

# Overview of WSIPP Research Related To Youth Cannabis Use

WASHINGTON STATE INSTITUTE FOR PUBLIC POLICY

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WORK SESSION

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Non-partisan research at legislative/Board direction

## Our approach

- ✓ Academically rigorous research
- ✓ Written for a lay audience
- ✓ Publicly available

## Frequent topics of inquiry

- ✓ Crime
- ✓ Child welfare
- ✓ Education
- ✓ Public Health/Prevention
- ✓ Behavioral Health
- ✓ Health Care



# WASHINGTON STATE INSTITUTE FOR PUBLIC POLICY

## Typical research questions

- 1) What works?
  - ✓ Inventories of evidence-based and research-based programs
  - ✓ Outcome evaluations
- 2) What's cost-beneficial?
- 3) How does Washington compare to other states?

# OUTLINE

## Focus on youth cannabis-related work

- 1) Youth Cannabis Inventory
- 2) Twenty-year evaluation and benefit-cost analysis of I-502
  - ✓ 2017 findings related to youth cannabis use
  - ✓ Future research on youth substance use (coming 2022)

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

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# YOUTH CANNABIS INVENTORY

## A “menu” of evidence-based, research-based, and promising programs

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 |
|---|-------------------|------------------------|-------------------------|--|------------------------|
| <b>Prevention</b>   |                   |                        |                         |  |                        |
| Alcohol Literacy Challenge (for college students)                         | ⊙                 |                        | 50%                     | Benefit-cost/heterogeneity                                     | 24%                    |
| Alcohol Literacy Challenge (for high school students)                     | P                 |                        | 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%                     |  |                        |
| Communities That Care   | ●                 |                        | 86%                     |  |                        |
| Compliance checks for alcohol   | ⊙                 |                        |                         |  |                        |
| Compliance checks for tobacco   | ⊙                 |                        |                         |  |                        |
| Coping Power Program  | ⊙                 |                        | 58%                     |  |                        |
| Curriculum-Based Support Groups (CBSG)                                    | P                 |                        |                         |  |                        |
| Familias Unidas   | ⊙                 |                        | 67%                     |  |                        |
| Family Matters  | ⊙                 |                        | 73%                     |  |                        |
| Guiding Good Choices (formerly Preparing for the Drug Free Years)         | ⊙                 |                        | 51%                     |  |                        |
| InShape   | ⊙                 |                        | 50%                     |  |                        |
| keepin' it REAL   | Null              |                        | 62%                     |  |                        |
| LifeSkills Training   | ⊙                 |                        | 62%                     |  |                        |
| Lions Quest Skills for Adolescence  | ⊙                 | ✓                      | 70%                     |  |                        |
| Marijuana Education Initiative Impact Awareness curriculum                | P                 |                        | 50%                     |  |                        |
| Mentoring: Big Brothers Big Sisters Community-Based (taxpayer costs only) | ⊙                 |                        | 41%                     |  |                        |
| Mentoring: Community-based (taxpayer costs only)                          | ⊙                 |                        | 66%                     |  |                        |
| Multicomponent environmental interventions to prevent youth alcohol use   | ⊙                 |                        | 29%                     |  |                        |
| Multicomponent environmental interventions to prevent youth tobacco use   | ⊙                 |                        | 82%                     |  |                        |
| Positive Action   | ●                 | ✓                      | 94%                     |  |                        |

WSIPP's builds the inventory using a standardized process that includes:

- ✓ Program identification
- ✓ Meta-analysis and benefit-cost analysis
- ✓ Program classification with standard definitions

# HOW IS IT USED?

## **RCW 59.50.540**, Section 2(a)(i)

This section directs **Dedicated Marijuana Account (DMA) Prevention Expansion Services** funding.

- ✓ 85% directed to evidence-based or research-based programs
- ✓ 15% directed to emerging best practices or promising practices

WSIPP's Youth Cannabis Inventory *informs* the list of eligible programs.



# STEP 1: WHAT IS THE EVIDENCE?

- ✓ Find all evaluations on a given program.
- ✓ Select only those that meet rigorous standards.
- ✓ Calculate average effect on each outcome.

## EXAMPLE:

- How much change do we observe in cannabis use on average?
- How much change do we observe in test scores on average?

# STEP 2: WHAT ARE THE ECONOMICS?

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

- ✓ Benefits to taxpayers, participants, and others in society
- ✓ Modeled over the life course (long term)
- ✓ Per-participant basis

**EXAMPLE:** A reduction in early cannabis use leads to...

| Related benefits                                      |   |
|---|---|
| <i>Decreased likelihood</i> of substance use disorder | Labor market earnings<br>Health care utilization<br>Mortality |
| <i>Increased likelihood</i> of high school graduation | Labor market earnings   |
| <i>Decreased likelihood</i> of crime                  | Criminal justice system<br>Victim                             |

# STEP 3: WHAT IS THE RISK?

**How likely is it that the program will at least “break even” (pay for itself over the long term)?**

- ✓ Conduct a risk analysis to model the uncertainty inherent in economic analyses
- ✓ 10,000 simulation runs
- ✓ Vary key parameters, such as program effectiveness, program costs, and other general assumptions

# BENEFIT-COST FINDINGS

|                    |                  |                        |               |                       |                          |             |                         |                     |                                       |                       |                  |
|--------------------|------------------|------------------------|---------------|-----------------------|--------------------------|-------------|-------------------------|---------------------|---------------------------------------|-----------------------|------------------|
| All Research Areas | Juvenile Justice | Adult Criminal Justice | Child Welfare | Pre-K to 12 Education | Children's Mental Health | Health Care | Substance Use Disorders | Adult Mental Health | <b>Public Health &amp; Prevention</b> | Workforce Development | Higher Education |
|--------------------|------------------|------------------------|---------------|-----------------------|--------------------------|-------------|-------------------------|---------------------|---------------------------------------|-----------------------|------------------|

## Public Health & Prevention



For questions on benefit-cost results relating to Public Health & Prevention, contact [Eva Westley](#).

| Program name<br><small>(click on the program name for more detail)</small> | Date of last literature review | Total benefits | Taxpayer benefits | Non-taxpayer benefits | Costs     | Benefits minus costs (net present value) | Benefit to cost ratio | Chance benefits will exceed costs |
|--|--------------------------------|----------------|-------------------|-----------------------|-----------|--|-----------------------|-----------------------------------|
| <b>School-based</b>  |                                |                |                   |                       |           |  |                       |                                   |
| Positive Action  | Sep. 2018                      | \$31,159       | \$7,950           | \$23,209              | (\$1,063) | <b>\$30,096</b>                          | \$29.3                | <b>94 %</b>                       |
| School-based programs to increase physical activity                        | Nov. 2015                      | \$17,180       | \$3,798           | \$13,381              | (\$493)   | <b>\$16,686</b>                          | \$34.8                | <b>66 %</b>                       |
| Mentoring: School-based by teachers or staff                               | May. 2018                      | \$20,119       | \$4,627           | \$15,491              | (\$3,469) | <b>\$16,650</b>                          | \$5.8                 | <b>71 %</b>                       |
| Caring School Community (formerly Child Development Project)               | Apr. 2018                      | \$11,517       | \$2,631           | \$8,886               | (\$1,100) | <b>\$10,417</b>                          | \$10.4                | <b>60 %</b>                       |
| Good Behavior Game   | Mar. 2018                      | \$10,073       | \$2,749           | \$7,324               | (\$160)   | <b>\$9,913</b>                           | \$62.8                | <b>76 %</b>                       |
| School-Wide Positive Behavioral Interventions and Supports (SWPBIS)        | Jan. 2018                      | \$9,195        | \$2,837           | \$6,358               | (\$651)   | <b>\$8,544</b>                           | \$14.1                | <b>74 %</b>                       |
| Promoting Alternative Thinking Strategies (PATHS)                          | Jun. 2015                      | \$8,360        | \$1,818           | \$6,542               | (\$378)   | <b>\$7,981</b>                           | \$22.0                | <b>62 %</b>                       |
| Coping and Support Training (CAST)   | Aug. 2017                      | \$7,639        | \$2,412           | \$5,227               | (\$481)   | <b>\$7,157</b>                           | \$15.8                | <b>81 %</b>                       |
| Seattle Social Development Project   | Mar. 2019                      | \$8,867        | \$2,540           | \$6,327               | (\$3,953) | <b>\$4,914</b>                           | \$2.2                 | <b>56 %</b>                       |

# CLASSIFY PROGRAMS

## *WSIPP'S STANDARD INVENTORY DEFINITIONS*

### **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 population at least as racially 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

# 2019 YOUTH CANNABIS INVENTORY

## **Evidence-based**

- 3 prevention programs

40 prevention programs

7 treatment programs

## **Research-based**

- 24 prevention programs
- 7 treatment programs

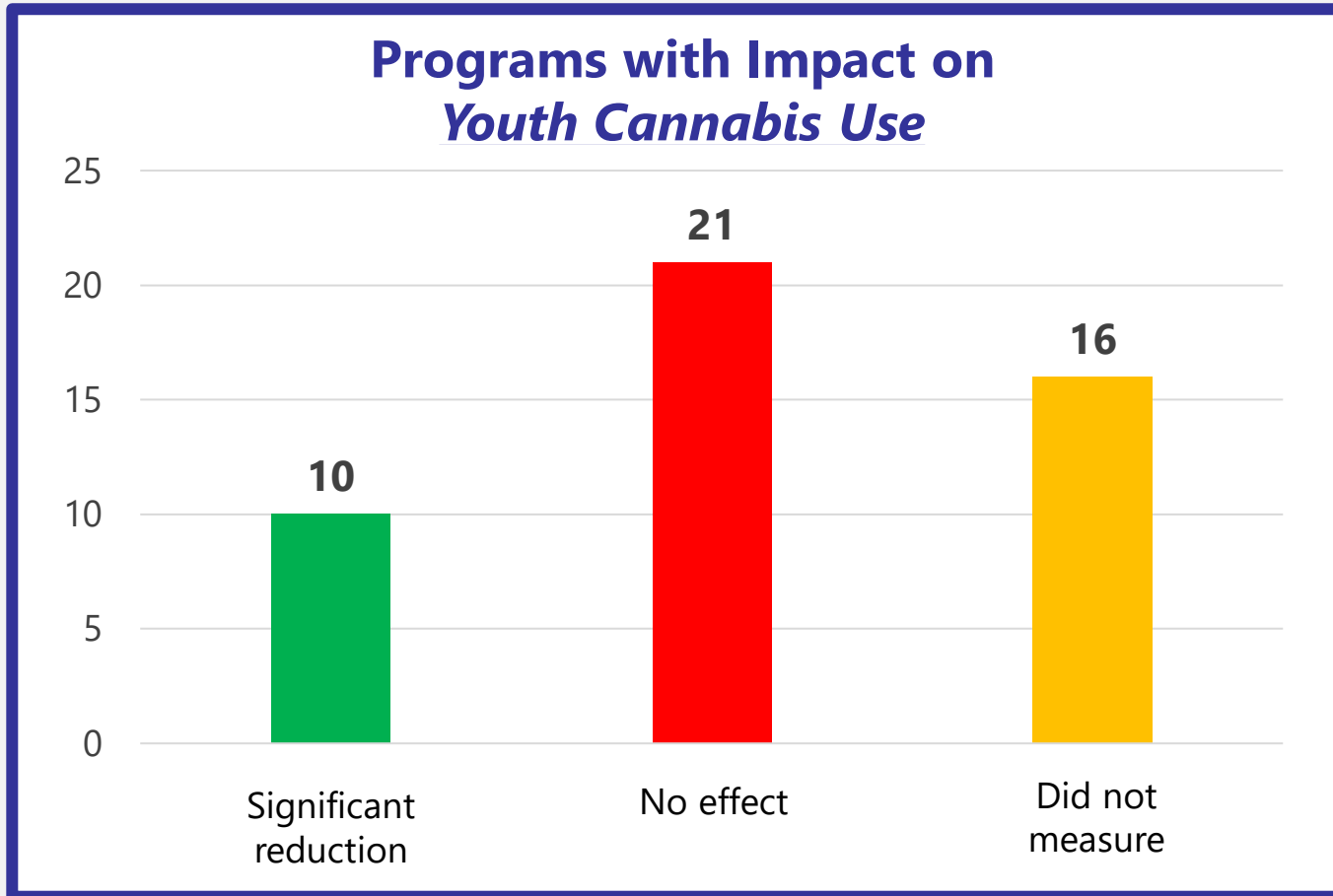
## **Promising**

- 4 prevention programs

## **Null (no significant impact on key outcomes)**

- 8 prevention programs

# 2019 YOUTH CANNABIS INVENTORY



*\*figure revised March 17, 2021*

# **Twenty-Year Evaluation and Benefit-Cost Analysis of Initiative 502**

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# INITIATIVE 502

## *CITIZEN'S INITIATIVE TO LEGALIZE CANNABIS IN WASHINGTON STATE*

### **Initiative 502...**

- ✓ Legalized limited possession and private use of non-medical cannabis by adults (21+)
- ✓ Established new threshold for driving under the influence of cannabis
- ✓ Legalized licensed production and sale of non-medical cannabis products
- ✓ Made investments in public health, including public education campaigns and research



Changes to  
criminal  
prohibitions

Cannabis  
supply  
system

Public  
health  
investments

# WSIPP'S ASSIGNMENT

## TWENTY-YEAR BENEFIT-COST EVALUATION OF INITIATIVE 502

### **RCW 69.50.550**

WSIPP shall conduct cost-benefit evaluations for the implementation of [this act]...The evaluations shall include, but *not necessarily be limited to*:

- Public health,
- Public safety,
- Substance use,
- Criminal justice,
- Economic impacts, and
- Administrative costs & revenues

*\*\*abbreviated assignment language\*\**

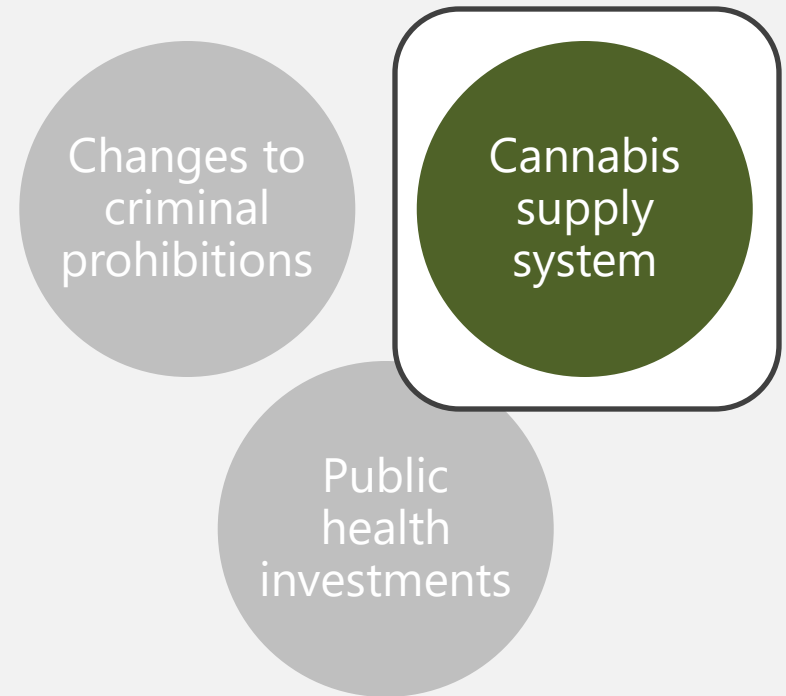
# STRATEGIES FOR EVALUATING I-502

## Net effect of I-502

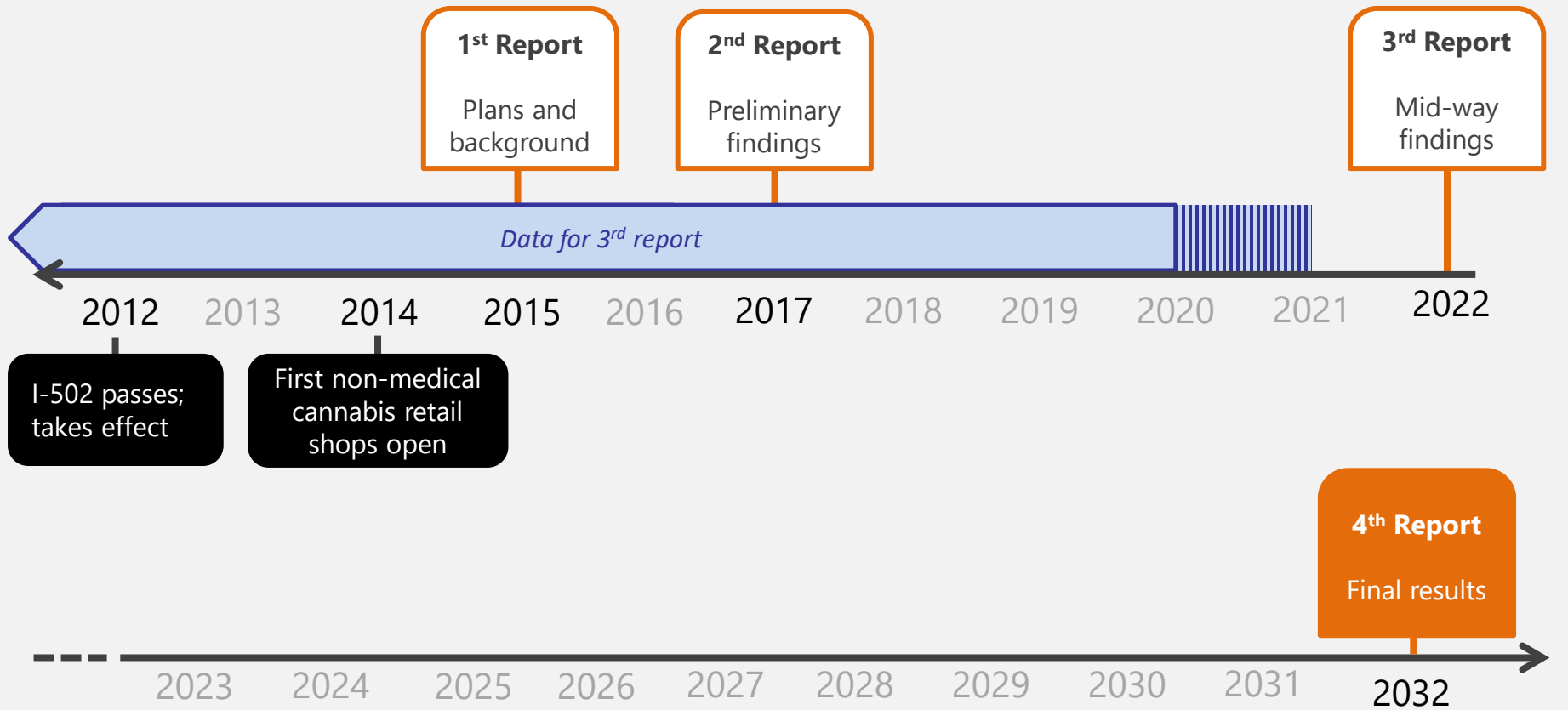
- Effect of the law as a whole
- “Between-state analysis”

## Effect of specific aspects of I-502

- Amount of legal cannabis sales
- Intensity of prevention programming in an area
- “Within-state analysis”



# TWENTY-YEAR PROJECT TIMELINE



# SECOND REQUIRED REPORT

## PUBLISHED IN SEPTEMBER 2017

Washington State Institute for Public Policy

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September 2017

### I-502 Evaluation and Benefit-Cost Analysis *Second Required Report*

In November 2012, Washington State voters passed Initiative 502 (I-502) which legalized limited possession and private use of marijuana by adults.<sup>1</sup> The law also directed the Washington State Institute for Public Policy (WSIPP) to conduct benefit-cost evaluations of the implementation of I-502 by examining outcomes related to:

- public health,
- public safety,
- substance use,
- the criminal justice system,
- economic impacts, and
- administrative costs and revenues.

WSIPP is required to produce reports for the legislature in 2015, 2017, 2022, and 2032. This report focuses on initial results of outcome analyses examining the effects of I-502 implementation on youth and adult substance use, treatment admissions for cannabis abuse, and drug-related criminal convictions.

#### Summary

I-502 required WSIPP to conduct a benefit-cost evaluation of implementation of the law from its enactment in 2012 through 2032. In this second required report, we present preliminary findings of outcome analyses to identify effects of I-502 on youth and adult substance use, cannabis abuse treatment admissions, and drug-related criminal convictions.

We used two main analysis strategies. We examined the effect of I-502 enactment on cannabis abuse treatment admissions, comparing Washington to similar non-legalizing states before and after I-502 enactment. We also examined how local differences in the amount of legal cannabis sales affected cannabis abuse treatment admissions, youth and adult substance use, and drug-related criminal convictions.

We found that cannabis abuse treatment admissions were not affected by I-502 enactment. We also found that the amount of legal cannabis sales generally had no effect on outcomes. One exception was that adults 21 and older in counties with more retail cannabis sales were more likely to report using cannabis in the past 30 days and to report using it heavily.

These findings represent a snapshot of our progress to date and are an intermediate step towards the ultimate benefit-cost analysis of I-502.

Suggested citation: Darnell, A.J. & Bitney, K. (2017). *I-502 evaluation and benefit-cost analysis: Second required report*. (Document Number 17-09-3201). Olympia: Washington State Institute for Public Policy.

## Descriptive information

- Overview of policy context
- Implementation of I-502, as of 2017

## Outcome evaluation

- Net effect of I-502 on cannabis use disorder treatment admissions
- Effect of retail cannabis sales on rates of substance use and crime

Findings should be considered  
**preliminary**

<sup>1</sup> Initiative Measure No. 502.

# YOUTH SUBSTANCE USE

## FINDINGS FROM WSIPP'S 2017 REPORT

### Research questions

Do **increases in legal cannabis sales** in a locality impact youth self-report of

- ...cannabis use?
- ...cigarette smoking?
- ...alcohol use?
- ...attitudes about cannabis use?

### Data Sources

- ✓ Washington Healthy Youth Survey
- ✓ Liquor and Cannabis Board's traceability data



# YOUTH CANNABIS USE

## FINDINGS FROM WSIPP'S 2017 REPORT

Do **increases in legal cannabis sales** in a locality impact youth cannabis use?

- ✓ Found no evidence of this


|                           | 8 <sup>th</sup> grade | 10 <sup>th</sup> grade | 12 <sup>th</sup> grade |
|---------------------------|-----------------------|------------------------|------------------------|
| Lifetime cannabis use     | — —                   | — —                    | — —                    |
| 30-day cannabis use       | — —                   | — —                    | — —                    |
| 30-day heavy cannabis use | — —                   | — —                    | — —                    |

# YOUTH ATTITUDES ABOUT CANNABIS

## FINDINGS FROM WSIPP'S 2017 REPORT

Do **increases in legal cannabis sales** in a locality impact youth attitudes about cannabis use?

- ✓ Generally found no evidence of this
- ✓ Exception: 8<sup>th</sup> graders may perceive less risk of getting caught by police

|   | 8 <sup>th</sup> grade  | 10 <sup>th</sup> grade | 12 <sup>th</sup> grade |
|---|--|------------------------|------------------------|
| Cannabis is hard to get                                 | ---  | ---                    | ---                    |
| Using cannabis is wrong                                 | ---  | ---                    | ---                    |
| If a kid used cannabis, they would get caught by police |  | ---                    | ---                    |
| Regular cannabis use is harmful                         | ---  | ---                    | ---                    |



# THIRD REQUIRED REPORT

## *COMING IN SEPTEMBER 2022*

### **Descriptive information**

- Overview of policy context
- Implementation of I-502
- Administrative costs and revenues

### **Outcome evaluation**

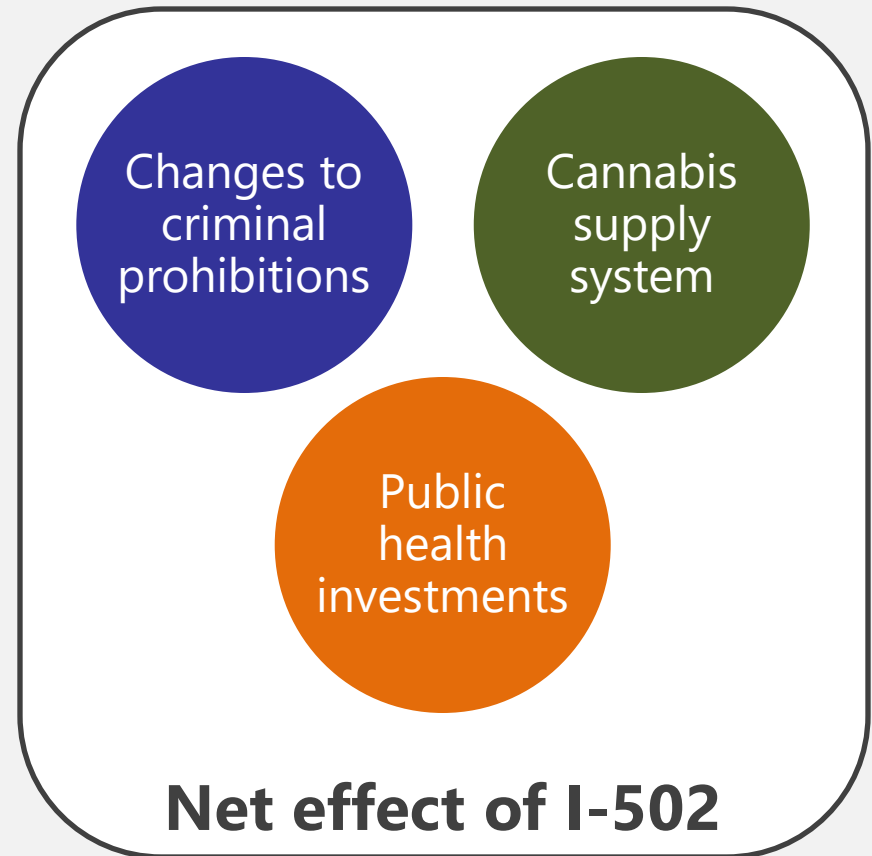
- Evaluate the net effect of I-502 on
  - Rates of substance use
  - Crime
  - Public safety
- Subgroup analyses and/or assess disparities by race, age, and urban/rural communities, as data allow

# YOUTH SUBSTANCE USE

## *PLANS FOR 2022 REPORT*

### **Outcome evaluation**

- ✓ Net effect of I-502 on youth substance use outcomes
  - Cannabis use
  - Alcohol use
  - Cigarette smoking
  - Other illicit drugs
- ✓ Subgroup differences, as possible



# THANK YOU!

## Questions?

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Director

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# APPENDIX

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# ADDITIONAL RESOURCES

## *WSIPP'S BENEFIT-COST RESULTS AND INVENTORIES*

**Website:** [www.wsipp.wa.gov](http://www.wsipp.wa.gov)

**Benefit-cost results page:** [www.wsipp.wa.gov/BenefitCost](http://www.wsipp.wa.gov/BenefitCost)

### **WSIPP produces inventories for...**

Adult behavioral health

Adult corrections

Children's services

Learning Assistance Program (K-12 education)

Youth cannabis prevention and treatment

# ADDITIONAL RESOURCES

## *WSIPP'S CANNABIS-RELATED RESEARCH*

**Website:** [www.wsipp.wa.gov](http://www.wsipp.wa.gov)

### **Required Reports:**

[I-502 Evaluation Plan and Preliminary Report on Implementation](#) (2015)

[I-502 Evaluation and Benefit-Cost Analysis: Second Required Report](#) (2017)

### **Supplemental Reports:**

[Employment and Wage Earnings in Licensed Marijuana Businesses](#) (2017)

[Suppressing Illicit Cannabis Markets After State Marijuana Legalization](#) (2019)

[Measuring Youth Cannabis Use in Washington State](#) (2019)

[Updated Inventory of Programs for the Prevention and Treatment of Youth Cannabis Use](#) (2019)