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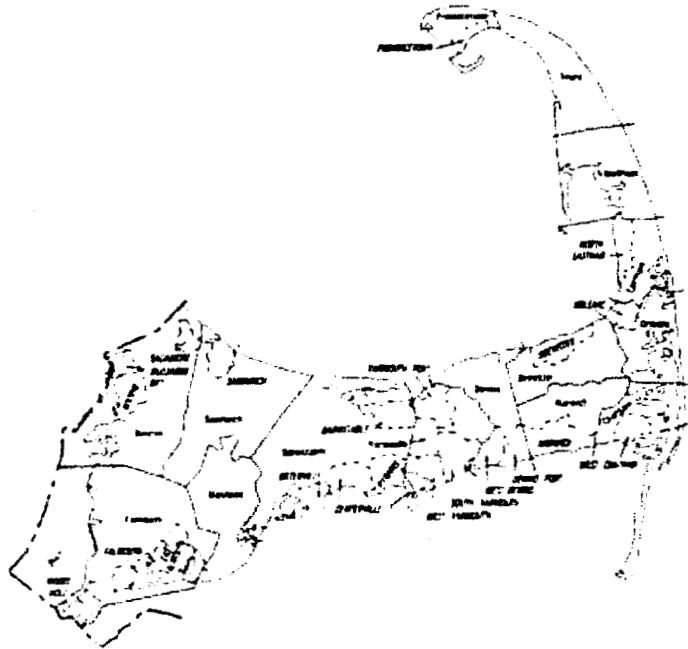
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**An Outcome Evaluation of a
Residential Substance Abuse Program**

Barnstable House of Corrections

196142



October 2002

**BOTEC Analysis
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Preface

The Executive Office of Public Safety, with funding from the National Institute of Justice, contracted with the BOTEC Analysis Corporation to complete an outcome analysis of the Barnstable House of Correction's Residential Substance Abuse Treatment (RSAT) program in April 2001. The evaluation followed the completion of an earlier Barnstable RSAT process evaluation completed by BOTEC Analysis Corporation submitted June 12, 2000.

The objective of the RSAT program is to reduce the likelihood of recidivism of inmates by treating their substance abusive behavior through the development of their cognitive, behavioral, social, and vocational skills. The purpose of this study is to assess the efficacy of that program by examining all inmates referred to the Barnstable RSAT program between January 1, 1999 and June 2001 through March 2002 when the final criminal history record check was completed on all referrals.

Evaluation work cannot succeed without the active cooperation and assistance of the organizations being evaluated. This requires self-confidence and openness by the staffs. Among those who displayed these characteristic are: Sheriff James Cummings, Superintendent Michael Regan, Assistant Deputy Superintendent Major Joy Segura, Captain Mark Thompson, Lt. Wayne Wiinikainen, Captain Paul Anglin, and their Classification and Records departments, as well as Jocelyn Bednark, treatment specialist and Martha Barros, Reintegration Coordinator. In addition, Steve Valle, President and CEO of AdCare Criminal Justice Services and his staff at the Barnstable County House of Correction, Roberta Kossow, Regional Director and Roger Allen, Assistant Regional

Director provided invaluable assistance. Shawn Jenkins, Criminal History Systems Board supplied with dispatch, the requested criminal records. Diana Brensilber and Patricia Bergen, Executive Office of Public Safety provided the support and patience without which this work would not have been possible.

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October 2002

BOTEC Analysis Corporation
Waltham, Massachusetts

FINAL REPORT

Approved By: Margaret Battlo

Date: 3/21/03

**An Outcome Evaluation of the Residential Substance Abuse Program at the
Barnstable House of Corrections**

Executive Summary

This report is the second half of the evaluation of the residential substance abuse (RSAT) program at the Barnstable House of Corrections. RSAT programs are supported with county, state and federal funds. Grant funding requires participation of inmates who are separated from the general correctional population and are incarcerated long enough to permit effective substance abuse treatment, i.e. six to twelve months. The Barnstable program is an example program.

The first evaluation report examined the program process¹. This report examines the process outcome. The RSAT provider considers the objective of the program to deter criminal behavior in general, not just drug abuse. The evaluation is based on a two-part design with the objective of reducing threats to the validity. The evaluation is designed to answer the broader question: "Can a correctional program for chronic criminal offenders deter inmates from committing additional crimes, even though they have a history of serious disruption due to substance abuse and other factors?" The answer this evaluation found is 'yes.' RSAT participants who completed the program had approximately a 32 percent probability of a criminal incident within one year of their release; RSAT participants who were released early from the program or were terminated had a recidivism rate that was not different from their pre-Barnstable likelihood of arrest and conviction. The recidivism rate of RSAT participants, graduates and non-graduates is

¹ *Barnstable House of Correction Residential Substance Abuse Treatment: A Process Evaluation* (June 2000), Massachusetts Executive Office of Public Safety Programs Division and BOTEK Analysis Corporation.

approximately 40 percent and significantly less than the pre-Barnstable likelihood of arrest and conviction.

RSAT participants are career criminals. On average those participating in RSAT had been committing crimes as an adult for 13 years before entering the program. Their criminality had several dimensions including substance abuse, crimes against persons, crimes against property, theft, and larceny, major motor vehicle crimes, and crimes against the public order.

About 40 percent of RSAT participants complete the program; 40 percent are released early without completing, and 20 percent are returned to the BHOC general population because of noncompliant behavior. Early release, a BHOC decision, appears to result in higher recidivism, even though the offenders' LSI-R inventory scores indicate that about two-thirds of them could be expected to complete the program. On the basis of the outcome evaluation, expansion of the program is worthwhile. The report suggests several steps to further enhance the program.

An Outcome Evaluation of a Residential Substance Abuse Program

Barnstable House of Corrections

Introduction: Residential substance abuse treatment (RSAT) programs currently operate in all 13 Massachusetts county houses of correction, as well as in other correctional facilities in the state. The Commonwealth supports these programs with state, county and federal funds. Federal funding support requires following specific guidelines. The guidelines require that the inmates are separately housed and incarcerated for a long enough period of time to permit effective substance abuse treatment; specifically, treatment is required for 6 to 12 monthsⁱ. The objective of the RSAT program is to reduce the likelihood of recidivism of inmates by treating their substance abusive behavior through the development of their cognitive, behavioral, social, and vocational skills

The challenge facing the Residential Substance Abuse Treatment (RSAT) program at the Barnstable House of Correction (BHOC) in treating both its substance abusing population and deterring future criminal behavior is significant by all measures. Typical RSAT inmates have extensive records of both substance abuse and related as well unrelated criminal behavior. The majority of RSAT inmates can best be described as career criminals.ⁱⁱ

The RSAT provider (AdCare Criminal Justice Services) views the objective of the program to deter criminal behavior in general, not just drug abuse. The question, then, whether RSAT deters future criminal behavior, transcends the narrower question of the

effectiveness of a specific residential drug treatment program. The evaluation is designed to answer the broader question: "Can a correctional program for chronic criminal offenders deter inmates from committing additional crimes, even though they have a history of serious disruption due to substance abuse and other factors?"

This report is the second half of an evaluation of the Residential Substance Abuse Program (RSAT) at the Barnstable House of Correction. The first evaluation report described the RSAT treatment process, and made a number of recommendations to strengthen it.ⁱⁱⁱ The second half report examines whether the RSAT program reduces the likelihood of criminal incidents for offenders who complete the program. In the time between the process evaluation and the outcome evaluation a major change took place in the program. Under new program guidelines, to be eligible for RSAT, the offenders have to be sentenced to the Barnstable House of Corrections for at least nine months. This provides time for the offender to become oriented to Barnstable, be selected for the program and complete the six-month program. Previously, it was common to assign offenders to RSAT who did not have sufficient time on their sentence to complete the program.

A Brief Review of the RSAT Literature: As noted RSAT programs are required to follow specific program guidelines. A number of these programs have been evaluated. The 23 RSAT program evaluations listed in the NCJRS online Abstracts Database^{iv} center on program implementation issues including descriptions of services, RSAT staff, service delivery problems, and descriptions of participants. None provided adequate output data on recidivism. The studies either did not provide data, or the follow-

up period was too short and the sample too small. Moreover, nearly all the programs deal with prison populations, rather than jail populations.

The principal and troubling outcome of these studies is the difficulty that many RSAT programs experienced in implementing the program, processing significant numbers of participants, and providing quality treatment services.

Earlier literature contains selected examples of residential treatment programs, broadly similar in structure to RSAT, that appear to successfully reduce recidivism.^v Again, the examples are prison-based rather than jail-based. The primary difficulties within RSAT programs are budget problems, issues of program control, organization, and leadership. That is, the process of diffusing RSAT from a base of selected, promising programs is clearly very difficult.

Methodology: The outcome design is a redundant one that incorporates a one-group pre-post design of the RSAT program with one that splits the sample of RSAT participants into two cohorts. In the one-group pre-post design the model tests whether the likelihood of arrest and conviction after RSAT is significantly less than the baseline likelihood of arrest and conviction in the year previous to incarceration. This is a common and often used design model.

The measurement of the outcome is strengthened by the use of a split sample, two-cohort model. The control cohort incorporates the probability of pre-RSAT arrest and conviction in the year prior to sentencing to Barnstable, while the treatment cohort incorporates the post-RSAT arrest and conviction outcomes in the year following release. The cohorts are structured so that the treatment and control offenders are "on the street" at the same time. The redundancy provided by the treatment and control cohorts offsets

the deficiencies found in a one-group per-post design. Consistent results between the two elements strengthen the validity of the study conclusions.

The study design works within the constraints and opportunities of the Barnstable environment. The shortcomings of a one-group pre-post design are well established^{vi}. A pre-post design with a comparison group was not available. Comparing offenders in the Barnstable general jail population with RSAT recruits or comparing treated or untreated populations at other Houses of Correction invites criticism of selection bias and non-comparability. A randomized design was not possible because the prospective nature of the design would delay the availability of the results. The statistical power would be less because of the small size of RSAT classes. Finally, it is unlikely that the Barnstable administration would support a randomized design.

The purpose of both models is to determine whether RSAT treatment offenders who complete treatment are less likely to be arrested and convicted in the year following treatment than in the year prior to incarceration and RSAT treatment. Specifically, treatment finishers, it is hypothesized, are less likely to recidivate after treatment than before. In addition, it is a concern whether the proportion who graduate and exhibit reduced recidivism is sufficiently large to offset the recidivism behavior of those who fail to complete and who's criminal behavior is unchanged.

The design controls for selection bias,^{vii} a critical concern in the study. The threats of regression to the mean and history are nullified. The selection of treatment eligible offenders is also centralized in the hands of the Barnstable classification personnel; they selected RSAT participants in an equivalent manner.^{viii} The outcome effects of treatment are thus reasonably attributable to either chance or to the efficacy of the treatment.

Figure 1 illustrates the two models. O1 and O3 are observed offender criminal behaviors measured by whether the offender, in the year prior to the conviction that sentenced them to Barnstable, had an earlier conviction. (R) is the RSAT treatment. O2 and O4 are the recidivist behaviors, measured as a probability, in the year following RSAT treatment.

Figure 1: Basic RSAT Research Design

O1 R O2
O3 R O4

Specifically, the design allows the following comparisons. If the treatment is effective the probability of at least one criminal conviction post-RSAT treatment should be less than the probability of baseline pre-RSAT criminal conviction(s); that is, the difference between O1 + O3, (the baseline probabilities) and O2 + O4 (the post-RSAT probabilities)^x should be significant.

The second dimension of the design combats the problems of the one-group pre-post design described above. The sample of RSAT participants was divided into a treatment and control group. The control group is the pre-RSAT criminal behavior of a cohort of offenders who will later participate in RSAT. That is, the comparison group is compared on the basis of its pre-RSAT behavior derived from Criminal History Systems Board records. The post-RSAT behavior is based on a cohort of RSAT participants who, given the dates of their participation were “on the street” at the same time as the pre-RSAT offenders. The difference between O2 and O3 represents the RSAT treatment effect.

The treatment-control dimension of the design affords a distinction between the effects of incarceration and RSAT on the treatment group. The behavior of the treatment group is the result of RSAT and incarceration, while the criminality of the control group is designated by their pre-RSAT behavior. Not all the RSAT treatment participants graduate. A significant number are non-compliant and return to the general jail population or the Barnstable correction administrators grant them early release. The post-RSAT behavior of these offenders reflects primarily the effects of incarceration.

Between January 1, 1999 and June 6, 2001, 472 inmates were sentenced to the Barnstable House of Corrections with sentences of nine months or more. The evaluation population includes the 188 unduplicated individuals who were referred to RSAT. The criteria for referral were based on the defendant's record, presenting offenses, sentence length and other factors determined by correctional, not RSAT program staff.

This question of the effectiveness of the in-jail RSAT program takes on added significance because the vast majority of RSAT inmates are released directly to the streets. Most RSAT referred inmates are not released to parole, probation, residential treatment or other officially supported programs of aftercare or supervision. The Table 1 below indicates that only 54 of the 188 participants were referred to additional programs.

Furthermore, the likelihood of criminal incidents for RSAT participants is independent of whether the offender receives aftercare. That is, aftercare experienced by the RSAT evaluation population does not have an effect on the likelihood of future criminal behavior.^x It cannot be concluded, because of the small numbers of offenders who were exposed to aftercare, that it is not an effective adjunct to the RSAT program

Table 1: Follow Up Criminal Justice Supervision/Treatment

Post-Release Program	Number of Referrals	Percent
Parole	24	13
Probation	17	9
Friends of Prisoners (housing/support)	9	5
Long Term Substance Abuse Treatment	12	6
Total Aftercare	54*	28*
Total RSAT inmates	188	

* The totals are less than the sum of referrals because some offenders have multiple referrals.

. The numbers are simply too small to draw any conclusions.

The two cohort groups are equivalent (See Table 2); they all participated in the RSAT program. The RSAT experience of the offenders varies. Although originally sentenced to at least nine months some inmates were released early. As a result 40 percent of the inmates referred to RSAT did not complete the program because of early release (ER). It should be noted that their failure to complete was the result of actions taken by criminal justice officials, not the inmates themselves^{xi}. Another roughly 20 percent of inmates failed to complete because of noncompliant behavior (Term.). They were returned to the general BHOC population. Although there are nominal differences

**Table 2: Post-Release, Pre-Admission and All RSAT Participants
(January 1999- June 2001)**

Item	Treatment (Post-release)			Control (Pre-admission)			All Participants*		
Age at admission	33			31			32		
Age at first offense	19			19			19		
LSI-R score	27.2			27.7			26.7		
RSAT Experience	Complete	Term.	ER	Complete	Term.	ER	Complete	Term.	ER
Number	23	9	25	24	15	31	81	34	73
Percent	40	16	44	34	21	44	43	18	39

*The all-participant total (188) is greater than the sum of the treatment and control because the dates of admission or release did not always allow a match.

in the RSAT experiences of the three groups in Table 2, the differences are statistically insignificant^{xii}.

To further test the degree of equivalence of the treatment and control groups a log-linear regression was run to determine if differences in the characteristics of the two cohorts allowed the identification of an offender as belonging to the treatment group. The values of the treatment offender variables in contrast to the values of the controls do not identify treatment group offenders. (See Table 3.) On the basis of measured risk factors: age at admission to Barnstable, age at first arrest, RSAT outcome, number of prior convictions, and LSI-R^{xiii} score, the treatment and comparison offenders are equivalent. The two groups do not exhibit significant differences.

Table 3: Results of Logistic Regression Test of Equivalence of Treatment and Comparison Offenders

Item	Variable	Significance level
1	Age at admission to Barnstable	0.533
2	Age at first arrest	0.969
3	Prior number of convictions	0.247
4	LSIR score	0.898
5	RSAT outcome (complete/early release/terminated)	0.321

The offender's criminal history was examined for arraignments and dispositions in chronological order. This allowed the development of the offender's criminal history and the tracking of criminal behavior for a year prior to treatment and a year after treatment. Each defendant's record was examined for any Massachusetts arrests made within twelve months of their release from the Barnstable House of Correction. Although arrested within one year of release, not all arrests were resolved in court during the study period. For this reason, the measure used to determine recidivism includes all distinct arrest incidents that resulted in either at least one conviction or remained open in March 2002. If an incident was tried in court prior to March 2002 and resulted in no convictions, the incident was not considered a new offense constituting recidivism. The

measurement used for recidivism slightly exaggerates the true rate of recidivism.

Invariably a small percent of those inmates charged with new crimes will be found not guilty or the charges will be dismissed for a variety of reasons. Thus, the recidivism rate for the post-release treatment group is slightly overstated.

Because one year was set as the length of time between the release of the treatment offenders and the admission of the controls, not all of the 188 RSAT participants could be assigned to one cohort or the other. One hundred and twenty seven offenders were divided into treatment and control offenders; 57 are in the treatment and 70 in the control.^{xiv} The division of the offenders into treatment and control was done on the basis of a year between the release from the Barnstable House of Corrections for the treatment offender and the admission of the control offender to Barnstable, and the RSAT outcome for each offender. Released RSAT graduates were matched with pre-admission offenders in which the record indicates that their RSAT outcome was the same; they completed RSAT, were released early or were terminated due to their non-compliant behavior. That is, the offenders are matched on their opportunity time for offending and whether they completed RSAT.

The Criminal Behavior of RSAT Participants: Offenders sentenced to the Barnstable House of Corrections have, in the main, lengthy criminal careers. This section documents the several dimensions of their criminality.

Inmates admitted into the RSAT program average a total of 50 complaints on their criminal records. This represents the total number of criminal complaints filed against them in a Massachusetts court since their 17th birthday.^{xv} The number ranges from a low of four to a high of 183. Not all incidents, even those with multiple complaints,

result in a conviction. According to Massachusetts Trial Court statistics, the average criminal incident in Massachusetts generally results in multiple criminal complaints.^{xvi} RSAT inmates had multiple incidents, some of which resulted in no conviction. They averaged, however approximately 13 convictions from these separate incidents, which excludes multiple convictions from the same incident. This measure of criminal activity is clearly a conservative one in terms of involvement in the criminal justice system.

The following case illustrates the process of arrest, the winnowing of complaints, the possibility of conviction on the remaining complaints, and the sentencing experienced by Barnstable inmates. The example defendant had nine separate criminal complaints on his record. The nine complaints, however, resulted from two different incidents. On January 24, 2000 in the Orleans District Court the defendant was charged with "Rape of a Child," two counts of "Intimation" and one count of "Threats." In May, the prosecutors dropped the first charge (*nolle prosequi*) and the rest were dismissed in court. In the interim, however, the defendant was arrested and brought to court on April 26 for another incident that resulted in one complaint of "Rape of a Child," and four complaints for "Indecent Assault and Battery on a Person." The victims were under 14 and over 14. In August of that year, he was sentenced to two and half years on the rape charge. Two of the indecent assault charges were filed.^{xvii} A third resulted in a probationary sentence, and the fourth resulted in a split sentence of two and half years, eighteen months committed on and after the rape sentence and the balance suspended upon his release. In short, the defendant was sentenced to four years in the House of Correction (minus good time and possible parole) followed by probation supervision for several years. For purposes of this

evaluation, his prior number of incidents is counted as one because the earlier incident did not lead to a conviction.

The example illustrates the complexity involved in *counting* in the criminal justice system. Setting measures such as the rate of recidivism within one year, while necessary, adds to the complexity. In the example case, if the arbitrary period for measuring incidents had stopped before August 2000, the defendant would have been recorded as having zero incidents, despite his long involvement with the system. Variable measurement in the justice system requires making reasonable choices.

An analysis of the inmates' prior set of incidents that led to at least one conviction also reveals widespread, general criminal activity in addition to many substance abuse related crimes. They include major motor vehicle crimes, crimes against persons, particularly intimate or domestic partners, crimes against property, as well as crimes against the public order. The following summarizes these criminal dimensions.

1. Substance Abuse Complaints: There were over a thousand drug complaints charged against the inmates referred to the RSAT program. Almost half were for "Possession." In addition, RSAT inmates were charged with drunk driving 408 times,

Table 4: Drug Complaints

Complaint	Number
Possessing Drugs	451
Conspiracy to Violate Drug Laws	144
Distributing Drugs	119
Possession of Hypodermic Needle	102
Possession with Intent to Distribute Drugs	98
Violation of Drug Act	36
Drugs Near School	18
Trafficking	16
Manufacturing Drugs	13
Sale of Drugs	10
Total	1,007

including 16 as second offenders, thirteen charged as fourth offenders, and fifteen charged as third offenders. Thirty more were charged with "Operating Under the Influence of Drugs." Drugs used, when specified in the complaints, covered all classes. An analysis of "Possession" charges, reveals that the most common drugs were Class D, marijuana, followed by Class B, mostly cocaine, and then Class A, mostly heroin. Ninety-three percent of the possession charges were for these three drugs.

Table 5: Drugs Specified in Possession Charges

Drug Class	Common Drug	Number	Percent
D	Marijuana	188	47
B	Cocaine	119	30
A	Heroin	63	16
C	Psychotropic	15	4
E	Prescribed	17	3
Total		402	100

2. Crimes Against Persons: RSAT inmates had numerous complaints for crimes against persons, ranging from two "Murder" complaints, two "Manslaughter" complaints, five "Attempted Murder" complaints and 600 "Assault and Battery" complaints. Included in these crimes were numerous crimes that included assaults and/or abuse against

Table 6: Major Crimes Against Persons Charged

Crime	Number	Percent
Assault and Battery	600	38
Assault and Battery with a Dangerous Weapon	256	16
Assault	149	9
Assault and Battery on a Police Officer	143	9
Threats	139	9
<u>Sub Total:</u> Non-domestic /family crimes	1,287	81
Violations of Abuse Protection Orders	246	15
Assault and Battery Domestic	51	3
Stalking	5	-
<u>Sub Total:</u> Domestic/family crimes	302	19
Total	1,589	100

intimate partners or family members. These constituted almost 20 percent of the total crimes against persons listed. Domestic violence offenses were charged against 36 percent of the RSAT inmates.

An examination of the complaints of "Assault and Battery with a Dangerous Weapon" reveals a large range of weapons used. Most appear to be weapons defendants happened to have available, such as shod feet, beer bottles, or cars. Defendants that were charged with crimes involving firearms were not found because such cases would be sentenced generally to state prison, not the Barnstable House of Correction.

Table 7: Specified Assault Weapons

Weapons	Number
Shod Foot	13
Beer or Other Bottle/Can	13
Motor Vehicle	12
Knife	10
Cue Sticks	7
Baseball Bat	6
Lit cigarette	4
Telephone	3
BB Gun	3
Household Items	2
Other	10

A smaller subset of inmates had prior complaints for sexual assaults. Among them, they had 134 complaints ranging from Attempted Rape to Rape and Indecent Assault and Battery against both adults and children under fourteen. All in all twenty-six RSAT inmates were charged with sexual offenses, totaling almost 14 percent of all RSAT inmates.

3. Major Motor Vehicle Crimes: Inmates had substantial records of major motor vehicle offenses, in addition to "Operating Under the Influence of Drugs or Alcohol." Complaints included "Attaching False Plates," 183, "No Compulsory Insurance," 283,

“Leaving the Scene,” 141 and “Operating Negligently or to Endanger,” 316. In addition, 756 were charged with “Operating After License Revocation.” Not only have a substantial proportion of inmates had their right to operate a motor vehicle taken away because of prior driving offenses or lack of insurance, but many have lost their license as a result of their drug convictions. The loss of licenses appears to make this population particularly vulnerable to additional non-motor vehicle related charges. It is not uncommon to find in reviewing these records that these defendants are commonly stopped for a traffic violation only for police to find they had no valid license. Incident to the subsequent arrest, drugs are then found in their possession.

4. Crimes Against Public Order: Two hundred and thirty-two complaints were brought against these inmates for “Disorderly” or “Disturbing the Peace.”

5. Crimes Against Property/Thefts/Larcenies: There were numerous complaints filed against RSAT inmates for various crimes against property, thefts or larcenies. Over 1,300 complaints were brought for larceny, larceny from a person, building or larceny of property. In addition, 235 complaints were brought for stealing motor vehicles. “Burglary” or “Breaking and Entering” was charged in 685 complaints, robbery in 42 and shoplifting in 179. Another 333 complaints were brought for “Larceny by Check.”

6. Age at First Offense: Another indicator of the criminality of RSAT inmates is their youthful start on their criminal career; most began as teenagers. The median age of their first offense was 18; their average age was 19. Juvenile records were not included or the age of first arrest would have been even lower. Given that the average inmate age at admission into RSAT is 32, this means the average RSAT inmate has been committing crimes as an adult for 13 years before entering the program. Further, this means they

averaged at least one conviction per incident per year since their first conviction. This fits the profile of sustained, chronic offenders.

7. Substance Abuse and the Risk of Recidivism and Criminogenic Needs: Two widely utilized tests, ASUS and LSI-R, administered to at least a portion of RSAT inmates, documents their substance abuse, their criminogenic needs and their risk for recidivism.

In addition to drug abuse history documented by inmates' prior record of drug and alcohol related crimes, the Adult Substance Use Survey (ASUS) further documents the substance abuse problems of RSAT inmates. ASUS is a clinical assessment tool designed to screen for abuse of alcohol and other drugs. It also provides crude mental health screening. It has six scales, five individual measures (substance abuse involvement, disruption, social, mood, defensiveness) and one global measure. Among the 188 RSAT inmates in the study, about one-half (94) of the RSAT inmates were administered ASUS. Disruption severity scores were analyzed. Most RSAT inmates received a "high" or "high-medium" severity rating indicating a severe degree of life-functioning disruption. The average score was 29.91; the median was 27. Any score of 26 or above is considered "high."

Table 8: ASUS Disruption Severity Scale (January 1999 – June 2001)

Disruption Severity	Number	Percentage
Low (1)	3	3
Low-Medium (2-6)	6	6
High-Medium (7-25)	36	38
High (26 or +)	49	52
Total	94	100

The second measure, the Level of Service Inventory – Revised (LSI-R) test was developed to assist correctional personnel in assessing offenders' needs and risk. The

test provides three scores: a profile of criminogenic needs, total risk, and a scale for protective or pro-social factors.

Among the 188 RSAT participants, 130 were screened with the LSI-R inventory. The average score was 26.7. Somewhat more than three-fifths of the RSAT inmates were scored as moderate risk or greater.

Table 9: Total LSI-R Risk Scores (January 1999-June 2001)

Risk	Number	Percentage
Low (0-13)	5	4
Low-Moderate (14-23)	43	33
Moderate (24-33)	53	41
Moderate High (34-40)	19	15
High (40 and higher)	10	8
Total	130	100

The RSAT Outcome: The RSAT program, based on the data in this evaluation, appears to roughly halve the likelihood of an arrest and conviction in the year after release for inmates who complete the program.

These and other outcome results are based on the pre-post single group model and the cohort model. Logistic regression applied to these designs provides estimates of key probabilities. The two models, as expected, do not produce identical results, but they are consistent.

The Treatment-Control Cohort Model: The discussion begins with the cohort model, which can be summarized as follows.

Criminal incident (1,0) = g [RSAT completion (1,0), treatment or control (1,0)]

That is, the likelihood of a criminal incident depends on whether the inmate completed RSAT, net of any separate effect of incarceration alone. Table 10 provides some basic information on the independent variables. These values translate, in Table 11, into the likelihood of a criminal incident for treatment offenders who complete RSAT, those who

fail to complete RSAT, and control offenders before they are incarcerated. Although the recidivism rate for the treatment group is high, as might well be expected for offenders with long criminal records, it is importantly reduced. Public safety is well served.

Table 10: The Values Derived from the Logistic Regression for the Variable Coefficients (B), the Significance Level and the Odds

Variable	B coefficient	Significance	Odds
Constant term	0.391	0.157	1.478
RSAT (complete/ ~complete)	-0.803	0.034	0.448
Treatment group (incarceration)	-0.325	0.374	0.722

Public safety is further served by completion of the RSAT program. Failure to complete RSAT due to a corrections decision for early release of inmates who otherwise could have completed the program and benefited from RSAT, does not appear to be in the best interests of either the offender or public safety.

Table 11: The Probability of a Criminal Incident within One Year for Treatment and Control Offenders

Offender Circumstances	Probability of Criminal Incident	
	Expected	Actual
Control group prior to Barnstable incarceration	0.59	0.52
Treatment group: incarcerated, do not complete RSAT	0.52	0.54
Treatment group: incarcerated, complete RSAT	0.32	0.27

The evaluation broadly distinguishes the separate effects of incarceration and RSAT.

A second important outcome of the evaluation is the usefulness of the LSI-R inventory. The inventory has good predictive power with regard to whether an inmate

will complete RSAT. Table 12 maps the midpoints of the LSI-R scale from low risk to high, and the expected rate of RSAT completion. The average LSI-R score is 26.7. The expected rate of completion on the basis of the LSI-R scores closely approximates the actual RSAT experience. Higher risk inmates are expected to complete at about half the rate of low risk ones. During the evaluation period the LSI-R was not consistently administered; the inventory had not been completed for a number of RSAT participants. Clearly, it has a role to play. It is immaterial whether the LSI-R predicts post-release recidivism. Its effectiveness lies in setting expectations about an inmate's performance in the RSAT program. RSAT, in turn, appears to be effective at deterring recidivism, beyond the effects of incarceration LSI-R should be carefully and fully applied.

Table 12: Comparison of Predicted and Actual RSAT Completion Rates

Risk Distribution		Midpoint	Expected RSAT completion rate E (RSAT=1)	Actual Rate RSAT=1
low	0-7	3.5	0.93	1.0
low	8-15	11.5	0.88	0.86
moderate	16-23	19.5	0.80	0.82
moderate	24-31	27.5	0.69	0.68
moderate high	32-39	35.5	0.55	0.50
high	40-47	43.5	0.41	0.25
high	48-54	51	0.29	-

Although RSAT appears to be effective, only about two-fifths of RSAT participants completed the program, as documented in Table 2. Another two-fifths gained early release, and the remaining one-fifth were terminated. On the basis of the LSI-R, as shown in Table 12, given that the mean LSI-R score is 26.7, about two-thirds of RSAT participants should have been expected to complete the program with an expected recidivism rate of about 32 percent. (Table 11) If two-thirds completed, the expected

recidivism rate for the treatment group, *as a whole*, should have been 39 percent rather than the observed one of 43 percent.

Pre-Post Single Group Model: The second model in the evaluation of RSAT effects is summarized as follows.

Post-incarceration criminal incident (1,0) = f [RSAT completion (1,0), baseline conviction within a year of the conviction that sentenced offender to Barnstable (1,0)]

In simple terms was the likelihood of arrest and conviction after RSAT significantly less than baseline likelihood of arrest and conviction in the year previous to incarceration? Table 13 provides some basic information on the independent variables for the pre-post logistic regression. RSAT completion contributes to a significant reduction in post-incarceration criminal incidents within the first year after release. Arrest and conviction in the year prior to the arrest that sent the offender to Barnstable does not significantly change the likelihood of a post-incarceration conviction within one year.

Table 13 The Values Derived from the Logistic Regression for the Variable Coefficients (B), the Significance Level and the Odds

Variable	B coefficient	Significance	Odds
Constant term	-0.293	0.263	0.746
RSAT (complete/ ~complete	-0.548	0.080	0.578
Arrest in prior year	-0.048	0.877	0.953

Table 14 below compares the observed and estimated outcomes for the 188 offenders in the pre-post RSAT model.

In general, the model estimates that offenders who did not complete RSAT had a higher recidivism rate than those who did complete, regardless of their baseline likelihood of an incident in the year prior to the arrest and conviction that sent them to

Table 14: The Probability of a Criminal Incident within One Year of Incarceration

Probability of a Post Barnstable Criminal Incident if there was...	Observed	Model Estimate	N
No prior incident and did not complete RSAT	0.49	0.43	45
No prior incident and did complete RSAT	0.38	0.30	42
Prior incident and did not complete RSAT	0.37	0.41	60
Prior incident and did complete RSAT	0.24	0.29	41

Barnstable. RSAT participants who failed to complete, for whatever reason, had an estimated probability of recidivism between 0.43 and 0.41. RSAT participants who completed the program had a probability of recidivism between 0.29 and 0.30.

The observed patterns for RSAT participants have a wider spread than the estimated patterns, but the weighted averages for the observed outcomes are similar to the estimated ones. A test of the fit indicates that the model provides a good one.^{xviii}

Specifically, RSAT participants who failed to complete, for whatever reason, had an observed, weighted probability of recidivism of 0.42, while the probability of recidivism for RSAT participants who completed the program was 0.31. The likelihood of recidivism for offenders who have completed RSAT is significantly less, at a 0.95 level of confidence, than those who failed to complete.

As it has been noted before the failure to complete RSAT was usually due to early release. That is, failure to complete is a Barnstable administrative decision, rather than a treatment decision or a decision by the offender. It is common in the measurement of the success of criminal rehabilitation to include in the success measure outcomes for those who complete treatment and those who participate, but fail to complete the program. By this measure the likelihood of arrest and conviction decreased from 0.54 to 0.36. If this difference is tested as a binomial proportion, the confidence interval for the baseline level of criminal incident is 0.47 – 0.61. That is, the probability is 0.95 that baseline probability

of arrest and conviction for RSAT participants is between the limits 0.47 and 0.61; the post-Barnstable recidivism rate is outside these limits at 0.36.

Finally, jail seems to have little or no effect on the likelihood of recidivism for these career criminals, as was true in the cohort model. The weighted, observed average of recidivism for offenders who did not complete RSAT is 0.42 and the observed likelihood of conviction in the year prior is 0.54. At a confidence level of 0.95 this difference is not significant. It should be noted, however, that the sample size for the study is small and the power may not be sufficient to identify differences that might be found in a larger sample.

Summary of the Statistical Results: The evaluation employs two models to test for the effectiveness of RSAT to reduce the rate of recidivism of inmates jailed at the Barnstable House of Corrections. The first divides the records of 188 RSAT participants into two cohorts of 57 and 70 participants respectively. One cohort reflects the year prior to their arrest and sentencing to Barnstable, while the second cohort measures their arrests and convictions one year after Barnstable. The cohorts are constructed so that both cohorts are “on the street” at the same time. The objective of constructing a treatment and control group who are on the street at the same time results in some offenders being excluded. The second model is a simple pre-post design using all the observations (N=188) with the offenders arrest behavior in the year prior to their sentencing the Barnstable as the baseline, and their recidivism behavior one year after Barnstable as the outcome.

Table 15 summarizes the results of the two models. While the two models estimate somewhat different results, they are consistent; RSAT completion significantly

reduces the likelihood of recidivism during the following year, and that the effect is large enough that when non-graduates are included, the program shows reduced recidivism rates. These results can be understood, for example, by reading down the table columns for the Expected Outcomes. The probability of recidivism within a year of release for all RSAT participants is significantly lower than their pre-RSAT likelihood of arrest and conviction. Also, the recidivism of RSAT graduates is significantly lower than RSAT non-graduates. The level of significance is 0.95.

Table 15: The Likelihood Results for the Cohort and Pre-Post Models

Subgroup Probabilities	Expected Outcomes		Actual Outcomes	
	Cohort Model	Pre-Post Model	Cohort Model	Pre-Post Model
Pre-RSAT arrest and conviction	0.59	0.54	0.52	0.54
Recidivism RSAT all participants	0.44	0.36	0.42	0.38
Recidivism RSAT non-graduate	0.52	0.42	0.54	0.42
Recidivism RSAT graduates	0.32	0.31	0.27	0.31

The Recidivist Crimes: The new crime charges for recidivists were much like the old ones. Table 16 documents the most common serious offenses lodged against the inmates after release for any period of time. The “other” charges include 3 sex offenses,

Table 16: New Offenses Committed Subsequent to Release from RSAT and the Barnstable House of Correction

Criminal Incident	Number
Major Motor Vehicle (Op. After. Revoc.)	23
Drunk Driving	13
Possession Alcohol	5
Drug Offenses	16
Crimes Against Persons (Assault and batteries with/ without weapons)	17
Violations of Restraining Orders	13
Larceny	12
Breaking and Entering	11
Shoplifting	6
Disorderly	5
Other	16

2 rapes of children and 1 indecent assault and battery as well as four who resisted arrest.

Concluding Comments: The study data and discussions with RSAT and corrections officials suggests several programmatic and administrative changes to improve RSAT success.

1. **RSAT Admission Criterion:** To the extent possible, officials should try to restrict admission into the RSAT program inmates who will be able to complete it. Non-completion due to early release not only disrupts the RSAT program for early released inmates and their peers who remain in the program, but also reduces the chances of these inmates avoiding arrest within one year of release from the Barnstable House of Correction. Early release inmates are as likely to recidivate as those who are terminated from the program due to non-compliance by their own misbehavior. Non-completers who attend at least part of the program do not appear to gain from it. Discussions with RSAT program professionals feel that it takes about 4 months before you begin to see a change in attitude; small dosages of RSAT are ineffective.

2. **Target High Risk Inmates in RSAT:** Inmates who have the highest risk for recidivism as measured by the LSI-R should be targeted for either a more intensive program or more rigorous aftercare upon release or both to mitigate future recidivism. The program may wish to consider a lengthier program for said inmates and/or correctional officials may wish to explore a more systematic system of aftercare to insure both continued abstinence from drugs and/or alcohol and supervision/surveillance in the community. Subsequent recidivism indicates not only continued substance abuse, but also general criminal behavior. It appears that employment and money management are essential ingredients of any successful aftercare program.

3. Protecting RSAT intimate partners from further abuse: Due to the serious risk faced by the intimate partners of RSAT inmates, the program or the House of Correction should incorporate elements of batterer intervention treatment into its programming. In addition, prior victims of these inmates should be alerted when these inmates are to be released and victims should be referred for victim safety and/or assistance programs in their communities. Given the number of RSAT inmates with active restraining orders, coupled with the high number released directly to the community without supervision, they represent a continuing threat to their victims. Sixty-nine, or a little more than one-third of the RSAT inmates, had convictions for domestic violence. These included mostly assault and batteries coded as domestic and violations of protective orders as well as a handful of stalking, threats, and non-support convictions. Of these inmates, the average had three domestic charges on his record, two that resulted in convictions. One inmate had 21 domestic violence charges. Thirty-seven of the inmates were incarcerated on at least one of the domestic convictions, either as part of the initial sentence or a subsequent probation violation.

Many more inmates had domestic violence charges filed against them that did not result in convictions or were not coded as "domestic." There are no specific "domestic violence" crimes in Massachusetts. Police are supposed to code crimes as "domestic." While police appear to code "assault and battery" crimes as "domestic," they did not code any "assault," "assault with a dangerous weapon," or "assault and battery with a dangerous weapon" as "domestic," suggesting substantial under reporting of domestic assault related crimes pertaining to these inmates.

The study found that RSAT inmates, upon release, were charged with 13 abuse prevention order violations. While the majority of RSAT inmates were not incarcerated as a result of domestic violence, it is apparent that a substantial minority are serious and/or chronic domestic abusers. The danger they present to victims upon their release should be incorporated into correctional programming both in terms of offender treatment and victim notification.

4. Use of LSI-R to Determine Parole Release: While LSI-R does predict risk of recidivism broadly; RSAT completion is a much better predictor of future recidivism. Parole officials should be guided by RSAT completion, rather than LSI-R in calculating risk of recidivism upon release. For this same reason, officials should consider requiring RSAT completion as a condition of being considered for parole.

Future Research: The current research follows inmates for one year after release from the Barnstable House of Correction. The study should be extended for another two to three years to see if the apparent beneficial effects of RSAT are replicated by additional RSAT participants, whether suggested administrative changes, if implemented, bolster the public safety effects, and whether RSAT participants continue to fare better in the community than those who do not complete the program. It may be the benefits of the program fade over time; the dosage effect of RSAT is unknown

A future study should compare RSAT participants with the other Barnstable inmates sentenced to nine months or more to compare RSAT completers and non-completers compare to inmates who are eligible for the program, but are not selected to participate. While it is true the RSAT is specifically designed for substance abusers, it is also true that according to the initial RSAT process evaluation, the general Barnstable

inmate population also suffered from equivalent levels of substance abuse as measured by prior criminal history. Depending upon the outcome of this study, RSAT may be under or over utilized by the House of Correction. It should be noted that currently, RSAT is serving slightly less than half of inmates sentenced to nine months or more in the Barnstable House of Correction. Only 17 percent of those sentenced to at least nine months at BHOC completed the RSAT program.

Other RSAT programs in other Houses of Correction also warrant examination to see if the Barnstable is unique or representative of RSAT programs across the Commonwealth.

ⁱ Short treatment programs are felt to be ineffective. *Principles of Drug Addiction Treatment*, NIDA, 1999.

ⁱⁱ The data for this report come from three sources. The Criminal History Systems Board supplied the criminal histories of the RSAT participants. Data on offender age, entry and discharge dates was supplied by the Barnstable County House of Corrections, and data on offender scores on psychological inventories and offender outcome in the RSAT program was supplied by AdCare Criminal Justice Services, the administrators of the Barnstable RSAT program.

ⁱⁱⁱ *Barnstable House of Correction Residential Substance Abuse Treatment: A Process Evaluation* (June 2000), Massachusetts Executive Office of Public Safety Programs Division and BOTEC Analysis Corporation.

^{iv} <http://abstractsdb.ncjrs.org/content/AbstractsDB/search.asp>

^v Browning, K., and S. Orchowsky (1995) *Evaluation of the Department of Corrections' Substance Abuse Treatment Programs: Prison-based Therapeutic Communities*, Richmond, VA: Virginia Department of Criminal Justice Services. Eisenberg, M., and T. Fabelo (1996), *Evaluation of the Texas Correctional Substance Abuse Treatment Initiative: The Impact of Policy Research*, *Crime and Delinquency*, Vol.42 (2), 296-308. Inciardi, J.A., S.S. Martin, C.A. Butzin, R.M. Hooper, and L.D. Harrison (1997) *An Effective Model of Prison-Based Treatment for Drug-Involved Offenders*, in K.C. Haas and G.P. Alpert (eds.) *The Dilemmas of Punishment*, Prospect Heights, IL: Waveland Press, Lipton, D. (1996) *Prison-Based Therapeutic Communities: Their Success with Drug-Abusing Offenders*, *National Institute of Justice Journal*, February 1996, p.12-20; Lockwood, D. J.A., Inciardi and H. Surratt (1995), *CREST Outreach Center: A Model for Blending Treatment and Corrections*, In J. Inciardi, B. Fletcher, P. Delany, and A. Horton (eds.) *The Effectiveness of Innovative Approaches in the Treatment of Drug Abuse*, Westport, CT: Greenwood Press; Martin, S.S., C.A. Butzin and J.A. Inciardi (1995), *Assessment of a multi-stage Therapeutic Community for Drug-Involved Offenders*, *Journal of Psychoactive Drugs*, 27(1): 109-116; Wexler, H.K. (1995), *Success of Therapeutic Communities for Substance Abusers in American Prisons*, *Journal of Psychoactive Drugs*, 27(1) 57-66.

^{vi} For example, see Donald T. Campbell and Julian Stanley, *Experimental and Quasi-experimental Designs for Research*, Chicago: Rand McNally, 1966, p.8.

^{vii} The proposed synthetic design draws upon the works of Donald T. Campbell and Thelma H. McCormack, *Military Experience and Attitudes Toward Authority*, *American Journal of Sociology*, Vol. 62, 1957 p. 489-490. Huey-Tsych, *Theory Driven Evaluations*, Sage Publications, 1990, p.146-147, writes concerning synthetic designs, that such designs integrate two or more designs having different strengths,

but not sharing the same biases. If empirical results from such multiple designs are consistent, the overall synthetic design provides a stronger causal inference than either of the original designs.

The design in this study has also been used successfully in the evaluation of energy conservation programs to control selection bias, an important concern of the RSAT outcome study. See Tim Newcomb, *Conservation Program Evaluations: The Control of Selection Bias*, *Evaluation Review*, Vol.8, No.3, June 1984, p.425-440 and Linda Berry, *Residential Conservation Program Impacts: Methods of Reducing Self-Selection Bias*, *Evaluation Review*, Vol.7, No.6, December 1983, p.753-775.

For a discussion of selection bias and suggestions for its control see Lawrence B. Mohr, *Impact Analysis for Program Evaluation*, 2d Edition, Sage Publications, 1995, p.225-246.

^{viii} For a discussion of the importance of centralized selection of program participants to the strength of a quasi-experimental design see Lawrence B. Mohr, *Impact Analysis for program Evaluation*, 2d Edition, Sage Publications, 1995, p.228-230.

^{ix} Regression to the mean is a problem when comparing O1+O3 and O2+O4. Specifically, observed improvement in O2 and O4 may reflect covariance of the pre and post behaviors of the offenders rather than new treatment driven behavior supported by new attitudes, knowledge and goals. It is not a problem when comparing O2 and O3; they are not the same offenders, but are considered equivalent by Barnstable classification personnel who make the RSAT recommendations.

^x The likelihood of new charges after release from Barnstable is independent of whether aftercare was in place. That is, $Pr(\text{criminal incident} | \text{aftercare support}) = Pr(\text{criminal incident}) * Pr(\text{aftercare support})$.

^{xi} The reader should note that while early release is endogenous to Barnstable House of Corrections, it is exogenous to the RSAT program, which is operated by a contractor. This contrasts to many drug abuse programs in the literature in which dropping out is endogenous to the program. The endogeneity of dropping out is rarely incorporated either conceptually or econometrically in drug abuse rehabilitation studies.

^{xii} A chi-square test of All Participants and Pre-admission participants, which contains the largest nominal differences, is not statistically different at the 0.10 level.

^{xiii} The level of Service Inventory - Revised (LSI - R) is a screening tool to help correctional personnel assess an offender's risk of re-offending by scaling criminogenic needs and pro-social factors. Don A. Andrews and James Bonta as a comprehensive risk/needs assessment developed the LSI-R. The assessment supplies practitioners with criteria to identify treatment targets, monitor offender risk, assist in probation, supervision, and placement decisions, and determine the likelihood of recidivism. The LSI-R sample both major and minor risk factors, identified by theory and research that can assist in directing attention to dynamic or changeable facets that represent reasonable targets of intervention. The LSI-R provides three basic scores: a total risk score, a profile for criminogenic need and a scale of protective factors. The total risk score is a general guideline for classifying risk levels. The profile for criminogenic need consists of ten sub-scales. The sub-scale scores are standardized to percentage scores. The higher percentages can be used as first indicators of the offender's salient criminogenic needs. The final score is the scale for protective factors or pro-social behavior. The resulting score of this scale is inversely related to the total risk score. Offenders with low protective factors would be expected to have high total risk scores.

^{xiv} For a discussion of the desirability of over-matching see Paul R. Rosenbaum, *Observational Studies*, 2d Edition, New York: Verlag-Springer, 2002, Chapter 10.

^{xv} These could also include offenses committed by some inmates as juveniles that were serious enough to be treated as adult complaints.

^{xvi} Klein A. (1996) Re-Abuse in a Population of Court-Restrained Male Batterers. In Buzawa, E & Buzawa, C. (Eds.) *Do Arrest and Restraining Orders Work?* Thousand Oaks, CA: Sage, 192-214. The rate in 1990 was two complaints per arrest.

^{xvii} A finding of "guilty" is entered, but no other disposition is imposed.

^{xviii} Robert S. Pindyck and Daniel L. Rubinfeld, *Econometric Models and Economic Forecasts*, 4th Edition: Irwin-McGraw-Hill, 1998, p.312. They write that the difference between the actual frequencies and the estimated frequencies is distributed according to the chi-square distribution where the number of degree of freedom is the number of subcategories (G) minus the number of estimated parameters, in this case two. The smaller the chi-square the better the fit. By this measure the fit between the observed and the estimated is a good one. The chi-square measure is 2.84 with 2 d.f.

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