Washington State Institute for Public Policy

Benefit-Cost Results

Other prenatal home visiting programs

Health Care: Maternal and Infant Health

Benefit-cost estimates updated December 2023. Literature review updated December 2016.

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: This grouping of "other" prenatal home visiting programs provides services to women, children, and families during the prenatal period. In these programs, nurses, social workers, or trained paraprofessional providers make regular home visits to provide one or more non-clinical services that support maternal wellness and infant health during the prenatal period. Services may include case management, health education, risk assessment, psychosocial support, or nutritional counseling.

Programs are intended for women with high-risk pregnancies based on socioeconomic status, age, race, or other pregnancy risk factors. We exclude programs that solely target adolescent women from this analysis. Women are eligible for these programs during their pregnancy. Some program services continued for up to 12 months postpartum. All women in treatment and comparison groups receive clinical prenatal care (treatment as usual).

We performed sensitivity analysis on provider type (paraprofessional versus nurses/social workers) and length of program. We found no difference in cost or effect size, so all provider types are included in this analysis. This analysis does not include "name-brand" programs that provide prenatal home visiting as part of a larger model (e.g., Nurse Family Partnership, Healthy Families America).

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$881
Participants	$1,550
Others	$0
Indirect	$11,244
Total benefits	$13,675
Net program cost	($817)
Benefits minus cost	$12,858

Benefit to cost ratio	$16.74
Benefits minus costs	$12,858
Chance the program will produce benefits greater than the costs	100%

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	Primary or secondary participant	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
Cesarean sections	25	Primary	1	1033	-0.030	0.180	25	0.000	0.000	26	-0.084	0.167
Adequate prenatal care (Kotelchuck Index)^	25	Primary	3	19008	0.118	0.105	25	n/a	n/a	n/a	0.118	0.261
Low birthweight birth***	25	Primary	8	17785	-0.058	0.026	25	0.000	0.000	26	-0.060	0.108
Preterm birth***	25	Primary	7	17670	-0.065	0.043	25	0.000	0.000	26	-0.068	0.087
Small for gestational age (SGA)***	25	Primary	2	1128	0.087	0.126	25	0.000	0.000	26	0.066	0.372
Very low birthweight birth***	25	Primary	3	16139	-0.094	0.073	25	0.000	0.000	26	-0.094	0.198
Low birthweight birth***	1	Secondary	8	17785	-0.058	0.026	1	0.000	0.000	2	-0.060	0.108
Preterm birth***	1	Secondary	7	17670	-0.065	0.043	1	0.000	0.000	2	-0.068	0.087
NICU admission	1	Secondary	1	1033	-0.007	0.285	1	0.000	0.000	2	-0.018	0.825
Infant mortality	1	Secondary	2	63440	-0.195	0.045	1	0.000	0.000	2	-0.195	0.001
Small for gestational age (SGA)***	1	Secondary	2	1128	0.087	0.126	1	0.000	0.000	2	0.066	0.372
Very low birthweight birth***	1	Secondary	3	16139	-0.094	0.073	1	0.000	0.000	2	-0.094	0.198

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

***We report this outcome twice: once for mothers (designated as the primary participant) and once for infants (designated as the secondary participant). We do this because the outcome is associated with costs and benefits for both mothers and infants, and the amount of the cost or benefit is different for mothers than it is for infants.

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
Cesarean sections	Health care associated with Cesarean sections	$32	$0	$0	$16	$48
Small for gestational age (SGA)	Health care associated with small for gestational age births	($2)	$0	$0	($1)	($3)
	Subtotals	*$30*	*$0*	*$0*	*$15*	*$44*
From secondary participant						
Small for gestational age (SGA)	Health care associated with small for gestational age births	($46)	$0	$0	($23)	($69)
Infant mortality	Infant mortality	$658	$1,550	$0	$11,540	$13,748
Very low birthweight birth	Health care associated with very low birthweight births	$240	$0	$0	$120	$359
	Subtotals	*$852*	*$1,550*	*$0*	*$11,637*	*$14,039*
Program cost	Adjustment for deadweight cost of program	$0	$0	$0	($408)	($408)
Totals		$881	$1,550	$0	$11,244	$13,675

[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.

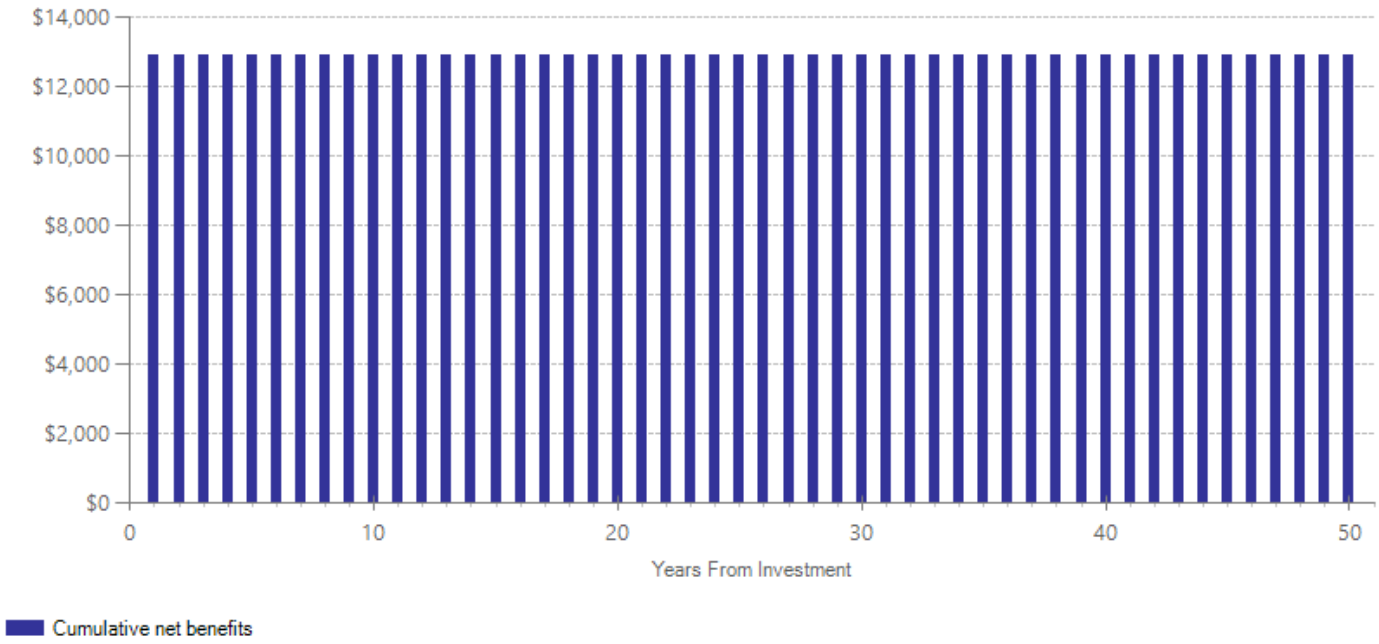
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$692	2016	Present value of net program costs (in 2022 dollars)	($817)
Comparison costs	$0	2016	Cost range (+ or -)	15%

Treatment cost estimates for this group of programs reflect costs beyond treatment as usual. Per-participant estimates are based on average costs for all included studies. We estimate provider hours including home visiting hours, training hours, and supervisory hours; apply the mean hourly wage estimate for Washington State reported by the Bureau of Labor Statistics (September 2016) for the appropriate provider; and increase wages by a factor of 1.441 to account for the cost of employee benefits. Included studies averaged 7 home visiting hours, 0.5 training hours, and 1 supervisory hour per participant. Supervisors varied by program and included social workers or nurses.

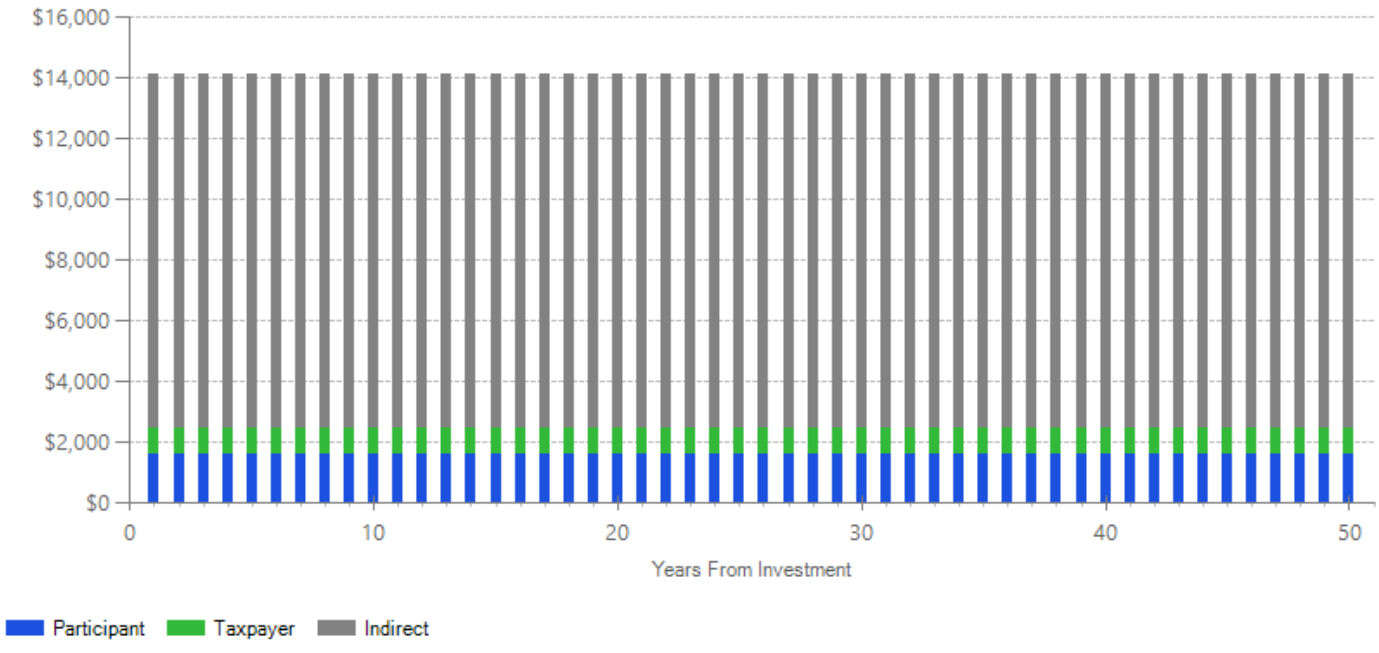
The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty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

Benefits Minus Costs Over Time (Cumulative Discounted Dollars)

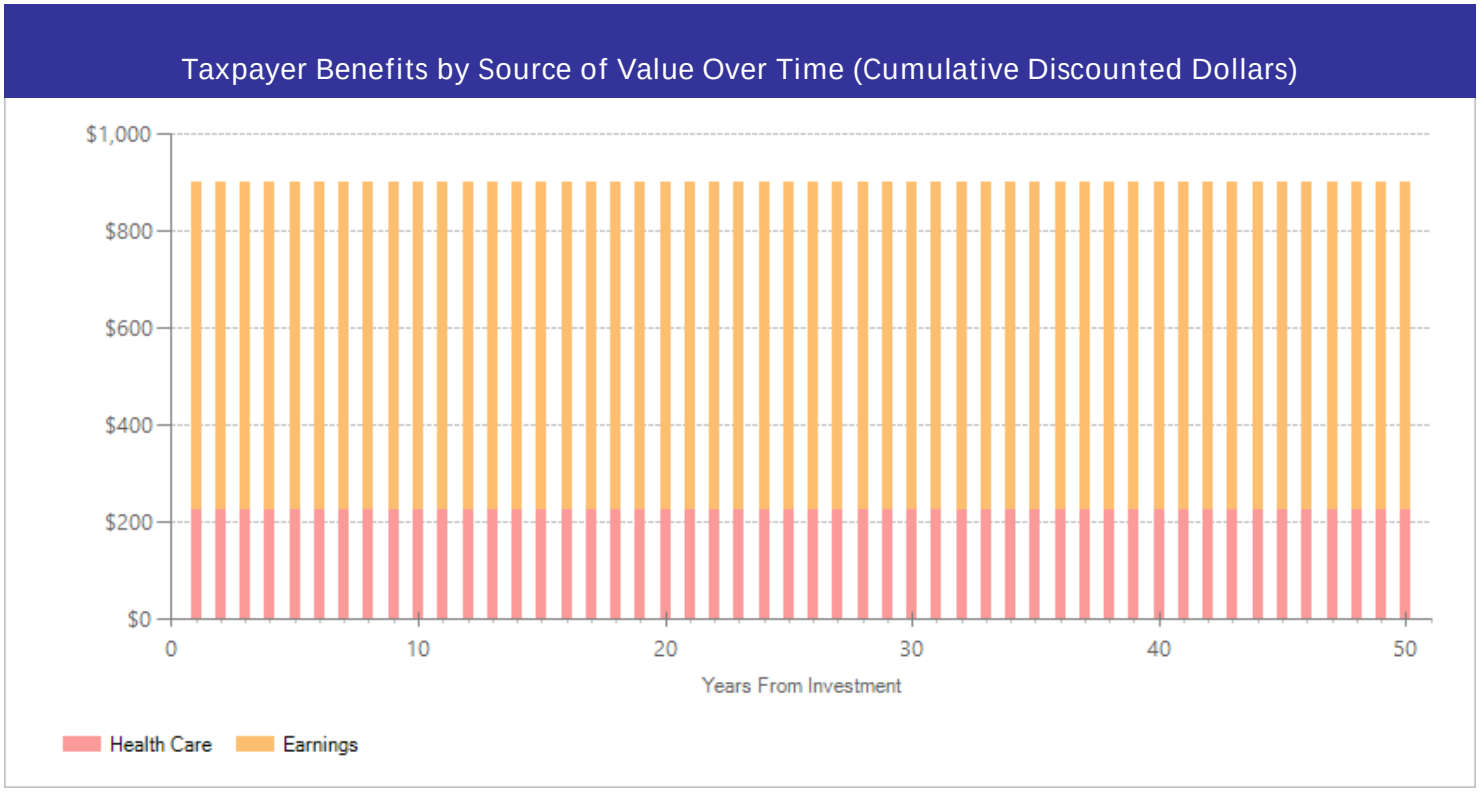


The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in discounted dollars. If the dollars are negative (bars below $0 line), the cumulative benefits do not outweigh the cost 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.



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

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