

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.

Cognitive behavioral therapy (CBT) for adult anxiety

Adult Mental Health: Anxiety

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

Program Description: Cognitive-behavioral therapies (CBT) include various components, such as cognitive restructuring, behavioral activation, emotion regulation, exposure, communication skills, and problem-solving. Most commonly, treatments in this review provided 10 to 20 therapeutic hours per client in an individual or group modality. Most studies in this analysis focused on a single anxiety disorder (generalized anxiety, obsessive-compulsive, panic, social phobia) with aspects of the treatment tailored to the specific disorder. This review excludes studies of CBT for post-traumatic stress disorder.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	\$9,781	Benefit to cost ratio	\$54.01
Participants	\$20,326	Benefits minus costs	\$30,370
Others	\$800	Chance the program will produce	
Indirect	\$36	benefits greater than the costs	100 %
Total benefits	\$30,943		
Net program cost	(\$573)		
Benefits minus cost	\$30,370		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with anxiety disorder	\$20,115	\$9,135	\$0	\$0	\$29,250
Health care associated with anxiety disorder	\$210	\$646	\$800	\$323	\$1,980
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$287)	(\$287)
Totals	\$20,326	\$9,781	\$800	\$36	\$30,943

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.

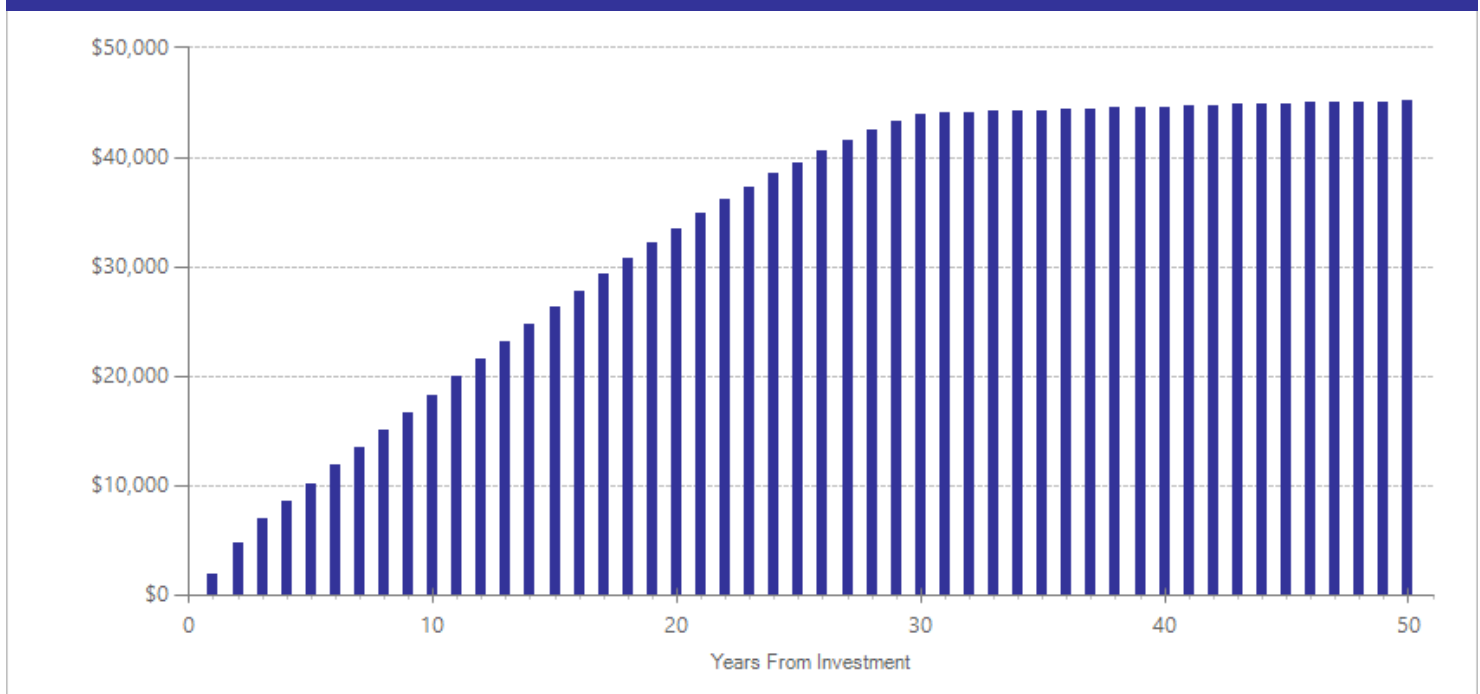
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,458	2015	Present value of net program costs (in 2016 dollars)	(\$573)
Comparison costs	\$814	2008	Cost range (+ or -)	10 %

This therapy typically takes place over 10 to 20 weekly sessions. Per-participant costs are based on therapist time as reported in the studies, multiplied by DSHS reimbursement rates reported in Mercer (2014) Behavioral Health Data Book for the State of Washington For Rates Effective January 1, 2015.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects										
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	32	726	-0.525	0.064	37	-0.273	0.078	39	-0.968	0.001
Major depressive disorder ^{^^}	19	384	-0.400	0.080	37	-0.208	0.098	39	-0.784	0.001

^{^^}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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Acceptance and Commitment Therapy for adult anxiety

Adult Mental Health: Anxiety

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

Program Description: Acceptance and Commitment Therapy for anxiety aims to increase client acceptance of negative thoughts and feelings and to reduce the negative behavioral impact of anxiety. Acceptance and Commitment Therapy relies on six core processes of change: 1) acceptance; 2) learning to view thoughts as hypotheses rather than facts, 3) being present, 4) viewing the self as context for experience, 5) identifying core values, and 6) acting based on those values. These core principles are applied through various exercises and through homework.

Treatments in this review provided 7 to 18 hours per client of either group or individual therapy in an outpatient setting. Comparison groups were either on a waitlist for treatment or received treatment as usual. This review excludes studies of acceptance and commitment therapy for other disorders.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$6,643	Benefit to cost ratio	\$48.55
Participants	\$13,809	Benefits minus costs	\$20,562
Others	\$541	Chance the program will produce	
Indirect	\$3	benefits greater than the costs	85 %
Total benefits	\$20,995		
Net program cost	(\$432)		
Benefits minus cost	\$20,562		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with anxiety disorder	\$13,666	\$6,206	\$0	\$0	\$19,873
Health care associated with anxiety disorder	\$142	\$437	\$541	\$218	\$1,338
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$216)	(\$216)
Totals	\$13,809	\$6,643	\$541	\$3	\$20,995

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.

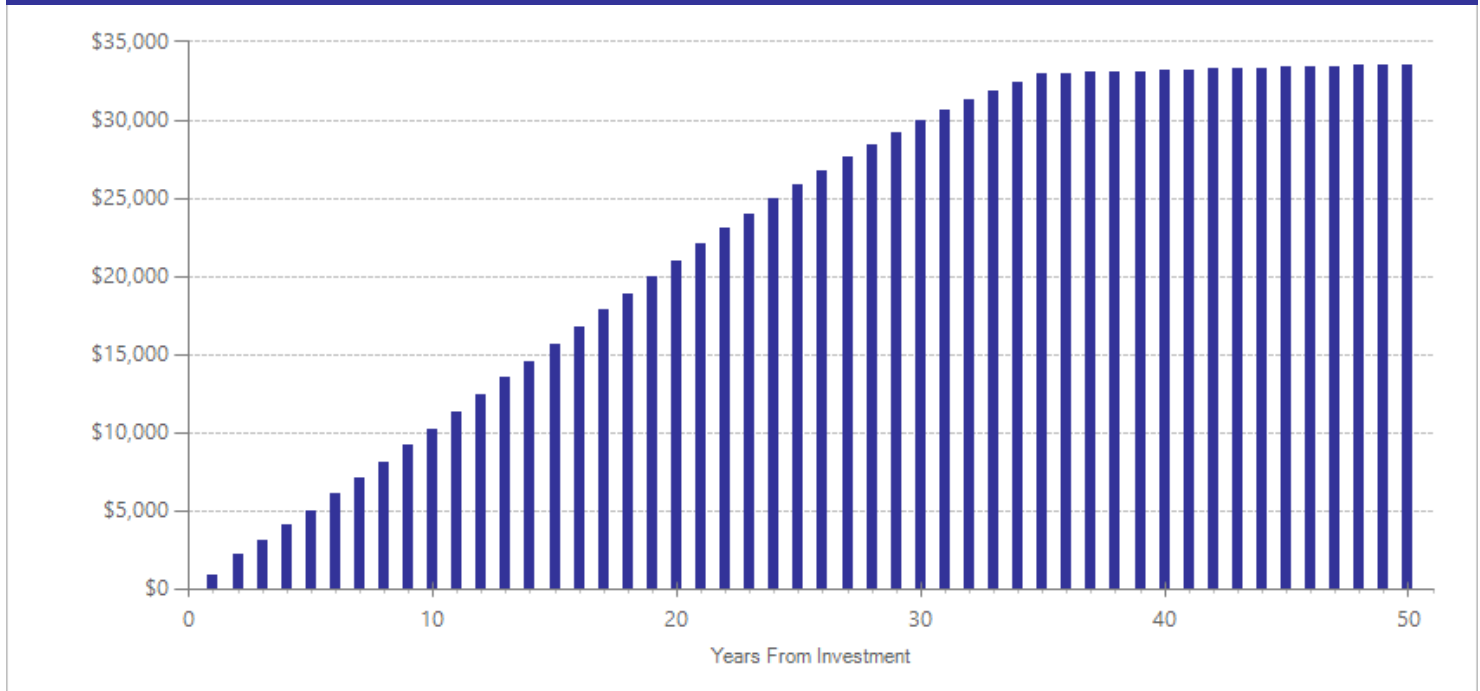
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,319	2015	Present value of net program costs (in 2016 dollars)	(\$432)
Comparison costs	\$814	2008	Cost range (+ or -)	10 %

These therapies took place over 8-16 weekly sessions; total length of treatment averaged 12 weeks. The per-participant cost of treatment by modality (individual or group) was weighted by the treatment Ns reported in the studies. Cost per session is \$40.04/session for group and \$122.25/session for individual (2015 dollars). This rate is based on actuarial tables reported in Mercer (2014) Behavioral Health Data Book for the State of Washington For Rates Effective January 1, 2015. The comparison group costs are from the average Medicaid expenditures for anxiety treatment in Washington in 2009.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	4	74	-0.395	0.175	31	-0.205	0.214	33	-0.710	0.004

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

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

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

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

Citations Used in the Meta-Analysis

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Collaborative primary care for anxiety (general adult population)

Adult Mental Health: Anxiety

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

Program Description: Collaborative primary care for anxiety integrates behavioral health and primary care services to treat patients with anxiety disorders including panic disorder, generalized anxiety disorder, and social anxiety disorder. In the collaborative care model, a care manager coordinates with a primary care provider and other specialists, like a psychologist or psychiatrist, to develop measurement-based treatment plans for individual patients. Care managers can be mental health providers (e.g psychologists) or non-behavioral specialists (e.g registered nurses or social workers) and are located in primary care settings. In this review, patients received treatment for 6 to 12 months.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	\$3,985	Benefit to cost ratio	\$14.76
Participants	\$8,234	Benefits minus costs	\$11,467
Others	\$357	Chance the program will produce	
Indirect	(\$276)	benefits greater than the costs	90 %
Total benefits	\$12,301		
Net program cost	(\$834)		
Benefits minus cost	\$11,467		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:¹

Benefits to:

	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with anxiety disorder	\$8,140	\$3,697	\$0	\$0	\$11,837
Health care associated with anxiety disorder	\$94	\$289	\$357	\$145	\$885
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$421)	(\$421)
Totals	\$8,234	\$3,985	\$357	(\$276)	\$12,301

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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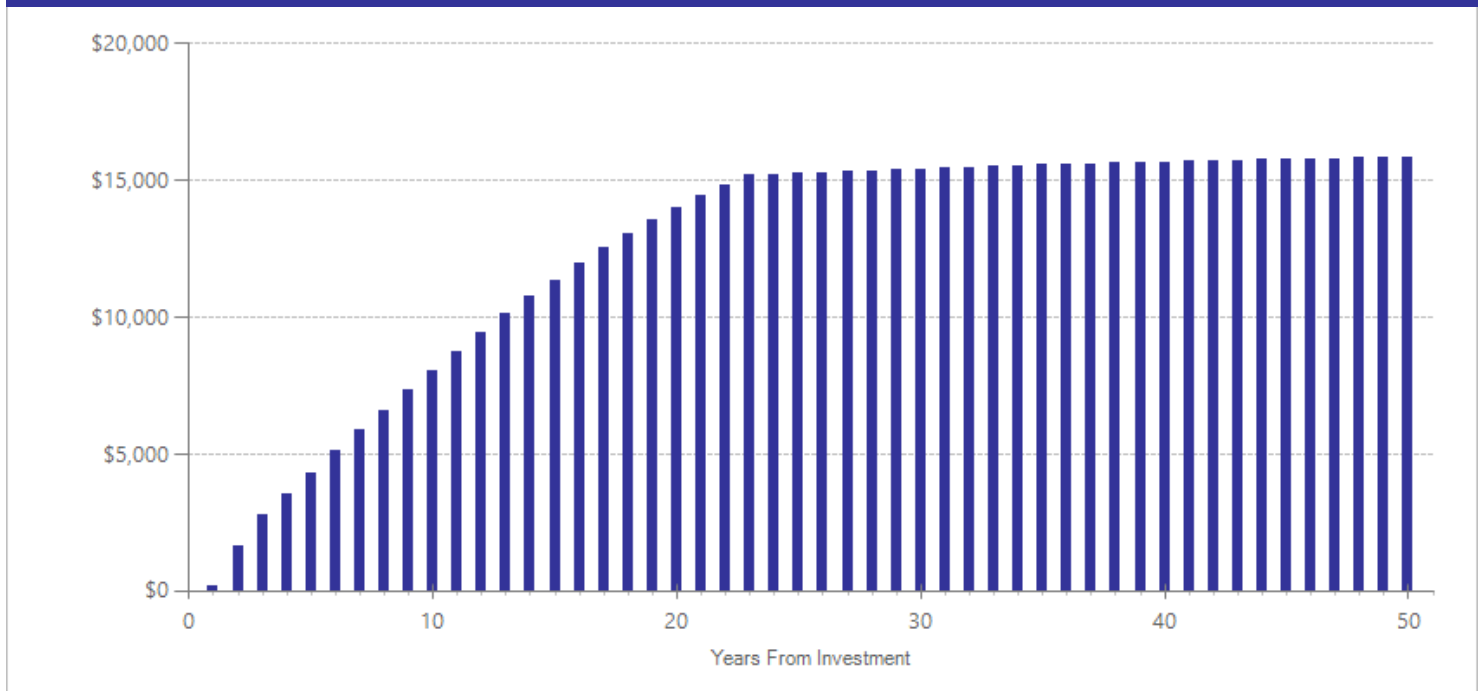
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$834	2016	Present value of net program costs (in 2016 dollars)	(\$834)
Comparison costs	\$0	2016	Cost range (+ or -)	20 %

Treatment cost estimates for this program reflect costs beyond treatment as usual. Costs are based on a weighted average of per-participants costs published in Adler et al. (2004), Katon et al. (1996), Katon et al. (1999), Rost et al. (2001), Simon et al. (2000), and Grochtdreis et al (2015). Cost-effectiveness of collaborative care for the treatment of depressive disorders in primary care: a systematic review. PLoS One 10(5): e0123078.

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			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	4	691	-0.244	0.088	44	-0.127	0.107	46	-0.300	0.001
Emergency department visits	1	116	-0.097	0.291	44	-0.051	0.356	46	-0.123	0.772
Employment^^	1	82	0.236	0.293	44	0.123	0.359	46	0.298	0.354
Hospitalization^^	1	116	0.144	0.450	44	0.075	0.551	46	0.182	0.684
Major depressive disorder	2	198	-0.109	0.164	44	-0.057	0.201	46	-0.137	0.402

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

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Citations Used in the Meta-Analysis

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Cognitive behavioral therapy (CBT) for adult depression

Adult Mental Health: Depression

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

Program Description: Cognitive-behavioral therapies include various components, such as cognitive restructuring, behavioral activation, emotion regulation, communication skills, and problem-solving. Treatment is goal-oriented and generally of limited duration. Most commonly, treatments in this review provided 10-20 therapeutic hours per client in an individual or group modality.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$7,758	Benefit to cost ratio	\$49.09
Participants	\$14,317	Benefits minus costs	\$24,288
Others	\$1,826	Chance the program will produce	
Indirect	\$892	benefits greater than the costs	100 %
Total benefits	\$24,793		
Net program cost	(\$505)		
Benefits minus cost	\$24,288		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with major depression	\$13,836	\$6,283	\$0	\$404	\$20,523
Health care associated with major depression	\$480	\$1,475	\$1,826	\$740	\$4,522
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$252)	(\$252)
Totals	\$14,317	\$7,758	\$1,826	\$892	\$24,793

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.

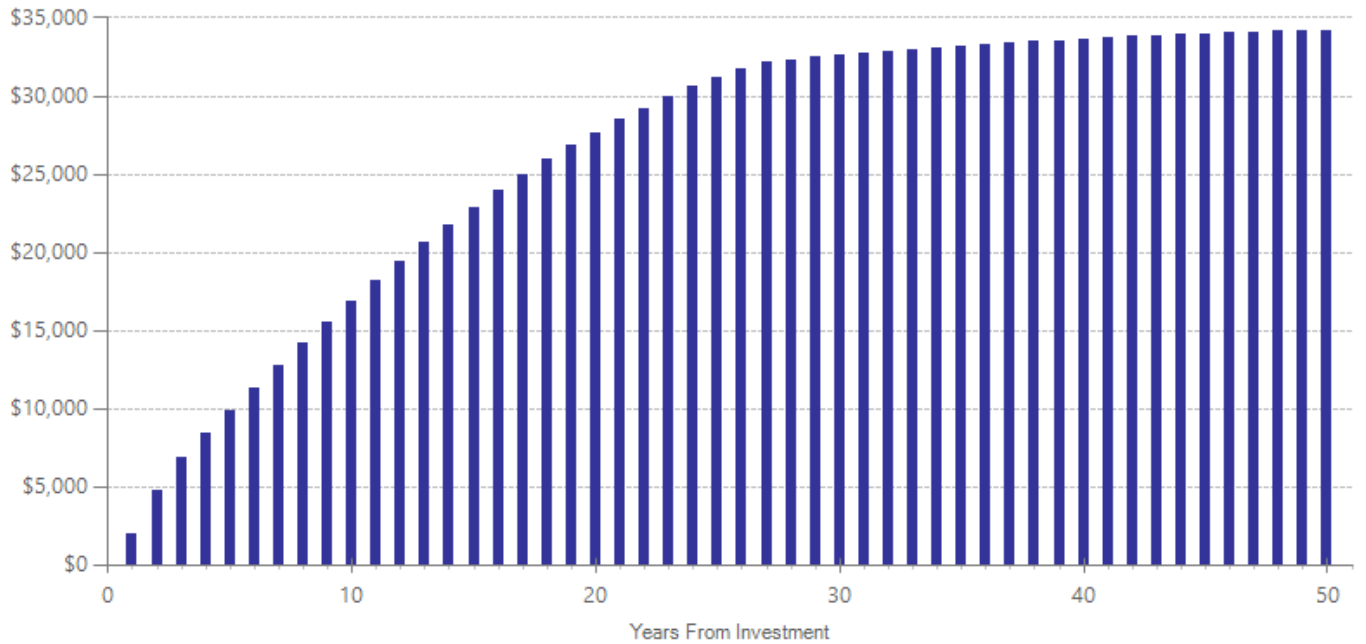
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,231	2014	Present value of net program costs (in 2016 dollars)	(\$505)
Comparison costs	\$672	2008	Cost range (+ or -)	10 %

This therapy typically takes place over 10 to 20 weekly sessions. Per-participant costs are based on therapist time as reported in the studies, multiplied by DSHS reimbursement rates reported in Mercer (2013) Behavioral Health Data Book for the State of Washington For Rates Effective January 1, 2014.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Major depressive disorder	64	1489	-0.481	0.044	40	-0.250	0.053	42	-0.733	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](#).

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Collaborative primary care for depression (general adult population)

Adult Mental Health: Depression

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

Program Description: Collaborative primary care for depression integrates behavioral health into the primary care setting to treat adult patients with major or minor depression, dysthymia, or subthreshold depression. In the collaborative care model, a care manager coordinates with a primary care provider and behavioral health care providers to develop and implement measurement-based treatment plans for individual patients. Care managers can be mental health providers (e.g. psychologists) or non-behavioral health specialists (e.g. registered nurses or social workers). Programs included in this review were intended for adult populations, age 18 and over. All programs were implemented in primary care settings, where patients received collaborative care for 3 to 36 months.

We report separate results for collaborative primary care programs for depression among older adults.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$3,371	Benefit to cost ratio	\$12.56
Participants	\$6,068	Benefits minus costs	\$9,637
Others	\$894	Chance the program will produce	
Indirect	\$139	benefits greater than the costs	98 %
Total benefits	\$10,471		
Net program cost	(\$834)		
Benefits minus cost	\$9,637		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with major depression	\$5,833	\$2,649	\$0	\$195	\$8,677
Health care associated with major depression	\$235	\$722	\$894	\$359	\$2,210
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$416)	(\$416)
Totals	\$6,068	\$3,371	\$894	\$139	\$10,471

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.

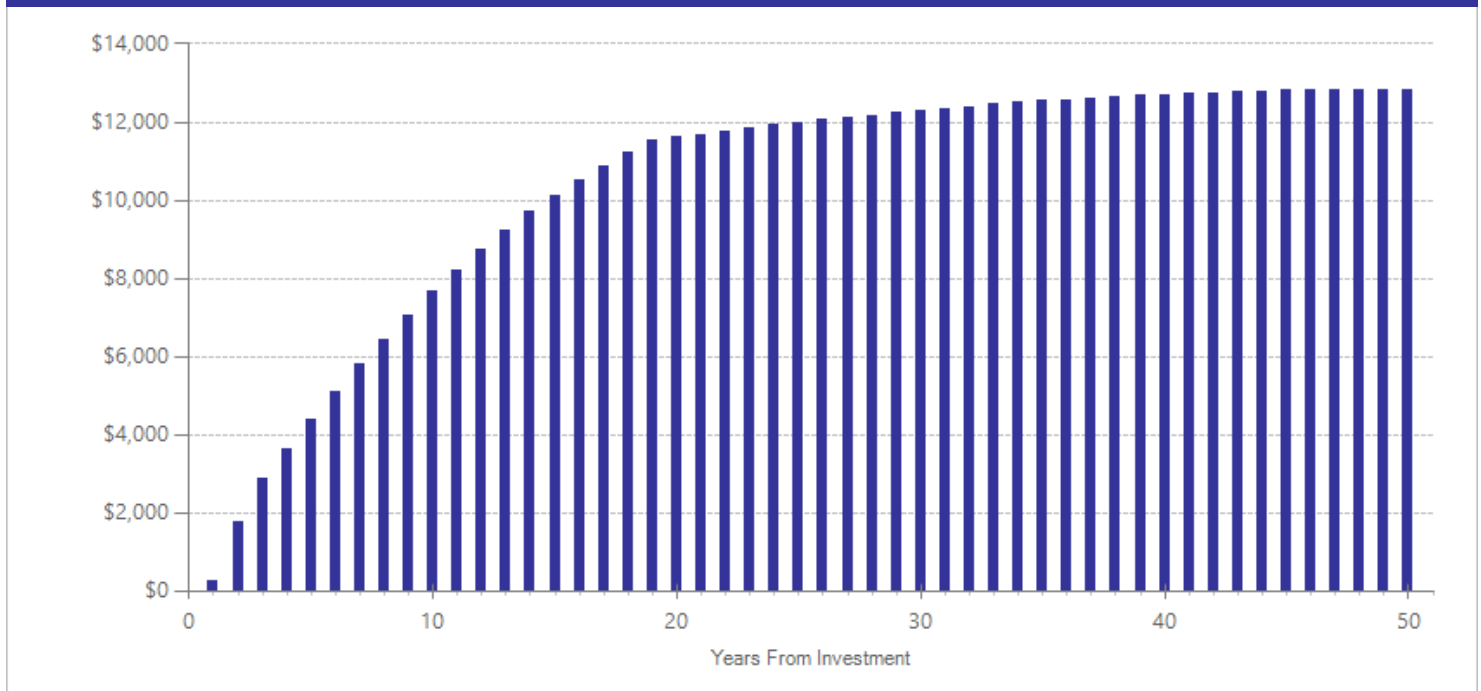
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$834	2016	Present value of net program costs (in 2016 dollars)	(\$834)
Comparison costs	\$0	2016	Cost range (+ or -)	15 %

Treatment cost estimates for this program reflect costs beyond treatment as usual. Costs are based on a weighted average of per-participants costs published in Adler et al. (2004), Katon et al. (1996); Katon et al. (1999), Rost et al. (2001), Simon et al. (2000); and Grochtdreis et al (2015). Cost-effectiveness of collaborative care for the treatment of depressive disorders in primary care: a systematic review. PLoS One 10(5): e0123078.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Major depressive disorder	25	4094	-0.258	0.058	48	-0.134	0.071	50	-0.307	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](#).

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Collaborative primary care for depression with comorbid medical conditions (general adult population)

Adult Mental Health: Depression

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

Program Description: Collaborative primary care integrates behavioral health into the primary care setting to treat adult patients with all levels of depression (i.e. major or minor depression or dysthymia) and comorbid health conditions including diabetes, heart disease, acute coronary syndrome, hypertension, or stroke. In the collaborative care model, a care manager coordinates with a primary care provider and behavioral health care providers to develop and implement measurement-based treatment plans for individual patients. Care managers can be mental health providers (e.g. psychologists) or non-behavioral health specialists (e.g. registered nurses or social workers). Programs included in this review were intended for adult populations, age 18 and over. All programs were implemented in primary care settings, where patients received collaborative care for 3 to 12 months.

We report separate results for collaborative primary care programs for depression among older adults with comorbid medical conditions.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$2,275	Benefit to cost ratio	\$7.34
Participants	\$3,578	Benefits minus costs	\$5,939
Others	\$945	Chance the program will produce	
Indirect	\$78	benefits greater than the costs	100 %
<u>Total benefits</u>	<u>\$6,877</u>		
<u>Net program cost</u>	<u>(\$937)</u>		
Benefits minus cost	\$5,939		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with major depression	\$3,329	\$1,512	\$0	\$164	\$5,005
Health care associated with major depression	\$249	\$763	\$945	\$381	\$2,338
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$467)	(\$467)
Totals	\$3,578	\$2,275	\$945	\$78	\$6,877

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.

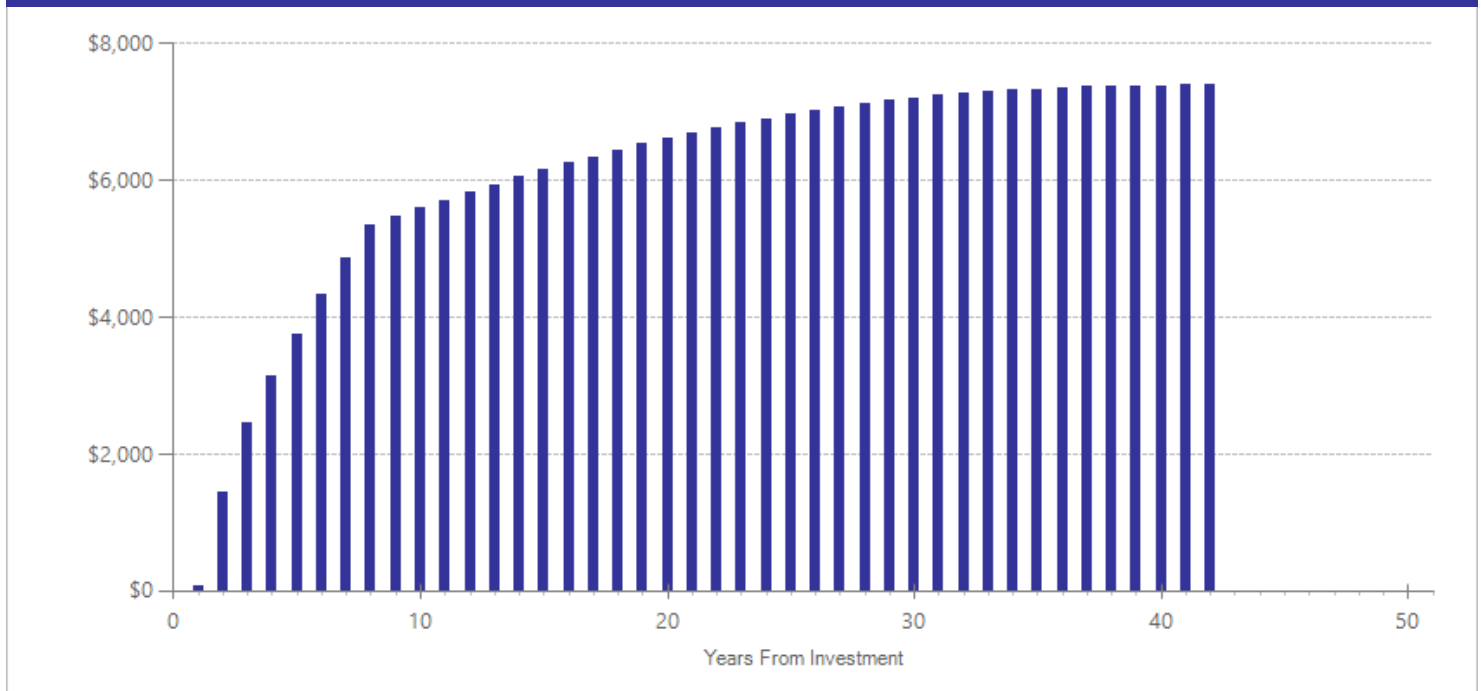
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$938	2016	Present value of net program costs (in 2016 dollars)	(\$937)
Comparison costs	\$0	2016	Cost range (+ or -)	15 %

Treatment cost estimates for this program reflect costs beyond treatment as usual. When available, we use the average cost of the program reported by the studies, weighted by treatment sample sizes. Average program costs were obtained from Davidson et al. (2013), Ell et al. (2010), Katon et al. (2010), and Katon et al. (2004).

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Blood sugar (HbA1c) [^]	2	242	-0.151	0.163	59	n/a	n/a	n/a	-0.151	0.354
Global functioning [^]	3	684	-0.157	0.084	59	n/a	n/a	n/a	-0.157	0.061
LDL cholesterol [^]	1	98	-0.185	0.220	59	n/a	n/a	n/a	-0.185	0.400
Major depressive disorder	12	1616	-0.357	0.050	59	-0.186	0.061	61	-0.357	0.001
Systolic blood pressure [^]	2	133	-0.274	0.178	59	n/a	n/a	n/a	-0.274	0.125

[^]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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Collaborative primary care for depression with comorbid medical conditions (older adult population)

Adult Mental Health: Depression

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

Program Description: Collaborative primary care integrates behavioral health into the primary care setting to treat older adult patients, age 50 and over, with all levels of depression (i.e. major or minor depression or dysthymia) and comorbid health conditions including diabetes and hypertension. In the collaborative care model, a care manager coordinates with a primary care provider and behavioral health care providers to develop and implement measurement-based treatment plans for individual patients. Care managers can be mental health providers (e.g. psychologists) or non-behavioral health specialists (e.g. registered nurses or social workers). Programs included in this review were intended for older adult populations. All programs were implemented in primary care settings, where patients received collaborative care for 1 to 12 months.

We report separate results for collaborative primary care programs for depression among adults with comorbid medical conditions.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$692	Benefit to cost ratio	\$3.42
Participants	\$225	Benefits minus costs	\$1,392
Others	\$856	Chance the program will produce	
Indirect	\$194	benefits greater than the costs	82 %
Total benefits	\$1,968		
Net program cost	(\$575)		
Benefits minus cost	\$1,392		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with major depression	\$0	\$0	\$0	\$135	\$135
Health care associated with major depression	\$225	\$692	\$856	\$347	\$2,120
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$287)	(\$287)
Totals	\$225	\$692	\$856	\$194	\$1,968

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.

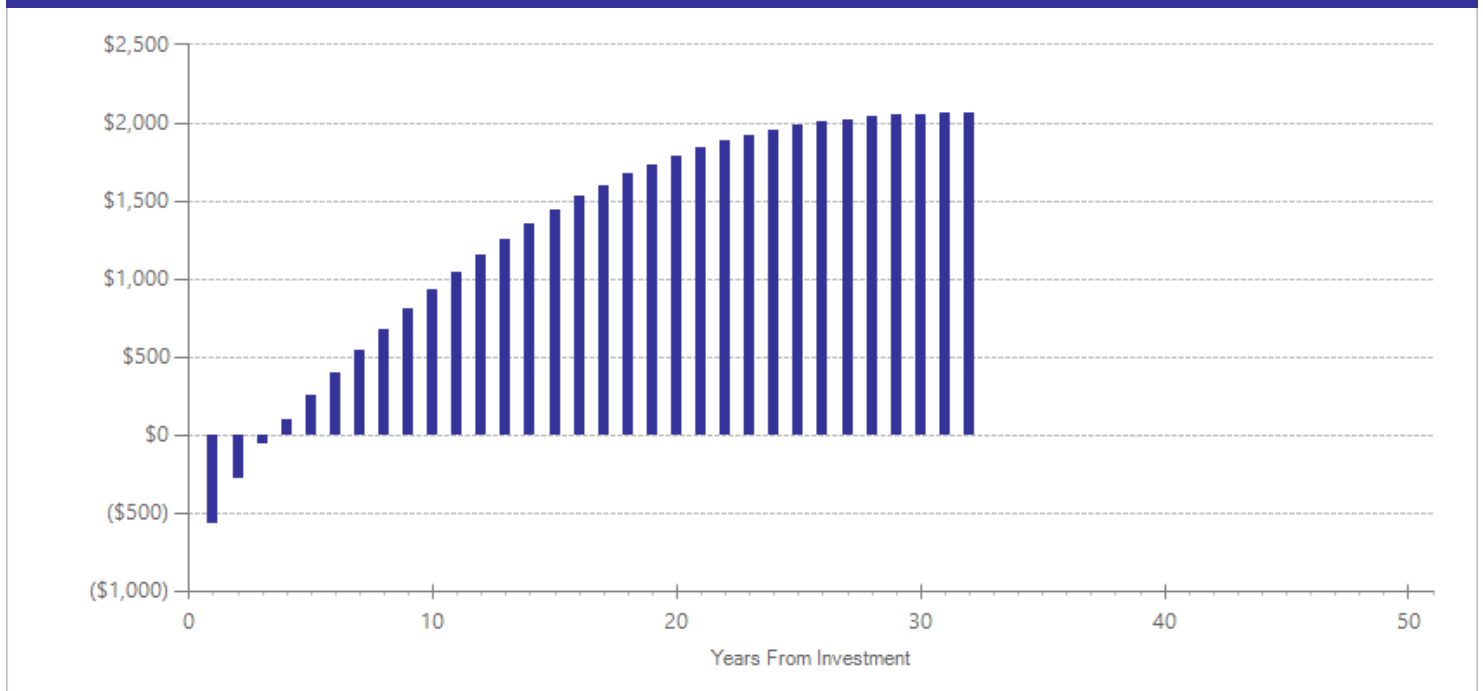
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$576	2016	Present value of net program costs (in 2016 dollars)	(\$575)
Comparison costs	\$0	2016	Cost range (+ or -)	20 %

Treatment cost estimates for this program reflect costs beyond treatment as usual. Costs are based on a weighted average of per-participant costs for included studies. Based on Blanchard et al. (1995), Chew-Graham et al. (2007), and McCusker et al. (2008), we estimate provider hours, apply the mean hourly wage estimate for Washington State reported by the Bureau of Labor Statistics (September 2016) for the appropriate provider, and increase wages by a factor of 1.441 to account for the cost of employee benefits. These studies average 6.5 behavioral health nurse hours per participant. We use reported per-participant costs from Unutzer 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	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		
Blood sugar (HbA1c) [^]	1	128	-0.020	0.162	69	n/a	n/a	n/a	-0.020	0.902
Major depressive disorder	3	262	-0.483	0.110	69	-0.251	0.135	71	-0.483	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

- Bogner, H.R., & de Vries, H.F. (2008). Integration of depression and hypertension treatment: A pilot randomized controlled trial. *Annals of Family Medicine*, 6(4), 295-301.
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Collaborative primary care for depression (older adult population)

Adult Mental Health: Depression

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

Program Description: Collaborative primary care for depression integrates behavioral health into the primary care setting to treat older adult patients, aged 60 or over, with major or minor depression, dysthymia, or subthreshold depression. In the collaborative care model, a care manager coordinates with a primary care provider and behavioral health care providers to develop and implement measurement-based treatment plans for individual patients. Care managers can be mental health providers (e.g. psychologists) or non-behavioral health specialists (e.g. registered nurses or social workers). All programs were implemented in primary care settings, where older adult patients received collaborative care for 3 to 12 months.

We report separate results for collaborative primary care programs for depression among adults.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$481	Benefit to cost ratio	\$2.21
Participants	\$156	Benefits minus costs	\$698
Others	\$595	Chance the program will produce	
Indirect	\$43	benefits greater than the costs	78 %
Total benefits	\$1,275		
Net program cost	(\$577)		
Benefits minus cost	\$698		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with major depression	\$0	\$0	\$0	\$90	\$90
Health care associated with major depression	\$156	\$481	\$595	\$240	\$1,473
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$288)	(\$288)
Totals	\$156	\$481	\$595	\$43	\$1,275

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.

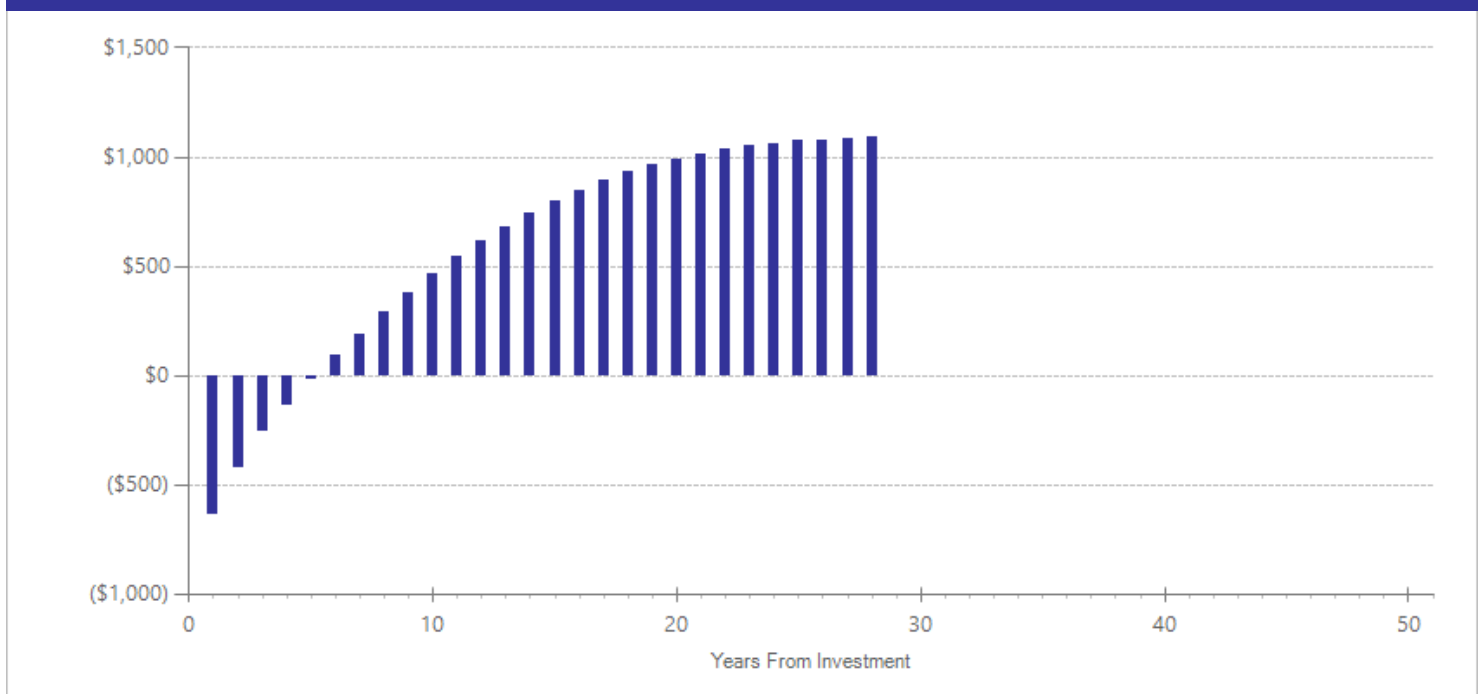
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$577	2016	Present value of net program costs (in 2016 dollars)	(\$577)
Comparison costs	\$0	2016	Cost range (+ or -)	15 %

Treatment cost estimates for this program reflect costs beyond treatment as usual. Costs are based on a weighted average of per-participant costs for included studies. We use reported per-participant costs from Unutzer et al., 2002. For the other studies (Blanchard et al., 1995; Chew-Graham et al., 2007; and McCusker et al. 2008), we estimate provider hours, apply the mean hourly wage estimate for Washington State reported by the Bureau of Labor Statistics (September 2016) for the appropriate provider, and increase wages by a factor of 1.441 to account for the cost of employee benefits. These studies average 6.5 behavioral health nurse hours per participant.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Major depressive disorder	5	1358	-0.379	0.056	73	-0.197	0.069	75	-0.438	0.001
Suicidal ideation [^]	2	1154	-0.328	0.100	73	-0.170	0.123	75	-0.363	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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Cognitive behavioral therapy (CBT) for adult posttraumatic stress disorder (PTSD)

Adult Mental Health: Trauma

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

Program Description: Treatments in this review include several components, such as psycho-education about posttraumatic stress disorder (PTSD), relaxation and other techniques for managing physiological and emotional stress, exposure (the gradual desensitization to memories of the traumatic event), and cognitive restructuring of inaccurate or unhelpful thoughts. The studies in this review employed a number of trauma-specific treatment models including Prolonged Exposure Therapy (PE), Narrative Exposure Therapy (NET), and Cognitive Processing Therapy (CPT). In the studies in this review, treatments provided between 1-45 therapeutic hours per client in individual or group settings. Studies were conducted on all continents and subjects had experienced one of a variety of types of trauma including terrorism, sexual or physical assault, domestic violence, war, political detention, and automobile accidents.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$15,791	Benefit to cost ratio	\$88.11
Participants	\$27,660	Benefits minus costs	\$49,184
Others	\$4,695	Chance the program will produce	
Indirect	\$1,602	benefits greater than the costs	100 %
Total benefits	\$49,748		
Net program cost	(\$565)		
Benefits minus cost	\$49,184		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with PTSD	\$26,425	\$12,000	\$0	\$0	\$38,425
Health care associated with PTSD	\$1,235	\$3,791	\$4,695	\$1,884	\$11,605
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$282)	(\$282)
Totals	\$27,660	\$15,791	\$4,695	\$1,602	\$49,748

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.

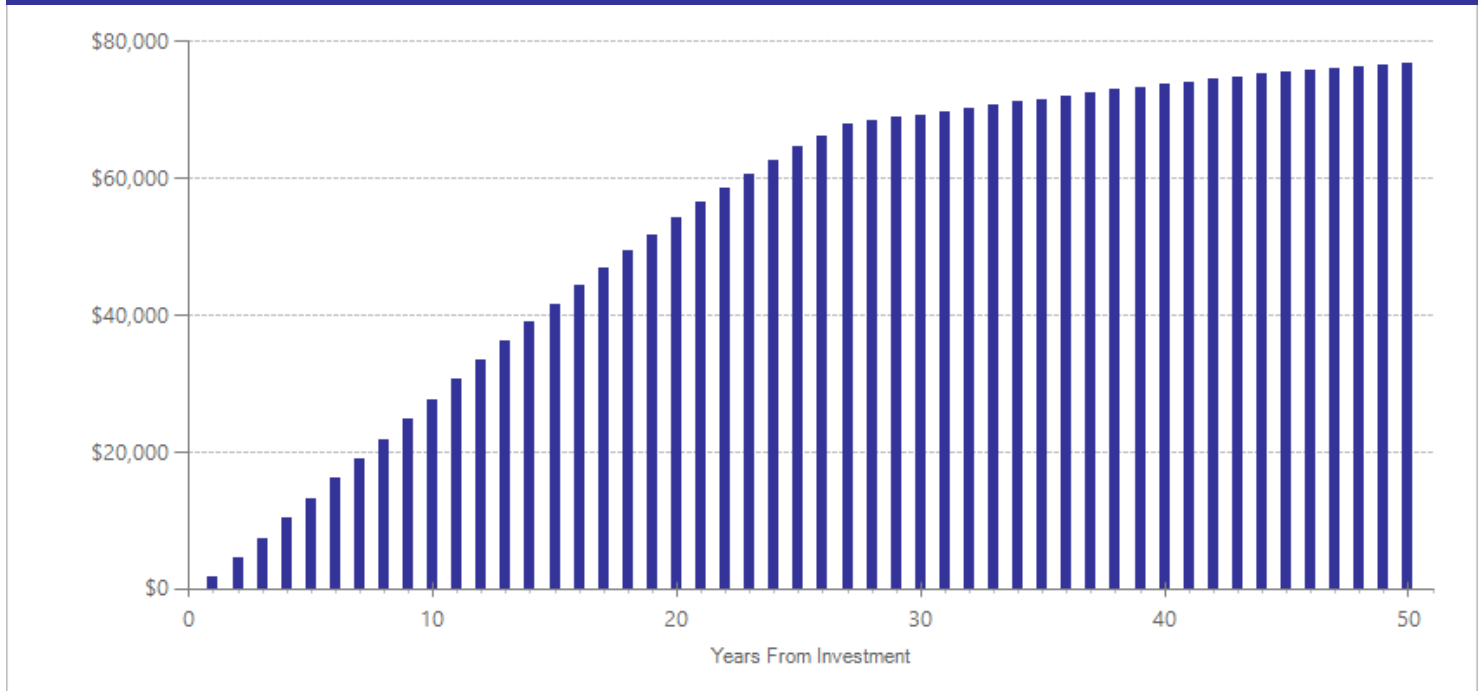
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,444	2014	Present value of net program costs (in 2016 dollars)	(\$565)
Comparison costs	\$814	2008	Cost range (+ or -)	15 %

These therapies can take place over 1-45 weekly sessions; total length of treatment is less than one year. The per-participant cost of treatment by modality (group/individual) was weighted by the treatment Ns reported in the studies. Cost per session is \$40.04/session for group and \$122.25 for individual therapy (2015 dollars). This rate is based on actuarial tables reported in Mercer (2014) Behavioral Health Data Book for the State of Washington For Rates Effective January 1, 2015. The comparison group costs are from the average Medicaid expenditures for PTSD treatment in Washington in 2009.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	17	355	-0.620	0.087	40	-0.620	0.087	41	-0.948	0.001
Employment ^{^^}	1	12	0.348	0.530	40	0.348	0.530	41	0.821	0.125
Major depressive disorder	49	1389	-0.433	0.046	40	-0.433	0.046	41	-0.717	0.001
Post-traumatic stress	70	2361	-0.539	0.047	40	-0.539	0.047	41	-0.950	0.001
Substance misuse [^]	1	55	-0.164	0.366	40	-0.164	0.366	41	-0.261	0.477

[^]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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Eye Movement Desensitization and Reprocessing (EMDR) for adult posttraumatic stress disorder (PTSD)

Adult Mental Health: Trauma

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

Program Description: Eye Movement Desensitization and Reprocessing (EMDR) is a psychological treatment commonly used to treat posttraumatic stress disorder. During treatment, clients focus on the traumatic memory for 30 seconds at a time while the therapist provides a stimulus. For most clients, the therapist moves a hand slowly back and forth in front of the client (eye movement) but other stimuli may be used. Clients report on what thoughts come up and are guided to refocus on that thought in the next stimulus session. During therapy visits, clients report the level of distress they feel. In later phases, a positive thought is emphasized during the stimulus sessions. Afterward, clients are asked to focus on residual physical tensions they may feel in order to enhance relaxation. A more complete description of this therapy is available at: <http://www.emdrnetwork.org/description.html>

We evaluated studies where EMDR was used in the treatment of PTSD confirmed by a diagnosis using the criteria of the Diagnostic and Statistical Manual of Mental Disorders (DSM). Studies consisted of patients with a variety of traumatic experiences, including combat, sexual abuse or assault, physical or emotional abuse, accidents, and war or disaster experiences. We only included studies where EMDR was compared to a control condition receiving treatment as usual, which consisted of standard care or a wait list for care. One study was included in which patients had comorbid psychosis disorder. Patients in the studies received between two and twelve total sessions of EMDR.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$13,082	Benefit to cost ratio	\$598.94
Participants	\$22,809	Benefits minus costs	\$41,349
Others	\$3,958	Chance the program will produce	
Indirect	\$1,569	benefits greater than the costs	100 %
Total benefits	\$41,418		
Net program cost	(\$69)		
Benefits minus cost	\$41,349		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with PTSD	\$21,769	\$9,886	\$0	\$0	\$31,654
Health care associated with PTSD	\$1,041	\$3,196	\$3,958	\$1,604	\$9,799
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$35)	(\$35)
Totals	\$22,809	\$13,082	\$3,958	\$1,569	\$41,418

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.

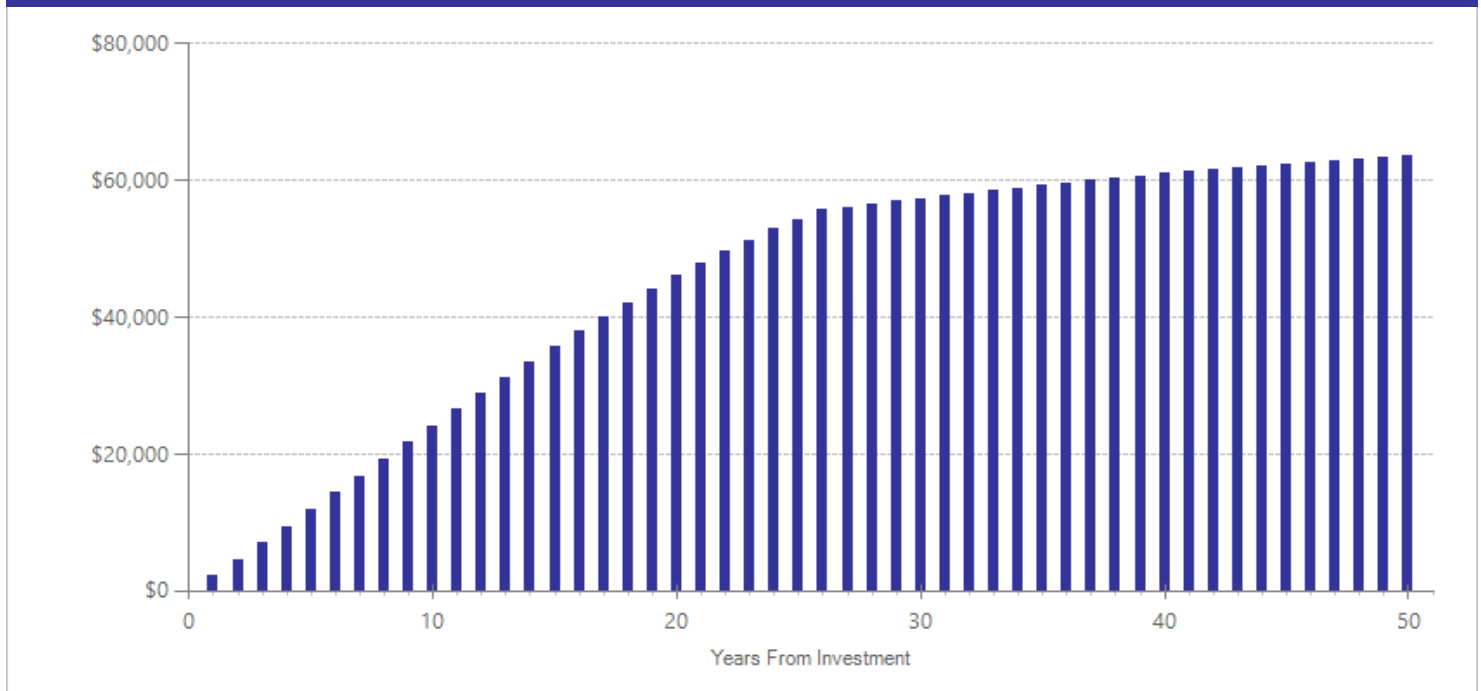
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$974	2014	Present value of net program costs (in 2016 dollars)	(\$69)
Comparison costs	\$830	2008	Cost range (+ or -)	10 %

Per-participant costs for EMDR are estimated based on the average hours of therapy reported in the studies (7.96) and the rate for individual therapy for non-disabled adults reported in Mercer (2013) Behavioral Health Data Book for the State of Washington For Rates Effective January 1, 2014. The comparison group costs are from the average Medicaid expenditures for PTSD treatment in Washington in 2014.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	4	72	-0.305	0.207	41	-0.305	0.207	42	-0.659	0.009
Global functioning [^]	2	42	0.201	0.281	41	0.209	0.281	42	0.613	0.362
Major depressive disorder	6	111	-0.333	0.157	41	-0.333	0.157	42	-0.333	0.001
Post-traumatic stress	11	224	-0.460	0.134	41	-0.460	0.134	42	-0.730	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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Posttraumatic stress disorder (PTSD) prevention following trauma

Adult Mental Health: Trauma

Benefit-cost estimates updated December 2017. Literature review updated May 2014.

Program Description: The studies in this review examined Cognitive Behavior Therapy (CBT) treatment for persons in the first weeks and months following trauma but before a diagnosis of PTSD could be made. Treatments in the studies in this review involved five to ten hours of individual therapy that combined education on effects of trauma, relaxation, and exposure.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,873	Benefit to cost ratio	\$6.45
Participants	\$3,260	Benefits minus costs	\$4,654
Others	\$571	Chance the program will produce	
Indirect	(\$196)	benefits greater than the costs	100 %
Total benefits	\$5,508		
Net program cost	(\$854)		
Benefits minus cost	\$4,654		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with PTSD	\$3,109	\$1,412	\$0	\$0	\$4,522
Health care associated with PTSD	\$150	\$461	\$571	\$229	\$1,411
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$425)	(\$425)
Totals	\$3,260	\$1,873	\$571	(\$196)	\$5,508

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.

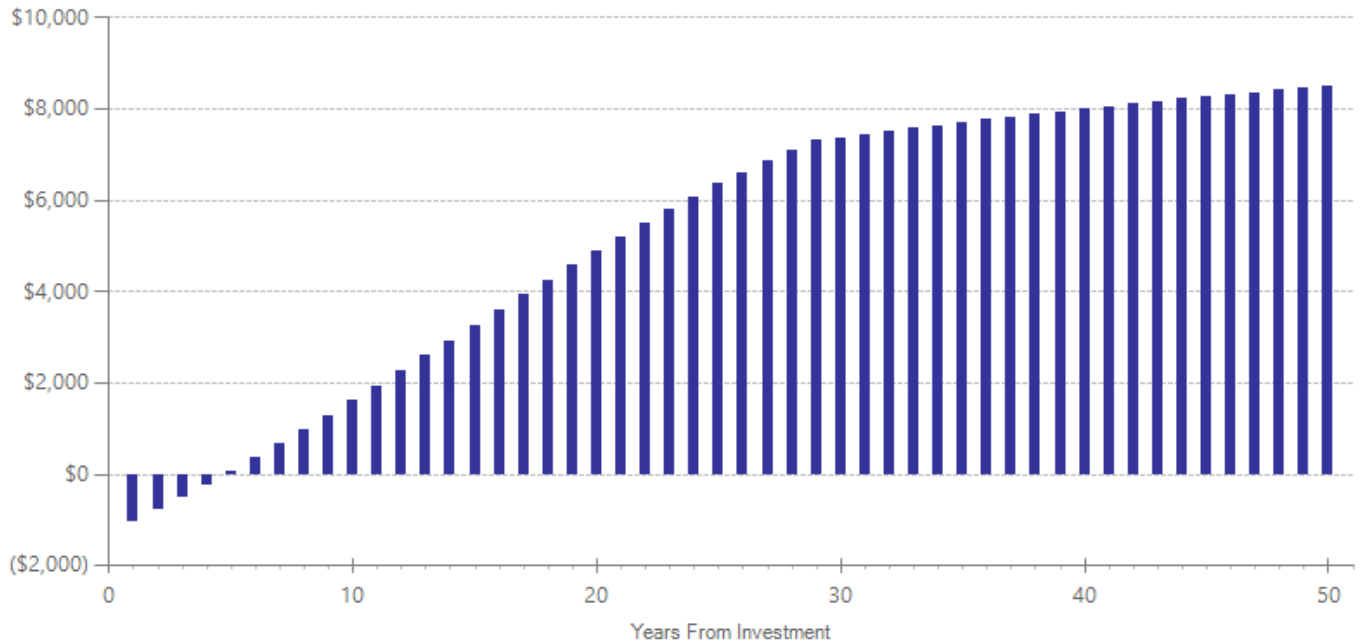
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$772	2008	Present value of net program costs (in 2016 dollars)	(\$854)
Comparison costs	\$0	2008	Cost range (+ or -)	15 %

This intervention takes place over five to ten weekly sessions. The per-participant cost of treatment by modality (group/individual) was weighted by the treatment Ns reported in the studies. Cost per session is \$33.63/session for group and \$96.63 for individual therapy (2009 dollars). This is based on actuarial tables reported in Mercer (2009) Behavioral Health Data Book for the State of Washington For Rates Effective January 1, 2010. In this set of studies, we assume a comparison cost of \$0 because typically, this group of people would not receive 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	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Major depressive disorder	6	232	-0.192	0.099	38	-0.100	0.121	39	-0.356	0.002
Post-traumatic stress	11	405	-0.336	0.076	38	-0.336	0.076	39	-0.641	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](#).

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Cognitive behavioral therapy (CBT) for schizophrenia/psychosis

Adult Mental Health: Serious Mental Illness

Benefit-cost estimates updated December 2017. Literature review updated December 2014.

Program Description: Cognitive behavioral therapy for psychosis (CBTp) includes the application of cognitive strategies focused on changing thoughts to improve feelings and behaviors as well as behavioral techniques most often used to address negative symptoms. CBTp involves teaching patients methods of coping with their symptoms and training in problem solving, social skills and strategies to reduce risk of relapse. In this collection of studies, CBTp was provided in addition to antipsychotic medication.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$7,954	Benefit to cost ratio	\$9.39
Participants	\$987	Benefits minus costs	\$12,221
Others	\$1,677	Chance the program will produce	
Indirect	\$3,061	benefits greater than the costs	60 %
Total benefits	\$13,679		
Net program cost	(\$1,457)		
Benefits minus cost	\$12,221		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with major depression	\$1,603	\$728	\$0	\$15	\$2,345
Labor market earnings associated with anxiety disorder	(\$711)	(\$323)	\$0	\$0	(\$1,035)
Health care associated with anxiety disorder	(\$8)	(\$23)	(\$29)	(\$12)	(\$71)
Health care associated with psychiatric hospitalization	\$103	\$7,572	\$1,706	\$3,790	\$13,171
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$732)	(\$732)
Totals	\$987	\$7,954	\$1,677	\$3,061	\$13,679

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.

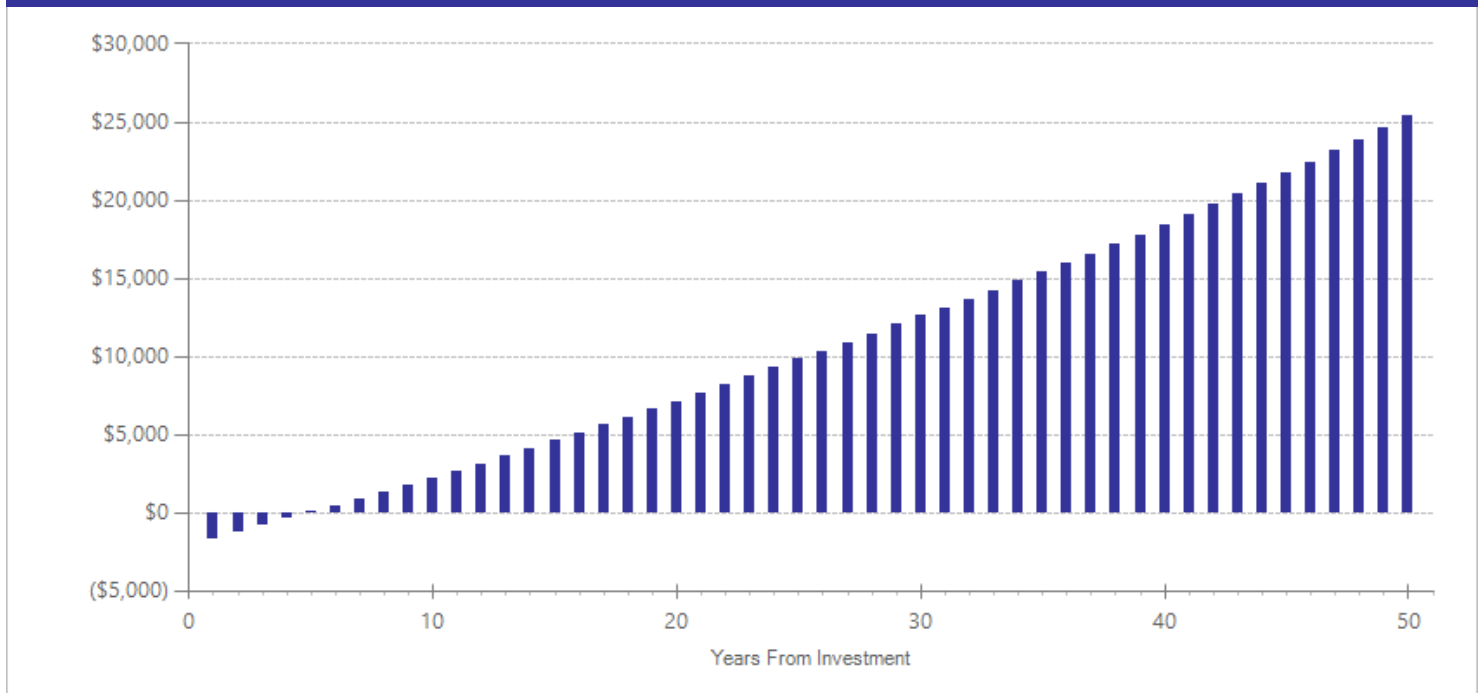
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,436	2014	Present value of net program costs (in 2016 dollars)	(\$1,457)
Comparison costs	\$0	2014	Cost range (+ or -)	10 %

Per-participant cost of treatment by modality (group/individual) was weighted by treatment Ns reported in the studies. Cost per-session per-person was \$37.91/session for group and \$120.90 for individual therapy (2014 dollars), based on actuarial tables reported for disabled adults in Mercer (2013) Behavioral Health Data Book for the State of Washington For Rates Effective January 1, 2014.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	7	267	0.017	0.103	37	0.013	0.097	38	0.017	0.866
Global functioning [^]	18	721	0.231	0.069	37	0.172	0.146	38	0.232	0.001
Hope [^]	3	92	0.300	0.249	37	0.223	0.289	38	0.300	0.299
Hospitalization (psychiatric)	16	832	-0.124	0.106	37	-0.092	0.122	38	-0.124	0.241
Major depressive disorder	15	727	-0.123	0.070	37	-0.091	0.096	38	-0.123	0.078
Medication adherence [^]	2	75	-0.011	0.195	37	-0.008	0.183	38	-0.011	0.956
Psychiatric symptoms [^]	25	1172	-0.148	0.101	37	-0.110	0.127	38	-0.148	0.144
Psychosis symptoms (negative) [^]	25	1143	-0.170	0.069	37	-0.126	0.116	38	-0.170	0.014
Psychosis symptoms (positive) [^]	33	1477	-0.178	0.059	37	-0.132	0.115	38	-0.178	0.003
Suicidal ideation [^]	2	115	-0.174	0.331	37	-0.129	0.325	38	-0.174	0.599

[^]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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Illness Management and Recovery (IMR)

Adult Mental Health: Serious Mental Illness

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

Program Description: Illness Management and Recovery (IMR) is a 40-hour curriculum for individuals with severe mental illness which addresses recovery strategies and information about serious mental illness. The intervention is typically delivered in group format.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$2,021	Benefit to cost ratio	\$3.04
Participants	\$3,581	Benefits minus costs	\$3,321
Others	(\$7)	Chance the program will produce	
Indirect	(\$650)	benefits greater than the costs	55 %
Total benefits	\$4,945		
Net program cost	(\$1,624)		
Benefits minus cost	\$3,321		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with employment	\$3,594	\$1,632	\$0	\$0	\$5,226
Health care associated with psychiatric hospitalization	\$7	\$490	\$110	\$215	\$822
Health care associated with emergency department visits	(\$19)	(\$101)	(\$118)	(\$53)	(\$292)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$811)	(\$811)
Totals	\$3,581	\$2,021	(\$7)	(\$650)	\$4,945

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.

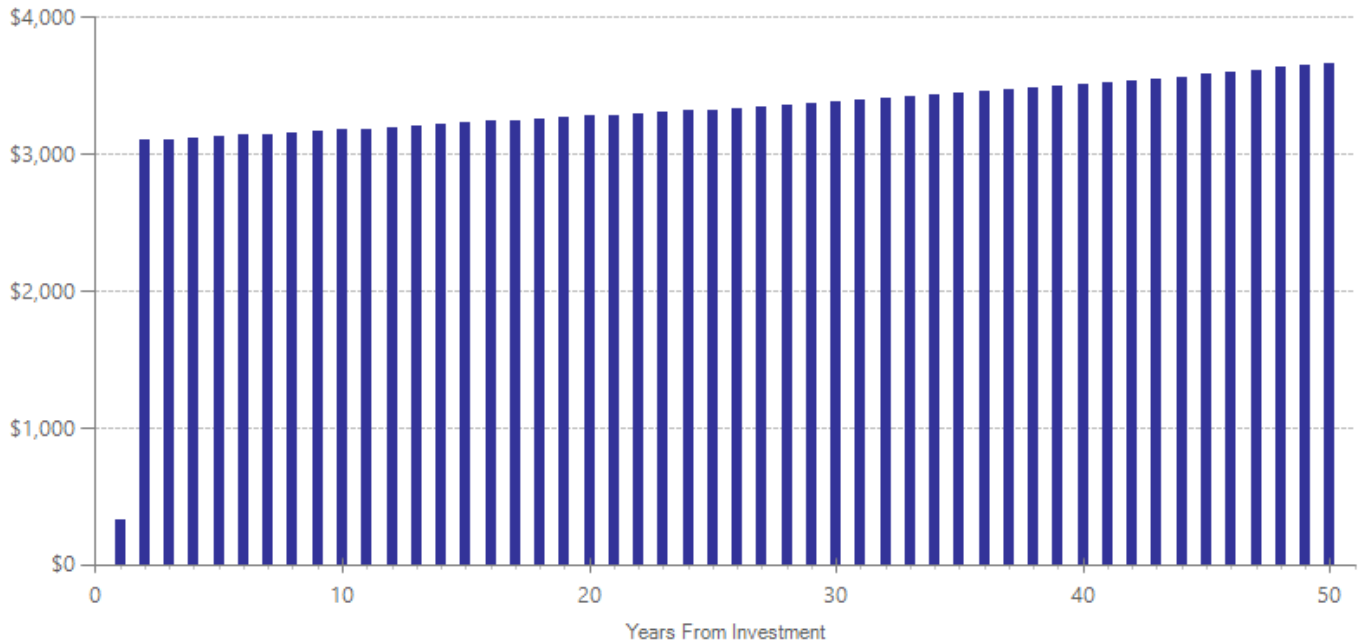
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,602	2014	Present value of net program costs (in 2016 dollars)	(\$1,624)
Comparison costs	\$0	2014	Cost range (+ or -)	10 %

This program consists of a 40-hour treatment curriculum. The per-participant cost of treatment is the number of group IMR sessions provided in the studies included in the analysis multiplied by the group treatment reimbursement rates as reported in Mercer, (2013). Behavioral health data book for the state of Washington for rates effective January 1, 2014. The comparison cost is assumed to be zero because IMR was added to treatment as usual.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Emergency department visits	1	44	0.228	0.254	50	0.000	0.118	51	0.228	0.369
Employment	1	44	0.325	0.456	50	0.000	0.118	51	0.325	0.476
Hospitalization (psychiatric)	3	107	-0.073	0.286	50	0.000	0.118	51	-0.073	0.800
Psychiatric symptoms [^]	3	107	-0.260	0.302	50	0.000	0.118	51	-0.260	0.390
Suicidal ideation [^]	2	63	-0.517	0.665	50	0.000	0.118	51	-0.517	0.437

[^]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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Individual Placement and Support (IPS) for individuals with serious mental illness

Adult Mental Health: Serious Mental Illness

Benefit-cost estimates updated December 2017. Literature review updated May 2014.

Program Description: These studies assess the Individual Placement and Support (IPS) model of supported employment compared with typical vocational services for individuals with serious mental illness. The IPS model focuses on competitive employment, client interests, rapid job placement, and ongoing support by employment specialists. In contrast, the comparison groups typically received vocational services that focused on building job skills before employment placement.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$893	Benefit to cost ratio	\$3.04
Participants	\$1,956	Benefits minus costs	\$1,644
Others	\$1	Chance the program will produce	
Indirect	(\$400)	benefits greater than the costs	71 %
Total benefits	\$2,451		
Net program cost	(\$807)		
Benefits minus cost	\$1,644		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with employment	\$1,956	\$888	\$0	\$0	\$2,844
Health care associated with psychiatric hospitalization	\$0	\$5	\$1	\$3	\$9
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$403)	(\$403)
Totals	\$1,956	\$893	\$1	(\$400)	\$2,451

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.

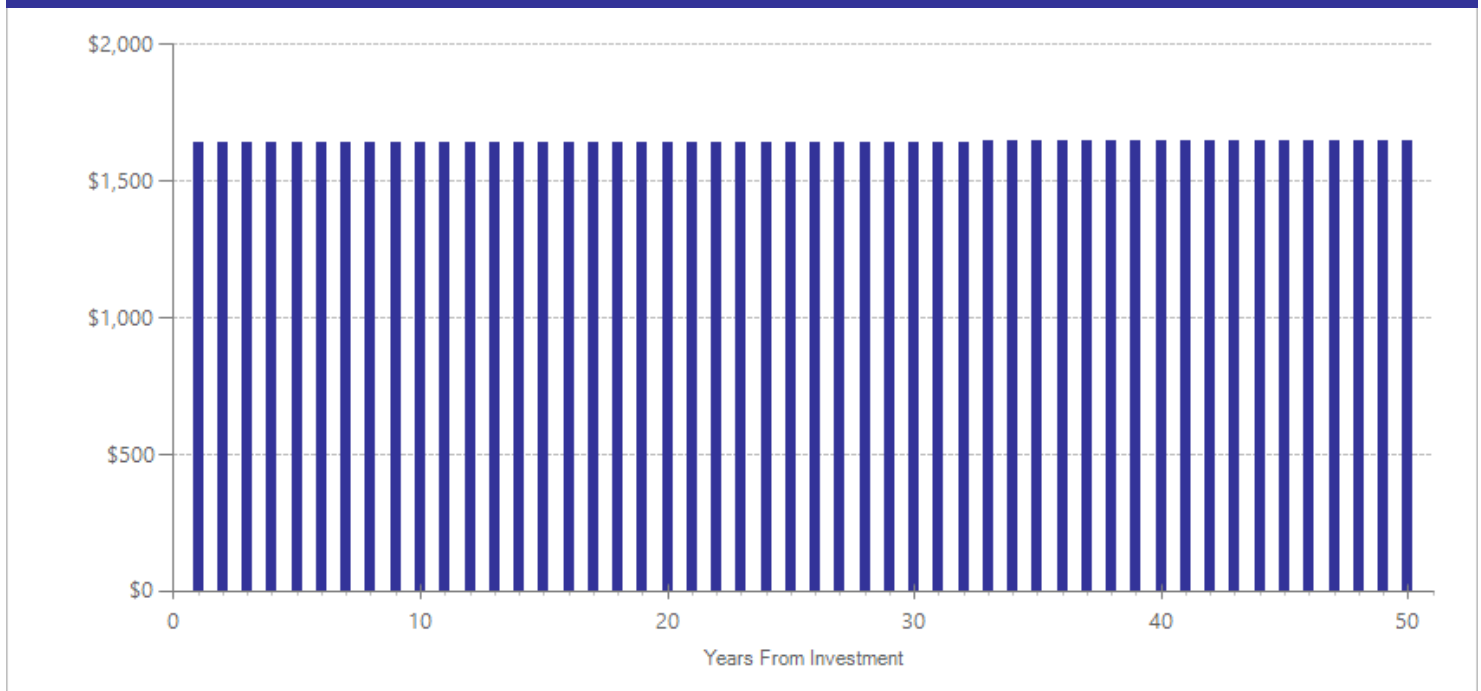
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,644	2001	Present value of net program costs (in 2016 dollars)	(\$807)
Comparison costs	\$1,027	2001	Cost range (+ or -)	60 %

The per-participant cost of IPS is based on the average annual cost found by Latimer et al., 2004. The cost of the comparison group is a weighted average of the costs to provide the services that the comparison group received in the studies we reviewed. Comparison group participants in these studies received enhanced vocational rehabilitation, traditional “train and place” vocational services or Clubhouse services. The ratio of the cost of enhanced vocational rehabilitation and traditional train and place vocational services compared to IPS was reported by Dixon et al., 2002 and the cost of Clubhouse vocational services was reported by Macias, 2001. Dixon et al., (2002). Cost-effectiveness of two vocational rehabilitation programs for persons with severe mental illness. *Psychiatric Services*, 53(9), 1118-1124. Latimer et al., (2004). The cost of high-fidelity supported employment programs for people with severe mental illness. *Psychiatric Services*, 55(4), 401-406. Macias, C. (2001). *Massachusetts employment Intervention Demonstration Project: An experimental comparison of PACT and Clubhouse* (Final Report). Retrieved from: <http://www.massclubs.org/Docs/ComparisonPACandClubhouseModels2.pdf>

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Competitive employment [^]	13	963	1.075	0.105	40	0.000	0.000	41	1.075	0.001
Earnings	6	417	0.385	0.123	40	0.000	0.000	41	0.385	0.002
Employment	5	403	0.358	0.283	40	0.000	0.000	41	0.358	0.206
Hospitalization (psychiatric)	2	222	-0.003	0.288	40	0.000	0.000	41	-0.003	0.993
Hours worked [^]	4	347	0.303	0.196	40	0.000	0.000	41	0.303	0.121
Psychiatric symptoms [^]	1	74	-0.136	0.164	40	0.000	0.000	41	-0.136	0.404

[^]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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Primary care in integrated settings (Veteran's Administration, Kaiser Permanente)

Adult Mental Health: Serious Mental Illness

Benefit-cost estimates updated December 2017. Literature review updated May 2014.

Program Description: Behavioral health settings (mental health and substance abuse treatment centers) provide primary care for patients on site or nearby. This collection of studies was conducted at Veterans Administration facilities or facilities of Kaiser Permanente where patients might have more ready access to primary care than community-based treatment centers.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$406	Benefit to cost ratio	\$3.30
Participants	\$46	Benefits minus costs	\$530
Others	\$170	Chance the program will produce	
Indirect	\$139	benefits greater than the costs	51 %
Total benefits	\$761		
Net program cost	(\$231)		
Benefits minus cost	\$530		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$0	\$0	\$0
Property loss associated with alcohol abuse or dependence	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with illicit drug abuse or dependence	\$31	\$14	\$0	\$59	\$105
Health care associated with general hospitalization	\$4	\$74	\$64	\$37	\$178
Health care associated with psychiatric hospitalization	\$4	\$280	\$63	\$139	\$486
Health care associated with emergency department visits	\$7	\$38	\$44	\$19	\$108
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$115)	(\$115)
Totals	\$46	\$406	\$170	\$139	\$761

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.

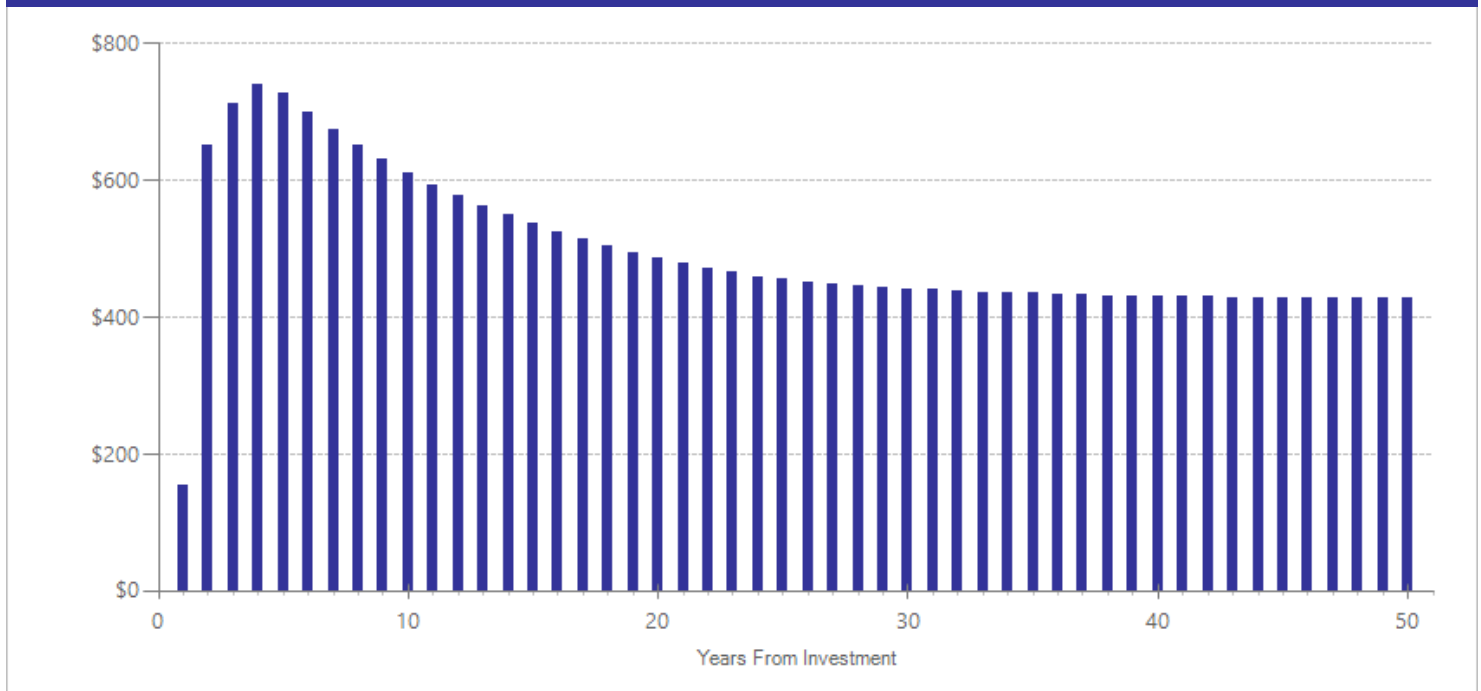
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$228	2014	Present value of net program costs (in 2016 dollars)	(\$231)
Comparison costs	\$0	2014	Cost range (+ or -)	20 %

According to Saxon et al., (2006). Randomized trial of onsite versus referral primary medical care for veterans in addictions treatment. *Medical Care*, 44(4), 334-342, patients in the clinics with co-located primary care had an average of 1.1 more primary care visits than the comparison group in 12 months. We estimated additional cost of the program by multiplying 1.1 visits by the Medicaid enhanced payment rate for the longest primary care visit. See http://www.hca.wa.gov/medicaid/pages/aca_rates.aspx.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Alcohol use disorder	3	684	-0.001	0.124	41	0.000	0.186	44	-0.001	0.995
Blood pressure [^]	1	751	-0.168	0.071	41	n/a	n/a	n/a	-0.168	0.019
Blood sugar (HbA1c) [^]	1	751	0.225	0.105	41	n/a	n/a	n/a	0.225	0.033
Cholesterol [^]	1	751	0.071	0.122	41	n/a	n/a	n/a	0.071	0.562
Death	2	98	-0.077	0.160	41	n/a	n/a	n/a	-0.077	0.632
Emergency department visits	3	753	-0.090	0.105	41	0.000	0.000	42	-0.090	0.388
Hospitalization	5	10449	-0.050	0.060	41	0.000	0.000	42	-0.050	0.403
Hospitalization (psychiatric)	1	59	-0.068	0.293	41	0.000	0.000	42	-0.068	0.818
Illicit drug use disorder	2	643	-0.016	0.081	41	0.000	0.187	44	-0.016	0.845
Primary care visits [^]	2	417	0.531	0.188	41	0.000	0.000	42	0.531	0.005

[^]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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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

- Druss, B.G., Rohrbaugh, R.M., Levinson, C.M., & Rosenheck, R.A. (2001). Integrated medical care for patients with serious psychiatric illness: a randomized trial. *Archives of General Psychiatry*, 58(9), 861-8.
- Kilbourne, A.M., Pirraglia, P.A., Lai, Z., Bauer, M.S., Charns, M.P., Greenwald, D., . . . Yano, E.M. (2011). Quality of general medical care among patients with serious mental illness: does colocation of services matter?. *Psychiatric Services*, 62(8), 922-928.
- Parthasarathy, S., Mertens, J., Moore, C., & Weisner, C. (2003). Utilization and Cost Impact of Integrating Substance Abuse Treatment and Primary Care. *Medical Care*, 41(3), 357-367.
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Acceptance and Commitment Therapy for schizophrenia/psychosis

Adult Mental Health: Serious Mental Illness

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

Program Description: Acceptance and Commitment Therapy for schizophrenia/psychosis aims to increase client acceptance of psychotic symptoms (such as hallucinations and delusions) and reduce the negative behavioral impact of psychosis. Acceptance and Commitment Therapy relies on six core processes of change: 1) acceptance; 2) learning to view thoughts as hypotheses rather than facts; 3) being present; 4) viewing the self as context for experience; 5) identifying core values; and 6) acting based on those values. These core principles are applied through various exercises and through homework.

Treatment groups received 2 to 16 hours of individual acceptance and commitment therapy. Treatments in this review provided acceptance and commitment therapy as an addition to usual treatment; comparison groups received usual treatment. This review excludes studies of acceptance and commitment therapy for other disorders.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$892	Benefit to cost ratio	\$1.71
Participants	\$12	Benefits minus costs	\$498
Others	\$201	Chance the program will produce	
Indirect	\$94	benefits greater than the costs	58 %
Total benefits	\$1,199		
Net program cost	(\$700)		
Benefits minus cost	\$498		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Health care associated with psychiatric hospitalization	\$12	\$892	\$201	\$445	\$1,550
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$352)	(\$352)
Totals	\$12	\$892	\$201	\$94	\$1,199

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.

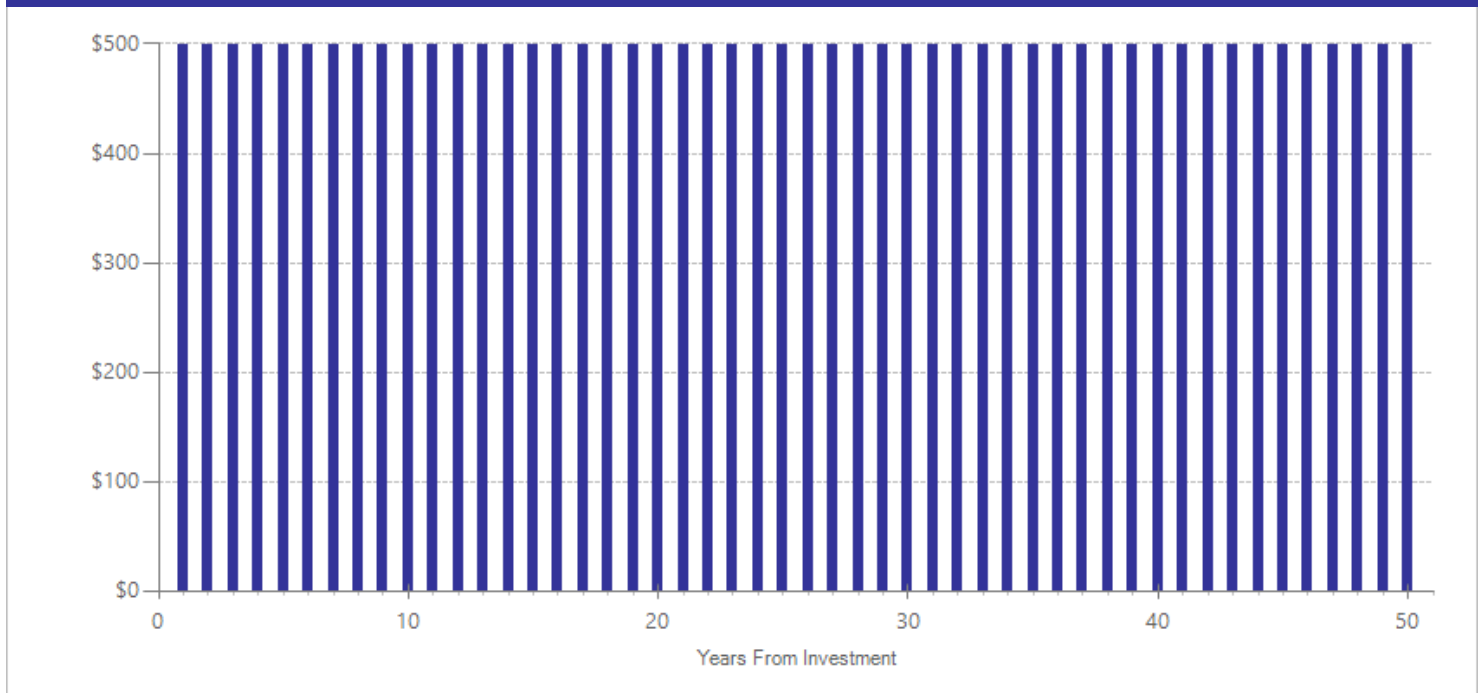
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$693	2015	Present value of net program costs (in 2016 dollars)	(\$700)
Comparison costs	\$0	2015	Cost range (+ or -)	15 %

These therapies took place over 2-12 weekly or bi-weekly sessions; total length of treatment was 6 weeks on average. The per-participant cost of treatment was weighted by the treatment Ns reported in the studies. Cost per session is \$122.25/session (2015 dollars). This rate is based on actuarial tables reported in Mercer (2014) Behavioral Health Data Book for the State of Washington For Rates Effective January 1, 2015.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Global functioning [^]	2	39	0.214	0.231	40	0.158	0.433	41	0.214	0.355
Hospitalization (psychiatric)	3	64	-0.596	0.245	40	0.000	0.118	41	-0.596	0.015
Medication adherence [^]	1	35	-0.245	0.329	40	-0.181	0.522	41	-0.245	0.457
Psychiatric symptoms [^]	2	39	-0.454	0.233	40	-0.337	0.522	41	-0.454	0.051
Psychosis symptoms (negative) [^]	3	53	-0.433	0.209	40	-0.321	0.500	41	-0.433	0.038
Psychosis symptoms (positive) [^]	3	53	-0.230	0.198	40	-0.170	0.411	41	-0.230	0.247

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

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Citations Used in the Meta-Analysis

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Mobile crisis response

Adult Mental Health: Serious Mental Illness

Benefit-cost estimates updated December 2017. Literature review updated May 2014.

Program Description: Mobile crisis interventions dispatch teams with mental health training (rather than the standard police response) to stabilize patients who are experiencing a psychiatric emergency. Two types of mobile crisis interventions were included in this analysis (1) an interdisciplinary team who was dispatched after individuals called a mental health hotline and (2) a 911 response team staffed by police and psychiatric nurses.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,190	Benefit to cost ratio	\$1.14
Participants	\$10	Benefits minus costs	\$162
Others	\$161	Chance the program will produce	
Indirect	(\$3)	benefits greater than the costs	48 %
Total benefits	\$1,358		
Net program cost	(\$1,196)		
Benefits minus cost	\$162		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$476	\$0	\$238	\$715
Health care associated with psychiatric hospitalization	\$10	\$714	\$161	\$360	\$1,244
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$600)	(\$600)
Totals	\$10	\$1,190	\$161	(\$3)	\$1,358

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

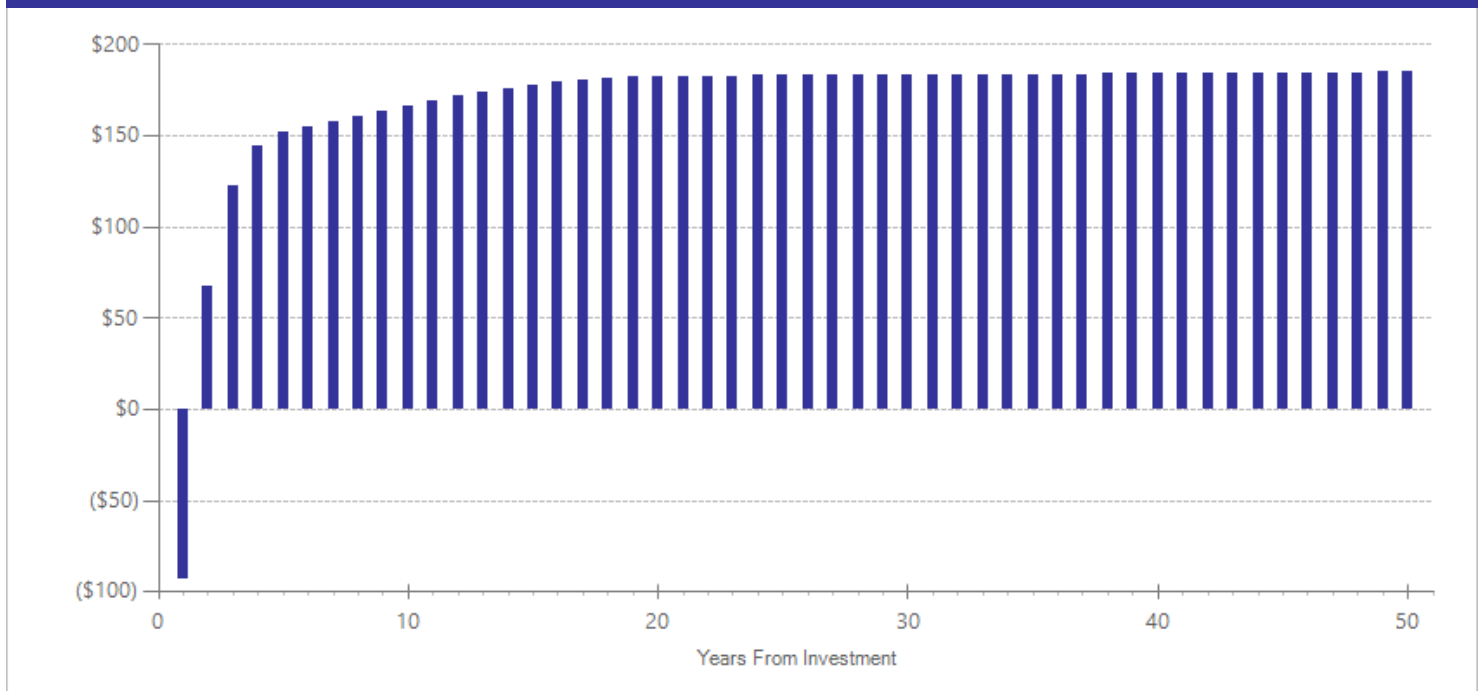
	Annual cost	Year dollars	Summary	
Program costs	\$1,124	2011	Present value of net program costs (in 2016 dollars)	(\$1,196)
Comparison costs	\$0	2011	Cost range (+ or -)	10 %

Per-participant staffing costs were computed by dividing the number of hours that psychiatric nurses staffed the response teams in Scott (2000) by the number of clients served by the response team. We multiplied those hours by the hourly rate of a psychiatric nurse, estimated using the individual adult treatment rate in Mercer, (2013). Behavioral health data book for the state of Washington for rates effective January 1, 2014.

Scott, R.L. (2000). Evaluation of a mobile crisis program: effectiveness, efficiency, and consumer satisfaction. *Psychiatric Services*, 51(9), 1153-1156.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Crime	1	73	-0.468	0.363	36	0.000	0.000	37	-0.468	0.197
Hospitalization (psychiatric)	2	1173	-0.420	0.216	36	0.000	0.000	37	-0.420	0.052

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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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Citations Used in the Meta-Analysis

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- Scott, R.L. (2000). Evaluation of a mobile crisis program: effectiveness, efficiency, and consumer satisfaction. *Psychiatric Services, 51*(9), 1153-1156.

Primary care in behavioral health settings

Adult Mental Health: Serious Mental Illness

Benefit-cost estimates updated December 2017. Literature review updated May 2014.

Program Description: These studies evaluated co-location of primary care in behavioral health settings (mental health and substance abuse treatment centers). That is, the primary care provider was located at, or adjacent to, the behavioral health facility. Of 11 studies, six were conducted in Veterans' Administration health facilities; two were conducted at Kaiser Permanente addiction centers; and three were conducted at other community addiction treatment centers.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$116	Benefit to cost ratio	\$0.66
Participants	(\$117)	Benefits minus costs	(\$75)
Others	\$63	Chance the program will produce	
Indirect	\$83	benefits greater than the costs	50 %
<u>Total benefits</u>	<u>\$146</u>		
<u>Net program cost</u>	<u>(\$220)</u>		
Benefits minus cost	(\$75)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with smoking	(\$147)	(\$67)	\$0	(\$4)	(\$218)
Health care associated with smoking	(\$5)	(\$16)	(\$19)	(\$8)	(\$48)
Property loss associated with alcohol abuse or dependence	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with illicit drug abuse or dependence	\$28	\$13	\$0	\$114	\$155
Health care associated with general hospitalization	\$2	\$39	\$34	\$20	\$95
Health care associated with psychiatric hospitalization	\$2	\$130	\$29	\$65	\$225
Health care associated with emergency department visits	\$3	\$17	\$19	\$8	\$47
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$110)	(\$110)
<u>Totals</u>	<u>(\$117)</u>	<u>\$116</u>	<u>\$63</u>	<u>\$83</u>	<u>\$146</u>

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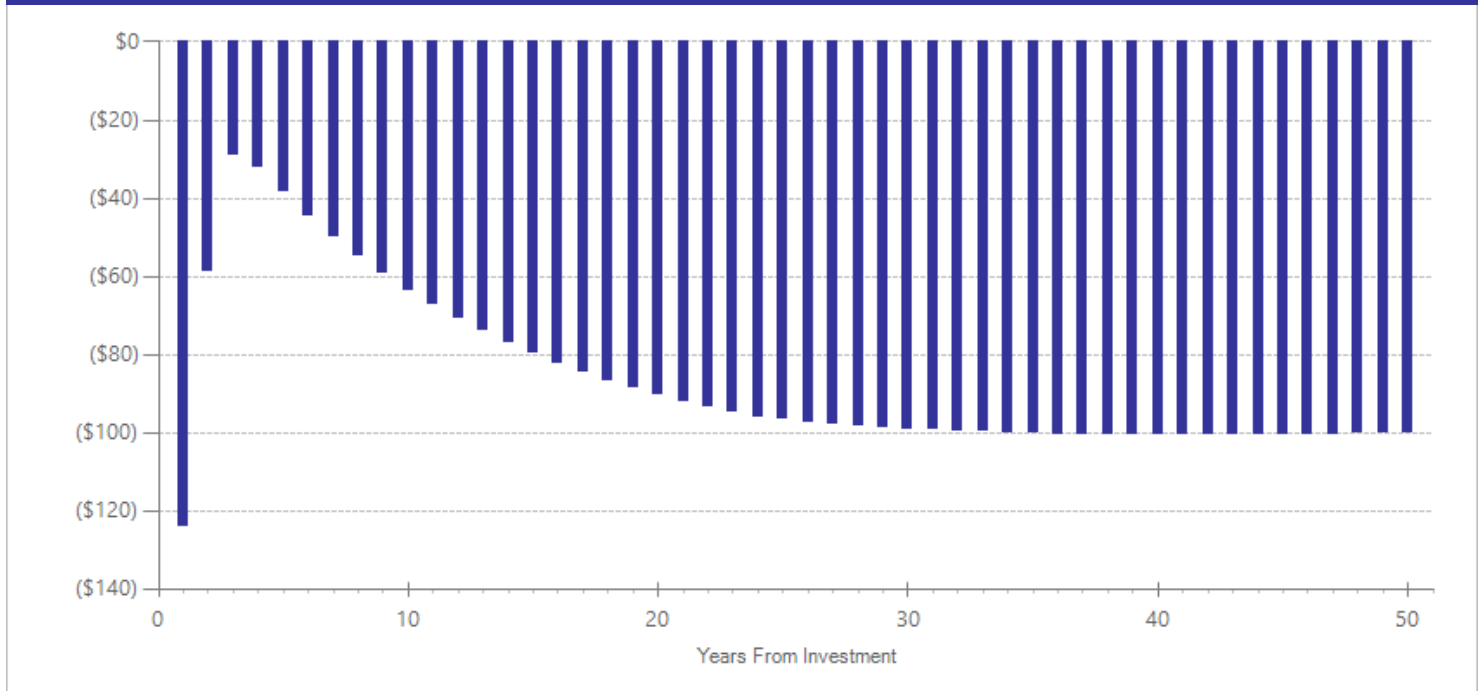
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$217	2014	Present value of net program costs (in 2016 dollars)	(\$220)
Comparison costs	\$0	2014	Cost range (+ or -)	20 %

According to Saxon et al., (2006), patients in the clinics co-located at Veterans' Administration centers had an average of 1.1 more primary care visits than the comparison group in 12 months. Samet, et al. (2003) found those in a community clinic used 1.0 more primary care visits than the comparison group. For this combination location, assume an average of 1.05 visits per patient. We estimate additional cost of the program by multiplying 1.05 visits by the Medicaid enhanced payment rate for the longest primary care visit. See http://www.hca.wa.gov/medicaid/pages/aca_rates.aspx. Saxon et al., (2006). Randomized trial of onsite versus referral primary medical care for veterans in addictions treatment. *Medical Care*, 44(4), 334-342. Samet et al., (2003). Linking alcohol- and drug-dependent adults to primary medical care: A randomized controlled trial of a multi-disciplinary health intervention in a detoxification unit. *Addiction*, 98(4), 509-516.

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Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Alcohol use disorder	3	684	-0.001	0.124	41	0.000	0.186	44	-0.001	0.995
Blood pressure [^]	2	1192	-0.151	0.067	41	n/a	n/a	n/a	-0.151	0.023
Blood sugar (HbA1c) [^]	2	1072	0.164	0.104	41	n/a	n/a	n/a	0.164	0.117
Cholesterol [^]	2	1515	-0.013	0.121	41	n/a	n/a	n/a	-0.013	0.915
Death	2	98	-0.077	0.160	41	0.000	0.000	43	-0.077	0.632
Emergency department visits	9	7320	-0.077	0.043	41	0.000	0.000	42	-0.077	0.073
Hospitalization	9	11301	-0.052	0.044	41	0.000	0.000	42	-0.052	0.235
Hospitalization (psychiatric)	1	59	-0.068	0.293	41	0.000	0.000	42	-0.068	0.818
Illicit drug use disorder	2	643	-0.016	0.081	41	0.000	0.187	44	-0.016	0.845
Obesity	1	435	-0.002	0.194	41	0.000	0.086	43	-0.002	0.992
Primary care visits [^]	7	1361	0.235	0.157	41	0.000	0.000	42	0.235	0.136
Regular smoking	1	453	0.116	0.194	41	0.000	0.000	42	0.116	0.548

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

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Primary care in behavioral health settings (community-based settings)

Adult Mental Health: Serious Mental Illness

Benefit-cost estimates updated December 2017. Literature review updated May 2014.

Program Description: Behavioral health settings (mental health and substance abuse treatment centers) provide primary care for patients on site or nearby. This collection of studies evaluate this practice at community-based treatment centers.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	(\$27)	Benefit to cost ratio	(\$0.96)
Participants	(\$147)	Benefits minus costs	(\$536)
Others	\$34	Chance the program will produce	
Indirect	(\$122)	benefits greater than the costs	25 %
Total benefits	(\$262)		
Net program cost	(\$274)		
Benefits minus cost	(\$536)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Labor market earnings associated with smoking	(\$148)	(\$67)	\$0	(\$4)	(\$219)
Health care associated with smoking	(\$5)	(\$16)	(\$19)	(\$8)	(\$48)
Health care associated with general hospitalization	\$2	\$38	\$33	\$19	\$93
Health care associated with emergency department visits	\$3	\$17	\$20	\$9	\$49
Labor market earnings associated with obesity	\$0	\$0	\$0	\$0	\$0
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$138)	(\$138)
Totals	(\$147)	(\$27)	\$34	(\$122)	(\$262)

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.

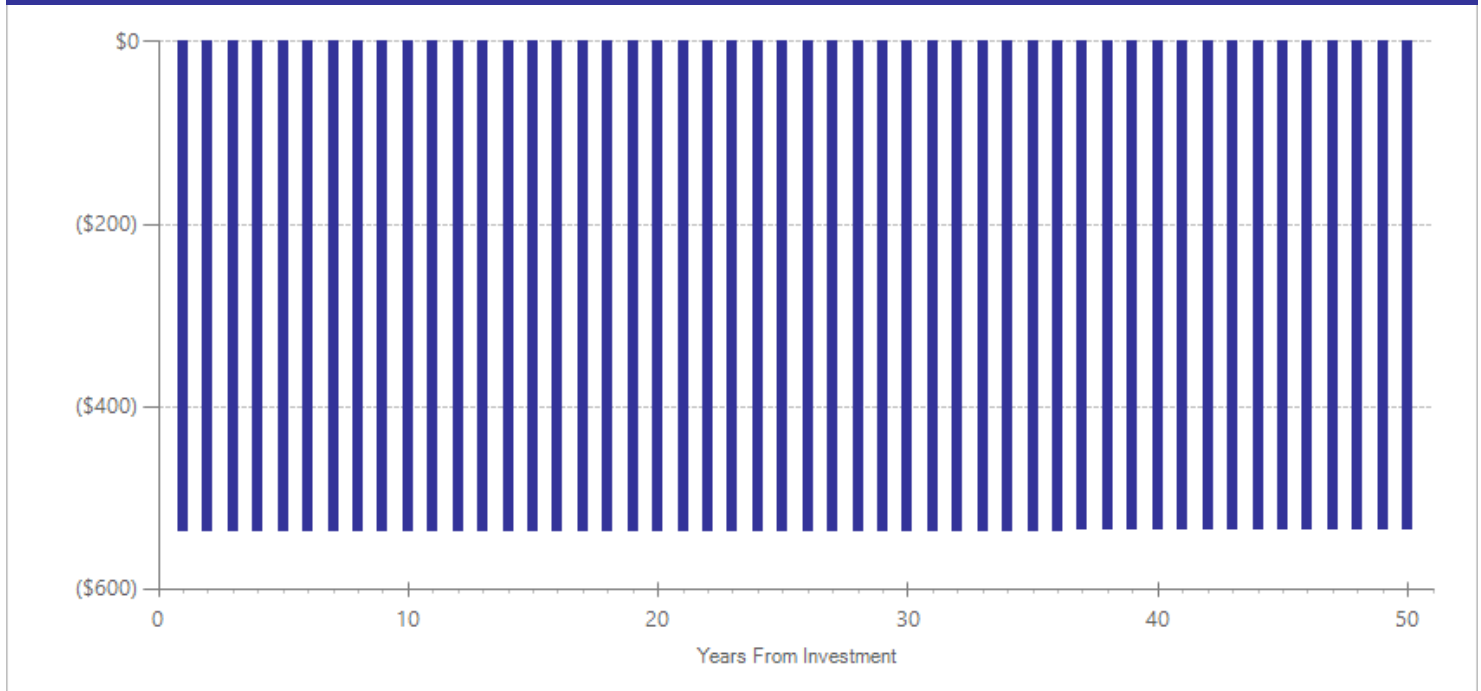
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$270	2014	Present value of net program costs (in 2016 dollars)	(\$274)
Comparison costs	\$0	2014	Cost range (+ or -)	20 %

According to Samet et al. (2003). Linking alcohol- and drug-dependent adults to primary medical care: A randomized controlled trial of a multi-disciplinary health intervention in a detoxification unit. *Addiction*, 98(4), 509-516, patients in the treatment group received an average of 1 more primary care visit in 12 months than did those in the comparison group. The average visit cost for primary care visit at Navos in Seattle (an example of a community-based treatment center) is \$270 (per email from Paul Tagenfeldt to M. Miller, April 25, 2014).

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Blood pressure [^]	1	441	-0.022	0.194	41	n/a	n/a	n/a	-0.022	0.909
Blood sugar (HbA1c) [^]	1	321	-0.015	0.198	41	n/a	n/a	n/a	-0.015	0.940
Cholesterol [^]	1	370	-0.188	0.196	41	n/a	n/a	n/a	-0.188	0.338
Emergency department visits	6	6585	-0.081	0.051	41	0.000	0.000	42	-0.081	0.117
Hospitalization	4	852	-0.052	0.092	41	0.000	0.000	42	-0.052	0.572
Obesity	1	435	-0.002	0.194	41	n/a	n/a	n/a	-0.002	0.992
Primary care visits [^]	5	944	0.111	0.197	41	0.000	0.000	42	0.111	0.020
Regular smoking	1	453	0.116	0.194	41	0.000	0.000	42	0.116	0.548

[^]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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Peer support: Substitution of a peer specialist for a non-peer on the treatment team

Adult Mental Health: Serious Mental Illness

Benefit-cost estimates updated December 2017. Literature review updated May 2014.

Program Description: The programs examined in this analysis compared treatment teams with a peer specialist to treatment teams with a non-peer in a similar role. The treatment teams in this analysis provided services to individuals with severe mental illness, major depression or individuals receiving Veterans' Administration services for a psychiatric diagnosis.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	(\$502)	Benefit to cost ratio	n/a
Participants	(\$266)	Benefits minus costs	(\$1,644)
Others	(\$686)	Chance the program will produce	
Indirect	(\$189)	benefits greater than the costs	24 %
Total benefits	(\$1,644)		
Net program cost	\$0		
Benefits minus cost	(\$1,644)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	(\$405)	(\$766)	(\$201)	(\$1,373)
Labor market earnings associated with alcohol abuse or dependence	(\$280)	(\$127)	\$0	(\$4)	(\$411)
Health care associated with alcohol abuse or dependence	(\$1)	(\$8)	(\$8)	(\$4)	(\$22)
Property loss associated with alcohol abuse or dependence	\$0	\$0	(\$1)	\$0	(\$1)
Health care associated with psychiatric hospitalization	(\$1)	(\$48)	(\$11)	(\$23)	(\$82)
Health care associated with emergency department visits	\$16	\$86	\$100	\$43	\$245
Totals	(\$266)	(\$502)	(\$686)	(\$189)	(\$1,644)

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.

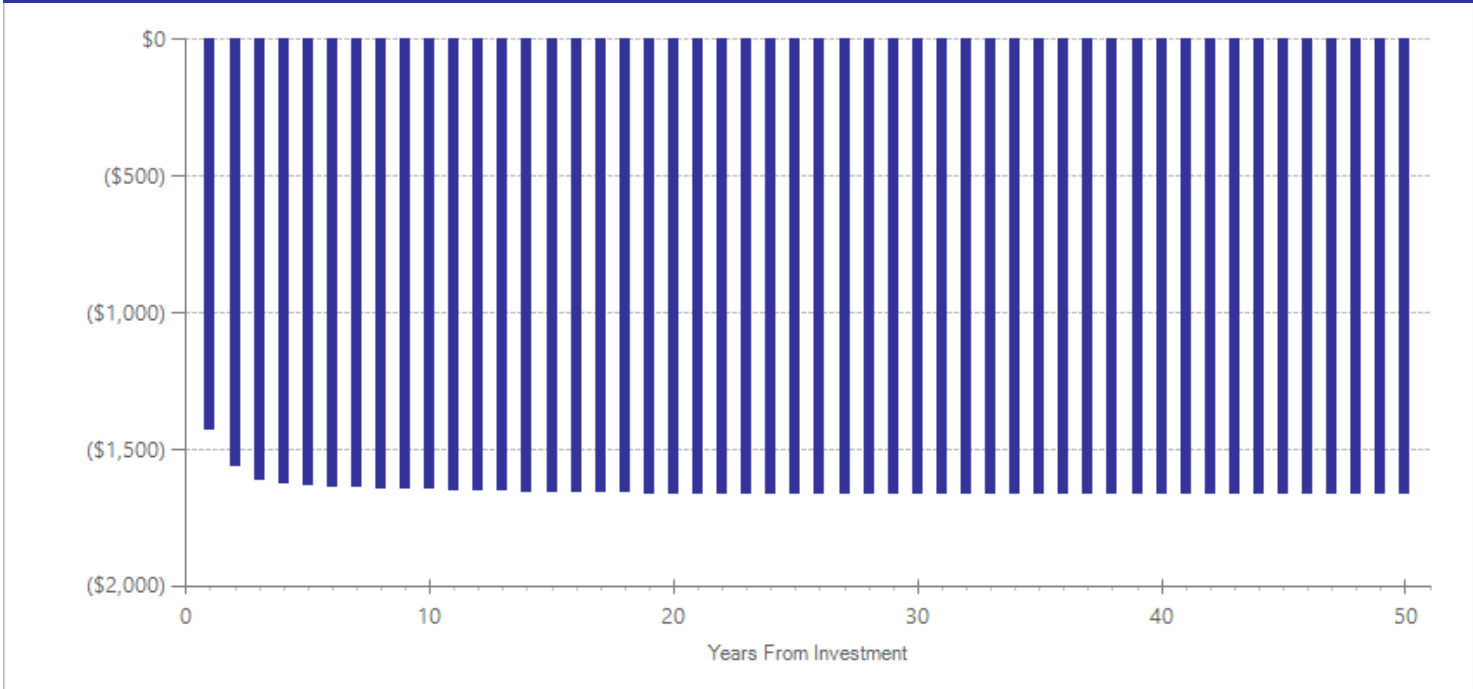
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$0	2012	Present value of net program costs (in 2016 dollars)	\$0
Comparison costs	\$0	2012	Cost range (+ or -)	10 %

In all studies the peer specialists and non-peer staff had similar roles. Therefore, we did not impute a greater or lesser cost to peer support versus other providers—the net per-participant cost is zero.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Alcohol use disorder	1	113	0.169	0.141	44	0.000	0.000	45	0.169	0.228
Crime	2	81	0.256	0.221	44	0.000	0.000	45	0.256	0.246
Emergency department visits	1	57	-0.471	0.244	44	0.000	0.000	45	-0.471	0.053
Employment	1	113	-0.080	0.141	44	0.000	0.000	45	-0.080	0.569
Homelessness [^]	2	149	0.045	0.122	44	0.000	0.000	45	0.045	0.711
Hospitalization (psychiatric)	4	208	0.022	0.174	44	0.000	0.000	45	0.022	0.901
Psychiatric symptoms [^]	6	338	0.050	0.131	44	0.000	0.000	45	0.050	0.701

[^]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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Peer support: Addition of a peer specialist to the treatment team

Adult Mental Health: Serious Mental Illness

Benefit-cost estimates updated December 2017. Literature review updated May 2014.

Program Description: The programs examined in this analysis compared treatment teams with a peer specialist to treatment teams without a peer specialist. The treatment teams in this analysis provided services to individuals with serious mental illness or individuals receiving VA services for a psychiatric diagnosis.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$1,147	Benefit to cost ratio	\$0.48
Participants	\$2,206	Benefits minus costs	(\$1,820)
Others	\$35	Chance the program will produce	
Indirect	(\$1,690)	benefits greater than the costs	26 %
Total benefits	\$1,698		
Net program cost	(\$3,518)		
Benefits minus cost	(\$1,820)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$1	\$2	\$0	\$3
Labor market earnings associated with employment	\$2,204	\$1,001	\$0	\$0	\$3,205
Health care associated with psychiatric hospitalization	\$2	\$145	\$33	\$73	\$252
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$1,763)	(\$1,763)
Totals	\$2,206	\$1,147	\$35	(\$1,690)	\$1,698

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	\$1,842	2011	Present value of net program costs (in 2016 dollars)	(\$3,518)
Comparison costs	\$0	2011	Cost range (+ or -)	10 %

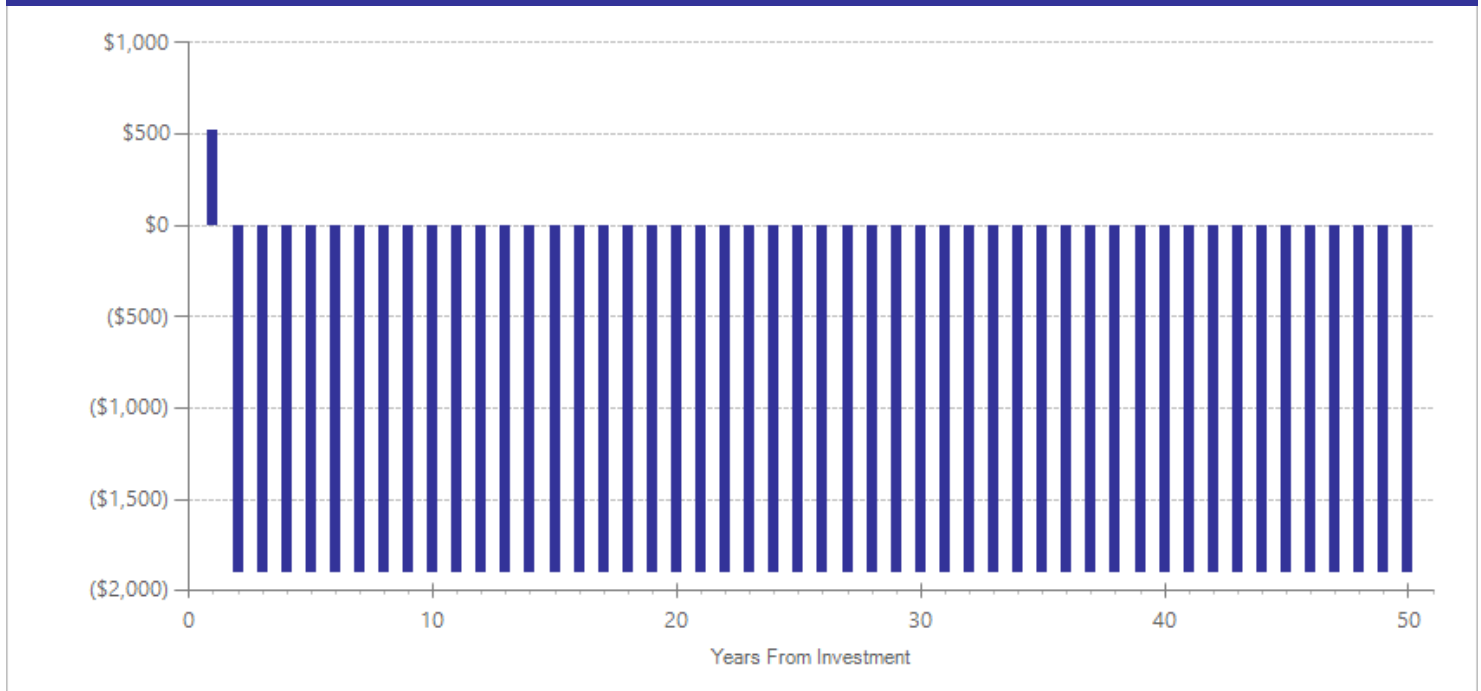
The cost of treatment is the weighted average cost of peer services provided in the studies included in this analysis. The average number of service hours is estimated from Eisen et al., 2012, Felton et al., 1995, and Sledge et al., 2011 is higher than the average number of encounters with a peer specialist in Washington State as reported in Mercer (2013). The cost per encounter was estimated using the peer specialist reimbursement cost reported in Mercer, (2013).

Felton et al., (1995). Consumers as peer specialists on intensive case management teams: Impact on client outcomes. *Psychiatric Services*, 46(10), 1037-1044.
 Sledge et al., (2011). Effectiveness of peer support in reducing readmissions of persons with multiple psychiatric hospitalizations. *Psychiatric Services*, 62(5), 541-544.

Eisen et al., (2012). Outcome of a randomized study of a mental health peer education and support group in the VA. *Psychiatric Services*, 63(12), 1243-1246.
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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	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	1	36	0.000	0.243	46	0.000	0.000	47	0.000	1.000
Employment	1	78	0.386	0.133	46	0.000	0.000	47	0.386	0.004
Global functioning [^]	1	78	0.685	0.135	46	0.000	0.000	47	0.685	0.001
Homelessness [^]	1	36	-0.138	0.243	46	0.000	0.000	47	-0.138	0.569
Hospitalization (psychiatric)	7	2191	-0.064	0.123	46	0.000	0.000	47	-0.064	0.604
Psychiatric symptoms [^]	3	274	0.044	0.080	46	0.000	0.000	47	0.044	0.552

[^]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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Critical Time Intervention for serious mental illness

Adult Mental Health: Serious Mental Illness

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

Program Description: Critical time intervention is a short-term program which supports particularly vulnerable patients transitioning from inpatient psychiatric treatment to outpatient care. This is done by providing them with a social worker, peer mentor or other system of support to help them at the beginning of the integration process. Critical time intervention is provided in conjunction with other kinds of treatment and is designed to increase treatment adherence and reduce recidivism, homelessness, and re-hospitalization. Critical Time Intervention has been used to treat a wide variety of vulnerable patients; however, we explore the impact of Critical Time Intervention on treatment of subjects with severe psychosis.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$2,253	Benefit to cost ratio	\$0.17
Participants	\$31	Benefits minus costs	(\$4,831)
Others	\$507	Chance the program will produce	
Indirect	(\$1,785)	benefits greater than the costs	14 %
<u>Total benefits</u>	<u>\$1,006</u>		
<u>Net program cost</u>	<u>(\$5,837)</u>		
Benefits minus cost	(\$4,831)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Health care associated with psychiatric hospitalization	\$31	\$2,253	\$507	\$1,126	\$3,916
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$2,911)	(\$2,911)
Totals	\$31	\$2,253	\$507	(\$1,785)	\$1,006

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.

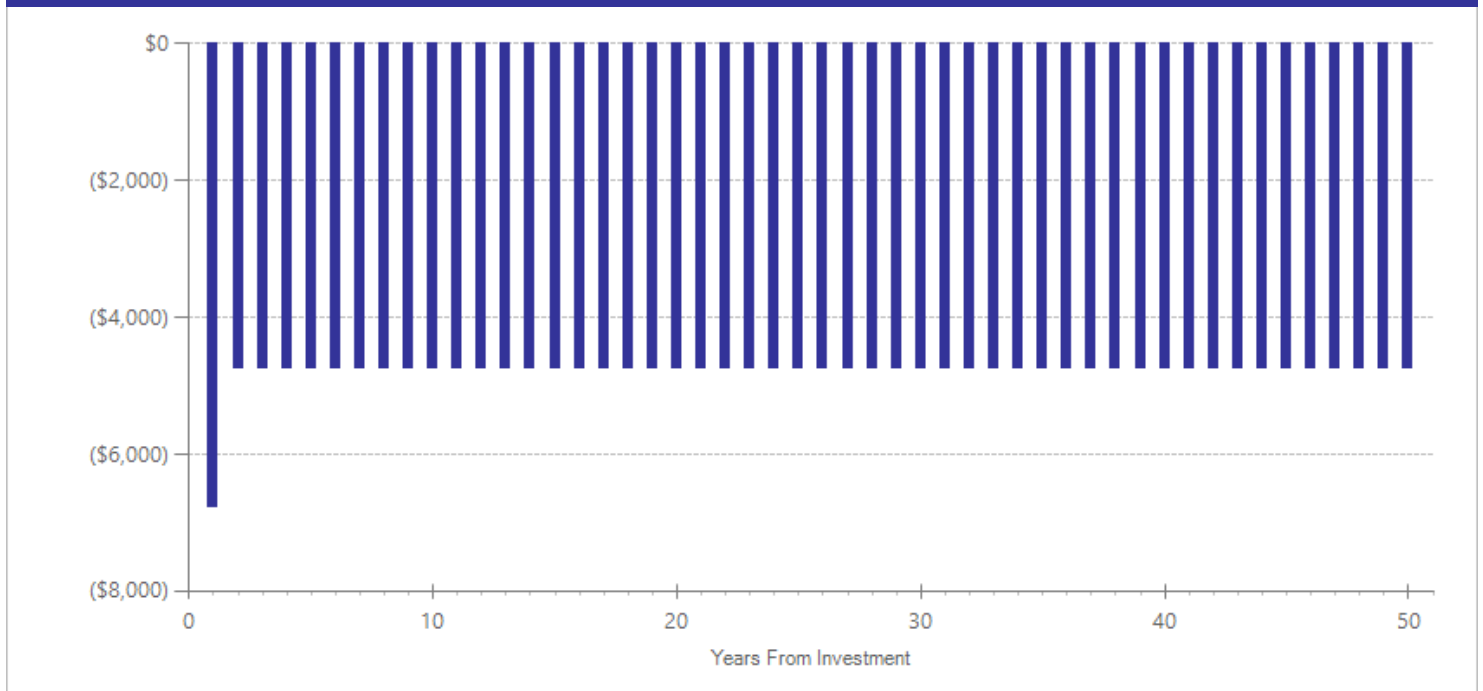
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$3,769	1992	Present value of net program costs (in 2016 dollars)	(\$5,837)
Comparison costs	\$0	1992	Cost range (+ or -)	10 %

Per-participant costs for critical time intervention is based on the figures published in Jones, K., Colson, P. W., Holter, M. C., Lin, S., Valencia, E., Susser, E., & Wyatt, R.J. (2003). Cost-effectiveness of critical time intervention to reduce homelessness among persons with mental illness. *Psychiatric Services*, 54(6), 884-90.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Homelessness [^]	2	125	-1.059	0.249	39	0.000	0.118	40	-1.059	0.001
Hospitalization (psychiatric)	1	77	-1.331	0.670	39	0.000	0.118	40	-1.331	0.047
Psychiatric symptoms [^]	1	38	-0.320	0.231	39	0.000	0.118	40	-0.320	0.166
Psychosis symptoms (negative) [^]	1	38	-0.572	0.234	39	0.000	0.118	40	-0.572	0.014
Psychosis symptoms (positive) [^]	1	38	0.091	0.230	39	0.000	0.118	40	0.091	0.691

[^]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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Forensic Assertive Community Treatment (FACT)

Adult Mental Health: Serious Mental Illness

Benefit-cost estimates updated December 2017. Literature review updated May 2014.

Program Description: Forensic Assertive Community Treatment (FACT) is an adaptation of Assertive Community Treatment (ACT) for individuals with involvement in the criminal justice system. In this analysis the study population included individuals with serious mental illness who were identified as candidates for FACT in jail.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	\$549	Benefit to cost ratio	(\$0.41)
Participants	\$6	Benefits minus costs	(\$18,200)
Others	\$364	Chance the program will produce	
Indirect	(\$6,192)	benefits greater than the costs	0 %
<u>Total benefits</u>	<u>(\$5,274)</u>		
<u>Net program cost</u>	<u>(\$12,926)</u>		
Benefits minus cost	(\$18,200)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$143	\$272	\$72	\$487
Health care associated with psychiatric hospitalization	\$6	\$406	\$91	\$204	\$707
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$6,468)	(\$6,468)
Totals	\$6	\$549	\$364	(\$6,192)	(\$5,274)

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.

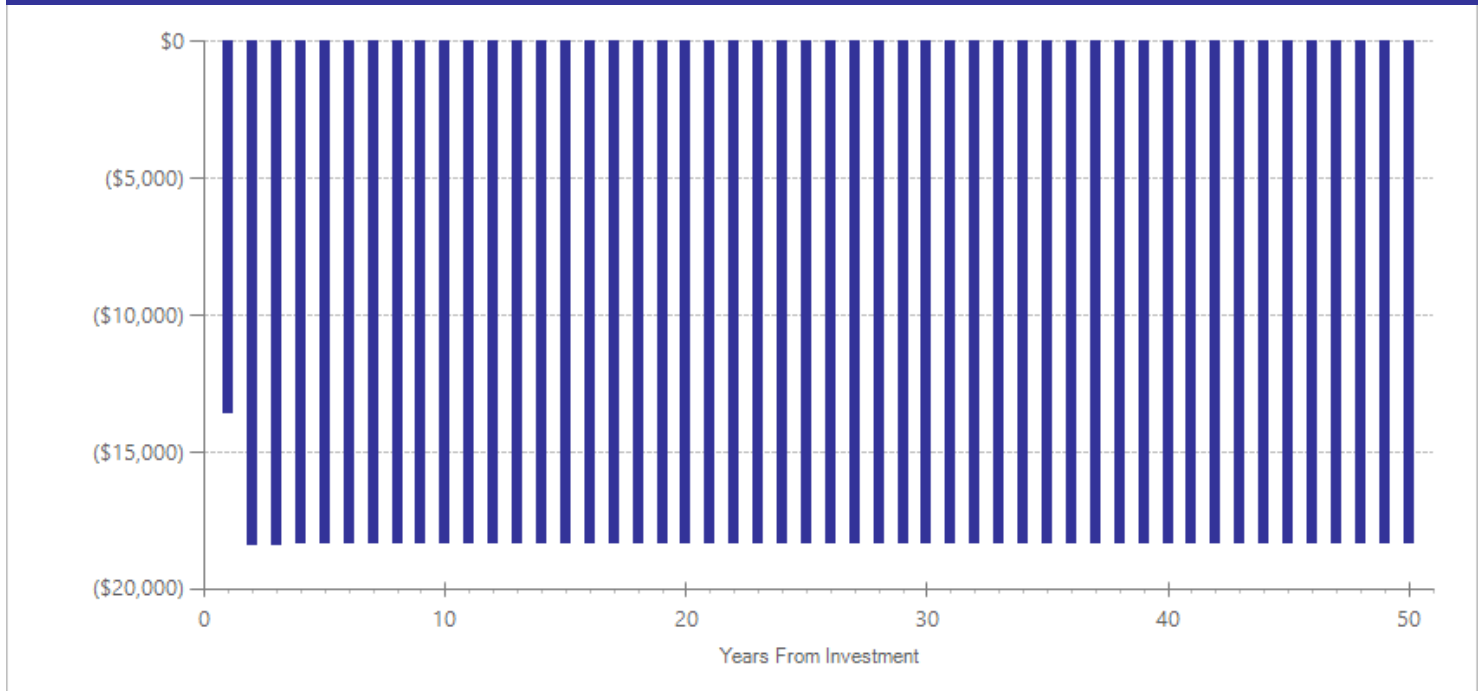
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$14,000	2013	Present value of net program costs (in 2016 dollars)	(\$12,926)
Comparison costs	\$4,482	2013	Cost range (+ or -)	10 %

Specific cost data are not available for FACT. We estimated the cost of FACT using the annual per-patient costs of ACT in Washington State (Washington State Department of Social & Health Services, 2013). We also assumed that the comparison group in the FACT study would have similar costs to the comparison group in the ACT studies that we reviewed. The cost of the comparison group in these studies was estimated by reducing the cost of the ACT intervention by a factor of 3.12 because the comparison group caseloads were higher than ACT caseloads by this factor in the ACT studies that we reviewed. Washington State Department of Social & Health Services. (2013). 2013 program description, Washington Program for Assertive Community Treatment. Retrieved from <https://fortress.wa.gov/dshs/adsaapps/about/programs/MH%20Program%20for%20Assertive%20Community%20Treatment.docx>.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Crime	1	72	-0.111	0.173	41	0.000	0.000	42	-0.111	0.524
Hospitalization (psychiatric)	1	72	-0.211	0.174	41	0.000	0.000	42	-0.211	0.226

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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Supported housing for chronically homeless adults

Adult Mental Health: Serious Mental Illness

Benefit-cost estimates updated December 2017. Literature review updated December 2014.

Program Description: These programs provide permanent supportive housing to chronically homeless single adults. Most of the studies reviewed here used the Housing First model which provides independent apartments with no specific requirements for abstinence or treatment. Programs typically provide intensive case management and services. Housing is in independent apartments—participants hold the lease but receive subsidies to pay rent. Supported housing is associated with significant reductions in homelessness which we are unable to monetize at this time. To test the sensitivity of our benefit-cost results to this known limitation of our model, we examined a recent comprehensive benefit-cost study of housing vouchers (Carlson et al., 2011). Our benefit-cost results would not change significantly if we had included the benefits of providing housing estimated by this study. Carlson, D., Haveman, R., Kaplan, T., & Wolfe, B. (2011). The benefits and costs of the Section 8 housing subsidy program: A framework and estimates of first-year effects. *Journal of Policy Analysis and Management*, 30 (2), 233-255.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	\$287	Benefit to cost ratio	(\$0.46)
Participants	\$90	Benefits minus costs	(\$22,540)
Others	\$149	Chance the program will produce	
Indirect	(\$7,615)	benefits greater than the costs	0 %
<u>Total benefits</u>	<u>(\$7,089)</u>		
<u>Net program cost</u>	<u>(\$15,451)</u>		
Benefits minus cost	(\$22,540)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: 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	\$80	\$36	\$0	\$1	\$117
Property loss associated with alcohol abuse or dependence	\$0	\$0	\$0	\$0	\$0
Labor market earnings associated with illicit drug abuse or dependence	(\$3)	(\$1)	\$0	\$0	(\$5)
Health care associated with illicit drug abuse or dependence	\$0	(\$1)	(\$1)	(\$1)	(\$4)
Health care associated with general hospitalization	\$5	\$94	\$81	\$47	\$227
Health care associated with psychiatric hospitalization	\$2	\$126	\$28	\$63	\$219
Health care associated with emergency department visits	\$7	\$34	\$40	\$17	\$98
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$7,742)	(\$7,742)
Totals	\$90	\$287	\$149	(\$7,615)	(\$7,089)

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

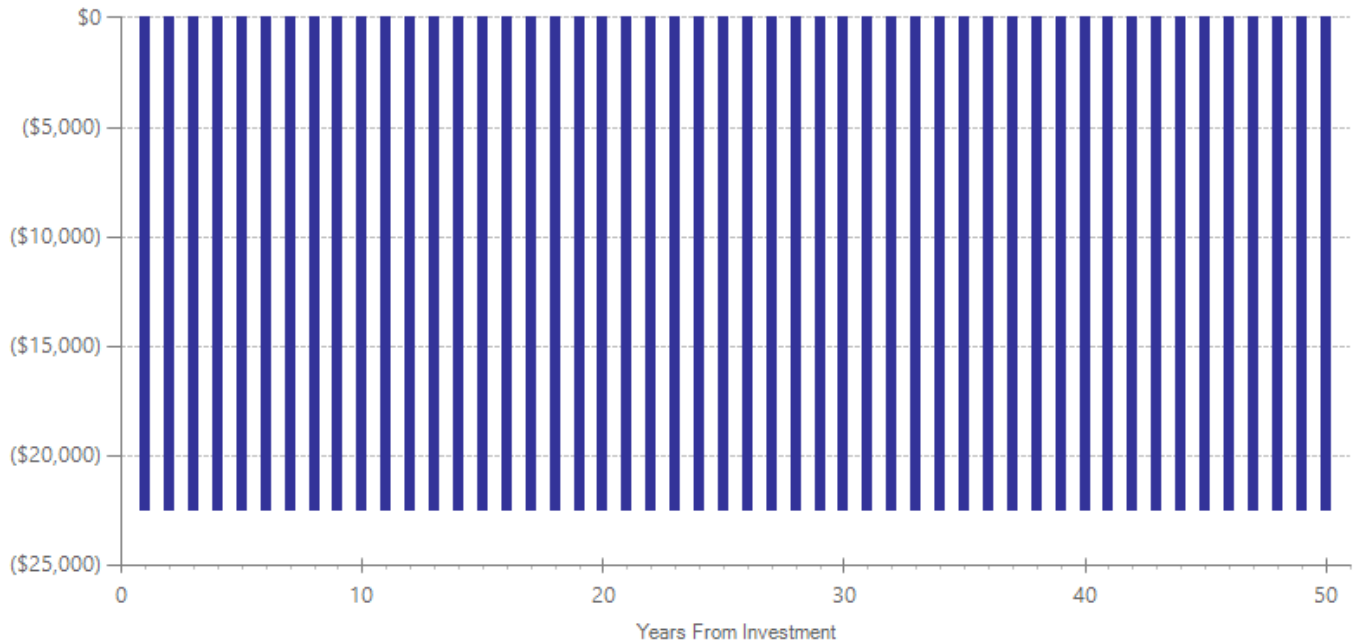
	Annual cost	Year dollars	Summary	
Program costs	\$13,950	2009	Present value of net program costs (in 2016 dollars)	(\$15,451)
Comparison costs	\$0	2009	Cost range (+ or -)	10 %

Per-participant costs are based on the annual cost of a program in Seattle described in Srebnik et al. (2013). Analysis of supported housing in New York (Culhane et al., 2002) indicated the average length of stay was nine months, so we multiply the annual cost of the Seattle program by 0.75.

Srebnik et al., (2013). A pilot study of the impact of housing first-supported housing for intensive users of medical hospitalization and sobering services. *American Journal of Public Health, 103*(2), 316-21. Culhane et al., (2002) Public service reductions associated with placement of persons with severe mental illness in supportive housing. *Housing Policy Debate, 13*(1), 107-163.

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

Detailed Annual Cost Estimates Per Participant



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

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Alcohol use disorder	2	478	-0.051	0.144	40	0.000	0.000	41	-0.051	0.723
Crime	8	3833	-0.083	0.047	40	0.000	0.000	41	-0.083	0.077
Emergency department visits	5	570	-0.164	0.064	40	0.000	0.000	41	-0.164	0.011
Employment	3	514	0.179	0.111	40	0.000	0.000	41	0.192	0.183
Homelessness [^]	10	4467	-0.505	0.023	40	0.000	0.000	41	-0.505	0.001
Hospitalization	7	2490	-0.129	0.054	40	0.000	0.000	41	-0.129	0.016
Hospitalization (psychiatric)	4	2727	-0.058	0.028	40	0.000	0.000	41	-0.058	0.036
Illicit drug use disorder	1	332	0.062	0.105	40	0.000	0.000	41	0.062	0.553
Primary care visits [^]	3	733	0.157	0.052	40	0.000	0.000	41	0.157	0.003

[^]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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- Srebnik, D., Connor, T., & Sylla, L. (2013). A pilot study of the impact of housing first-supported housing for intensive users of medical hospitalization and sobering services. *American Journal of Public Health, 103*(2), 316-21.

Assertive community treatment (ACT)

Adult Mental Health: Serious Mental Illness

Benefit-cost estimates updated December 2017. Literature review updated May 2014.

Program Description: Assertive community treatment (ACT) is a treatment and case management approach that includes the following key elements: a multidisciplinary team that includes a medication prescriber, direct service provided by team members, caseloads that are shared between team members, services provided in locations convenient for the patient, and low patient-to-staff ratios. The studies reviewed in this analysis compared ACT to treatment as usual or other forms of case management. ACT is associated with significant reductions in homelessness, for which the current WSIPP benefit-cost model does not estimate monetary benefits. To test the sensitivity of our benefit-cost results to this known limitation, we examined a recent comprehensive benefit-cost study of housing vouchers (Carlson et al., 2011). Our benefit-cost results would not change significantly if we had included the benefits of providing housing estimated by this study. Carlson, D., Haveman, R., Kaplan, T., & Wolfe, B. (2011). The benefits and costs of the Section 8 housing subsidy program: A framework and estimates of firstyear effects. *Journal of Policy Analysis and Management*, 30 (2), 233-255.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	\$523	Benefit to cost ratio	(\$0.46)
Participants	(\$515)	Benefits minus costs	(\$26,696)
Others	\$324	Chance the program will produce	
Indirect	(\$8,767)	benefits greater than the costs	11 %
<u>Total benefits</u>	<u>(\$8,436)</u>		
<u>Net program cost</u>	<u>(\$18,260)</u>		
Benefits minus cost	(\$26,696)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: ¹	Benefits to:				
	Participants	Taxpayers	Others ²	Indirect ³	Total
Crime	\$0	\$91	\$171	\$46	\$307
Labor market earnings associated with alcohol abuse or dependence	(\$520)	(\$236)	\$0	(\$7)	(\$764)
Property loss associated with alcohol abuse or dependence	(\$1)	\$0	(\$2)	\$0	(\$2)
Health care associated with illicit drug abuse or dependence	(\$9)	(\$47)	(\$46)	(\$24)	(\$126)
Health care associated with general hospitalization	\$2	\$27	\$23	\$14	\$65
Health care associated with psychiatric hospitalization	\$9	\$663	\$149	\$339	\$1,161
Health care associated with emergency department visits	\$5	\$25	\$29	\$12	\$70
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$9,148)	(\$9,148)
Totals	(\$515)	\$523	\$324	(\$8,767)	(\$8,436)

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.

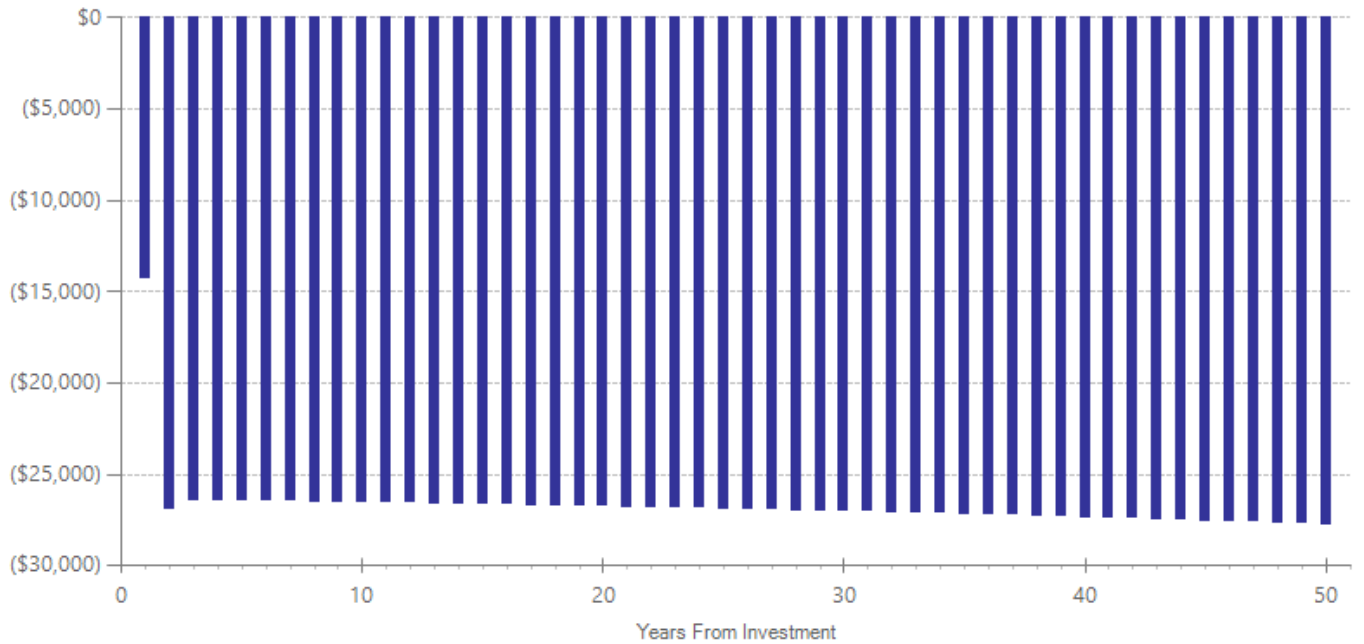
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$14,000	2013	Present value of net program costs (in 2016 dollars)	(\$18,260)
Comparison costs	\$4,482	2013	Cost range (+ or -)	10 %

The annual per-patient cost of ACT in Washington State was used to approximate the program costs (Washington State Department of Social & Health Services, 2013). Since the comparison groups in the included studies had an average caseload that was 3.12 times as high as the ACT caseload, we estimated the costs of the comparison group by reducing the ACT costs by this factor. Washington State Department of Social & Health Services. (2013). *2013 program description, Washington Program for Assertive Community 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	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	4	272	0.103	0.108	42	0.000	0.000	43	0.103	0.338
Crime	7	810	-0.026	0.065	42	0.000	0.000	43	-0.026	0.688
Emergency department visits	3	555	-0.043	0.218	42	0.000	0.000	43	-0.043	0.845
Global functioning [^]	5	237	0.142	0.096	42	0.000	0.000	43	0.142	0.139
Homelessness [^]	8	638	-0.228	0.098	42	0.000	0.000	43	-0.228	0.020
Hospitalization	4	598	-0.014	0.110	42	0.000	0.000	43	-0.014	0.898
Hospitalization (psychiatric)	22	2294	-0.178	0.074	42	0.000	0.118	43	-0.178	0.016
Illicit drug use disorder	4	249	0.048	0.108	42	0.000	0.000	43	0.048	0.658
Psychiatric symptoms [^]	11	582	-0.050	0.061	42	0.000	0.000	43	-0.050	0.414

[^] 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](#).

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Medicaid Health Homes

Adult Mental Health

Literature review updated December 2014.

Program Description: A Medicaid health home offers coordinated care to individuals with multiple chronic health conditions, including mental health and substance use disorders. The health home builds linkages to community supports and resources as well as enhances coordination and integration of primary and behavioral healthcare to better meet the needs of people with multiple chronic illnesses. The model aims to improve healthcare quality while also reducing costs. Health homes provide comprehensive case management, care coordination, health promotion, and transitional care when moving from inpatient to other settings (SAMHSA Health Home Fact Sheet, http://www.integration.samhsa.gov/integrated-care-models/Health_Homes_Fact_Sheet_FINAL.pdf).

Meta-Analysis of Program Effects										
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Emergency department visits	1	205	-0.073	0.099	49	-0.073	0.099	51	-0.073	0.463
Global functioning	1	27	0.340	0.265	49	0.340	0.265	51	0.340	0.199
Hospitalization (psychiatric)	1	205	-0.220	0.099	49	-0.220	0.099	51	-0.220	0.027
Primary care visits	1	205	0.472	0.127	49	0.472	0.127	51	0.472	0.001
Psychiatric symptoms	1	27	0.173	0.264	49	0.173	0.264	51	0.173	0.512

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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](#).

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Assisted outpatient treatment

Adult Mental Health

Literature review updated November 2015.

Program Description: Assisted outpatient treatment (AOT) is a legal alternative to involuntary inpatient commitment whereby the court may order the patient to participate in outpatient care. In the studies of AOT included in our analysis, patients could receive an AOT order if there was evidence that the person might not follow up with community outpatient care. In some locations, the AOT order allowed early release from the psychiatric hospital.

Meta-Analysis of Program Effects										
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Crime	1	172	0.013	0.169	45	0.000	0.000	46	0.013	0.941
Global functioning	1	166	-0.056	0.110	45	0.000	0.000	46	0.110	0.612
Hospitalization (psychiatric)	6	9547	0.044	0.013	45	0.000	0.000	46	0.044	0.001
Psychiatric emergency services	1	78	0.181	0.164	45	0.000	0.000	46	0.181	0.268
Psychiatric symptoms	2	242	-0.004	0.088	45	0.000	0.000	46	-0.004	0.967

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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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Integrated Dual Disorder Treatment

Adult Mental Health

Literature review updated September 2016.

Program Description: Integrated Dual Disorder Treatment is one of many approaches to treating persons diagnosed with both serious mental illness and substance abuse or dependence. This particular model involves multidisciplinary teams composed of case managers, psychologists, psychiatrists or other professional to manage medication, and a substance abuse counselor. The treatment is provided in an outpatient mental health treatment setting and involves assertive outreach and a staged approach dependent on the client's readiness to change. The intervention is designed to be of indefinite duration. More information on this intervention is available at: <http://store.samhsa.gov/product/Integrated-Treatment-for-Co-Occurring-Disorders-Evidence-Based-Practices-EBP-KIT/SMA08-4367>.

Meta-Analysis of Program Effects										
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Alcohol use disorder	1	75	0.119	0.203	41	0.000	0.118	42	0.119	0.558
Crime	1	123	-0.378	0.185	39	0.000	0.118	40	-0.378	0.040
Homelessness	1	46	-0.105	0.298	40	0.000	0.118	41	-0.105	0.725
Hospitalization	1	46	0.406	0.299	40	0.000	0.118	41	0.406	0.174
Hospitalization (psychiatric)	2	169	-0.091	0.242	40	0.000	0.118	41	-0.091	0.707
Illicit drug use disorder	1	45	0.086	0.243	41	0.000	0.118	42	0.086	0.725
Psychiatric symptoms	2	151	0.024	0.155	41	0.000	0.118	42	0.024	0.879
Substance misuse	1	46	0.301	0.298	40	0.000	0.118	41	0.301	0.314

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Motivational interviewing to enhance treatment engagement for serious mental illness

Adult Mental Health

Literature review updated September 2016.

Program Description: Motivational interviewing is a brief, several-session treatment given prior to another form of psychotherapy in order to increase treatment effectiveness. Motivational interviewing seeks to resolve subject ambivalence to treatment and increase the likelihood that the subject will adhere to the treatment plan by positively engaging the subject through exploratory questioning. Motivational interviewing has been used with a variety of populations; however, in this review we examine the impact of motivational interviewing on treatment of subjects with severe psychosis.

Meta-Analysis of Program Effects										
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	1	25	-0.656	0.357	34	0.000	0.118	35	-0.656	0.066
Engagement/Retention	2	89	0.767	0.202	34	0.000	0.118	35	0.767	0.001
Global functioning	1	39	0.235	0.390	34	0.000	0.118	35	0.235	0.546
Psychiatric symptoms	1	39	-0.242	0.390	34	0.000	0.118	35	-0.242	0.534

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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Integrated treatment for first-episode psychosis

Adult Mental Health

Literature review updated September 2016.

Program Description: Studies in this review examined integrated treatment approaches for adolescents and young adults experiencing a first episode of psychosis. Intervention periods lasted between 9 and 24 months. Integrated treatment typically included making 3-4 of the following components available to patients: Assertive community treatment and case management, cognitive behavioral therapy for psychosis, social skills training, and family support/psychoeducation. Both treatment and comparison groups were offered anti-psychotic medication as indicated. In this review, integrative treatment is compared with treatment as usual through community mental health clinics.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Global functioning	4	737	0.034	0.154	29	0.025	0.145	30	0.034	0.827
Hospitalization (psychiatric)	4	654	-0.230	0.134	29	-0.171	0.181	30	-0.230	0.085
Mental health recovery	1	66	0.468	0.275	29	0.348	0.370	30	0.468	0.089
Psychiatric symptoms	3	498	-0.298	0.085	29	-0.221	0.187	30	-0.298	0.001
Psychosis symptoms (negative)	3	498	-0.168	0.084	29	-0.125	0.124	30	-0.168	0.046
Psychosis symptoms (positive)	3	498	-0.292	0.148	29	-0.217	0.217	30	-0.292	0.049

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Citations Used in the Meta-Analysis

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Integrated treatment for prodromal psychosis

Adult Mental Health

Literature review updated September 2016.

Program Description: Studies in this review examined integrated treatment approaches for help-seeking adolescents and young adults identified as being prodromal, or at high-risk for developing psychosis. The primary purpose of treatment was to prevent or delay onset of psychosis. Integrated treatment lasted between 12 and 24 months. Treatment approaches included several of the following components: assertive community treatment, cognitive behavioral therapy, social skills training, family group psychoeducation, and computer-based cognitive remediation. In this review, integrated treatment is compared with non-specific supportive therapy.

Meta-Analysis of Program Effects										
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Psychosis onset	2	105	-0.595	0.276	26	-0.442	0.426	27	-0.595	0.031

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Citations Used in the Meta-Analysis

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Telemedicine for depression in primary care

Adult Mental Health

Literature review updated December 2016.

Program Description: We reviewed studies of the effectiveness of telemedicine for the treatment of depression in primary care settings. Our analysis included studies that evaluated outcomes for individuals randomly assigned to telemedicine for behavioral health or usual care, which typically included in-person psychiatric treatment. Subjects in reviewed studies received behavioral health services through a remote link while present in a clinical setting, which does not include home-based communication.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Major depressive disorder	3	153	-0.444	0.159	43	-0.231	0.195	45	-0.460	0.005

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Telemedicine for posttraumatic stress disorder (PTSD) in primary care Adult Mental Health

Literature review updated December 2016.

Program Description: We reviewed studies of the effectiveness of telemedicine for the treatment of posttraumatic stress disorder (PTSD) in primary care settings. Our analysis included studies that evaluated outcomes for individuals randomly assigned to telemedicine for behavioral health or usual care, which typically included in-person psychiatric treatment. Subjects in reviewed studies received behavioral health services through a remote link while present in a clinical setting, which does not include home-based communication.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Post-traumatic stress	4	272	-0.253	0.086	52	-0.253	0.086	53	-0.253	0.003

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Wellness Recovery Action Plan (WRAP)

Adult Mental Health

Literature review updated December 2014.

Program Description: Wellness Recovery Action Plan is a group-based intervention for persons with mental illness, delivered weekly for eight to ten weeks. The program teaches participants to focus on key elements of recovery (hope, self-advocacy, support) in daily life and teaches participants to organize a list of activities to use to help them feel better when they are experiencing mental health difficulties.

Meta-Analysis of Program Effects										
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	1	251	-0.070	0.088	46	0.000	0.000	47	-0.070	0.424
Hope	1	309	0.139	0.176	46	0.000	0.000	47	0.139	0.429
Mental health recovery	3	381	0.072	0.076	46	0.000	0.000	47	-0.070	0.340
Patient self-advocacy	1	251	0.090	0.143	46	0.000	0.000	47	0.099	0.489
Psychiatric symptoms	3	381	-0.141	0.121	46	0.000	0.000	47	-0.141	0.245

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Individual Placement and Support for first episode psychosis

Adult Mental Health: Serious Mental Illness

Literature review updated August 2017.

Program Description: Individual Placement and Support (IPS) has been used with adults with serious mental illness to assist clients in obtaining competitive employment. In recent years IPS has been modified for persons experiencing their first episode of psychosis and, depending on the person's preference, the program focuses on employment or return to school.

Meta-Analysis of Program Effects										
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Labor market activity	1	44	0.759	0.322	25	n/a	n/a	n/a	0.759	0.018

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Citations Used in the Meta-Analysis

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Cognitive behavioral therapy (CBT) for prodromal psychosis

Adult Mental Health: Serious Mental Illness

Literature review updated September 2016.

Program Description: Studies in this review examined cognitive behavioral therapy in help-seeking adolescents and young adults identified as being prodromal, or at high-risk for developing psychosis. The primary purpose of treatment was to prevent or delay onset of psychosis. Treatments typically involved offering six months of weekly individual therapy, and focused on stress management, helping patients understand and cope with symptoms, and crisis management. In this review, cognitive behavioral therapy is compared with either assessment and monitoring only, or non-specific supportive therapy.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated			ES	p-value
			ES	SE	Age	ES	SE	Age		
Anxiety disorder	2	101	-0.195	0.246	22	-0.145	0.255	23	-0.195	0.427
Global functioning	3	142	0.121	0.229	22	0.090	0.225	23	0.121	0.597
Hospitalization (psychiatric)	1	59	-0.326	0.397	22	-0.242	0.415	23	-0.326	0.411
Major depressive disorder	2	116	0.101	0.663	22	0.075	0.623	23	0.101	0.878
Psychiatric symptoms	3	180	-0.287	0.172	22	-0.213	0.230	23	-0.287	0.096
Psychosis onset	5	344	-0.653	0.275	22	-0.485	0.452	23	-0.653	0.018
Psychosis symptoms (negative)	2	46	0.165	0.290	22	0.122	0.287	23	0.165	0.571
Psychosis symptoms (positive)	2	54	-0.311	0.294	22	-0.231	0.327	23	-0.311	0.290

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Citations Used in the Meta-Analysis

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