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Deciding what Works: Empirical Evidence and Cost Effectiveness

Petra Guder
Bernd-Rüdeger Sonnen

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I. Introduction

The second US-Juvenile Justice Reform-Forum at the 20th German Prevention Congress was centered on evidence based Programs and their cost effectiveness as well as their implementation in the State of Pennsylvania, the model state regarding juvenile justice reform in the US. The forum focused also on the necessity of a federal support system for the effective coordination of all prevention and reform strategies like the OJJDP in Washington, DC.

The US Institute of Medicine Report on Healthcare 2008 findings have shown that a significant proportion of evidence reviews lack scientific rigor and fail to address client, practitioner, and funder needs for current, trustworthy information about a programs effectiveness.

Patrick Tolan pointed out the strengths and risks of such evidence based approaches, if professional organizations and federal agencies listing evidence-based programs are failing to meet their responsibilities to protect practitioners and clients from ineffective programs and practices (Bigland & Ogden 2008).

II. "What Really Works" - Outcome Evaluations

Tolan reported, that a review of approaches to identifying evidence-based interventions for delinquency and violence prevention and the benefits and limitations of each has illustrated, how juvenile justice systems can achieve through the use of research evidence and demonstration of outcomes. Tolan focussed specifically on the Blueprints for Healthy Youth Development as an example of why the use of quality research is important for guiding practice and policy.

Outcome evaluation implies a set standard for judging the quality and generalizability of the evidence to classify. Tolan pointed out that only a limited consensus exists regarding the appropriate standard for certifying a program as "evidence-based" and multiple strategies for estimating effectiveness. Though, the term "evidence-based" now has currency and pliability.

Evidence for Action that is *Good Bet*	**Justice/Ethics of Action**	**Approaches to Evidence Accumulation**
▪ Prior Evidence Can Work ▪ Not Biased ▪ Investment of Funds/ Energy	▪ Before Work to Affect People ▪ Choice Costs	▪ Programs ▪ Meta-analyses ▪ Best Practices ▪ Principles ▪ Commission Consensus

Many types of evidence could guide application and policy, such as systematic reviews of findings; analyses of trends and records; case studies and qualitative methods as well as representative surveys, correlational and subgroup studies, experimental studies (RCT) and systematic reviews of multiple tests.

In order to develop a program that can be validly tested to determine "It works", a specific theory/model of how it would work makes sense as well as the empirical evidence of theorized linkages – a "good bet" that it will work. Malleable features in linkage can change. The goal is an outcome that is meaningful and to choose an appropriate population intended to affect. Another prerequisite is the certainty of effects due to test- (RCT) accompanied by an adequate study completion to apply certainty to believe it was "the program", which was the one what worked. Effects should last beyond immediate.

1. The Value of Evidence and Program Type Needed Depends on Nature of Intended Use

The theory needs to be tested, as well as decisions made what programs to offer, fund and implement. The setting benchmarks for if it is making a difference is equally important. How applicable/usable is the program is for the intended population, context, problem and outcome goal? Other questions to be answered are the readiness of the program implementation with the needed fidelity and fidelity importance.

2. Internal and External Validity Issues

Important questions regarding the internal validity are to be answered: Can it work? Am I wrong in theory/belief? What are variations within population in effects?

The same applies to external validity issues: Can it work in the real world? Will it operate at scale? The setting of requirements, in particular operational requirements is significant important as well as population variations and the robustness of the program in the face of low fidelity.

3. Threats to Randomized Control Trial (RCT) and Quasi Experimental Design (QED) Internal and External Validity *

- Selection bias
- Inadequate statistical power
- Bias assignment to condition
- Participation after assignment
- Diffusion/Receiving another intervention
- Implementation of intervention (fidelity)
- Effect decay
- Attrition and tracking N's

- Improper analyses, e.g., wrong unit of analysis
- No mediation analysis
- No adequate subgroup analyses

*adapted from Brown et al., 2000, Threats to Trial Integrity Score.

III. Blueprints for Healthy Youth Development

(Center for the Study and Prevention of Violence, University of Colorado Boulder/ www.colorado.edu/cspv)

The Blueprints for Healthy Youth Development are an example of why the use of quality research is important for guiding practice and policy.

1. Background

1996: With ***OJJDP*** funding, the Center for the Study and Prevention of Violence at the University of Colorado at Boulder initiated a project to identify effective youth violence, delinquency, and drug prevention programs that met a very high standard of program effectiveness, "programs that could provide an initial nucleus for a national violence prevention initiative" (Elliott, D.: Introduction to Blueprints 1998/2001, p. XIV).

2011: With ***Annie E. Casey Foundation*** funding, the Blueprint initiative expanded outcomes to academic success, emotional well-being and physical health programs.

2. Strategy

The basic concept of the Blueprint strategy is the systematic search and the systematically review of individual program evaluations by quality of study criteria to identify prevention and treatment programs that meet a "high" standard in the categories violence, drug abuse, deliquency, mental illness/health, educational achivement and physical health.

The set of evaluation standards involves an experimental design, the evidence of a statistically significant deterrent (or marginal deterrent) effect, a replication at multiple sites with demonstrated effects and evidence that the deterrent effect was sustained for at least one year post treatment. Those programs which are meeting study design quality standards to validly evaluate effects are reviewed by the Blueprints Advisory Board. Individual programs with positive effects on meaningful outcomes are certified either as ***"Promising"*** or ***"Model***-Programs". Only Model programs are considered eligible for widespread dissemination.

Blueprint Criteria

Model Program Criteria	Promising Program Criteria
▪ Strong research design ▪ 2 randomized control trials (RCT) or one RCT & one quasi-experimental design ▪ Effects sustained at least 1 year post-treatment ▪ Model Plus = high quality "independent" evaluation	▪ Strong research design ▪ one randomized control trial, or ▪ 2 quasi-experimental design studies

Blueprint Evaluation Quality Elements

▪ selection bias	▪ Differential attrition
▪ Baseline equivalence	▪ Intent to treat analysis at a proper level with valid and reliable measures
▪ Sample Ns described at each stage	▪ Independent from delivery of intervention

Intervention Specificity and Impact/Dissemination Readiness

To explain further, Tolan pointed out that the intervention specifity has to clearly identifiy targeted outcomes, targeted risk and protective factors as well as theoretical mechanisms (program components) and the targeted population. The intervention impact is based on the preponderance of evidence from high-quality study and has to be consistent across multiple outcomes and reporters. Programs are not allowed to show any evidence of harmful effects and have to demonstrate behavioral outcomes (not *attitudes*). The dissemination readiness constitutes of the organizational capacity, the curriculum/materials, training and technical assistance as well as quality assurance (fidelity). Tolan noted furthermore, that the discussion for the necessity of an evidence based-definition-standard demonstrates the existence of some tensions in setting a standard for evidence based programs. If the standard is low, this will result in more programs but a greater risk of failure. To set the standard high, this means fewer programs, but a greater certainty when going to scale (Blueprints). The Blueprints standards are widely recognized as the most rigorous, because of exhaustive literature search, internal and external review (advisory board).

3. Blueprints Model Programs

More than 1,300 youth prevention programs have been reviewed. 43 programs met the promising program criteria, while only 14 programs met the model program criteria:

Blueprint Model Programs (2015)	
▪ **Blues Program** (Cognitive Behavioral Group Depression Prevention) ▪ **Body Project** ▪ **Brief Alcohol Screening** for College Students (BASICS) ▪ **Functional Family Therapy** (FFT) ▪ **LifeSkills** Training (LST) ▪ **Multidimensional Treatment Foster Care** (MTFC) ▪ **Multisystemic Therapy** (MST)	▪ **Multisystemic Therapy** – Problem Sexual Behavior ▪ **New Beginnings** (for children of divorce) ▪ **Nurse-Family Partnership (NFP)** ▪ **Parent Management Training** ▪ **Positive Action** ▪ **Promoting Alternative Thinking Strategies** (PATHS) ▪ **Project Towards No Drug Abuse** (TND)

See http://www.blueprintsprograms.com

Examples for rigid evaluation

- Three out of four studies regarding Multisystemic Therapy (MST) provided positive effects and on no significant marginal effect
- One Nurse-Family-Partnership (NFP) study was withdrawn due to majo methodoligical problems

Evolving Considerations for Blueprint Reviews

- Continuous treatment/intervention programs-sustained effect?
- School, neighborhood, community level studies – Design and power issues
- Program delivery systems (e.g. CTC) – organization or behavioral impact, sustainability
- Regression discontinuity and other "non-experimental" estimates of program effects
- Independent replication
- Replication criteria
- Role of effect sizes
- Cost effectiveness/ Cost-benefit ratio

Part of every Blueprints Program is a database fact sheet, which consists of the following informations:

- Program name and description of goals/type of the program
- Developmental/Behavioral outcomes
- Risk/Protective factors targeted
- Contact information/ program support
- Target population characteristics (gender, ethnicity, age)

- Program effectiveness (effect size)/Outcomes achieved
- Target domain: individual, family, school, community
- Logic/Theory model
- Program costs:
  - Unit cost, start-up, implementation, fidelity monitoring, other, budget tool
- Benefit-Costs:
  - Benefits, net unit benefit-cost
- Funding: Overview, financing sources and strategies
- Program materials
- References

Blueprint Strategies for Facilitating the Dissemination and Successful Implementation of EB Programs. The successful dissemination and implementation of evidence based programs is based on three key elements:

Providing information that facilitates an informed decision (fit, cost, benefits, funding, readiness, system requirements, contacts, etc.); providing tools for assessing community and system needs and risk/protective profiles; policy Team: Developing a strategic plan for a broad, national level dissemination of BP Programs

The Blueprints Website provides easy-to-use program searches identifying programs that match. **The Blueprints Conference** every two years brings together program developers, implementers, policy-makers, and others interested in the promotion and implementation of EBPs (www.blueprintsprograms.com/www.blueprintsconference.com).

IV. Effective Programs and Policies

1. Evidence Based Interventions and their Advantages

Evidence based interventions assure quality (fidelity) that the program works. Packaged/manualized materials as well as training and technical assistance and cost-benefit data are available.

The matrix of federal and privately rated programs shows that program registries vary widely in focus (specific outcomes), criteria and labeling.

Resource:
Matrix of Federal and Privately Rated Programs(on Blueprints website, Resources page, at http://blueprintsprograms.com/resources/Matrix.pdf)

The registries are based on a hierarchical program classification framework*

- *I. Model*: Meets all standards
- *II. Effective*: RCT replication not independent
- *III. Promising*: Q-E or RCT, no replication
- *IV. Inconclusive*: Contradictory findings or non-sustainable effects
- *V. Ineffective*: Meets all standards but with no statistically significant effects
- *VI. Harmful*: Meets all standards but with negative main effects or serious side effects
- *VII Insufficient* Evidence: All others

*Adapted from Hierarchical Classification Framework for Program Effectiveness, Working Group for the Federal Collaboration on What Works, 2004. www.ncjrs.gov/pdffiles1/nij/220889.pdf

Matrix Example

Matrix of Programs (Updated 7/13)	Coalition Evidence-Based Policy	Blueprints for Healthy Youth Development	NREPP-SAMHSA	OJJDP Model Programs Guide	Office of Justice Programs Crimesolutions.gov
Aban Aya Youth Project				Promising	Promising
Acceptance and Commitment Therapy (ACT)			2.5-3.0		
Across Ages			2.4-3.1	Promising	
Active Parenting Now			2.2-3.3		
Active Parenting of Teens: Families in Action			2.2-2.7	Promising	Promising
Adolescent Community Reinforcement			3.0-3.7		Effective
Adolescent Coping with Depression (CWA-D)		Promising	3.6-3.8		
Multidimensional Family Therapy (MDFT)			2.9-3.8	Effective	Effective
Multidimensional Treatment Foster Care (MTFC)	Top Tier	Model	2.8-3.1	Effective	Effective
Multidisciplinary Team Home Run Program				Promising	
Multimodal Substance Abuse Prevention				Promising	
Multi-site Adult Drug Court Evaluation (MADCE)					Promising
Multisystemic Therapy		Model	2.9-3.2	Effective	Effective

Effective Programs and Policies Have Been Identified in a Wide Range of Areas

1. Prenatal & Infancy Programs
2. Early Childhood Education
3. Parent Training
4. After-school Recreation
5. Mentoring with Contingent Reinforcement
6. Youth Employment with Education
7. Organizational Change in Schools
8. Classroom Organization, Management, and Instructional Strategies
9. School Behaviour Management Strategies
10. Curricula for Social Competence Promotion
11. Community & School Policies
12. Community Mobilization

(Hawkins & Catalano, 2004)

2. Effective Organization of Delivery and Management of Prevention:

Two tests of approaches to organizing delivery and management of prevention:

- Communities That Care
- Data collection on risk and protective factors, resources
- Access to evidence based programs for implementation
- Key stakeholders commitment
- Monitoring implementation

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- School and family based interventions
- Local leadership, prevention service, technical assistance
- University- local collaboration

3. Effects of Evidence Based Programs/Cost Effective Analyses

Costs to Implement and Manage	Benefits
▪ Training ▪ Not original research	▪ Participants ▪ Taxpayers/Public Funds ▪ Others (e.g. victims)

Examples:

Florida Redirection Project:

- Initiated in State Dept. of Juvenile Justice in 2004. Current state funding at $9, 365,000
- Redirects youth from residential commitment to MST, FFT or BSFT
- Initially limited but as of 2011 available for all youth referred by DJJ or the court; available in 18 of 20 judicial circuits
- Cost savings > $30K per youth; Total saving for state since 2004 >$211M
- 20% decrease in re-arrest; 31% in felony re-conviction; 21% in subsequent commitment to adult system

Washington State Institute for Public Policy (WSIPP)

The Washington State Institute for Public Policy (WSIPP) modest portfolio of evidence based programs will save nearly $480 million over 20 years in one state*

* Lee, S., Aos, S., & Pennucci, A. (2015). What works and what does not? Benefit-cost findings from WSIPP. (Doc No. 15-02-4101). Olympia: Washington State

Institute for Public Policy
(www.wsipp.wa.gov)

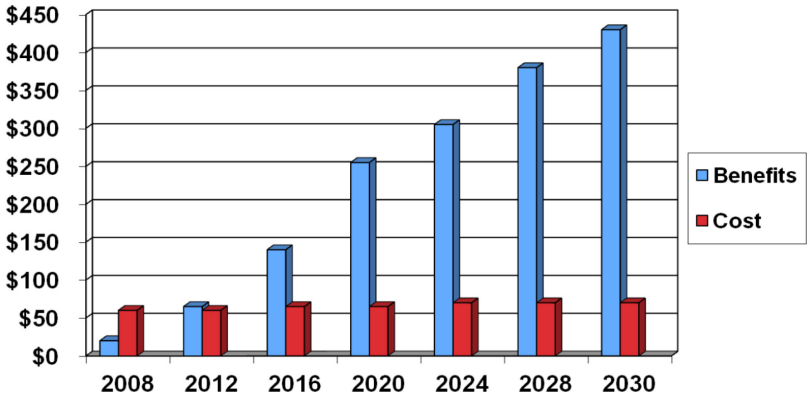
- 1997- Legislature directed the Washington State Institute for Public Policy (WSIPP) to identify evidence based/cost effective programs in justice systems
- Based on successful implementation of evidence based justice programs, legislature cancelled new prison plans
- In the early 2000s, the WSIPP directed the same evidence based strategy for pre-school, K-12, child welfare, mental health, substance abuse and public health systems
- ROI information for evidence based programs in these systems at www.wsipp.wa.gov/BenefitCost

Exhibit 1

Juvenile Justice

Program name	Total benefits	Taxpayer benefits	Non-taxpayer benefits	Costs	Benefits minus costs (net present value)	Benefit to cost ratio	Chance benefits will exceed costs
Functional Family Therapy (youth in state institutions)	$37,554	$8,012	$29,542	($3,358)	$34,196	$11.21	100 %
Aggression Replacement Training (youth in state institutions)	$28,955	$6,126	$22,829	($1,552)	$27,403	$18.69	96 %
Functional Family Therapy (youth on probation)	$29,944	$7,728	$22,216	($3,357)	$26,587	$8.94	100 %
Multisystemic Therapy for substance abusing juvenile offenders	$27,227	$5,235	$21,991	($7,578)	$19,648	$3.60	76 %
Multisystemic Therapy	$23,082	$5,495	$17,587	($7,576)	$15,507	$3.05	92 %
Aggression Replacement Training (youth on probation)	$16,076	$4,121	$11,955	($1,552)	$14,524	$10.38	96 %
Family Integrated Transitions (youth in state institutions)	$25,586	$6,419	$19,167	($11,565)	$14,021	$2.22	76 %
Functional Family Parole (with quality assurance)	$14,478	$3,475	$11,003	($4,478)	$10,000	$3.24	79 %
Multidimensional Treatment Foster Care	$17,286	$4,256	$13,031	($8,111)	$9,175	$2.13	67 %
Multidimensional Family Therapy (MDFT) for substance abusers	$14,185	$4,281	$9,904	($7,805)	$6,380	$1.82	67 %
Coordination of Services	$6,446	$1,693	$4,753	($406)	$6,040	$15.90	76 %
Therapeutic communities for chemically dependent juvenile offenders	$10,364	$2,628	$7,735	($4,576)	$5,788	$2.27	76 %
Drug court	$7,318	$2,092	$5,226	($3,159)	$4,159	$2.32	65 %
Victim offender mediation	$4,386	$1,197	$3,189	($596)	$3,790	$7.37	88 %
Drug treatment for juvenile offenders	$6,133	$1,947	$4,186	($3,744)	$2,388	$1.64	70 %
Other chemical dependency treatment for juveniles (non-therapeutic communities)	$220	$441	($221)	($3,193)	($2,973)	$0.07	28 %
Scared Straight	($13,491)	($3,429)	($10,062)	($66)	($13,557)	($204.33)	1 %

Annual Washington State Taxpayer Costs & Benefits Forecast with Modest Portfolio of Justice System Evidence-Based Programs



V. Conclusion

The ideal evidence based program addresses major risk and protective factors that can be changed and substantially affect problems. It is easy to implement with fidelity. The program has a rationale for and methods of services. Treatments are consistent with the values of those who will implement the program. The program is either inexpensive or shows positive cost-benefit-ratios and proves that it can influence many lives or have life saving types of effects on some lives.*

*Adapted from Shadish, Cook and Leviton, 1991:445.

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