

Inventory of Programs for the Prevention and Treatment of Youth Cannabis Use: *December 2019 Update*

WASHINGTON STATE INSTITUTE FOR PUBLIC POLICY

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presentation to
SPE Consortium

Eva Westley

Washington State Institute for Public Policy (WSIPP)

Mission: Carry out practical, non-partisan research—
at the direction of the legislature—on issues of
importance to Washington State

Created by the 1983 Legislature

Common types of research

- ✓ Meta-analyses
- ✓ Benefit-cost analyses
- ✓ Evaluations



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WSIPP's Youth Cannabis Inventory

Washington State Institute for Public Policy

110 Fifth Avenue SE, Suite 214 • PO Box 40999 • Olympia, WA 98504 • 360.664.9800 • www.wsipp.wa.gov

December 2019

Updated Inventory of Programs for the Prevention and Treatment of Youth Cannabis Use

Revised January 8, 2020 for technical corrections

Initiative 502 (I-502), passed by Washington voters in 2012, legalized the limited adult possession and private consumption of cannabis/marijuana, as well as its licensing, production, and sale. The law directs the Washington State Institute for Public Policy (WSIPP) to conduct a benefit-cost evaluation of the implementation of I-502.¹ State law also requires the Health Care Authority's Division of Behavioral Health and Recovery (DBHR) to expend substance abuse prevention funding derived from cannabis revenues on programs demonstrated to be effective. Specifically, the law requires at least 85% of programs funded by cannabis revenues to be evidence-based or research-based and up to 15% to be promising practices.²

In this report, we provide an inventory of evidence-based, research-based, and promising programs intended for the prevention or treatment of youth substance use (the Youth Cannabis Inventory). The programs reviewed include those nominated by DBHR as well as similar programs from WSIPP's current set of inventories that have been evaluated for cannabis outcomes.³ We rate the level of evidence for each program using the same methods used in other WSIPP inventories, as described below.

This December 2019 report is the fourth update of our Youth Cannabis Inventory and reflects changes from WSIPP's ongoing work updating systematic research reviews and BC model. We undertook this update at the direction of the 2018 Legislature.⁴

Section I of this report describes our approach to creating the inventory, including WSIPP's approach to synthesizing research evidence, program classification definitions, and the program classification process. In Section II, we describe how program classifications might change over time. Section III lists updates to the current inventory. Section IV includes limitations. The complete updated inventory is attached at the end of this report.

¹ RCW 69.50.050.

² RCW 69.50.040.

³ Miller, M., Goodwin, R., Grice, J., Hoagland, C., & Westley, E. (2016). *Updated inventory of evidence-based and research-based practices: Prevention and intervention services for adult behavioral health*. (Doc. No. 16-09-4101). Olympia: Washington State Institute for Public Policy; Cramer, J., Bitney, K., & Wanner, P. (2018). *Updated inventory of evidence- and research-based practices: Washington's K-12 Learning Assistance Program*. (Doc. No. 18-06-2201). Olympia: Washington State Institute for Public Policy; and EBPI & WSIPP. (2019). *Updated inventory of evidence-based, research-based, and promising practices: For prevention and intervention services for children and juveniles in the child welfare, juvenile justice, and mental health systems*. (Doc. No. E25H82536-10). Olympia: Washington State Institute for Public Policy.

⁴ The 2018 Legislature directed WSIPP to "update the inventory of programs for the prevention and treatment of youth cannabis use published in December 2016." *Engrossed Substitute Senate Bill 6032, Chapter 299, Laws of 2018, Section 506(18)(a).*

WSIPP's Youth Cannabis Inventory is a "menu" of evidence-based, research-based, and promising programs

First published the Youth Cannabis Inventory in 2014, with updates in 2015, 2016, 2018, and 2019.

December 2019 Updated Inventory of Programs for the Prevention and Treatment of Youth Cannabis Use

Program/intervention	Level of evidence	Effective for cannabis	Benefit-cost percentage	Reason program does not meet suggested evidence-based criteria	Percent youth of color
Prevention					
Alcohol Literacy Challenge (for college students)	⊕		50%	Benefit-cost/heterogeneity	24%
Alcohol Literacy Challenge (for high school students)	⊕		58%	Single evaluation	33%
Athletes Training and Learning to Avoid Steroids (ATLAS)	Null			Weight of the evidence	22%
Brief intervention for youth in medical settings	⊕		46%	Benefit-cost	65%
Caring School Community (formerly Child Development Project)	Null		60%	Weight of the evidence	47%
Communities That Care	⊕		86%		36%
Compliance checks for alcohol	⊕			Heterogeneity	25%
Compliance checks for tobacco	⊕			Heterogeneity	28%
Coping Power Program	⊕		58%	Benefit-cost	75%
Curriculum-Based Support Groups (CBSG)	⊕			Weight of the evidence	90%
Familias Unidas	⊕		67%	Benefit-cost	100%
Family Matters	⊕		73%	Benefit-cost/heterogeneity	22%
Guiding Good Choices (formerly Preparing for the Drug Free Years)	⊕		51%	Single evaluation	1%
InShape	⊕		50%	Single evaluation	28%
Keepin' it REAL	Null		62%	Weight of the evidence	83%
LifeSkills Training	⊕		62%	Benefit-cost	38%
Lions Quest Skills for Adolescence	⊕	✓	70%	Benefit-cost	74%
Marijuana Education Initiative Impact Awareness curriculum	⊕		50%	Single evaluation	88%
Mentoring: Big Brothers Big Sisters Community-Based (taxpayer costs only)	⊕		41%	Benefit-cost	57%
Mentoring: Community-based (taxpayer costs only)	⊕		66%	Benefit-cost	85%
Multicomponent environmental interventions to prevent youth alcohol use	⊕		29%	Benefit-cost/heterogeneity	19%
Multicomponent environmental interventions to prevent youth tobacco use	⊕		82%	Heterogeneity	21%
Positive Action	⊕	✓	94%		57%
Positive Family Support/Family Check-Up	⊕	✓	70%	Benefit-cost	40%
Project ALERT	Null		42%	Weight of the evidence	28%

⊕ Evidence-based ⊕ Research-based ⊕ Promising Null Null outcomes See definitions and notes on page 16.

Notes:

¹ At least one cannabis outcome with a meta-analytic effect size estimate demonstrating reduced cannabis use with a p-value < 0.20.

Many interventions produce effects on more than one type of outcome. This is especially true for prevention programs which often target multiple issues. WSIPP analyzes all relevant outcomes, and the evidence rating and benefit-cost results for a given program are often based on a variety of different outcomes, such as school achievement, substance use, mental health, and crime. In the column to the right of the level of evidence, we denote with a check mark those programs that have evidence of effectiveness for cannabis use specifically (p < 0.20). In addition to the overall level of evidence for a program, it is important to consider the specific outcomes the program has achieved to determine suitability for a given application. Each program name in the table links to a results page where a table, "Meta-Analysis of Program Effects," lists all of the outcomes analyzed for each program.

How WSIPP's Youth Cannabis Inventory is used

Informs the list of evidence-based and research-based programs eligible for **Dedicated Marijuana Account (DMA) Prevention Expansion Services** funding:

- 85% of DMA funds can be used to support evidence-based and research-based programs
- 15 % of DMA funds can be used to support promising programs

Complete list is developed by DBHR through ongoing, collaborative process that includes:

- University of Washington's Social Development Research Group (SDRG)
- Washington State University (WSU)
- Washington State Prevention Research Subcommittee (PRSC)
- ...and many folks at HCA and DBHR

WSIPP's Youth Cannabis Inventory *informs* this process – but is not the only source of information used to develop the final list of EB/RB programs

Building the inventory

1. Identify programs to review
2. Conduct WSIPP meta-analysis and benefit-cost analysis using a standard approach
3. Classify programs using standardized definitions

Step 1:

Identify programs to review

In 2014 (original Youth Cannabis Inventory):

- Programs identified in consultation with DBHR/DSHS
- First list included 13 school-, family-, and community-based programs

2015-2019:

- New programs/program updates identified in consultation with Evidence-Based Practice Work Group convened by DSHS/DBHR/HCA, and other agency stakeholders
- Program updates contingent upon capacity and funding. WSIPP updates programs when we have a legislative assignment or Board-approved project that directs us to do so.

Our goal when implementing updates and revisions is to report rigorous, up-to-date, relevant information that addresses the needs of stakeholders

Step 2:

Conduct meta-analysis and benefit-cost analysis

1. **Evidence: What works to improve outcomes; what does not?**

- We meta-analyze all rigorous evaluations of policies to improve public outcomes of legislative interest

2. **Economics: What is the return on investment?**

- We conduct a formal benefit-cost analysis
- The model estimates benefits and costs to the people of Washington State using a consistent framework

3. **Risk: What is the likelihood that a program or policy will at least “break even?”**

- We run a Monte Carlo analysis, with 10,000 simulation runs varying key parameters
- This approach models the uncertainty around measurement and assumptions to assess the riskiness of each option

EXAMPLE

Project Towards No Drug Abuse

Program description

Project Towards No Drug Abuse is a manualized program. Using a variety of activities, the program aims to increase self-control, communication, decision-making, and motivation to not use substances.

- Classroom-based
- Programming targets high schoolers
- Typically delivered in twelve 45-minute sessions by teachers or health educators

Volume of evidence

6 rigorous studies

EXAMPLE

Project Towards No Drug Abuse

Meta-analytic findings

Outcomes	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors at T1 and T2						P-value at ES T1
			ES T1	SE	Age	ES T2	SE	Age	
Alcohol use before end of high school	6	4467	-0.004	0.034	16	-0.004	0.034	18	0.729
Cannabis use before end of high school	6	4467	-0.009	0.034	16	-0.009	0.034	18	0.465
Illicit drug use before end of high school	6	4467	-0.027	0.034	16	-0.027	0.024	18	0.058
Smoking before end of high school	6	4467	-0.010	0.033	16	-0.010	0.033	18	0.420

- ✓ On average, the program *decreases the likelihood of illicit drug use* before the end of high school. We find no significant effect on alcohol use, cannabis use, or smoking by the end of high school.

EXAMPLE

Project Towards No Drug Abuse

Benefit-cost findings

Total benefits	Costs	Benefits minus costs (net present value)	Benefit to cost ratio	Chance benefits exceed costs
\$389	(\$68)	\$321	\$5.70	54%

- ✓ On average, the program produces a net gain of **\$321** per participant.
 - The program costs **\$68** per participant, on average
 - When we run our Monte Carlo simulation 10,000 times, the benefits of this program outweigh the costs **54%** of the time

Step 3:

Classify program based on WSIPP's findings

WSIPP uses standard definitions across all of our inventories.

We developed these definitions with UW's Evidence-Based Practice Institute in 2012.

Evidence-based:

- Two or more scientifically rigorous evaluations
- Improvement in at least one desired outcome (p-value <0.20)
- Cost-beneficial (benefits exceed costs at least 75% of the time)
- Tested on a heterogeneous population (at least as diverse as Washington)

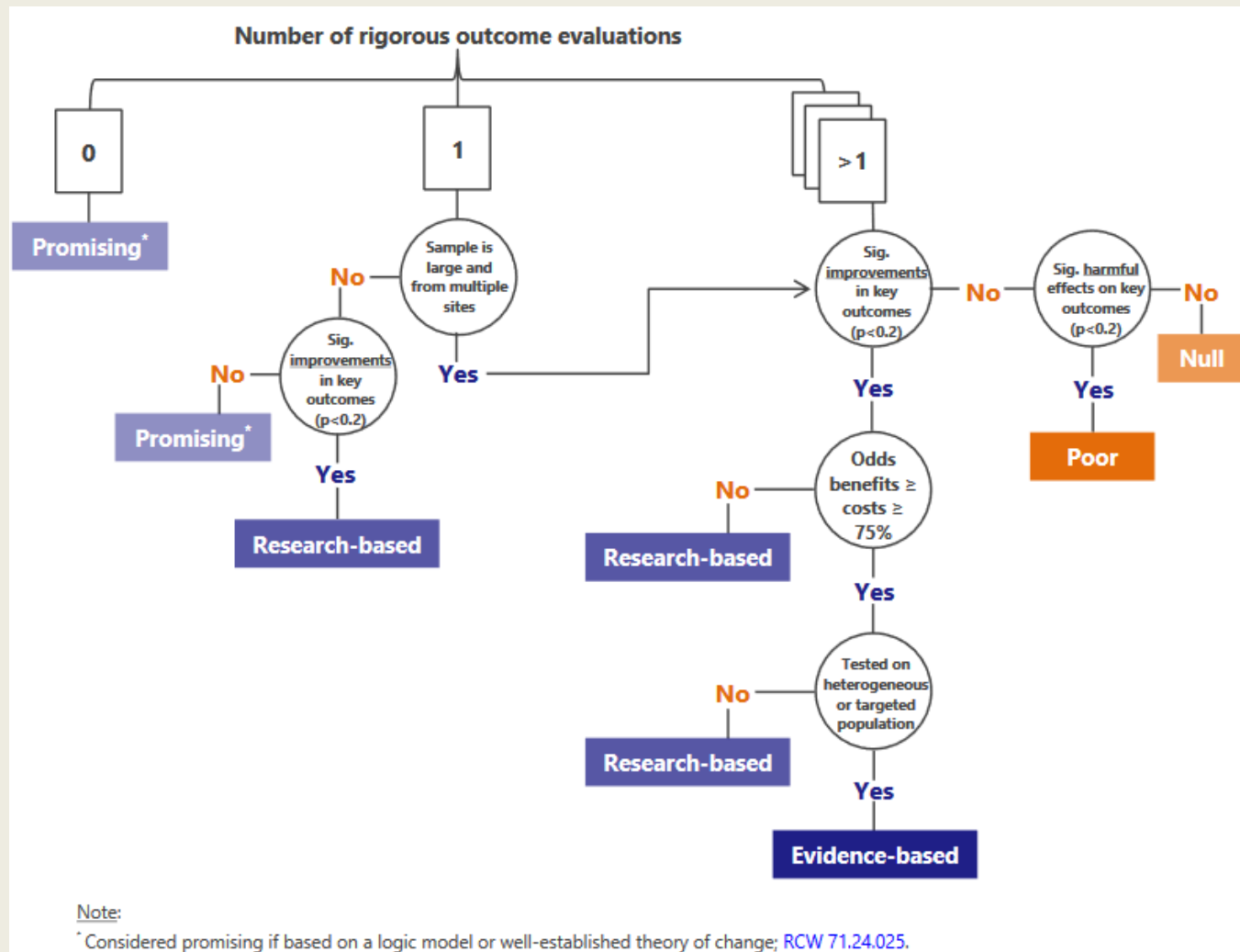
Research-based:

- At least one scientifically rigorous evaluation
- Improvement in at least one desired outcome (p-value <0.20)

Promising:

- Well-established theory of change

Step 3: Classify program based on WSIPP's findings



WSIPP's 2019 update to the Youth Cannabis Inventory

The 2018 Legislature directed WSIPP to “update the inventory of programs for the prevention and treatment of youth cannabis use published in December 2016.” ESSB 6032, Chapter 299, Laws of 2018, Section 606(18)(a).

- This supported out 2018 and 2019 updates to the inventory

WSIPP identified programs for review through consultation with the Evidence-Based Practice Workgroup (convened by DBHR/HCA)

At a glance

47 programs are listed on the Youth Cannabis Inventory

- 40 prevention programs
- 7 treatment programs

10 programs are effective for impacting cannabis use outcomes

How to read the inventory

Program/intervention	Level of evidence	Effective for cannabis	Benefit-cost percentage	Reason program does not meet suggested evidence-based criteria	Percent youth of color
Prevention (continued)					
Project Northland	⊙		53%	Benefit-cost	55%
Project SHOUT (Students Helping Others Understand Tobacco)	Null			Weight of the evidence	43%
Project STAR (Students Taught Awareness and Resistance; also known as the Midwestern Prevention Project)	⊙	✓	70%	Benefit-cost/heterogeneity	21%
Project SUCCESS	Null		38%	Weight of the evidence	37%
Project Towards No Drug Abuse	⊙		54%	Benefit-cost	70%
Project Towards No Tobacco Use	●		78%		40%
PROSPER (PROmoting School-community-university Partnerships to Enhance Resilience)	⊙	✓	57%	Benefit-cost/heterogeneity	15%
Protecting You/Protecting Me	P			Weight of the evidence	92%
Raising Healthy Children	Null			Weight of the evidence	18%
SPORT	⊙		51%	Benefit-cost	49%

● Evidence-based ⊙ Research-based P Promising Null Null outcomes See definitions and notes on page 16.

Notes:

✓ At least one cannabis outcome with a meta-analytic effect size estimate demonstrating reduced cannabis use with a p-value < 0.20.

Many interventions produce effects on more than one type of outcome. This is especially true for prevention programs which often target multiple issues. WSIPP analyzes all relevant outcomes, and the evidence rating and benefit-cost results for a given program are often based on a variety of different outcomes, such as school achievement, substance use, mental health, and crime. In the column to the right of the level of evidence, we denote with a check mark those programs that have evidence of effectiveness for cannabis use specifically (p < 0.20). In addition to the overall level of evidence for a program, it is important to consider the specific outcomes the program has achieved to determine suitability for a given application. Each program name in the table links to a results page where a table, "Meta-Analysis of Program Effects," lists all of the outcomes analyzed for each program.

How to read the inventory

Level of evidence: How is this program classified?

This column reflects the definitions we describe in this presentation. Symbols are defined at the bottom of the table.

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How to read the inventory

Effective for cannabis: Does this program reduce cannabis use?

Programs denoted with a check mark have at least one cannabis outcome with a meta-analytic effect size demonstrating reduced cannabis use ($p < 0.20$)

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How to read the inventory

Benefit-cost percentage: What is the likelihood that the benefits of this program outweigh the costs?

This column reflects the results of our Monte Carlo simulations.

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How to read the inventory

Percent youth of color: Among studies included in this analysis, what percent of participants are youth of color?

In Washington, 34% of children/youth are people of color. Has this program/policy been studied in a population at least as diverse as Washington?

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How to read the inventory

Reason program does not meet suggested evidence-based criteria: If this program does not meet the criteria to be considered “evidence-based”, what is the reason?

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Why classifications change across iterations of the inventory

The inventory is a **snapshot** that changes as new evidence and information is incorporated into our analyses

Definitions of evidence-based, research-based, and promising practices have not changed since 2012. Programs may be classified differently with each update due to:

- ✓ **Changes to program analyses.** When we update our review of a program or intervention (“program”), we conduct a complete literature search, update our meta-analyses, and construct new program costs. We may also make improvements to our meta-analytic methods to reflect current best practices.
- ✓ **Changes in WSIPP’s standard benefit-cost model.** WSIPP makes continuous improvements to our BC model to reflect our most up-to-date estimates of the valuation of programmatic benefits.

Changes in the 2019 inventory

WSIPP reclassified one program:

Project ALERT: Null

The classification changed from research-based (in December 2018) to null (in December 2019), due to adding new research literature and updates to our statistical methods.

WSIPP divided the “school-based tobacco prevention programs” program into two separate analyses. We now report on two new programs:

Project Towards No Tobacco Use: Evidence-based

Project SHOUT (Students Helping Others Understand Tobacco): Null

Summary

- WSIPP published our fifth iteration of the Youth Cannabis Inventory in December 2019
- The inventory currently lists 40 prevention programs and 7 treatment programs
- WSIPP's builds the inventory using a standardized process that includes:
 - ✓ Program identification
 - ✓ Meta-analysis and benefit-cost analysis
 - ✓ Program classification with standard definitions
- WSIPP's Youth Cannabis Inventory informs the list of evidence-based and research-based programs eligible for DMA funds – but is not the only source of information used to develop the final list of EB/RB programs
- The inventory is a snapshot that changes as new evidence and information is incorporated into our analyses. In 2019, one program was re-classified and two programs were added.

Additional resources

Website: www.wsipp.wa.gov

Reports page: www.wsipp.wa.gov/Reports

- Lists all available WSIPP reports
- Searchable by topic area, author, “inventory”, or keywords

Results page: www.wsipp.wa.gov/BenefitCost

- Table of benefit-cost results for all programs reviewed by WSIPP
- Searchable by topic area and keywords

WSIPP produces inventories for...

Children’s services: Child welfare, juvenile justice, mental health, general prevention

→ *All youth cannabis inventory programs are cross-listed on this inventory*

Adult behavioral health: Mental health and substance use

Learning Assistance Program: K-12 education

Adult corrections

Youth cannabis prevention and treatment

Questions?

Eva Westley, MPH
Senior Research Associate

eva.westley@wsipp.wa.gov

Appendix

Step 1: What is the evidence?

Our first step is to estimate the average effect of a program/policy on desired outcomes.

- ✓ **Find all program evaluations on a given topic.**
- ✓ **Select only those that meet standards for rigor.**
 - Comparison group?
 - Statistical controls?
 - Causality
- ✓ **Meta-analyze average effect on each outcome.**
 - Standardized metric
 - How much change can we expect?

For example,

- ❖ How much change do we observe in anxiety on average?
- ❖ How much change do we observe in child abuse and neglect on average?

Step 2: What are the economics?

Next, we determine whether the lifetime benefits we can expect from a program outweigh the cost of the program.

- ✓ **Conduct a formal benefit cost-analysis, using WSIPP's benefit-cost model.**

Common types of outcomes, and their related monetary benefits, include:

- ❖ Behavioral and physical health disorders
 - Labor market earnings
 - Health care utilization and costs
 - Mortality (value of a statistical life)
- ❖ Early substance use
 - Links to later abuse/dependence
- ❖ High school graduation
 - Labor market earnings
 - Health care utilization and costs
- ❖ Crime
 - Criminal justice system
 - Victims

Step 3: What is the risk?

Finally, we determine the likelihood that the benefits will outweigh the costs of the program.

- ✓ **Conduct a Monte Carlo analysis to model the uncertainty inherent in economic analyses**
 - 10,000 simulation runs
 - Vary key parameters in the model, such as program effectiveness, program costs, and other general assumptions
 - Bottom-line statistic: How likely for the program to at least “break even” (pay for itself over the long term)?