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.

**Brief intervention in primary care**
Substance Use Disorders: Early Intervention

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

<table>
<thead>
<tr>
<th>Benefit-Cost Summary Statistics Per Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits to:</td>
</tr>
<tr>
<td>Taxpayers</td>
</tr>
<tr>
<td>Participants</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Indirect</td>
</tr>
<tr>
<td>Total benefits</td>
</tr>
<tr>
<td>Net program cost</td>
</tr>
<tr>
<td>Benefits minus cost</td>
</tr>
<tr>
<td>Benefit to cost ratio</td>
</tr>
<tr>
<td>Benefits minus costs</td>
</tr>
<tr>
<td>Chance the program will produce benefits greater than the costs</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment age</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>38</td>
<td>48</td>
<td>7318</td>
<td>-0.195</td>
<td>0.024</td>
</tr>
<tr>
<td>Cannabis use ^</td>
<td>38</td>
<td>7</td>
<td>519</td>
<td>-0.262</td>
<td>0.153</td>
</tr>
<tr>
<td>Illicit drug use ^</td>
<td>38</td>
<td>9</td>
<td>1773</td>
<td>-0.155</td>
<td>0.073</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>38</td>
<td>2</td>
<td>652</td>
<td>-0.261</td>
<td>0.332</td>
</tr>
<tr>
<td>Emergency department visits</td>
<td>38</td>
<td>2</td>
<td>784</td>
<td>-0.125</td>
<td>0.071</td>
</tr>
<tr>
<td>Drinking and driving ^</td>
<td>38</td>
<td>2</td>
<td>543</td>
<td>-0.307</td>
<td>0.284</td>
</tr>
<tr>
<td>Opioid drug use ^</td>
<td>38</td>
<td>4</td>
<td>249</td>
<td>-0.396</td>
<td>0.184</td>
</tr>
</tbody>
</table>

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

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### Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Criminal justice system</td>
<td>$0</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Labor market earnings associated with problem alcohol use</td>
<td>$639</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Property loss associated with problem alcohol use</td>
<td>$0</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>Health care associated with general hospitalization</td>
<td>$1,975</td>
</tr>
<tr>
<td>Emergency department visits</td>
<td>Health care associated with emergency department visits</td>
<td>$111</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Mortality associated with problem alcohol</td>
<td>$2</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>$2,727</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$205</td>
<td>2000</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2000</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>


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.
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 discounted dollars. 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.
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The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

Citations Used in the Meta-Analysis


Teen Intervene  
Substance Use Disorders: Early Intervention  

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

### Benefit-Cost Summary Statistics Per Participant

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Value</th>
<th>Benefit to cost ratio</th>
<th>Benefits minus costs</th>
<th>Chance the program will produce benefits greater than the costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$989</td>
<td>$7.86</td>
<td>$2,774</td>
<td>61%</td>
</tr>
<tr>
<td>Participants</td>
<td>$2,071</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>$210</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>($92)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total benefits</strong></td>
<td><strong>$3,178</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Net program cost</strong></td>
<td><strong>($405)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Benefits minus cost</strong></td>
<td><strong>$2,774</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<tr>
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<th>No. of effect sizes</th>
<th>Treatment N</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>16</td>
<td>4</td>
<td>311</td>
<td>-0.844 0.172 17</td>
<td>-0.116 0.258 19</td>
</tr>
<tr>
<td>Substance use disorder ^</td>
<td>16</td>
<td>2</td>
<td>52</td>
<td>-0.759 0.265 17</td>
<td>n/a n/a n/a</td>
</tr>
<tr>
<td>Cannabis use before end of high school</td>
<td>16</td>
<td>2</td>
<td>259</td>
<td>-0.292 0.183 17</td>
<td>-0.040 0.274 18</td>
</tr>
</tbody>
</table>

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

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<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Cannabis use before end of high school</td>
<td>Criminal justice system</td>
<td>$44</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Labor market earnings associated with problem alcohol use</td>
<td>$870</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Property loss associated with problem alcohol use</td>
<td>$0</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Health care associated with problem alcohol use</td>
<td>$72</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Mortality associated with problem alcohol</td>
<td>$3</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>$989</strong></td>
</tr>
</tbody>
</table>

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

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### Detailed Annual Cost Estimates Per Participant

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<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$379</td>
<td>2014</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2014</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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

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**Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)**

![Graph showing taxpayer benefits over time]

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

**Citations Used in the Meta-Analysis**


**Brief intervention in emergency department (SBIRT)**

**Substance Use Disorders: Early Intervention**


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

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<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Taxpayers</th>
<th>Benefit to cost ratio</th>
<th>Participants</th>
<th>Benefits minus costs</th>
<th>Others</th>
<th>Chance the program will produce benefits greater than the costs</th>
<th>Indirect</th>
<th>Net program cost</th>
<th>Benefits minus cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$768</td>
<td>$5.16</td>
<td>$1,231</td>
<td>$1,904</td>
<td>$419</td>
<td>56 %</td>
<td>$(57)</td>
<td>$(457)</td>
<td>$1,904</td>
</tr>
<tr>
<td>Total benefits</td>
<td>$2,361</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
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</tr>
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<td>Cannabis use ^</td>
<td>33</td>
<td>2</td>
<td>371</td>
<td>-0.012</td>
<td>0.073</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>33</td>
<td>27</td>
<td>4591</td>
<td>-0.139</td>
<td>0.032</td>
</tr>
<tr>
<td>Illicit drug use ^</td>
<td>33</td>
<td>2</td>
<td>721</td>
<td>-0.065</td>
<td>0.071</td>
</tr>
<tr>
<td>Drinking and driving ^</td>
<td>33</td>
<td>4</td>
<td>776</td>
<td>-0.158</td>
<td>0.080</td>
</tr>
<tr>
<td>Emergency department visits</td>
<td>33</td>
<td>1</td>
<td>52</td>
<td>-0.317</td>
<td>0.321</td>
</tr>
<tr>
<td>Injuries ^</td>
<td>33</td>
<td>1</td>
<td>122</td>
<td>-0.266</td>
<td>0.127</td>
</tr>
<tr>
<td>Opioid drug use ^</td>
<td>33</td>
<td>1</td>
<td>87</td>
<td>0.000</td>
<td>0.150</td>
</tr>
</tbody>
</table>

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<td>Participants</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Criminal justice system</td>
<td>$0</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Labor market earnings associated with problem alcohol use</td>
<td>$489</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Property loss associated with problem alcohol use</td>
<td>$0</td>
</tr>
<tr>
<td>Emergency department visits</td>
<td>Health care associated with emergency department visits</td>
<td>$278</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Mortality associated with problem alcohol</td>
<td>$1</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
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</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$362</td>
<td>2005</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2005</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.
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 discounted dollars. 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.
The graph above illustrates the breakdown of the estimated cumulative benefits (not including program costs) per-participant for the first fifty years beyond the initial investment in the program. These cash flows provide a breakdown of the classification of dollars over time into four perspectives: taxpayer, participant, others, and indirect. “Taxpayers” includes expected savings to government and expected increases in tax revenue. “Participants” includes expected increases in earnings and expenditures for items such as health care and college tuition. “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. “Indirect benefits” includes estimates of the changes in the value of a statistical life and changes in the deadweight costs of taxation. If a section of the bar is below the $0 line, the program is creating a negative benefit, meaning a loss of value from that perspective.

Citations Used in the Meta-Analysis


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


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

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th></th>
<th>Benefit to cost ratio</th>
<th>$11.24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$580</td>
<td>Benefits minus costs</td>
<td>$1,730</td>
</tr>
<tr>
<td>Participants</td>
<td>$1,301</td>
<td>Chance the program will produce benefits greater than the costs</td>
<td>67 %</td>
</tr>
<tr>
<td>Others</td>
<td>$41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>($23)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total benefits</strong></td>
<td>$1,899</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Net program cost</strong></td>
<td>($169)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Benefits minus cost</strong></td>
<td>$1,730</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment N</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>39</td>
<td>15</td>
<td>1403</td>
<td>-0.170</td>
<td>0.050</td>
</tr>
<tr>
<td>Death</td>
<td>39</td>
<td>1</td>
<td>59</td>
<td>-0.045</td>
<td>0.701</td>
</tr>
<tr>
<td>Drinking and driving ^</td>
<td>39</td>
<td>1</td>
<td>62</td>
<td>-0.686</td>
<td>0.340</td>
</tr>
</tbody>
</table>

^ 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.
Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Criminal justice system</td>
<td>$0</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Labor market earnings associated with problem alcohol use</td>
<td>$549</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Property loss associated with problem alcohol use</td>
<td>$0</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Health care associated with problem alcohol use</td>
<td>$30</td>
</tr>
<tr>
<td>Program cost: Adjustment for deadweight cost of program</td>
<td>$2</td>
<td>$4</td>
</tr>
</tbody>
</table>

Totals $580 $1,301 $41 ($23) $1,899

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

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$151</td>
<td>2011</td>
<td>Present value of net program costs (in 2018 dollars) ($169)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2011</td>
<td>Cost range (+ or -) 20 %</td>
</tr>
</tbody>
</table>

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

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.
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The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

**Citations Used in the Meta-Analysis**


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

Substance Use Disorders: Early Intervention


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

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Benefits minus costs</th>
<th>Benefit to cost ratio</th>
<th>Chance the program will produce benefits greater than the costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$287</td>
<td>$12.49</td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td>$622</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>$62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>($9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$962</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($77)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>$885</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment age</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>19</td>
<td>20</td>
<td>3296</td>
<td>-0.166</td>
<td>0.031</td>
</tr>
<tr>
<td>Cannabis use^</td>
<td>19</td>
<td>1</td>
<td>118</td>
<td>0.000</td>
<td>0.205</td>
</tr>
<tr>
<td>Regular smoking</td>
<td>19</td>
<td>1</td>
<td>118</td>
<td>0.000</td>
<td>0.205</td>
</tr>
</tbody>
</table>

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

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

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### Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Criminal justice system</td>
<td>$0</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Labor market earnings associated with problem alcohol use</td>
<td>$261</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Property loss associated with problem alcohol use</td>
<td>$0</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Health care associated with problem alcohol use</td>
<td>$25</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Mortality associated with problem alcohol</td>
<td>$1</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td>$287</td>
</tr>
</tbody>
</table>

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

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### Detailed Annual Cost Estimates Per Participant

<table>
<thead>
<tr>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$72</td>
<td>2014</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2014</td>
</tr>
</tbody>
</table>

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

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


**Brief intervention for youth in medical settings**

**Substance Use Disorders: Early Intervention**


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

<table>
<thead>
<tr>
<th>Benefit-Cost Summary Statistics Per Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits to:</td>
</tr>
<tr>
<td>Taxpayers</td>
</tr>
<tr>
<td>Participants</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Indirect</td>
</tr>
<tr>
<td>Total benefits</td>
</tr>
<tr>
<td>Net program cost</td>
</tr>
<tr>
<td>Benefits minus cost</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Meta-Analysis of Program Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcomes measured</td>
</tr>
<tr>
<td>Problem alcohol use</td>
</tr>
<tr>
<td>Treatment age</td>
</tr>
<tr>
<td>No. of effect sizes</td>
</tr>
<tr>
<td>Treatment N</td>
</tr>
<tr>
<td>Adjusted effect sizes and standard errors used in the benefit-cost analysis</td>
</tr>
<tr>
<td>First time ES is estimated</td>
</tr>
<tr>
<td>ES</td>
</tr>
<tr>
<td>0.099</td>
</tr>
<tr>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>-0.025</td>
</tr>
<tr>
<td>Unadjusted effect size (random effects model)</td>
</tr>
<tr>
<td>ES</td>
</tr>
<tr>
<td>-0.099</td>
</tr>
<tr>
<td>-0.025</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Taxpayers</td>
<td>Participants</td>
</tr>
<tr>
<td>Cannabis use before end of high school</td>
<td>Criminal justice system</td>
<td>$21</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Labor market earnings associated with problem alcohol use</td>
<td>$112</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Property loss associated with problem alcohol use</td>
<td>$0</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Health care associated with problem alcohol use</td>
<td>$9</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Mortality associated with problem alcohol</td>
<td>$0</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Annual cost</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$328</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
</tr>
</tbody>
</table>

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

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

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**Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)**

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

**Citations Used in the Meta-Analysis**


**Alcohol Literacy Challenge (for college students)**

**Substance Use Disorders: Early Intervention**

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

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

### Benefit-Cost Summary Statistics Per Participant

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th></th>
<th>Benefit to cost ratio</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>($30)</td>
<td>($25.64)</td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td>($65)</td>
<td>($110)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>($6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>($5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>($106)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>($110)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

### Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment age</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>20</td>
<td>1</td>
<td>54</td>
<td>0.020</td>
<td>0.191</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>20</td>
<td>2</td>
<td>297</td>
<td>-0.203</td>
<td>0.152</td>
</tr>
</tbody>
</table>

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

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

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

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Criminal justice system</td>
<td>$0</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Labor market earnings associated with problem alcohol use</td>
<td>$(27)</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Property loss associated with problem alcohol use</td>
<td>$0</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Health care associated with problem alcohol use</td>
<td>$(2)</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Mortality associated with problem alcohol use</td>
<td>$0</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td>$(30)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Analyses</th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$4</td>
<td>2014</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2014</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.
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The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

Citations Used in the Meta-Analysis


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

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Benefit to cost ratio</th>
<th>Benefits minus costs</th>
<th>Chance the program will produce benefits greater than the costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$25</td>
<td>$0.12</td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td>$12</td>
<td>($101)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>$23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>($46)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($115)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>($101)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
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<th>Treatment age</th>
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<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>16</td>
<td>2</td>
<td>148</td>
<td>-0.284</td>
<td>0.142</td>
</tr>
</tbody>
</table>

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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<tr>
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<th>Resulting benefits:</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannabis use disorder</td>
<td>Labor market earnings associated with cannabis abuse or dependence</td>
<td>Taxpayers $3</td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>Health care associated with cannabis abuse or dependence</td>
<td>$22</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>$25</td>
</tr>
</tbody>
</table>

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

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### Detailed Annual Cost Estimates Per Participant

<table>
<thead>
<tr>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$106</td>
<td>2013</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2013</td>
</tr>
</tbody>
</table>

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

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**Citations Used in the Meta-Analysis**


**Adolescent Assertive Continuing Care (ACC)**
**Substance Use Disorders: Treatment for Youth**


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

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

---

### Benefit-Cost Summary Statistics Per Participant

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>$19</th>
<th>Benefit to cost ratio</th>
<th>($0.45)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$17</td>
<td>Benefits minus costs</td>
<td>($3,039)</td>
</tr>
<tr>
<td>Participants</td>
<td>$21</td>
<td>Chance the program will produce benefits greater than the costs</td>
<td>39 %</td>
</tr>
<tr>
<td>Indirect</td>
<td>($1,001)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total benefits</strong></td>
<td>($945)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Net program cost</strong></td>
<td>($2,094)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Benefits minus cost</strong></td>
<td>($3,039)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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<table>
<thead>
<tr>
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<th>Treatment age</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannabis use disorder</td>
<td>16</td>
<td>2</td>
<td>169</td>
<td>ES -0.154 SE 0.150 Age 16 ES 0.000 SE 0.187 Age 19 ES -0.154 SE 0.304 Age 19</td>
<td>p-value 0.304</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>16</td>
<td>3</td>
<td>249</td>
<td>ES -0.296 SE 0.111 Age 16 ES 0.000 SE 0.187 Age 19 ES -0.296 SE 0.008 Age 19</td>
<td>p-value 0.008</td>
</tr>
<tr>
<td>Substance use disorder^</td>
<td>16</td>
<td>3</td>
<td>397</td>
<td>ES -0.141 SE 0.128 Age 16 n/a SE n/a Age n/a ES -0.141 SE 0.272 Age n/a</td>
<td>p-value 0.272</td>
</tr>
<tr>
<td>Cannabis use before end of high school^</td>
<td>16</td>
<td>1</td>
<td>80</td>
<td>ES -0.340 SE 0.262 Age 16 n/a SE n/a Age n/a ES -0.340 SE 0.194 Age n/a</td>
<td>p-value 0.194</td>
</tr>
</tbody>
</table>

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

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<table>
<thead>
<tr>
<th>Affected outcome</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Taxpayers</td>
<td>Participants</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Criminal justice system</td>
<td>$2</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Labor market earnings associated with alcohol abuse or dependence</td>
<td>$3</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Property loss associated with alcohol abuse or dependence</td>
<td>$0</td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>Health care associated with cannabis abuse or dependence</td>
<td>$11</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Mortality associated with alcohol</td>
<td>$2</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>$19</strong></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Annual cost Year dollars</th>
<th>Summary</th>
<th>Present value of net program costs (in 2018 dollars)</th>
<th>Cost range (+ or -)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$1,968</td>
<td>2015</td>
<td>$945</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2015</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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

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The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

### Citations Used in the Meta-Analysis


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

Substance Use Disorders: Treatment for Youth


Program Description: Functional Family Therapy (FFT) is a structured family-based intervention that uses a multi-step approach to enhance protective factors and reduce risk factors in the family. Functional Family Therapy is a Blueprint program identified by the University of Colorado’s Center for the Study and Prevention of Violence.

Benefit-Cost Summary Statistics Per Participant

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Benefit to cost ratio</th>
<th>Benefits minus costs</th>
<th>Chance the program will produce benefits greater than the costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$32</td>
<td>($0.35)</td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td>$98</td>
<td>($4,934)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>$50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>($1,465)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>($1,285)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($3,649)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>($4,934)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment age</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>Major depressive disorder</td>
<td>15</td>
<td>1</td>
<td>40</td>
<td>-0.247 0.222 16</td>
<td>0.000 0.310 18</td>
</tr>
<tr>
<td>Substance use disorder</td>
<td>15</td>
<td>1</td>
<td>85</td>
<td>0.099 0.230 16</td>
<td>n/a n/a n/a</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>15</td>
<td>1</td>
<td>40</td>
<td>-0.664 0.228 16</td>
<td>0.000 0.187 19</td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>15</td>
<td>1</td>
<td>30</td>
<td>-0.745 0.653 16</td>
<td>n/a n/a n/a</td>
</tr>
<tr>
<td>Externalizing behavior symptoms</td>
<td>15</td>
<td>1</td>
<td>40</td>
<td>0.040 0.221 16</td>
<td>0.022 0.133 19</td>
</tr>
<tr>
<td>Internalizing symptoms</td>
<td>15</td>
<td>1</td>
<td>40</td>
<td>0.058 0.221 16</td>
<td>0.058 0.221 18</td>
</tr>
</tbody>
</table>

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<th>Resulting benefits:</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td><strong>Externalizing behavior symptoms</strong></td>
<td><strong>Criminal justice system</strong></td>
<td>($11)</td>
</tr>
<tr>
<td><strong>Major depressive disorder</strong></td>
<td><strong>K-12 grade repetition</strong></td>
<td>$2</td>
</tr>
<tr>
<td><strong>Externalizing behavior symptoms</strong></td>
<td><strong>K-12 special education</strong></td>
<td>($8)</td>
</tr>
<tr>
<td><strong>Alcohol use disorder</strong></td>
<td><strong>Labor market earnings associated with alcohol abuse or dependence</strong></td>
<td>$20</td>
</tr>
<tr>
<td><strong>Alcohol use disorder</strong></td>
<td><strong>Health care associated with alcohol abuse or dependence</strong></td>
<td>$64</td>
</tr>
<tr>
<td><strong>Alcohol use disorder</strong></td>
<td><strong>Property loss associated with alcohol abuse or dependence</strong></td>
<td>$0</td>
</tr>
<tr>
<td><strong>Externalizing behavior symptoms</strong></td>
<td><strong>Health care associated with externalizing behavior symptoms</strong></td>
<td>($76)</td>
</tr>
<tr>
<td><strong>Alcohol use disorder</strong></td>
<td><strong>Mortality associated with alcohol</strong></td>
<td>$22</td>
</tr>
<tr>
<td><strong>Program cost</strong></td>
<td><strong>Adjustment for deadweight cost of program</strong></td>
<td>$0</td>
</tr>
</tbody>
</table>

**Totals** | $32 | $98 | $50 | ($1,465) | ($1,285) |

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

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### Detailed Annual Cost Estimates Per Participant

<table>
<thead>
<tr>
<th>Summary</th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Present value of net program costs (in 2018 dollars)</th>
<th>Cost range (+ or -)</th>
<th>10 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$3,134</td>
<td>2008</td>
<td>($3,649)</td>
<td>10 %</td>
<td></td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2008</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


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### Citations Used in the Meta-Analysis


Multidimensional Family Therapy (MDFT)
Substance Use Disorders: Treatment for Youth

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

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

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th></th>
<th>Benefit to cost ratio</th>
<th>$0.29</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$1,802</td>
<td>Benefits minus costs</td>
<td>$(5,997)</td>
</tr>
<tr>
<td>Participants</td>
<td>$139</td>
<td>Chance the program will produce benefits greater than the costs</td>
<td>28 %</td>
</tr>
<tr>
<td>Others</td>
<td>$3,897</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>$(3,353)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$2,485</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>$(8,482)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>$(5,997)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Meta-analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment age</th>
<th>No. of effect sizes</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Grade point average^</td>
<td>14</td>
<td>1</td>
<td>40</td>
<td>0.168</td>
<td>0.301</td>
</tr>
<tr>
<td>Internalizing symptoms</td>
<td>14</td>
<td>3</td>
<td>290</td>
<td>-0.049</td>
<td>0.132</td>
</tr>
<tr>
<td>Externalizing behavior symptoms</td>
<td>14</td>
<td>4</td>
<td>346</td>
<td>-0.145</td>
<td>0.084</td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>14</td>
<td>6</td>
<td>251</td>
<td>-0.308</td>
<td>0.128</td>
</tr>
<tr>
<td>Substance use disorder</td>
<td>14</td>
<td>7</td>
<td>354</td>
<td>-0.406</td>
<td>0.102</td>
</tr>
<tr>
<td>Crime</td>
<td>14</td>
<td>3</td>
<td>151</td>
<td>-0.215</td>
<td>0.157</td>
</tr>
</tbody>
</table>

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<th>Affected outcome:</th>
<th>Resulting benefits:</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Crime</td>
<td>Criminal justice system</td>
<td>$1,451</td>
</tr>
<tr>
<td>Externalizing behavior symptoms</td>
<td>K-12 special education</td>
<td>$52</td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>Labor market earnings associated with cannabis abuse or dependence</td>
<td>$26</td>
</tr>
<tr>
<td>Externalizing behavior symptoms</td>
<td>Health care associated with externalizing behavior symptoms</td>
<td>$273</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>$1,802</strong></td>
</tr>
</tbody>
</table>

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### Detailed Annual Cost Estimates Per Participant

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$6,168</td>
<td>2001</td>
<td>Present value of net program costs (in 2018 dollars) (8,482)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2001</td>
<td>Cost range (+ or -) 10%</td>
</tr>
</tbody>
</table>


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![Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)](image)

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### Citations Used in the Meta-Analysis


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

Benefit-Cost Summary Statistics Per Participant

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Value</th>
<th>Benefit to cost ratio</th>
<th>Benefits minus costs</th>
<th>Chance the program will produce benefits greater than the costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$3,198</td>
<td>$39.30</td>
<td>$23,016</td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td>$4,118</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>$1,592</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>$14,709</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$23,617</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($601)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>$23,016</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
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<td></td>
<td></td>
<td></td>
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<td>Second time ES is estimated</td>
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<tr>
<td>Alcohol use disorder</td>
<td>39</td>
<td>1</td>
<td>19</td>
<td>-0.096</td>
<td>0.310</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>39</td>
<td>37</td>
<td>1323</td>
<td>-0.519</td>
<td>0.060</td>
</tr>
<tr>
<td>Cannabis use</td>
<td>39</td>
<td>1</td>
<td>19</td>
<td>-0.301</td>
<td>0.312</td>
</tr>
</tbody>
</table>

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<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Criminal justice system</td>
<td>$2</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Labor market earnings associated with illicit drug abuse or dependence</td>
<td>$1,193</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>$1,545</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>$459</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>$3,198</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Summary</th>
<th>Program costs</th>
<th>Comparison costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual cost</td>
<td>$548</td>
<td>$0</td>
</tr>
<tr>
<td>Year dollars</td>
<td>2012</td>
<td>2012</td>
</tr>
<tr>
<td>Present value of net program costs (in 2018 dollars)</td>
<td>($601)</td>
<td></td>
</tr>
<tr>
<td>Cost range (+ or -)</td>
<td>20 %</td>
<td></td>
</tr>
</tbody>
</table>

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


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.
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 discounted dollars. 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.
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The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

Citations Used in the Meta-Analysis


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

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

### Benefit-Cost Summary Statistics Per Participant

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Benefit minus costs</th>
<th>Benefit to cost ratio</th>
<th>Chance the program will produce benefits greater than the costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$5,735</td>
<td>$44.85</td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td>$9,995</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>$1,736</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>$1,216</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$18,681</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($417)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>$18,265</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Meta-Analysis of Program Effects**

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

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.

### Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome</th>
<th>Resulting benefits: ¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Taxpayers</td>
<td>Participants</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Criminal justice system</td>
<td>$0</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Labor market earnings associated with alcohol abuse or dependence</td>
<td>($14)</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Health care associated with alcohol abuse or dependence</td>
<td>$0</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Property loss associated with alcohol abuse or dependence</td>
<td>$0</td>
</tr>
<tr>
<td>Post-traumatic stress</td>
<td>Labor market earnings associated with PTSD</td>
<td>$4,045</td>
</tr>
<tr>
<td>Post-traumatic stress</td>
<td>Health care associated with PTSD</td>
<td>$1,682</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>$22</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Mortality associated with alcohol</td>
<td>$0</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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### Detailed Annual Cost Estimates Per Participant

<table>
<thead>
<tr>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$526</td>
<td>2013</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$141</td>
<td>2013</td>
</tr>
</tbody>
</table>

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

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


Contingency management (higher cost) for marijuana use
Substance Use Disorders: Treatment for Adults

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

<table>
<thead>
<tr>
<th>Benefit-Cost Summary Statistics Per Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits to:</td>
</tr>
<tr>
<td>Taxpayers</td>
</tr>
<tr>
<td>Participants</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Indirect</td>
</tr>
<tr>
<td>Total benefits</td>
</tr>
<tr>
<td>Net program cost</td>
</tr>
<tr>
<td>Benefits minus cost</td>
</tr>
<tr>
<td>Chance the program will produce benefits greater than the costs</td>
</tr>
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The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our Technical Documentation.

Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment age</th>
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<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannabis use disorder</td>
<td>26</td>
<td>4</td>
<td>116</td>
<td>ES -0.354 SE 0.154 Age 26 ES -0.325 SE 0.412 Age 27 ES -0.354 p-value 0.021</td>
<td></td>
</tr>
</tbody>
</table>

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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>Labor market earnings associated with cannabis abuse or dependence</td>
<td>$3,939</td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>Health care associated with cannabis abuse or dependence</td>
<td>$416</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>$4,355</td>
</tr>
</tbody>
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### Detailed Annual Cost Estimates Per Participant

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$548</td>
<td>2012</td>
<td>Present value of net program costs (in 2018 dollars)</td>
<td>($601)</td>
</tr>
<tr>
<td>Comparison costs</td>
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<td>2012</td>
<td>Cost range (+ or -)</td>
<td>20 %</td>
</tr>
</tbody>
</table>

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


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Contingency management (higher cost) for marijuana use
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![Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)](image)

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

**Citations Used in the Meta-Analysis**


**Brief marijuana dependence counseling**

**Substance Use Disorders: Treatment for Adults**


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

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Benefit to cost ratio</th>
<th>Benefits minus costs</th>
<th>Chance the program will produce benefits greater than the costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$4,107</td>
<td>$22.60</td>
<td>92 %</td>
</tr>
<tr>
<td>Participants</td>
<td>$8,860</td>
<td>$12,665</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>$394</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>($110)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$13,251</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($586)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>$12,665</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>32</td>
<td>8</td>
<td>506</td>
<td>-0.364</td>
<td>0.138</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits: (^1)</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannabis use disorder</td>
<td>Labor market earnings</td>
<td>Taxpayers</td>
</tr>
<tr>
<td></td>
<td>associated with cannabis</td>
<td>$3,741</td>
</tr>
<tr>
<td></td>
<td>abuse or dependence</td>
<td>Participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$8,787</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indirect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$12,528</td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>Health care associated</td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Program cost</td>
<td>with cannabis abuse</td>
<td>$366</td>
</tr>
<tr>
<td></td>
<td>or dependence</td>
<td>Participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$73</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$394</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indirect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$183</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$1,016</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$4,107</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$8,860</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$394</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indirect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$(110)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$13,251</td>
</tr>
</tbody>
</table>

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

\(^2\)“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

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$822</td>
<td>2013</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$280</td>
<td>2013</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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

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

**Benefits by Perspective Over Time (Cumulative Discounted Dollars)**

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 discounted dollars. 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.
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![Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)](image)

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

Citations Used in the Meta-Analysis


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

**Benefit-Cost Summary Statistics Per Participant**

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Benefit to cost ratio</th>
<th>Benefits minus costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$2,351</td>
<td>$52.64</td>
</tr>
<tr>
<td>Participants</td>
<td>$2,714</td>
<td>$11,425</td>
</tr>
<tr>
<td>Others</td>
<td>$1,325</td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>$5,256</td>
<td></td>
</tr>
<tr>
<td><strong>Total benefits</strong></td>
<td><strong>$11,646</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Net program cost</strong></td>
<td><strong>($221)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Benefits minus cost</strong></td>
<td><strong>$11,425</strong></td>
<td></td>
</tr>
</tbody>
</table>

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.
### Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Criminal justice system</td>
<td></td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Labor market earnings associated with illicit drug abuse or dependence</td>
<td>$829</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>$1,275</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>$242</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>$2,351</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$204</td>
<td>2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cost range (± or -)</td>
</tr>
</tbody>
</table>

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

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.
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 discounted dollars. 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.
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The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

### Citations Used in the Meta-Analysis


12-Step Facilitation Therapy
Substance Use Disorders: Treatment for Adults


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

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Amount</th>
<th>Benefit to cost ratio</th>
<th>Benefits minus costs</th>
<th>Chance the program will produce benefits greater than the costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$1,771</td>
<td>n/a</td>
<td>$9,564</td>
<td>60%</td>
</tr>
<tr>
<td>Participants</td>
<td>$3,082</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>$513</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>$3,861</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$9,226</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>$338</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>$9,564</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>age</td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>39</td>
<td>5</td>
<td>545</td>
<td>-0.360</td>
<td>0.118</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>39</td>
<td>6</td>
<td>627</td>
<td>-0.331</td>
<td>0.132</td>
</tr>
</tbody>
</table>

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Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Taxpayers</td>
<td>Participants</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Criminal justice system</td>
<td>$1</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Labor market earnings associated with alcohol abuse or dependence</td>
<td>$1,138</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Property loss associated with alcohol abuse or dependence</td>
<td>$0</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>$492</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>$140</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$1,771</strong></td>
<td><strong>$3,082</strong></td>
</tr>
</tbody>
</table>

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

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Detailed Annual Cost Estimates Per Participant

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$407</td>
<td>1993</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$924</td>
<td>2014</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>


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Citations Used in the Meta-Analysis


Community Reinforcement Approach (CRA) with vouchers
Substance Use Disorders: Treatment for Adults

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

Benefit-Cost Summary Statistics Per Participant

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$2,037</td>
</tr>
<tr>
<td>Participants</td>
<td>$2,351</td>
</tr>
<tr>
<td>Others</td>
<td>$1,147</td>
</tr>
<tr>
<td>Indirect</td>
<td>$4,016</td>
</tr>
<tr>
<td>Total benefits</td>
<td>$9,550</td>
</tr>
<tr>
<td>Net program cost</td>
<td>($1,266)</td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>$8,284</td>
</tr>
</tbody>
</table>

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Meta-Analysis of Program Effects

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

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.

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75
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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<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Criminal justice system</td>
<td></td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Labor market earnings associated with illicit drug abuse or dependence</td>
<td>$718</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>$1,104</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>$210</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>$2,037</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Summary</th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present value of net program costs (in 2018 dollars)</td>
<td>$2,602</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost range (+ or -)</td>
<td>$1,432</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.
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 discounted dollars. 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.
The graph above illustrates the breakdown of the estimated cumulative benefits (not including program costs) per-participant for the first fifty years beyond the initial investment in the program. These cash flows provide a breakdown of the classification of dollars over time into four perspectives: taxpayer, participant, others, and indirect. “Taxpayers” includes expected savings to government and expected increases in tax revenue. “Participants” includes expected increases in earnings and expenditures for items such as health care and college tuition. “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. “Indirect benefits” includes estimates of the changes in the value of a statistical life and changes in the deadweight costs of taxation. If a section of the bar is below the $0 line, the program is creating a negative benefit, meaning a loss of value from that perspective.

![Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)](image)

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

### Citations Used in the Meta-Analysis


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

<table>
<thead>
<tr>
<th>Benefit-Cost Summary Statistics Per Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits to:</td>
</tr>
<tr>
<td><strong>Taxpayers</strong> $3,615</td>
</tr>
<tr>
<td><strong>Participants</strong> $9,180</td>
</tr>
<tr>
<td><strong>Others</strong> ($328)</td>
</tr>
<tr>
<td><strong>Indirect</strong> ($3,701)</td>
</tr>
<tr>
<td><strong>Total benefits</strong> $8,766</td>
</tr>
<tr>
<td><strong>Net program cost</strong> ($2,141)</td>
</tr>
<tr>
<td><strong>Benefits minus cost</strong> $6,624</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Meta-Analysis of Program Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcomes measured</strong></td>
</tr>
<tr>
<td><strong>Illicit drug use disorder</strong></td>
</tr>
<tr>
<td><strong>Anxiety disorder</strong></td>
</tr>
<tr>
<td><strong>Major depressive disorder</strong></td>
</tr>
<tr>
<td><strong>Employment</strong></td>
</tr>
<tr>
<td><strong>Alcohol use disorder</strong></td>
</tr>
<tr>
<td><strong>Crime</strong></td>
</tr>
<tr>
<td><strong>Psychiatric symptoms</strong></td>
</tr>
<tr>
<td><strong>Treatment age</strong></td>
</tr>
<tr>
<td><strong>No. of effect sizes</strong></td>
</tr>
<tr>
<td><strong>Treatment N</strong></td>
</tr>
<tr>
<td><strong>Adjusted effect sizes and standard errors used in the benefit-cost analysis</strong></td>
</tr>
<tr>
<td><strong>First time ES is estimated</strong></td>
</tr>
<tr>
<td><strong>Second time ES is estimated</strong></td>
</tr>
<tr>
<td><strong>Unadjusted effect size (random effects model)</strong></td>
</tr>
<tr>
<td><strong>ES</strong></td>
</tr>
<tr>
<td><strong>SE</strong></td>
</tr>
<tr>
<td><strong>Age</strong></td>
</tr>
<tr>
<td><strong>ES</strong></td>
</tr>
<tr>
<td><strong>SE</strong></td>
</tr>
<tr>
<td><strong>Age</strong></td>
</tr>
<tr>
<td><strong>p-value</strong></td>
</tr>
</tbody>
</table>

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.

### Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Taxpayers</td>
<td>Participants</td>
</tr>
<tr>
<td>Crime</td>
<td></td>
<td>($4)</td>
</tr>
<tr>
<td>Employment</td>
<td>Criminal justice system</td>
<td>$3,949</td>
</tr>
<tr>
<td></td>
<td>Labor market earnings</td>
<td>$0</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Property loss associated with alcohol abuse or dependence</td>
<td>($318)</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>$9</td>
</tr>
<tr>
<td>Major depressive disorder</td>
<td>Health care associated with major depression</td>
<td>($22)</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>$0</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Mortality associated with alcohol</td>
<td>$0</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>$3,615</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$1,979</td>
<td>2013</td>
<td>Present value of net program costs (in 2018 dollars) ($2,141)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2013</td>
<td>Cost range (+ or -) 20 %</td>
</tr>
</tbody>
</table>

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

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


Motivational interviewing to enhance treatment engagement
Substance Use Disorders: Treatment for Adults


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

<table>
<thead>
<tr>
<th>Benefit-Cost Summary Statistics Per Participant</th>
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<tbody>
<tr>
<td>Benefits to:</td>
</tr>
<tr>
<td>Taxpayers</td>
</tr>
<tr>
<td>Participants</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Indirect</td>
</tr>
<tr>
<td>Total benefits</td>
</tr>
<tr>
<td>Net program cost</td>
</tr>
<tr>
<td>Benefits minus cost</td>
</tr>
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</table>

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

<table>
<thead>
<tr>
<th>Meta-Analysis of Program Effects</th>
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<tbody>
<tr>
<td>Outcomes measured</td>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Alcohol use disorder</td>
</tr>
<tr>
<td>Substance use disorder</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
</tr>
<tr>
<td>Opioid use disorder</td>
</tr>
<tr>
<td>Engagement/Retention</td>
</tr>
</tbody>
</table>

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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### Detailed Monetary Benefit Estimates Per Participant

<table>
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<th>Affected outcome:</th>
<th>Resulting benefits:</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol use disorder</td>
<td>Criminal justice system</td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Labor market earnings associated with alcohol abuse or dependence</td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Property loss associated with alcohol abuse or dependence</td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>Taxpayers</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Program costs</th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$263</td>
<td>2014</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2014</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.
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 discounted dollars. 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.
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The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

Citations Used in the Meta-Analysis


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

Substance Use Disorders: Treatment for Adults


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

<table>
<thead>
<tr>
<th>Benefit-Cost Summary Statistics Per Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits to:</td>
</tr>
<tr>
<td>Taxpayers</td>
</tr>
<tr>
<td>Participants</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Indirect</td>
</tr>
<tr>
<td>Total benefits</td>
</tr>
<tr>
<td>Net program cost</td>
</tr>
<tr>
<td>Benefits minus cost</td>
</tr>
</tbody>
</table>

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

Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment age</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Post-traumatic stress</td>
<td>36</td>
<td>1</td>
<td>34</td>
<td>-0.269</td>
<td>0.247</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>36</td>
<td>6</td>
<td>312</td>
<td>-0.218</td>
<td>0.095</td>
</tr>
<tr>
<td>Employment</td>
<td>36</td>
<td>2</td>
<td>44</td>
<td>0.363</td>
<td>0.291</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>36</td>
<td>7</td>
<td>190</td>
<td>-0.229</td>
<td>0.122</td>
</tr>
</tbody>
</table>

* 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.

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### Detailed Monetary Benefit Estimates Per Participant

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<th>Affected outcome:</th>
<th>Resulting benefits:</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol use disorder</td>
<td>Criminal justice system</td>
<td>Taxpayers $1, Participants $0, Others $2, Indirect $0, Total $3</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Labor market earnings</td>
<td>Taxpayers $785, Participants $1,844, Others $0, Indirect $0, Total $2,629</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Property loss associated with alcohol abuse or dependence</td>
<td>Taxpayers $0, Participants $2, Others $5, Indirect $0, Total $7</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>Taxpayers $369, Participants $57, Others $379, Indirect $185, Total $990</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>Taxpayers $115, Participants $269, Others $0, Indirect $2,578, Total $2,962</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>Taxpayers $0, Participants $0, Others $0, Indirect ($140), Total ($140)</td>
</tr>
</tbody>
</table>

| Totals | $1,269, $2,173, $386, $2,623, $6,451 |

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

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<tr>
<th>Annual cost</th>
<th>Year dollars</th>
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<tr>
<td>Program costs</td>
<td>$842</td>
<td>2013</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$584</td>
<td>2013</td>
</tr>
</tbody>
</table>

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

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.
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 discounted dollars. 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.
The graph above illustrates the breakdown of the estimated cumulative benefits (not including program costs) per-participant for the first fifty years beyond the initial investment in the program. These cash flows provide a breakdown of the classification of dollars over time into four perspectives: taxpayer, participant, others, and indirect. “Taxpayers” includes expected savings to government and expected increases in tax revenue. “Participants” includes expected increases in earnings and expenditures for items such as health care and college tuition. “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. “Indirect benefits” includes estimates of the changes in the value of a statistical life and changes in the deadweight costs of taxation. If a section of the bar is below the $0 line, the program is creating a negative benefit, meaning a loss of value from that perspective.

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

**Citations Used in the Meta-Analysis**


91

Cognitive-behavioral coping-skills therapy for alcohol or drug use disorders
Relapse Prevention Therapy
Substance Use Disorders: Treatment for Adults

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

Benefits to:

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Benefit</th>
<th>Benefit to cost ratio</th>
<th>Benefit minus costs</th>
<th>Chance the program will produce benefits greater than the costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$1,211</td>
<td>n/a</td>
<td>$2,178</td>
<td>$5,982</td>
</tr>
<tr>
<td>Participants</td>
<td>$2,178</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>$318</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total indirect</td>
<td>$2,275</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$5,982</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>$0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>$5,982</td>
<td>$0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol use disorder</td>
<td>Criminal justice system</td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Labor market earnings associated with alcohol abuse or dependence</td>
<td>Participants</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Property loss associated with alcohol abuse or dependence</td>
<td>Others²</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>Indirect³</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>Total</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>$1,211</td>
<td>$2,178</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$1,050</td>
<td>2014</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$1,050</td>
<td>2014</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.
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**Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)**

<table>
<thead>
<tr>
<th>Years From Investment</th>
<th>Crime</th>
<th>Health Care</th>
<th>Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>10</td>
<td>$100</td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>20</td>
<td>$200</td>
<td>$200</td>
<td>$200</td>
</tr>
<tr>
<td>30</td>
<td>$300</td>
<td>$300</td>
<td>$300</td>
</tr>
<tr>
<td>40</td>
<td>$400</td>
<td>$400</td>
<td>$400</td>
</tr>
<tr>
<td>50</td>
<td>$500</td>
<td>$500</td>
<td>$500</td>
</tr>
</tbody>
</table>

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

**Citations Used in the Meta-Analysis**

Holistic Harm Reduction Program (HHRP+)
Substance Use Disorders: Treatment for Adults

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

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$931</td>
</tr>
<tr>
<td>Participants</td>
<td>$1,228</td>
</tr>
<tr>
<td>Others</td>
<td>$449</td>
</tr>
<tr>
<td>Indirect</td>
<td>$2,845</td>
</tr>
<tr>
<td><strong>Total benefits</strong></td>
<td><strong>$5,454</strong></td>
</tr>
<tr>
<td><strong>Net program cost</strong></td>
<td><strong>($854)</strong></td>
</tr>
<tr>
<td><strong>Benefits minus cost</strong></td>
<td><strong>$4,600</strong></td>
</tr>
</tbody>
</table>

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### Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment age</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>First time ES is estimated</strong></td>
<td><strong>Second time ES is estimated</strong></td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>39</td>
<td>2</td>
<td>153</td>
<td>-0.311</td>
<td>0.144</td>
</tr>
<tr>
<td>STD risky behavior</td>
<td>39</td>
<td>2</td>
<td>153</td>
<td>-0.260</td>
<td>0.134</td>
</tr>
</tbody>
</table>

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

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

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### Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illicit drug use disorder</td>
<td>Criminal justice system</td>
<td>Taxpayers $0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participants $0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others $1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indirect $0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total $2</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Labor market earnings associated with illicit drug abuse or dependence</td>
<td>Taxpayers $370</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participants $870</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others $0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indirect $0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total $1,240</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>Taxpayers $436</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participants $68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others $448</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indirect $218</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total $1,170</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>Taxpayers $124</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participants $291</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others $0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indirect $3,054</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total $3,469</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>Taxpayers $0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participants $0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others $0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indirect $(427)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total $(427)</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$931</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$1,228</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$449</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$2,845</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$5,454</td>
<td></td>
</tr>
</tbody>
</table>

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

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### Detailed Annual Cost Estimates Per Participant

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$789</td>
<td>2013</td>
<td>Present value of net program costs (in 2018 dollars) ($854)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2013</td>
<td>Cost range (+ or -) 25 %</td>
</tr>
</tbody>
</table>

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

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![Taxpayer Benefits by Source of Value Over Time](image)

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

**Citations Used in the Meta-Analysis**


Contingency management (lower cost) for opioid use disorder

Substance Use Disorders: Treatment for Adults


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

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

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>$679</th>
<th>Benefit to cost ratio</th>
<th>$11.40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td>$831</td>
<td>Benefits minus costs</td>
<td>$3,895</td>
</tr>
<tr>
<td>Others</td>
<td>$347</td>
<td>Chance the program will produce benefits greater than the costs</td>
<td>59 %</td>
</tr>
<tr>
<td>Indirect</td>
<td>$2,412</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$4,269</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($374)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>$3,895</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<th>Treatment N</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>38</td>
<td>9</td>
<td>520</td>
<td>-0.291</td>
<td>0.068</td>
</tr>
<tr>
<td>Engagement/Retention^</td>
<td>38</td>
<td>7</td>
<td>433</td>
<td>0.314</td>
<td>0.145</td>
</tr>
</tbody>
</table>

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

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<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Taxpayers</td>
<td>Participants</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminal justice system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor market earnings associated with opioid drug abuse or dependence</td>
<td>$231</td>
<td>$542</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health care associated with opioid drug abuse or dependence</td>
<td>$346</td>
<td>$49</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortality associated with opioids</td>
<td>$102</td>
<td>$240</td>
</tr>
<tr>
<td>Program cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjustments for deadweight cost of program</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Totals</td>
<td>$679</td>
<td>$831</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$1,007</td>
<td>2016</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$651</td>
<td>2016</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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

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

Benefits by Perspective Over Time (Cumulative Discounted Dollars)
The graph above illustrates the breakdown of the estimated cumulative benefits (not including program costs) per-participant for the first fifty years beyond the initial investment in the program. These cash flows provide a breakdown of the classification of dollars over time into four perspectives: taxpayer, participant, others, and indirect. “Taxpayers” includes expected savings to government and expected increases in tax revenue. “Participants” includes expected increases in earnings and expenditures for items such as health care and college tuition. “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. “Indirect benefits” includes estimates of the changes in the value of a statistical life and changes in the deadweight costs of taxation. If a section of the bar is below the $0 line, the program is creating a negative benefit, meaning a loss of value from that perspective.

![Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)](image)

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

**Citations Used in the Meta-Analysis**


Individual drug counseling approach for the treatment of cocaine addiction

Substance Use Disorders: Treatment for Adults


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

### Benefit-Cost Summary Statistics Per Participant

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>=</th>
<th>Benefit to cost ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$632</td>
<td>$2.22</td>
</tr>
<tr>
<td>Participants</td>
<td>$823</td>
<td>$3,059</td>
</tr>
<tr>
<td>Others</td>
<td>$310</td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>$3,796</td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$5,560</td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($2,501)</td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>$3,059</td>
<td></td>
</tr>
</tbody>
</table>

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

### Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment age</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Anxiety disorder</td>
<td>45</td>
<td>1</td>
<td>92</td>
<td>0.044</td>
<td>0.168</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>45</td>
<td>1</td>
<td>121</td>
<td>-0.307</td>
<td>0.167</td>
</tr>
<tr>
<td>Major depressive disorder</td>
<td>45</td>
<td>1</td>
<td>92</td>
<td>-0.093</td>
<td>0.169</td>
</tr>
<tr>
<td>Psychiatric symptoms</td>
<td>45</td>
<td>1</td>
<td>92</td>
<td>-0.274</td>
<td>0.169</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>45</td>
<td>1</td>
<td>92</td>
<td>0.208</td>
<td>0.169</td>
</tr>
</tbody>
</table>

^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.

### Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Taxpayers</td>
<td>Participants</td>
</tr>
<tr>
<td>Illicit drug use</td>
<td>Criminal justice</td>
<td>$0</td>
</tr>
<tr>
<td>disorder</td>
<td>system</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Labor market earnings associated with illicit drug abuse or dependence</td>
<td>$270</td>
</tr>
<tr>
<td>Illicit drug use</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>$307</td>
</tr>
<tr>
<td>disorder</td>
<td>Labor market earnings associated with anxiety disorder</td>
<td>($101)</td>
</tr>
<tr>
<td>Anxiety disorder</td>
<td>Health care associated with anxiety disorder</td>
<td>($6)</td>
</tr>
<tr>
<td>Anxiety disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>$162</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$632</strong></td>
<td><strong>$823</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$2,311</td>
<td>2013</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2013</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.
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 discounted dollars. 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.
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The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

Citations Used in the Meta-Analysis


Contingency management (lower cost) for substance use disorders

Substance Use Disorders: Treatment for Adults


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

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Benefit to cost ratio</th>
<th>Benefits minus costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$496</td>
<td>Benefit to cost ratio</td>
</tr>
<tr>
<td>Participants</td>
<td>$652</td>
<td>Benefits minus costs</td>
</tr>
<tr>
<td>Others</td>
<td>$242</td>
<td>Chance the program will produce</td>
</tr>
<tr>
<td>Indirect</td>
<td>$1,647</td>
<td>benefits greater than the costs</td>
</tr>
<tr>
<td><strong>Total benefits</strong></td>
<td><strong>$3,036</strong></td>
<td>59 %</td>
</tr>
<tr>
<td><strong>Net program cost</strong></td>
<td><strong>($263)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Benefits minus cost</strong></td>
<td><strong>$2,773</strong></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment age</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>37</td>
<td>29</td>
<td>1595</td>
<td>-0.278</td>
<td>0.049</td>
</tr>
<tr>
<td>Cannabis use^</td>
<td>37</td>
<td>3</td>
<td>319</td>
<td>-0.049</td>
<td>0.118</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>37</td>
<td>7</td>
<td>800</td>
<td>-0.196</td>
<td>0.116</td>
</tr>
</tbody>
</table>

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

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### Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:</th>
<th>Benefits accrue to:</th>
<th>Taxpayers</th>
<th>Participants</th>
<th>Others</th>
<th>Indirect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illicit drug use disorder</td>
<td>Criminal justice system</td>
<td>$0</td>
<td>$0</td>
<td>$1</td>
<td>$0</td>
<td>$1</td>
<td></td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Property loss associated with alcohol abuse or dependence</td>
<td>$0</td>
<td>$0</td>
<td>$1</td>
<td>$0</td>
<td>$1</td>
<td></td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Labor market earnings associated with illicit drug abuse or dependence</td>
<td>$190</td>
<td>$446</td>
<td>$0</td>
<td>$0</td>
<td>$636</td>
<td></td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>$234</td>
<td>$36</td>
<td>$240</td>
<td>$117</td>
<td>$627</td>
<td></td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>$72</td>
<td>$169</td>
<td>$0</td>
<td>$1,662</td>
<td>$1,903</td>
<td></td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>($132)</td>
<td>($132)</td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
<td><strong>$496</strong></td>
<td><strong>$652</strong></td>
<td><strong>$242</strong></td>
<td><strong>$1,647</strong></td>
<td><strong>$3,036</strong></td>
</tr>
</tbody>
</table>

---

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

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---

### Detailed Annual Cost Estimates Per Participant

<table>
<thead>
<tr>
<th>Program costs</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>$240</td>
<td>2012</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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


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.
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 discounted dollars. 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.
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### Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

#### Citations Used in the Meta-Analysis


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

Benefit-Cost Summary Statistics Per Participant

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th></th>
<th>Benefit to cost ratio</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$766</td>
<td>$2.87</td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td>$854</td>
<td>Benefits minus costs</td>
<td>$2,512</td>
</tr>
<tr>
<td>Others</td>
<td>$443</td>
<td>Chance the program will produce benefits greater than the costs</td>
<td>52 %</td>
</tr>
<tr>
<td>Indirect</td>
<td>$1,795</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$3,857</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($1,346)</td>
<td>Benefits minus cost</td>
<td>$2,512</td>
</tr>
</tbody>
</table>

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

Meta-Analysis of Program Effects

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<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>34</td>
<td>1</td>
<td>137</td>
<td>0.060</td>
<td>0.241</td>
</tr>
<tr>
<td>Employment^^</td>
<td>34</td>
<td>1</td>
<td>59</td>
<td>-0.146</td>
<td>0.382</td>
</tr>
<tr>
<td>Homelessness^</td>
<td>34</td>
<td>1</td>
<td>59</td>
<td>-0.071</td>
<td>0.457</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>34</td>
<td>4</td>
<td>342</td>
<td>-0.235</td>
<td>0.156</td>
</tr>
</tbody>
</table>

^-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.

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### Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Criminal justice system</td>
<td></td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Labor market earnings associated with alcohol abuse or dependence</td>
<td>$1</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Health care associated with alcohol abuse or dependence</td>
<td>($99)</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Property loss associated with alcohol abuse or dependence</td>
<td>($2)</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Labor market earnings associated with illicit drug abuse or dependence</td>
<td>$329</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>$432</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>$106</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Mortality associated with alcohol</td>
<td>$0</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td>$766</td>
</tr>
</tbody>
</table>

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

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<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$2,602</td>
<td>2013</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$1,358</td>
<td>2013</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.
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The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

**Citations Used in the Meta-Analysis**


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

<table>
<thead>
<tr>
<th>Benefit-Cost Summary Statistics Per Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits to:</td>
</tr>
<tr>
<td>Taxesayers</td>
</tr>
<tr>
<td>Participants</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Indirect</td>
</tr>
<tr>
<td>Total benefits</td>
</tr>
<tr>
<td>Net program cost</td>
</tr>
<tr>
<td>Benefits minus cost</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Meta-Analysis of Program Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcomes measured</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
</tr>
<tr>
<td>Treatment age</td>
</tr>
<tr>
<td>No. of effect sizes</td>
</tr>
<tr>
<td>Treatment N</td>
</tr>
<tr>
<td>Adjusted effect sizes</td>
</tr>
<tr>
<td>ES SE Age</td>
</tr>
<tr>
<td>Unadjusted effect size (random effects model)</td>
</tr>
<tr>
<td>First time ES is estimated</td>
</tr>
<tr>
<td>Second time ES is estimated</td>
</tr>
</tbody>
</table>

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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Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment age</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>First time ES is estimated</th>
<th>Second time ES is estimated</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illicit drug use disorder</td>
<td>37</td>
<td>1</td>
<td>151</td>
<td>0.078</td>
<td>0.140</td>
<td>37</td>
</tr>
</tbody>
</table>
### Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illicit drug use disorder</td>
<td>Criminal justice system</td>
<td>Taxpayers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Labor market earnings associated with illicit drug abuse or dependence</td>
<td>$111</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>$135</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>$41</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>$286</strong></td>
</tr>
</tbody>
</table>

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### Detailed Annual Cost Estimates Per Participant

<table>
<thead>
<tr>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$732</td>
<td>2013</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$732</td>
<td>2013</td>
</tr>
</tbody>
</table>

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

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The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

Citations Used in the Meta-Analysis

Sober living houses
Substance Use Disorders: Treatment for Adults

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

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

<table>
<thead>
<tr>
<th>Benefit-Cost Summary Statistics Per Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits to:</td>
</tr>
<tr>
<td>Taxpayers</td>
</tr>
<tr>
<td>Participants</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Indirect</td>
</tr>
<tr>
<td>Total benefits</td>
</tr>
<tr>
<td>Net program cost</td>
</tr>
<tr>
<td>Benefits minus cost</td>
</tr>
</tbody>
</table>

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

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<tr>
<th>Affected outcome:</th>
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<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Crime</td>
<td>Criminal justice system</td>
<td>$3</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Labor market earnings associated with illicit drug abuse or dependence</td>
<td>$129</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>$154</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>$45</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td>$331</td>
</tr>
</tbody>
</table>

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

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### Detailed Annual Cost Estimates Per Participant

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$287</td>
<td>2016</td>
<td>Present value of net program costs (in 2018 dollars) ($302)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2016</td>
<td>Cost range (+ or -) 10 %</td>
</tr>
</tbody>
</table>

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

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

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**Citations Used in the Meta-Analysis**


Peer support for individuals with substance use disorder
Substance Use Disorders: Treatment for Adults

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

<table>
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<tr>
<th>Benefit-Cost Summary Statistics Per Participant</th>
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</thead>
<tbody>
<tr>
<td>Benefits to:</td>
</tr>
<tr>
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</tr>
<tr>
<td>Participants</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
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</tr>
<tr>
<td>Total benefits</td>
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<td>Net program cost</td>
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<td>Benefits minus cost</td>
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</tr>
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<tbody>
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<td>Outcomes measured</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td><strong>Illicit drug use disorder</strong></td>
<td>Criminal justice system</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Illicit drug use disorder</strong></td>
<td>Labor market earnings associated with illicit drug abuse or dependence</td>
<td>$312</td>
</tr>
<tr>
<td><strong>Illicit drug use disorder</strong></td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>$373</td>
</tr>
<tr>
<td><strong>Illicit drug use disorder</strong></td>
<td>Mortality associated with illicit drugs</td>
<td>$110</td>
</tr>
<tr>
<td><strong>Program cost</strong></td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td>$795</td>
</tr>
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**Detailed Annual Cost Estimates Per Participant**

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<tr>
<th>Annual cost</th>
<th>Year dollars</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$2,650</td>
<td>2011</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2011</td>
</tr>
</tbody>
</table>

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

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.
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 discounted dollars. 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.
The graph above illustrates the breakdown of the estimated cumulative benefits (not including program costs) per-participant for the first fifty years beyond the initial investment in the program. These cash flows provide a breakdown of the classification of dollars over time into four perspectives: taxpayer, participant, others, and indirect. “Taxpayers” includes expected savings to government and expected increases in tax revenue. “Participants” includes expected increases in earnings and expenditures for items such as health care and college tuition. “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. “Indirect benefits” includes estimates of the changes in the value of a statistical life and changes in the deadweight costs of taxation. If a section of the bar is below the $0 line, the program is creating a negative benefit, meaning a loss of value from that perspective.

Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

Citations Used in the Meta-Analysis

Contingency management (lower cost) for marijuana use
Substance Use Disorders: Treatment for Adults

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

Benefit-Cost Summary Statistics Per Participant

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Benefit to cost ratio</th>
<th>Benefits minus costs</th>
<th>Chance the program will produce benefits greater than the costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$167</td>
<td>$1.59</td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td>$361</td>
<td>$156</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>$16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>($124)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$419</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($263)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>$156</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment age</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>32</td>
<td>3</td>
<td>149</td>
<td>-0.086</td>
<td>0.191</td>
</tr>
</tbody>
</table>

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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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.

### Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:¹</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Taxpayers</td>
<td>Participants</td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>$152</td>
<td>$358</td>
</tr>
<tr>
<td></td>
<td>Labor market earnings</td>
<td>$128</td>
</tr>
<tr>
<td></td>
<td>associated with cannabis abuse or dependence</td>
<td></td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>$15</td>
<td>$3</td>
</tr>
<tr>
<td></td>
<td>Health care associated with cannabis abuse or dependence</td>
<td>$15</td>
</tr>
<tr>
<td>Program cost</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td>Adjustment for deadweight cost of program</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>$167</td>
<td>$361</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$240</td>
<td>2012</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2012</td>
</tr>
</tbody>
</table>

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


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.
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Citations Used in the Meta-Analysis


Cognitive-behavioral coping-skills therapy for opioid use disorder

Substance Use Disorders: Treatment for Adults


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

Benefit-Cost Summary Statistics Per Participant

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Benefit to cost ratio</th>
<th>Benefits minus costs</th>
<th>Chance the program will produce benefits greater than the costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>($31)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td>($38)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>($16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>($402)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>($487)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($567)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>($1,054)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>36</td>
<td>4</td>
<td>169</td>
<td>0.006</td>
<td>0.109</td>
</tr>
</tbody>
</table>

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<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Taxpayers</td>
<td>Participants</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Criminal justice system</td>
<td>$0</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Labor market earnings associated with opioid drug abuse or dependence</td>
<td>($10)</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Health care associated with opioid drug abuse or dependence</td>
<td>($16)</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Mortality associated with opioids</td>
<td>($5)</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
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**Detailed Annual Cost Estimates Per Participant**

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$1,223</td>
<td>2016</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$685</td>
<td>2016</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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

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Citations Used in the Meta-Analysis


Day treatment with abstinence contingencies and vouchers
Substance Use Disorders: Treatment for Adults

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

### Benefit-Cost Summary Statistics Per Participant

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th></th>
<th>Benefit to cost ratio</th>
<th>$0.42</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$823</td>
<td>Benefits minus costs</td>
<td>($3,323)</td>
</tr>
<tr>
<td>Participants</td>
<td>$1,077</td>
<td>Chance the program will produce benefits greater than the costs</td>
<td>43%</td>
</tr>
<tr>
<td>Others</td>
<td>$401</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>$66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$2,367</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($5,690)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>($3,323)</td>
<td></td>
<td></td>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>I illicit drug use disorder</td>
<td>36</td>
<td>1</td>
<td>69</td>
<td>-0.231</td>
<td>0.213</td>
</tr>
</tbody>
</table>

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<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Criminal justice system</td>
<td>$1</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Labor market earnings associated with illicit drug abuse or dependence</td>
<td>$312</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Health care associated with illicit drug abuse or dependence</td>
<td>$389</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>Mortality associated with illicit drugs</td>
<td>$121</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>$823</strong></td>
</tr>
</tbody>
</table>

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<table>
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<tr>
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<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$7,571</td>
<td>2013</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$2,312</td>
<td>2013</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our [Technical Documentation](#).
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The graph above illustrates the breakdown of the estimated cumulative benefits (not including program costs) per-participant for the first fifty years beyond the initial investment in the program. These cash flows provide a breakdown of the classification of dollars over time into four perspectives: taxpayer, participant, others, and indirect. “Taxpayers” includes expected savings to government and expected increases in tax revenue. “Participants” includes expected increases in earnings and expenditures for items such as health care and college tuition. “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. “Indirect benefits” includes estimates of the changes in the value of a statistical life and changes in the deadweight costs of taxation. If a section of the bar is below the $0 line, the program is creating a negative benefit, meaning a loss of value from that perspective.

---

### Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

---

**Citations Used in the Meta-Analysis**

Behavioral self-control training (BSCT)
Substance Use Disorders: Treatment for Adults


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

<table>
<thead>
<tr>
<th>Benefit-Cost Summary Statistics Per Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits to:</td>
</tr>
<tr>
<td>Taxpayers (3,386)</td>
</tr>
<tr>
<td>Participants (7,721)</td>
</tr>
<tr>
<td>Others (148)</td>
</tr>
<tr>
<td>Indirect (1,926)</td>
</tr>
<tr>
<td>Total benefits (13,181)</td>
</tr>
<tr>
<td>Net program cost (166)</td>
</tr>
<tr>
<td>Benefits minus cost (13,347)</td>
</tr>
<tr>
<td>Benefit to cost ratio ($79.40)</td>
</tr>
<tr>
<td>Benefits minus costs ($13,347)</td>
</tr>
<tr>
<td>Chance the program will produce benefits greater than the costs 23 %</td>
</tr>
</tbody>
</table>

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

Meta-Analysis of Program Effects

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

^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.

### Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol use disorder</td>
<td>Criminal justice system</td>
<td>Taxpayers ($2)</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Labor market earnings associated with alcohol abuse or dependence</td>
<td>($3,237)</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Health care associated with alcohol abuse or dependence</td>
<td>($111)</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Property loss associated with alcohol abuse or dependence</td>
<td>$0</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Mortality associated with alcohol</td>
<td>($37)</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td>($3,386)</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$957</td>
<td>2013</td>
<td>Present value of net program costs (in 2018 dollars) ($166)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$804</td>
<td>2013</td>
<td>Cost range (+ or -) 10%</td>
</tr>
</tbody>
</table>

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

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

**Benefits by Perspective Over Time (Cumulative Discounted Dollars)**

- **Participant**
- **Taxpayer**
- **Others**
- **Indirect**
The graph above illustrates the breakdown of the estimated cumulative benefits (not including program costs) per-participant for the first fifty years beyond the initial investment in the program. These cash flows provide a breakdown of the classification of dollars over time into four perspectives: taxpayer, participant, others, and indirect. “Taxpayers” includes expected savings to government and expected increases in tax revenue. “Participants” includes expected increases in earnings and expenditures for items such as health care and college tuition. “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. “Indirect benefits” includes estimates of the changes in the value of a statistical life and changes in the deadweight costs of taxation. If a section of the bar is below the $0 line, the program is creating a negative benefit, meaning a loss of value from that perspective.

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

### Citations Used in the Meta-Analysis


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

Benefit-Cost Summary Statistics Per Participant

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Benefit to cost ratio</th>
<th>Benefit minus costs</th>
<th>Chance the program will produce benefits greater than the costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$2.30</td>
<td>$5,162</td>
<td>82 %</td>
</tr>
<tr>
<td>Participants</td>
<td>$5,162</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>$4,503</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>$9,124</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>($3,962)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment N</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>Crime</td>
<td>37</td>
<td>3</td>
<td>259</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Hospitalization^^</td>
<td>37</td>
<td>3</td>
<td>286</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Death</td>
<td>37</td>
<td>3</td>
<td>137</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>37</td>
<td>8</td>
<td>623</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Alcohol use ^</td>
<td>37</td>
<td>2</td>
<td>223</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>STD risky behavior ^</td>
<td>37</td>
<td>3</td>
<td>492</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

^WSIPP’s benefit-cost model does not monetize this outcome.
^\^WSIPP does not include this outcome when conducting benefit-cost analysis for this program.

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**Detailed Monetary Benefit Estimates Per Participant**

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Crime</td>
<td>Criminal justice system</td>
<td>$1</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Labor market earnings associated with opioid drug abuse or dependence</td>
<td>$564</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Health care associated with opioid drug abuse or dependence</td>
<td>$862</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Mortality associated with opioids</td>
<td>$262</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td>$1,689</td>
</tr>
</tbody>
</table>

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

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---

**Detailed Annual Cost Estimates Per Participant**

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$3,613</td>
<td>2012</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2012</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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


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Citations Used in the Meta-Analysis


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

Substance Use Disorders: Medication-assisted Treatment


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

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th>Taxpayers</th>
<th>Participants</th>
<th>Others</th>
<th>Indirect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefit to cost ratio</td>
<td>$1,684</td>
<td>$2,058</td>
<td>$863</td>
<td>$4,039</td>
</tr>
<tr>
<td>Benefits minus costs</td>
<td>$1.78</td>
<td>$3,786</td>
<td>Chance the program will produce benefits greater than the costs</td>
<td>78 %</td>
</tr>
<tr>
<td>Total benefits</td>
<td>$8,645</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($4,859)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>$3,786</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
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The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our Technical Documentation.

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<tbody>
<tr>
<td>Outcomes measured</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Psychiatric symptoms^</td>
</tr>
<tr>
<td>Opioid use disorder</td>
</tr>
<tr>
<td>Emergency department visits^^</td>
</tr>
</tbody>
</table>

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### Detailed Monetary Benefit Estimates Per Participant

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<td></td>
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<td>Participants</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Criminal justice system</td>
<td>$0</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Labor market earnings associated with opioid drug abuse or dependence</td>
<td>$562</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Health care associated with opioid drug abuse or dependence</td>
<td>$860</td>
</tr>
<tr>
<td>Opioid use disorder</td>
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<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
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</tr>
<tr>
<td>Totals</td>
<td></td>
<td>$1,684</td>
</tr>
</tbody>
</table>

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

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

### Detailed Annual Cost Estimates Per Participant

| Program costs | $4,431 | 2012 | Present value of net program costs (in 2018 dollars) $(4,859)$ | Cost range (+ or -) 30 % |
| Comparison costs | $0 | 2012 | |

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


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Citations Used in the Meta-Analysis


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

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

<table>
<thead>
<tr>
<th>Benefits to:</th>
<th></th>
<th>Benefit to cost ratio</th>
<th>Benefit minus costs</th>
<th>Chance the program will produce benefits greater than the costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxpayers</td>
<td>$1,167</td>
<td>($0.06)</td>
<td>($18,446)</td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td>$1,430</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>$597</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>($4,233)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>($1,040)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net program cost</td>
<td>($17,406)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits minus cost</td>
<td>($18,446)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Treatment age</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect sizes and standard errors used in the benefit-cost analysis</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First time ES is estimated</td>
<td>Second time ES is estimated</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>38</td>
<td>5</td>
<td>337</td>
<td>-0.566</td>
<td>0.152</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>38</td>
<td>1</td>
<td>153</td>
<td>-0.049</td>
<td>0.364</td>
</tr>
</tbody>
</table>

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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.
### Detailed Monetary Benefit Estimates Per Participant

<table>
<thead>
<tr>
<th>Affected outcome:</th>
<th>Resulting benefits:</th>
<th>Benefits accrue to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taxpayers</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Criminal justice system</td>
<td>$0</td>
</tr>
<tr>
<td>Problem alcohol use</td>
<td>Property loss associated with problem alcohol use</td>
<td>$0</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Labor market earnings associated with opioid drug abuse or dependence</td>
<td>$397</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Health care associated with opioid drug abuse or dependence</td>
<td>$595</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>Mortality associated with opioids</td>
<td>$176</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>$1,167</strong></td>
</tr>
</tbody>
</table>

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

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

### Detailed Annual Cost Estimates Per Participant

<table>
<thead>
<tr>
<th></th>
<th>Annual cost</th>
<th>Year dollars</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program costs</td>
<td>$16,356</td>
<td>2015</td>
<td>Present value of net program costs (in 2018 dollars)</td>
</tr>
<tr>
<td>Comparison costs</td>
<td>$0</td>
<td>2015</td>
<td>Cost range (+ or -)</td>
</tr>
</tbody>
</table>

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

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**Citations Used in the Meta-Analysis**


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


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

<table>
<thead>
<tr>
<th>Benefit-Cost Summary Statistics Per Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits to:</td>
</tr>
<tr>
<td>Taxpayers</td>
</tr>
<tr>
<td>Participants</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Indirect</td>
</tr>
<tr>
<td>Total benefits</td>
</tr>
<tr>
<td>Net program cost</td>
</tr>
<tr>
<td>Benefits minus cost</td>
</tr>
</tbody>
</table>

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Meta-Analysis of Program Effects

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

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<tr>
<td></td>
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</tr>
<tr>
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<td>Criminal justice system</td>
<td></td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Labor market earnings associated with alcohol abuse or dependence</td>
<td>$239</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Health care associated with alcohol abuse or dependence</td>
<td>$5</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Property loss associated with alcohol abuse or dependence</td>
<td>$0</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>Mortality associated with alcohol</td>
<td>$2</td>
</tr>
<tr>
<td>Program cost</td>
<td>Adjustment for deadweight cost of program</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td>$246</td>
</tr>
</tbody>
</table>

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### Detailed Annual Cost Estimates Per Participant

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</tr>
</thead>
<tbody>
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</tr>
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![Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)](image)

The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

**Citations Used in the Meta-Analysis**


Adolescent Community Reinforcement Approach (A-CRA)
Substance Use Disorders: Treatment for Youth
Literature review updated September 2018.

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

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

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect size and standard error</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Substance use disorder</td>
<td>1</td>
<td>81</td>
<td>-0.396</td>
<td>0.226</td>
</tr>
<tr>
<td>Crime</td>
<td>1</td>
<td>81</td>
<td>-0.275</td>
<td>0.193</td>
</tr>
<tr>
<td>Externalizing behavior symptoms</td>
<td>1</td>
<td>81</td>
<td>-0.097</td>
<td>0.193</td>
</tr>
<tr>
<td>Internalizing symptoms</td>
<td>1</td>
<td>81</td>
<td>-0.362</td>
<td>0.194</td>
</tr>
<tr>
<td>Major depressive disorder</td>
<td>1</td>
<td>81</td>
<td>-0.405</td>
<td>0.194</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect size and standard error</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Crime</td>
<td>1</td>
<td>174</td>
<td>-0.295</td>
<td>0.198</td>
</tr>
<tr>
<td>Substance use disorder</td>
<td>1</td>
<td>174</td>
<td>-0.171</td>
<td>0.198</td>
</tr>
</tbody>
</table>

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**Citations Used in the Meta-Analysis**

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

### Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect size and standard error</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>1</td>
<td>38</td>
<td>-0.670</td>
<td>0.251</td>
</tr>
</tbody>
</table>

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### Citations Used in the Meta-Analysis

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

Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Primary or secondary participant</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect size and standard error</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illicit drug use disorder</td>
<td>Primary</td>
<td>1</td>
<td>16</td>
<td>0.000, 0.000, 40, 0.000</td>
<td>0.000, 1.000</td>
</tr>
<tr>
<td>Major depressive disorder</td>
<td>Secondary</td>
<td>1</td>
<td>45</td>
<td>-0.068, 0.254, 40, 0.254</td>
<td>-0.068, 0.788</td>
</tr>
<tr>
<td>Engagement/Retention</td>
<td>Primary</td>
<td>5</td>
<td>138</td>
<td>1.223, 0.324, 40, 0.324</td>
<td>1.223, 0.001</td>
</tr>
</tbody>
</table>

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Citations Used in the Meta-Analysis

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

Substance Use Disorders: Treatment for Adults

Literature review updated May 2014.

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

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect size and standard error</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>1</td>
<td>27</td>
<td>0.149</td>
<td>0.264</td>
</tr>
<tr>
<td>Illicit drug use disorder</td>
<td>2</td>
<td>39</td>
<td>-0.024</td>
<td>0.348</td>
</tr>
<tr>
<td>Cannabis use</td>
<td>1</td>
<td>27</td>
<td>-0.090</td>
<td>0.263</td>
</tr>
<tr>
<td>Psychiatric symptoms</td>
<td>1</td>
<td>27</td>
<td>-0.596</td>
<td>0.270</td>
</tr>
</tbody>
</table>

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Citations Used in the Meta-Analysis


Motivational Enhancement Therapy (MET) (problem drinkers)  
Substance Use Disorders: Treatment for Adults  
Literature review updated May 2014.

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

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect size and standard error</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>1</td>
<td>42</td>
<td>-0.449</td>
<td>0.353</td>
</tr>
</tbody>
</table>

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Citations Used in the Meta-Analysis

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

Substance Use Disorders: Treatment for Adults
Literature review updated December 2016.

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

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect size and standard error</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement/Retention</td>
<td>4</td>
<td>404</td>
<td>1.185, 0.306</td>
<td>39, 1.185, 0.001</td>
</tr>
</tbody>
</table>

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Citations Used in the Meta-Analysis


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

Substance Use Disorders: Treatment for Adults

Literature review updated December 2016.

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

Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect size and standard error</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Engagement/Retention</td>
<td>4</td>
<td>336</td>
<td>0.994</td>
<td>0.292</td>
</tr>
</tbody>
</table>

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Citations Used in the Meta-Analysis


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

More information on this program is available at:

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Primary or secondary participant</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect size and standard error</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Out-of-home placement</td>
<td>Secondary</td>
<td>1</td>
<td>54</td>
<td>0.371</td>
<td>0.310</td>
</tr>
<tr>
<td>Substance use disorder</td>
<td>Primary</td>
<td>1</td>
<td>23</td>
<td>-0.046</td>
<td>0.245</td>
</tr>
<tr>
<td>Repeat pregnancy</td>
<td>Primary</td>
<td>1</td>
<td>54</td>
<td>0.035</td>
<td>0.297</td>
</tr>
<tr>
<td>Repeat birth</td>
<td>Primary</td>
<td>1</td>
<td>54</td>
<td>0.000</td>
<td>0.331</td>
</tr>
<tr>
<td>Well-child visits</td>
<td>Secondary</td>
<td>1</td>
<td>54</td>
<td>0.067</td>
<td>0.556</td>
</tr>
<tr>
<td>Preschool test scores</td>
<td>Secondary</td>
<td>1</td>
<td>23</td>
<td>0.047</td>
<td>0.289</td>
</tr>
</tbody>
</table>

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Citations Used in the Meta-Analysis


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

Substance Use Disorders: Treatment for Adults

Literature review updated September 2016.

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

Meta-Analysis of Program Effects

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>Primary or secondary participant</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect size and standard error</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Substance use disorder</td>
<td>Primary</td>
<td>1</td>
<td>43</td>
<td>0.072</td>
<td>0.218</td>
</tr>
<tr>
<td>Child abuse and neglect</td>
<td>Secondary</td>
<td>1</td>
<td>35</td>
<td>-0.030</td>
<td>0.310</td>
</tr>
<tr>
<td>Out-of-home placement</td>
<td>Secondary</td>
<td>1</td>
<td>35</td>
<td>0.124</td>
<td>0.335</td>
</tr>
<tr>
<td>Post-traumatic stress</td>
<td>Primary</td>
<td>1</td>
<td>35</td>
<td>0.122</td>
<td>0.251</td>
</tr>
</tbody>
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Program Description:

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Age</th>
<th>Adjusted effect size and standard error</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opioid use disorder</td>
<td>2</td>
<td>222</td>
<td>36</td>
<td>-0.538</td>
<td>-0.538</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.156</td>
<td>0.001</td>
</tr>
</tbody>
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**Citations Used in the Meta-Analysis**


Naltrexone implants
Substance Use Disorders: Medication-assisted Treatment
Literature review updated December 2016.

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

<table>
<thead>
<tr>
<th>Outcomes measured</th>
<th>No. of effect sizes</th>
<th>Treatment N</th>
<th>Adjusted effect size and standard error</th>
<th>Unadjusted effect size (random effects model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>4</td>
<td>247</td>
<td>-0.734</td>
<td>0.046</td>
</tr>
</tbody>
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Citations Used in the Meta-Analysis


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

### Meta-Analysis of Program Effects

<table>
<thead>
<tr>
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<th>No. of effect sizes</th>
<th>Treatment N</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ES</td>
<td>SE</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>2</td>
<td>212</td>
<td>0.077</td>
<td>0.181</td>
</tr>
</tbody>
</table>

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