Other home visiting programs for at-risk families

Public Health & Prevention: Home- or Family-based

Benefit-cost estimates updated December 2019. Literature review updated April 2018.

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 broad topic includes home visiting programs for families considered to be at risk for parenting problems based on factors such as maternal age, education, low household income, or in some programs, mothers testing positive for drugs at the child's birth. Depending on the program, the content of the home visits may include parenting instruction, referrals for service, education on child health and development, or social and emotional support. Home visitors are typically paraprofessionals, with varied levels of training. Families in the included studies received home visiting services for 12 to 27 months, with an average of 25 total hours of home visiting over the course of the intervention.

This topic does not include home visiting programs for pregnant or parenting adolescents.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$2,685	Benefit to cost ratio	$1.03
Participants	$10,494	Benefits minus costs	$293
Others	$615	Chance the program will produce benefits greater than the costs	49 %
Indirect	($4,569)		
Total benefits	$9,226		
Net program cost	($8,933)		
Benefits minus cost	$293		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). 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.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Labor market earnings	$893	$380	$0	$0	$1,273
Health care associated with smoking	$144	$510	$526	$255	$1,435
Public assistance	$225	($618)	$0	($309)	($701)
Food assistance	$324	($366)	$0	($183)	($225)
Mortality associated with smoking	$4	$1	$0	$228	$233
Subtotals	$1,590	($93)	$526	($9)	$2,014
From secondary participant					
Crime	$0	($11)	($22)	($5)	($38)
Labor market earnings associated with test scores	($762)	($325)	($402)	$0	($1,489)
Child abuse and neglect	$1,759	$158	$0	$79	$1,995
Out-of-home placement	$0	$73	$0	$37	$110
K-12 grade repetition	$0	($70)	$0	($35)	($105)
K-12 special education	$0	($660)	$0	($330)	($990)
Property loss associated with alcohol abuse or dependence	$0	$0	$1	$0	$1
Health care associated with externalizing behavior symptoms	($26)	($93)	($96)	($47)	($262)
Health care associated with internalizing symptoms	$1	$3	$3	$2	$9
Labor market earnings associated with child abuse & neglect	$7,928	$3,375	$0	$0	$11,303
Mortality associated with child abuse and neglect	$5	$2	$0	$44	$51
Subtotals	$8,904	$2,453	($516)	($256)	$10,586
Adjustment for deadweight cost of program	$0	$324	$605	($4,304)	($3,374)
Totals	$10,494	$2,685	$615	($4,569)	$9,226

[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.

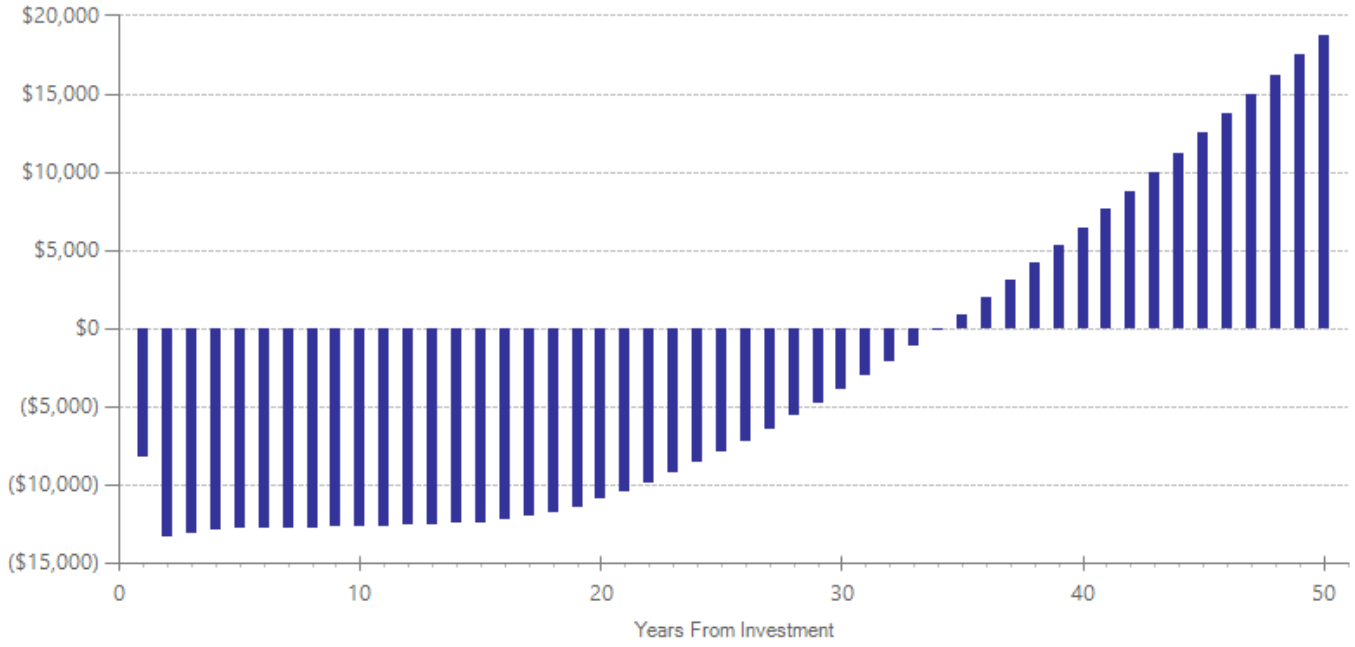
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$5,293	2016	Present value of net program costs (in 2018 dollars)	($8,933)
Comparison costs	$0	2016	Cost range (+ or -)	70 %

The per-participant cost estimate is based on a weighted average of the costs of each study and includes the cost of provider time, training, travel, materials, and administrative costs. We used the costs reported in the studies when possible (Olds et al. 2002 and Black et al. 1994). For studies that did not provide cost estimates, we estimated an average cost per hour of home visiting, using program costs and number of home visiting hours as reported in other studies (Olds et al. 2004 and Black et al. 1994). We then applied this average cost per hour to the number of home visiting hours reported in each study.

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.

Detailed Annual Cost Estimates Per Participant



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 non-discounted dollars to simplify the “break-even” point from a budgeting perspective. 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.

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
Cannabis use^	22	Primary	1	211	-0.013	0.201	25	n/a	n/a	n/a	-0.037	0.853
Employment	22	Primary	1	212	0.031	0.096	25	0.000	0.000	26	0.087	0.368
Food assistance	22	Primary	1	211	0.075	0.096	25	0.075	0.096	25	0.210	0.030
High school graduation^^	22	Primary	1	211	0.072	0.139	23	n/a	n/a	n/a	0.199	0.167
Public assistance	22	Primary	1	212	0.047	0.096	25	0.047	0.096	25	0.131	0.173
Regular smoking	22	Primary	1	156	-0.132	0.126	22	-0.132	0.126	22	-0.132	0.293
Attention-deficit/hyperactivity disorder symptoms	1	Secondary	1	187	-0.061	0.137	9	0.000	0.141	10	-0.169	0.216
Child abuse and neglect	1	Secondary	3	222	-0.392	0.233	2	-0.392	0.233	17	-0.392	0.093
Emergency department visits	1	Secondary	2	339	0.112	0.084	1	0.000	0.000	2	0.112	0.184
Externalizing behavior symptoms	1	Secondary	1	187	0.048	0.137	9	0.027	0.083	12	0.134	0.326
Internalizing symptoms	1	Secondary	1	187	-0.006	0.137	9	-0.006	0.137	11	-0.017	0.899
K-12 grade repetition	1	Secondary	2	190	0.061	0.136	9	0.061	0.136	9	0.171	0.212
K-12 special education	1	Secondary	2	190	0.043	0.136	9	0.043	0.136	9	0.118	0.388
Out-of-home placement	1	Secondary	2	91	-0.075	0.161	2	-0.075	0.161	17	-0.075	0.640
Preschool test scores^	1	Secondary	6	625	0.034	0.057	3	n/a	n/a	n/a	0.053	0.349
Test scores	1	Secondary	2	192	-0.016	0.102	9	-0.010	0.112	17	-0.031	0.828

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

^^WSIPP does not include this outcome when conducting benefit-cost analysis for this program.

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.

Citations Used in the Meta-Analysis

Barlow, J., Davis, H., McIntosh, E., Jarrett, P., Mockford, C., & Stewart-Brown, S. (2007). Role of home visiting in improving parenting and health in families at risk of abuse and neglect: Results of a multicentre randomised controlled trial and economic evaluation. *Archives of Disease in Childhood, 92*(3), 229-233.

Black, M.M., Nair, P., Kight, C., Wachtel, R., Roby, P., & Schuler, M. (1994). Parenting and early development among children of drug-abusing women: Effects of home intervention. *Pediatrics, 94*(4), 440-448.

Culp, A.M.D., Culp, R.E., Anderson, J.W., & Carter, S. (2007). Health and safety intervention with first-time mothers. *Health Education Research, 22*(2), 285-294.

Doyle, O., Harmon, C., Heckman, J.J., Logue, C., & Moon, S.H. (2017). Early skill formation and the efficiency of parental investment: A randomized controlled trial of home visiting. *Labour Economics, 45,* 40-58.

Hardy, J.B., & Streett, R. (1989). Family support and parenting education in the home: An effective extension of clinic-based preventive health care services for poor children. *The Journal of Pediatrics, 115*(6), 927-931.

Howell, E., Lawton, E., Dubay, L., Hill, I., Gadsden, S., Wilkinson, M., . . . Ho, J. (2017). *Effects of Welcome Baby Home Visiting on Maternal and Child Medi-Cal enrollment and utilization.* Los Angeles, CA: Urban Institute, University of California at Los Angeles.

Lyons-Ruth, K., Connell, D.B., Grunebaum, H.U., & Botein, S. (1990). Infants at social risk: Maternal depression and family support services as mediators of infant development and security of attachment. *Child Development, 61*(1), 85-98.

Olds, D.L., Holmberg, J.R., Donelan-McCall, N., Luckey, D.W., Knudtson, M.D., & Robinson, J. (2014). Effects of home visits by paraprofessionals and by nurses on children: follow-up of a randomized trial at ages 6 and 9 years. *JAMA Pediatrics, 168*(2), 114-21.

Olds, D.L., Robinson, J., O'Brien, R., Luckey, D.W., Pettitt, L.M., Henderson, C.R., Jr., . . . Talmi, A. (2002). Home visiting by paraprofessionals and by nurses: A randomized, controlled trial. *Pediatrics, 110*(3), 486-496.

Olds, D.L., Robinson, J., Pettitt, L., Luckey, D.W., Holmberg, J., Ng, R.K., . . . Henderson, C.R. (2004). Effects of home visits by paraprofessionals and by nurses: Age 4 follow-up results of a randomized trial. *Pediatrics, 114*(6), 1560-1568.

Velasquez, J., Christensen, L., & Schommer, B.L. (1984). Part II: Intensive services help prevent child abuse. *American Journal of Maternity and Child Nursing, 9*(2), 113-117.

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Printed on 10-18-2020

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