Methadone maintenance treatment

Benefit-cost estimates updated June 2016. Literature review updated May 2014.

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: Methadone is an opiate substitution treatment used to treat opioid dependence. It is a synthetic opioid that blocks the effects of opiates, reduces withdrawal symptoms, and relieves cravings. Methadone is a daily medication dispensed in outpatient clinics that specialize in methadone treatment and is often used in conjunction with behavioral counseling approaches.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$1,187
Participants	$1,653
Others	$491
Indirect	$5,200
Total benefits	$8,531
Net program cost	($3,722)
Benefits minus cost	$4,809

Benefit to cost ratio	$2.29
Benefits minus costs	$4,809
Chance the program will produce benefits greater than the costs	89 %

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2015). 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
Crime	$0	$4	$11	$2	$18
Labor market earnings associated with opioid drug abuse or dependence	$1,549	$703	$0	$6,809	$9,062
Health care associated with opioid drug abuse or dependence	$104	$479	$480	$238	$1,301
Adjustment for deadweight cost of program	$0	$0	$0	($1,850)	($1,850)
Totals	$1,653	$1,187	$491	$5,200	$8,531

[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

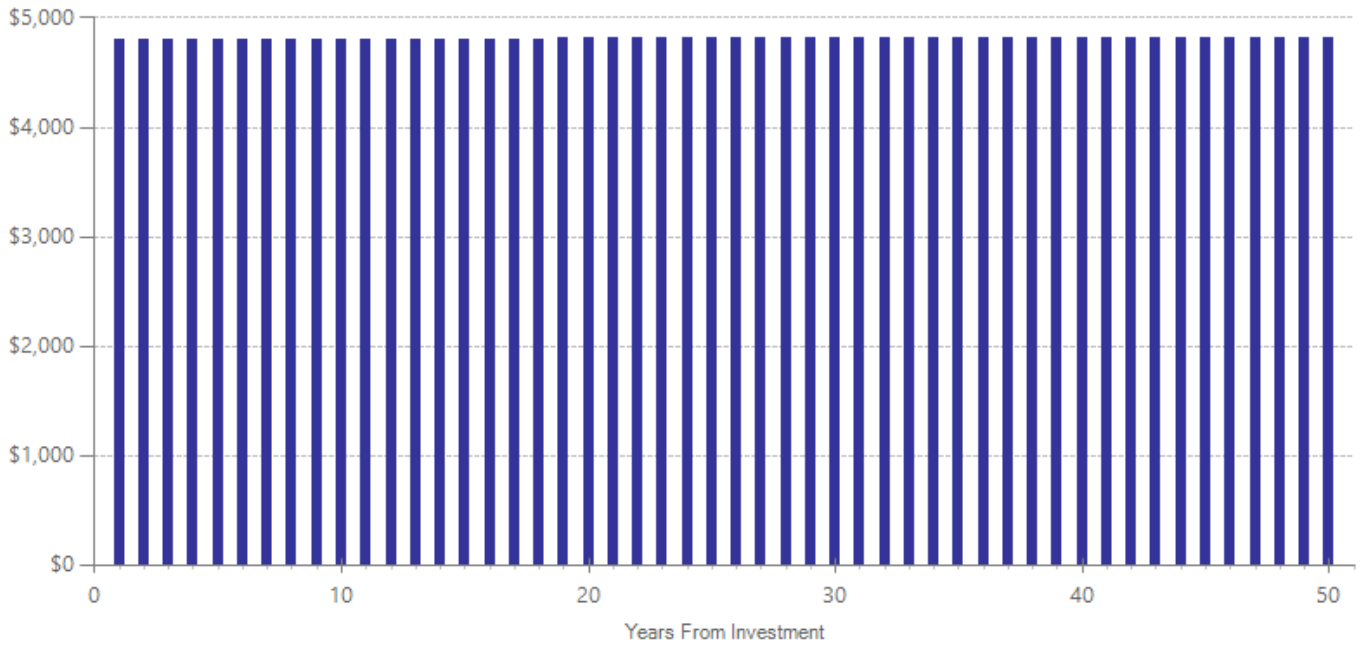
	Annual cost	Year dollars	Summary	
Program costs	$3,613	2012	Present value of net program costs (in 2015 dollars)	($3,722)
Comparison costs	$0	2013	Cost range (+ or -)	20 %

We estimate the per-participant costs of providing methadone in addition to standard substance abuse treatment for 12 months. Costs reflect the average of costs reported in numerous cost-effectiveness studies (Rosenhack and Kosten, 2001; Jones et al., 2009; Nordlund et al., 2004; Masson et al, 2004). Costs included vary by study but generally include costs of medication, dispensing, toxicology screens, medical care related to methadone treatment, and when available, costs of equipment, administration, and clinic space.

Jones, E.S., Moore, B.A., Sindelar, J.L., O'Connor, P.G., Schottenfeld, R.S., & Fiellin, D.A. (2009). Cost analysis of clinic and office-based treatment of opioid dependence: Results with methadone and buprenorphine in clinically stable patients. *Drug and Alcohol Dependence, 99*(1), 132-140. Masson, C.L., Barnett, P.G., Sees, K.L., Delucchi, K.L., Rosen, A., Wong, W., & Hall, S.M. (2004). Cost and cost-effectiveness of standard methadone maintenance treatment compared to enriched 180-day methadone detoxification. *Addiction, 99*(6), 718-726. Nordlund, D.J., Estee, S., Mancuso, D., & Felver, B. (2004). *Methadone treatment for opiate addiction lowers health care costs and reduces arrests and convictions.* Olympia, Wash.: Washington State Dept. of Social and Health Services, Research and Data Analysis Division. Rosenheck, R., & Kosten, T. (2001). Buprenorphine for opiate addiction: potential economic impact. *Drug and Alcohol Dependence, 63*(3), 253-262.

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	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
Crime	2	347	-0.505	0.153	35	0.000	0.000	36	-0.505	0.001
Employment	1	71	-0.334	0.174	35	0.000	0.000	36	-0.334	0.054
Cannabis use	1	21	-0.690	0.514	35	0.000	0.000	36	-0.690	0.180
Hospitalization	3	286	0.242	0.464	35	0.000	0.000	36	0.242	0.602
Opioid drug abuse or dependence	10	854	-0.785	0.254	35	0.000	0.000	36	-0.785	0.001
Alcohol use	2	155	-0.281	0.250	35	0.000	0.000	36	-0.281	0.095
Death	4	158	-0.258	0.176	35	0.000	0.000	36	-0.258	0.142
STD risky behavior	3	492	-0.560	0.243	35	0.000	0.000	36	-0.560	0.001

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

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