Washington State
Institute for
Public Policy

110 Fifth Avenue Southeast, Suite 214 • PO Box 40999 • Olympia, WA 98504-0999 • (360) 586-2677 • FAX (360) 586-2793 • www.wsipp.wa.gov

December 2004

WASHINGTON STATE'S FAMILY INTEGRATED TRANSITIONS PROGRAM FOR JUVENILE OFFENDERS: OUTCOME EVALUATION AND BENEFIT-COST ANALYSIS

SUMMARY[1]

In 2000, the Washington State Legislature initiated a pilot rehabilitation program for juvenile offenders sentenced to a state juvenile justice institution. The program focuses on offenders with "co-occurring" substance abuse and mental health disorders. Offenders with both of these conditions are known to pose a high risk for committing new crimes upon re-entry to the community.[2] The overall goal of the program is to provide research-proven treatment and thereby lower recidivism rates.

The legislation directed the Department of Social and Health Services' (DSHS) Juvenile Rehabilitation Administration (JRA) to develop the program. The specific approach adopted by JRA—the Family Integrated Transitions (FIT) program—was designed and implemented by Eric Trupin, Ph.D., and David Stewart, Ph.D., from the University of Washington. The program uses a combination of evidence-based approaches tailored to the particular needs of these high-risk youth.

The FIT program was piloted in four locations in Washington: King, Snohomish, Pierce, and Kitsap Counties. FIT began serving youth in 2001.

The 2000 Legislature directed that an independent outcome evaluation of FIT be conducted by the Washington State Institute for Public Policy (Institute). In this report, we present findings on the effectiveness of FIT in reducing recidivism, as well as an analysis of the program's benefits and costs.

Main Finding: Recidivism. We find that FIT reduces recidivism rates—that is, the program works.

We compare the recidivism rates of FIT participants (n=104) and a comparison group of FIT-eligible offenders (n=169) who did not participate in the program because they did not live in one of the four FIT pilot counties. We find that without FIT, 40.6 percent of offenders were re-convicted for a new felony within 18 months of release from a JRA institution. For those who participated in FIT, we find that the recidivism rate dropped to 27.0 percent, a statistically significant difference.[3]

Main Finding: Benefits and Costs. We find that FIT generates more benefits than costs.

FIT is an intensive treatment program that begins in the juvenile institution and continues for four to six months in the community. We estimate the program costs as $8,968 per youth (2003 dollars). How do these costs stack up against the program's benefits? We estimate that the benefits of the reduction in recidivism more than offset the $8,968 in costs. Because FIT reduces crime, taxpayers benefit by seeing a reduction in future spending on the criminal justice system. The crime reduction effect of FIT also means that there will be fewer crime victims. Analyzing these benefits, we find that FIT achieves $3.15 in benefits per each dollar of cost.[4]

[1] This report was authored by Steve Aos; he can be contacted at saos@wsipp.wa.gov. Suggested citation: S. Aos. (2004) *Washington State's family integrated transitions program for juvenile offenders: outcome evaluation and benefit-cost analysis.* Olympia: Washington State Institute for Public Policy.

[2] See, for example: D. G. Stewart & E. W. Trupin (2003) "Clinical utility and policy implications of a statewide mental health screening process for juvenile offenders." *Psychiatric Services* 54: 377-382; and E.W. Trupin, D. Stewart, & A. Turner (2004) "Community transitions of juvenile mentally ill offenders." *Behavioral Sciences and the Law* 22: 559-610.

[3] These results are mean-adjusted recidivism rates from a logistic regression controlling for key factors related to recidivism.

[4] The Institute's benefit-cost model was used to estimate this result. The model is described fully in: S. Aos, R. Lieb, J. Mayfield, M. Miller, & A. Pennucci. (2004) *Benefits and costs of prevention and early intervention programs for youth, Technical Appendix*. Olympia: Washington State Institute for Public Policy.

WHAT IS THE FAMILY INTEGRATED TRANSITIONS (FIT) PROGRAM?[5]

The 2000 Washington Legislature established this pilot project to provide evidence-based treatment to juvenile offenders with the co-occurring disorders of mental illness and chemical dependency. Because there was no existing "off-the-shelf" program available for this particular population, Eric Trupin and David Stewart developed FIT to integrate the strengths of several existing empirically-supported interventions for juveniles. FIT is based on components of four programs:

- ✓ Multi-Systemic Therapy[6]
- ✓ Motivational Enhancement Therapy[7]
- ✓ Relapse Prevention[8]
- ✓ Dialectical Behavior Therapy[9]

For FIT, the treatment elements from these other programs were tailored to address the unique needs of youth who re-enter the community after being detained in a JRA facility. In the FIT program, youth receive intensive family- and community-based treatment targeted at the multiple determinants of serious antisocial behavior. The first and most important task of the family-based intervention is to engage the family in treatment. The program then strives to promote behavioral change in the youth's home environment, emphasizing the systemic strengths of family, peers, school, and neighborhoods to facilitate the change.

This intervention begins during the youth's final two months in a JRA residential setting and continues for four to six months while the youth is under parole supervision. The FIT team consists of the contracted therapists; the University of Washington team, which provides clinical oversight and training; and JRA, which serves as the host agency. Each FIT team has four therapists working under a quarter-time clinical supervisor. Teams include children mental health specialists and chemical dependency professionals. The average team serves from four to six families at any one time. Services are available 24 hours per day, seven days per week. JRA is responsible for administering the program, including monitoring all contracts. JRA identifies and refers eligible youth into the program and notifies families about the program. JRA residential and parole staff work closely with the contracted therapists and the FIT families.

Current eligibility criteria for FIT are the following:

- ✓ A youth must be under 17 ½ years old.
- ✓ A youth must be in a JRA institution and scheduled to be released to four or more months of parole supervision.
- ✓ A youth must have a substance abuse or dependence disorder, and
  - Any Axis 1 disorder (excluding those youth who have only a diagnosis of Conduct Disorder, Oppositional Defiant Disorder, Paraphilia, or Pedophilia); or
  - A currently prescribed psychotropic medication; or
  - Demonstrated suicidal behavior within the last three months.
- ✓ A youth must reside in King, Pierce, Snohomish, or Kitsap Counties.

HOW MUCH DOES FIT COST?

We estimate that the FIT program costs an average of $8,968 per youth who enters the program. The derivation of this estimate is shown in Exhibit 1.

Exhibit 1
Estimated Per-Youth Cost of the FIT Program
(in 2003 Dollars)

$636,948	Total dollars spent by the Juvenile Rehabilitation Administration (JRA) during fiscal year 2004 on FIT (we describe these as calendar year 2003 dollars). This total includes payments to FIT providers ($599,726) and central JRA costs ($37,222). Source: JRA.
32	Average number of FIT youth served per month during Fiscal Year 2004. Source: JRA.
5.4066	Average length of stay (LOS), in months, of youth participating in FIT. Source: Eric Trupin (LOS of 52 days in the institution and 16 weeks in the community).
$8,968	Average FIT cost per youth. Calculated: $636,948 / (32/(5.4066/12))

[5] More information about the FIT program can be obtained from the program's designers. Contact: Dr. Eric Trupin (trupin@u.washington.edu) at the University of Washington.

[6] S. W. Henggeler, W. G. Clingempeel, M. J. Brondino, & S. G. Pickrel. (2002) "Four-year follow-up of multisystemic therapy with substance abusing and substance dependent juvenile offenders." *Journal of the American Academy of Child and Adolescent Psychiatry* 41(7): 868-874.

[7] W. R. Miller, R. J. Meyers, & J. S. Tonigan. (1999) "Engaging the unmotivated in treatment for alcohol problems: A comparison of three strategies for intervention through family members." *Journal of Consulting and Clinical Psychology* 67: 688-697.

[8] N. A. Roget, G. L. Fisher, & M. L. Johnson. (1998) "A protocol for reducing juvenile recidivism through relapse prevention." *Journal of Addictions and Offender Counseling* 19(1): 33-43.

[9] E. W. Trupin, D. G. Stewart, B. Beach, & L. Boesky. (2002) "Effectiveness of a dialectical behavior therapy program for incarcerated female juvenile offenders." *Journal of Child Psychology and Psychiatry* 7(3): 121-127.

EVALUATION DESIGN

The primary research question for this study is whether FIT reduces recidivism rates.

The ability to evaluate whether FIT achieves reductions in recidivism rates depends on identifying an adequate comparison group of juvenile offenders. Ideally, FIT-eligible offenders would be randomly assigned either to a FIT group or to a non-FIT comparison group. With a successfully implemented random assignment, any observed difference in recidivism rates could be attributed to the effect of FIT. Unfortunately, as is the case in many real world settings, random assignment was not possible for our evaluation of FIT.

For this evaluation, however, we were able to employ a next-best alternative to random assignment. As noted, FIT was implemented as a pilot program in just four of Washington's 39 counties. JRA applies specific screening criteria for youth in JRA institutions, identifying all youth in its institutions who meet the criteria for inclusion in FIT (see page 2 of this report). Because FIT was only offered in the four pilot counties, however, all FIT-eligible youth who re-entered the community from JRA institutions in non-pilot counties were ineligible to participate. For our research design, we used this fact to assign these FIT-eligible youth to the comparison group. The comparison group received usual JRA parole services.

This research design is quite strong, but it is not perfect for two reasons. First, FIT-eligible youth who reside in the four pilot counties may somehow be different, or face different geographically-defined circumstances, than FIT-eligible youth who return to the comparison group counties. Second, JRA's screening process to determine FIT eligibility may not fully capture all the selection criteria for actual FIT participation. That is, not all FIT-eligible youth in the four pilot counties actually entered the program. A personal communication with the head of the program, Dr. Eric Trupin, indicated that about 88 percent of FIT-eligible youth actually entered the program. This is a high participation rate, but it is not 100 percent.

While these two factors pose possible threats to the validity of this research design, we attempt to control for any remaining differences between FIT and the comparison group by performing multivariate analysis using a comprehensive set of observed control variables. We cannot, however, control for any remaining unobserved factors that affect program selection. For this reason, when we carry out our benefit-cost analysis, we reduce the estimated effect of the FIT program on recidivism by 25 percent.[10] That is, since we cannot control for all selection bias, and since the likely direction of that bias would result in an overestimation of the effectiveness of the program,[11] we apply a 25 discount factor to the program effect when we perform our benefit-cost analysis.

Recidivism Measures. To measure recidivism, the Institute follows the definition for recidivism established by the 1997 Legislature.[12] Recidivism is measured using conviction rates for subsequent juvenile or adult offenses. In Washington, all convictions in juvenile and adult criminal courts are recorded in statewide databases maintained by the state's Administrative Office of the Courts and the Department of Corrections. Three re-conviction rates are reported: total misdemeanor and felony convictions, felony convictions, and violent felony convictions. The follow-up "at-risk" period for each youth is 18 months.[13] In calculating rates for JRA youth, the Institute allows a 6-month period for an offense to be adjudicated by the courts.

RESULTS

The sample for our study includes 104 youth who participated in FIT and 169 FIT-eligible youth who did not participate in FIT because they returned to counties in Washington where the pilot project was not available. The 104 FIT youth include all participants regardless of whether they finished the program. Each youth met the minimum criteria to be included in our recidivism analysis: that is, they were released from JRA early enough to allow us to measure recidivism over an observed 18-month follow-up period and a 6-month adjudication period.

We first examined how the FIT and comparison groups compared on key observed characteristics

[10] We explain in an earlier report (cited in footnote 4) our rationale for using a 25 percent reduction. For random assignment studies, we do not discount findings. For non-random assignment studies that have a comparison group and some indication that the groups are equivalent, we discount observed findings by 50 percent. This 50 percent factor has been confirmed in the meta-analytic studies of Mark Lipsey, citied in footnote 11. For studies whose evaluation design is somewhere between these two categories—such as this evaluation of FIT where we have quite strong controls for selection criteria (the JRA screening criteria differentiated only by where the youth lives)—we apply a 25 percent reduction.

[11] M. W. Lipsey. (2003) "Those confounded moderators in meta-analysis: Good, bad, and ugly." *The Annals of the American Academy of Political and Social Science* 587(1): 69-81.

[12] R. Barnoski. (1997) *Standards for improving research effectiveness in adult and juvenile justice.* Olympia: Washington State Institute for Public Policy.

[13] *Ibid.*

and prior criminal history. Exhibit 2 shows the logistic regression results for a model where FIT participation is a function of these variables. In an ideal random assignment study, we would expect to find no significant difference on any of the explanatory variables in this model. Exhibit 2 shows that indeed there are no significant differences for FIT participation for gender, age at release, Native American ethnicity, age at first prior conviction, prior drug convictions, criminal history (an aggregate index of prior criminal history weighted to predict recidivism), or prior person (violent) convictions. There are, however, significant differences on four variables: the FIT group had marginally higher (p=.0664) ISCA risk assessment scores. The ISCA is JRA's tool that measures an offender's overall risk for re-offense. Based on this finding, the FIT group may be more prone to re-offense. The FIT group was more likely to be Black (p=.0513) and less likely to be Hispanic (p=.0118). These outcomes were expected because the four pilot FIT counties were more urban and ethnically Black and less Hispanic than the non-FIT counties. The FIT group also had more offenders with prior property offense convictions (p=.0255). Overall, Exhibit 2 indicates that the two groups were reasonably well matched, although the FIT group may have been at a slightly higher risk for re-offense because of the higher ISCA scores.

Exhibit 2
Logistic Regression For FIT Participation

Dependent Variable: FIT Participation
Included observations: 273
QML (Huber/White) standard errors & covariance

Variable	Coefficient	Std Err	Prob
Constant	-1.682502	2.2990	0.4643
Age at release	-0.083389	0.1301	0.5217
ISCA risk assessment	0.044850	0.0244	0.0664
Male	-0.419995	0.3597	0.2430
Black	0.767453	0.3937	0.0513
Native American	-0.246232	0.6971	0.7239
Hispanic	-1.253580	0.4980	0.0118
Age at first prior conviction	0.115656	0.1046	0.2693
Prior drug conviction	0.243818	0.4307	0.5714
Criminal history	0.013381	0.0530	0.8009
Prior property conviction	-0.316731	0.1417	0.0255
Prior person conviction	-0.345776	0.2502	0.1670
Log likelihood	-164.4227		
McFadden R-sq	0.093671		
Obs with Dep=0	169		
Obs with Dep=1	104		

We then examine the effect of FIT on recidivism. Exhibit 3 shows the result of FIT on felony recidivism, the main result we use to calculate the benefits and costs of FIT. FIT has a statistically significant effect on the felony recidivism rate (p=.0472). We also ran a model (results not shown) testing for total recidivism (a felony or misdemeanor re-conviction) and did not find a statistically significant effect for FIT (p=.3577), although the sign on the FIT coefficient is in the direction of lowering recidivism. We ran a model (not shown) for violent felony recidivism, a relatively rare event in the 18-month follow-up period, and the result is not statistically significant (p=.4955), although the sign on the FIT coefficient is also in the direction of lowering violent felony recidivism.

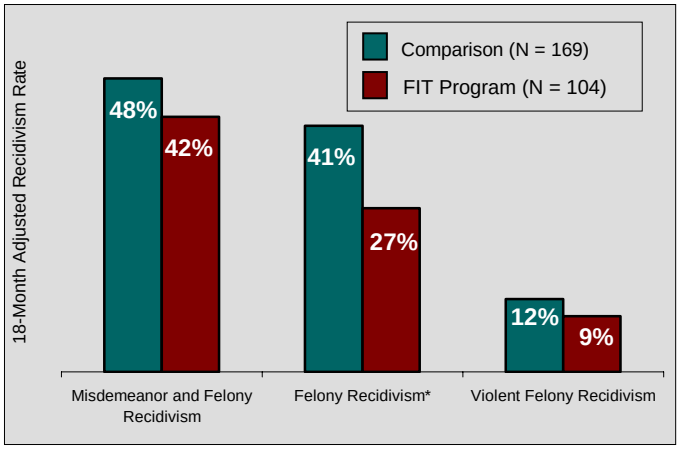
Exhibit 3
Regression Results For Felony Recidivism

Dependent Variable: Recidivism—FELONY
Included observations: 273
QML (Huber/White) standard errors & covariance

Variable	Coefficient	Std Err	Prob
Constant	1.707083	2.6774	0.5238
FIT participation	-0.614175	0.3095	0.0472
Age at release	-0.122858	0.1455	0.3985
ISCA risk assessment	0.003092	0.0241	0.8982
Male	1.260188	0.4695	0.0073
Black	0.512821	0.4063	0.2070
Native American	-0.279695	0.7092	0.6933
Hispanic	0.277616	0.4703	0.5550
Age at first prior conviction	-0.197482	0.1150	0.0862
Prior drug conviction	1.034766	0.3819	0.0067
Criminal history	0.094213	0.0569	0.0979
Prior property conviction	0.006975	0.1353	0.9589
Prior person conviction	-0.428574	0.2395	0.0735
Log likelihood	-154.4036		
McFadden R-sq	0.146578		
Obs with Dep=0	170		
Obs with Dep=1	103		

We then compute mean-adjusted recidivism rates using the regression results by taking each of the independent variables at the mean values for the entire sample. These mean-adjusted rates are shown in Exhibit 4.

Exhibit 4
Mean-Adjusted 18-Month Recidivism Rates
FIT vs. Comparison Group



* Statistically significant difference.

From the findings shown in Exhibit 4, we also calculate effect sizes—a common metric used in meta-analyses and in our benefit-cost analysis.[14] The mean-adjusted outcomes for any recidivism, felony recidivism, and violent felony recidivism, have effect sizes of, respectively, -.126, -.289, and -.093.

We judge that FIT reduces recidivism based on the statistically significant finding for felony recidivism. The program does not appear to have effects on misdemeanors. We have found similar results in other evaluations of research-based programs for juvenile offenders—that is, the programs lower felony re-convictions significantly, but not misdemeanor re-convictions.[15] We also did not find a statistically significant effect for violent felony recidivism, but this could be a function of the relative rareness of that event in our 18-month follow-up period and the modest sample size for this study. If this evaluation is updated in another year or two, both of these conditions will be improved (that is, a longer follow-up period could be used so the violent felony outcomes will be more frequent, and the sample sizes will be larger). Thus, at this stage, it is encouraging that the direction of the effect of FIT on violent felonies is favorable, but it is too early to draw specific conclusions on that outcome. In the meantime, the effect of FIT on total felony re-convictions is statistically significant.

BENEFIT-COST ANALYSIS

Exhibit 1 shows that the FIT program costs about $8,968 per offender in the program. The economic question is whether the reduction in recidivism that the FIT program is able to achieve leads to more benefits than these costs. Simply put, are taxpayers better off as a result of their investment in the FIT program?

To answer this question, we employed the benefit-cost model we have developed in recent years.[16] When there is less crime, taxpayers do not have to spend as much money on the criminal justice system. Fewer crimes also mean there are fewer crime victims. Our benefit-cost analysis of Washington's FIT program estimates the present value of life-cycle avoided costs to both taxpayers and crime victims. From the present-value sum of these benefits (avoided costs), we then subtract the $8,968 cost of the FIT program to determine the economic "bottom line" of the intervention.

As described earlier, to produce benefit-cost estimates we apply "effectiveness reduction factors" when an evaluation is based on a less-than-randomized research design. Since our evaluation of FIT does not involve random assignment, we reduce the effect size of the FIT recidivism effect by 25 percent in our benefit-cost analysis to account for any unobserved selection bias that we were not able to control for in our multivariate analyses. Thus, when we run our benefit-cost model for felony recidivism, we lower the effect size reported above, -.289, by 25 percent.

It is important to note that in this evaluation, we only estimate the effect that the FIT program has on crime outcomes. We do not attempt to determine whether the program improves other outcomes, such as decreases in substance abuse or increases in education levels. As a result, our cost-benefit analysis does not include these other potential, but unmeasured, benefits of the FIT program.

Our benefit-cost estimates for FIT are shown in Exhibit 5. We used the effect size associated with the statistically significant felony conviction finding, discounted by 25 percent. The $8,968 per youth cost of FIT generates at total of $28,215 in benefits. Of these total benefits, $11,749 accrues to

Exhibit 5
Summary of Estimated Benefits and Costs of FIT
(in 2003 Dollars Per Program Youth)

Benefits to taxpayers in criminal justice system savings	$11,749
Benefits to non-participants from avoided criminal victimizations	$16,466
Total Life-Cycle Benefits	**$28,215**
Total Program Costs (See Exhibit 1)	**$8,968**
Net Present Value	**$19,247**
Benefit-to-Cost Ratio	**$3.15**

Note: The dollar figures reported here are the present value of life-cycle benefits to taxpayers and crime victims from the estimated reduction in crime that the FIT program produces, discounted with a 3 percent real discount rate. Benefits are estimated with the Institute's benefit-cost model, see S. Aos, R. Lieb, J. Mayfield, M. Miller, & A. Pennucci. (2004) *Benefits and costs of prevention and early intervention programs for youth, Technical Appendix*. Olympia: Washington State Institute for Public Policy.

[14] We calculate standardized mean-difference effect sizes according to the methods in M. W. Lipsey and D. Wilson. (2001) Practical meta-analysis. Thousand Oaks: Sage Publications. As recommended by Lipsey and Wilson, we use the arcsine transformation to convert the dichotomous recidivism variable into an approximation of standardized mean difference effect sizes.

[15] R. Barnoski. (2004) *Outcome Evaluation of Washington State's Research-Based Programs for Juvenile Offenders*, Olympia: Washington State Institute for Public Policy.

[16] The Institute's benefit-cost model is described fully in S. Aos, R. Lieb, J. Mayfield, M. Miller, & A. Pennucci. (2004) *Benefits and costs of prevention and early intervention programs for youth, Technical Appendix.* Olympia: Washington State Institute for Public Policy.

taxpayers in the form of reduced criminal justice system expenditures that will be avoided because crime is lower. There will also be fewer crime victims because FIT lowers crime; we estimate these benefits to be $16,466 per FIT youth. This results in an overall net gain of $19,247 per youth, or $3.15 in benefits per dollar of cost.

Note: We would like to thank several people who helped us significantly in completing this evaluation. Dr. Eric Trupin of the University of Washington, Rebecca Kelly of the Juvenile Rehabilitation Administration, and Dr. Robert Barnoski, John Miller, Janie Maki, and Debra Fabritius of the Washington State Institute for Public Policy.

Document Number: 04-12-1201