive received by treatment participants. Reimbursement rates are based on individual or group treatment sessions for non-disabled adults in Mercer (2016) Mental Health and Substance Use Disorder Services Data Book for the State of Washington. Program and comparison group costs are weighted by treatment and comparison group samples. Costs were obtained from Carroll et al. (2001), Hser et al. (2011), Kidorf et al. (2013), Preston et al. (2000), and Preston et al. (2002).

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Engagement/Retention [^]	38	7	433	0.314	0.145	38	n/a	n/a	n/a	0.314	0.031
Opioid use disorder	38	9	520	-0.291	0.068	38	0.000	0.075	39	-0.291	0.001

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

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

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

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

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

Citations Used in the Meta-Analysis

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Individual drug counseling approach for the treatment of cocaine addiction

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: Individual drug counseling for the treatment of cocaine addiction is a manualized treatment that can be provided as a component of comprehensive outpatient therapy or as a standalone treatment. The manualized version was developed for use in the Collaborative Cocaine Treatment Study, where the individual counseling was provided in addition to group counseling. The individual drug counseling approach follows a 12-step philosophy and addresses the physical, emotional, spiritual, and interpersonal needs of the client. The model is generally applied in 36 individual sessions over six months with booster sessions as needed.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$622	Benefit to cost ratio	\$2.22
Participants	\$811	Benefits minus costs	\$3,014
Others	\$304	Chance the program will produce	
Indirect	\$3,743	benefits greater than the costs	54 %
Total benefits	\$5,480		
Net program cost	(\$2,466)		
Benefits minus cost	\$3,014		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with illicit drug abuse or dependence	\$626	\$267	\$0	\$0	\$893
Health care associated with illicit drug abuse or dependence	\$47	\$301	\$310	\$151	\$809
Labor market earnings associated with anxiety disorder	(\$234)	(\$100)	\$0	\$0	(\$334)
Health care associated with anxiety disorder	(\$2)	(\$6)	(\$6)	(\$3)	(\$17)
Mortality associated with illicit drugs	\$374	\$159	\$0	\$4,828	\$5,362
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$1,233)	(\$1,233)
Totals	\$811	\$622	\$304	\$3,743	\$5,480

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

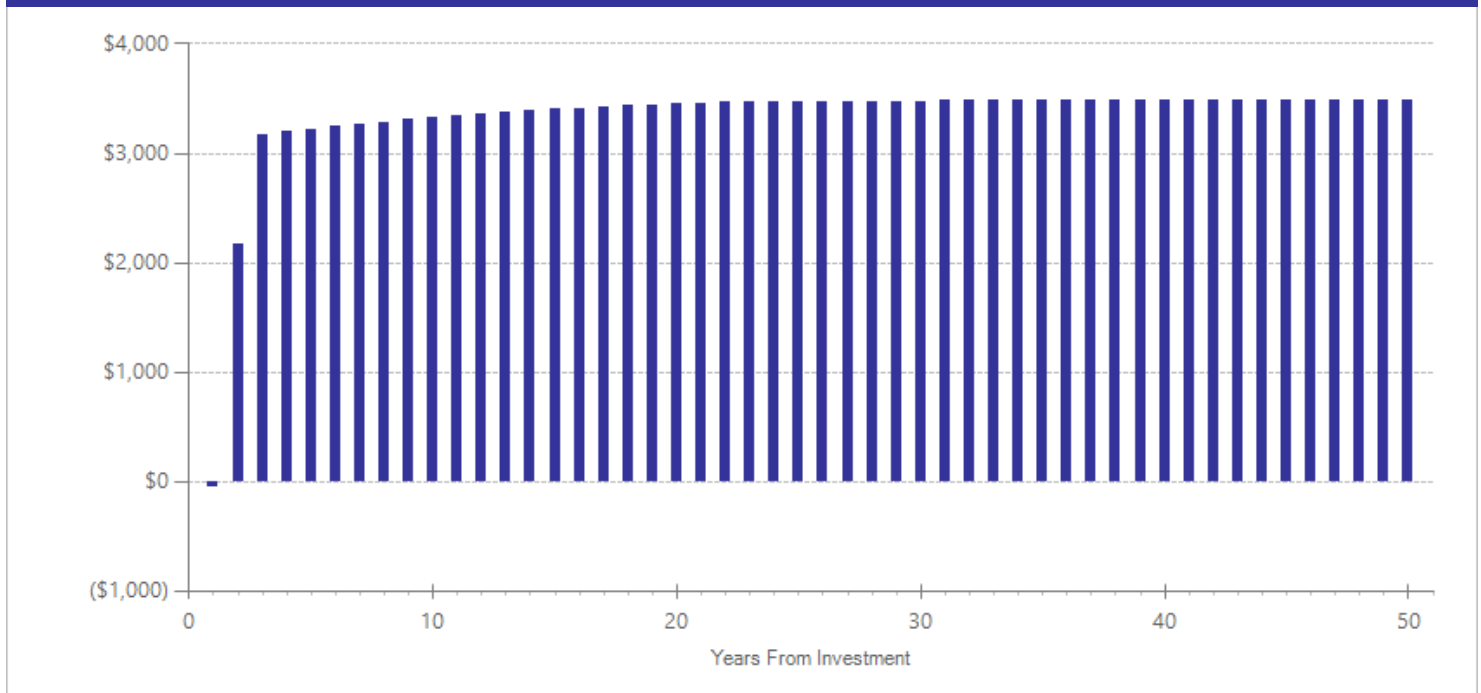
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,311	2013	Present value of net program costs (in 2018 dollars)	(\$2,466)
Comparison costs	\$0	2013	Cost range (+ or -)	10 %

This program is typically delivered over a six-month period. The per-participant cost of treatment is based on the single study in the analysis and includes 36 individual 50-minute sessions estimated using Washington's Medicaid hourly reimbursement rate for individual treatment. The costs of this intervention are in addition to group therapy provided to both the treated and comparison groups.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use [^]	45	1	92	0.208	0.169	45	n/a	n/a	n/a	0.208	0.218
Anxiety disorder	45	1	92	0.044	0.168	45	0.000	0.187	48	0.044	0.793
Illicit drug use disorder	45	1	121	-0.307	0.167	45	0.000	0.187	48	-0.307	0.066
Major depressive disorder	45	1	92	-0.093	0.169	45	0.000	0.187	48	-0.093	0.579
Psychiatric symptoms [^]	45	1	92	-0.274	0.169	45	n/a	n/a	n/a	-0.274	0.105

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

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

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

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Citations Used in the Meta-Analysis

- Crits-Christoph, P., Siqueland, L., McCalmont, E., Frank, A., Blaine, J., Weiss, R.D., . . . , Thase, M.E. (2001). Impact of psychosocial treatments on associated problems of cocaine-dependent patients. *Journal of Consulting and Clinical Psychology, 69*(5), 825-830.
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Contingency management (lower cost) for substance use disorders

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: Contingency management is a supplement to counseling treatment that rewards participants for attending treatment and/or abstaining from substance use. The intervention reviewed here focused on those with drug and/or alcohol use disorder (excluding those with a primary diagnosis of marijuana use disorder) where contingencies were provided for remaining abstinent. Two methods of contingency management were reviewed: (1) A voucher system where abstinence earned vouchers that were exchangeable for goods provided by the clinic or counseling center, and (2) a prize or raffle system where clients who remained abstinent could earn the opportunity to draw from a prize bowl. Higher-cost contingency management was determined by maximum voucher or maximum expected value of prizes possible. Based on a statistical analysis of contingency management studies, we determined that programs with a maximum value of vouchers or prizes less than or equal to \$500 (in 2012 dollars) represent lower-cost contingency management. Treatment in the included studies lasted between 1 and 12 months with a weighted average of 3.5 months of contingency management and reward opportunities occurring two to three times per week, on average.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$488	Benefit to cost ratio	\$11.53
Participants	\$643	Benefits minus costs	\$2,732
Others	\$237	Chance the program will produce	
Indirect	\$1,624	benefits greater than the costs	60 %
Total benefits	\$2,992		
Net program cost	(\$260)		
Benefits minus cost	\$2,732		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$1	\$0	\$1
Property loss associated with alcohol abuse or dependence	\$0	\$0	\$1	\$0	\$1
Labor market earnings associated with illicit drug abuse or dependence	\$440	\$187	\$0	\$0	\$627
Health care associated with illicit drug abuse or dependence	\$36	\$230	\$236	\$115	\$616
Mortality associated with illicit drugs	\$167	\$71	\$0	\$1,639	\$1,876
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$130)	(\$130)
Totals	\$643	\$488	\$237	\$1,624	\$2,992

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

Detailed Annual Cost Estimates Per Participant

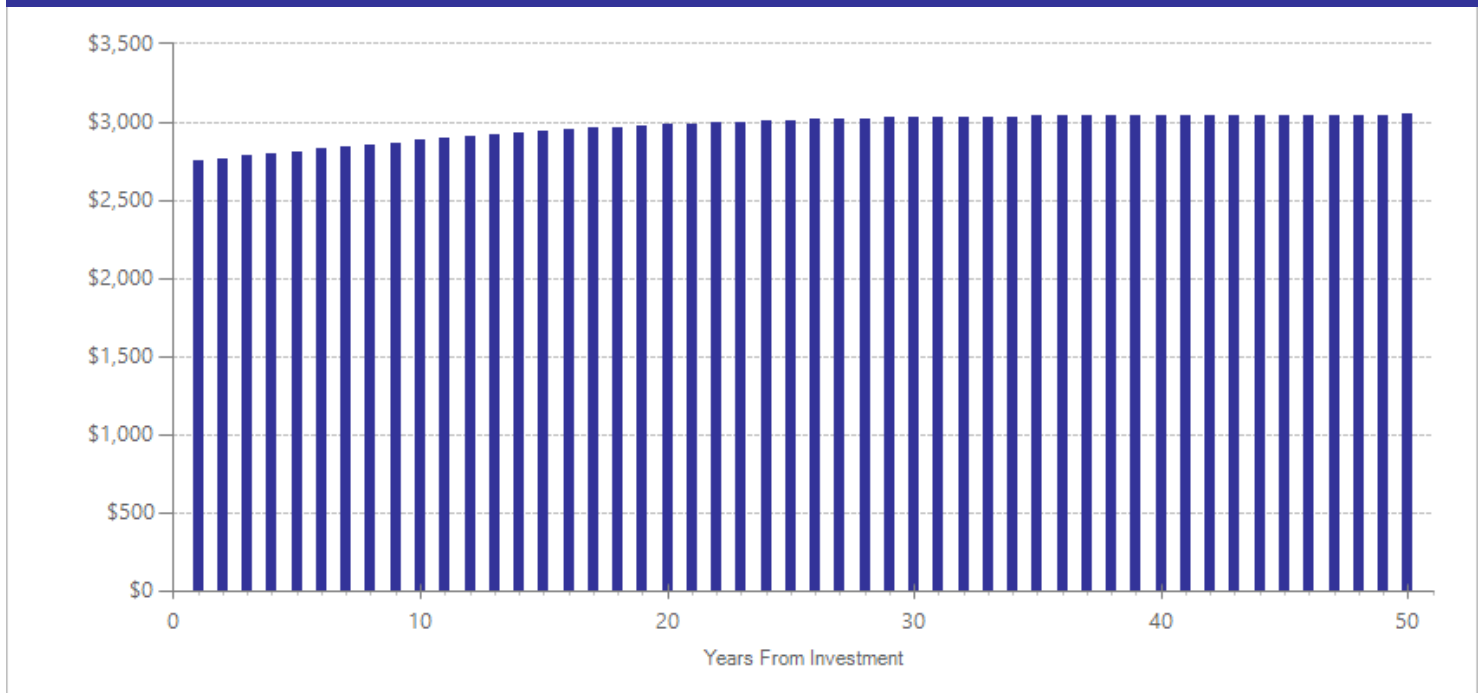
	Annual cost	Year dollars	Summary	
Program costs	\$240	2012	Present value of net program costs (in 2018 dollars)	(\$260)
Comparison costs	\$0	2012	Cost range (+ or -)	40 %

Contingency management is typically provided for a year or less. We calculated the weighted average of the per-participant treatment and comparison group variable costs across studies estimating the cost-effectiveness of an incentive program with an average cost of less than \$500 in 2012 (Sindelar, Olmstead, & Peirce, 2007; Sindelar, Elbel, & Petry, 2006; Hartz et al., 1999). Costs of administering the incentive program include staff costs to inventory, shop for, and restock prizes; material cost of items; counseling session costs; and toxicology screens. All staff costs include salary, benefits, and overhead. All costs are calculated from the clinic perspective. Note that because treatment group participants have higher retention rates than the control group, costs also reflect the increased number of counseling sessions attended and urinalysis tests performed for the treated group.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use disorder	37	7	800	-0.196	0.116	37	0.000	0.075	38	-0.290	0.092
Cannabis use [^]	37	3	319	-0.049	0.118	37	n/a	n/a	n/a	-0.049	0.676
Illicit drug use disorder	37	29	1595	-0.278	0.049	37	0.000	0.075	38	-0.278	0.001

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

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

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

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

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

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Matrix Model Intensive Outpatient Treatment Program (IOP) for stimulant use disorders

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: The Matrix Intensive Outpatient Model (Matrix Model) is a manualized, standalone outpatient program for treating individuals with stimulant use disorders. The program includes individual, group, and family sessions and covers topics including skills training, relapse prevention, drug education, social support, and self-help groups. Treatment generally lasts four to six months and includes multiple individual and group sessions per week.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$753	Benefit to cost ratio	\$2.86
Participants	\$842	Benefits minus costs	\$2,472
Others	\$435	Chance the program will produce	
Indirect	\$1,770	benefits greater than the costs	52 %
Total benefits	\$3,799		
Net program cost	(\$1,327)		
Benefits minus cost	\$2,472		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$1	\$2	\$0	\$4
Labor market earnings associated with alcohol abuse or dependence	(\$229)	(\$98)	\$0	\$0	(\$327)
Health care associated with alcohol abuse or dependence	\$0	(\$2)	(\$3)	(\$1)	(\$7)
Property loss associated with alcohol abuse or dependence	\$0	\$0	(\$1)	\$0	(\$1)
Labor market earnings associated with illicit drug abuse or dependence	\$761	\$324	\$0	\$0	\$1,085
Health care associated with illicit drug abuse or dependence	\$66	\$424	\$436	\$212	\$1,138
Mortality associated with illicit drugs	\$245	\$104	\$0	\$2,225	\$2,574
Mortality associated with alcohol	\$0	\$0	\$0	(\$2)	(\$3)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$664)	(\$664)
Totals	\$842	\$753	\$435	\$1,770	\$3,799

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

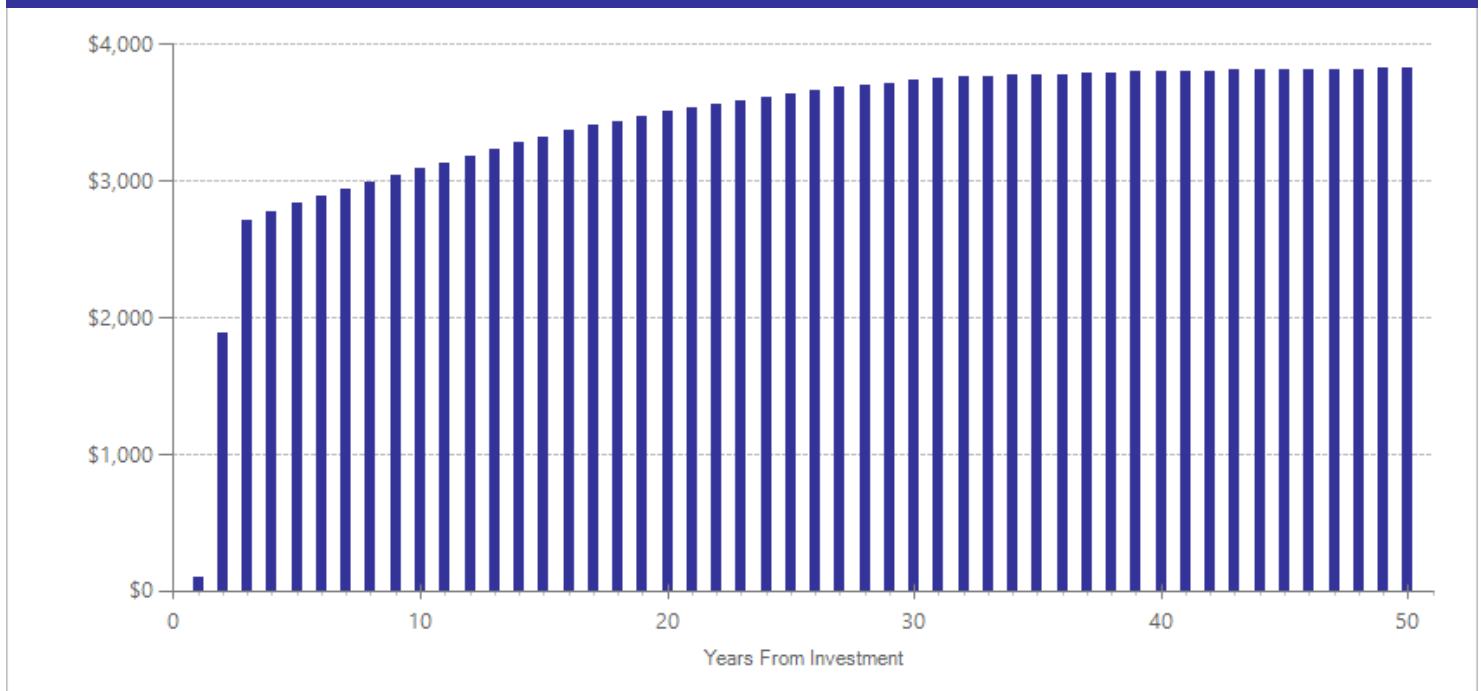
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,602	2013	Present value of net program costs (in 2018 dollars)	(\$1,327)
Comparison costs	\$1,358	2013	Cost range (+ or -)	20 %

Matrix Model treatment is typically provided for four to six months. The per-participant cost estimate of treatment is the weighted average of the individual and group therapy sessions provided in the studies included in the analysis. We calculated this average cost using Washington's Medicaid hourly reimbursement rate for outpatient individual and group therapy multiplied by the weighted average of the total hours of these therapies across the studies (averaging 80 total hours). Comparison group costs are computed in a similar manner based on treatment received in the studies (standard intensive outpatient treatment, standard group therapy, or no treatment).

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use disorder	34	1	137	0.060	0.241	34	0.000	0.187	37	0.060	0.803
Employment ^{^^}	34	1	59	-0.146	0.382	34	n/a	n/a	n/a	-0.146	0.703
Homelessness [^]	34	1	59	-0.071	0.457	34	n/a	n/a	n/a	-0.071	0.877
Illicit drug use disorder	34	4	342	-0.235	0.156	34	0.000	0.187	37	-0.235	0.132

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

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

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

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

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

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

Citations Used in the Meta-Analysis

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Node-link mapping

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: Node-link mapping is a manualized supplement or tool that can be used during counseling sessions. "Maps" are used as a means of visually representing a client's needs, problems, and solutions and act as a communication tool that provides an alternative way to facilitate discussion between client and counselor. These maps can also directly illustrate cause-and-effect patterns of drug use to facilitate problem solving.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$282	Benefit to cost ratio	n/a
Participants	\$371	Benefits minus costs	\$1,788
Others	\$136	Chance the program will produce	
Indirect	\$999	benefits greater than the costs	52 %
Total benefits	\$1,788		
Net program cost	\$0		
Benefits minus cost	\$1,788		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$0	\$0	\$1
Labor market earnings associated with illicit drug abuse or dependence	\$256	\$109	\$0	\$0	\$365
Health care associated with illicit drug abuse or dependence	\$20	\$132	\$136	\$66	\$355
Mortality associated with illicit drugs	\$94	\$40	\$0	\$933	\$1,067
Totals	\$371	\$282	\$136	\$999	\$1,788

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

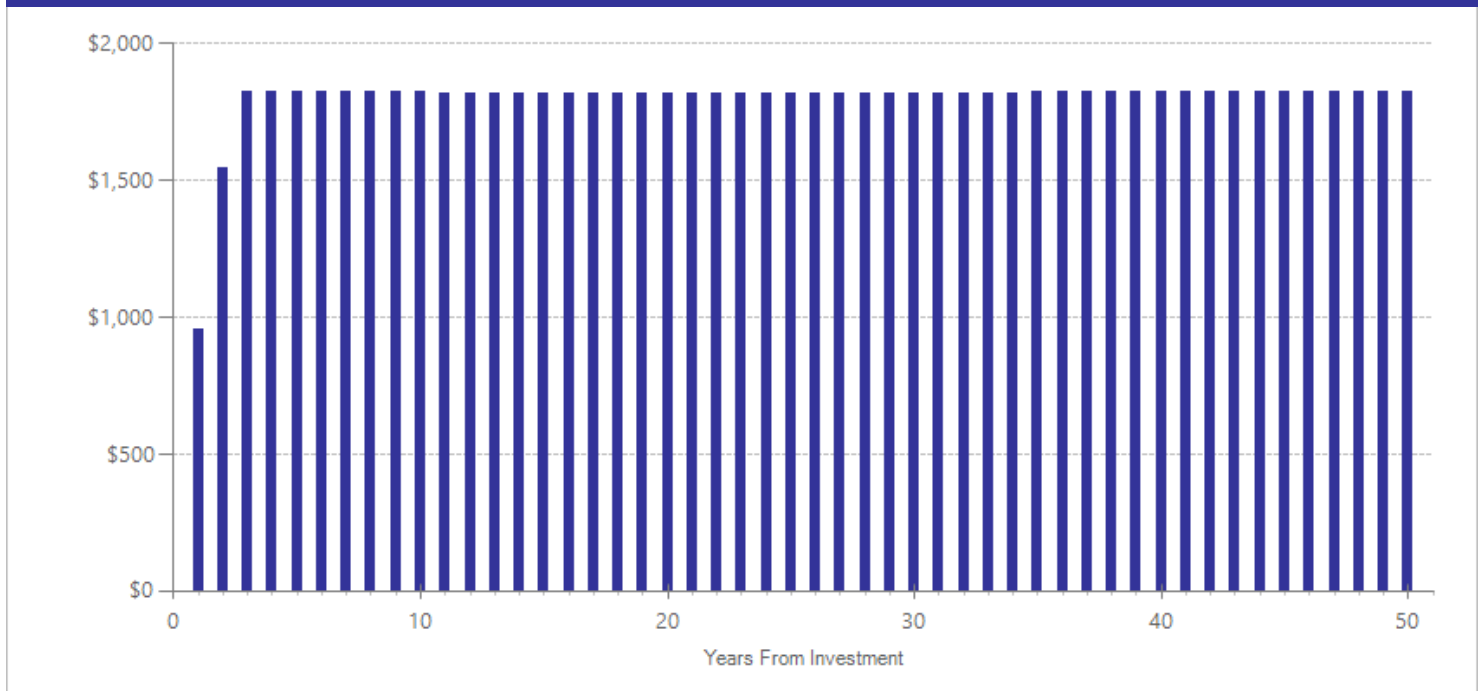
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$732	2013	Present value of net program costs (in 2018 dollars)	\$0
Comparison costs	\$732	2013	Cost range (+ or -)	10 %

Node-link maps are visual tools used during counseling. We estimate no additional cost beyond the cost of usual treatment. We estimate the average cost of usual treatment using Washington's 2013 Medicaid hourly reimbursement rate for outpatient individual and group therapy multiplied by the weighted average of the total hours of these therapies in the study.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Illicit drug use disorder	37	1	151	-0.078	0.140	37	0.000	0.187	40	-0.078	0.579

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

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

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

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

Citations Used in the Meta-Analysis

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Sober living houses

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated October 2016.

Program Description: Sober living houses (or recovery houses) are voluntary residential arrangements in which unrelated adults agree to live together under a set of shared rules. They are commonly utilized by persons with substance abuse history in their effort to maintain sobriety. They are resident-supported and not staffed by a caseworker or house manager.

This meta-analysis includes studies on Oxford Houses as well as other unspecified models of sober living houses and recovery houses. It includes studies on formerly incarcerated individuals as well as studies in which individuals may have had no prior criminal involvement. Individuals in these studies spent between three and eight months in sober living houses. They were compared to similar individuals who were not placed in sober living houses.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$325	Benefit to cost ratio	\$6.40
Participants	\$426	Benefits minus costs	\$1,609
Others	\$164	Chance the program will produce	
Indirect	\$993	benefits greater than the costs	53 %
Total benefits	\$1,907		
Net program cost	(\$298)		
Benefits minus cost	\$1,609		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$3	\$9	\$2	\$13
Labor market earnings associated with illicit drug abuse or dependence	\$298	\$127	\$0	\$0	\$425
Health care associated with illicit drug abuse or dependence	\$23	\$151	\$155	\$76	\$405
Mortality associated with illicit drugs	\$105	\$45	\$0	\$1,065	\$1,214
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$149)	(\$149)
Totals	\$426	\$325	\$164	\$993	\$1,907

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

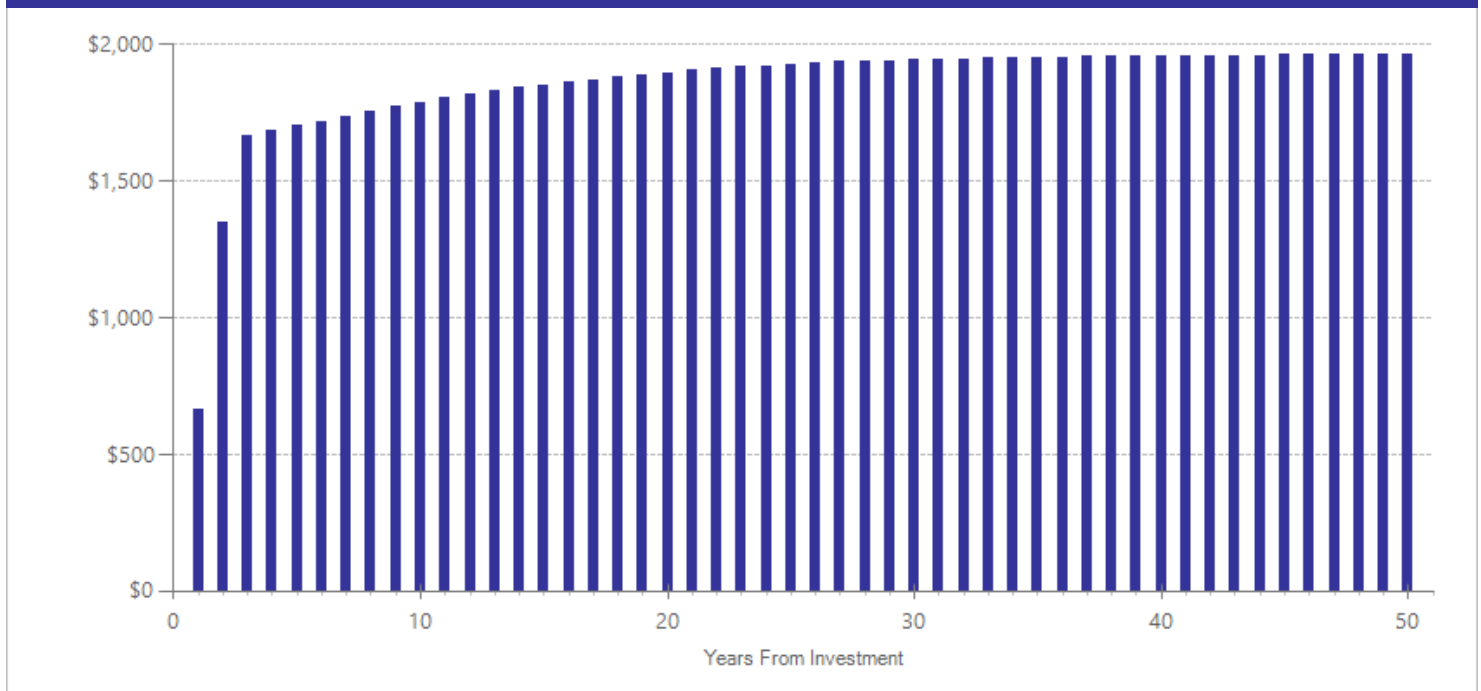
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$287	2016	Present value of net program costs (in 2018 dollars)	(\$298)
Comparison costs	\$0	2016	Cost range (+ or -)	10 %

Costs were estimated based on the organizational costs of the Oxford House organization in fiscal year 2016 2016 (<http://www.oxfordhouse.org/userfiles/file/finances.php>). During that year Oxford House started 226 new houses and maintained 2,100 existing houses through outreach, publications, monitoring, organization of chapters and state associations, workshops and the annual convention. Per participant costs were based on a total of 2326 houses with an average of 10 residents each. The cost estimate does not include expenses paid by residents such as rent, utilities, and household items.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Crime	38	5	396	-0.048	0.087	39	0.000	0.187	49	-0.108	0.223
Employment ^{^^}	38	4	306	0.235	0.091	38	n/a	n/a	n/a	0.641	0.001
Hours worked [^]	38	1	90	0.140	0.149	40	n/a	n/a	n/a	0.383	0.011
Illicit drug use disorder	38	3	253	-0.094	0.131	38	0.000	0.187	41	-0.274	0.027
Substance use disorder [^]	38	2	143	-0.324	0.149	38	n/a	n/a	n/a	-0.886	0.001

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

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

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

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

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

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

Citations Used in the Meta-Analysis

- Jason, L.A., & Ferrari, J.R. (2010). Oxford House recovery homes: Characteristics and effectiveness. *Psychological Services, 7*(2), 92-102.
- Jason, L.A., Olson, B.D., Ferrari, J.R., & Lo Sasso, A.T. (2006). Communal housing settings enhance substance abuse recovery. *American Journal of Public Health, 96*(10), 1727.
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- Tuten, M., Defulio, A., Jones, H.E., & Stitzer, M. (2012). Abstinence-contingent recovery housing and reinforcement-based treatment following opioid detoxification. *Addiction, 107*(5), 973-982.

Peer support for individuals with substance use disorder

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: This analysis examined interventions provided by a peer specialist to individuals with substance abuse disorders. One study was included in this analysis. This study examined the impact of a brief motivational intervention provided by a peer specialist for individuals using heroin and cocaine. The study participants were screened and identified at walk-in general health clinics.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$783	Benefit to cost ratio	\$1.20
Participants	\$1,033	Benefits minus costs	\$580
Others	\$378	Chance the program will produce	
Indirect	\$1,307	benefits greater than the costs	49 %
Total benefits	\$3,500		
Net program cost	(\$2,920)		
Benefits minus cost	\$580		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$1	\$0	\$2
Labor market earnings associated with illicit drug abuse or dependence	\$723	\$308	\$0	\$0	\$1,030
Health care associated with illicit drug abuse or dependence	\$57	\$367	\$377	\$183	\$983
Mortality associated with illicit drugs	\$254	\$108	\$0	\$2,583	\$2,945
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$1,460)	(\$1,460)
Totals	\$1,033	\$783	\$378	\$1,307	\$3,500

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

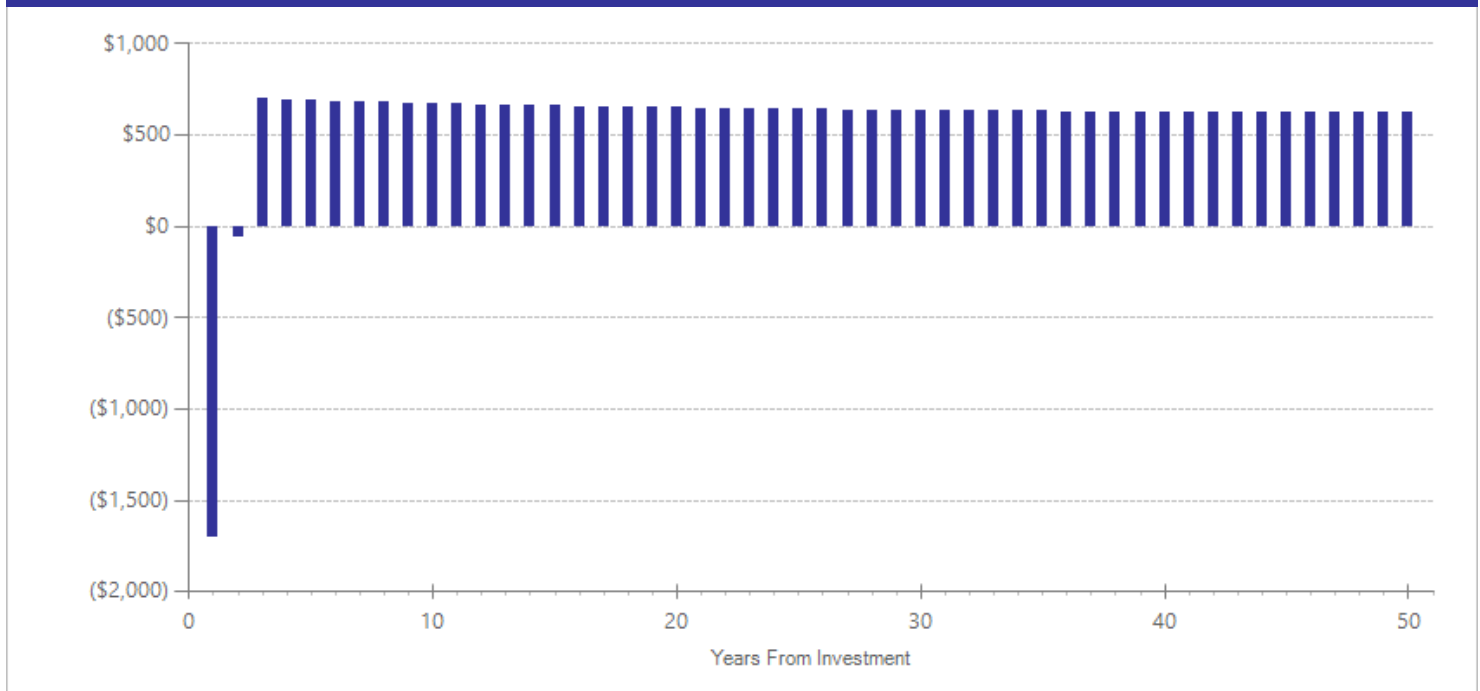
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$2,650	2011	Present value of net program costs (in 2018 dollars)	(\$2,920)
Comparison costs	\$0	2011	Cost range (+ or -)	20 %

The per-participant cost of this brief intervention was estimated using the peer specialist reimbursement rate reported in Mercer (2013) Behavioral Health Data Book for the State of Washington For Rates Effective January 1, 2014 and included both the cost to provide the intervention to participants in the treatment arm and the cost to screen patients at the walk-in clinics.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Illicit drug use disorder	38	1	403	-0.245	0.122	38	0.000	0.187	41	-0.245	0.041

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

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

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

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

Citations Used in the Meta-Analysis

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.

Contingency management (lower cost) for marijuana use

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: Contingency management is a supplement to counseling treatment that rewards participants for attending treatment and/or abstaining from substance use. The intervention reviewed here focused on those with marijuana abuse or dependence where contingencies were provided for remaining abstinent. Two methods of contingency management were reviewed: (1) A voucher system where abstinence earned vouchers that were exchangeable for goods provided by the clinic or counseling center, and (2) a prize or raffle system where clients who remained abstinent could earn the opportunity to draw from a prize bowl. Higher-cost contingency management was determined by maximum voucher or maximum expected value of prizes possible. Based on a statistical analysis of contingency management studies, we determined that programs with a maximum value of vouchers or prizes less than or equal to \$500 (in 2012 dollars) represent lower-cost contingency management. Treatment lasted two to three months and reward opportunities occurred two to three times per week.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$165	Benefit to cost ratio	\$1.59
Participants	\$356	Benefits minus costs	\$154
Others	\$16	Chance the program will produce	
Indirect	(\$123)	benefits greater than the costs	51 %
<u>Total benefits</u>	<u>\$413</u>		
<u>Net program cost</u>	<u>(\$260)</u>		
Benefits minus cost	\$154		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with cannabis abuse or dependence	\$353	\$150	\$0	\$0	\$503
Health care associated with cannabis abuse or dependence	\$3	\$14	\$16	\$7	\$40
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$130)	(\$130)
<u>Totals</u>	<u>\$356</u>	<u>\$165</u>	<u>\$16</u>	<u>(\$123)</u>	<u>\$413</u>

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

Detailed Annual Cost Estimates Per Participant

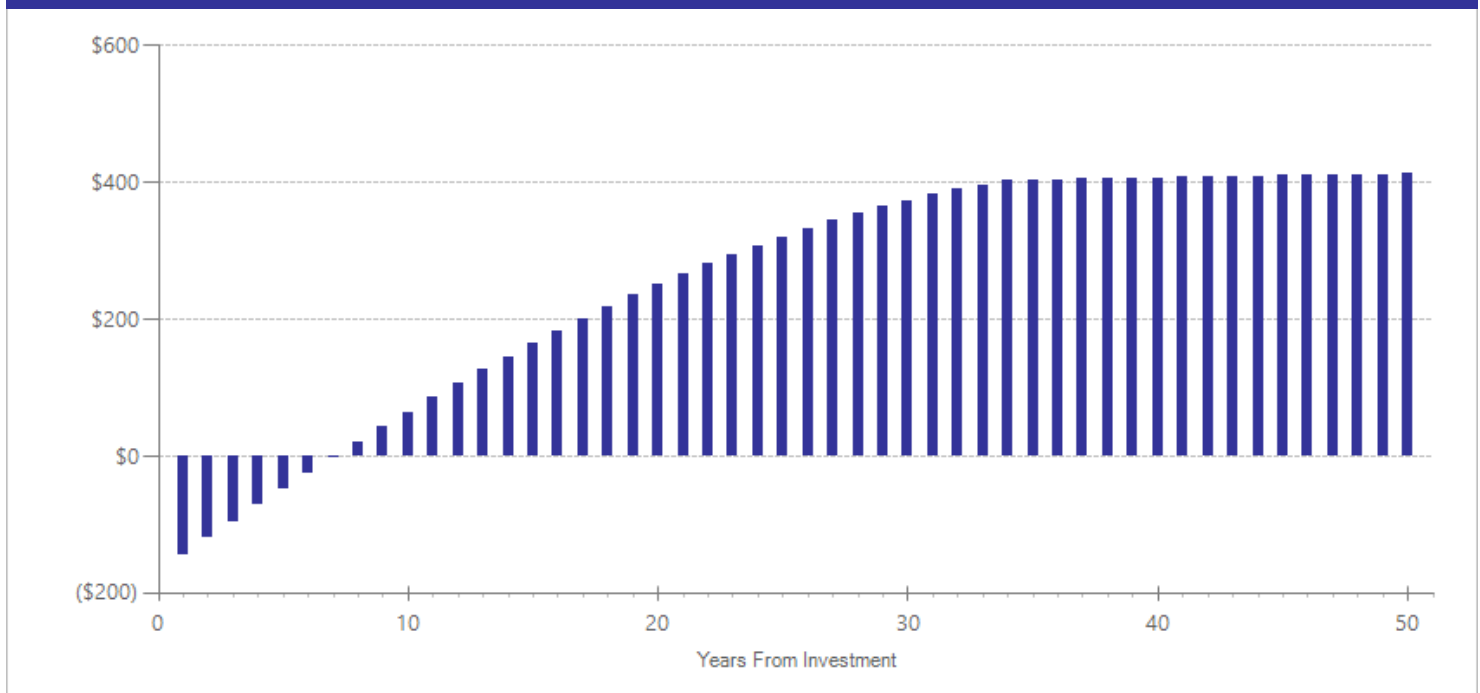
	Annual cost	Year dollars	Summary	
Program costs	\$240	2012	Present value of net program costs (in 2018 dollars)	(\$260)
Comparison costs	\$0	2012	Cost range (+ or -)	40 %

Contingency management is typically provided for less than a year. We calculated the weighted average of the variable per-participant treatment and comparison group costs across studies estimating the cost-effectiveness of an incentive program with an average cost of less than \$500 in 2012 (Sindelar, Olmstead, & Peirce, 2007; Sindelar, Elbel, & Petry, 2006; Hartz et al., 1999). Costs of administering the incentive program include staff costs to inventory, shop for, and restock prizes; material cost of items; counseling session costs; and toxicology screens. All staff costs include salary, benefits, and overhead. All costs are calculated from the clinic perspective. Note that because treatment group participants have higher retention rates than the control group, costs also reflect the increased number of counseling sessions attended and urinalysis tests performed for the treated group.

Hartz, D.T., Meek, P., Piotrowski, N.A., Tusel, D. J., Henke, C.J., Delucchi, K., Sees, K., Hall, S.M. (1999). A cost-effectiveness and cost-benefit analysis of contingency contracting-enhanced methadone detoxification treatment. *The American Journal of Drug and Alcohol Abuse*, 25(2), 207-218. Sindelar, J., Elbel, B., & Petry, N.M. (2007). What do we get for our money? Cost-effectiveness of adding contingency management. *Addiction*, 102(2), 309-316. Sindelar, J.L., Olmstead, T.A., & Peirce, J.M. (2007). Cost-effectiveness of prize-based contingency management in methadone maintenance treatment programs. *Addiction*, 102(9), 1463-1471.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Cannabis use disorder	32	3	149	-0.086	0.191	32	-0.007	0.259	33	-0.086	0.673

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

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

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

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

Citations Used in the Meta-Analysis

- Carroll, K.M., Nich, C., Lapaglia, D.M., Peters, E.N., Easton, C.J., & Petry, N.M. (2012). Combining cognitive behavioral therapy and contingency management to enhance their effects in treating cannabis dependence: less can be more, more or less. *Addiction, 107*(9), 1650-1659.
- Litt, M.D., Kadden, R.M., Kabela-Cormier, E., & Petry, N.M. (2008). Coping skills training and contingency management treatments for marijuana dependence: exploring mechanisms of behavior change. *Addiction, 103*(4), 638-648.

Cognitive-behavioral coping-skills therapy for opioid use disorder

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated December 2016.

Program Description: Cognitive-behavioral coping-skills therapy is a manualized, standalone treatment for alcohol and/or drug abuse or dependence. This intervention emphasizes identifying high-risk situations that could lead to relapse such as social situations, depression, etc. and developing skills to cope with those situations. Clients engage in problem solving, role playing, and homework practice. The intervention is often provided in an individual therapy format but can be conducted in groups as well. Treatment in the included studies occurred over an average of three months. Studies used in this analysis evaluated the program in a population of opiate users receiving medication-assisted treatment (methadone or buprenorphine).

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	(\$31)	Benefit to cost ratio	(\$0.86)
Participants	(\$38)	Benefits minus costs	(\$1,039)
Others	(\$16)	Chance the program will produce	
Indirect	(\$396)	benefits greater than the costs	49 %
Total benefits	(\$480)		
Net program cost	(\$559)		
Benefits minus cost	(\$1,039)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with opioid drug abuse or dependence	(\$24)	(\$10)	\$0	\$0	(\$34)
Health care associated with opioid drug abuse or dependence	(\$2)	(\$16)	(\$16)	(\$8)	(\$42)
Mortality associated with opioids	(\$11)	(\$5)	\$0	(\$109)	(\$125)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$279)	(\$279)
Totals	(\$38)	(\$31)	(\$16)	(\$396)	(\$480)

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

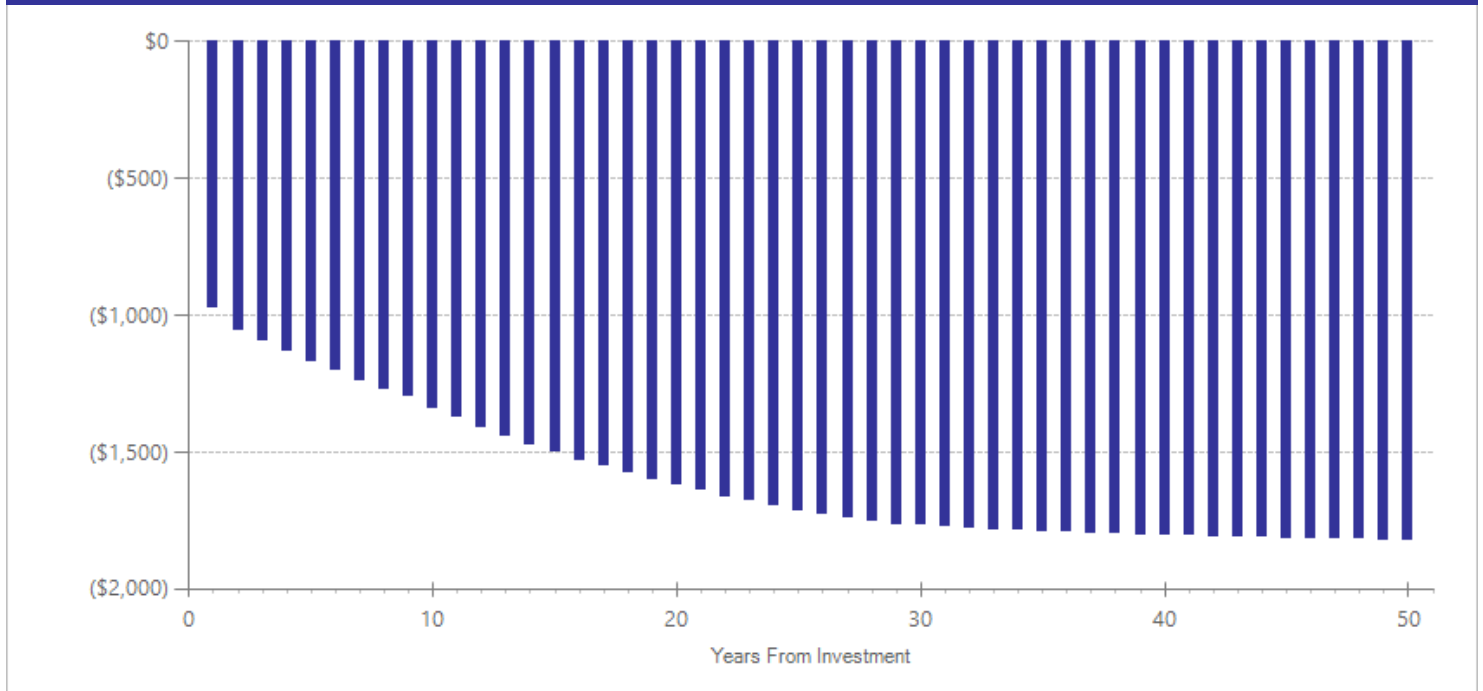
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,223	2016	Present value of net program costs (in 2018 dollars)	(\$559)
Comparison costs	\$685	2016	Cost range (+ or -)	20 %

Program cost estimates reflect costs beyond treatment as usual. The per-participant cost of treatment is based on physician/therapist time, multiplied by reimbursement rates reported for non-disabled adults in Mercer (2016) Mental Health and Substance Use Disorder Services Data Book for the State of Washington. Program and comparison group costs are weighted by treatment and comparison group samples. Costs were obtained from Fiellin et al. (2013), Ling et al. (2013), and Moore et al. (2012).

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Opioid use disorder	36	4	169	0.006	0.109	36	0.000	0.187	39	0.006	0.956

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

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

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

Citations Used in the Meta-Analysis

- Fiellin, D.A., Barry, D.T., Sullivan, L.E., Cutter, C.J., Moore, B.A., O'Connor, P.G., & Schottenfeld, R.S. (2013). A randomized trial of Cognitive Behavioral Therapy in primary care-based buprenorphine. *The American Journal of Medicine*, 126(1).
- Ling, W., Hillhouse, M., Ang, A., Jenkins, J., & Fahey, J. (2013). Comparison of behavioral treatment conditions in buprenorphine maintenance. *Addiction*, 108(10), 1788-1798.
- Moore, B.A., Barry, D.T., Sullivan, L.E., O'Connor, P.G., Cutter, C.J., Schottenfeld, R.S., & Fiellin, D.A. (2012). Counseling and directly observed medication for primary care buprenorphine/naloxone maintenance. *Journal of Addiction Medicine*, 1.
- Moore, B.A., Fazzino, T., Barry, D.T., Fiellin, D.A., Cutter, C.J., Schottenfeld, R.S., & Ball, S.A. (2013). The recovery line: A pilot trial of automated, telephone-based treatment for continued drug use in methadone maintenance. *Journal of Substance Abuse Treatment*, 45(1), 63-69.

Day treatment with abstinence contingencies and vouchers

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: Day treatment with abstinence contingencies or vouchers is a standalone treatment that combines day treatment interventions with contingency management. This intervention was originally developed to treat homeless drug users. Day treatment consists of approximately five hours of primarily group activities including counseling, recreational activities, skills building, etc. as well as lunch. Treatment in the included study occurred five days per week during the first two months and two times per week for four months. Contingencies were provided dependent on negative urinalysis results. These contingencies included housing and minimum wage employment. Other programs might also offer subsidies for utilities or vouchers for items such as personal hygiene products.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$810	Benefit to cost ratio	\$0.42
Participants	\$1,062	Benefits minus costs	(\$3,282)
Others	\$394	Chance the program will produce	
Indirect	\$64	benefits greater than the costs	43 %
Total benefits	\$2,330		
Net program cost	(\$5,612)		
Benefits minus cost	(\$3,282)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$1	\$2	\$0	\$2
Labor market earnings associated with illicit drug abuse or dependence	\$724	\$308	\$0	\$0	\$1,032
Health care associated with illicit drug abuse or dependence	\$59	\$382	\$392	\$191	\$1,025
Mortality associated with illicit drugs	\$280	\$119	\$0	\$2,679	\$3,078
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$2,806)	(\$2,806)
Totals	\$1,062	\$810	\$394	\$64	\$2,330

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

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

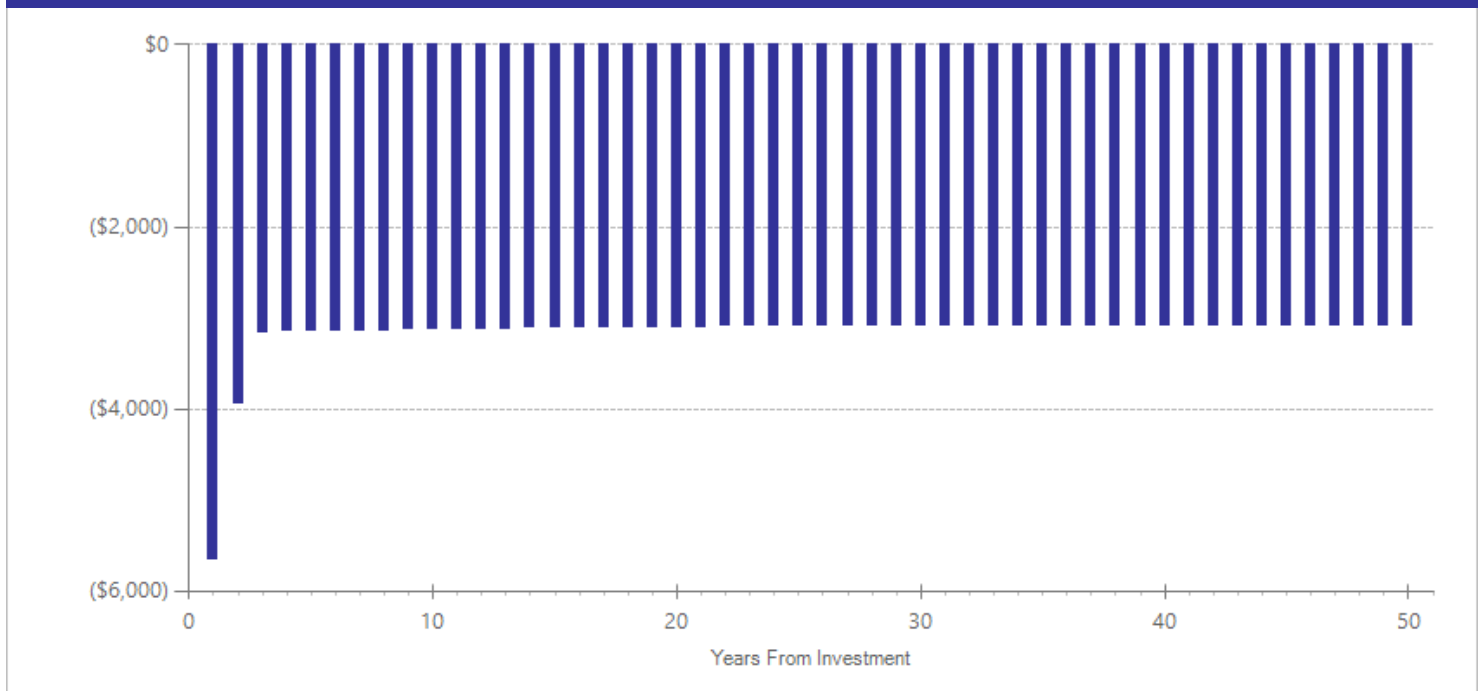
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$7,571	2013	Present value of net program costs (in 2018 dollars)	(\$5,612)
Comparison costs	\$2,312	2013	Cost range (+ or -)	10 %

This program was provided over six months. The per-participant treatment cost estimate is the weighted average of the group therapy sessions provided in the study included in the analysis plus the expected average cost of the abstinence contingency. We calculate the average cost of the group therapy using Washington's Medicaid hourly reimbursement rate for outpatient group therapy, multiplied by the total hours of these therapies in the study (averaging 296 total hours). Comparison group costs are computed as a weighted average of group and individual therapies based on treatment received in the study (standard intensive outpatient treatment or standard group therapy).

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Illicit drug use disorder	36	1	69	-0.231	0.213	36	0.000	0.187	39	-0.231	0.279

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

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

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

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

Citations Used in the Meta-Analysis

Milby, J.B., Schumacher, J.E., Raczynski, J.M., Caldwell, E., Engle, M., Michael, M., Carr, J. (1996). Sufficient Conditions for Effective Treatment of Substance Abusing Homeless Persons. *Drug and Alcohol Dependence*, 43(1), 39-47.

Behavioral self-control training (BSCT)

Substance Use Disorders: Treatment for Adults

Benefit-cost estimates updated December 2019. Literature review updated May 2014.

Program Description: Behavioral self-control training is a standalone treatment approach often used to pursue a goal of moderate or non-problematic drinking rather than complete abstinence, although abstinence goals are also permissible. This approach teaches self-monitoring, managing drinking speed and duration, identifying high-risk situations, goal setting, rewards for goal attainment, and coping skills. When used with a goal of moderate or controlled drinking, behavioral self-control training is contra-indicated for pregnant women, women trying to become pregnant, clients with medical or psychological problems worsened by drinking, clients who are mandated to remain abstinent, or in other situations where there is strong pressure for abstinence. Treatment in the included studies occurred over one to three months.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	(\$3,339)	Benefit to cost ratio	(\$79.39)
Participants	(\$7,614)	Benefits minus costs	(\$13,162)
Others	(\$145)	Chance the program will produce	
Indirect	(\$1,900)	benefits greater than the costs	24 %
Total benefits	(\$12,998)		
Net program cost	(\$164)		
Benefits minus cost	(\$13,162)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	(\$2)	(\$4)	(\$1)	(\$7)
Labor market earnings associated with alcohol abuse or dependence	(\$7,499)	(\$3,192)	\$0	\$0	(\$10,691)
Health care associated with alcohol abuse or dependence	(\$20)	(\$109)	(\$120)	(\$54)	(\$304)
Property loss associated with alcohol abuse or dependence	(\$11)	\$0	(\$20)	\$0	(\$31)
Mortality associated with alcohol	(\$85)	(\$36)	\$0	(\$1,763)	(\$1,884)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$82)	(\$82)
Totals	(\$7,614)	(\$3,339)	(\$145)	(\$1,900)	(\$12,998)

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

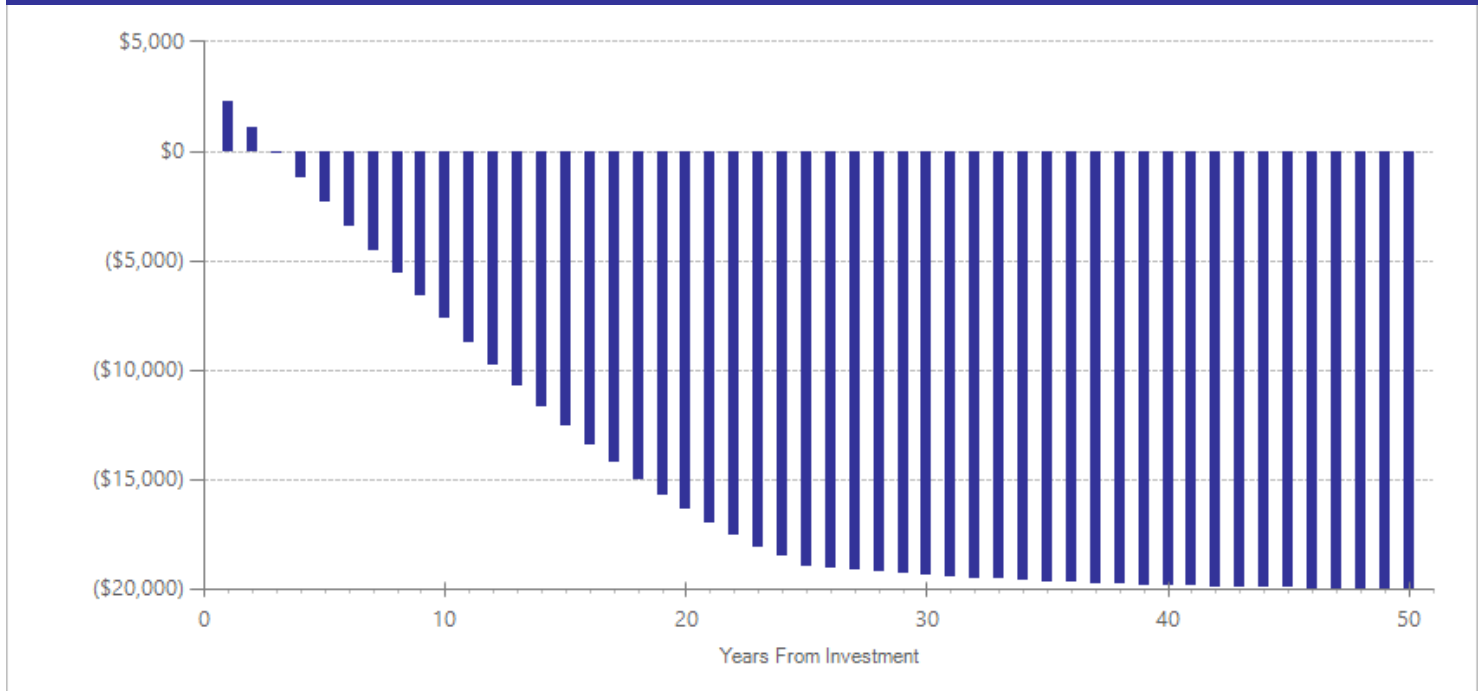
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$957	2013	Present value of net program costs (in 2018 dollars)	(\$164)
Comparison costs	\$804	2013	Cost range (+ or -)	10 %

In the studies included in our meta-analysis, treatment took place over a one- to three-month period. The per-participant cost of treatment is the weighted average estimate for studies included in the analysis. We calculated this average estimate using Washington's Medicaid hourly reimbursement rates for individual or group therapy multiplied by the weighted average of total hours of these therapies across the studies (averaging 12 total hours). Comparison group costs are computed in a similar manner based on treatment received in the studies (individual or group treatment as usual or no treatment).

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated				
				ES	SE	Age	ES	SE	Age	ES	p-value
Alcohol use disorder	41	12	333	-0.393	0.161	41	0.165	0.181	42	-0.393	0.001
Drinking and driving [^]	41	1	20	-1.048	0.337	41	n/a	n/a	n/a	-1.048	0.001

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

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

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

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

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

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Methadone maintenance for opioid use disorder

Substance Use Disorders: Medication-assisted Treatment

Benefit-cost estimates updated December 2019. Literature review updated December 2016.

Program Description: Methadone is an opiate substitution treatment used to treat opioid dependence. It is a synthetic opioid that blocks the effects of opiates, reduces withdrawal symptoms, and relieves cravings. Methadone is a daily medication dispensed in outpatient clinics that specialize in methadone treatment and is often used in conjunction with behavioral counseling approaches. The studies included in our analysis evaluated methadone maintenance rather than short-term detoxification or stabilization. We excluded studies with treatment dosages below standard guidances (< 50 mg/day).

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,662	Benefit to cost ratio	\$2.30
Participants	\$2,034	Benefits minus costs	\$5,081
Others	\$852	Chance the program will produce	
Indirect	\$4,440	benefits greater than the costs	82 %
Total benefits	\$8,989		
Net program cost	(\$3,907)		
Benefits minus cost	\$5,081		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$1	\$3	\$1	\$4
Labor market earnings associated with opioid drug abuse or dependence	\$1,306	\$556	\$0	\$0	\$1,862
Health care associated with opioid drug abuse or dependence	\$121	\$847	\$849	\$423	\$2,241
Mortality associated with opioids	\$607	\$258	\$0	\$5,969	\$6,835
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$1,954)	(\$1,954)
Totals	\$2,034	\$1,662	\$852	\$4,440	\$8,989

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$3,613	2012	Present value of net program costs (in 2018 dollars)	(\$3,907)
Comparison costs	\$0	2012	Cost range (+ or -)	20 %

We estimate the per-participant costs of providing methadone in addition to standard substance abuse treatment for 12 months. Costs reflect the average of costs reported in numerous cost-effectiveness studies (Rosenhack and Kosten, 2001; Jones et al., 2009; Nordlund et al., 2004; Masson et al, 2004). Costs included vary by study but generally include costs of medication, dispensing, toxicology screens, medical care related to methadone treatment, and when available, costs of equipment, administration, and clinic space. Treatment as usual in this case may include counseling or other services.

Jones, E.S., Moore, B.A., Sindelar, J.L., O'Connor, P.G., Schottenfeld, R.S., & Fiellin, D.A. (2009). Cost analysis of clinic and office-based treatment of opioid dependence: Results with methadone and buprenorphine in clinically stable patients. *Drug and Alcohol Dependence*, 99(1), 132-140.

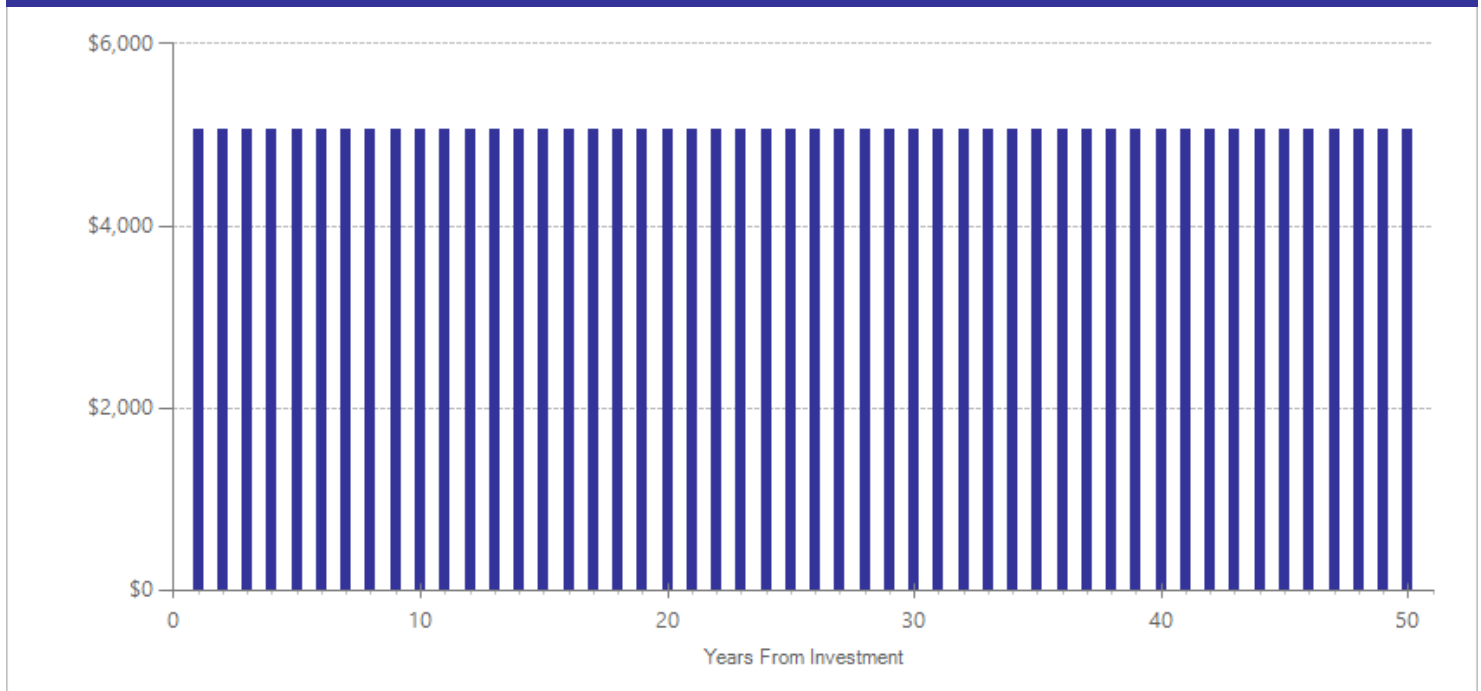
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Rosenheck, R., & Kosten, T. (2001). Buprenorphine for opiate addiction: potential economic impact. *Drug and Alcohol Dependence*, 63(3), 253-262.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use [^]	37	2	223	-0.281	0.250	37	n/a	n/a	n/a	-0.281	0.261
Crime	37	3	259	-0.672	0.112	37	0.000	0.000	38	-0.672	0.001
Death	37	3	137	-0.236	0.261	37	0.000	0.000	38	-0.236	0.365
Hospitalization ^{^^}	37	3	286	0.242	0.464	37	n/a	n/a	n/a	0.242	0.602
Opioid use disorder	37	8	623	-0.945	0.304	37	0.000	0.000	38	-0.945	0.002
STD risky behavior [^]	37	3	492	-0.559	0.242	37	n/a	n/a	n/a	-0.559	0.021

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

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

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

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

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

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

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Buprenorphine (or buprenorphine/naloxone) maintenance treatment for opioid use disorder

Substance Use Disorders: Medication-assisted Treatment

Benefit-cost estimates updated December 2019. Literature review updated December 2016.

Program Description: Buprenorphine/buprenorphine/naloxone is an opiate substitution treatment for opioid dependence. It is a daily medication generally provided in addition to counseling therapies. Buprenorphine/buprenorphine/naloxone is a partial agonist that suppresses withdrawal symptoms and blocks the effects of opioids. Two versions of buprenorphine are used in the treatment of opioid dependence. Subutex consists of buprenorphine only while Suboxone is a version of buprenorphine that combines buprenorphine and naloxone. The addition of naloxone reduces the probability of overdose and reduces misuse by producing severe withdrawal effects if taken any way except sublingually. Suboxone is generally given during the maintenance phase and many clinics will only provide take-home doses of Suboxone. Buprenorphine and buprenorphine/naloxone are alternatives to methadone treatments and, unlike methadone, can be prescribed in office-based settings by physicians that have completed a special training. We reviewed studies that evaluated the effectiveness of buprenorphine maintenance therapy. We excluded studies with treatment dosages below current guidance (< 8 mg/day).

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,658	Benefit to cost ratio	\$1.78
Participants	\$2,029	Benefits minus costs	\$3,725
Others	\$848	Chance the program will produce	
Indirect	\$3,982	benefits greater than the costs	78 %
Total benefits	\$8,517		
Net program cost	(\$4,792)		
Benefits minus cost	\$3,725		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$1	\$0	\$1
Labor market earnings associated with opioid drug abuse or dependence	\$1,303	\$555	\$0	\$0	\$1,858
Health care associated with opioid drug abuse or dependence	\$121	\$845	\$847	\$422	\$2,235
Mortality associated with opioids	\$606	\$258	\$0	\$5,955	\$6,819
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$2,396)	(\$2,396)
Totals	\$2,029	\$1,658	\$848	\$3,982	\$8,517

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

Detailed Annual Cost Estimates Per Participant

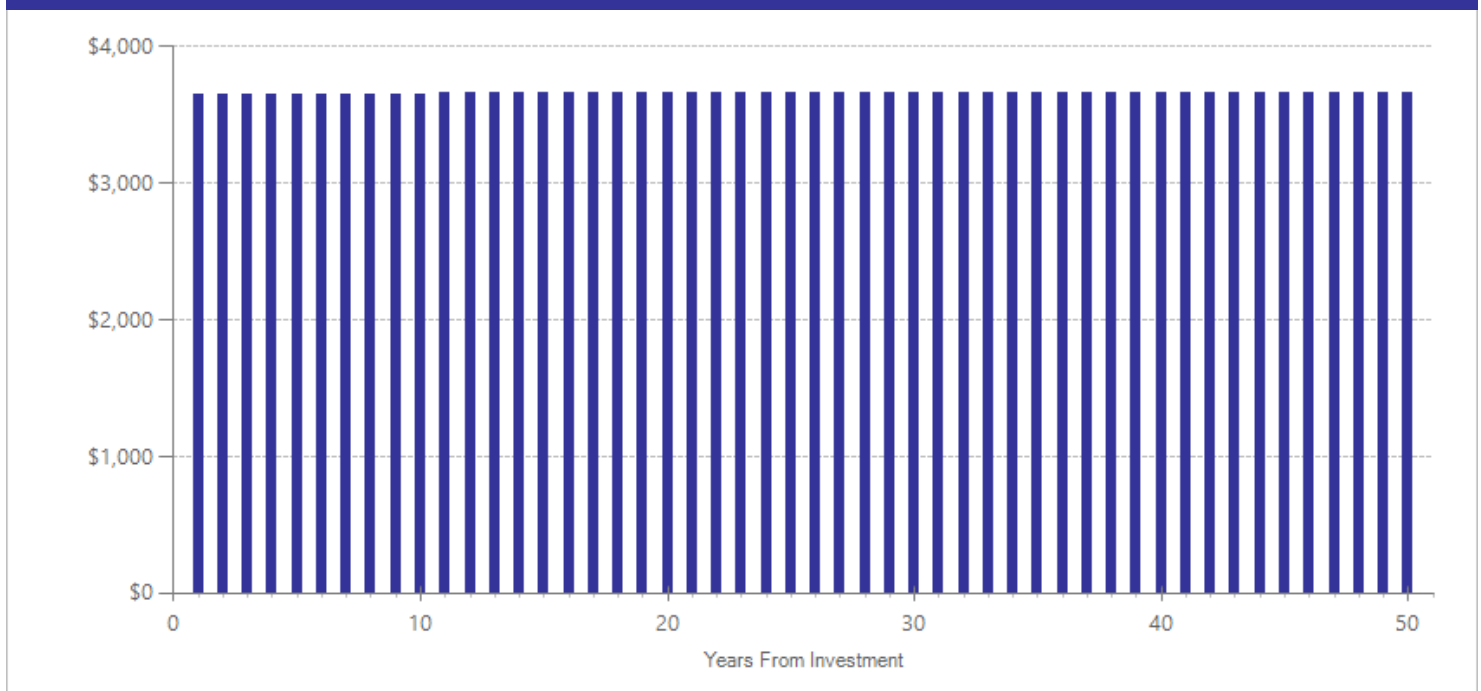
	Annual cost	Year dollars	Summary	
Program costs	\$4,431	2012	Present value of net program costs (in 2018 dollars)	(\$4,792)
Comparison costs	\$0	2012	Cost range (+ or -)	30 %

We estimated the per-participant costs of providing buprenorphine/buprenorphine/naloxone in addition to standard substance abuse treatment for 12 months. Costs reflect the average of costs reported in numerous cost-effectiveness studies (Polsky et al., 2010; Rosenheck and Kosten, 2001; Schackman et al., 2012). Costs included vary by study but generally include costs of medication, dispensing, toxicology screens, and when available, costs of medical care related to methadone treatment, equipment, administration, and clinic space. The figures shown are estimates of the costs to implement programs in Washington. Comparison group participants may have received counseling and other services.

Polsky, D., Glick, H.A., Yang, J., Subramaniam, G.A., Poole, S.A., & Woody, G.E. (2010). Cost-effectiveness of extended buprenorphine-naloxone treatment for opioid-dependent youth: data from a randomized trial. *Addiction*, 105(9), 1616-1624. Rosenheck, R., & Kosten, T. (2001). Buprenorphine for opiate addiction: potential economic impact. *Drug and Alcohol Dependence*, 63(3), 253-262. Schackman, B.R., Leff, J.A., Moore, B.A., Moore, B.A., & Fiellin, D.A. (2012). Cost-effectiveness of long-term outpatient buprenorphine-naloxone treatment for opioid dependence in primary care. *Journal of General Internal Medicine*, 27(6), 669-676. Polsky, D., Glick, H.A., Yang, J., Subramaniam, G.A., Poole, S.A., & Woody, G.E. (2010). Cost-effectiveness of extended buprenorphine-naloxone treatment for opioid-dependent youth: data from a randomized trial. *Addiction*, 105(9), 1616-1624. Rosenheck, R., & Kosten, T. (2001). Buprenorphine for opiate addiction: potential economic impact. *Drug and Alcohol Dependence*, 63(3), 253-262. Schackman, B.R., Leff, J.A., Moore, B.A., Moore, B.A., & Fiellin, D.A. (2012). Cost-effectiveness of long-term outpatient buprenorphine-naloxone treatment for opioid dependence in primary care. *Journal of General Internal Medicine*, 27(6), 669-676.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Emergency department visits ^{^^}	37	1	46	-0.026	0.263	37	n/a	n/a	n/a	-0.026	0.920
Opioid use disorder	37	9	793	-0.941	0.181	37	0.000	0.000	38	-0.941	0.001
Psychiatric symptoms [^]	37	1	51	-0.156	0.201	37	n/a	n/a	n/a	-0.156	0.437

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

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

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

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

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

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

Citations Used in the Meta-Analysis

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Injectable naltrexone for opiates (for individuals in the criminal justice system)

Substance Use Disorders: Medication-assisted Treatment

Benefit-cost estimates updated December 2019. Literature review updated December 2016.

Program Description: Long-acting injectable naltrexone is used as an alcohol or opiate antagonist to treat alcohol or opiate dependence. Naltrexone is an antagonist that blocks the euphoric effects of alcohol or opiates, and patients do not develop tolerance or experience withdrawal symptoms when they stop taking the drug. It is intended to reduce cravings and prevent relapse. Patients also receive counseling therapies such as cognitive behavioral treatment or motivational enhancement therapy. Injections are typically administered monthly for one to six months. Our benefit-cost estimates assume one full year of treatment and one corresponding full year of effectiveness.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,724	Benefit to cost ratio	\$0.02
Participants	\$1,127	Benefits minus costs	(\$16,849)
Others	\$2,163	Chance the program will produce	
Indirect	(\$4,698)	benefits greater than the costs	1 %
<u>Total benefits</u>	<u>\$316</u>		
<u>Net program cost</u>	<u>(\$17,166)</u>		
Benefits minus cost	(\$16,849)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$800	\$1,688	\$400	\$2,888
Labor market earnings associated with opioid drug abuse or dependence	\$794	\$338	\$0	\$0	\$1,132
Health care associated with opioid drug abuse or dependence	\$68	\$474	\$475	\$237	\$1,254
Mortality associated with opioids	\$265	\$113	\$0	\$3,248	\$3,626
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$8,583)	(\$8,583)
Totals	\$1,127	\$1,724	\$2,163	(\$4,698)	\$316

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

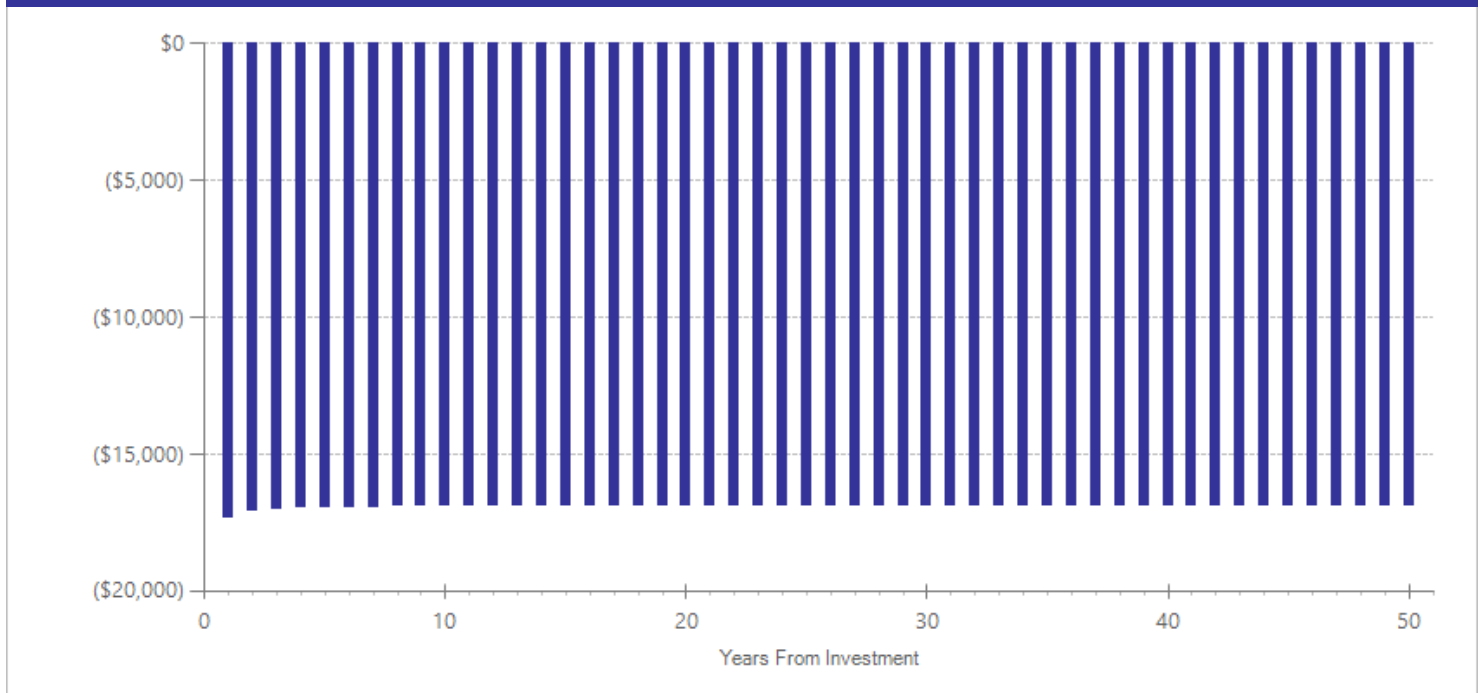
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$16,356	2015	Present value of net program costs (in 2018 dollars)	(\$17,166)
Comparison costs	\$0	2015	Cost range (+ or -)	10 %

From January to June of 2015, Medicaid in Washington State spent an average of \$1,363.03 per patient per month on injectable naltrexone treatment for alcohol and opiate dependence. We assume an average treatment period of about 12 months. This information is based on personal communication with Donna Sullivan at Washington Health Care Authority.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Crime	44	2	169	-0.218	0.208	44	0.000	0.000	45	-0.218	0.294
Opioid use disorder	44	2	169	-0.594	0.248	44	0.000	0.000	45	-0.594	0.017

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

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

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

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

Citations Used in the Meta-Analysis

- Lee, J.D., McDonald, R., Grossman, E., McNeely, J., Laska, E., Rotrosen, J., & Gourevitch, M.N. (2015). Opioid treatment at release from jail using extended-release naltrexone: A pilot proof-of-concept randomized effectiveness trial. *Addiction, 110*(6), 1008-1014.
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Injectable naltrexone for opiates

Substance Use Disorders: Medication-assisted Treatment

Benefit-cost estimates updated December 2019. Literature review updated December 2016.

Program Description: Long-acting injectable naltrexone is used as an alcohol or opiate antagonist to treat alcohol or opiate dependence. Naltrexone is an antagonist that blocks the euphoric effects of alcohol or opiates, and patients do not develop tolerance or experience withdrawal symptoms when they stop taking the drug. It is intended to reduce cravings and prevent relapse. Patients also receive counseling therapies such as cognitive behavioral treatment or motivational enhancement therapy. Injections are typically administered monthly for one to six months. Our benefit-cost estimates assume one full year of treatment and one corresponding full year of effectiveness.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,148	Benefit to cost ratio	(\$0.06)
Participants	\$1,409	Benefits minus costs	(\$18,197)
Others	\$586	Chance the program will produce	
Indirect	(\$4,176)	benefits greater than the costs	0 %
Total benefits	(\$1,032)		
Net program cost	(\$17,166)		
Benefits minus cost	(\$18,197)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$0	\$0	\$1
Property loss associated with problem alcohol use	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with opioid drug abuse or dependence	\$919	\$391	\$0	\$0	\$1,310
Health care associated with opioid drug abuse or dependence	\$83	\$584	\$586	\$292	\$1,545
Mortality associated with opioids	\$407	\$173	\$0	\$4,115	\$4,696
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$8,583)	(\$8,583)
Totals	\$1,409	\$1,148	\$586	(\$4,176)	(\$1,032)

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

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

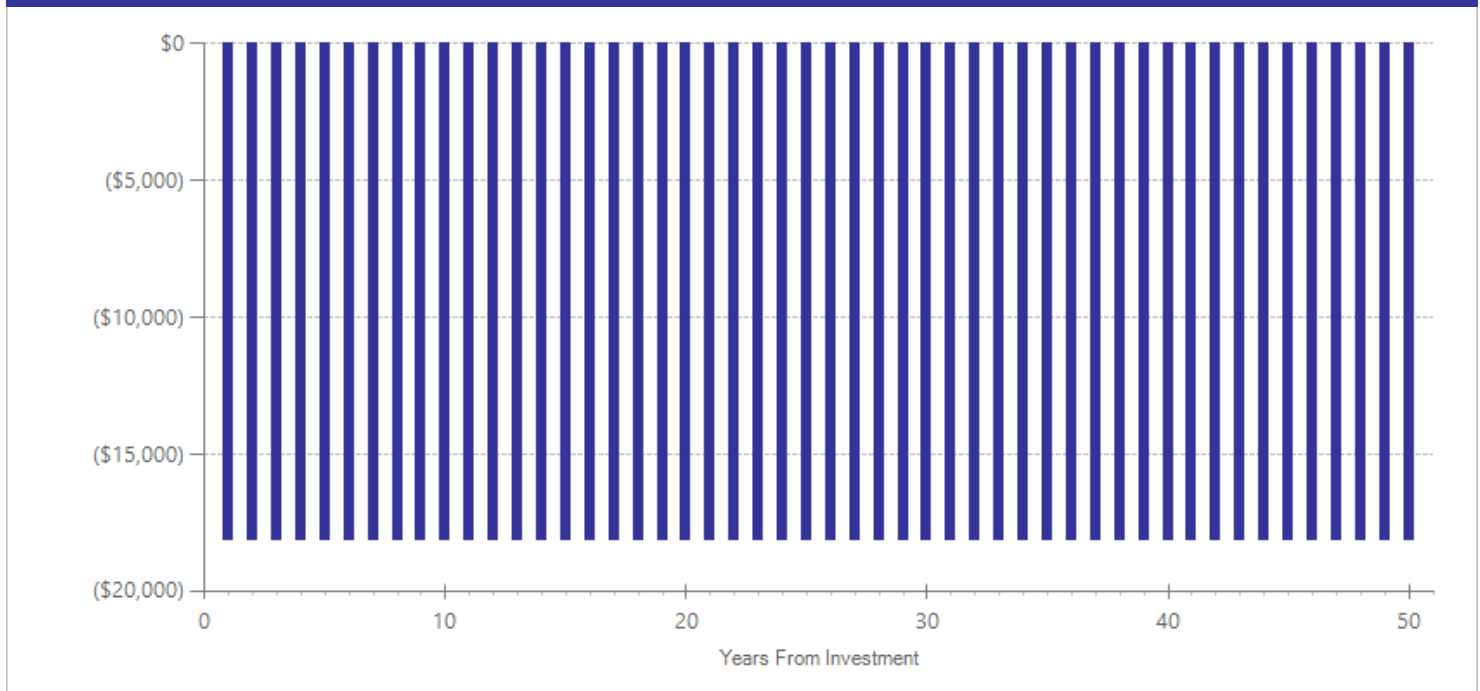
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$16,356	2015	Present value of net program costs (in 2018 dollars)	(\$17,166)
Comparison costs	\$0	2015	Cost range (+ or -)	10 %

From January to June of 2015, Medicaid in Washington State spent an average of \$1,363.03 per patient per month on injectable naltrexone treatment for alcohol and opiate dependence. We assume an average treatment period of 12 months. This information is based on personal communication with Donna Sullivan at Washington Health Care Authority.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Opioid use disorder	38	5	337	-0.566	0.152	38	0.000	0.000	39	-0.566	0.001
Problem alcohol use	38	1	153	-0.049	0.364	38	0.000	0.000	39	-0.049	0.893

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

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

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

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

Citations Used in the Meta-Analysis

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- Lee, J.D., Friedmann, P.D., Kinlock, T.W., Nunes, E.V., Boney, T.Y., Hoskinson, R.A., . . . O'Brien, C.P. (2016). Extended-release naltrexone to prevent opioid relapse in criminal justice offenders. *New England Journal of Medicine*, *374*(13), 1232-1242.

Injectable naltrexone for alcohol Substance Use Disorders: Medication-assisted Treatment

Benefit-cost estimates updated December 2019. Literature review updated December 2016.

Program Description: Long-acting injectable naltrexone is used as an alcohol or opiate antagonist to treat alcohol or opiate dependence. Naltrexone is an antagonist that blocks the euphoric effects of alcohol or opiates, and patients do not develop tolerance or experience withdrawal symptoms when they stop taking the drug. It is intended to reduce cravings and prevent relapse. Patients also receive counseling therapies such as cognitive behavioral treatment or motivational enhancement therapy. Injections are typically administered monthly for one to six months. Our benefit-cost estimates assume one full year of treatment and one corresponding full year of effectiveness.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$243	Benefit to cost ratio	(\$0.45)
Participants	\$560	Benefits minus costs	(\$24,872)
Others	\$7	Chance the program will produce	
Indirect	(\$8,516)	benefits greater than the costs	0 %
<u>Total benefits</u>	<u>(\$7,706)</u>		
<u>Net program cost</u>	<u>(\$17,166)</u>		
Benefits minus cost	(\$24,872)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with alcohol abuse or dependence	\$553	\$235	\$0	\$0	\$788
Health care associated with alcohol abuse or dependence	\$1	\$5	\$6	\$3	\$14
Property loss associated with alcohol abuse or dependence	\$1	\$0	\$1	\$0	\$2
Mortality associated with alcohol	\$5	\$2	\$0	\$65	\$72
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$8,583)	(\$8,583)
Totals	\$560	\$243	\$7	(\$8,516)	(\$7,706)

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

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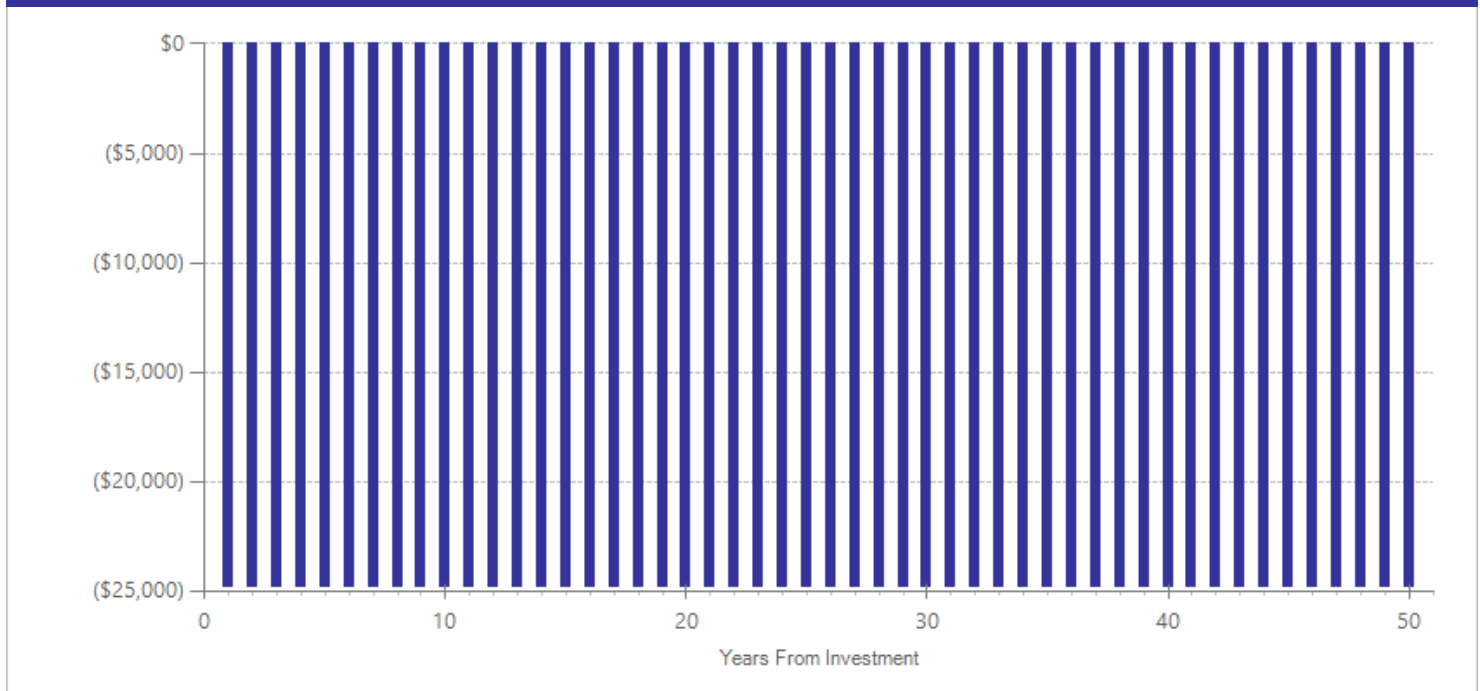
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$16,356	2015	Present value of net program costs (in 2018 dollars)	(\$17,166)
Comparison costs	\$0	2015	Cost range (+ or -)	10 %

From January to June of 2015, Medicaid in Washington State spent an average of \$1,363.03 per patient per month on injectable naltrexone treatment for alcohol and opiate dependence. We assume an average treatment period of 12 months. This information is based on personal communication with Donna Sullivan at Washington Health Care Authority.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Alcohol use disorder	45	5	627	-0.133	0.044	45	0.000	0.000	46	-0.133	0.003

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

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

Citations Used in the Meta-Analysis

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- Pettinati, H.M., Kampman, K.M., Lynch, K.G., Dundon, W.D., Mahoney, E.M., Wierzbicki, M.R., & O'Brien, C.P. (2014). A pilot trial of injectable, extended-release naltrexone for the treatment of co-occurring cocaine and alcohol use disorder. *The American Journal on Addictions, 23*(6), 591-597.

Adolescent Community Reinforcement Approach (A-CRA)

Substance Use Disorders: Treatment for Youth

Literature review updated September 2018.

Program Description: Adolescent Community Reinforcement Approach (A-CRA) is a behavioral intervention that aims to support recovery from substance use disorders. A-CRA targets youth aged 12 to 25 years old with clinical diagnosis of a substance use disorder. The A-CRA model has guidelines for three types of sessions: adolescents alone, caregivers alone, and adolescents and caregivers together. A participant's specific needs are determined and then inform which among the 17 A-CRA components a youth would receive. These components encourage problem-solving skills to cope with stressors, communication skills, and participation in positive social and recreational activities.

In the included study, participants were homeless youth who received 12 weekly individual sessions with a trained provider. The comparison youth were referred to usual services found in a community drop-in center.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Crime	1	81	-0.275	0.193	19	-0.275	0.154
Externalizing behavior symptoms	1	81	-0.097	0.193	19	-0.097	0.615
Internalizing symptoms	1	81	-0.362	0.194	19	-0.362	0.062
Major depressive disorder	1	81	-0.405	0.194	19	-0.405	0.037
Substance use disorder	1	81	-0.396	0.226	19	-0.396	0.080

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

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Citations Used in the Meta-Analysis

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MET/CBT-5 for youth marijuana use

Substance Use Disorders: Treatment for Youth

Literature review updated February 2015.

Program Description: This is a five-session treatment composed of two individual sessions of Motivational Enhancement Therapy (MET) and three weekly group sessions of Cognitive-Behavioral Therapy (CBT) for youth who misuse substances. The MET sessions focus on increasing their motivation and commitment to change. In the CBT sessions, participants learn skills to cope with problems and meet needs in ways that do not involve turning to marijuana or alcohol.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Crime	1	174	-0.295	0.198	17	-0.295	0.136
Substance use disorder	1	174	-0.171	0.198	17	-0.171	0.388

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Citations Used in the Meta-Analysis

Ramchand, R., Griffin, B.A., Suttorp, M., Harris, K.M., & Morral, A. (2011). Using a cross-study design to assess the efficacy of motivational enhancement therapy-cognitive behavioral therapy 5 (MET/CBT5) in treating adolescents with cannabis-related disorders. *Journal of Studies on Alcohol and Drugs*, 72(3), 380-9.

Community Reinforcement and Family Training (CRAFT) for engaging clients in treatment

Substance Use Disorders: Treatment for Adults

Literature review updated September 2016.

Program Description: Community Reinforcement and Family Training (CRAFT) is a program for significant others and family members of those with substance abuse or dependence. In 12 to 14 individual sessions, family and friends are taught effective strategies for helping their loved one to change, to enroll in treatment, to feel better themselves.

Meta-Analysis of Program Effects								
Outcomes measured	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
				ES	SE	Age	ES	p-value
Engagement/Retention	Primary	5	138	1.223	0.324	40	1.223	0.001
Illicit drug use disorder	Primary	1	16	0.000	0.000	40	0.000	1.000
Major depressive disorder	Secondary	1	45	-0.068	0.254	40	-0.068	0.788

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Citations Used in the Meta-Analysis

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Dialectical behavior therapy (DBT) for co-morbid substance use disorder and serious mental illness

Substance Use Disorders: Treatment for Adults

Literature review updated May 2014.

Program Description: Dialectical behavior therapy (DBT) is a cognitive-behavioral treatment originally developed by Marsha Linehan at the University of Washington to treat those with severe mental disorders including chronically suicidal individuals often suffering from borderline personality disorder. DBT for substance abusers was developed by Dr. Linehan and colleagues to treat individuals with co-occurring substance use disorders and borderline personality disorder. DBT for substance abusers focuses on the following five main objectives: (1) motivating patients to change dysfunctional behaviors, (2) enhancing patient skills, (3) ensuring the new skills are used in daily life, (4) structuring the client's environment, and (5) training and consultation to improve the counselor's skills. For substance abusers, the primary target of the intervention is the substance abuse and specific goals include reducing abuse, alleviating withdrawal symptoms, reducing cravings, avoiding opportunities and triggers for substance abuse, and creating a healthy environment and community. Treatment generally includes 90 minute sessions twice per week for 12 months.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Alcohol use disorder	1	27	0.149	0.264	34	0.149	0.573
Cannabis use	1	27	-0.090	0.263	34	-0.090	0.732
Illicit drug use disorder	2	39	-0.024	0.348	34	-0.024	0.946
Psychiatric symptoms	1	27	-0.596	0.270	34	-0.596	0.027

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Citations Used in the Meta-Analysis

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Family Behavior Therapy (FBT)

Substance Use Disorders: Treatment for Adults

Literature review updated May 2014.

Program Description: Family Behavior Therapy is a standalone behavioral treatment based on the Community Reinforcement Approach aimed at reducing substance use. Participants attend sessions with at least one family member, typically a parent or cohabitating partner. The treatment consists of several parts including behavioral contracting, skills to reduce interaction with individuals and situations related to drug use, impulse and urge control, communication skills, and vocational or educational training. Treatment in the included studies occurred over a 6- to 12-month period. Our findings reflect only adults treated in the program and exclude results for adolescents.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Illicit drug use disorder	1	38	-0.670	0.251	30	-0.670	0.008

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Citations Used in the Meta-Analysis

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Motivational Enhancement Therapy (MET) (problem drinkers)

Substance Use Disorders: Treatment for Adults

Literature review updated May 2014.

Program Description: Motivational Enhancement Therapy was designed as a stand-alone intervention, delivered in four individual sessions over six weeks. MET seeks to build motivation to change, strengthen the commitment to change, develop a plan for change, and review of progress and motivation.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Alcohol use disorder	1	42	-0.449	0.353	38	-0.449	0.203

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Citations Used in the Meta-Analysis

Sellman, J.D., Sullivan, P.F., Dore, G.M., Adamson, S.J., & MacEwan, I. (2001). A randomized controlled trial of motivational enhancement therapy (MET) for mild to moderate alcohol dependence. *Journal of Studies on Alcohol*, 62(3), 389-396.

Early initiation of methadone treatment for opioid use disorder (compared to referral to treatment only)

Substance Use Disorders: Treatment for Adults

Literature review updated December 2016.

Program Description: Studies in this analysis compared early initiation of methadone therapy to simply referring patients to treatment. Three studies examined the effect of initiating methadone treatment in prison prior to release, while one study examined the effect of providing "interim" methadone treatment to people on waitlists for community programs. The studies measured subsequent entry into community-based opioid treatment within a brief follow-up period.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Engagement/Retention	4	404	1.185	0.306	39	1.185	0.001

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Citations Used in the Meta-Analysis

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Early initiation of buprenorphine treatment for opioid use disorder (compared to referral to treatment only)

Substance Use Disorders: Treatment for Adults

Literature review updated December 2016.

Program Description: Studies included in this analysis compared early initiation of buprenorphine treatment to simply referring patients to treatment. The interventions provided temporary, early treatment initiation at a university HIV clinic, an emergency department, a hospital, and a prison. The studies measured subsequent entry into community-based opioid treatment within a short follow-up period.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Engagement/Retention	4	336	0.994	0.292	38	0.994	0.001

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Citations Used in the Meta-Analysis

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Parent-Child Assistance Program

Substance Use Disorders: Treatment for Adults

Literature review updated August 2017.

Program Description: The Parent-Child Assistance Program provides home visits to new mothers of drug- or alcohol-exposed infants. Visitors are paraprofessional client advocates with similar adverse life experiences as the mothers. Visits are weekly for the first six weeks after birth, then bi-weekly or more frequently as needed for up to three years.

More information on this program is available at:
http://depts.washington.edu/pcapuw/inhouse/PCAP_Manual_3_23_15.pdf.

Meta-Analysis of Program Effects								
Outcomes measured	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
				ES	SE	Age	ES	p-value
Repeat birth	Primary	1	54	0.000	0.331	30	0.000	1.000
Repeat pregnancy	Primary	1	54	0.035	0.297	30	0.096	0.747
Substance use disorder	Primary	1	23	-0.046	0.245	30	-0.091	0.698
Out-of-home placement	Secondary	1	54	0.371	0.310	3	0.371	0.231
Preschool test scores	Secondary	1	23	0.047	0.289	3	0.130	0.654
Well-child visits	Secondary	1	54	0.067	0.556	3	0.186	0.746

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Citations Used in the Meta-Analysis

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Wraparound services for pregnant/postpartum women in treatment for substance use disorders

Substance Use Disorders: Treatment for Adults

Literature review updated September 2016.

Program Description: Wraparound was originally developed as an intensive, individualized care planning and management process for children with complex emotional and behavioral needs. The single study in the analysis applied the same approach to pregnant women in treatment for substance use disorders. During the wraparound process, a team of people who are relevant to the life of the woman collaboratively develop an individualized plan of care, implement this plan, monitor the efficacy of the plan, and work towards success over time. The wraparound plan typically includes formal services and interventions, together with community services and interpersonal support and assistance provided by friends, kin, and other people drawn from the family's social networks. After the initial plan is developed, the team continues to meet to monitor progress and revise interventions and strategies when needed.

Meta-Analysis of Program Effects								
Outcomes measured	Primary or secondary participant	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
				ES	SE	Age	ES	p-value
Post-traumatic stress	Primary	1	35	0.122	0.251	28	0.122	0.628
Substance use disorder	Primary	1	43	0.072	0.218	28	0.072	0.742
Child abuse and neglect	Secondary	1	35	-0.030	0.310	1	-0.030	0.923
Out-of-home placement	Secondary	1	35	0.124	0.335	1	0.124	0.711

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Citations Used in the Meta-Analysis

Teel, M.K, Rosenberg, S.A., Taylor, J.A., Rinehart, D.J., Blumhage, R. Weitzenkamp, D. (n.d.) *Improving mental health and family outcomes through high fidelity wraparound with mothers in early recovery*. Unpublished manuscript.

Buprethorphine implants

Substance Use Disorders: Medication-assisted Treatment

Literature review updated December 2016.

Program Description:

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Opioid use disorder	2	222	-0.538	0.156	36	-0.538	0.001

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Citations Used in the Meta-Analysis

- Ling, W., Casadonte, P., Bigelow, G., Kampman, K.M., Patkar, A., Bailey, G.L., . . . Beebe, K.L. (2010). Buprenorphine implants for treatment of opioid use disorder: a randomized controlled trial. *JAMA*, *304*(14), 1576-1583.
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Naltrexone implants

Substance Use Disorders: Medication-assisted Treatment

Literature review updated December 2016.

Program Description: Implantable naltrexone is an opioid antagonist that blocks the effects of opiates for opioid-dependent patients. Implants are inserted subcutaneously every six months. Patients do not develop tolerance or experience withdrawal symptoms when they stop taking the drug. Patients also receive drug counseling while using implants.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Opioid use disorder	4	247	-0.734	0.046	23	-0.734	0.001

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

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

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

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

Citations Used in the Meta-Analysis

- Krupitsky, E., Zvartau, E., Blokhina, E., Verbitskaya, E., Wahlgren, V., Tsoy-Podosenin, M., . . . Woody, G.E. (2012). Randomized trial of long-acting sustained-release naltrexone implant vs oral naltrexone or placebo for preventing relapse to opioid use disorder. *Archives of General Psychiatry*, 69(9), 973-981.
- Kunøe, N., Lobmaier, P., Vederhus, J.K., Hjerkin, B., Hegstad, S., Gossop, M., . . . Waal, H. (2009). Naltrexone implants after in-patient treatment for opioid use disorder: randomised controlled trial. *The British Journal of Psychiatry*, 194(6), 541-546.
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- Tiurina, A., Krupitsky, E., Zvartau, E., & Woody, G. (2010). Long acting naltrexone implants for heroin use disorder. *European Neuropsychopharmacology*, 20(S1), S79-S80.

Injectable bromocriptine for alcohol

Substance Use Disorders: Medication-assisted Treatment

Literature review updated December 2016.

Program Description: Long-acting injectable bromocriptine is an agonist that treats alcohol dependence. Bromocriptine is intended to alleviate withdrawal symptoms by activating dopamine receptors in the brain. Brief psychosocial interventions for alcohol are permitted, but not standardized between centers. Injections are administered monthly for six months.

Meta-Analysis of Program Effects							
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Alcohol use disorder	2	212	0.077	0.181	42	0.077	0.672

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

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

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

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

Citations Used in the Meta-Analysis

Naranjo, C.A., Dongier, M., & Bremner, K.E. (1997). Long-acting injectable bromocriptine does not reduce relapse in alcoholics. *Addiction*, 92(8), 969-978.

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