Outcome Evaluation of Washington State's Research-Based Programs for Juvenile Offenders:

Appendices

Robert Barnoski, Ph.D.

January 2004

Washington State Institute for Public Policy

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WASHINGTON STATE INSTITUTE FOR PUBLIC POLICY

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INTRODUCTION

The 1997 Washington State Legislature directed the Washington State Institute for Public Policy (Institute) to determine whether the programs funded by the CJAA reduce recidivism. The ideal way to answer this question involves a random assignment of eligible participants to either a control or program group.[1] In a random assignment design the only systematic difference between the two groups is the treatment. As a result, any differences in outcomes between the two groups can confidently be attributed to the effect of the program. Random assignment is the "gold standard" of evaluation design. Some juvenile courts did not view random assignment as possible, so the Institute used the next most reliable design: the waiting list design. All the courts agreed to implement the waiting list design for the CJAA evaluation.

The waiting list approach took advantage of the fact that resources limited the number of youth who could enter a CJAA program. In this design, all youth were assessed for CJAA program eligibility using a comprehensive assessment, the Washington State Juvenile Court Assessment (WSJCA). Using the assessment to screen for program eligibility created a pool of youth across the courts with similar risk and protective factors who could potentially benefit from the program. Youth who meet the selection criteria were placed into the CJAA program. When the CJAA program reached capacity, the remaining eligible youth were placed in the control group. As openings occurred in the programs, recently adjudicated eligible youth were placed in the program. When the program reached capacity again, the remaining youth were placed in the control group. This process continued until sufficient youth were in both groups to detect statistically significant differences based on anticipated effect sizes. Control group youth received traditional probation services.

Despite the soundness of the waiting list evaluation design, the research plan anticipated that systematic differences could arise between youth in the control and CJAA program groups because of assignment decisions by the juvenile court staff. As a result, a CJAA group could differ from its control group by factors in addition to the treatment. The WSJCA provided the data needed to compare the groups on key risk and protective factors shown in research to be associated with juvenile criminal behavior.

The evaluation takes advantage of the WSJCA data by using the WSJCA domain scores in a multivariate statistical technique called logistic regression, to control for systemic differences between the program and control groups. Based on the logistic regression parameter estimates, mean-adjusted recidivism rates are calculated. The adjusted recidivism rates are based on the sum of the products of the average values on the WSJCA factors for the total sample, and the logistic regression parameter estimates for the factors (mean-products). To show the program effect, the mean-product(s) for the program participation variable(s) is set to zero for the control group and set equal to the parameter estimate for the program group(s). That is, the difference in adjusted rates arises from the program participation parameter(s). These adjusted rates provide estimates of the impact of the program which are not confounded by systematic differences between the groups.

These appendices contain the logistic regressions results for the CJAA final report.[2]

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[1] Barnoski, R., *Standards for Improving Research Effectiveness in Adult and Juvenile Justice,* Olympia: Washington State Institute for Public Policy, December 1997.

[2] Barnoski, R. Aos, S. *Outcome Evaluation Of Washington State's Research-Based Programs For Juvenile Offenders* Washington State Institute for Public Policy, January 2004

APPENDIX A: FFT LOGISTIC REGRESSION RESULTS

Exhibit A-1.1
Misdemeanor and Felony 18-Month Recidivism
Control Group vs. FFT

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product	
					Control	FFT
Intercept	2.067		0.088		2.067	2.067
FFT Participant	***0.001***	***1.001***	***0.994***	***0.556***	***0.000***	***0.001***
Days From Adjudication to Group Assignment	0.001	1.001	0.289	-68.711	-0.066	-0.066
Male	0.655	1.925	0.002	0.788	0.516	0.516
Age at Adjudication	-0.285	0.752	0.000	15.296	-4.356	-4.356
Criminal History	0.040	1.040	0.100	7.644	0.303	0.303
Social History	0.034	1.035	0.498	9.086	0.313	0.313
Aggression	0.069	1.071	0.233	2.319	0.160	0.160
Attitude	0.008	1.008	0.739	8.845	0.069	0.069
Drug Alcohol	0.026	1.027	0.351	5.385	0.141	0.141
Employment (Protective)	0.017	1.017	0.748	1.250	0.021	0.021
Family	-0.001	0.999	0.972	13.922	-0.014	-0.014
Free-Time	0.027	1.027	0.671	1.959	0.052	0.052
Mental Health	-0.017	0.984	0.802	2.097	-0.035	-0.035
Prior Family	0.044	1.045	0.104	15.492	0.682	0.682
Relationship	0.009	1.009	0.495	11.306	0.096	0.096
School	-0.019	0.982	0.242	12.103	-0.225	-0.225
Skill	0.014	1.014	0.277	19.000	0.260	0.260
Sum of Estimate and Mean Products					-0.016	-0.015
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**49.6%**	**49.6%**

Exhibit A-1.2
Felony 18-Month Recidivism
Control Group vs. FFT

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product	
					Control	FFT
Intercept	0.894		0.500		0.894	0.894
FFT Participant	***-0.155***	***0.856***	***0.396***	***0.556***	***0.000***	***-0.155***
Days From Adjudication to Group Assignment	0.000	1.000	0.745	-68.711	-0.022	-0.022
Male	0.745	2.107	0.004	0.788	0.587	0.587
Age at Adjudication	-0.280	0.756	0.001	15.296	-4.286	-4.286
Criminal History	0.052	1.053	0.045	7.644	0.397	0.397
Social History	0.081	1.085	0.150	9.086	0.739	0.739
Aggression	0.005	1.005	0.941	2.319	0.011	0.011
Attitude	0.007	1.007	0.779	8.845	0.062	0.062
Drug Alcohol	0.053	1.054	0.088	5.385	0.284	0.284
Employment (Protective)	0.008	1.008	0.891	1.250	0.010	0.010
Family	0.009	1.009	0.778	13.922	0.124	0.124
Free-Time	-0.023	0.977	0.741	1.959	-0.045	-0.045
Mental Health	-0.080	0.923	0.285	2.097	-0.167	-0.167
Prior Family	0.004	1.004	0.895	15.492	0.061	0.061
Relationship	-0.002	0.998	0.863	11.306	-0.027	-0.027
School	0.015	1.015	0.409	12.103	0.178	0.178
Skill	0.011	1.012	0.414	19.000	0.217	0.217
Sum of Estimate and Mean Products					-0.984	-1.139
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**27.2%**	**24.2%**

Exhibit A-1.3
Violent Felony 18-Month Recidivism
Control Group vs. FFT

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product	
					Control	FFT
Intercept	-2.386		0.260		-2.386	-2.386
FFT Participant	***0.091***	***1.095***	***0.764***	***0.556***	***0.000***	***0.091***
Days From Adjudication to Group Assignment	0.005	1.005	0.094	-68.711	-0.329	-0.329
Male	0.803	2.232	0.086	0.788	0.633	0.633
Age at Adjudication	-0.172	0.842	0.180	15.296	-2.631	-2.631
Criminal History	0.084	1.087	0.040	7.644	0.640	0.640
Social History	0.149	1.161	0.099	9.086	1.356	1.356
Aggression	0.115	1.122	0.262	2.319	0.266	0.266
Attitude	0.005	1.005	0.900	8.845	0.044	0.044
Drug Alcohol	0.000	1.000	0.997	5.385	-0.001	-0.001
Employment (Protective)	-0.051	0.950	0.608	1.250	-0.064	-0.064
Family	-0.081	0.922	0.109	13.922	-1.126	-1.126
Free-Time	-0.146	0.864	0.208	1.959	-0.287	-0.287
Mental Health	-0.070	0.933	0.564	2.097	-0.146	-0.146
Prior Family	0.083	1.086	0.087	15.492	1.278	1.278
Relationship	0.005	1.005	0.826	11.306	0.058	0.058
School	0.022	1.022	0.441	12.103	0.265	0.265
Skill	-0.020	0.980	0.378	19.000	-0.384	-0.384
Sum of Estimate and Mean Products					-2.813	-2.723
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**5.7%**	**6.2%**

Exhibit A-2.1

Misdemeanor and Felony 18-Month Recidivism
Control Group vs. FFT Competent and Not Competent Therapists

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product		
					Control	Not Competent	Competent
Intercept	2.224		0.068		2.224	2.224	2.224
Not Competent	***0.190***	***1.209***	***0.330***	***0.298***	***0.000***	***0.190***	***0.000***
Competent	***-0.219***	***0.804***	***0.285***	***0.258***	***0.000***	***0.000***	***-0.219***
Days From Adjudication to Group Assignment	0.001	1.001	0.348	-68.711	-0.057	-0.057	-0.057
Male	0.683	1.980	0.001	0.788	0.538	0.538	0.538
Age at Adjudication	-0.300	0.741	0.000	15.296	-4.590	-4.590	-4.590
Criminal History	0.041	1.042	0.088	7.644	0.315	0.315	0.315
Social History	0.035	1.035	0.495	9.086	0.315	0.315	0.315
Aggression	0.068	1.070	0.244	2.319	0.157	0.157	0.157
Attitude	0.011	1.011	0.653	8.845	0.095	0.095	0.095
Drug Alcohol	0.029	1.030	0.301	5.385	0.157	0.157	0.157
Employment (Protective)	0.021	1.021	0.692	1.250	0.026	0.026	0.026
Family	-0.001	0.999	0.980	13.922	-0.010	-0.010	-0.010
Free-Time	0.032	1.033	0.607	1.959	0.063	0.063	0.063
Mental Health	-0.011	0.989	0.867	2.097	-0.023	-0.023	-0.023
Prior Family	0.045	1.046	0.098	15.492	0.696	0.696	0.696
Relationship	0.006	1.006	0.655	11.306	0.064	0.064	0.064
School	-0.020	0.980	0.216	12.103	-0.240	-0.240	-0.240
Skill	0.013	1.013	0.289	19.000	0.253	0.253	0.253
Sum of Estimate and Mean Products					-0.018	0.172	-0.236
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**49.6%**	**54.3%**	**44.1%**

Parameter Estimates and Adjusted Recidivism Rates for
Control Group vs. FFT Groups by Therapist Competence[A]

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Percentage of Sample	Adjusted Recidivism Rate
Control	**NA**	**NA**	**NA**	**44.4%**	**49.6%**
Not Competent	**0.064**	**1.067**	**0.784**	**17.0%**	**51.2%**
Borderline	**0.352**	**1.422**	**0.175**	**12.8%**	**58.3%**
Competent	**-0.018**	**0.982**	**0.940**	**14.8%**	**49.1%**
High Competent	**-0.504**	**0.604**	**0.074**	**11.0%**	**37.3%**

[A] Same set of independent variables in the logistic regression except that four binary variables (Not Competent, Borderline, Competent, and High Competent) represent FFT treatment instead of the two binary variables of Not Competent and Competent.

Exhibit A-2.2
Felony 18-Month Recidivism
Control Group vs. FFT Competent and Not Competent Therapists

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product		
					Control	Not Competent	Competent
Intercept	1.189	.	0.373	.	1.189	1.189	1.189
Not Competent	***0.218***	***1.244***	***0.304***	***0.298***	***0.000***	***0.218***	***0.000***
Competent	***-0.615***	***0.541***	***0.010***	***0.258***	***0.000***	***0.000***	***-0.615***
Days From Adjudication to Group Assignment	0.000	1.000	0.932	-68.711	-0.005	-0.005	-0.005
Male	0.807	2.242	0.002	0.788	0.636	0.636	0.636
Age at Adjudication	-0.311	0.733	0.000	15.296	-4.759	-4.759	-4.759
Criminal History	0.057	1.058	0.030	7.644	0.432	0.432	0.432
Social History	0.083	1.087	0.142	9.086	0.754	0.754	0.754
Aggression	-0.002	0.998	0.975	2.319	-0.005	-0.005	-0.005
Attitude	0.013	1.013	0.606	8.845	0.116	0.116	0.116
Drug Alcohol	0.059	1.060	0.061	5.385	0.316	0.316	0.316
Employment (Protective)	0.016	1.016	0.796	1.250	0.020	0.020	0.020
Family	0.009	1.009	0.779	13.922	0.124	0.124	0.124
Free-Time	-0.012	0.989	0.871	1.959	-0.023	-0.023	-0.023
Mental Health	-0.065	0.937	0.387	2.097	-0.136	-0.136	-0.136
Prior Family	0.006	1.006	0.849	15.492	0.089	0.089	0.089
Relationship	-0.008	0.992	0.575	11.306	-0.090	-0.090	-0.090
School	0.012	1.012	0.507	12.103	0.144	0.144	0.144
Skill	0.011	1.011	0.448	19.000	0.203	0.203	0.203
Sum of Estimate and Mean Products					-0.994	-0.776	-1.609
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**27.0%**	**31.5%**	**16.7%**

Parameter Estimates and Adjusted Recidivism Rates for
Control Group vs. FFT Groups by Therapist Competence[A]

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Percentage of Sample	Adjusted Recidivism Rate
Control	**NA**	**NA**	**NA**	**44.4%**	**27.0%**
Not Competent	**0.275**	**1.317**	**0.280**	**17.0%**	**32.8%**
Borderline	**0.145**	**1.156**	**0.607**	**12.8%**	**29.9%**
Competent	**-0.549**	**0.578**	**0.052**	**14.8%**	**17.6%**
High Competent	**-0.719**	**0.487**	**0.037**	**11.0%**	**15.3%**

[A] Same set of independent variables in the logistic regression except that four binary variables (Not Competent, Borderline, Competent, and High Competent) represent FFT treatment instead of the two binary variables of Not Competent and Competent.

Exhibit A-2.3
Violent Felony 18-Month Recidivism
Control Group vs. FFT Competent and Not Competent Therapists

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product		
					Control	Not Competent	Competent
Intercept	-1.845		0.383		-1.845	-1.845	-1.845
Not Competent	***0.580***	***1.786***	***0.081***	***0.298***	***0.000***	***0.580***	***0.000***
Competent	***-0.697***	***0.498***	***0.115***	***0.258***	***0.000***	***0.000***	***-0.697***
Days From Adjudication to Group Assignment	0.004	1.004	0.144	-68.711	-0.273	-0.273	-0.273
Male	0.894	2.444	0.059	0.788	0.704	0.704	0.704
Age at Adjudication	-0.230	0.795	0.078	15.296	-3.512	-3.512	-3.512
Criminal History	0.093	1.097	0.024	7.644	0.708	0.708	0.708
Social History	0.150	1.161	0.099	9.086	1.359	1.359	1.359
Aggression	0.096	1.101	0.345	2.319	0.223	0.223	0.223
Attitude	0.015	1.015	0.708	8.845	0.132	0.132	0.132
Drug Alcohol	0.008	1.008	0.869	5.385	0.045	0.045	0.045
Employment (Protective)	-0.034	0.966	0.733	1.250	-0.043	-0.043	-0.043
Family	-0.081	0.923	0.118	13.922	-1.121	-1.121	-1.121
Free-Time	-0.130	0.878	0.270	1.959	-0.256	-0.256	-0.256
Mental Health	-0.035	0.966	0.779	2.097	-0.072	-0.072	-0.072
Prior Family	0.086	1.090	0.084	15.492	1.329	1.329	1.329
Relationship	-0.001	0.999	0.961	11.306	-0.013	-0.013	-0.013
School	0.018	1.018	0.537	12.103	0.214	0.214	0.214
Skill	-0.022	0.978	0.333	19.000	-0.420	-0.420	-0.420
Sum of Estimate and Mean Products					-2.840	-2.259	-3.536
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**5.5%**	**9.5%**	**2.8%**

Parameter Estimates and Adjusted Recidivism Rates for
Control Group vs. FFT Groups by Therapist Competence[A]

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Percentage of Sample	Adjusted Recidivism Rate
Control	**NA**	**NA**	**NA**	**44.4%**	**5.5%**
Not Competent	**0.729**	**2.074**	**0.057**	**17.0%**	**10.7%**
Borderline	**0.375**	**1.455**	**0.395**	**12.8%**	**7.8%**
Competent	**-0.598**	**0.550**	**0.257**	**14.8%**	**3.1%**
High Competent	**-0.845**	**0.430**	**0.202**	**11.0%**	**2.4%**

[A] Same set of independent variables in the logistic regression except that four binary variables (Not Competent, Borderline, Competent, and High Competent) represent FFT treatment instead of the two binary variables of Not Competent and Competent.

Exhibit A-3.1 FFT
6-Month Felony Recidivism
Control Group vs. Competent Therapist Group

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product		
					Control	Not Competent	Competent
Intercept	-0.837	.	0.647	.	-0.837	-0.837	-0.837
Not Competent	***0.435***	***1.544***	***0.141***	***0.298***	***0.000***	***0.435***	***0.000***
Competent	***-0.336***	***0.715***	***0.315***	***0.258***	***0.000***	***0.000***	***-0.336***
Days From Adjudication to Group Assignment	0.002	1.002	0.422	-68.711	-0.103	-0.103	-0.103
Male	0.961	2.613	0.018	0.788	0.757	0.757	0.757
Age at Adjudication	-0.300	0.741	0.008	15.296	-4.586	-4.586	-4.586
Criminal History	0.068	1.071	0.051	7.644	0.523	0.523	0.523
Social History	0.091	1.095	0.244	9.086	0.823	0.823	0.823
Aggression	0.036	1.037	0.680	2.319	0.084	0.084	0.084
Attitude	0.023	1.023	0.498	8.845	0.204	0.204	0.204
Drug Alcohol	0.094	1.099	0.028	5.385	0.506	0.506	0.506
Employment (Protective)	-0.016	0.984	0.851	1.250	-0.020	-0.020	-0.020
Family	0.015	1.015	0.731	13.922	0.209	0.209	0.209
Free-Time	0.050	1.051	0.616	1.959	0.097	0.097	0.097
Mental Health	-0.054	0.947	0.601	2.097	-0.114	-0.114	-0.114
Prior Family	0.031	1.031	0.467	15.492	0.476	0.476	0.476
Relationship	-0.024	0.976	0.216	11.306	-0.271	-0.271	-0.271
School	0.009	1.009	0.732	12.103	0.103	0.103	0.103
Skill	-0.011	0.990	0.595	19.000	-0.200	-0.200	-0.200
Sum of Estimate and Mean Products					-2.349	-1.915	-2.686
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**8.7%**	**12.8%**	**6.4%**

Parameter Estimates and Adjusted Recidivism Rates for
Control Group vs. FFT Groups by Therapist Competence[A]

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Percentage of Sample	Adjusted Recidivism Rate
Control	**NA**	**NA**	**NA**	**44.4%**	**8.6%**
Not Competent	0.617	1.854	0.074	**17.0%**	**14.9%**
Borderline	0.198	1.219	0.615	**12.8%**	**10.3%**
Competent	-0.460	0.631	0.265	**14.8%**	**5.6%**
High Competent	-0.159	0.853	0.725	**11.0%**	**7.5%**

[A] Same set of independent variables in the logistic regression except that four binary variables (Not Competent, Borderline, Competent, and High Competent) represent FFT treatment instead of the two binary variables of Not Competent and Competent.

Exhibit A-3.2 FFT
12-Month Felony Recidivism
Control Group vs. Competent Therapist Group

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product		
					Control	Not Competent	Competent
Intercept	0.703	.	0.630	.	0.703	0.703	0.703
Not Competent	***0.328***	***1.388***	***0.154***	***0.298***	***0.000***	***0.328***	***0.000***
Competent	***-0.606***	***0.546***	***0.025***	***0.258***	***0.000***	***0.000***	***-0.606***
Days From Adjudication to Group Assignment	0.003	1.003	0.100	-68.711	-0.183	-0.183	-0.183
Male	0.772	2.163	0.009	0.788	0.608	0.608	0.608
Age at Adjudication	-0.300	0.741	0.001	15.296	-4.595	-4.595	-4.595
Criminal History	0.076	1.079	0.007	7.644	0.580	0.580	0.580
Social History	0.058	1.060	0.347	9.086	0.526	0.526	0.526
Aggression	-0.009	0.991	0.903	2.319	-0.020	-0.020	-0.020
Attitude	0.019	1.019	0.491	8.845	0.168	0.168	0.168
Drug Alcohol	0.062	1.064	0.070	5.385	0.334	0.334	0.334
Employment (Protective)	0.055	1.057	0.400	1.250	0.069	0.069	0.069
Family	0.003	1.003	0.937	13.922	0.038	0.038	0.038
Free-Time	-0.004	0.996	0.963	1.959	-0.007	-0.007	-0.007
Mental Health	-0.056	0.945	0.493	2.097	-0.118	-0.118	-0.118
Prior Family	0.023	1.023	0.490	15.492	0.353	0.353	0.353
Relationship	-0.021	0.979	0.173	11.306	-0.237	-0.237	-0.237
School	0.019	1.019	0.341	12.103	0.226	0.226	0.226
Skill	0.006	1.006	0.713	19.000	0.107	0.107	0.107
Sum of Estimate and Mean Products					-1.447	-1.119	-2.053
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**19.0%**	**24.6%**	**11.4%**

Parameter Estimates and Adjusted Recidivism Rates for
Control Group vs. FFT Groups by Therapist Competence[A]

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Percentage of Sample	Adjusted Recidivism Rate
Control	**NA**	**NA**	**NA**	**44.4%**	**19.0%**
Not Competent	0.497	1.644	0.069*	**17.0%**	**27.8%**
Borderline	0.110	1.117	0.720	**12.8%**	**20.7%**
Competent	-0.538	0.584	0.095*	**14.8%**	**12.0%**
High Competent	-0.704	0.495	0.073*	**11.0%**	**10.4%**

[A] Same set of independent variables in the logistic regression except that four binary variables (Not Competent, Borderline, Competent, and High Competent) represent FFT treatment instead of the two binary variables of Not Competent and Competent.

APPENDIX B: ART LOGISTIC REGRESSION RESULTS

Exhibit B-1.1
Misdemeanor and Felony 18-Month Recidivism
Control Group vs. ART Participation

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product	
					Control	ART
Intercept	0.431		0.609		0.431	0.431
ART Participant	***-0.092***	***0.912***	***0.474***	***0.569***	***0.000***	***-0.092***
Days From Adjudication to Group Assignment	0.000	1.000	0.588	-85.452	0.032	0.032
Male	0.965	2.625	0.000	0.805	0.776	0.776
Age at Adjudication	-0.170	0.844	0.001	15.293	-2.597	-2.597
Criminal History	0.080	1.083	0.000	8.132	0.647	0.647
Social History	0.065	1.067	0.110	8.330	0.539	0.539
Aggression	-0.075	0.928	0.117	2.184	-0.163	-0.163
Attitude	0.045	1.046	0.028	7.589	0.338	0.338
Drug Alcohol	-0.008	0.992	0.698	4.838	-0.038	-0.038
Employment (Protective)	-0.028	0.973	0.468	1.214	-0.034	-0.034
Family	-0.009	0.991	0.450	9.179	-0.087	-0.087
Free-Time	-0.016	0.984	0.746	1.663	-0.027	-0.027
Mental Health	0.032	1.032	0.539	2.152	0.068	0.068
Prior Family	0.005	1.005	0.664	12.642	0.069	0.069
Relationship	0.000	1.000	0.989	9.529	0.001	0.001
School	0.001	1.001	0.929	11.127	0.012	0.012
Skill	-0.001	0.999	0.889	17.778	-0.024	-0.024
Sum of Estimate and Mean Products					-0.056	-0.148
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**48.6%**	**46.3%**

Exhibit B-1.2
Felony 18-Month Recidivism
Control Group vs. ART Participation

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product	
					Control	ART
Intercept	-1.499		0.118		-1.50	-1.50
ART Participant	***-0.225***	***0.798***	***0.125***	***0.569***	***0.00***	***-0.23***
Days From Adjudication to Group Assignment	-0.001	0.999	0.139	-85.452	0.10	0.10
Male	0.932	2.541	<.0001	0.805	0.75	0.75
Age at Adjudication	-0.122	0.885	0.045	15.293	-1.87	-1.87
Criminal History	0.090	1.094	<.0001	8.132	0.73	0.73
Social History	0.091	1.096	0.048	8.330	0.76	0.76
Aggression	-0.097	0.907	0.078	2.184	-0.21	-0.21
Attitude	0.016	1.016	0.482	7.589	0.12	0.12
Drug Alcohol	0.020	1.020	0.399	4.838	0.10	0.10
Employment (Protective)	-0.055	0.946	0.230	1.214	-0.07	-0.07
Family	-0.015	0.985	0.298	9.179	-0.13	-0.13
Free-Time	-0.019	0.981	0.742	1.663	-0.03	-0.03
Mental Health	-0.037	0.964	0.539	2.152	-0.08	-0.08
Prior Family	0.015	1.015	0.286	12.642	0.19	0.19
Relationship	0.008	1.008	0.454	9.529	0.07	0.07
School	-0.018	0.982	0.199	11.127	-0.20	-0.20
Skill	0.009	1.009	0.423	17.778	0.16	0.16
Sum of Estimate and Mean Products					-1.11	-1.34
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**24.8%**	**20.8%**

Exhibit B-1.3
Violent Felony 18-Month Recidivism
Control Group vs. ART Participation

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product	
					Control	ART
Intercept	-3.111		0.040		-3.11	-3.11
ART Participant	***0.062***	***1.064***	***0.792***	***0.569***	***0.00***	***0.06***
Days From Adjudication to Group Assignment	0.001	1.001	0.648	-85.452	-0.06	-0.06
Male	0.556	1.743	0.105	0.805	0.45	0.45
Age at Adjudication	-0.101	0.904	0.297	15.293	-1.54	-1.54
Criminal History	0.084	1.088	0.004	8.132	0.68	0.68
Social History	0.095	1.100	0.188	8.330	0.79	0.79
Aggression	0.058	1.060	0.505	2.184	0.13	0.13
Attitude	-0.032	0.969	0.388	7.589	-0.24	-0.24
Drug Alcohol	-0.012	0.988	0.759	4.838	-0.06	-0.06
Employment (Protective)	-0.093	0.911	0.238	1.214	-0.11	-0.11
Family	-0.046	0.955	0.024	9.179	-0.42	-0.42
Free-Time	-0.022	0.978	0.813	1.663	-0.04	-0.04
Mental Health	-0.140	0.870	0.144	2.152	-0.30	-0.30
Prior Family	0.055	1.056	0.008	12.642	0.69	0.69
Relationship	0.005	1.005	0.783	9.529	0.04	0.04
School	0.007	1.007	0.730	11.127	0.08	0.08
Skill	0.017	1.017	0.348	17.778	0.30	0.30
Sum of Estimate and Mean Products					-2.71	-2.65
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**6.2%**	**6.6%**

Exhibit B-2.1
Misdemeanor and Felony 18-Month Recidivism
Control Group vs. ART Groups by Court Competence

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product		
					Control	Not Competent	Competent
Intercept	0.461		0.585		0.461	0.461	0.461
Not Competent	***0.073***	***1.075***	***0.701***	***0.153***	***0.000***	***0.073***	***0.000***
Competent	***-0.150***	***0.861***	***0.276***	***0.416***	***0.000***	***0.000***	***-0.150***
Days From Adjudication to Group Assignment	0.000	1.000	0.613	-85.452	0.031	0.031	0.031
Male	0.972	2.644	0.000	0.805	0.782	0.782	0.782
Age at Adjudication	-0.172	0.842	0.001	15.293	-2.633	-2.633	-2.633
Criminal History	0.077	1.080	0.000	8.132	0.629	0.629	0.629
Social History	0.060	1.061	0.143	8.330	0.496	0.496	0.496
Aggression	-0.074	0.929	0.122	2.184	-0.161	-0.161	-0.161
Attitude	0.043	1.044	0.033	7.589	0.329	0.329	0.329
Drug Alcohol	-0.007	0.993	0.738	4.838	-0.033	-0.033	-0.033
Employment (Protective)	-0.026	0.975	0.502	1.214	-0.031	-0.031	-0.031
Family	-0.009	0.991	0.485	9.179	-0.081	-0.081	-0.081
Free-Time	-0.020	0.980	0.694	1.663	-0.033	-0.033	-0.033
Mental Health	0.038	1.039	0.464	2.152	0.082	0.082	0.082
Prior Family	0.006	1.006	0.628	12.642	0.077	0.077	0.077
Relationship	0.001	1.001	0.922	9.529	0.008	0.008	0.008
School	0.001	1.001	0.907	11.127	0.015	0.015	0.015
Skill	0.000	1.000	0.975	17.778	0.005	0.005	0.005
Sum of Estimate and Mean Products					-0.057	0.016	-0.207
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**48.6%**	**50.4%**	**44.9%**

Parameter Estimates and Adjusted Recidivism Rates for
Control Group vs. ART Groups by Competence[A]

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Percentage of Sample	Adjusted Recidivism Rate
Control	**NA**	**NA**	**NA**	**43.1%**	**48.5%**
Not Competent	**0.076**	**1.079**	**0.688**	**15.3%**	**50.4%**
Competent	**-0.062**	**0.940**	**0.671**	**33.3%**	**47.0%**
High Competent	**-0.500**	**0.607**	**0.040**	**8.3%**	**36.4%**

[A] Same set of independent variables in the logistic regression except that three binary variables (Not Competent, Competent, and High Competent) represent ART treatment instead of the two binary variables of Not Competent and Competent.

Exhibit B-2.2
Felony 18-Month Recidivism
Control Group vs. ART Groups by Court Competence

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product		
					Control	Not Competent	Competent
Intercept	-1.444		0.134		-1.444	-1.444	-1.444
Not Competent	***0.089***	***1.093***	***0.672***	***0.153***	***0.000***	***0.089***	***0.000***
Competent	***-0.349***	***0.705***	***0.030***	***0.416***	***0.000***	***0.000***	***-0.349***
Days From Adjudication to Group Assignment	-0.001	0.999	0.157	-85.452	0.09	0.09	0.09
Male	0.942	2.565	0.000	0.805	0.76	0.76	0.76
Age at Adjudication	-0.127	0.881	0.038	15.293	-1.94	-1.94	-1.94
Criminal History	0.086	1.089	0.000	8.132	0.70	0.70	0.70
Social History	0.081	1.084	0.085	8.330	0.67	0.67	0.67
Aggression	-0.096	0.909	0.085	2.184	-0.21	-0.21	-0.21
Attitude	0.014	1.014	0.535	7.589	0.11	0.11	0.11
Drug Alcohol	0.022	1.022	0.345	4.838	0.11	0.11	0.11
Employment (Protective)	-0.051	0.951	0.273	1.214	-0.06	-0.06	-0.06
Family	-0.013	0.987	0.370	9.179	-0.12	-0.12	-0.12
Free-Time	-0.027	0.974	0.652	1.663	-0.04	-0.04	-0.04
Mental Health	-0.023	0.977	0.703	2.152	-0.05	-0.05	-0.05
Prior Family	0.016	1.016	0.259	12.642	0.20	0.20	0.20
Relationship	0.009	1.009	0.380	9.529	0.09	0.09	0.09
School	-0.017	0.983	0.225	11.127	-0.19	-0.19	-0.19
Skill	0.012	1.012	0.284	17.778	0.22	0.22	0.22
Sum of Estimate and Mean Products					-1.111	-1.022	-1.460
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**24.8%**	**26.5%**	**18.8%**

Parameter Estimates and Adjusted Recidivism Rates for
Control Group vs. ART Groups by Competence[A]

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Percentage of Sample	Adjusted Recidivism Rate
Control	**NA**	**NA**	**NA**	**43.1%**	**24.8%**
Not Competent	**0.092**	**1.096**	**0.663**	**15.3%**	**26.5%**
Competent	**-0.252**	**0.777**	**0.136**	**33.3%**	**20.3%**
High Competent	**-0.800**	**0.449**	**0.013**	**8.3%**	**12.9%**

[A] Same set of independent variables in the logistic regression except that three binary variables (Not Competent, Competent, and High Competent) represent ART treatment instead of the two binary variables of Not Competent and Competent.

Exhibit B-2.3
Violent Felony 18-Month Recidivism
Control Group vs. ART Groups by Court Competence

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product		
					Control	Not Competent	Competent
Intercept	-3.110		0.040		-3.110	-3.110	-3.110
Not Competent	***0.084***	***1.088***	***0.805***	***0.153***	***0.000***	***0.084***	***0.000***
Competent	***0.054***	***1.055***	***0.832***	***0.416***	***0.000***	***0.000***	***0.054***
Days From Adjudication to Group Assignment	0.001	1.001	0.645	-85.452	-0.056	-0.056	-0.056
Male	0.556	1.744	0.105	0.805	0.448	0.448	0.448
Age at Adjudication	-0.101	0.904	0.296	15.293	-1.540	-1.540	-1.540
Criminal History	0.084	1.087	0.004	8.132	0.681	0.681	0.681
Social History	0.094	1.099	0.197	8.330	0.783	0.783	0.783
Aggression	0.058	1.060	0.504	2.184	0.127	0.127	0.127
Attitude	-0.032	0.969	0.387	7.589	-0.241	-0.241	-0.241
Drug Alcohol	-0.011	0.989	0.762	4.838	-0.055	-0.055	-0.055
Employment (Protective)	-0.093	0.912	0.239	1.214	-0.112	-0.112	-0.112
Family	-0.046	0.955	0.025	9.179	-0.422	-0.422	-0.422
Free-Time	-0.023	0.978	0.809	1.663	-0.038	-0.038	-0.038
Mental Health	-0.139	0.871	0.150	2.152	-0.298	-0.298	-0.298
Prior Family	0.055	1.057	0.008	12.642	0.695	0.695	0.695
Relationship	0.005	1.005	0.779	9.529	0.044	0.044	0.044
School	0.008	1.008	0.727	11.127	0.084	0.084	0.084
Skill	0.017	1.017	0.346	17.778	0.304	0.304	0.304
Sum of Estimate and Mean Products					-2.708	-2.624	-2.654
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**6.3%**	**6.8%**	**6.6%**

Parameter Estimates and Adjusted Recidivism Rates for
Control Group vs. ART Groups by Competence[A]

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Percentage of Sample	Adjusted Recidivism Rate
Control	**NA**	**NA**	**NA**	**43.1%**	**6.2%**
Not Competent	**0.084**	**1.088**	**0.805**	**15.3%**	**6.7%**
Competent	**0.061**	**1.062**	**0.823**	**33.3%**	**6.6%**
High Competent	**0.030**	**1.030**	**0.944**	**8.3%**	**6.4%**

[A] Same set of independent variables in the logistic regression except that three binary variables (Not Competent, Competent, and High Competent) represent ART treatment instead of the two binary variables of Not Competent and Competent.

Exhibit B-3.1
6-Month Felony Recidivism
Control Group vs. ART Groups by Court Competence

Variable	Parameter Estimate	Odds Ratio	Signifi -cance	Mean	Estimate and Mean Product		
					Control	Not Competent	Competent
Intercept	-2.809		0.031		-2.809	-2.809	-2.809
Not Competent	***0.253***	***1.287***	***0.360***	***0.153***	***0.000***	***0.253***	***0.000***
Competent	***-0.079***	***0.924***	***0.718***	***0.416***	***0.000***	***0.000***	***-0.079***
Days From Adjudication to Group Assignment	-0.001	0.999	0.423	-85.452	0.072	0.072	0.072
Male	0.910	2.485	0.005	0.805	0.732	0.732	0.732
Age at Adjudication	-0.094	0.910	0.254	15.293	-1.442	-1.442	-1.442
Criminal History	0.109	1.115	0.000	8.132	0.886	0.886	0.886
Social History	0.076	1.079	0.226	8.330	0.636	0.636	0.636
Aggression	-0.204	0.816	0.007	2.184	-0.445	-0.445	-0.445
Attitude	0.011	1.011	0.728	7.589	0.082	0.082	0.082
Drug Alcohol	0.022	1.022	0.489	4.838	0.106	0.106	0.106
Employment (Protective)	-0.051	0.951	0.425	1.214	-0.062	-0.062	-0.062
Family	-0.008	0.992	0.660	9.179	-0.078	-0.078	-0.078
Free-Time	-0.058	0.944	0.470	1.663	-0.096	-0.096	-0.096
Mental Health	-0.058	0.944	0.483	2.152	-0.124	-0.124	-0.124
Prior Family	0.013	1.013	0.510	12.642	0.161	0.161	0.161
Relationship	0.020	1.020	0.174	9.529	0.193	0.193	0.193
School	-0.027	0.974	0.164	11.127	-0.298	-0.298	-0.298
Skill	0.011	1.011	0.473	17.778	0.199	0.199	0.199
Sum of Estimate and Mean Products					-2.286	-2.034	-2.366
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**9.2%**	**11.6%**	**8.6%**

Parameter Estimates and Adjusted Recidivism Rates for
Control Group vs. ART Groups by Competence[A]

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Percentage of Sample	Adjusted Recidivism Rate
Control	**NA**	**NA**	**NA**	**43.1%**	**7.4%**
Not Competent	**0.255**	**1.290**	**0.356**	**15.3%**	**9.4%**
Competent	**0.047**	**1.049**	**0.837**	**33.3%**	**7.8%**
High Competent	**-0.695**	**0.499**	**0.134**	**8.3%**	**3.9%**

[A] Same set of independent variables in the logistic regression except that three binary variables (Not Competent, Competent, and High Competent) represent ART treatment instead of the two binary variables of Not Competent and Competent.

Exhibit B-3.2
12-Month Felony Recidivism
Control Group vs. ART Groups by Court Competence

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product		
					Control	Not Competent	Competent
Intercept	-1.785		0.099		-1.785	-1.785	-1.785
Not Competent	***0.184***	***1.202***	***0.425***	***0.153***	***0.000***	***0.184***	***0.000***
Competent	***-0.395***	***0.674***	***0.031***	***0.416***	***0.000***	***0.000***	***-0.395***
Days From Adjudication to Group Assignment	-0.001	0.999	0.402	-85.452	0.062	0.062	0.062
Male	0.981	2.668	0.000	0.805	0.790	0.790	0.790
Age at Adjudication	-0.133	0.876	0.054	15.293	-2.028	-2.028	-2.028
Criminal History	0.096	1.101	<.0001	8.132	0.784	0.784	0.784
Social History	0.074	1.076	0.162	8.330	0.612	0.612	0.612
Aggression	-0.141	0.868	0.024	2.184	-0.308	-0.308	-0.308
Attitude	0.024	1.024	0.347	7.589	0.184	0.184	0.184
Drug Alcohol	0.023	1.023	0.392	4.838	0.109	0.109	0.109
Employment (Protective)	-0.007	0.993	0.897	1.214	-0.008	-0.008	-0.008
Family	-0.006	0.994	0.684	9.179	-0.059	-0.059	-0.059
Free-Time	-0.096	0.909	0.154	1.663	-0.159	-0.159	-0.159
Mental Health	-0.022	0.978	0.747	2.152	-0.047	-0.047	-0.047
Prior Family	0.012	1.012	0.453	12.642	0.152	0.152	0.152
Relationship	0.003	1.003	0.802	9.529	0.028	0.028	0.028
School	-0.017	0.983	0.288	11.127	-0.187	-0.187	-0.187
Skill	0.016	1.016	0.218	17.778	0.284	0.284	0.284
Sum of Estimate and Mean Products					-1.575	-1.391	-1.970
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**17.1%**	**19.9%**	**12.2%**

Parameter Estimates and Adjusted Recidivism Rates for
Control Group vs. ART Groups by Competence[A]

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Percentage of Sample	Adjusted Recidivism Rate
Control	**NA**	**NA**	**NA**	**43.1%**	**13.2%**
Not Competent	0.187	1.206	0.418	**15.3%**	**15.5%**
Competent	-0.269	0.764	0.161	**33.3%**	**10.4%**
High Competent	-1.030	0.357	0.010	**8.3%**	**5.1%**

[A] Same set of independent variables in the logistic regression except that three binary variables (Not Competent, Competent, and High Competent) represent ART treatment instead of the two binary variables of Not Competent and Competent.

APPENDIX C: WAYOUT LOGISTIC REGRESSION RESULTS

Exhibit C-1.1
12-Month Misdemeanor and Felony Recidivism
Control Group vs. WayOut Group

Variable	Parameter Estimate	Odds Ratio	Significance	Mean	Estimate and Mean Product	
					Control	WayOut
Intercept	-3.694		0.030		-3.694	-3.694
WayOut Participant	***-0.159***	***0.853***	***0.572***	***0.500***	***0.000***	***-0.159***
Criminal History Risk Score	0.167	1.182	0.042	4.316	0.721	0.721
Social History Risk Score	0.102	1.107	0.106	3.605	0.367	0.367
Age at Assignment	0.036	1.037	0.710	15.442	0.557	0.557
Male	0.813	2.254	0.038	0.749	0.608	0.608
Sum of Estimate and Mean Products					-1.440	-1.599
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**19.2%**	**16.8%**

Exhibit C-1.2
12-Month Felony Recidivism
Control Group vs. WayOut Group

Variable	Parameter Estimate	Odds Ratio	Significance	Mean	Estimate and Mean Product	
					Control	WayOut
Intercept	-13.617		0.001		-13.617	-13.617
WayOut Participant	***-0.912***	***0.402***	***0.147***	***0.500***	***0.000***	***-0.912***
Criminal History Risk Score	0.495	1.640	0.004	4.316	2.136	2.136
Social History Risk Score	-0.055	0.947	0.698	3.605	-0.197	-0.197
Age at Assignment	0.458	1.581	0.053	15.442	7.072	7.072
Male	1.652	5.219	0.127	0.749	1.237	1.237
Sum of Estimate and Mean Products					-3.369	-4.280
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**3.3%**	**1.4%**

APPENDIX D: MST REGRESSION RESULTS

Exhibit D-1.1
Misdemeanor and Felony 18-Month Recidivism
Control Group vs. MST Participation

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product	
					Control	MST
Intercept	.	0.030	.	5.923	5.923	.
MST Participant	1.552	0.241	0.583	**0.000**	**0.440**	1.552
Days From Adjudication to Group Assignment	1.003	0.405	-55.245	-0.145	-0.145	1.003
Male	2.994	0.020	0.773	0.848	0.848	2.994
Age at Adjudication	0.606	0.004	15.301	-7.672	-7.672	0.606
Criminal History	0.940	0.232	9.086	-0.562	-0.562	0.940
Social History	1.061	0.622	10.245	0.603	0.603	1.061
Aggression	1.203	0.142	2.669	0.494	0.494	1.203
Attitude	0.937	0.157	10.055	-0.660	-0.660	0.937
Drug Alcohol	1.048	0.426	6.196	0.290	0.290	1.048
Employment (Protective)	1.052	0.676	1.209	0.061	0.061	1.052
Family	0.919	0.107	13.755	-1.168	-1.168	0.919
Free-Time	0.968	0.819	2.295	-0.074	-0.074	0.968
Mental Health	0.941	0.666	2.472	-0.151	-0.151	0.941
Prior Family	1.103	0.057	16.656	1.632	1.632	1.103
Relationship	1.031	0.375	13.718	0.424	0.424	1.031
School	1.016	0.642	13.749	0.220	0.220	1.016
Skill	0.997	0.925	20.583	-0.056	-0.056	0.997
Sum of Estimate and Mean Products					0.009	0.449
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**50.2%**	**61.0%**

Exhibit D-1.2
Felony 18-Month Recidivism
Control Group vs. MST Participation

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product	
					Control	MST
Intercept	-0.498	.	0.860	.	-0.498	-0.498
MST Participant	0.466	1.594	0.234	0.583	**0.000**	**0.466**
Days From Adjudication to Group Assignment	0.002	1.002	0.469	-55.245	-0.135	-0.135
Male	1.426	4.163	0.009	0.773	1.103	1.103
Age at Adjudication	-0.135	0.874	0.447	15.301	-2.064	-2.064
Criminal History	-0.018	0.983	0.735	9.086	-0.159	-0.159
Social History	-0.123	0.884	0.337	10.245	-1.264	-1.264
Aggression	-0.062	0.940	0.632	2.669	-0.165	-0.165
Attitude	-0.051	0.950	0.291	10.055	-0.513	-0.513
Drug Alcohol	0.086	1.090	0.167	6.196	0.532	0.532
Employment (Protective)	0.033	1.034	0.788	1.209	0.040	0.040
Family	-0.100	0.905	0.052	13.755	-1.375	-1.375
Free-Time	-0.187	0.829	0.199	2.295	-0.429	-0.429
Mental Health	-0.045	0.956	0.767	2.472	-0.112	-0.112
Prior Family	0.112	1.118	0.027	16.656	1.861	1.861
Relationship	0.062	1.064	0.095	13.718	0.856	0.856
School	0.042	1.042	0.247	13.749	0.572	0.572
Skill	0.032	1.032	0.287	20.583	0.652	0.652
Sum of Estimate and Mean Products					-1.099	-0.633
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**25.0%**	**34.7%**

Exhibit D-1.3
Violent Felony 18-Month Recidivism
Control Group vs. MST Participation

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product	
					Control	MST
Intercept	-0.137	.	0.981	.	-0.137	-0.137
MST Participant	1.068	2.909	0.172	0.583	**0.000**	**1.068**
Days From Adjudication to Group Assignment	0.003	1.003	0.604	-55.245	-0.192	-0.192
Male	Excluded, quasi-complete separation			0.773	0.000	0.000
Age at Adjudication	-0.505	0.603	0.170	15.301	-7.727	-7.727
Criminal History	0.086	1.090	0.331	9.086	0.781	0.781
Social History	-0.061	0.941	0.808	10.245	-0.625	-0.625
Aggression	0.072	1.075	0.785	2.669	0.193	0.193
Attitude	0.033	1.033	0.733	10.055	0.327	0.327
Drug Alcohol	-0.022	0.979	0.849	6.196	-0.133	-0.133
Employment (Protective)	-0.031	0.969	0.911	1.209	-0.038	-0.038
Family	-0.135	0.874	0.180	13.755	-1.857	-1.857
Free-Time	-0.270	0.763	0.374	2.295	-0.619	-0.619
Mental Health	-0.054	0.947	0.877	2.472	-0.134	-0.134
Prior Family	0.083	1.087	0.414	16.656	1.382	1.382
Relationship	0.057	1.059	0.449	13.718	0.785	0.785
School	0.365	1.441	0.003	13.749	5.020	5.020
Skill	-0.082	0.921	0.137	20.583	-1.684	-1.684
Sum of Estimate and Mean Products					-4.658	-3.590
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**0.9%**	**2.7%**

Exhibit D-2.1
Felony 18-Month Recidivism
King County MST Logistic Regression Results

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product	
					Control	MST
Intercept	-2.3842		0.6907		-2.384	-2.384
MST Participant	***-0.1285***	***0.879***	***0.8914***	***0.78***	***0.000***	***-0.129***
Days From Adjudication to Group Assignment	0.001	1.001	0.883	-80.840	-0.068	-0.068
Male	2.738	15.455	0.044	0.720	1.971	1.971
Age at Adjudication	-0.019	0.981	0.956	15.140	-0.289	-0.289
Criminal History	0.018	1.018	0.908	9.200	0.164	0.164
Social History	0.096	1.101	0.777	9.780	0.937	0.937
Aggression	-0.246	0.782	0.416	2.480	-0.610	-0.610
Attitude	0.005	1.005	0.970	11.820	0.061	0.061
Drug Alcohol	-0.109	0.896	0.375	6.380	-0.698	-0.698
Employment (Protective)	-0.012	0.988	0.969	1.020	-0.012	-0.012
Family	0.067	1.069	0.690	13.360	0.894	0.894
Free-Time	0.107	1.113	0.786	2.480	0.266	0.266
Mental Health	0.111	1.117	0.800	2.260	0.250	0.250
Prior Family	-0.080	0.923	0.652	16.420	-1.310	-1.310
Relationship	0.020	1.020	0.842	12.620	0.246	0.246
School	0.052	1.053	0.540	13.720	0.709	0.709
Skill	-0.046	0.955	0.557	21.620	-0.997	-0.997
Sum of Estimate and Mean Products					-0.870	-0.999
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**29.5%**	**26.9%**

Exhibit D-2.2
Felony 18-Month Recidivism
Pierce/Kitsap County MST Logistic Regression Results

Variable	Parameter Estimate	Odds Ratio	Signifi-cance	Mean	Estimate and Mean Product	
					Control	MST
Intercept	4.273		0.4459		4.273	4.273
MST Participant	1.593	4.919	0.052	0.644	***0.000***	***1.593***
Days From Adjudication to Group Assignment	0.012	1.012	0.215	-36.356	-0.422	-0.422
Male	0.238	1.269	0.809	0.805	0.192	0.192
Age at Adjudication	-0.497	0.608	0.172	15.299	-7.604	-7.604
Criminal History	0.048	1.049	0.633	8.621	0.416	0.416
Social History	-0.480	0.619	0.050	10.448	-5.015	-5.015
Aggression	0.031	1.031	0.916	2.759	0.084	0.084
Attitude	-0.249	0.779	0.014	9.035	-2.251	-2.251
Drug Alcohol	0.398	1.489	0.002	5.931	2.360	2.360
Employment (Protective)	0.055	1.057	0.797	1.310	0.073	0.073
Family	-0.241	0.786	0.080	14.345	-3.459	-3.459
Free-Time	-0.625	0.535	0.019	2.000	-1.249	-1.249
Mental Health	0.268	1.308	0.300	2.506	0.672	0.672
Prior Family	0.278	1.321	0.023	16.310	4.541	4.541
Relationship	0.252	1.287	0.004	14.713	3.712	3.712
School	-0.034	0.966	0.596	12.954	-0.443	-0.443
Skill	1.593	4.919	0.052	0.644	1.807	1.807
Sum of Estimate and Mean Products					-2.312	-0.719
Adjusted Recidivism Rate (exp(sum)/(1+exp(sum))					**9.0%**	**32.8%**

APPENDIX E: COST-BENEFIT ANALYSIS

Exhibit E-1.1
Functional Family Therapy: Competent

WA Functional Family Therapy
Cost-Benefit Worksheet: Per Participant Estimates
Criminal offenses are measured as convictions. Monetary Values in 2002 dollars. Discount rate is set to 3%.

Results from a Program Evaluation or Meta Analysis	
Unadjusted Mean Difference Effect Size:	-0.250
Standard Error:	0.094
p-value:	0.009
Upper 90 Percent Confidence Interval:	-0.342
Lower 90 Percent Confidence Interval:	-0.034
Number of Studies Used to Estimate the Effect Size:	1
Fixed or Random Effects Meta-Analysis?	fixed

Mean Effect Size with Adjustment for Research Design	
Average Research Design Quality Score:	4.0
Research-Design Adjusted Effect Size:	-0.188
Assumed Average Age of Program Participant:	15

Estimated Change in the Long-Run Number of Offenses Per Particpant, With and Without the Program

		Without Program	With Program
	Percent With New Offenses[1]……	55.3%	45.9%
X	New Offenses per Re-Offender[1]……	3.38	3.38
=	Number of New Offenses per Particpant……	1.87	1.55
÷	Percent of Long-Run Offenses in Period[2]……	71.5%	71.5%
=	Long-Run Number of Offenses……	2.62	2.17
	Estimated change in offenses per participant:	**-0.44**	
	Percent change:	**-17.0%**	

(1) Based on: Re-convictions in Washington, 8-year follow-up
(2) The estimated percentage of offending between age 15 and 23, occurring by age 30 (the maximum age in long-run follow-up estimates).

		Total	Murder	Sex Offenses	Rob-bery	Agg. Assault	Fel. Prop.	Drug	Misd.
Taxpayer Criminal Justice System Costs	Present Value (PV) taxpayer cost of one		-$389,621	-$70,572	-$70,563	-$37,402	-$10,491	-$12,659	-$4,273
	Without the program, the offense distribution:	100%	0.86%	1.65%	5.84%	14.66%	61.49%	15.49%	0.00%
	Expected PV cost of one offense:	-$22,536	-$3,353	-$1,165	-$4,124	-$5,482	-$6,451	-$1,961	$0
	Overall adjustment to cost:	90%							
	Expected taxpayer costs without the program:	-$53,105	-$7,901	-$2,744	-$9,717	-$12,918	-$15,202	-$4,622	$0
	With the program, the offense distribution:	100%	0.86%	1.65%	5.84%	14.66%	61.49%	15.49%	0.00%
	Expected taxpayer costs with the program:	-$44,102	-$6,561	-$2,279	-$8,070	-$10,728	-$12,625	-$3,838	$0
	Taxpayer costs avoided (or incurred, if negative):	**$9,003**							
	Incremental program cost (or savings, if negative):	**$2,100**							
	Taxpayer Net Present Value (NPV):	**$6,903**							
	Taxpayer benefits per dollar of cost:	**$4.29**							
	Percent reducton needed to break-even:	-4.0%							
Victim Monetary Costs	Present value victim (monetary) cost of one crime:		-$1,075,152	-$6,506	-$2,459	-$1,525	-$589	$0	$0
	Distribution of one victimization:	100%	0.86%	1.65%	5.84%	14.66%	61.49%	15.49%	0.00%
	Expected cost, one victimization:	-$10,089	-$9,252	-$107	-$144	-$224	-$362	$0	$0
	Victim monetary costs avoided (incurred):	**$4,478**							
	Cumulative program benefits:	**$13,481**							
	Cumulative NPV:	**$11,381**							
	Cumulative benefits/dollar of cost:	**$6.42**							
Vic. Quality of Life Costs	Present value victim (quality of life) cost of one crime:		-$1,995,032	-$86,225	-$6,087	-$8,284	-$67	$0	$0
	Expected cost, one victimization:	-$20,202	-$17,168	-$1,423	-$356	-$1,214	-$41	$0	$0
	Victim quality of life costs avoided (incurred):	**$8,967**							
	Cumulative program benefits:	**$22,448**							
	Cumulative NPV:	**$20,348**							
	Cumulative benefits/dollar of cost:	**$10.69**							

Exhibit E-1.2
Functional Family Therapy: Not Competent

WA Functional Family Therapy
Cost-Benefit Worksheet: Per Participant Estimates

Criminal offenses are measured as convictions. Monetary Values in 2002 dollars. Discount rate is set to 3%.

Results from a Program Evaluation or Meta Analysis	
Unadjusted Mean Difference Effect Size:	0.099
Standard Error:	0.090
p-value:	0.268
Upper 90 Percent Confidence Interval:	-0.074
Lower 90 Percent Confidence Interval:	0.222
Number of Studies Used to Estimate the Effect Size:	1
Fixed or Random Effects Meta-Analysis?	fixed

Mean Effect Size with Adjustment for Research Design	
Average Research Design Quality Score:	4.0
Research-Design Adjusted Effect Size:	0.074
Assumed Average Age of Program Participant:	15

Estimated Change in the Long-Run Number of Offenses Per Particpant, With and Without the Program

		Without Program	With Program
	Percent With New Offenses(1)……	55.3%	59.0%
X	New Offenses per Re-Offender(1)……	3.38	3.38
=	Number of New Offenses per Particpant……	1.87	2.00
÷	Percent of Long-Run Offenses in Period(2)……	71.5%	71.5%
=	Long-Run Number of Offenses……....	2.62	2.79
	Estimated change in offenses per participant:	**0.17**	
	Percent change:	**6.6%**	

(1) Based on: Re-convictions in Washington, 8-year follow-up
(2) The estimated percentage of offending between age 15 and 23, occurring by age 30 (the maximum age in long-run follow-up estimates).

		Total	Murder	Sex Offenses	Rob-bery	Agg. Assault	Fel. Prop.	Drug	Misd.
Taxpayer Criminal Justice System Costs	Present Value (PV) taxpayer cost of one		-$389,621	-$70,572	-$70,563	-$37,402	-$10,491	-$12,659	-$4,273
	Without the program, the offense distribution:	100%	0.86%	1.65%	5.84%	14.66%	61.49%	15.49%	0.00%
	Expected PV cost of one offense:	-$22,536	-$3,353	-$1,165	-$4,124	-$5,482	-$6,451	-$1,961	$0
	Overall adjustment to cost:	90%							
	Expected taxpayer costs without the program:	-$53,105	-$7,901	-$2,744	-$9,717	-$12,918	-$15,202	-$4,622	$0
	With the program, the offense distribution:	100%	0.86%	1.65%	5.84%	14.66%	61.49%	15.49%	0.00%
	Expected taxpayer costs with the program:	-$56,625	-$8,425	-$2,926	-$10,362	-$13,775	-$16,210	-$4,928	$0
	Taxpayer costs avoided (or incurred, if negative):	**-$3,521**							
	Incremental program cost (or savings, if negative):	**$2,100**							
	Taxpayer Net Present Value (NPV):	**-$5,621**							
	Taxpayer benefits per dollar of cost:	**-$1.68**							
	Percent reducton needed to break-even:	-4.0%							
Victim Monetary Costs	Present value victim (monetary) cost of one crime:		-$1,075,152	-$6,506	-$2,459	-$1,525	-$589	$0	$0
	Distribution of one victimization:	100%	0.86%	1.65%	5.84%	14.66%	61.49%	15.49%	0.00%
	Expected cost, one victimization:	-$10,089	-$9,252	-$107	-$144	-$224	-$362	$0	$0
	Victim monetary costs avoided (incurred):	**-$1,751**							
	Cumulative program benefits:	**-$5,272**							
	Cumulative NPV:	**-$7,372**							
	Cumulative benefits/dollar of cost:	**-$2.51**							
Vic. Quality of Life Costs	Present value victim (quality of life) cost of one crime:		-$1,995,032	-$86,225	-$6,087	-$8,284	-$67	$0	$0
	Expected cost, one victimization:	-$20,202	-$17,168	-$1,423	-$356	-$1,214	-$41	$0	$0
	Victim quality of life costs avoided (incurred):	**-$3,507**							
	Cumulative program benefits:	**-$8,779**							
	Cumulative NPV:	**-$10,879**							
	Cumulative benefits/dollar of cost:	**-$4.18**							

Exhibit E-2.1
Aggression Replacement Training: Competent

Aggression Replacement Training-WA
Cost-Benefit Worksheet: Per Participant Estimates

Criminal offenses are measured as convictions. Monetary Values in 2002 dollars. Discount rate is set to 3%.

Results from a Program Evaluation or Meta Analysis	
Unadjusted Mean Difference Effect Size:	-0.146
Standard Error:	0.066
p-value:	0.029
Upper 90 Percent Confidence Interval:	-0.182
Lower 90 Percent Confidence Interval:	0.036
Number of Studies Used to Estimate the Effect Size:	1
Fixed or Random Effects Meta-Analysis?	fixed

Mean Effect Size with Adjustment for Research Design	
Average Research Design Quality Score:	3.0
Research-Design Adjusted Effect Size:	-0.073
Assumed Average Age of Program Participant:	15

Estimated Change in the Long-Run Number of Offenses Per Particpant, With and Without the Program

		Without Program	With Program
	Percent With New Offenses(1)……	55.3%	51.7%
X	New Offenses per Re-Offender(1)……	3.38	3.38
=	Number of New Offenses per Particpant……	1.87	1.75
÷	Percent of Long-Run Offenses in Period(2)……	71.5%	71.5%
=	Long-Run Number of Offenses……....	2.62	2.45
	Estimated change in offenses per participant:	**-0.17**	
	Percent change:	**-6.6%**	

(1) Based on: Re-convictions in Washington, 8-year follow-up
(2) The estimated percentage of offending between age 15 and 23, occurring by age 30 (the maximum age in long-run follow-up estimates).

		Total	Murder	Sex Offenses	Rob-bery	Agg. Assault	Fel. Prop.	Drug	Misd.
Taxpayer Criminal Justice System Costs	Present Value (PV) taxpayer cost of one		-$389,621	-$70,572	-$70,563	-$37,402	-$10,491	-$12,659	-$4,273
	Without the program, the offense distribution:	100%	0.86%	1.65%	5.84%	14.66%	61.49%	15.49%	0.00%
	Expected PV cost of one offense:	-$22,536	-$3,353	-$1,165	-$4,124	-$5,482	-$6,451	-$1,961	$0
	Overall adjustment to cost:	90%							
	Expected taxpayer costs without the program:	-$53,105	-$7,901	-$2,744	-$9,717	-$12,918	-$15,202	-$4,622	$0
	With the program, the offense distribution:	100%	0.86%	1.65%	5.84%	14.66%	61.49%	15.49%	0.00%
	Expected taxpayer costs with the program:	-$49,622	-$7,383	-$2,564	-$9,080	-$12,071	-$14,205	-$4,319	$0
	Taxpayer costs avoided (or incurred, if negative):	**$3,483**							
	Incremental program cost (or savings, if negative):	**$745**							
	Taxpayer Net Present Value (NPV):	**$2,738**							
	Taxpayer benefits per dollar of cost:	**$4.68**							
	Percent reducton needed to break-even:	-1.4%							
Victim Monetary Costs	Present value victim (monetary) cost of one crime:		-$1,075,152	-$6,506	-$2,459	-$1,525	-$589	$0	$0
	Distribution of one victimization:	100%	0.86%	1.65%	5.84%	14.66%	61.49%	15.49%	0.00%
	Expected cost, one victimization:	-$10,089	-$9,252	-$107	-$144	-$224	-$362	$0	$0
	Victim monetary costs avoided (incurred):	**$1,732**							
	Cumulative program benefits:	**$5,215**							
	Cumulative NPV:	**$4,470**							
	Cumulative benefits/dollar of cost:	**$7.00**							
Vic. Quality of Life Costs	Present value victim (quality of life) cost of one crime:		-$1,995,032	-$86,225	-$6,087	-$8,284	-$67	$0	$0
	Expected cost, one victimization:	-$20,202	-$17,168	-$1,423	-$356	-$1,214	-$41	$0	$0
	Victim quality of life costs avoided (incurred):	**$3,469**							
	Cumulative program benefits:	**$8,684**							
	Cumulative NPV:	**$7,939**							
	Cumulative benefits/dollar of cost:	**$11.66**							

Exhibit E-2.2
Aggression Replacement Training: Not Competent

Aggression Replacement Training-WA
Cost-Benefit Worksheet: Per Participant Estimates

Criminal offenses are measured as convictions. Monetary Values in 2002 dollars. Discount rate is set to 3%.

Results from a Program Evaluation or Meta Analysis	
Unadjusted Mean Difference Effect Size:	0.039
Standard Error:	0.083
p-value:	0.636
Upper 90 Percent Confidence Interval:	-0.117
Lower 90 Percent Confidence Interval:	0.155
Number of Studies Used to Estimate the Effect Size:	1
Fixed or Random Effects Meta-Analysis?	fixed

Mean Effect Size with Adjustment for Research Design	
Average Research Design Quality Score:	3.0
Research-Design Adjusted Effect Size:	0.019
Assumed Average Age of Program Participant:	15

Estimated Change in the Long-Run Number of Offenses Per Particpant, With and Without the Program

		Without Program	With Program
	Percent With New Offenses(1)……	55.3%	56.3%
X	New Offenses per Re-Offender(1)……	3.38	3.38
=	Number of New Offenses per Particpant……	1.87	1.90
÷	Percent of Long-Run Offenses in Period(2)……	71.5%	71.5%
=	Long-Run Number of Offenses……....	2.62	2.66
	Estimated change in offenses per participant:	**0.05**	
	Percent change:	**1.7%**	

(1) Based on: Re-convictions in Washington, 8-year follow-up
(2) The estimated percentage of offending between age 15 and 23, occurring by age 30 (the maximum age in long-run follow-up estimates).

		Total	Murder	Sex Offenses	Rob-bery	Agg. Assault	Fel. Prop.	Drug	Misd.
Taxpayer Criminal Justice System Costs	Present Value (PV) taxpayer cost of one		-$389,621	-$70,572	-$70,563	-$37,402	-$10,491	-$12,659	-$4,273
	Without the program, the offense distribution:	100%	0.86%	1.65%	5.84%	14.66%	61.49%	15.49%	0.00%
	Expected PV cost of one offense:	-$22,536	-$3,353	-$1,165	-$4,124	-$5,482	-$6,451	-$1,961	$0
	Overall adjustment to cost:	90%							
	Expected taxpayer costs without the program:	-$53,105	-$7,901	-$2,744	-$9,717	-$12,918	-$15,202	-$4,622	$0
	With the program, the offense distribution:	100%	0.86%	1.65%	5.84%	14.66%	61.49%	15.49%	0.00%
	Expected taxpayer costs with the program:	-$54,032	-$8,039	-$2,792	-$9,887	-$13,144	-$15,467	-$4,703	$0
	Taxpayer costs avoided (or incurred, if negative):	**-$927**							
	Incremental program cost (or savings, if negative):	**$745**							
	Taxpayer Net Present Value (NPV):	**-$1,672**							
	Taxpayer benefits per dollar of cost:	**-$1.24**							
	Percent reducton needed to break-even:	-1.4%							
Victim Monetary Costs	Present value victim (monetary) cost of one crime:		-$1,075,152	-$6,506	-$2,459	-$1,525	-$589	$0	$0
	Distribution of one victimization:	100%	0.86%	1.65%	5.84%	14.66%	61.49%	15.49%	0.00%
	Expected cost, one victimization:	-$10,089	-$9,252	-$107	-$144	-$224	-$362	$0	$0
	Victim monetary costs avoided (incurred):	**-$461**							
	Cumulative program benefits:	**-$1,388**							
	Cumulative NPV:	**-$2,133**							
	Cumulative benefits/dollar of cost:	**-$1.86**							
Vic. Quality of Life Costs	Present value victim (quality of life) cost of one crime:		-$1,995,032	-$86,225	-$6,087	-$8,284	-$67	$0	$0
	Expected cost, one victimization:	-$20,202	-$17,168	-$1,423	-$356	-$1,214	-$41	$0	$0
	Victim quality of life costs avoided (incurred):	**-$923**							
	Cumulative program benefits:	**-$2,312**							
	Cumulative NPV:	**-$3,057**							
	Cumulative benefits/dollar of cost:	**-$3.10**							

Exhibit E-3.1
Coordination of Services

WA Coordination of Services
Cost-Benefit Worksheet: Per Participant Estimates

Criminal offenses are measured as convictions. Monetary Values in 2002 dollars. Discount rate is set to 3%.

Results from a Program Evaluation or Meta Analysis	
Unadjusted Mean Difference Effect Size:	-0.128
Standard Error:	0.108
p-value:	0.246
Upper 90 Percent Confidence Interval:	-0.306
Lower 90 Percent Confidence Interval:	0.050
Number of Studies Used to Estimate the Effect Size:	1
Fixed or Random Effects Meta-Analysis?	fixed

Mean Effect Size with Adjustment for Research Design	
Average Research Design Quality Score:	3.0
Research-Design Adjusted Effect Size:	-0.064
Assumed Average Age of Program Participant:	15

Estimated Change in the Long-Run Number of Offenses Per Particpant, With and Without the Program

		Without Program	With Program
	Percent With New Offenses(1)……	12.6%	10.6%
X	New Offenses per Re-Offender(1)……	2.80	2.80
=	Number of New Offenses per Particpant……	0.35	0.30
÷	Percent of Long-Run Offenses in Period(2)……	71.5%	71.5%
=	Long-Run Number of Offenses……....	0.49	0.41
	Estimated change in offenses per participant:	**-0.08**	
	Percent change:	**-16.2%**	

(1) Based on: Re-convictions in Washington, 8-year follow-up
(2) The estimated percentage of offending between age 15 and 23, occurring by age 30 (the maximum age in long-run follow-up estimates).

		Total	Murder	Sex Offenses	Rob-bery	Agg. Assault	Fel. Prop.	Drug	Misd.
Taxpayer Criminal Justice System Costs	Present Value (PV) taxpayer cost of one		-$389,621	-$70,572	-$70,563	-$37,402	-$10,491	-$12,659	-$4,273
	Without the program, the offense distribution:	100%	0.59%	1.04%	5.77%	11.32%	62.72%	18.57%	0.00%
	Expected PV cost of one offense:	-$20,270	-$2,305	-$731	-$4,071	-$4,233	-$6,580	-$2,350	$0
	Overall adjustment to cost:	90%							
	Expected taxpayer costs without the program:	-$9,012	-$1,025	-$325	-$1,810	-$1,882	-$2,925	-$1,045	$0
	With the program, the offense distribution:	100%	0.59%	1.04%	5.77%	11.32%	62.72%	18.57%	0.00%
	Expected taxpayer costs with the program:	-$7,550	-$859	-$272	-$1,516	-$1,577	-$2,451	-$875	$0
	Taxpayer costs avoided (or incurred, if negative):	**$1,462**							
	Incremental program cost (or savings, if negative):	**$400**							
	Taxpayer Net Present Value (NPV):	**$1,062**							
	Taxpayer benefits per dollar of cost:	**$3.65**							
	Percent reducton needed to break-even:	-4.4%							
Victim Monetary Costs	Present value victim (monetary) cost of one crime:		-$1,075,152	-$6,506	-$2,459	-$1,525	-$589	$0	$0
	Distribution of one victimization:	100%	0.59%	1.04%	5.77%	11.32%	62.72%	18.57%	0.00%
	Expected cost, one victimization:	-$7,113	-$6,362	-$67	-$142	-$173	-$369	$0	$0
	Victim monetary costs avoided (incurred):	**$570**							
	Cumulative program benefits:	**$2,031**							
	Cumulative NPV:	**$1,631**							
	Cumulative benefits/dollar of cost:	**$5.08**							
Vic. Quality of Life Costs	Present value victim (quality of life) cost of one crime:		-$1,995,032	-$86,225	-$6,087	-$8,284	-$67	$0	$0
	Expected cost, one victimization:	-$14,029	-$11,805	-$893	-$351	-$937	-$42	$0	$0
	Victim quality of life costs avoided (incurred):	**$1,124**							
	Cumulative program benefits:	**$3,155**							
	Cumulative NPV:	**$2,755**							
	Cumulative benefits/dollar of cost:	**$7.89**							