

May 2014

## Inventory of Evidence-based, Research-based, and Promising Practices: Prevention and Intervention Services for Adult Behavioral Health

The 2013 Washington State Legislature passed 2SSB 5732 which established the following:

The systems responsible for financing, administration, and delivery of publicly funded mental health and chemical dependency services to adults must be designed and administered to achieve improved outcomes for adult clients served by those systems through increased use and development of evidence-based, research-based, and promising practices.

The legislation directs the Washington State Institute for Public Policy (WSIPP) to create, in consultation with the Department of Health and Social Services (DSHS), University of Washington Evidence-Based Practice Institute (EBPI), University of Washington Alcohol and Drug Abuse Institute (ADAI), and the Washington Institute for Mental Health Research and Training (WIMHRT), an inventory of evidence-based, research-based, and promising practices by May 15, 2014. The legislation also directs DSHS to use the inventory to develop a behavioral health improvement strategy and report the strategy to the governor and legislature by August 1, 2014.

This report describes the inventory of evidence-based, research-based, and promising practices in adult mental health and chemical dependency services.

### The Inventory

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The legislation, passed in May 2013, allowed one year to develop the initial inventory. Beginning in May 2013, WSIPP worked with DSHS and HCA to develop a list of the highest priority interventions and programs to be reviewed for this inventory. We also asked for topic suggestions from members of the steering committee created by 2SSB 5732. We reviewed a total of 48 interventions. In addition, the UW institutes solicited nominations for promising programs from the DSHS mailing list of providers, service coordination agencies, and other stakeholders. Eight applications for promising practices were received and reviewed by UW.

Our approach to developing the inventory is the same as we have used in the other policy areas where the legislature has directed WSIPP to establish inventories. First, we estimate the probability that various public policies and programs can achieve desired outcomes, such as reductions in illicit drug use.<sup>1</sup> For

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<sup>1</sup> For the inventory, we look for studies measuring outcomes related to the reasons for treatment. For example, in programs treating substance abuse, we include studies that measure reductions in alcohol or drugs or outcomes such as employment. We would not include studies that measure outcomes that may or may not be related to the behavioral change, such as retention in treatment or client satisfaction, if the studies

each topic, we carefully analyze all high-quality studies from the United States and elsewhere to identify interventions or policies that have been tried, tested, and found to either achieve or not achieve improvements in outcomes. We look for research studies with strong evaluation designs and exclude studies with weak research methods. Using all credible evaluations we can locate on a given topic, we then conduct a meta-analysis to determine the average effect of the program and a margin of error for that effect.<sup>2</sup> The research standards are outlined in the box below.

### **Standards of Research Rigor**

When WSIPP is asked by the legislature to conduct an evidence-based review, we follow a number of steps to ensure a rigorous and consistent analysis. These procedures include the following:

- 1) We consider all available studies we can locate on a topic rather than selecting only a few; that is, we do not “cherry pick” studies to include in our reviews.
- 2) To be included in our reviews, we require that an evaluation’s research design include treatment and comparison groups from intent-to-treat samples. Random assignment studies are preferred, but we include quasi-experimental studies when the study uses appropriate statistical techniques. Natural experimental designs including regression discontinuity and instrumental variables are also considered.
- 3) We then use a formal statistical procedure, meta-analysis, to calculate an average “effect size,” which indicates the expected magnitude of the relationship between the treatment and the outcome of interest. That is, we determine whether the weight of the evidence indicates outcomes are, on average, achieved.

For the second step, we use the results from our analysis of the program effects to determine whether the life-time benefits of the program exceed the costs to Washington’s taxpayers to provide the program. That is, we conduct a formal benefit-cost analysis.

The third analytical step involves testing the robustness of our results. Any tabulation of benefits and costs involves some degree of uncertainty about future performance. This is expected in any investment analysis, whether it is in the private or public sector. To assess the riskiness of our conclusions, we perform a “Monte Carlo simulation” in which we vary the key factors in our calculations. The purpose of the risk analysis is to determine the odds that a particular policy option will at least break even. This type of analysis is used by many businesses in investment decision making.

Thus, for each option, we produce two “big picture” findings: expected benefit-cost results (net present values and benefit-cost ratios) and, given our understanding of the risks involved, the odds that the policy will at least have benefits greater than costs.

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did not also measure substance abuse. Similarly, studies of programs intended for persons with serious mental illness had to include some measure of symptom improvement, such rates of psychiatric hospitalization, arrest, or employment.

<sup>2</sup> All methods are described in detail in WSIPP’s Technical Manual.

## Identifying evidence-based, research-based, and promising practices.

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The legislature established definitions for evidence-based, research-based, and promising practices for adult behavioral health in 2SSB 5732.<sup>3</sup> These definitions were used to assemble the list of promising practices and define interventions as evidence-based and research-based. The following definitions are taken verbatim from the bill.

### Evidence-based practice

*A program or practice that has been tested in heterogeneous or intended populations with multiple randomized, or statistically controlled evaluations, or both; or one large multiple site randomized, or statistically controlled evaluation, or both, where the weight of the evidence from a systemic review demonstrates sustained improvements in at least one outcome. "Evidence-based" also means a program or practice that can be implemented with a set of procedures to allow successful replication in Washington and, when possible, is determined to be cost-beneficial.*

### Research-based practice

*A program or practice that has been tested with a single randomized, or statistically controlled evaluation, or both, demonstrating sustained desirable outcomes; or where the weight of the evidence from a systemic review supports sustained outcomes as described in subsection (14) of this section but does not meet the full criteria for evidence-based.*

### Promising practice

*A practice that, based on statistical analyses or a well-established theory of change, shows potential for meeting the evidence-based or research-based criteria, which may include the use of a program that is evidence-based for outcomes other than those listed in subsection (14) of this section (defining "evidence-based".)*

For each program where research was available, WSIPP conducted meta-analysis and benefit-cost analysis to determine the level of evidence. If outcome evaluations exist, but the evidence indicated a non-significant (p-value greater than 0.1) effect on desired outcomes in the expected direction, then the program was designated as promising. When we could locate no rigorous outcome evaluations for a program, or the effect on outcomes was mixed, the program was sent to the institutes at the University of Washington (ADAI, WIMHRT, and EBPI) to determine whether it met the criteria for promising.

In the inventory, each program is designated as evidence-based, research-based, or promising according to definitions and procedures described above.

To assemble the inventory, we needed to operationalize each criterion within the definitions. The inventory also contains the reasons some programs did not meet the evidence-based definition.

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<sup>3</sup> RCW 71.24.025.

These reasons are as follows:

- 1) [Heterogeneity](#). To be designated as evidence-based a program must have been tested on a “heterogeneous” population. We operationalized heterogeneity in two ways. First, the proportion of program participants belonging to ethnic/racial minority groups must be greater than or equal to the proportion of minority adults in Washington. From the 2010 Census, for adults in Washington, 76% were white and 24% belonged to ethnic/racial minority groups.<sup>4</sup> Thus, if the weighted average of program participants in the outcome evaluations of the program was at least 24% ethnic/racial minority, then the program was considered to have been tested in a heterogeneous population.

Second, the heterogeneity criterion can also be achieved if at least one of a program’s outcome evaluations has been conducted on adults in Washington and a subgroup analysis demonstrates the program is effective for ethnic/racial minorities ( $p \leq 0.2$ ).

Programs that do not meet either of these two criteria do not meet the heterogeneity definition.

- 2) [Benefit-cost](#). The WSIPP benefit-cost model was used to determine whether a program meets this criterion. Programs that do not achieve at least a 75% chance of a positive net present value do not meet the benefit-cost test. The WSIPP model uses Monte Carlo simulation to test the probability that benefits exceed costs. The 75% standard was deemed an appropriate measure of risk aversion.
- 3) [Mixed results within an outcome](#). If findings within an outcome area (e.g., crime) have mixed results from different measures, (e.g., undesirable outcomes for felony convictions and desirable outcomes for misdemeanor convictions) the program does not meet evidence-based criteria.
- 4) [Program cost](#). A program cost was not available to WSIPP at the time of the inventory. Thus, WSIPP could not conduct a benefit-cost analysis.
- 5) [Single evaluation](#). The program does not meet the minimum standard of multiple evaluations or one large multiple-site evaluation contained in the current or alternative definitions.
- 6) [Weight of evidence](#). Results from a random effects meta-analysis ( $p > 0.10$ ) indicate that the weight of the evidence does not support desired outcomes, or results from a single large study indicate the program is not effective.
- 7) [Research on outcomes of interest not yet available](#). The program has not yet been tested with a rigorous outcome evaluation.

If a program is not listed on the inventory, we have not yet had the opportunity to review it or it does not meet the criteria for promising. If a program is listed on the inventory but does not meet any of the criteria for evidence-based, research-based, or promising, then the program is ineffective or has adverse effects and should not be used if the goal is to achieve one of the desired outcomes such as reductions in use of alcohol and drugs or reductions in symptoms of mental illness identified in the evidence-based definition.

The inventory is located on our website, which can be accessed by clicking [here](#). Further information on the individual programs can also be found on our website by clicking [here](#).

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<sup>4</sup> United States Census Bureau, 2010. Retrieved from <http://factfinder2.census.gov/>.

## Limitations

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The benefit-cost analyses in this report reflect only those outcomes that were measured in the studies we reviewed and are monetizable with the current WSIPP benefit-cost model. At this time we are unable to monetize some relevant outcomes, such as global functioning or social connectedness. One outcome in particular, homelessness, was measured in evaluations of several programs we reviewed. While the current WSIPP benefit-cost model does not estimate the benefits of reducing homelessness, we examined a recent comprehensive benefit-cost study of housing vouchers to test the sensitivity of our results.<sup>5</sup>

## Future updates and extensions of the inventory

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2SSB 5732 did not contain language directing WSIPP to update this inventory in the future.<sup>6</sup> Through a WSIPP Board-approved contract with the Pew-MacArthur Results First Initiative, WSIPP has some capacity to supplement this inventory with additional topics during 2014.

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<sup>5</sup> Carlson, D., Haveman, R., Kaplan, T., & Wolfe, B. (2011). The benefits and costs of the Section 8 housing subsidy program: A framework and estimates of first-year effects. *Journal of Policy Analysis and Management*, 30(2), 233-255.

<sup>6</sup> 2SHB 2536 from the 2012 legislative session directed WSIPP and EBPI to prepare a similar inventory for children's mental health, child welfare, and juvenile justice. The language in that bill did authorize updating the inventory on a periodic basis.

## Acknowledgments

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We would like to thank leadership and staff at the Department of Social and Health Services, Behavioral Health and Service Administration (BHSIA), and the Health Care Authority for their guidance in creating the list of high priority interventions to review for the inventory and their assistance in describing/explaining specific programs. Representatives of the three UW institutes provided guidance on identifying promising programs. We are especially grateful to Maria Monroe-DeVita, Eric Trupin, and Dennis Donovan for assembling an excellent team to review programs.

Suggested citation: Miller, M., Fumia, D., & Kay, N. (2014). *Inventory of evidence-based, research-based, and promising practices prevention and intervention services for adult behavioral health*. (Doc. No. 14-05-4101). Olympia: Washington State Institute for Public Policy.

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Document No. 14-05-4101



Washington State Institute for Public Policy

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