



Cost-Benefit Analysis for PCCD's Evidence-based Initiatives – Summary Report: Investing in Effective Programs to Improve Lives and Save Tax Payer Dollars

A Report of the Pennsylvania Commission on Crime and Delinquency in collaboration with the
Pew-MacArthur Results First Initiative

Contents

Introduction	2
The Policy Challenge	2
Challenge #1: Limited Reach.....	2
Challenge #2: Sustainability Barriers	2
Challenge #3: Limited Understanding of Economic Benefits of Evidence-Based Approaches for Pennsylvania	3
The Results First Approach	3
Step One: Establish Pennsylvania-Specific Program Benefits	3
Step Two: Establish Pennsylvania-Specific Program Costs	3
Model Results	5
Caveats to the Current Model	6
Recommendations Based on Findings	6
1. Provide Incentives for Increasing the Use of Evidence-based Programs:	6
2. Increase Funding for Scaling Low-Cost Universal EBPs:	6
3. Increase Duration of Funding for EBP Implementation:.....	6
4. Extend Implementation Monitoring and Outcome Evaluation Support Beyond PCCD’s Two-year Grants:	7
5. Increase Funding for Researching What Works:	7
Acknowledgements	7

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Introduction

Pennsylvania policymakers have been utilizing cost-benefit and return on investment (ROI) information to inform decision-making for over twenty years (Jones, et al, 2008). Through the leadership of the Pennsylvania Commission on Crime and Delinquency (PCCD), in partnership with Penn State’s Edna Bennett Pierce Prevention Research Center (PRC), our Commonwealth has led the field in investing in evidence-based prevention and intervention programming to reduce the flow of youth entering the Juvenile Justice System and to enhance the well-being of youth, families, and communities.

In partnership with the Pew-MacArthur Results First Initiative, PCCD and PRC have endeavored to build a Pennsylvania specific cost-benefit model utilizing Pennsylvania service costs, and Pennsylvania crime and recidivism data. This report summarizes these efforts to date and identifies strengths and limitations of the Pennsylvania data. The report also includes recommendations for policymakers, researchers, and program providers to maximize the impact and return on investment for specific evidence-based programs (EBPs) and increase evidence-based decision making throughout the state.

The Policy Challenge

Policy makers and providers can collectively improve the well-being of Pennsylvania’s families and reduce costs to tax payers related to treating problems like violence, depression, school failure, delinquency, teen pregnancy, and substance misuse, if we invest in prevention and intervention programs that are evidence-based – programs demonstrated to work through rigorous evaluation. Pennsylvania has, in fact, led the nation in investing in evidence-based programming and implementation support via a 10-year partnership between PCCD and the PRC, called The Evidence-based Prevention and Intervention Support Center (EPISCenter) Project. The EPISCenter provides implementation support for evidence-based programs to achieve the following goals: broad scale dissemination; high quality implementation; valid impact assessment; and long-term sustainability. It accomplishes this work utilizing five cores of support: learning communities; general capacity building resources and trainings; standardized data collection, evaluation tools, and processes for specific EBPs; sustainability knowledge base; and building in-state infrastructures (TOTs, etc.) for specific evidence-based programs. Despite the success of these efforts, there are still challenges related to both our major goals of improving lives, and potentially saving taxpayer dollars:

Challenge #1: Limited Reach

Despite Pennsylvania’s impressive investment in and support for a menu of evidence-based prevention practices (see Table 1), currently EPISCenter-supported programs impact less than 1% of the state’s 4.7 million households each year.

Challenge #2: Sustainability Barriers

Most funding for evidence-based prevention is short-term. PCCD grants are designed to be seed funding and are typically awarded for a two-year period. After this, grantees need to obtain other funding to sustain their prevention initiatives. For many communities, this is a significant challenge that may result in poor sustainability of evidence-based practices.

Challenge #3: Limited Understanding of Economic Benefits of Evidence-Based Approaches for Pennsylvania

Effective prevention saves money in the long run. Since 2004, the Washington State Institute for Public Policy (WSIPP) has been developing and refining a sophisticated econometric model that demonstrates the costs and benefits of investments in public programs. The model relies on the best available research on program effectiveness to predict the outcomes of a program. The model produces projections for benefits that would accrue to program participants, nonparticipants, and taxpayers, based on Washington's specific cost and population data. These are combined to produce a total bottom line benefit. The model then calculates the cost of producing these outcomes and the return on investment that can be expected.

In 2008, an initial cost-benefit analysis of PCCD's evidence-based programs was conducted using WSIPP's model analysis. Since then, PCCD, in consultation with the PRC, has continually worked to improve cost-savings estimates. One drawback is that past estimates have relied on the Washington state systems costs, and national estimates of program costs, rather than using Pennsylvania-based costs.

Therefore, the goal of this project was to build a Pennsylvania-specific Return on Investment (ROI) Model to help policy makers, and providers better understand the economic costs and benefits of evidence-based prevention programs supported by PCCD. PCCD partnered with Results First to take WSIPP's approach and customize it for Pennsylvania, using state specific cost and population data.

The Results First Approach

The Pew-MacArthur Results First Initiative, a project of The Pew Charitable Trusts and the John D. and Catherine T. MacArthur Foundation, works with states and localities to develop the tools needed to identify and fund effective programs that yield higher returns on investment or at least pay for themselves. Using innovative and customizable methods, Results First partners learn to:

- Create an inventory of currently funded programs.
- Review which programs work.
- Conduct benefit-cost analysis to compare programs' likely return on investment.
- Use evidence to inform spending and policy decisions.

PCCD's collaboration with Results First, is focused solely on developing Pennsylvania-specific return on investment estimates for a select subset of programs that have long been identified as effective, evidence-based programs – with the intent of estimating the monetized value of such interventions.

Step One: Establish Pennsylvania-Specific Program Benefits

A variety of Pennsylvania specific data was used to estimate the benefits to taxpayers and to individuals who experience increased wages, improved health, and less utilization of costly services as a result of evidence-based programming funded by PCCD. The model incorporated data from both the juvenile and adult justice systems, and the Pennsylvania Department of Education to calculate a variety of benefits for each analyzed program, based on the research conducted that shows specific outcomes from that program (i.e., lower recidivism rates, higher rates of high school graduation, reduced substance abuse, etc.). The theory behind this approach is that participating in a prevention program will result in a reduction in youth who would have incurred costs to the justice and human services systems, an increase in youth graduating high school and earning higher wages, and a reduction in health costs associated with substance abuse or mental illness. Cost savings can also be seen in the reduction of harm to crime victims.

Step Two: Establish Pennsylvania-Specific Program Costs

The EPISCenter utilized fiscal records and the quality of implementation data reported by grantees to calculate a cost per person for each of the evidence-based programs listed in Table 1.

Table 1. Programs with EPISCenter cost estimates included in the Results First analysis

Program Name	Link to EPISCenter Resources
Aggression Replacement Training (ART)	www.episcenter.psu.edu/ebp/art
Big Brothers Big Sisters (BBBS)	www.episcenter.psu.edu/ebp/bigbrothersisters
Functional Family Therapy (FFT)	www.episcenter.psu.edu/ebp/familytherapy
LifeSkills Training (LST)	www.episcenter.psu.edu/ebp/lifeskills
Multisystemic Therapy (MST)	www.episcenter.psu.edu/ebp/multisystemic
Positive Action (PA)	www.episcenter.psu.edu/newvpp/positiveaction
Positive Parenting Program (Triple P)	www.episcenter.psu.edu/newvpp/triplep
Project Towards No Drug Abuse (TND)	www.episcenter.psu.edu/ebp/nodrugabuse
Promoting Alternative Thinking Strategies (PATHS)	www.episcenter.psu.edu/ebp/altthinking
Strengthening Families Program 10-14 (SFP 10-14)	www.episcenter.psu.edu/ebp/strengthening
Trauma-Focused Cognitive Behavioral Therapy (TF-CBT)	www.episcenter.psu.edu/newvpp/tfcbt
The Incredible Years (IY)	www.episcenter.psu.edu/ebp/incredible

As shown in Table 2, the number of projects and amount of funds disbursed through the fiscal year ending June 30, 2018 totals \$25,485,304 for the past seven years. PCCD’s Office of Juvenile Justice and Delinquency Prevention has awarded 175 two-year grants to support the scale up of evidence-based programs from July 1, 2010-July 1, 2016.

Table 2. PCCD’s Investment in Evidence-based Programs

Pennsylvania Commission on Crime and Delinquency Investment in Evidence-Based Programs										
Fiscal Year	# of PCCD Grants	2010	2011	2012	2013	2014	2015	2016	2017	2018
FY2010	14	\$1,785,654								
FY2011	25		\$5,357,811							
FY2012	27			\$3,096,841						
FY2013	36				\$4,752,850					
FY2014	17					\$2,404,497				
FY2015	25						\$3,937,354			
FY2016	31							\$4,150,297		

Given the diversity of implementation settings and project designs, costs are calculated using a weighted mean and a cost range (rather than a specific dollar value) in order to more accurately reflect variability across different implementation settings. Multisystemic Therapy and Functional Family Therapy costs are calculated differently, utilizing data from a rate survey conducted by the EPISCenter in 2015. See the costs column of Table 3 for specific cost estimates. Note there were some implementations of Strong African American Families (3 grants), Olweus Bullying Prevention Program (3 grants), and Familias Fuertes (1 grant) funded by PCCD during this time period. These models are not included in this report, as they are not currently monetized within the Washington State Institute of Public Policy econometric model.

Model Results

The table below shows the program-specific benefits, costs and total net benefit for all programs included in the Pennsylvania Results First Cost-Benefit model. The model shows a positive return on investment for the majority of programs included.

- **Benefits** refers to the avoided costs to tax payers, higher wages to participants, and benefits to others as a result of improved outcomes as monetized in the Pennsylvania Results First Model.
- **Costs** reflect the average cost per participant for PCCD funded projects.
- **Costs Confidence Interval (+/-)** shows the range of costs across diverse regions and implementation settings.
- **Benefit/Cost Ratio** includes a low, mid, and high estimate of expected return on investment for every dollar invested in each program.
 - Numbers higher than \$1 indicate a positive return on investment.
 - Numbers lower than \$1 indicate that the benefits do not exceed the costs of the program.
 - Numbers in parenthesis indicate zero economic benefits and the presence of additional economic costs beyond what it costs to implement the program

Table 3. Pennsylvania Cost-Benefit Analysis

PROGRAM NAME	BENEFITS	COSTS	COSTS CI (+/-)	Benefit/Cost Ratio		
				LOW	MID	HIGH
Aggression Replacement Training (ART)	\$2,214	\$905	\$602	\$1.47	\$2.45	\$7.31
Big Brothers Big Sisters (BBBS)	(\$169)	\$1,603	\$504	(\$0.08)	(\$0.11)	(\$0.15)
Functional Family Therapy (FFT)	\$11,015	\$3,918	*	\$2.20	\$2.81	\$3.98
LifeSkills Training (LST)	\$1,489	\$131	\$60	\$7.80	\$11.37	\$20.97
Multisystemic Therapy (MST)	\$5,632	\$8,683	*	\$0.52	\$0.65	\$0.89
Positive Action (PA)	\$13,727	\$63	**	\$66.64	\$217.89	\$334.80
Positive Parenting Program (Triple P)	\$1,072	\$1,376	\$388	\$0.61	\$0.78	\$1.09
Project Towards No Drug Abuse (TND)	\$303	\$117	\$47	\$1.85	\$2.59	\$4.33
Promoting Alternative Thinking Strategies (PATHS)	\$7,711	\$215	\$54	\$28.67	\$35.87	\$47.89
Strengthening Families Program 10-14 (SFP 10-14)	\$5,056	\$1,754	\$287	\$2.48	\$2.88	\$3.45
Trauma-Focused Cognitive Behavioral Therapy (TF-CBT)	\$19,300	\$1,666	\$580	\$8.59	\$11.58	\$17.77
The Incredible Years (IY)	\$2,612	\$2,104	\$658	\$0.95	\$1.24	\$1.81

* Based on survey completed by MST and FFT providers.

** Based on 2 grants, MID is weighted average, LOW and HIGH are actual costs per service.

CI = Confidence Interval.

ROI data like that shown above is only one way to understand the value of evidence-based programs. This summary report includes only ROI estimates for each of the programs included in the current model. The full report includes additional information on each program's proven outcomes, reach, impact in Pennsylvania, and a comparison between Pennsylvania cost-benefit results and those obtained by the Washington State Institute for Public Policy analysis.

Caveats to the Current Model

When reviewing the findings in this report it is important to keep in mind some caveats to the current model estimation.

1. The ROI calculations for Aggression Replacement Training, Functional Family Therapy and Multisystemic Therapy all rely on Pennsylvania specific recidivism rates. Due to data constraints the Pennsylvania model only contains five years' worth of recidivism data compared to 15 years for WSIPP. This means the benefits for these programs are lower than they otherwise would be if recidivism data were available for additional years.
2. The results of the other nine programs run through Pennsylvania's benefit-cost model will be more similar to WSIPP's results. However, there are still some important differences.
 - a. All programs contain Pennsylvania specific cost estimates.
 - b. All benefits include wage adjustments to reflect state differences in average wages.
 - c. WSIPP includes the dead-weight cost of taxation in their calculations and the Pennsylvania model did not include this adjustment.

It is important to remember that many programs have additional value, beyond what can be shown through return on investment analysis. Notably, many outcomes that these programs are proven to produce are not currently monetized in the Results First model. When implemented with a high level of quality, the programs discussed in this report have been shown to promote healthy youth development and prevent risky behaviors. These additional benefits, along with the high return on investment, make them a strong investment for the Commonwealth.

Recommendations Based on Findings

The following recommendations are broadly focused and geared towards state policy makers such as legislators, the Governor's office, and key system directors. They may also be relevant for federal policy makers including congressional representatives and federal agencies that provide funding and set policy for human services. Program specific recommendations for providers, program developers, and policy makers can be found in Appendix A of the full version of this report.

1. **Provide Incentives for Increasing the Use of Evidence-based Programs:** Human service providers, schools, and policy makers are under pressure to meet the needs of youth and families in an atmosphere of constrained budgets and complex needs. In order to make space for replacing less effective approaches with evidence-based programs significant financial and policy incentives need to be in place, and policies that create barriers must be changed or eliminated. Appendix A of the full report provides more specific recommendations for each evidence-based program in the report.
2. **Increase Funding for Scaling Low-Cost Universal EBPs:** Many counties are forced to focus needs-based budget funds on the most at-risk populations, thus foregoing low-cost, universal interventions that reach a broad segment of the population. Within the Results First Analysis, programs with a low cost per participant tend to be those that have a universal focus. By adding funding for universal prevention, particularly the lower cost programs shown in the PA Results First model, we can reduce the flow of youth and families into more costly services.
3. **Increase Duration of Funding for EBP Implementation:** In order to reduce average cost per participant and thus increase return on investment, implementing organizations should be funded for a longer period. This would increase their capacity to serve more youth and families and to sustain services beyond grant funding, thereby decreasing the cost per participant and increasing the net benefit to the state.

4. **Extend Implementation Monitoring and Outcome Evaluation Support Beyond PCCD's Two-year Grants:** Current cost estimates are based on data collected during a two-year initial grant period for PCCD funded projects supported by the EPISCenter. If the state were able to extend these implementation support services beyond PCCD's seed grant initiative it would be possible to demonstrate an ongoing return on investment for other state initiatives, with the added benefit of helping to sustain quality over time.
5. **Increase Funding for Researching What Works:** In order to conduct sound cost-benefit estimates it is essential to have current research demonstrating the effects of the program(s) being analyzed and understand the economic benefits of those effects. Many of the programs on the current menu would benefit from additional research in order to explore long-term impact on a wider variety of outcomes, and to explore how those outcomes create economic benefits for communities. In addition, many of the widely implemented programs that have little to no evidence-base and would benefit from evaluation so that they can be included in these types of analysis.

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