Project STAR (Students Taught Awareness and Resistance, also known as the Midwestern Prevention Project)
Public Health & Prevention: Community-based
Benefit-cost estimates updated December 2023. Literature review updated June 2019.

Current estimates replace old estimates. Numbers will change over time as a result of model inputs and monetization methods.

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.

Program Description: Project STAR (Students Taught Awareness and Resistance; also known as the Midwestern Prevention Project) is a comprehensive universal prevention program aimed at preventing or reducing youth substance use. The school component is implemented at the transition to middle school and consists of 10-13 classroom lessons using active social learning techniques (e.g., role-playing and discussion) and homework, plus five booster sessions implemented in the following school year. Parent, community, and mass media components are also implemented over a three- to five-year period to address multiple influences on youth substance use.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$954	Benefit to cost ratio	$41.37
Participants	$1,331	Benefits minus costs	$2,993
Others	$574	Chance the program will produce	
Indirect	$208	benefits greater than the costs	72%
Total benefits	$3,067		
Net program cost	($74)		
Benefits minus cost	$2,993		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2022). 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

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated				
				ES	SE	Age	ES	SE	Age	ES	p-value
Alcohol use before end of middle school	12	2	4915	-0.061	0.114	12	-0.061	0.114	13	-0.227	0.232
Smoking before end of middle school	12	2	4915	-0.123	0.110	12	-0.123	0.110	13	-0.497	0.124
Cannabis use before end of middle school	12	2	4915	-0.123	0.149	12	-0.123	0.149	13	-0.371	0.022
Illicit drug use^	12	1	500	-0.071	0.308	28	n/a	n/a	n/a	-0.214	0.496
Alcohol use before end of high school	12	2	2662	-0.034	0.119	14	-0.034	0.119	18	-0.102	0.399
Smoking before end of high school	12	2	2662	-0.062	0.120	14	-0.062	0.120	18	-0.189	0.123
Cannabis use before end of high school	12	2	2662	-0.112	0.159	14	-0.112	0.159	18	-0.340	0.048
Illicit drug use before end of high school	12	1	500	-0.093	0.327	17	-0.093	0.327	18	-0.282	0.409

^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

Affected outcome:	Resulting benefits:[1]	Benefits accrue to:				
		Taxpayers	Participants	Others[2]	Indirect[3]	Total
Cannabis use before end of high school	Criminal justice system	$112	$0	$267	$56	$435
Alcohol use before end of high school	Property loss associated with alcohol abuse or dependence	$0	$1	$2	$0	$2
Cannabis use before end of high school	Labor market earnings associated with cannabis abuse or dependence	$544	$1,282	$0	$0	$1,826
Illicit drug use before end of high school	Health care associated with illicit drug abuse or dependence	$297	$46	$305	$148	$796
Smoking before end of high school	Mortality associated with smoking	$1	$3	$0	$41	$44
Program cost	Adjustment for deadweight cost of program	$0	$0	$0	($37)	($37)
Totals		$954	$1,331	$574	$208	$3,067

[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

	Annual cost	Year dollars	Summary	
Program costs	$64	2017	Present value of net program costs (in 2022 dollars)	($74)
Comparison costs	$0	2017	Cost range (+ or -)	30%

The per-student cost estimate includes staff training time outside of regular school hours and the cost of training and program materials (https://www.crimesolutions.gov/ProgramDetails.aspx?ID=247). We estimate staff training time costs using average Washington State compensation costs (including benefits) for the 2017-18 school year. We assume that teachers from six prototypical size middle schools (as indicated in RCW 28A.150.260 https://app.leg.wa.gov/rcw/default.aspx?cite=28a.150.260), across two school districts, implement the school component with three cohorts of incoming middle school students. In line with published program descriptions (National Institute on Drug Abuse, 1997), we assume that community and media components are donated.

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.

Benefits Minus Costs Over Time (Cumulative Discounted Dollars)
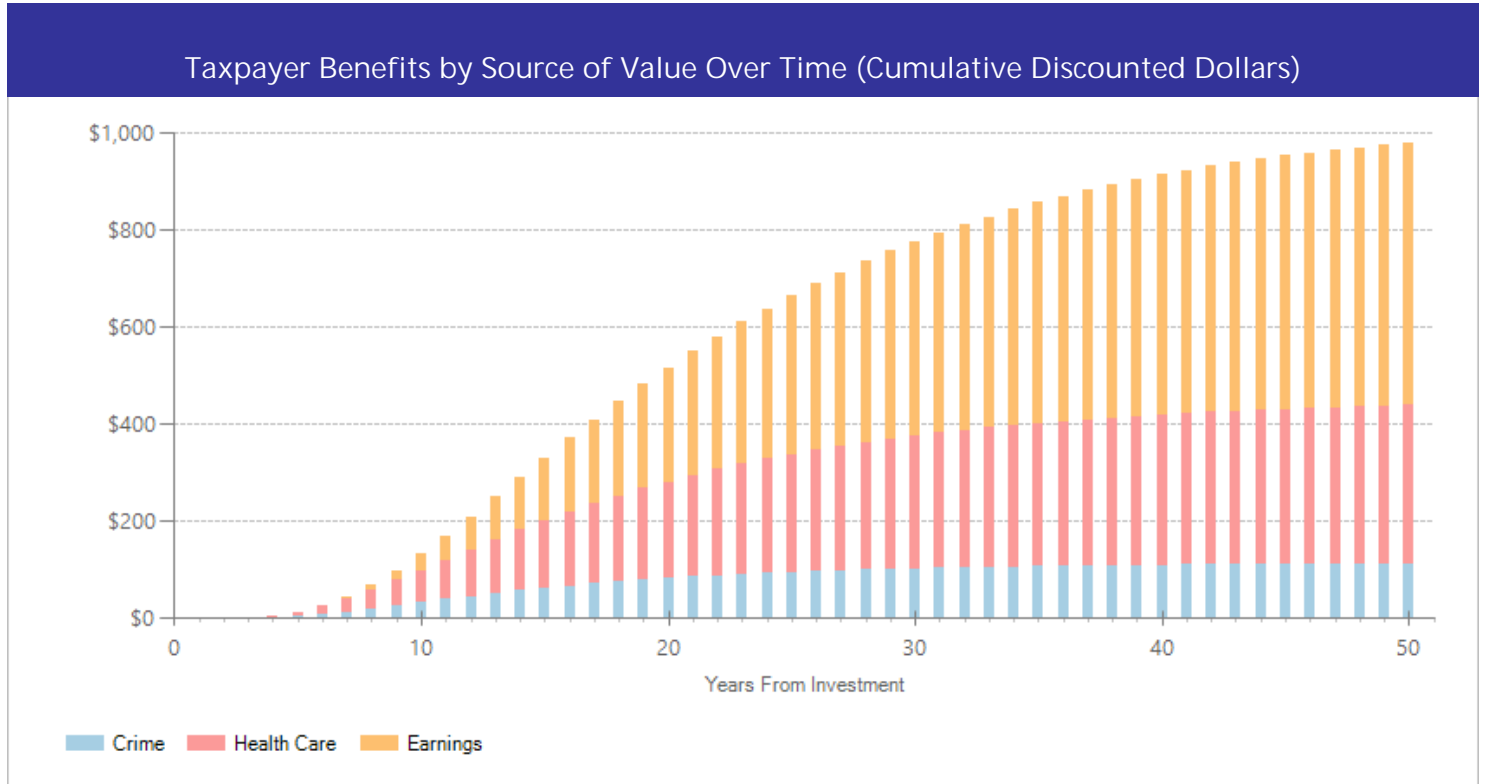

Cumulative net benefits
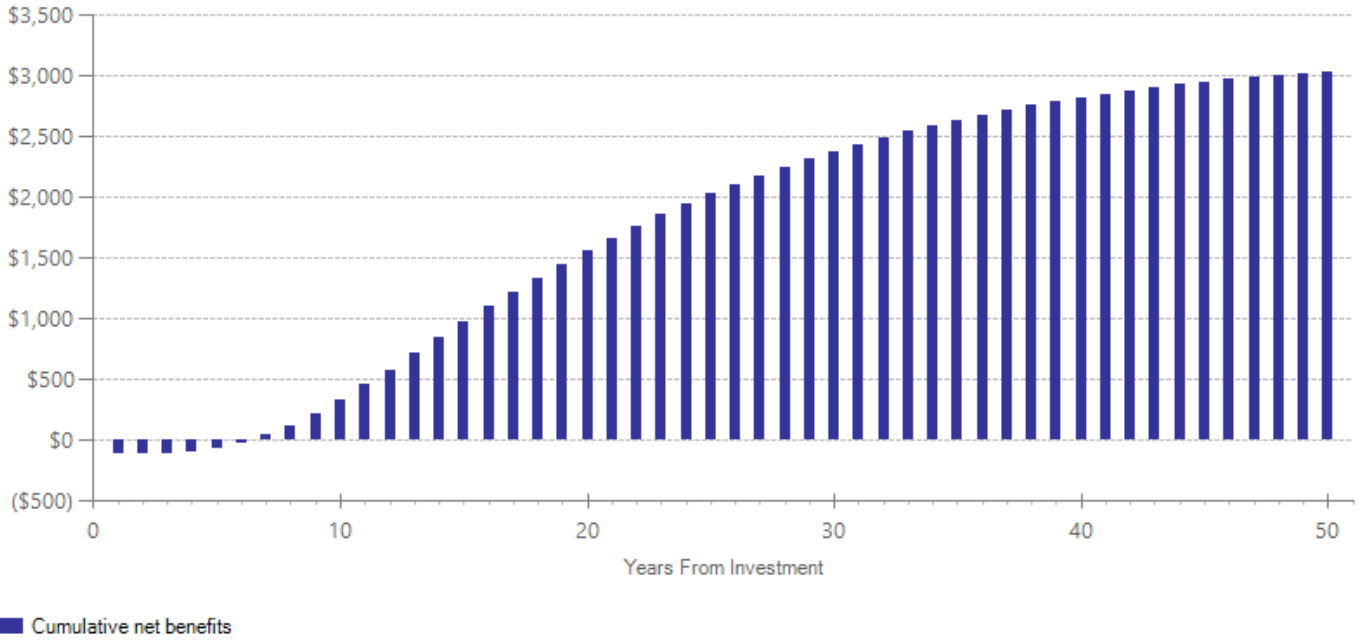
The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in discounted dollars. If the dollars are negative (bars below $0 line), the cumulative benefits do not outweigh the cost 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
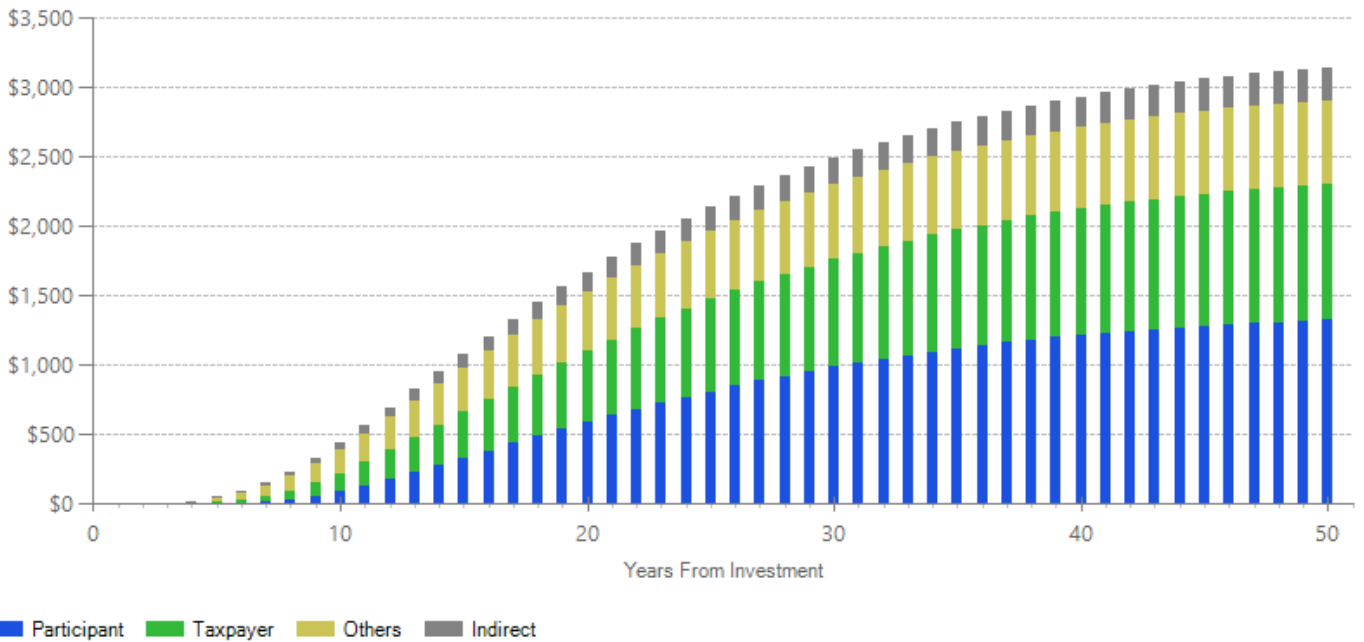
The graph above illustrates the breakdown of the estimated cumulative benefits (not including program costs) per-participant for the first fifty years beyond the initial investment in the program. These cash flows provide a breakdown of the classification of dollars over time into four perspectives: 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.

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

Johnson, C.A., Pentz, M.A., Weber, M.D., Dwyer, J.H., Baer, N., MacKinnon, D.P., . . . Flay, B.R. (1990). Relative effectiveness of comprehensive community programming for drug abuse prevention with high-risk and low-risk adolescents. *Journal of Consulting and Clinical Psychology, 58,* 447-456.

National Institute on Drug Abuse. (1997). *Drug abuse prevention for the general population* (Publication No. 97-4113).

Pentz, M.A., Dwyer, J.H., MacKinnon, D.P., Flay, B.R., Hansen, W.B., Wang, E.Y., Johnson, C.A. (1989). A multicommunity trial for primary prevention of adolescent drug abuse: Effects on drug use prevalence. *JAMA, 261*(22), 3259

Riggs, N.R., Chou, C.P., & Pentz, M.A. (2009). Preventing growth in amphetamine use: Long-term effects of the Midwestern Prevention Project (MPP) from early adolescence to early adulthood. *Addiction, 104,* 1691-1699.

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