

# Washington State Institute for Public Policy

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## Preventing and Treating Youth Marijuana Use: *An Updated Review of the Evidence*

Initiative 502 (I-502) legalized recreational marijuana use for adults in Washington State. The law directs the Washington State Institute for Public Policy (WSIPP) to conduct a benefit-cost evaluation of the implementation of I-502.<sup>1</sup>

The initiative also requires the Division of Behavioral Health and Recovery (DBHR) in the Department of Social and Health Services (DSHS) to allocate at least 85% of its share of disbursements from the state's dedicated marijuana fund to "evidence-based and cost-beneficial programs and practices" to prevent and treat use among middle and high school-aged youth.<sup>2</sup>

In September 2014, to help DBHR meet this requirement and as part of our broader I-502 assignment, WSIPP published an independent benefit-cost analysis of 13 youth prevention programs from DBHR's preliminary list of evidence-based programs with marijuana prevention outcomes.<sup>3</sup>

<sup>1</sup> The initiative requires a progress report by September 2015 and the final outcome evaluation by 2032.

<sup>2</sup> Initiative Measure No. 502. Full text available at <http://apps.leg.wa.gov/documents/billdocs/2011-12/Pdf/Initiatives/Initiatives/INITIATIVE%20502.pdf>

<sup>3</sup> Hanley, S., & Aos, S. (2014). *Preventing youth substance use: A review of thirteen programs*. (Doc. No. 14-09-3201). Olympia: Washington State Institute for Public Policy.

### Summary

Initiative 502, passed by Washington voters in November 2012, legalized recreational marijuana use for adults in the state. The initiative directs WSIPP to evaluate the policy in a series of reports between 2015 and 2032.

As part of this assignment, we reviewed the evaluation literature on 23 youth marijuana prevention and treatment programs. The evidence indicates that 18 of the 23 programs have, on average, benefits that are greater than costs.

The legislature has established a three-tiered classification for programs: "evidence-based," "research-based," and "promising." Using these definitions, three of the reviewed programs are evidence-based, 14 are research-based, and two are promising.

In this update, we analyze ten additional prevention and treatment programs that have been studied regarding their impacts on youth marijuana use. We apply WSIPP's standard research methodology to determine whether—and to what degree of certainty—each program's benefits are likely to exceed costs. Our methodology involves a three-step procedure, described in the next section.

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## I. Research Approach

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When WSIPP carries out study assignments from the legislature to identify what works in public policy, we implement a three-step research approach.

### Step 1: What Works? What Does Not?

In the first step, we estimate whether various programs and policies can achieve desired outcomes, such as reductions in youth marijuana use. We carefully analyze all high-quality studies from the United States and elsewhere to identify those programs and policies found to impact outcomes. We focus on research studies with strong evaluation designs and exclude studies with weak research methods.

Our empirical approach follows a meta-analytic framework to systematically assess all credible evaluations we can locate on a given topic. Given the weight of the collective evidence, we calculate an average expected effect of a program or policy on a particular outcome of interest—in this case, marijuana use.

In our analyses, we consider the programs' effects on all reported outcomes. When we reviewed the evaluation literature for these 23 programs and conducted the meta-analyses, we examined their effects on marijuana use as well as alcohol, tobacco, and other drug use; mental health (e.g., anxiety and depression); school-related outcomes such as test scores and high school graduation; and crime. Examining these additional outcomes allows us to get a comprehensive view of effectiveness and provide better estimates of the overall benefits and costs that can be expected from statewide implementation.

### Step 2: What Makes Economic Sense?

Next, we consider the costs and benefits of implementing the program or policy by answering two questions:

- How much would it cost Washington taxpayers to produce the results found in Step 1?
- How much would it be worth to people in Washington State to achieve the results found in Step 1?

That is, in dollars and cents, what are the costs and benefits of each program or policy?

To answer these questions, we have developed, and continue to refine, an economic model that estimates benefits and costs. The model provides an internally consistent monetary valuation so program and policy options can be compared on an apples-to-apples basis. Our benefit-cost results include standard financial statistics: net present values and benefit-cost ratios.

We present monetary estimates from three perspectives:

- a) program participants,
- b) taxpayers, and
- c) other people in society.

The sum of the three perspectives provides a "total Washington" view on whether a program or policy produces benefits that exceed costs.

### Step 3: What is the Risk in the Benefit-Cost Findings?

Any tabulation of benefits and costs involves a degree of risk about the estimates calculated. This is expected in any investment analysis, whether in the private or public sector. To assess the riskiness of our conclusions, we perform a "Monte Carlo simulation" in which we vary key factors in our calculations. The purpose of this analysis is to determine the probability that a particular program or policy will at least break even.

Thus, we produce two "big picture" findings for each program: an expected benefit-cost result and, given our understanding of the risks, the probability that the program will at least have benefits that are greater than costs.

Brief descriptions of the 23 programs contained in this report can be found in the Appendix and on our website.<sup>4</sup> Readers interested in an in-depth description of our research methods can review our Technical Documentation.<sup>5</sup>

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<sup>4</sup> <http://www.wsipp.wa.gov/BenefitCost>

<sup>5</sup> Washington State Institute for Public Policy, (2014). *Benefit-cost technical documentation*. Olympia, WA: Author. Available online at <http://www.wsipp.wa.gov/TechnicalDocumentation/WsippBenefitCostTechnicalDocumentation.pdf>

## II. Findings

The findings from our benefit-cost analyses are presented in Exhibit 1 (next page).<sup>6</sup> Of the 21 programs for which we were able to calculate benefits and costs, 18 have a favorable result.<sup>7</sup> That is, 18 of the programs have, on average, benefits that exceed costs.

In Exhibit 1, we also present the second key bottom-line finding for each program: the odds that benefits will exceed costs, after we take into account the uncertainty in our estimates. The higher the odds, the more confident we are that benefits will, in fact, outweigh cost. For five of 21 programs reviewed, benefits exceed costs at least 75% of the time.

The legislature has established a three-tiered classification for programs: evidence-based, research-based, and promising (see sidebar).<sup>8</sup> Using these definitions, three programs—Life Skills Training, Communities that Care, and Teen Marijuana Check-Up—have a sufficiently high probability to establish them as top-tier evidence-based programs. Fourteen programs meet the criteria for second-tier research-based programs, while two programs are promising. Two programs (InShape and Project SUCCESS) produce poor outcomes. Exhibit 2 (on page 6) summarizes the classifications.

<sup>6</sup> For detailed results on each program, please see [http://www.wsipp.wa.gov/ReportFile/1572/Wsipp\\_Preventing-and-Treating-Youth-Marijuana-Use-An-Updated-Review-of-the-Evidence\\_Benefit-Cost-Results.pdf](http://www.wsipp.wa.gov/ReportFile/1572/Wsipp_Preventing-and-Treating-Youth-Marijuana-Use-An-Updated-Review-of-the-Evidence_Benefit-Cost-Results.pdf)

<sup>7</sup> We did not find any evaluations that met our criteria for two programs on DBHR's preliminary list (Project Venture and Red Cliff Wellness School Curriculum). As a result, we cannot determine the potential effectiveness of these two programs, and they are not included in our benefit-cost results.

<sup>8</sup> RCW 71.24.025. Since 2012, WSIPP has been directed by the legislature to create evidence-based, research-based, and promising program inventories for adult behavioral health, child welfare, children's mental health services, juvenile justice, adult corrections, and the K-12 Learning Assistance Program.

### **Legislative Definitions of Evidence-Based, Research-Based, and Promising Practices Contained in RCW 71.24.025**

#### Evidence-based

*A program or practice that has been tested in heterogeneous or intended populations with multiple randomized, or statistically controlled evaluations, or both; or one large multiple site randomized, or statistically controlled evaluation, or both, where the weight of the evidence from a systemic review demonstrates sustained improvements in at least one outcome. "Evidence-based" also means a program or practice that can be implemented with a set of procedures to allow successful replication in Washington and, when possible, is determined to be cost-beneficial.*

#### Research-based

*A program or practice that has been tested with a single randomized, or statistically controlled evaluation, or both, demonstrating sustained desirable outcomes; or where the weight of the evidence from a systemic review supports sustained outcomes [ . . . ] but does not meet the full criteria for evidence-based.*

#### Promising

*A practice that, based on statistical analyses or a well-established theory of change, shows potential for meeting the evidence-based or research-based criteria [ . . . ].*

**Exhibit 1**

**Benefits and Costs for Programs to Prevent or Treat Youth Marijuana Use**

<b>Program name</b>	<b>Total Benefits</b>	<b>Taxpayer benefits</b>	<b>Non-taxpayer benefits</b>	<b>Costs</b>	<b>Benefits minus costs (net present value)</b>	<b>Benefit to cost ratio</b>	<b>Odds of a positive net present value</b>
<b><u>Prevention Programs</u></b>							
Life Skills Training	\$3,461	\$804	\$2,657	(\$97)	<b>\$3,363</b>	\$35.66	<b>93%</b>
Communities that Care	\$2,079	\$626	\$1,453	(\$574)	<b>\$1,505</b>	\$3.70	<b>85%</b>
Project STAR	\$3,917	\$941	\$2,977	(\$499)	<b>\$3,418</b>	\$7.86	<b>84%</b>
Lions Quest Skills for Adolescence	\$461	\$89	\$372	(\$95)	<b>\$366</b>	\$4.88	<b>75%</b>
SPORT	\$1,339	\$308	\$1,030	(\$38)	<b>\$1,300</b>	\$34.84	<b>73%</b>
keepin' it REAL	\$813	\$244	\$569	(\$48)	<b>\$765</b>	\$16.98	<b>73%</b>
Strengthening Families for Parents and youth 10-14	\$4,259	\$1,061	\$3,197	(\$1,098)	<b>\$3,160</b>	\$3.89	<b>70%</b>
Multidimensional Treatment Foster Care	\$17,286	\$4,256	\$13,031	(\$8,111)	<b>\$9,175</b>	\$2.13	<b>67%</b>
Case management in schools	\$5,252	\$1,479	\$3,773	(\$248)	<b>\$5,005</b>	\$21.21	<b>66%</b>
Project Northland	\$717	\$184	\$533	(\$185)	<b>\$532</b>	\$3.87	<b>65%</b>
Guiding Good Choices (formerly Preparing for the Drug Free Years)	\$1,951	\$653	\$1,298	(\$655)	<b>\$1,296</b>	\$2.99	<b>64%</b>
Caring School Community (formerly Child Development Project)	\$8,611	\$2,171	\$6,440	(\$1,218)	<b>\$7,393</b>	\$7.06	<b>62%</b>
Mentoring for students: Community-based (including volunteer costs)	\$10,694	\$3,513	\$7,181	(\$3,193)	<b>\$7,501</b>	\$3.36	<b>60%</b>
Project ALERT	\$331	\$119	\$213	(\$147)	<b>\$184</b>	\$2.25	<b>55%</b>
Project Towards No Drug Abuse (TND)	\$174	\$44	\$130	(\$64)	<b>\$110</b>	\$2.73	<b>51%</b>
Family Check-Up (also known as Positive Family Support)	\$79	\$53	\$26	(\$323)	(\$244)	\$0.24	<b>47%</b>
InShape	(\$309)	(\$90)	(\$219)	(\$15)	(\$324)	(\$21.00)	<b>47%</b>
Project SUCCESS	(\$209)	(\$20)	(\$189)	(\$155)	(\$364)	(\$1.35)	<b>46%</b>
<b><u>Treatment Programs</u></b>							
Teen Marijuana Check-Up	\$1,898	\$588	\$1,310	(\$106)	<b>\$1,793</b>	\$17.94	<b>100%</b>
Adolescent Assertive Continuing Care	\$11,089	\$3,387	\$7,702	(\$2,181)	<b>\$8,907</b>	\$5.09	<b>68%</b>
Multidimensional Family Therapy (MDFT) for substance abusers	\$14,292	\$4,308	\$9,984	(\$7,804)	<b>\$6,488</b>	\$1.84	<b>67%</b>