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**Evaluation of Prison-Based  
Therapeutic Community Drug Treatment Programs  
in Pennsylvania**

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*Final Research Report Submitted to the  
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# Table of Contents

<b>Executive Summary</b>	<b>4</b>
<b>I. Project Description</b>	<b>12</b>
Literature Review	13
Research Questions	16
The PA-DOC/Temple Research Partnership	17
<b>II. Methods</b>	<b>19</b>
Research Design	19
Procedures	24
Data Confidentiality and Human Subjects Protection	25
Dependent Variables	26
Independent Variables	29
Sample Characteristics	38
Analytic Approach	46
<b>III. Results</b>	<b>48</b>
Program Descriptions	48
Within-Program Changes	54
Recidivism Findings	59
<b>IV. Conclusions and Recommendations</b>	<b>89</b>
Post Release Outcomes	89
Inmate Characteristics	93
Treatment Process	100
Programmatic Variations	103
Information Systems	106
Limitations	109
Conclusion	110
<b>References</b>	<b>112</b>
<b>Appendices</b>	<b>124</b>
Appendix 1. Subject Consent Form	
Appendix 2. TCU Drug Screen	
Appendix 3. TCU Resident Evaluation of Self and Treatment (REST)	
Appendix 4. TCU Counselor Rating of Client (CRC)	

## **List of Tables**

Table 1. Summary of Measures and Sources of Data	28
Table 2. Number of Inmates Participating in AOD Programs at Five Prisons	40
Table 3. Number and Type of Treatment Program Discharges at Five Prisons	42
Table 4. Sample Characteristics by Comparison vs. Experimental Group	44
Table 5. TC Program Descriptors	52
Table 6. Inmate Characteristics by TC Program: Oneway ANOVA	53
Table 7. Mean REST Scores: Paired Sample T-Tests, Time 1 – Time 2	57
Table 8. Mean CRC Scores: Paired Sample T-Tests, Time 1 – Time 2	58
Table 9. Number and Type of Releases from Five Prisons by Program Type	61
Table 10. Stepwise Logistic Regression of Reincarceration	66
Table 11. Survival Analysis: Life Tables for Reincarceration	70
Table 12. Stepwise Logistic Regression of Rearrest	74
Table 13. Survival Analysis: Life Tables for Rearrest	78
Table 14. Stepwise Logistic Regression of Drug Relapse	84
Table 15. Survival Analysis: Life Tables for Drug Relapse	88

## **List of Figures**

Figure 1. Framework for Research Design	23
Figure 2. Estimated Probabilities of Reincarceration for Comparison and TC Groups	67
Figure 3. Estimated Probabilities of Reincarceration by Post-Release Employment Status	68
Figure 4. Estimated Probabilities of Reincarceration by Institution	69
Figure 5. Estimated Probabilities of Rearrest for Comparison and TC Groups	75
Figure 6. Estimated Probabilities of Rearrest by Post-Release Employment Status	76
Figure 7. Estimated Probabilities of Rearrest by Institution	77
Figure 8. Estimated Probabilities of Drug Relapse by Comparison Group	85
Figure 9. Estimated Probabilities of Drug Relapse by Post-Release Employment Status	86
Figure 10. Estimated Probabilities of Drug Relapse by Institution	87

## **EXECUTIVE SUMMARY**

### **Evaluation of Prison-Based Therapeutic Community Drug Treatment Programs in Pennsylvania**

This project built upon a collaborative research partnership between Temple University and the Pennsylvania Department of Corrections (PA-DOC) that began in 1999. A Steering Committee consisting of senior executive, research and treatment personnel from the Pennsylvania Department of Corrections and Center for Public Policy researchers was formed to guide research activity and facilitate the department's overall research agenda. This group continues to meet regularly to provide oversight of the research process and consider the larger organizational and policy issues that the research raises. Steering Committee members participated in the entire oversight of this project. Findings were regularly presented and discussed at Steering Committee meetings, and members provided numerous helpful comments on an earlier version of this report.

#### **Project Goals and Objectives**

An in-prison Therapeutic Community is an intensive, long-term, highly structured, residential treatment modality for hard-core drug users convicted of a criminal offense. TC emphasizes the necessity of the inmate taking responsibility for his/her behavior before, during, and after treatment.

Several evaluations of in-prison TC have produced promising results. However, studies have been criticized for small sample sizes, faulty research designs (e.g., selection and attrition biases), and inadequate attention to interactions between inmate characteristics, treatment process, and treatment outcomes. No studies have examined prison-based TC across multiple sites nor attempted to include programmatic and contextual variations in analyses of outcome. Numerous questions remain about the potential impacts of unmeasured variations in inmate characteristics, treatment programs, and multiple outcome measures.

In this study, we examined individual and programmatic factors associated with effective drug treatment across multiple sites. We examined relationships between inmate characteristics, treatment process, and treatment outcomes, and discussed critical issues in prison based drug treatment programming and policies. We formulated recommendations intended to assist correctional agencies in designing, implementing, and evaluating programs that are responsive to the drug treatment needs of their prison populations.

### **Research Design and Methodology**

We examined in-treatment measures and multiple post-release outcomes for 2,809 inmates who participated in TC drug treatment programs (n = 749) or comparison groups (n = 2,060) at five state prisons. Matched comparison groups made up of TC-eligible inmates participating in less intensive forms of treatment (e.g., short-term drug education and outpatient treatment groups) at the same five institutions were constructed based upon known predictors such as drug dependency, need for treatment and criminal history. Process and outcome measures incorporated a range of institutional, intermediate (e.g., attitudinal and behavioral change, participation in treatment) and post-release measures (e.g., drug relapse, rearrest and reincarceration, employment, levels of parole supervision). At the time of this report, 462 TC inmates and 1152 Comparison inmates had been released from prison, with follow-up periods extending up to 26 months (mean = 13 months). The two groups did not differ significantly on amount of time at risk since their release from prison. We continue to track releases and recidivism for the entire sample.

Below we summarize our major findings, recommendations and conclusions. Details of analyses and further discussion are provided in the full Final Report for this project.

### **Major Findings**

- Offenders in TC received 15 times the treatment “dose” that the Comparison group received.
- We found positive effects of TC treatment upon reincarceration and rearrest rates, but not drug relapse rates (Table I).

- Post-release employment strongly and significantly reduced the likelihood of drug relapse, rearrest, and reincarceration (Table II).

**Table I**  
**Effects of TC vs. Comparison Group on Three Measures of Recidivism**

	Comparison Group	TC Group	
<b>Reincarceration Rate</b>	<b>41%</b>	<b>30%</b>	*
<b>Rearrest Rate</b>	<b>33%</b>	<b>24%</b>	*
<b>Drug Relapse Rate</b>	<b>39%</b>	<b>35%</b>	

\*p < .05

Note. Statistics shown are based on logistic regression results where all control variables including a categorical variable indicating membership in the TC vs. Comparison Group were entered into analyses. Results shown thus reflect outcomes controlling for the effects of all other variables (see *Results* section in full report for further detail).

**Table II**  
**Effects of Post-Release Employment on Three Measures of Recidivism**

	Full-Time	Part-Time	Unemployed and Able to Work	Unemployed and Unable to Work	
<b>Reincarceration Rate</b>	<b>17%</b>	<b>26%</b>	<b>24%</b>	<b>65%</b>	*
<b>Rearrest rate</b>	<b>21%</b>	<b>34%</b>	<b>27%</b>	<b>41%</b>	*
<b>Drug Relapse rate</b>	<b>30%</b>	<b>39%</b>	<b>38%</b>	<b>44%</b>	*

\* p < .05

Note. Statistics shown are based on logistic regression results where all control variables including a categorical variable indicating membership in the TC vs. Comparison Group were entered into analyses. Results shown thus reflect outcomes controlling for the effects of all other variables (see *Results* section in full report for further detail).

- Treatment outcomes were generally invariant across institutions, with one important exception.

Significantly higher rates of drug relapse were observed for inmates treated at Cresson (44%) and Houtzdale (43%) compared to Waymart (24%), Huntingdon (32%), and Graterford (35%).

- TC inmates evidenced numerous, positive improvements in psychosocial functioning and involvement in treatment over the first six months of treatment, as indicated by subscales of the TCU Resident Evaluation of Self and Treatment (REST) form, and the TCU Counselor Rating of Client (CRC) form. TC inmates showed significant decreases in *depression* and *risk-taking behavior*, and significant increases in *self-esteem*, *therapeutic engagement*, *personal progress*, *trust in group*, *opinions of program staff*, and *perceptions of counselor competence*. The strongest area of consistency across the five TC programs was in the high ratings that inmates gave of counselor rapport and counselor competence.
- Each unit, while implementing the basic TC philosophy, also exhibited some programmatic variations. For example, two of the five TC units were rather large (100+ inmates). Large units make it difficult to properly implement the TC philosophy, which depends heavily upon positive peer interactions. Second, while the overall termination rate for TC (26%) was reasonable, one program (Waymart) was very low (5%); another (Graterford) was very high (71%).
- Eighteen REST scales and eight CRC scales measuring various dimensions of inmate psychosocial functioning and responses to treatment were then entered into logistic regression analyses as predictors of the three measures of recidivism (controlling for all other variables). Significant predictors of reincarceration included anxiety, hostility, therapeutic engagement, counselor rapport, ratings of program structure, and rapport with other inmates. No additional predictors of rearrest were statistically significant. Significant predictors of drug relapse included self-efficacy, risk taking, and self-confrontation.
- The validity of our findings were bolstered by the fact that we that we were able to precisely account for total treatment exposure for all inmates in our sample, and we examined the effects of treatment exposure as a control variable. Previous studies have failed to do so.

## **Limitations**

- The major limitation was the brevity of the follow-up periods and associated sample sizes available for multivariate analyses so far. As more inmates are released, and as average time at risk increases, we will revisit the analyses and conclusions formulated in this report.
- Our ability to examine post-release outcomes was limited by the unavailability of automated data regarding participation in aftercare treatment. Aftercare may interact with employment and other observed predictors to influence outcomes. Further research should examine ways to better integrate prison-based drug treatment with post-release needs and resources.
- It was difficult to determine the degree to which employment was a cause or an effect. To do so, it would be useful to obtain more detailed information on parolees' type of post-release employment, employee performance, income, etc. To disentangle potential causes, research should also determine how other factors (e.g., intelligence, cognitive abilities, education, in-prison and pre-prison work history, job training) might interact with drug treatment to influence post-release outcomes (employment, drug relapse, reincarceration and rearrest).
- However, none of the control variables examined in this study (e.g., assessed level of need for drug treatment, prior and current offense severity, age) substantially weakened the observed relationship between employment and reduced recidivism, leading us to conclude that the effect of post-release employment is quite robust.

## **Conclusions and Recommendations**

Nine recommendations are summarized in Table III, along with the specific findings supporting each. For a research partnership to develop and grow, research results must to some degree be localized, short-term, timely, useable, and policy-relevant. For the results to be of wider interest, though, general principles and recommendations applicable to prison-based drug treatment must also be generated. Some

recommendations are specific to the particular correctional system examined (Pennsylvania); most are generalizable to other jurisdictions as well. DOC has thoroughly studied these recommendations and provided to researchers detailed information on current and proposed strategies, as well as gaps in need of system wide attention. Responses by DOC to each recommendation are described in the body of the full report.

Policies regarding prison-based drug treatment should focus on strengthening and enhancing TC quality and implementation so as to maximize treatment effects. Guidelines formulated by professional associations and informed by both clinical practice and research suggest that the bar could profitably be raised. Where TC is sufficiently intense but supportive, treatment engagement should be intentionally maximized.

The effects of TC were statistically significant and encouraging, although not unqualified. TC significantly lowered the likelihood of reincarceration and rearrest, but the effects of TC on rearrest or drug relapse failed to reach statistical significance. Post release employment emerged as the strongest predictor of recidivism.

Further policy-relevant research should continue to explore and evaluate productive strategies in these directions, while at the same time examining more detailed interactions between inmate characteristics, treatment process, and outcomes across multiple sites.

**Table III**

**Policy Issues and Recommendations**

<b>Recommendation</b>	<b>Findings Supporting Recommendation</b>
1. Correctional officials, in cooperation with Parole, Probation, Community Corrections Centers (CCC's) and privately contracted Community Correctional Facilities (CCF's) should further explore and evaluate strategies to enhance post-release employment prospects.	Post-release employment was strongly related to a lower likelihood of reincarceration, rearrest, and drug relapse.
2. Correctional administrators, working with researchers, drug treatment specialists, and program managers, should examine whether existing procedures aimed at improving inmates' therapeutic engagement and retention in the program can be strengthened.  3. DOC administrators should work with drug treatment specialists and correctional program managers to monitor compliance with recently implemented drug treatment standards and policies. For example, administrators should ensure that selection criteria for TC and other program types are consistently implemented so that program participants reflect appropriate levels of treatment need.	We found some inconsistencies in inmate selection and termination procedures across the five institutions. For example, two TC programs tended to recruit older, lower-risk inmates than the other TC programs. Attrition rates varied substantially (5 – 71%) across TC programs.
4. Correctional administrators should carefully monitor the implementation of assessment, screening and program placement procedures specified by treatment policies. Monitor drug treatment program placements at each institution to ensure that high-need inmates are assigned to high-intensity treatment programs.	Many high-need inmates (e.g., high offense gravity scores, high need for drug treatment) were assigned to less intensive Outpatient programs rather than TC.
5. Correctional administrators should regularly review, update and verify critical data fields entered into automated information systems. Critical data fields include data elements that are used to guide program eligibility, selection and placement decisions.	Considerable variability was observed in time remaining to minimum release date. Missing data on other fields (e.g., scores on drug screening measures) hampered some analyses.
6. Correctional administrators, working with researchers, drug treatment specialists, and program managers, should review standards for assessment of inmate psychological needs at each institution, as well as procedures for ensuring that such needs are addressed during the course of an inmate's treatment.	TC inmates may in some cases have psychological needs that are not being fully addressed, as indicated by REST (inmate self-report survey) and CRC (counselor ratings) change scores and coefficients predictive of recidivism.

<b>Recommendation</b>	<b>Findings Supporting Recommendation</b>
<p>7. Correctional administrators, working with drug treatment specialists and correctional program managers, should examine whether current resources devoted to program quality assurance are sufficient. A good model is provided by the Statewide Integrated Quality Assurance Model (SIQAM) for prison-based TC programs. This model is based upon the TC framework developed by DeLeon (2000) and critical program standards jointly developed by Therapeutic Communities of America (TCA) and the American Correctional Association.</p>	<p>Two of the TC programs did not use pull-ups or “Learning Measures,” and individual counseling was provided inconsistently across most programs.</p>
<p>8. Correctional, parole and probation officials should ensure that appropriate levels of aftercare treatment are being identified and provided to inmates upon their release from prison. DOC and PBPP administrators should work together to further develop and strengthen automated procedures for tracking inmate post-release behavior, including but not limited to compliance with conditions of supervision.</p> <p>9. Correctional officials should continue to strongly support the development of offender-based treatment information systems.</p>	<p>At the time of this study, there was a lack of computerized data on several measures (e.g., admissions and discharges from prison-based treatment programs, participation in aftercare treatment) that would facilitate program evaluation.</p>

## I. Project Description

Drug-involved offenders account for a large proportion of crime. The time that these offenders are incarcerated affords a critical opportunity to break the cycle of drug abuse and recidivism by providing effective treatment. While several evaluations of prison-based drug treatment have produced promising results, especially for intensive, residential Therapeutic Community (TC) programs, studies have been vulnerable to criticisms of inadequate research design, compromised program implementation, and/or inadequate measures of treatment process and outcome. For example, in well-publicized studies of prison-based TC and aftercare in Delaware, the major outcome measures (drug relapse, rearrest) were based primarily on inmate self-reports (Inciardi et al., 1997). Few studies have examined effects across multiple sites.

The purpose of this project was to examine multiple post-release (up to 2 1/2 years) outcomes for inmates who participated in TC drug treatment programs or comparison groups at five Pennsylvania State Correctional Institutions (SCI's). This task was greatly facilitated by inmate and program data previously collected through a Research Partnership between the Department of Corrections and Temple University. With post-release (outcome) data added through the current study sponsored by PCCD, this unique database provides one of the most comprehensive sources of information on prison-based drug treatment ever assembled, allowing researchers to examine critical interactions between client selection, program structure and process, inmate responses to treatment and outcomes.

Matched comparison groups made up of TC-eligible inmates participating in less intensive forms of treatment (e.g., short-term drug education and outpatient treatment groups) at the same five institutions were constructed post-hoc based upon known predictors such as drug dependency, need for treatment and criminal history. Process and outcome measures incorporated a range of institutional (e.g., misconducts),

intermediate (e.g., attitudinal and behavioral change, participation in treatment) and post-release measures (e.g., drug relapse, rearrest and reincarceration).

### ***Literature Review***

Offenders who have a severe drug problem are responsible for a high proportion of crime (Ball et al., 1983; Chaiken, 1989; Inciardi, 1979). The Arrestee Drug Abuse Monitoring (ADAM) program tracks drug use among booked arrestees in 35 large urban areas. During the year 2000, 65% of adult male arrestees tested positive for at least one illegal drug (Taylor et al., 2001).

The Center on Addiction and Substance Abuse (CASA) (1998) reported that 60 to 80% of all prison inmates (federal, state, and county) have been involved with drug use or drug-related crimes in some fashion. Of \$38 billion in correctional expenditures in 1996, more than \$30 billion was spent incarcerating individuals with a history of drug and/or alcohol abuse. For chronic users, activities and behaviors surrounding drug acquisition and use pervade their lifestyle (Johnson et al., 1985; Walters, 1992). Many of these drug-abusing offenders are repeatedly incarcerated, but untreated, with the result that a high proportion relapses into drug use and crime after release. Drug-using felons are a primary source of failure on parole (Wexler, Lipton, & Johnson, 1988).

As of year-end 2001, 1.96 million inmates were incarcerated in U.S. jails and prisons, a rate of 686 per 100,000 adults (up from 458 in 1990). Drug offenders accounted for 20% of the growth in the State inmate population from 1990 to 2000 (Harrison and Beck, 2002). About 2 out of 3 inmates admit drug histories, but less than 15% receive any systematic treatment while in prison (Mumola, 1999). The time that drug-involved offenders are incarcerated presents a unique opportunity to provide them with treatment. More than 70 percent of active street addicts have never been in treatment nor intend to enter treatment for their addiction (Lipton et al., 1989; Peyton, 1994). The need for expanding drug abuse

treatment was recognized in the Violent Crime Control Act of 1994, which for the first time provided substantial drug treatment resources for Federal and State jurisdictions.

A growing body of literature suggests that in-custody treatment, especially intensive Therapeutic Community (TC) programming, can be effective in reducing relapse and recidivism among seriously drug-involved offenders (Lipton et al., 1992; Lipton, 1995; Pearson & Lipton, 1999; Simpson, Wexler and Inciardi, 1999). The Therapeutic Community (TC) approach to drug abuse treatment has existed for about 40 years. A TC is a drug-free residential setting which provides a highly structured pro-social environment for the treatment of drug abuse and addiction. It differs from other treatment approaches principally in its use of the community as the key agent of change, in which treatment staff and recovering clientele interact in both structured and unstructured ways to influence attitudes, perceptions, and behaviors associated with drug use.

The TC uses a staged, hierarchical model in which treatment stages are related to increased levels of individual and social responsibility. Peer influence, mediated through a variety of group processes, is used to help residents learn and assimilate social norms and develop more effective social skills. The therapeutic approach generally focuses on changing negative patterns of thinking and behavior through individual and group therapy, group sessions with peers, and participation in a therapeutic milieu with hierarchical roles, privileges, and responsibilities. Strict and explicit behavioral norms are emphasized and reinforced with specific contingencies (rewards and punishments) directed toward developing self-control and responsibility.

The TC has evolved over time to become a comprehensive treatment model adapted to many types of patients and offering a wide range of treatment services. In-prison TC is an intensive, long-term (12 months), highly structured, residential treatment modality for hard-core drug users convicted of a criminal offense. In particular, TC emphasizes the necessity of the inmate taking responsibility for his/her

behavior before, during, and after treatment. TC inmates play an important role in structuring group norms and sanctions.

Inmates typically move through three phases of treatment in a 12-month TC program. The first phase consists of orientation, diagnosis, and an assimilation process. In the second phase, lasting 5 to 6 months, inmates are expected to take on increased responsibility and involvement in the program. Those who have been in the program longer are expected to share their insights by teaching new members and assisting in the day-to-day operation of the TC. Group counseling sessions focus on self-discipline, self-worth, self-awareness, respect for authority, and acceptance of guidance for problem areas. Seminars take on a more intellectual approach. Debate is encouraged as a means of self-expression. During the third phase, preparation for community reentry, which lasts 1 to 3 months, inmates strengthen planning and decision making skills and design their individual aftercare plans.

The effectiveness of TC drug treatment for convicted offenders has been examined in a handful of jurisdictions. Evaluations of New York's Stay'n Out program (Wexler, Falkin, & Lipton, 1990; Wexler, Lipton, Falkin & Rosenbaum, 1992), Oregon's Cornerstone Program (Field, 1984, 1989, 1992), Delaware's Key-Crest programs (Inciardi, 1995; Inciardi et al., 1997; Martin et al., 1999), California's Amity Prison TC program (Wexler, 1995; Wexler et al., 1999), the Texas In-Prison TC (Knight, Simpson, Chatham, & Camacho, 1997; Knight, Simpson and Hiller, 1999), and the Federal Bureau of Prisons Triad program (Pelissier et al., 2000) have illustrated the potential of prison-based TC drug treatment.

The most recent and state-of-the-art research on prison-based TC was reported in a special issue of the *Prison Journal* (1999, Volumes 3 & 4). Evaluations of prison-based treatment were described in three states (California, Delaware, and Texas) that have mounted major treatment initiatives in correctional settings. The three studies all used a common time interval (3 years) for tracking follow-up outcomes, including performance indicators extracted from official criminal justice records in each state.

Each found that graduates of prison TC have lower rates of rearrest, drug relapse, and return to custody than comparison samples, especially when prison TC is combined with structured aftercare following release from prison. In Delaware, for example (Martin et al., 1999), 3-year follow-ups showed that rearrest rates were lowest for those who graduated prison TC and successfully completed an aftercare program (31%). Those who completed TC but no aftercare still did significantly better (45%) than those who dropped out (72%) or those who received no treatment (71%). In California (Wexler et al., 1999), those who successfully completed prison TC plus aftercare showed a rearrest rate of 27% in 3-year follow-up studies, compared to 75% for a no-treatment comparison group. In Texas (Knight, Simpson & Hiller, 1999), those who completed TC plus aftercare had a 3-year rearrest rate of only 25%, compared to 42% of a no-treatment comparison group.

### ***Research Questions***

While evaluation results are promising, many studies of prison TC have been vulnerable to criticisms of inadequate research design, unknown or compromised program implementation, and/or inadequate measures of treatment process and outcome (Austin, 1998; Fletcher & Tims, 1992). Furthermore, self-selection is the main guide inmates use to navigate through treatment options, which complicates the clarity of scientific interpretations (Simpson, Wexler, & Inciardi, 1999). We need to know more about risk factors that represent barriers to treatment participation and completion (Hiller, Knight & Simpson, 1999) as well as ways to engage inmates in the treatment process more effectively (Blankenship, Dansereau & Simpson, 1999). More research is needed to understand and describe the essential components and processes of TCs, to delineate the relevant mechanisms through which TCs achieve their effectiveness, and to understand how and why treatment outcomes vary for different offenders (Inciardi et al., 1992). Research questions of the present study included the following:

- Which kinds of inmates benefit most from in-prison TC programs?
- Which inmate and program characteristics best predict treatment participation and completion?
- Which inmate and program characteristics impede treatment participation and completion, and how?
- How are inmate treatment needs assessed, and how do needs assessments influence program placement decisions and treatment planning?
- How effective are in-prison TC drug treatment programs in reducing drug relapse and recidivism rates (e.g., rearrest and reincarceration)?
- Do in-prison therapeutic community drug treatment programs improve the “survival rates” (i.e., length of time without drug relapse, rearrest or reincarceration) of released offenders?

### ***The PA-DOC/Temple Research Partnership***

A **Steering Committee** consisting of senior executive, research and treatment personnel from the Pennsylvania Department of Corrections and Temple University researchers was formed in January of 1999 to guide research activity and facilitate the department’s overall research agenda (Welsh, 2001; Welsh & Zajac, 2001; Welsh et al., 2001). This group continues to meet regularly to provide oversight of the research process. They also consider the larger organizational and policy issues that the research raises within the Department of Corrections.

The Steering Committee has been meeting regularly since January of 1999. We emphasize an interactive approach that involves key stakeholders in the identification of research needs, goals, and procedures. While the specific research projects undertaken so far are certainly important, we see the continued development of an ongoing working research relationship between DOC and Temple University as a primary goal, increasing the capacity of both agencies to produce and exploit useful knowledge.

The Department's drug and alcohol programming is grouped into four major categories: (1) *Drug and Alcohol Education Programs* offered to inmates identified as having any level of drug and alcohol involvement; (2) *Outpatient Treatment Programs* offered to inmates who are in need of more intermediate levels of intervention, including individual and group counseling sessions; (3) *Therapeutic Communities* offered to inmates identified as needing intensive substance abuse intervention; and (4) *Ancillary Groups*, such as self-help and peer counseling, offered to inmates as a supplement to other treatment, or when slots are not available in the more intensive treatment modalities<sup>1</sup>.

A demonstration research project during the first year of the partnership focused on Alcohol or Other Drug (AOD) programming in state prisons, including three main elements: 1) a descriptive assessment of AOD programming (via program surveys and a one-day symposium staff), 2) an on-site process evaluation of AOD programs at two institutions, and 3) design of an outcome evaluation design based on analyses of findings from the process evaluation.

We designed a survey of DOC drug and alcohol treatment programs (N = 118). Surveys collected three types of descriptive information: 1) program content (e.g., type, duration), 2) staff characteristics (e.g., duties and responsibilities), and 3) inmate characteristics (e.g., eligibility, intake procedures). A one-day symposium with AOD treatment personnel was held June 2 at the Correctional Academy in Elizabethtown, PA. We presented survey results, including similarities and differences in AOD programming across institutions, and discussed implications for AOD programming and evaluation.

Using process evaluation methods (e.g., observing programs in action, interviewing staff and inmates, and reviewing inmate files), we conducted in-depth, on-site assessments of AOD programming at two institutions selected by the Steering Committee: SCI - Huntingdon and SCI - Houtzdale. Process evaluation research was conducted during the summer of 1999.

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<sup>1</sup> Note. All ancillary (self-help groups) such as NA/AA are excluded from the current study. Only AOD education or treatment services provided by DOC staff are included.

With the assistance of funding from the National Institute of Justice, we began collecting outcome evaluation data in January of 2000 (Welsh, 2002). We examined Therapeutic Community programs at five institutions (Huntingdon, Houtzdale, Cresson, Graterford, and Waymart). These five institutions were selected because they all had well-established Therapeutic Community programs operated by department staff, as well as a full range of other AOD (e.g., Education, Outpatient) programs. Additional funding provided by PCCD (October 1, 2001 – December 31, 2002) allowed us to extend the post-release follow-up period of the original study by collecting and analyzing an additional year of data including reincarceration, rearrest, and drug relapse. The Steering Committee continues to provide oversight and review of the entire research process.

### III. METHODS

#### ***Research Design***

Matched comparison groups made up of TC-eligible inmates participating in less intensive forms of treatment (e.g., short-term drug education and outpatient treatment groups) at the same five institutions were constructed post-hoc based upon known predictors such as drug dependency, need for treatment and criminal history. Process and outcome measures incorporated a range of institutional (e.g., misconducts), intermediate (e.g., attitudinal and behavioral change, participation in treatment) and post-release measures (e.g., drug relapse, rearrest and reincarceration).

Essential to the task of creating a valid research design is the creation of adequate comparison groups. Formal *classification assessments*<sup>2</sup> and *drug and alcohol assessments*<sup>3</sup> on all inmates were

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<sup>2</sup> The *Pennsylvania Additive Classification Tool* (PACT) is designed to evaluate the offender's custody and security level requirements based on the nature of current and prior offenses, prior institutional and assaultive behavior, escape history, time to release, and program/work/housing performance, as well as stability factors such as marital status, age, and educational level.

<sup>3</sup> Up until the end of December 2000, DOC used the *Pennsylvania Department of Corrections Screening Instrument* (PACSI) to determine if an inmate had a problem with substance abuse. The instrument assesses previous and current drug use (frequency and type), physical and emotional effects, effects on life circumstances (e.g., relationships, employment, school, family), and previous and current involvement in treatment. The PACSI results in a need for treatment score that ranges from 0

conducted. We examined average scores on the *Pennsylvania Department of Corrections Screening Instrument* (PACSI) and the *TCU Drug Screen*<sup>4</sup> for inmates in each program, and we determined how many inmates fell into low, medium, or high need categories. If TC clients were all “high need” clients, for example, then valid comparison groups would need to consist of high need clients also.

While the advantages of randomized research designs are well known, many programs including state-mandated Alcohol or Other Drug (AOD) programs are obligated by concerns of legality and ethicality to select clients on the basis of their need and suitability for treatment. In such cases, randomization is often not feasible. However, a strong research design is afforded by the opportunity to use *matched controls* to form comparison groups (see for example Rossi and Freeman, 1989). Many high need inmates may receive less intensive forms of treatment (e.g., Outpatient or Drug Education only) due to a shortage of intensive treatment slots. Critical to the matching process is the use of matching criteria closely related to the outcome criteria (e.g., recidivism and drug use).

Matching must be sensitive to the three principles of risk, need, and responsivity derived from empirical research. First, effective programs clearly differentiate between low-risk and high-risk clients (Andrews et al., 1990; Gendreau, 1996). High-risk cases should receive high levels of intervention and services; low-risk cases should receive minimal intervention. Second, criminogenic *needs* are dynamic (i.e., changing) risk factors that are predictive of recidivism (e.g., antisocial cognitions and emotional states, association with antisocial peers, substance abuse, weak self-control and problem solving skills). Programs that effectively target and reduce such individual needs accomplish larger decreases in re-

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- 10. This screening process was designed to determine who can benefit from treatment and which general category of substance abuse treatment was best suited for each inmate. As of January 1, 2001, DOC began using the TCU Drug Screen (the same instrument used in this study) to screen all inmates for AOD treatment needs (Simpson, 1994; Simpson and Knight, 1998). In fact, the Department’s adoption of that instrument was largely in response to recommendations made by Temple researchers as a result of the research partnership between the two agencies (Welsh, 2001).

<sup>4</sup> The TCU Drug Screen has been widely used and validated with inmate populations, and has evidence excellent reliability (Broome, Knight, Joe and Simpson, 1996; Peters et al., 1999). Score values of 3 or greater indicate relatively severe drug-related problems, and correspond approximately to DSM drug dependence diagnosis.

offending. Third, programs that *appropriately* target the specific needs and learning styles of their clients are more effective.

One of the drawbacks of matching is that many cases drop out as the number of matching variables increases. It is thus paramount to use a small number of relevant predictors to select candidates for the comparison group. Using *aggregate matching*, overall distributions in the experimental and control groups are made to correspond on the criterion variables. Although *individual matching* is more precise (i.e., a “partner” for each treated client is selected from the unexposed group of offenders), individual matching is far more expensive, time-consuming, and difficult to execute for a large number of matched variables. Research has consistently indicated the priority of several static predictors of criminal behavior: offender age, age at first arrest, number of previous convictions (property, person, or drug offenses), and prior history of drug use (Andrews et al., 1990). These data items were available from Pennsylvania Department of Corrections data systems.

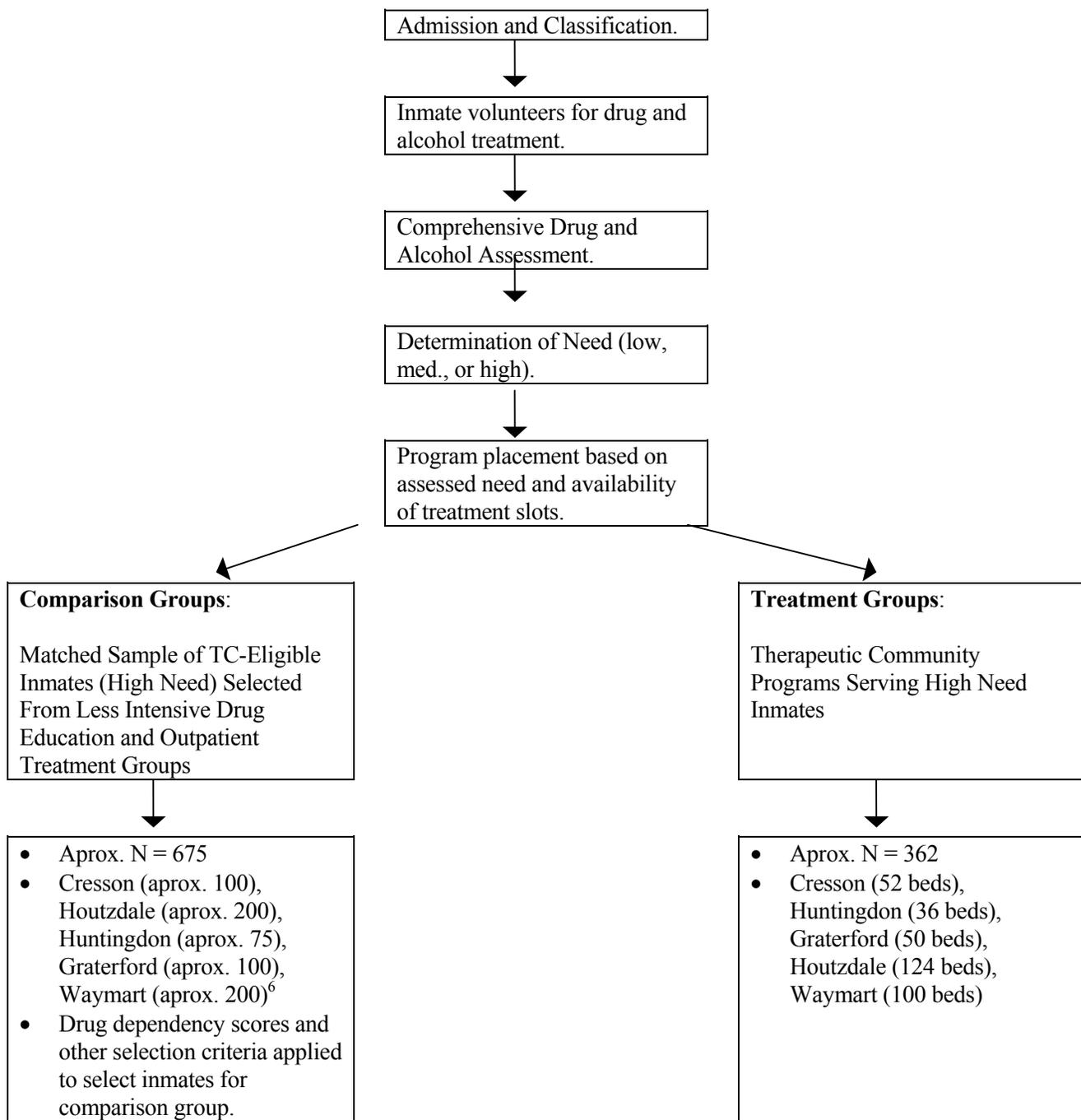
In the interests of selecting inmates for the comparison groups to be as similar to inmates in the treatment group (e.g., therapeutic community) as possible, the eligible pool consisted of all those offenders who were eligible for participation in a Therapeutic Community (TC) treatment program. Because a shortage of space precludes intensively treating all those who were assessed with a high need for drug and alcohol treatment, a large pool of eligible offenders who were assigned to less intensive forms of treatment (e.g., outpatient treatment, drug education, or ancillary groups) was accessible. The use of matching criteria and/or statistical controls in data analyses reduced the comparison group to those who most closely resembled the treatment group.

With the assistance of DOC, we identified major descriptors of drug and alcohol programming at all DOC institutions, including the number of treatment slots at each institution for inmates assessed with varying levels of need (Welsh, 2001). Seven institutions (at that time) carried a full range of drug and alcohol programs including TC: Cresson (Security Level 3, pop. = 1,302), Dallas (Security Level 3, pop. =

1,695), Graterford (Security Level 4, pop. = 3,638), Houtzdale (Security Level = 3, pop. = 1,500), Huntingdon (Security Level 4, pop. = 1,668), Muncy (Female, Security Level 4, pop. = 872), and Waymart (Security Level 2, pop. = 1,218)<sup>5</sup>. Cresson has 52 TC beds; Dallas has 64 TC beds, Graterford has 50 TC beds, Houtzdale has 120 TC beds, Huntingdon has 36 TC beds, Muncy has 50 TC beds, and Waymart has 100 TC beds. Of these six institutions, two differed significantly from the others. The Dallas TC is privately contracted, and treatment content and structure was somewhat different from the DOC-operated programs. Muncy, one of two female institutions in the state, provides highly structured D & A programming, but targets a unique population with unique needs. Finally, research attention to treatment process, geographical distances between institutions, and the complexity of follow up data collection favored limiting the scope of the current project to five institutions. We thus focused our evaluation efforts on TC programs at Cresson, Graterford, Houtzdale, Huntingdon, and Waymart (see Figure 1).

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<sup>5</sup> Custody levels vary from 1 (minimum) to 5 (disciplinary custody).



**Figure 1. Framework for Research Design.**

<sup>6</sup> Oversampling was used to select eligible inmates for comparison groups, so as to offset expected sample attrition due to program non-completion and/or transfer.

## **Procedures**

Inmates were identified and selected for comparison and treatment groups using the criteria described above. Based on current and new admissions to TC, we aimed for a treatment sample of about 362. We included in our treatment sample all current TC residents as of January 1, 2000. We then added new subjects to the study (new admissions after January 1, 2000) as they were admitted to treatment programs. For previously admitted TC residents, we had a limited amount of time to collect institutional and intermediate measures (e.g., responses to and perceptions of treatment, psychosocial and social functioning) before any inmates graduated the program. However, we were still able to collect basic process (e.g., admission and discharge dates, inmate characteristics) and outcome data (reincarceration, rearrest and drug relapse) for this cohort, and thus maximize our sample size.

With a combined TC capacity of 362 and an anticipated attrition rate of about 20%, we expected an initial sample of about 450 TC inmates over the one-year data collection period. We expected a final sample of about 360 inmates to have completed TC treatment prior to their release from prison. Using oversampling to reduce higher anticipated attrition from less intensive Education and Outpatient programs (perhaps as high as 50%), we aimed for an initial comparison sample of about 1,350 inmates, with no less than 675 expected to complete the programs they were assigned to.

All inmates in the treatment and comparison groups had previously undergone *initial assessment* via the normal DOC inmate classification system. Inmates in both groups also completed the Pennsylvania Corrections Screening Instrument (PACSI), the TCU Drug Screen, or both<sup>7</sup>. TC clients were asked to complete additional self-report measures (described below) that tapped psychological

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<sup>7</sup> While all inmates entering Pennsylvania state prison prior to January 1, 2001 were supposed to be assessed on the PACSI at the time of their classification, valid scores were missing from the database for a number of inmates. However, all inmates participating in the research study were asked to complete the TCU Drug Screen. Because some inmates had a score on one instrument, some inmates had another, and some inmates had both scores, statistical analyses utilized only standardized z-scores rather than raw scores on these instruments.

constructs and inmate perceptions of the treatment experience, and TC counselors were asked to complete periodic reassessments of each inmate's participation in treatment. The only other difference was that TC clients received much more intensive treatment services, while the comparison groups received much less intensive levels of treatment (which were assessed and factored into analyses as control variables) until their release.

Inmate self reports of treatment process and psychological functioning were gathered within 30 days after admission, again after 6 months, again at the end of 12 months, and again at discharge if the inmate remained in TC longer than 12 months. Counselor ratings of inmate participation in treatment were similarly gathered one month, 6 months, and 12 months following admission to treatment. After release, treatment and comparison groups were tracked over time to monitor rearrest, reincarceration, drug use, and employment.

### ***Data Confidentiality and Human Subjects Protection***

Participation in DOC drug treatment programs is voluntary, and inmates grant their written consent to DOC to participate in treatment and in legitimate research examining treatment effects. DOC follows strict guidelines regarding informed consent and confidentiality of data collected from inmates under their authority. Where additional testing of inmates was required for program evaluation purposes, principles of informed consent were closely maintained and adhered to. All research procedures were cleared with the Department of Correction's Research Review Committee, as well as its Office of Chief Counsel. Temple researchers also received approval from their Institutional review Board (IRB). Inmates were informed that their participation in the research was voluntary, and they were asked to sign a Subject Consent Form (see Appendix 1). Researchers retain the responsibility to maintain the security and confidentiality of all information obtained from DOC inmates during all data collection and analyses.

At no time was any inmate's identity associated with the reporting of any data collected for research purposes.

### ***Dependent Variables***

Measures can be broken down into institutional indicators, intermediate or “proximal” outcomes, and post release indicators (see Table 1). Institutional indicators focus upon program impacts that are internal to the prison environment. For example, the number of misconducts for inmates who participate in a given program can be compared to the number of misconducts committed by inmates who have not participated in specific programs to partially gauge the impact of the program upon inmate adjustment to the prison environment.

Intermediate or “proximal” outcomes refer to reductions in risk and criminogenic needs or values. Measures of treatment process and individual change, implemented in collaboration with DOC treatment staff and members of the Research Partnership Steering Committee, included a combination of client surveys and questionnaires, counselor ratings, and prison records (see below). Factors that may influence drug treatment outcomes include inmate demographics (age, gender, ethnicity); life history (previous drug use, employment, and criminality), psychological status (e.g., depression, anxiety, intelligence), prior drug treatment, current program fit (e.g., fit between treatment services and inmate needs), length of time in treatment, degree of engagement in treatment, and perceptions of the usefulness of treatment (Inciardi et al., 1997).

Post-release indicators focused upon program participant behavior upon release from incarceration. Major post-release indicators examined were drug use and recidivism: whether clients relapsed to drug use or not (including frequency and type of drug use), were rearrested or not, were reincarcerated or not, and amount of time elapsed before rearrest or reincarceration (survival). We were also interested in monitoring participation in employment or employment-related activities (e.g. job

training) by the released offender. The Pennsylvania Board of Probation and Parole tracks paroled offenders from the time of their release from prison until their parole period has expired. Rearrest data were accessible through State criminal records, maintained by the Pennsylvania State Police.<sup>8</sup>

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<sup>8</sup> The Pennsylvania Commission on Crime and Delinquency (PCCD) provides access to rearrest data and dispositions.

**Table 1****Summary of Measures and Sources of Data**

<b>Measures</b>	<b>Source Of Data</b>
<b>Inmate Background Factors</b>	
Offenders' employment, family relations, cognitive skills, attitudes toward drug use and criminality, and antisocial values.	<ul style="list-style-type: none"> <li>• Pennsylvania Addictive Classification System (PACT)</li> <li>• Pennsylvania Department of Corrections Screening Instrument (PACSI)</li> <li>• TCU Drug Screen</li> </ul>
Demographics (age, ethnicity); life history (previous drug use, employment, and criminality), psychological status (e.g., depression, anxiety, intelligence), prior drug treatment (number and type of admissions).	<ul style="list-style-type: none"> <li>• Pennsylvania Addictive Classification System (PACT)</li> <li>• Pennsylvania Department of Corrections Screening Instrument (PACSI)</li> <li>• TCU Drug Screen</li> </ul>
Assessed need for AOD treatment.	<ul style="list-style-type: none"> <li>• Pennsylvania Department of Corrections Screening Instrument (PACSI)</li> <li>• TCU Drug Screen</li> </ul>
<b>Institutional Indicators: Impacts Internal To The Prison Environment</b>	
Misconducts (number and type)	<ul style="list-style-type: none"> <li>• DOC Misconduct Database</li> </ul>
Levels Of Program Participation	<ul style="list-style-type: none"> <li>• Research and Program Records</li> <li>• TCU Resident Evaluation of Self and Treatment (REST) forms</li> </ul>
Drug Abuse Violations in Prison	<ul style="list-style-type: none"> <li>• DOC Misconduct Database</li> <li>• Random Inmate Selection Process (RISP) for Drug Testing</li> </ul>
<b>Intermediate Or "Proximal" Outcomes: Reductions In Risk For Drug Use And Criminal Behavior</b>	
Treatment Process (e.g., length of time in treatment, degree of involvement in treatment)	<ul style="list-style-type: none"> <li>• Research and Program Records</li> <li>• TCU Counselor Rating of Client (CRC) forms</li> <li>• TCU Resident Evaluation of Self and Treatment (REST) forms</li> </ul>
Inmate ratings of treatment program features, participation in therapeutic groups, counselor attitudes and behavior, resident attitudes and behavior, counseling sessions, and motivation for treatment.	<ul style="list-style-type: none"> <li>• TCU Resident Evaluation of Self and Treatment (REST) forms</li> </ul>
Psychosocial Functioning (self-esteem, depression, anxiety, decision-making) and Social Functioning (e.g., hostility, risk-taking, and social conformity).	<ul style="list-style-type: none"> <li>• TCU Resident Evaluation of Self and Treatment (REST) forms</li> </ul>
<b>Post Release Indicators: Inmate Behavior Upon Release From Prison</b>	
Relapse to Drug Use (type of drug, frequency of use)	<ul style="list-style-type: none"> <li>• PA Board of Probation and Parole (incl. drug tests)</li> </ul>
Rearrest or Warrant Issued (number and type of offenses; survival rate)	<ul style="list-style-type: none"> <li>• PA State Police Records provided by Pennsylvania Commission on Crime and Delinquency (PCCD)</li> </ul>
Reincarceration (number and type of offenses; survival rate)	<ul style="list-style-type: none"> <li>• DOC Inmate Records System</li> </ul>
Parole Violation or Revocation	<ul style="list-style-type: none"> <li>• PA Board of Probation and Parole</li> </ul>
Post-Release Employment Status (e.g., full-time, part-time, unemployed and able to work, unemployed and unable to work)	<ul style="list-style-type: none"> <li>• PA Board of Probation and Parole</li> </ul>

**Independent Variables**

## TCU Drug Screen

The TCU Drug Screen, created by researchers at Texas Christian University, is a screening tool used to determine the overall level of drug use and dependency of an individual (see Appendix 2). The items in this screening tool represent key clinical and diagnostic criteria for substance dependency as they appear in the DSM and NIMH Diagnostic Interview Schedule. This instrument has shown good validity and reliability in numerous studies of correctional populations (see Broome, Knight, Joe and Simpson, 1996; Shearer and Carter, 1999; Simpson, Knight, and Broome, 1997).

The TCU Drug Screen focuses on daily functioning and the frequency of drug use by inmates prior to incarceration. The instrument includes questions about the use of specific drugs, including the major categories of drugs and alcohol. It asks probing questions concerning problems relating to drug use, including the physical illness that the inmate goes through, psychological issues that the inmate is forced to deal with because of drug use, and the consequences of drug use (e.g., adverse effects on friends, family, and employment).

The inmate's score on the drug screen (0 to 9) helps determine the inmate's level of need for treatment. According to scoring criteria for the TCU Drug Screen, score values of 3 or greater indicate relatively severe drug-related problems, and correspond approximately to DSM drug dependence diagnosis. Once an inmate reaches his home institution, treatment counselors generally complete a more in-depth assessment of treatment needs, including clinical and diagnostic interviews.

The TCU Drug Screen was first created in 1993, growing out of a larger screening instrument called the Brief Background Assessment (BBA). In a study of probationers admitted to the Community Restitution and Treatment Center (CRTC) in Fort Worth, Texas, Broome, Knight, Joe, and Simpson (1996) investigated the degree of agreement between interview-administered and self-administered assessments of the BBA. A high agreement was found between the two distinct administration methods (Simpson et al., 1997).

Peters, Greenbaum, Steinberg, Carter, Ortiz, Fry and Valle (2000) examined the effectiveness of several screening instruments including the TCU Drug Screen and the Addiction Severity Index (ASI) in detecting substance abuse disorders among prisoners. The study included a sample of 400 male inmates admitted to the Holliday Transfer Facility in Florida. This reception facility was designed to provide an initial assessment of inmates during their first 14-60 days in the state prison system. The test-retest reliability was reported as a Pearson product-moment correlation coefficient, which has a range of -1 to 1. The TCU Drug Screen fared extremely well on this measure, obtaining a test-retest reliability of .95.

Screening instruments were also examined for their utility in identifying alcohol or drug dependence disorders, using the DSM-IV Structured Clinical Interview as a criterion (Peters et al., 2000). The TCU Drug Screen had a high overall accuracy in detecting drug or alcohol dependence (82.1% agreement with the Structured Clinical Interview for DSM-IV). The instrument resulted in relatively few “inappropriate” referrals (the positive predictive value was 83.5%). Sensitivity, which refers to the proportion of dependent participants who were correctly identified by the TCU-DS as dependent, was assessed at 84.9%. Based on its positive predictive value, sensitivity, and accuracy, the TCU Drug Screen was found to be among the most effective instruments for identifying substance abuse and dependence disorders in an inmate population (Peters et al., 2000).

#### Resident Evaluation of Self and Treatment (REST)

An excellent instrument designed to assess inmate psychosocial functioning and perceptions of the treatment process is the TCU *Resident Evaluation of Self and Treatment* (REST) (Knight et al., 1997; Simpson, 1994). The REST (see Appendix 3) includes inmate ratings of perceptions of drug-related problems and psychological functioning, treatment program features, participation in therapeutic groups, counselor attitudes and behavior, resident attitudes and behavior, and counseling sessions (both group and individual). Items also include measures of the inmate’s motivation to seek treatment (e.g., *treatment*

*readiness*), another variable that has been found to influence treatment outcomes (Broome, Knight, Knight, Hiller & Simpson, 1997; Czuchry, Dansereau, Sia, & Simpson, 1998).

The REST allows researchers to pose myriad questions about an inmate's responses to treatment and it allows researchers to observe changes over time (i.e., "dynamic" risk factors). The REST consists of 111 questions organized into 18 subscales. All scales have evidenced good reliability and have been validated upon inmate treatment populations (Simpson and Knight, 1998). Item response categories are based on a Likert scale that ranges from 1 ("Strongly Disagree") to 7 ("Strongly Agree").

The TCU ***Psychosocial Functioning*** scales include standardized measures of psychological adjustment (e.g., self-esteem, depression, anxiety, decision-making) and social functioning (e.g. childhood problems, hostility, risk-taking, and social conformity). Psychopathology frequently coexists with drug abuse (Woody, McLellan, Luborsky, and O'Brien, 1990). Feelings of loneliness, sadness, intense pressure from the outside world, and feelings of inadequacy are among the psychological states linked to drug-abusing individuals (Knight, Holcolm, and Simpson, 1994:2).

Self Esteem. Self-esteem has been positively related to drug treatment outcomes. For example, Berry and Sipps (1991) found that clients with low self-esteem tend to spend less time in drug treatment programs and are less likely to successfully complete treatment. Prior research has shown the self-esteem scale, consisting of six items, to have a high (.74) alpha reliability coefficient (Simpson, Knight, and Ray, 1993).

Depression. The second scale is a measure of *depression*. Untreated depression can have negative effects on treatment. A depressed individual may commit acts that, although risky and disruptive, help pull them out of their depression (Malow, Corrigan, Pena, Calkins, and Bannister, 1992). The depression scale has consistently displayed high alpha coefficient reliabilities (Simpson, 1991, Simpson and Knight, 1998). Simpson (1991) reported a test-retest reliability coefficient of .86. Evidence of validity of the depression subscale of the REST comes from its high correlation with the Beck Depression Inventory

(Simpson et al., 1992). The Beck Depression Inventory (BDI) is a 21-item self-report instrument designed to determine the relative depression of an individual (Beck and Steer, 1987). The Depression scale typically offers coefficient alphas typically above .80 (Hiller, 1996), and Simpson & Joe (1993a) reported a test-retest reliability coefficient of .86 for this scale.

Anxiety. A third scale measures the *anxiety* of the inmate. Malow et al. (1992) found that higher levels of anxiety were significantly related to higher levels of drug use and that higher levels of anxiety contributed to riskier health-related behavior. Prior research has shown an acceptable (.78) alpha reliability coefficient (Simpson & Joe, 1993a), and Simpson (1991) reported a test-retest reliability of .84 for the anxiety scale using a sample of substance abusers on probation.

Self Efficacy. The *self-efficacy* scale is taken from the Pearlin Mastery Scale (Pearlin and Schooler, 1978). This scale was created in a study looking at the structure of coping mechanisms that people use to cope with various life strains. Using scheduled interviews with approximately 2300 people aged 18-65, Pearlin and Schooler (1978) designed a questionnaire that focused on potential life strains, conflicts, frustrations, and threats, as well as coping responses. Life strains may include issues related to marriage, parenting, financial strain, and occupational stressors. The goal of the researchers was to identify coping resources available to each interviewee, including social resources (interpersonal networks) and psychological resources (personality characteristics such as self-esteem, self-denigration, and mastery). Individuals generally have three types of coping strategies, including responses that change the situation; responses that control the meaning of the experience before the emergence of stress; and responses that function to control stress after its onset. Knight, Holcolm, and Simpson (1994) reported a high alpha reliability coefficient for this scale (.79), showing a high test-retest correlation on a subsample of 130 substance abuse treatment facility clients.

The second set of subscales included on the REST deal with the *social functioning* of the inmate, including hostility, risk taking, and poor socialization. The need for this subset of scales has been

established by previous research (Chien, 1980; Powell and Taylor, 1992; Simpson and Joe, 1993a).

According to Knight, Holcum & Simpson (1994), the original scale construction relied on the DSM-III classification system.

Hostility. *Hostility* refers to aggression that an inmate feels toward others. Questions ask about urges to fight, getting mad, carrying weapons, and feelings of mistreatment at the hands of others. Chien (1980) found that high levels of hostility are often present in individuals that have a history of drug abuse. The hostility subscale has shown high reliabilities across a number of studies (Knight et al., 1994), with coefficient alphas typically exceeding .75 (Simpson and Joe, 1993a). In a study of probationers, a test-retest reliability of .88 was found (Simpson, 1991).

Risk Taking. A second social functioning scale focuses on the *risk taking* attributes of the inmate. Questions concern the chances the inmate has taken in life, the dangerousness of his actions, and the excitement he perceives from committing certain acts. Studies strongly support the notion that drug and alcohol abusers tend to be great risk takers (Chien, 1980, Murray and Singer, 1988). Risk taking is negatively correlated with self-esteem and social conformity (Simpson and Joe, 1993a, Simpson et al. 1992). Simpson and Joe (1993a) reported an alpha reliability coefficient of .73 for this scale; high test-retest reliabilities have also been found (Simpson, 1991).

Social Conformity. Questions in this scale pursue the inmate's feelings about honesty, rules and laws, friendships, job longevity, religion, and family importance. Chien (1980) argues that addicts have a deep mistrust of others, and that they tend to approach interpersonal relationships according to what personal rewards they are able to extract from their affiliations. The social conformity scale has displayed adequate alpha reliability coefficients, typically around .65 or higher (Simpson and Joe, 1993a).

Treatment Readiness. The REST also includes the treatment readiness scale taken from the TCU Treatment Motivation Assessment (Joe, Knezek, Watson, & Simpson, 1991; Simpson and Joe, 1993b). The treatment readiness scale asks questions regarding an inmate's perceptions that treatment could help,

or whether treatment would be too demanding for them to complete. Overall, the motivation of the offender to seek treatment can be a critical factor. Resistance to treatment, including the use of defense mechanisms, provides a key obstacle to realizing the full potential of drug treatment (Miller, 1985). Simpson et al. (1997) state that the first stage of treatment readiness involves recognition and acknowledgement by individuals that they are having problems caused by their drug use, particularly in terms of their legal, health, and psychosocial functioning. The second stage of treatment readiness reflects an expressed need for obtaining help, and the third addresses specific commitments to drug treatment services. Hiller et al. (2002) reported an alpha coefficient of .72 for this scale.

External Pressures. External pressures refer to the legal and social pressures felt by the inmate to take part in drug treatment. Items ask about an inmate's perceptions that a recurrence of drug use could cause imprisonment, legal stipulations that might require the inmate to be in treatment, whether urine monitoring forces the individual to get clean or remain in prison for a full prison term, and the desire for early release (i.e., parole). Other pressures to seek, receive or remain in treatment may include pressure from family members or other intimates. This measure is similar to a scale created by Anglin and colleagues (Anglin et al., 1989; Anglin & Hser, 1990; Brecht, Anglin, and Wang, 1993) and later replicated by Hiller et al. (1998).

Therapeutic Engagement. This scale measures the degree to which an inmate is actively involved with and participating in the treatment process. Items assess how an inmate feels and shows concern for others during counseling, ability to confront others in their treatment group about their true feelings, willingness to share feelings, ability to give support and understanding to others, and desire to offer honest feedback to others. The engagement of the individual is recognizable by looking at patient behaviors, including attendance in treatment programs and individual counseling sessions, as well as perceptual measures.

Counselor Rapport. This scale examines the extent to which the inmate feels that counselors support him in the drug treatment program. Items ask about how easy counselors are to talk to, the degree to which counselors respect the inmates, the understanding the counselors have for inmates, and the help offered to the inmates by the counselors. Hiller et al. (2000) reported a coefficient alpha of .90 for this scale.

Counselor Competence. Counselor competence is defined as how qualified or skilled the inmate feels the treatment counselors of the therapeutic community are. Items ask about the level of counselor preparation and organization, how well developed their treatment plans are, the counselor's abilities to teach useful ways to solve problems, and the degree to which inmates feel motivated and encouraged by their counselors. Hiller et al. (2000) reported a coefficient alpha of .93 for this scale.

Program Structure. This seven-item scale assesses the degree to which the inmate perceives that TC meetings and activities are well organized, whether the rules are fair and appropriate, whether meetings are productive, and the fairness and appropriateness of work assignments. The goal is to allow the inmate to describe what methods or portions of the program aid in his treatment, and which, if any, portions of the program hinder his progress. Hiller (1996) reported a coefficient alpha of .84 for this scale.

Peer Support. Strong therapeutic relationships, with both peers and counselors, predict lower levels of during-treatment drug use, which in turn lead to longer retention in treatment (Simpson, 1997). Four items assess the extent to which an inmate feels part of a family or community, whether other clients care about the inmate and his problems, and whether other clients are helpful. This variable forms the very cornerstone of the TC philosophy (DeLeon, 2000). Hiller et al. (2000) report a coefficient alpha of .86 for this scale.

Counselor Rating of Client (CRC)

An additional set of perceptions critical to assessing treatment progress and process is that of the counselors themselves. In addition to running various treatment groups and classes, the counselors on a TC unit are often assigned to work with a certain number of inmates on a one-to-one basis. The expectation is that a close relationship can be formed with the counselor, forming a bond that will help lead to successful recovery.

The CRC instrument (see Appendix 4) asks counselors to rate various client attributes on a set of adjectives (e.g., honest, sincere) using a Likert scale ranging from 1 (“Strongly Disagree”) to 7 (“Strongly Agree”). Counselors are also asked to indicate the extent to which counseling activities with each client are focused on specific activities pertinent to recovery, including relapse situations and triggers (Hiller, Knight, Rao, and Simpson, 2000:16).

Hiller, Knight, Rao and Simpson (2000) conducted a factor analysis to determine major themes of the CRC. Through the use of exploratory factor analysis, four clearly identifiable factors had Eigenvalues greater than 1. The first factor was identified as *treatment engagement* (coefficient alpha = .89), composed of eight items describing an inmate’s individual involvement in treatment. Counselors strongly agreed to statements such as the inmate “participates in group discussions”, “pays attention”, and “clearly expresses thoughts and feelings” (Hiller et al., 2000:16). The second scale was labeled *rappport with others* (coefficient alpha = .86). This scale was comprised of seven attributes, with counselors strongly agreeing that the inmate is “easy to talk to”, “warm and caring”, “liked by other inmates”, and “liked by staff” (Hiller et al., 2000:16). A third scale dealt with the level of *denial* perceived by the counselor (coefficient alpha = .79). This scale included items dealing with an inmate’s unwillingness to believe that he needs help or admit that he has a drug and/or alcohol problem. In particular, counselors strongly agreed with statements that the inmate is “in denial”, “unmotivated to recover”, and “manipulative” (Hiller et al., 2000:16). Finally, *psychological problems* (coefficient alpha = .71) constituted the last scale, based on the counselor’s judgments about an inmate’s mental state. Statements that counselors

strongly agreed with were those that dealt with the inmate being “hostile or aggressive”, “depressed”, impulsive”, “nervous”, “anxious”, and “easily distracted” (Hiller et al., 2000:16).

Factor analyses also identified four main content themes addressed by counselors during sessions with their clients, defined by Hiller et al (2000) as *counselor foci*. The first of these scales was *self-confrontation* (coefficient alpha = .87), addressing topics concerning the acceptance of responsibility, inmate reduction of denial, and inmate improvement of objectivity. The second scale was defined as *life skills development* (coefficient alpha = .89), which includes the improvement of communication skills, development of coping mechanisms and strategies to avoid recurrence of drug and/or alcohol use, and the ability to make new friends. *Family* was the third major counseling dimension identified (coefficient alpha = .85), which deals with trust, rapport, the exploration of feelings, specifying short-term goals and objectives, and improving family relations (Hiller et al., 2000:17). A fourth dimension, labeled *financial management*, concentrated on managing finances, job opportunities, occupational issues, and the definition of long-range goals (coefficient alpha = .89).

Because all subscales of the CRC and REST utilized seven-point Likert scales, response categories for each item ranged from 1 (Strongly Disagree) to 7 (Strongly Agree). Using procedures described by Knight, Holcum & Simpson (1994) and Simpson (1991), each scale was scored by averaging responses to items and multiplying by 10 (scores therefore ranged from 10 to 70). Following scoring procedures, negatively worded items were reverse scored prior to calculating scale scores for the REST and CRC.<sup>9</sup> This procedure resulted in a standardized score for each REST and CRC subscale, allowing for comparisons across different scales.

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<sup>9</sup> Reverse-scored items on the REST included items on the following subscales: Self Esteem (#23, 33, 51, 60), Depression (#28), Self Efficacy (#6, 11, 17, 25, 32), Risk Taking (#31, 48, 57), Social Conformity (#18, 27), and Treatment Readiness (#7, 19, 34, 44). Reverse-scored items on the CRC included items #6, 7, 8, 9, 11, 22, and 23.

## ***Sample Characteristics***

For each inmate admitted to an AOD treatment program during the study period (January 1 - November 30, 2000), we collected on a monthly basis data on all inmates admitted to or discharged from alcohol or drug treatment programs at each of the five institutions. We continued monthly tracking throughout the study to determine treatment outcomes (e.g., successful v. unsuccessful). During data collection, we continuously inventoried all admission and discharge data for veracity and completeness. For example, we regularly created lists of inmates with missing discharge data. Lists were compiled based upon expected discharge dates, determined from program cycles at each institution. Each institution was asked to look up appropriate discharge dates and/or reason for discharge (e.g., successful v. unsuccessful). We also prepared queries for each institution, where we posed specific questions regarding duplications in admissions and discharges, any unusual data patterns (e.g., discrepancies in reported start or end dates for specific programs), and missing discharge data.

In some cases, the same inmate was admitted to more than one program during the study period. Multiple admissions could occur through several mechanisms. For example, an inmate's first admission was into an Education program, but his second and third admissions were into different Outpatient programs (a group counseling program, for instance, and a relapse prevention program). In other cases, an inmate may have multiple admissions because he was unsuccessfully terminated one or more times from the same program and readmitted one or more times. We were able to account for each treatment outcome separately, and we were able to account for an inmate's total treatment exposure based upon the length of time he spent in each program (number of weeks) multiplied by the program's intensity

(number of hours per week). The inmate’s first admission determined his assignment to the treatment (TC) or comparison (Education or Outpatient) group.<sup>10</sup>

We break down the sample into the total number of inmates admitted into AOD programs by institution and program type (Table 2). A total of 2,929 inmates participated in AOD programs at the five institutions between January 1 and November 30 of 2000,<sup>11</sup> including 749 TC inmates (26%), constituting the experimental group. Many more inmates entered the less intensive Education (39%) and Outpatient (31%) programs. These inmates (n = 2,060) formed the total eligible comparison sample (i.e., prior to matching or use of statistical controls). Excluding the 120 Alumni inmates,<sup>12</sup> the final study sample consisted of 2,809 inmates.

**Table 2**  
**Number of Inmates Participating in AOD Programs at Five Prisons, Jan. 1 - Nov. 30, 2000**

	Education	Outpatient	TC	Alumni	Total
<b>Cresson</b>	297	329	78	--	704
<b>Graterford</b>	197	146	120	--	463
<b>Houtzdale</b>	304	307	259	57	927
<b>Huntingdon</b>	293	24	75	42	434
<b>Waymart</b>	63	100	217	21	401
<b>Total Inmates</b>	1154	906	749	120	2929

Note. The “Alumni” category consists of successful TC graduates who have been returned to general population. While not strictly part of our study, we were able to track these inmates on the post-release outcome measures (drug relapse and recidivism).

<sup>10</sup> If an inmate was admitted to a TC program on a subsequent program admission, he was assigned to the TC group. All inmates received credit for their prior treatment experience in Education or Outpatient programs (i.e., total treatment exposure).

<sup>11</sup> Included in the total sample were all inmates *currently* enrolled in AOD programs as of the study start date of January 1, 2000 (n = 769). A greater number (n = 2,040) was admitted *on or after* January 1, 2000. Data including inmate self-reports and counselor ratings (collected at six-month time intervals) were thus unavailable for inmates admitted *prior* to the study start date.

<sup>12</sup> Recall that the Alumni group consisted of inmates that already successfully completed a TC program and returned to general population. While they are excluded from the research design, it may be possible to include these inmates in some analyses of outcome.

During the study period (January 1 – November 30, 2000), all inmates enrolled in TC, Education, or Outpatient drug treatment programs were approached and asked to participate in the study. Those who agreed to participate signed our Subject Consent Form and completed the TCU Drug Screen. In addition, TC inmates were asked to complete the TCU Resident Evaluation of Self and Treatment (REST) form, and TC counselors were asked to complete the TCU Counselor Rating of Client (CRC) form for each current TC inmate on their caseload. Once initial testing was completed, we approached only new admissions to solicit their participation in the study.

Response rates for TC samples (i.e., completion of Consent, Drug Screen and REST forms) were consistently excellent ( $548/637 = 86\%$ )<sup>13</sup>. We attribute this high response rate to two major factors. First, TC is an intensive, one-year residential program. Many new TC inmates are highly motivated and interested in recovery when they begin TC, and self-assessment is a critical requirement of their early treatment work. Second, experienced treatment counselors have frequent, daily contact with TC inmates, and counselors tend to form stronger therapeutic relationships (and trust) with TC inmates. Both factors likely enhanced our TC response rates.

Response rates for inmates in the Comparison samples (Subject Consent forms and TCU Drug Screen forms) were lower ( $1030/2029 = 51\%$ )<sup>14</sup>. As noted above, inmates participated in non-residential Education and Outpatient programs for much shorter time periods than TC, they tended to have less time remaining in their sentences, and they tended to develop weaker therapeutic relationships (and trust) with their counselors. Indeed, counselors reported a higher degree of suspicion and mistrust among inmates in

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<sup>13</sup> The number of inmates *approached* ( $n = 637$ ) was slightly less than the number of inmates *admitted* to TC ( $n = 749$ ). Some inmates who staff had recorded as “*admissions*” (Table 2) had in reality only been placed on “call lists,” but failed to show up or begin treatment. Some may have got cold feet; some were transferred or unsuccessfully discharged prior to completing their first month of treatment. As such, they could not have been *approached* for participation in our study.

the Education and Outpatient groups. They also reported that it was more difficult to overcome this suspicion due to their relatively infrequent contact with inmates (1 - 3 hours of group time per week). Because of the lower response rate for the Comparison sample, care was taken in data analyses to examine and control for selection differences potentially related to recidivism (e.g., prior and current offense severity, and assessed need for treatment).

Two other types of measures were collected for TC inmates who agreed to participate in the study: the Resident Evaluation of Self and Treatment (REST) form (completed by inmates), and the Counselor Rating of Client (CRC) form (completed by AOD staff). All inmates who completed the Subject Consent form and Drug Screen (86% of all TC admissions) also completed the initial REST. All TC inmates who initially agreed to participate in the study and still remained in the TC six months later and 12 months later (100%) agreed to be re-tested on the REST. CRC response rates were close to 100% across CRC administrations at 1 month, 6 months, and 12 months (the only exceptions being those inmates who were transferred or paroled before they could be re-assessed).

As noted previously, only a subset of inmates successfully *completed* their AOD programs. The breakdown of program discharges is shown in Table 3. Out of 2,809 inmates examined during the study period (Jan. 1 – Nov. 20, 2000), 2,797 (99%) had completed their treatment programs as of September 1, 2002. Failure rates for the Comparison and Experimental groups were highly similar (Table 3).<sup>15</sup>

**Table 3**

**Number and Type of Treatment Program Discharges at Five Prisons**

Comparison Group	TC Group	Total
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<sup>14</sup> As with the TC inmates, the number of inmates *approached* (n = 2029) was slightly less than the number of inmates *admitted* to Education or Outpatient programs (n = 2060), since some inmates recorded as “*admissions*” to AOD programs (Table 2) had in reality failed to show up.

<sup>15</sup> As noted earlier, successful and unsuccessful discharges were analyzed separately in outcome analyses in order to help address shortcomings of previous evaluation studies.

<b>Successful</b>	1295 (63%)	466 (62%)	1761 (63%)
<b>Unsuccessful</b>	580 (28%)	194 (26%)	774 (28%)
<b>Direct Parole</b>	125 (6%)	70 (9%)	195 (7%)
<b>Other</b>	48 (2%)	19 (3%)	67 (2%)
<b>Total</b>	2048 100%	749 (100%)	2797 (100%)

Note. “*Direct Parole*” indicates inmates who received parole as the reason for their *treatment program discharge*. In other words, such inmates were paroled *directly* from their treatment program. These figures are unrelated to the number of inmates who eventually applied for (or received) parole at a later date following completion of their substance abuse programs. “*Other*” includes programmatic discharges beyond the control of the inmate, including institutional transfer, writ or court order, medical discharge, etc.

The sample can be described in terms of several important inmate characteristics (e.g., total treatment exposure), risk factors (e.g., prior and current offense history, assessed level of need for drug treatment, age) and program selection criteria (e.g., time remaining to minimum release date). Table 4 provides descriptive information for inmates in the experimental and comparison groups.

As expected, the experimental and comparison groups differed on total treatment exposure (Table 4). Treatment exposure was calculated for each inmate in the sample by multiplying the number of weeks he spent in each treatment program by the program’s intensity (number of hours of treatment programming per week). TC inmates had 15 times as much treatment exposure as inmates in the Comparison group, thus providing a strong rationale for the quasi-experimental research design.

Age at time of admission was calculated by subtracting the inmate’s birth date from the date of program admission. DOC supplied time remaining to minimum release date, a primary program selection criterion, as part of monthly data runs on all program admissions. Likewise, DOC, based on the Pennsylvania Sentencing Commission Guidelines, supplied current and prior offense gravity scores. Standardized drug scores, as noted earlier, were calculated based on the inmate’s TCU Drug Screen score, if available, or the inmate’s PACSI score, if the TCU was not available. Because the TCU is a 0-9

scale, and the PACSI (the former DOC drug screening instrument prior to Jan. 1, 2001) is a 0-10 scale, scores were transformed into standardized z-scores and saved for analyses. Using one-way ANOVA, means were compared for each of the program descriptors shown in Table 4.

**Table 4****Sample Characteristics by Comparison vs. Experimental Group**

	Comparison Group		TC Group		F (d.f.)
	Valid N	Mean (s.d.)	Valid N	Mean (s.d.)	
<b>Age at time of admission</b>	2056	35.2 (9.2)	749	35.6 (9.1)	0.98 (1,2803)
<b>Time to minimum (months)</b>	2032	1.086 (104.8)	746	10.4 (71.3)	5.08* (1,2776)
<b>Current Offense Severity (0-10)</b>	2032	5.1 (2.9)	740	5.5 (2.5)	9.86* (1,2770)
<b>Prior Offense Severity (0-10)</b>	2032	4.7 (3.0)	740	4.8 (2.7)	0.97 (1,2770)
<b>Standardized Drug Score (Z)</b>	1579	-.26 (1.0)	722	.33 (.88)	178.45* (1,2299)
<b>TCU Drug Screen Score (0-9)</b>	823	3.8 (2.9)	564	5.6 (2.7)	135.46* (1,1385)
<b>PACSI Drug Score (0-10)</b>	1351	7.0 (3.0)	660	8.5 (1.9)	139.60* (1,2009)
<b>Total treatment exposure</b>	2027	54.8 (116.0)	749	835.5 (544.9)	3709.06* (1,2774)

\* p &lt; .05

Inmates in the comparison and experimental groups did not differ significantly on age at the time of program admission. However, significant variability was observed in time remaining to minimum release date. Many inmates were already well past their minimum release date, suggesting that many had already been denied parole at least once.<sup>16</sup> Time remaining to minimum release date (in months) ranged from -261 to 1181 for the Comparison group, and -293 to 1181 for the Experimental group. Thirty-nine inmates in the sample were lifers; of these, 14 had minimum release dates well into the future (e.g., 01-January-2099). Some (not all) of the higher values for *time remaining to minimum release date* are thus explainable by the presence of lifers.

TC inmates were likely to have more serious current (but not prior) offense histories, suggesting that higher risk inmates were targeted for TC placement. Relatively high prior offense severity scores may partially explain why so many inmates have seen their minimum release dates come and go. The Parole Board would certainly consider both prior and current offense histories in considering parole applications.

The Experimental and Comparison groups also differed significantly on need for treatment, regardless of which of three criteria were examined (TCU Drug Screen score, PACSI score, or standardized Z score on either instrument). In each case, TC inmates had slightly higher mean drug scores, suggesting appropriate program placement into TC. However, Table 4 also revealed clearly that most inmates in the sample, even those placed in low-intensity Education and Outpatient programs (i.e., the Comparison group), met and surpassed the minimum eligibility criteria for TC placement (i.e., a minimum TCU Drug Screen score of 3, or a minimum PACSI score of 5).

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<sup>16</sup> Data inspections conducted by DOC personnel also suggested that some inmates in our sample simply “rolled over” from one sentence to another (e.g., consecutive sentences for different convictions). As a result, they may have been assigned a new inmate number, but their old minimum release date remained attached to their old inmate number in the DOC database. In some cases we were able to make corrections based upon individual database searches.

While appropriate statistical controls and/or matching are required to adjust for these initial selection differences,<sup>17</sup> results shown in Table 4 clearly indicate that the majority of inmates in the sample, regardless of program type, were classified as high-need. We thus have a fortunate situation in terms of research design (i.e., many high-need inmates are present in programs of dramatically different treatment dosages), but an unfortunate one in terms of responsiveness (i.e., there were simply not enough TC beds to assign all high-need inmates to high-intensity treatment programs, with the result that many inmates received some form of less intensive treatment).

### ***Analytic Approach***

Following previous efforts established through this research partnership, two comprehensive databases were assembled: one inmate-specific, the other program-specific (Welsh, 2001). These databases guided post-release inmate tracking and analyses of relationships between treatment process and outcomes. We were thus able to track an inmate before, during, and after treatment, and we were able to factor into our analyses individual inmate characteristics as well as programmatic variations (e.g., treatment intensity and duration) that could influence treatment outcomes. This approach should help advance our ability to separate individual from contextual (programmatic) factors that influence treatment.

Analyses of outcome employed several multivariate techniques including logistic regression and survival analyses. For example, we examined various within-subject changes over time (e.g., improvement in psychological functioning, changes in inmate participation in treatment), as well as between-subjects factors (e.g., programmatic features) that may influence treatment process and outcomes. Logistic regression was useful for examining dichotomous outcomes such as reincarceration,

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<sup>17</sup> Criminal history and level of substance abuse problem often drive observed outcomes for this population (Andrews et al., 1990; Farabee et al., 1999; Fletcher and Tims, 1992; ONDCP, 1996, 1999; Pearson and Lipton, 1999).

rearrest, and drug relapse. Logistic regression also allows the researcher to enter categorical (e.g., specific treatment program inmate was in) or continuous variables (e.g., level of motivation) into models as covariates, including interaction variables.

Finally, survival analysis allows the researcher to examine outcomes such as recidivism in richer detail. Instead of a dichotomous outcome, recidivism is conceptualized as dynamic behavior that occurs along a continuum of time. It requires consideration of how much time has elapsed between release from prison and specific behavioral outcomes such as drug relapse or rearrest for parole violation or a new offense. We are thus concerned not only with examination of inmate and programmatic variables that predict who is left standing two or three years after release from prison, but variables that influence early v. later relapse over time. This consideration is important in examining outcomes related to drug abuse, since multiple relapses almost inevitably precede any long-term recovery, especially for seriously addicted inmates. Survival analysis and Cox regression techniques allow researchers to add precision to examining critical outcomes such as drug relapse and recidivism. Cox regression allows for entry as independent variables both categorical and continuous variables, and both individual as well as programmatic variables.

## IV. RESULTS

### *Program Descriptions*

Our sample of TC programs at five different prisons enabled comparisons of implementation differences across sites. Programmatic differences (e.g., duration, intensity, structure) may influence treatment process (e.g., treatment engagement) as well as outcomes (relapse and recidivism). Sources of data included the following: (1) results from a previous Survey of Drug and Alcohol Programs (Welsh, 2001), (2) inmate ratings of treatment process (i.e., scales from the REST), and (3) program records collected by researchers, including monthly admission and discharge information, program mission statements, inmate handbooks, and operational manuals (Welsh, 2002). Several major TC program descriptors are summarized in Table 5.

First, the five TC units varied in terms of size. Two units had 100 or more beds. Large units make it more difficult to properly implement the TC philosophy, which depends upon positive peer interactions and close staff supervision. At Waymart, the TC is subdivided into two separate units, one upstairs and one downstairs. The two units have separate TC meetings, although they share some of the same treatment groups and the same treatment staff. Houtzdale, on the other hand, has the difficult task of monitoring and supervising complex interactions between 124 inmates who all live on the same unit (Welsh, 2000b).

We observed staffing ratios (inmates per counselor) that ranged from 9:1 to 26:1. Although definitive clinical standards for prison-based TC have not yet emerged, and existing guidelines are voluntary (ONDCP, 1999), experts often recommend a maximum of 15 clients per counselor (DeLeon, 2000).

In response to our previous recommendations (Welsh, 2001; Welsh and Zajac, 2001; Welsh et al., 2001), DOC has largely standardized the content, structure and duration of its AOD treatment programs.

However, at the time that inmate admission data was collected for this study in 2000, TC programs still evidenced some variability in terms of duration and intensity.

Based upon inspection of program documents, TC schedules, and interviews with drug treatment supervisor at each institution, we estimated that 3 TC programs offered approximately 15 hours per week of actual treatment (individual or group counseling, or phase classes run by treatment staff). Two of the TC programs (Huntingdon and Graterford) offered weekly programming of 30 hours or more per week. Only one (Graterford) ran a full 7 days a week (ONDCP, 1999; DeLeon, 2000), although inmates on that unit appeared exhausted at times. One program lasted only 36 weeks; another lasted nearly twice as long. While more research into the effects of TC of varying durations and intensity levels is needed (DeLeon, 2000), such differences in treatment exposure may influence observed outcomes. Of course, outcomes also depend on the quality of treatment, not just the quantity (Pearson and Lipton, 1999).

All TC programs offered what they called a “holistic” approach, although one explicitly stated in its mission statement that the 12-step approach was its major framework. According to DOC, the department’s overall approach to alcohol or other drug (AOD) programs is informed by a holistic health model that treats substance abuse as a complex problem with physiological, psychological, emotional, behavioral, spiritual, environmental and sociopolitical dimensions (Pennsylvania Department of Corrections, 2002).

We observed significant differences in termination rates across the five TC programs. Although the attrition rate overall was about 26%, one program (Waymart) rarely terminated anyone, and another (Graterford) terminated more than two-thirds of its clients. Arguments about program failure rates can go two ways. For example, an intensive supervision probation program that closely monitors clients, enforces the rules vigorously, and demands accountability is likely to have a high attrition rate (Petersilia and Turner, 1993). Arguably, good programs have high attrition rates because clients are held accountable. However, another argument could be made that a TC program should attempt to correct the

behavior that led to the violation and enlist peer support to encourage the inmate to take responsibility for his/her behavior. Under this premise, programs would rarely bounce out misbehaving inmates, except when a “cardinal rule” (e.g., no physical violence against other TC residents, no sexual relations) has been broken. Data collected through inmate interviews and self-report surveys, however, suggested that a low threshold existed for successfully completing the Waymart program. We did not find evidence for strict rule enforcement or intensive corrective measures as causes for low attrition at Waymart.

Next we observed differences in characteristics of inmates admitted to the five programs (Table 6). Both Houtzdale and Waymart tended to recruit older inmates, who tend to be better behaved and pose lower risks for misbehavior and recidivism. The other units recruited inmates in their early thirties.

We found wide variability in time remaining until minimum sentence. The average time remaining (until minimum release date) at Houtzdale and Huntingdon was negative, indicating several possibilities (not mutually exclusive). For example, some inmates may have already seen their minimum release date come and go. Some may have already been turned down for parole. Some may have been uninterested in treatment until they were mandated to go. Some minimum release dates in the DOC database may have been incorrect or outdated (e.g., if an inmate completed one sentence but then began a new one without ever being released). Some inmates may have been released on parole and returned for technical violations, without having a new minimum release date set. Our recidivism data confirmed the latter explanation in many cases. As a result, the minimum release date obtained from DOC automated databases was not necessarily a reliable indicator of TC eligibility.

We also found significant differences in prior and current offense severity (Table 6). Waymart recruited somewhat lower risk inmates than the other programs.<sup>18</sup> Huntingdon admitted the highest risk inmates. Assessed level of need for treatment was high, regardless of which instrument was examined

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<sup>18</sup> Waymart is a Level 2 security classification; Cresson and Houtzdale are Level 3 facilities; Graterford and Huntingdon are Level 4 facilities.

(PACSI or TCU Drug Screen). TCU Drug Screen results, however, suggested that Huntingdon, Graterford and Cresson recruited the highest need inmates.

We then examined program duration for both graduates and failures (i.e., early terminations). Cresson had the highest mean duration for program graduates at 83 weeks. Three institutions were in between (52 – 58 weeks), with the exception of Waymart, which had a mean duration of 42 weeks for successful program graduates. The five TC programs also differed significantly on program duration for failures, although all five programs took a long time to make a decision about termination. At Cresson, the average amount of time spent in the TC prior to being terminated was 33 weeks.

**Table 5****TC Program Descriptors**

	<b>Cresson</b>	<b>Graterford</b>	<b>Houtzdale</b>	<b>Huntingdon</b>	<b>Waymart</b>
<b>Capacity (# of TC beds)</b>	52	50	124	36	100
<b>Number of TC Staff (excluding DATS Supervisor)<sup>a</sup></b>	2	2	5	4	7
<b>Stated Program Duration (weeks)</b>	56-72	48	48	52	36
<b>Program Intensity (hr/wk)</b>	15	30	15	30	15
<b>Primary Treatment Approach</b>	Holistic <sup>b</sup>	Holistic	Holistic	Holistic	12-step
<b>Termination Rate (# of failures/# of admissions)</b>	32%	71%	20%	22%	5%

<sup>a</sup> Staffing ratios are imprecise due to the fact that TC staff are assigned exclusively to TC in some institutions (Graterford, Cresson, Waymart), while TC staff in others (Huntingdon, Houtzdale) also provide Education and Outpatient programming to the general population.

<sup>b</sup> Includes individual counseling, psychodynamic group therapy, cognitive behavioral therapy, behavior modification, rational emotive therapy, milieu therapy and standard 12-step groups.

**Table 6****Inmate Characteristics by TC Program: Oneway ANOVA**

	<b>Cresson</b>	<b>Graterford</b>	<b>Houtzdale</b>	<b>Huntingdon</b>	<b>Waymart</b>	<b>F Value</b>
	Mean (s.d.)	Mean (s.d.)	Mean (s.d.)	Mean (s.d.)	Mean (s.d.)	(d.f.)
<b>Age (years)</b>	30.9 <sub>a</sub> (8.5)	31.7 <sub>a</sub> (8.6)	37.4 <sub>b</sub> (8.2)	32.0 <sub>a</sub> (8.4)	35.5 <sub>b</sub> (9.1)	22.86* (4,704)
<b>Time Remaining to Minimum Release Date (months)</b>	13.6 <sub>a</sub> (22.5)	24.2 <sub>a</sub> (119.7)	-1.6 <sub>a</sub> (58.0)	-0.19 <sub>a</sub> (55.4)	14.6 <sub>a</sub> (87.5)	2.81* (4,701)
<b>Current Offense Severity (0 – 10)</b>	6.1 <sub>bc</sub> (2.1)	5.3 <sub>ab</sub> (3.2)	5.4 <sub>ab</sub> (2.2)	6.5 <sub>c</sub> (2.0)	5.3 <sub>ab</sub> (2.6)	4.74* (4,695)
<b>Prior Offense Severity (0 – 10)</b>	4.6 <sub>b</sub> (2.7)	4.8 <sub>b</sub> (2.9)	5.5 <sub>bc</sub> (2.3)	6.2 <sub>c</sub> (1.8)	3.7 <sub>a</sub> (2.9)	18.84* (4,695)
<b>TCU Drug Screen Score (0 – 9)</b>	6.3 <sub>bc</sub> (2.4)	7.0 <sub>c</sub> (2.3)	5.4 <sub>ab</sub> (2.7)	6.8 <sub>c</sub> (2.1)	4.5 <sub>a</sub> (2.8)	16.45* (4,522)
<b>PACSI Screening Score (0 – 10)</b>	8.5 <sub>a</sub> (1.9)	8.4 <sub>a</sub> (2.0)	8.8 <sub>a</sub> (1.8)	8.4 <sub>a</sub> (2.2)	8.2 <sub>a</sub> (1.8)	2.40* (4,618)
<b>Program Duration: Graduates (# wk)</b>	82.5 <sub>d</sub> (19.6)	58.5 <sub>c</sub> (15.5)	49.1 <sub>b</sub> (13.7)	51.6 <sub>b</sub> (6.4)	41.6 <sub>a</sub> (20.0)	63.99* (4,512)
<b>Program Duration: Failures (# wk)</b>	33.4 (25.4)	19.7 (16.5)	22.3 (17.7)	23.4 (17.7)	18.7 (15.4)	2.90* (4,187)

p &lt; .05

Means with differing subscripts differ significantly at the .05 level, using Tukey-B post hoc comparison tests.

While the five programs consistently implemented the overall TC philosophy and framework, some differences in TC implementation were apparent. Graterford was somewhat more punitive than the other TC programs, as suggested by its higher attrition rate. Treatment duration at Cresson was longer than in the other TC programs. Waymart TC residents tended to be slightly lower risk, and program intensity was somewhat lower. Two TC programs (Cresson and Waymart) did not use pull-ups as part of their system of sanctions and rewards.<sup>19</sup>

Whether inmate and programmatic differences significantly influence treatment outcomes (reincarceration, rearrest and relapse) or not is an important empirical question. Because some significant differences were found across the five TC programs, multivariate analyses of outcome should be sensitive to their potential influence. In multivariate analyses (logistic regression), we entered into equations individual inmate differences such as prior and current offense severity. To examine the potential influence of programmatic differences on outcomes, we entered dummy variables reflecting the influence of each separate TC program. In this way, we could determine the degree to which treatment outcomes were influenced (if at all) by programmatic differences.

### ***Within-Program Changes***

In the statistical analyses that follow, we selected only inmates admitted after the study start date of January 1, 2000 to provide a proper chronology of repeated measures (i.e., inmates that were tested at the proper 1-month, 6-month, and 12-month intervals after their admission to TC). This procedure

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<sup>19</sup> Pull-ups are often perceived as an important vehicle for encouraging inmate self-determination and responsibility in a TC program (DeLeon, 2000; ONDCP, 1999).

reduced the potential TC sample for within-program analyses from 749 to 396 inmates,<sup>20</sup> although we were able to track recidivism for the entire sample of 709 TC inmates.

Although the TC attrition rate was only 26% overall (Table 3), many inmates were paroled or successfully discharged from TC before they could complete all three intended administrations of the REST (i.e., 1-month, 6-month, and 12-months post-admission). Since a maximum of 353 TC inmates admitted after January 1, 2000 were actually subject to repeated REST and CRC testing, this smaller sample was used to examine changes on the REST and CRC subscales over time. Because only a small portion of all TC inmates admitted after January 1, 2000 actually remained in TC programs 12 months later at the third measurement interval (i.e., only 32 inmates for the 3<sup>rd</sup> REST, and only 43 inmates for the 3<sup>rd</sup> CRC), we used paired-samples t-tests to examine differences from time 1 to time 2 (using pairwise deletion for missing cases, n = 182 for the REST, n = 170 for the CRC).

Inmate self-reports on REST scales suggested some significant improvements in psychological and social functioning during the first six months of TC treatment, and a significant increase in treatment engagement (see Table 7). For example, inmates reported significant improvement on *self-esteem* and a reduction in *depression*. No significant changes were observed for self-reported *anxiety* or *hostility* (both of which were already quite low to begin with) or *self-efficacy* (which was already quite high). Inmates did, however, report significant decreases in *risk taking*, perhaps reflecting a heavy emphasis on reducing “criminal thinking” in the first two phases of TC. No significant improvements in *treatment readiness* were reported.

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<sup>20</sup> A number of inmates who were initially tested on the REST and CRC had been admitted prior to January 1, 2000, when the study began, and were thus unavailable for repeated testing six months later (time 2) and twelve months later (time 3) because they had already completed their programs or had been terminated. As described in the Methods section, 769 inmates (including 353 in TC) had been admitted prior to January 1, 2000, when the study began, and were thus unavailable for repeated testing on the REST or CRC at six-month and/or 12-month time intervals because they had already completed their programs.

Other REST scales showing significant improvement over time were *therapeutic engagement*, *personal progress*, *trust in group*, *opinion of program staff*, and *counselor competence*. Together, these changes indicate that inmates felt more engaged and involved in the treatment process over time, dimensions found to be predictive of treatment completion and reduced recidivism (e.g., Broome et al., 1997). Several treatment process scales showed no improvement. For example, there appeared to be little increase in inmate perceptions of peer support over time. Poor peer relationships may mitigate successful implementation of the TC philosophy, and weaken expected treatment outcomes. TC is not a “go-it-alone” program; a high degree of interaction, confrontation and peer support is a critical treatment component.

Counselor ratings of client attributes and counseling foci also showed several significant improvements over time (see Table 8). Most importantly, counselors agreed with inmates’ perceptions that *treatment engagement* increased over time. Treatment engagement may be a necessary (but not sufficient) condition for positive treatment outcomes to occur. Unfortunately, counselors also perceived a slight, but significant increase in inmate *psychological problems* over time. It is possible that such problems manifested themselves more frequently or intensely as inmates were exposed to greater group confrontation and pressure over time. Alternatively, it is also possible that the perception of psychological problems by counselors is part of the treatment process: if an inmate is actively and sincerely participating in treatment, he ought to open up and reveal psychological difficulties over time. However, CRC scores showed no significant decrease in denial and no significant increase in rapport with others. The four counselor foci dealt more with treatment content than process. Issues of self-confrontation, life skills development, family, and financial management received increased attention over time.

**Table 7**  
**Mean REST Scores: Paired Sample T-Tests, Time 1 - Time 2**

	Valid N	Time 1 Mean (s.d.)	Time 2 Mean (s.d.)	Time 1 – Time 2 Mean (s.d.)	t (2-tailed)
<b>Self Esteem</b>	179	58.3 (8.2)	60.2 (7.4)	-1.89 (8.2)	-3.10*
<b>Depression</b>	173	34.5 (10.0)	32.8 (9.2)	1.73 (9.0)	2.52*
<b>Anxiety</b>	179	29.2 (13.2)	28.0 (12.2)	1.18 (10.8)	1.46
<b>Self Efficacy</b>	177	61.9 (5.9)	61.7 (5.6)	0.23 (6.5)	0.49
<b>Hostility</b>	178	28.5 (13.5)	28.2 (12.7)	0.27 (9.8)	0.72
<b>Risk Taking</b>	177	47.1 (9.0)	43.9 (8.3)	3.22 (7.4)	5.78*
<b>Social Conformity</b>	174	58.2 (7.4)	57.7 (7.0)	0.55 (7.9)	0.92
<b>Treatment Readiness</b>	175	60.4 (7.6)	60.5 (8.0)	-0.06 (7.6)	-0.10
<b>External Pressures</b>	174	38.0 (11.2)	36.9 (10.6)	1.10 (10.3)	1.40
<b>Therapeutic Engagement</b>	182	57.6 (11.0)	60.7 (8.5)	-3.05 (10.3)	-3.99*
<b>Personal Progress</b>	180	59.7 (10.1)	63.5 (7.8)	-3.78 (9.8)	-5.17*
<b>Trust Group</b>	180	44.2 (13.3)	47.8 (13.0)	-3.57 (14.1)	-3.39*
<b>Program Staff</b>	181	45.2 (14.4)	47.4 (14.6)	-2.20 (14.6)	-2.02*
<b>Counselor Rapport</b>	179	56.8 (12.2)	58.7 (11.6)	-1.94 (13.8)	-1.88
<b>Counselor Competence</b>	179	56.5 (11.4)	59.0 (11.6)	-2.47 (12.7)	-2.61*
<b>Program Structure</b>	167	51.2 (10.9)	51.8 (11.4)	-0.62 (11.1)	-0.72
<b>Program Sessions</b>	178	43.8 (14.1)	43.8 (15.9)	-0.06 (15.8)	-0.05
<b>Peer Support</b>	180	50.6 (11.7)	51.0 (11.3)	-0.36 (12.9)	-0.38

\*p < .05

**Table 8**  
**Mean CRC Scores: Paired Sample T-Tests, Time 1 - Time 2**

	Valid N	Time 1 Mean (s.d.)	Time 2 Mean (s.d.)	Time 1 – Time 2 Mean (s.d.)	t (2-tailed)
<b>Therapeutic Engagement</b>	165	45.5 (8.3)	47.0 (9.1)	-1.53 (8.4)	-2.33*
<b>Rapport With Others</b>	170	48.1 (8.6)	49.3 (9.2)	-1.17 (8.3)	-1.83
<b>Denial</b>	165	46.6 (6.4)	47.5 (6.7)	-0.93 (7.0)	-1.72
<b>Psychological Problems</b>	167	51.0 (6.6)	52.6 (6.2)	-1.57 (6.8)	-2.96*
<b>Self Confrontation</b>	169	49.0 (9.8)	50.9 (8.8)	-1.78 (9.7)	-2.40*
<b>Life Skills Development</b>	167	48.1 (10.5)	51.3 (8.8)	-3.23 (9.0)	-4.62*
<b>Family</b>	168	48.5 (11.8)	51.4 (10.6)	-2.86 (11.8)	-3.15*
<b>Financial Management</b>	170	42.1 (13.1)	47.0 (11.5)	-4.94 (12.8)	-5.02*

\*p < .05

## ***Recidivism Findings***

We coded recidivism data for 1,697 total inmates in our sample who were released from DOC custody as of August 31, 2002. Three types of recidivism data were collected: (1) reincarceration data, (2) rearrest data, and (3) parole data.

Reincarceration data were collected by printing out the Department of Corrections “MOVE” screens for each inmate, which contained the inmate’s most recent date of release from custody, type of release (e.g., parole v. full sentence served) and any new incarcerations thereafter. Rearrest data, collected by the Pennsylvania State Police, was available through the Pennsylvania Commission on Crime and Delinquency (PCCD). As with DOC, we submitted a list of all inmates released from DOC after January 1, 2000. We received “rap sheets” (printouts) of each ex-offender’s criminal history up to the time of the PCCD data run (August 27, 2002). We then coded and entered all data received from PCCD, including date and type of rearrest offense (if any) and disposition. The Pennsylvania Board of Probation and Parole (PBPP) also granted access to several specific types of data. We wanted to determine whether an inmate successfully completed his term of parole or not, and whether the inmate tested positive for any type of drug use while on parole. If an inmate was resentenced into DOC custody for a parole violation, we would identify such activity through the DOC “MOVE” system. Examination of parole data, however, allowed us to detect cases where an inmate may or may not have been found guilty of a parole violation, and may or may not have been recommitted to DOC.

PBPP also agreed to provide access to several other measures (e.g., employment, risk scores and level of supervision) that may help interpret findings regarding recidivism. Most importantly, PBPP was able to provide us with drug testing data, giving us a critical measure of drug relapse (number of tests,

number of positives, type of drug). We submitted to PBPP the same list of inmates released after January 1, 2000.<sup>21</sup>

### Inmate Releases From Prison

Only a portion of those inmates who completed their treatment *programs* (see Table 4) had actually been *released from prison* at the time that the most recent recidivism data were collected for this study. As of August 31 2002, 1,713 inmates in our sample had been released from prison (see Table 9). Two-thirds of inmates released (66%) were released via parole; this type of release was especially likely for TC inmates (Table 9). An additional one-fifth (19%) of the sample was reparaoled (i.e., after serving time for a previous parole violation). Only 14% served their full sentence. A small portion of others (1.5%) was not actually discharged. For example, seven inmates died while in custody; five were transferred to other jurisdictions; two were administrative transfers; two escaped (see Table 9).<sup>22</sup> As a result, we were able to obtain 1,697 valid cases (323 + 1122 + 241 + 9 + 2) for analyses at this time. We first present results for reincarceration, then rearrest, and then drug relapse. Sample sizes varied depending upon the number of variables and missing cases in each analysis.

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<sup>21</sup> About 87% of all inmates released were under the jurisdiction of state probation or parole. Due to delays in receiving data from PBPP and missing data, smaller samples were available for analyses than other outcomes (rearrest and reincarceration).

<sup>22</sup> Both “escapes” were walk-aways from minimum-security Community Correctional Centers. No institutional breaches have occurred in Pennsylvania since 1999.

**Table 9****Number and Type of Releases from Five Prisons by Program Type as of August 31, 2002**

Type of Release	Program Type				Total
	Education	Outpatient	TC	Alumni	
<b>Reparoled</b>	136 (22%)	137 (24%)	26 (6%)	24 (29%)	323 (19%)
<b>Paroled</b>	360 (58%)	334 (59%)	375 (85%)	53 (63%)	1122 (66%)
<b>Maxed Out</b>	118 (19%)	84 (15%)	33 (8%)	6 (7%)	241 (14%)
<b>Deceased</b>	1 (.2%)	3 (.5%)	2 (.5%)	1 (1.2%)	7 (.4%)
<b>Serve Prev. Cty/St/Fed</b>	3 (.5%)	1 (.2%)	1 (.2%)	0 (0%)	5 (.3%)
<b>Administrative</b>	0 (0%)	1 (.2%)	1 (.2%)	0 (0%)	2 (.1%)
<b>Court Order</b>	6 (1%)	1 (.2%)	2 (.5%)	0 (0%)	9 (.5%)
<b>Bailed</b>	0 (0%)	2 (.4%)	0 (0%)	0 (0%)	2 (.1%)
<b>Escaped</b>	2 (.3%)	0 (0%)	0 (0%)	0 (0%)	2 (.1%)
<b>Total</b>	626 (100%)	563 (100%)	440 (100%)	84 (100%)	1713 (100%)

“Reparoled” = paroled for the second time after serving time for previous parole violation, “Paroled” = inmate applied for and received parole, “Maxed Out” = inmate served full sentence, “Deceased” = inmate died while in prison, “Serve Prev. Cty/St/Fed” = inmate released to custody of other authority, “Administrative” = transfer or change in sentence status without being released from custody, “Court Order” = inmate released by court order.

## Reincarceration

We used stepwise logistic regressions to examine reincarceration rates for the TC and Comparison groups. These techniques enter into regression equations only those variables that exceed a specified probability of statistical significance, and removes variables that fail to reach a specified level of significance. These procedures allow the researcher to estimate models of outcome that reflect only the most robust and significant predictors. Several predictor variables were entered.

We examined reincarceration rates controlling for potential selection differences between the TC and Comparison groups (Table 10). Control variables included prior and current criminal history, time remaining to minimum sentence at the time of program admission, age at the time of program admission, and standardized drug score (z-score). Other predictors included membership in either the TC or Comparison group. If TC were effective, we would expect a significant coefficient for TC even when controlling for inmate differences.

Three other categorical variables were entered as predictors. First, we examined whether the effects of TC varied by institution, since some differences in TC implementation were observed at the five institutions. We entered a categorical variable that reflected the effect of the institutional setting of each TC program. A second categorical variable reflected post-release employment status (full-time, part-time, unemployed but able, and unemployed and unable to work).<sup>23</sup> A third categorical variable represented whether the inmate successfully completed his treatment program or not. Inspections for possible multicollinearity revealed no difficulties (e.g., no paired correlations exceeded .40).

None of the institutional effects were statistically significant, suggesting that the impact of TC on reincarceration was invariant across the five institutions. Several other variables failed to reach statistical significance and dropped out of the equation: time remaining to minimum release date, current offense

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<sup>23</sup> We used the most recent employment status available from automated Parole Board data.

gravity score, prior offense gravity score, and reason for treatment discharge (successful vs. unsuccessful).

Variables that significantly predicted reincarceration included participation in the Comparison rather than TC group, age (younger inmates had a higher rate of reincarceration), drug score (higher-need inmates had a higher rate of reincarceration), and post-release employment status (inmates employed full-time had a much lower rate of reincarceration). We emphasize that these effects remained statistically significant even when we controlled for potential selection biases (i.e., differences in inmates admitted into the TC vs. Comparison groups), a major deficit of previous studies.

We also wished to examine the impact on reincarceration of changes in inmate psychosocial characteristics and perceptions of treatment over time (as measured by REST and CRC scales). Our plan was to enter into logistic regression equations the statistically significant REST and CRC change scores (time 1 – time 2) from Tables 7 and 8. Unfortunately, too few of the TC inmates who had been tested on two or more occasions (at six-month intervals) had been released from prison at this time, leaving fewer than 100 cases for analyses ( $n = 54$ ),<sup>24</sup> inadequate to conduct meaningful multivariate analyses. We instead entered REST and CRC scores from time 1 only, controlling for other inmate differences (e.g., assessed level of need for drug treatment, current and prior criminal history). While these scores do not reflect change over time, they do provide valuable assessments of inmate psychosocial functioning during the early stages of treatment. Inmates admitted with certain types of needs/skills may be more/less likely to recidivate. The results are shown in Table 10, Model 2.<sup>25</sup>

Significant predictors of reincarceration in Model 2 included post-release employment status, hostility, therapeutic engagement, counselor rapport, and inmate perceptions of program structure. Two

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<sup>24</sup> As more of the TC inmates who were tested twice on the REST and CRC are released, larger samples will be available for analyses (see Tables 7 and 8).

<sup>25</sup> All eighteen REST subscales and all eight CRC subscales were entered, but only those resulting in statistically significant coefficients were shown here.

other predictors were nearly (but not quite) statistically significant ( $p < .06$ ): anxiety and counselor ratings of the inmate's rapport with others. Inmates who displayed greater hostility within 30 days of their entry into TC were more likely to be reincarcerated during the two-year follow-up period. Surprisingly, inmates who reported greater therapeutic engagement and greater rapport with counselors at time 1 were also more likely to be reincarcerated. Inmates who report positive progress after only 30 days of treatment may be displaying social desirability response bias rather than genuine change. Inmates who perceived greater program structure (e.g., perceptions that TC meetings and activities were well organized and productive, rules were fair and appropriate), however, showed significantly lower rates of reincarceration, suggesting that treatment quality makes a difference in lowering recidivism. Inmates who displayed greater rapport with other TC inmates (as rated by counselors) in the early phases of treatment were somewhat less likely to recidivate, although this effect did not reach statistical significance.

We then estimated reincarceration rates using predicted probabilities from logistic regression equations in Model 1.<sup>26</sup> Figure 2 shows that TC resulted in a significantly reduced probability of reincarceration (30% v. 41%), even when results were adjusted for the effects of all control variables. Figure 3 shows how full-time employment dramatically reduced the probability of reincarceration. Figure 4 shows (non-significant) reincarceration rates across the five institutions.

Life tables for survival and risk (hazard) of reincarceration are shown in Table 11. For the comparison group, 154 (48%) of the 316 recidivists were reincarcerated within 6 months following their release from prison. Fully 264 (84%) of the recidivists in the comparison group were returned to prison within 12 months. For the experimental group, 53 (49%) of the 108 recidivists were reincarcerated within 6 months, and 87 (81%) were reincarcerated within 12 months. It is clear that the first 12 months

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<sup>26</sup> Probabilities of reincarceration for different groups were estimated using logistic regression equations with all predictor and control variables entered:  $\text{Prob}(\text{event}) = (1/(1 + e^{-Z}))$ , where  $Z = \sum B_k X_{ik}$  (Hanushek and Jackson, 1977; Lichter, 1989, Norusis, 1990).

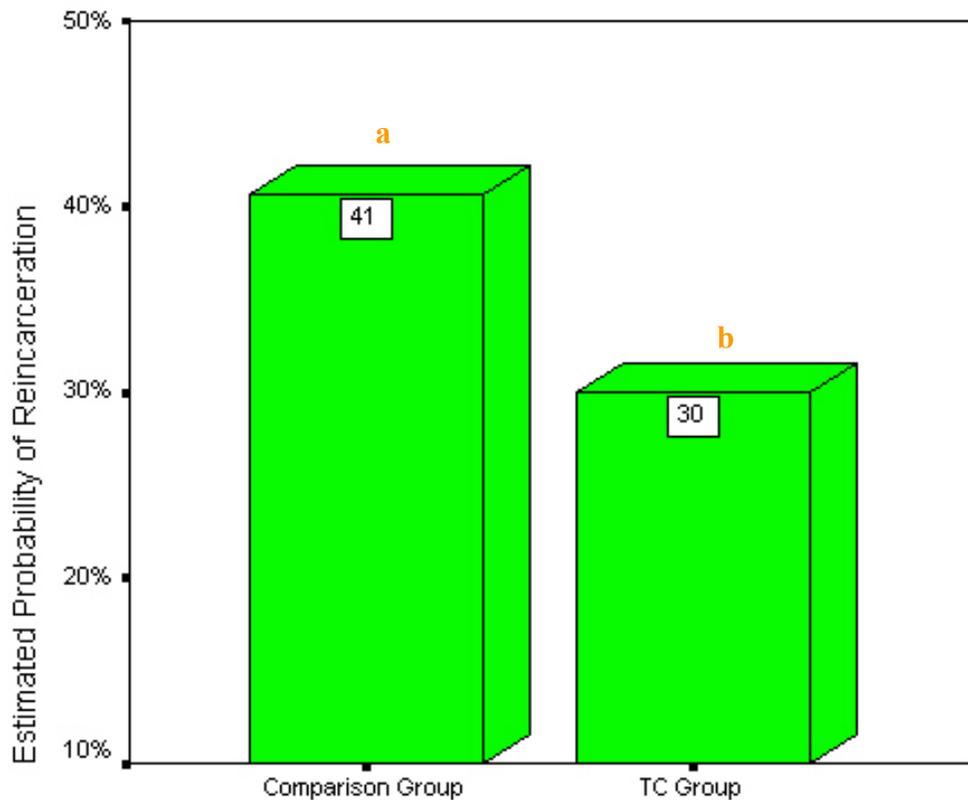
following release from prison make up the vast majority of reincarcerations in both groups, providing strong evidence that this time period is critical in any attempt to understand or prevent recidivism.

**Table 10****Stepwise Logistic Regression of Reincarceration on Predictor and Control Variables**

	Model 1				Model 2		
	B		S.E.	Exp(B)	B	S.E.	Exp(B)
Age	-.026 *		.010	.975	----		
Time To Minimum	----				----		
OGS-Current	----				----		
OGS-Prior	----				----		
Drug Score	.192 *		.094	1.211	----		
TxGrad	----				----		
Progtype(1)	.477 *		.206	1.611	----		
Prison	----				----		
Prison(1)	----				----		
Prison(2)	----				----		
Prison(3)	----				----		
Prison(4)	----				----		
Employment Status		*				*	
Employment Status (1)	-2.216 *		.228	.109	-3.901 *	.890	.020
Employment Status (2)	-1.689 *		.436	.185	-3.517	1.856	.030
Employment Status (3)	-1.790 *		.213	.167	-3.145 *	.836	.043
Anxiety					.053	.029	1.055
Hostility					.072 *	.026	1.074
Therapeutic Engagement					.092 *	.046	1.096
Counselor Rapport					.148 *	.050	1.160
Program Structure					-.247 *	.062	.781
Rapport With Others (CRC)					-.074	.040	.929
Constant	1.162 *		.419	3.197	-2.833	2.323	.059
Chi-square (df)	163.05 *				75.02 *		
	(6 df)				(9 df)		
-2 Log likelihood	773.21				69.419		
N of cases	708				117		

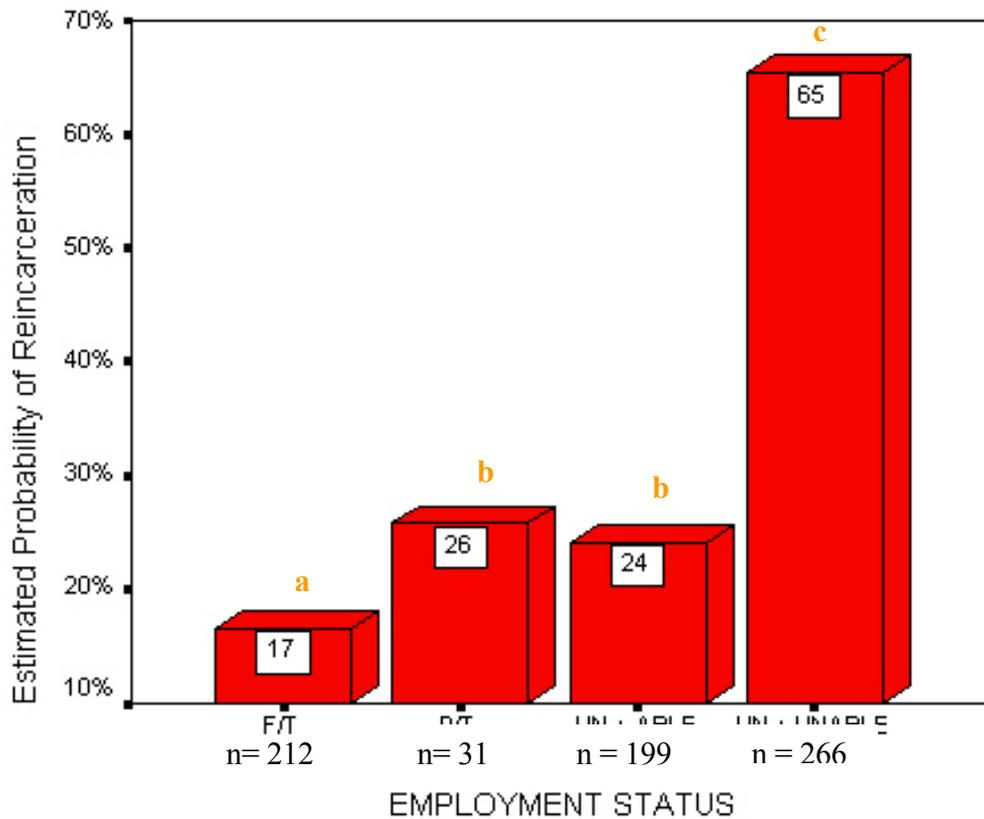
\*p &lt; .05

Note. TIME TO MIN = Time remaining to minimum release date at time of program admission; OGS = Offense Gravity Score, Current and Prior (1 - 10); TxGRAD: 1 = SUCCESSFULLY COMPLETED TREATMENT, 2 = UNSUCCESSFULLY DISCHARGED); PROGTYPE: 1 = COMPARISON GROUP, 0 = TC. PRISON: 1 = CRESSON, 2 = GRATERFORD, 3 = HOUTZDALE, 4 = HUNTINGDON; EMPST(1) = full time employment, EMPST(2) = part time employment, EMPST(3) = unemployed and able.



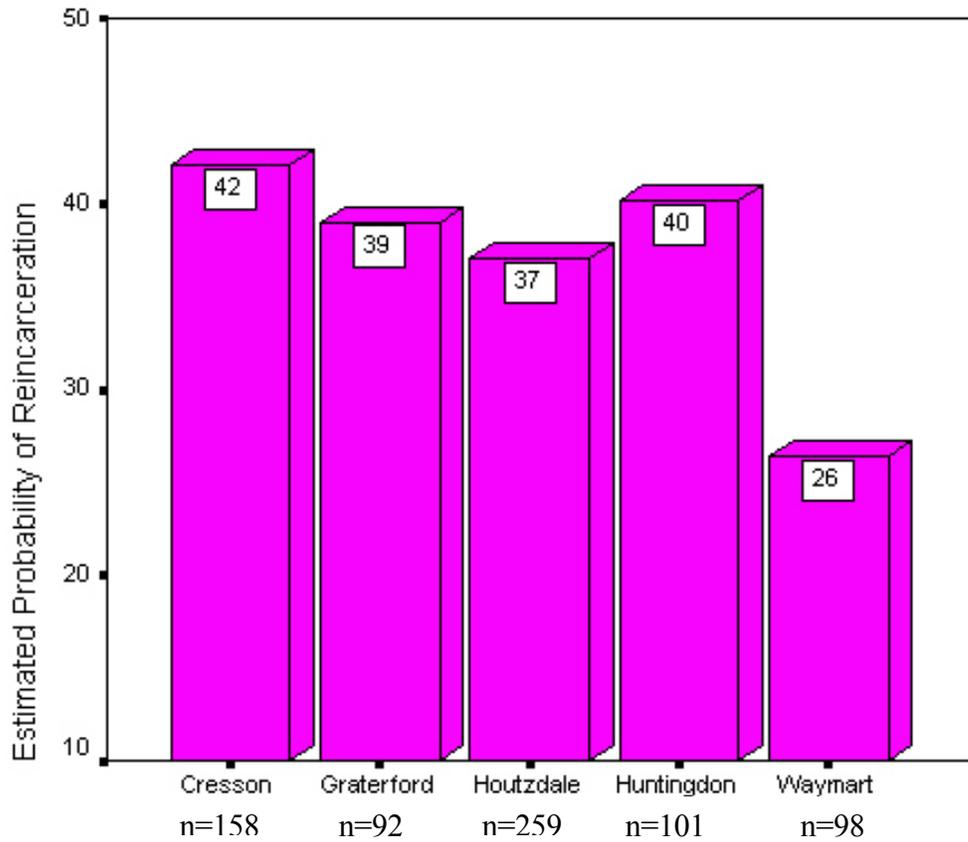
Note. Estimated probabilities are adjusted for all control variables, using logistic regression coefficients reported in Table 10, Model 1. Based on stepwise logistic regression results (Forward conditional) where N = 708 (TC = 217; Comp = 491). Criteria: pin (.1) pout (.1). Means with different subscripts are significantly different from each other ( $p < .05$ ).

**Figure 2. Estimated Probabilities of Reincarceration for Comparison and TC Groups (Adjusted for Control Variables): Two-Year Follow-up Results**



Note. Estimated probabilities are adjusted for all control variables, using logistic regression coefficients reported in Table 10, Model 1. Based on stepwise logistic regression results (Forward conditional) where N = 708 (TC = 217; Comp = 491). Criteria: pin (.1) pout (.1). Means with different subscripts are significantly different from each other ( $p < .05$ ).

**Figure 3. Estimated Probabilities of Reincarceration by Post-Release Employment Status (Adjusted for Control Variables)**



Note. Estimated probabilities are adjusted for all control variables, using logistic regression coefficients reported in Table 10, Model 1. Based on stepwise logistic regression results (Forward conditional) where N = 708 (TC = 217; Comp = 491). Criteria: pin (.1) pout (.1). Means with different subscripts are significantly different from each other ( $p < .05$ ).

**Figure 4. Estimated Probabilities of Reincarceration by Institution (Adjusted for Control Variables)**

**Table 11**  
**Survival Analysis: Life Tables for Reincarceration**

Survival Variable SURVIV3 survival in months  
 for COMP\_GRP comparison groups (TC v. Ed. or Outpatient)  
 = 0 Comparison Group

Intrvl Start Time	Number Entrng this Intrvl	Number Wdrawn During Intrvl	Number Exposed to Risk	Number of Termnl Events	Propn Termi-nating	Propn Sur-viving	Cumul Propn Surv at End	Proba-bility Densty	Hazard Rate
.0	316.0	.0	316.0	154.0	.4873	.5127	.5127	.0812	.1074
6.0	162.0	.0	162.0	110.0	.6790	.3210	.1646	.0580	.1713
12.0	52.0	.0	52.0	37.0	.7115	.2885	.0475	.0195	.1841
18.0	15.0	.0	15.0	14.0	.9333	.0667	.0032	.0074	.2917
24.0+	1.0	.0	1.0	1.0	1.0000	.0000	.0000	**	**

Intrvl Start Time	SE of Cumul Sur-viving	SE of Proba-bility Densty	SE of Hazard Rate
.0	.0281	.0047	.0082
6.0	.0209	.0045	.0140
12.0	.0120	.0030	.0252
18.0	.0032	.0019	.0377
24.0+	.0000	**	**

Survival Variable SURVIV3 survival in months  
 for COMP\_GRP comparison groups (TC v. Ed. or Outpatient)  
 = 1 Experimental (TC) Group

Intrvl Start Time	Number Entrng this Intrvl	Number Wdrawn During Intrvl	Number Exposed to Risk	Number of Termnl Events	Propn Termi-nating	Propn Sur-viving	Cumul Propn Surv at End	Proba-bility Densty	Hazard Rate
.0	108.0	.0	108.0	53.0	.4907	.5093	.5093	.0818	.1084
6.0	55.0	.0	55.0	34.0	.6182	.3818	.1944	.0525	.1491
12.0	21.0	.0	21.0	17.0	.8095	.1905	.0370	.0262	.2267
18.0	4.0	.0	4.0	4.0	1.0000	.0000	.0000	.0062	.3333

Intrvl Start Time	SE of Cumul Sur-viving	SE of Proba-bility Densty	SE of Hazard Rate
.0	.0481	.0080	.0141
6.0	.0381	.0074	.0229
12.0	.0182	.0058	.0403
18.0	.0000	.0030	.0000

## Rearrests

Using logistic regression, we next examined the impact of TC on rearrest rates, controlling for selection differences between the TC and Comparison groups (Table 12). Control variables included prior and current criminal history, time remaining to minimum sentence at the time of program admission, age at the time of program admission, and standardized drug score (z-score). Other predictors included membership in either the TC (treatment) or Comparison group.

Three other categorical variables were entered as predictors. First, we examined whether the effects of TC varied by institution, since some differences in TC implementation were observed at the five institutions. We entered a categorical variable that reflected the effect of the institutional setting of each TC program. A second categorical variable reflected post-release employment status (full-time, part-time, unemployed but able, and unemployed and unable to work).<sup>27</sup> A third categorical variable represented whether the inmate successfully completed his treatment program or not. Inspections for possible multicollinearity revealed no difficulties (e.g., no paired correlations exceeded .40).

None of the institutional effects were statistically significant, suggesting that the impact of TC on rearrest was invariant across the five institutions. Several other variables failed to reach statistical significance and dropped out of the equation: time remaining to minimum release date, current offense gravity score, and reason for treatment discharge (successful vs. unsuccessful).

Variables that significantly predicted rearrest included participation in the Comparison rather than TC group (Comparison group inmates were 1.5 times more likely to be rearrested, even when controlling for potential selection differences), age (younger inmates had a higher rate of rearrest), prior offense gravity score (inmates with a more serious criminal history had a higher rate of rearrest), and post-release employment status (inmates employed full-time had a much lower rate of reincarceration). We emphasize that these effects remained statistically significant even when controlling for potential selection biases

(i.e., differences in inmates admitted into the TC vs. Comparison groups), a major deficit of previous studies.

We also wished to examine the impact on rearrest of changes in inmate psychosocial characteristics and perceptions of treatment over time (as measured by REST and CRC scales). Because current sample sizes<sup>28</sup> were too small to conduct meaningful multivariate analyses with the change scores, we instead entered REST and CRC scores from time 1 only. While these scores do not reflect change over time, they do provide valuable assessments of inmate psychosocial characteristics during the early stages of treatment. Inmates with certain types of needs/skills may be more/less likely to recidivate, controlling for other inmate differences (e.g., assessed level of need for drug treatment, current and prior criminal history). The results are shown in Table 12, Model 2.<sup>29</sup>

Significant predictors of rearrest in Model 2 included post-release employment status, time remaining until minimum release date, and current offense severity. It is interesting that time remaining to minimum becomes significant (compared to Model 1) when inmate psychological differences are entered and controlled for. Model 2 also shows that current offense severity rather than prior offense severity (Model 1) becomes a significant predictor when psychosocial scales are entered into analyses. None of the 18 REST scales or the 8 CRC scales significantly predicted rearrest rates, however.

Next, we estimated rearrest rates using predicted probabilities from logistic regression equations in Model 1.<sup>30</sup> Figure 5 shows that TC resulted in a significantly reduced probability of rearrest (24% v. 33%), even when results were adjusted for the effects of all control variables. Figure 6 shows how full-

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<sup>27</sup> We used the most recent employment status available from automated Parole Board data.

<sup>28</sup> As more of the TC inmates who were tested twice on the REST and CRC are released, larger and more adequate samples will be available for analyses (see Tables 7 and 8).

<sup>29</sup> All eighteen REST subscales and all eight CRC subscales were entered, but none resulted in statistically significant coefficients and thus fell out of the stepwise equation.

<sup>30</sup> Probabilities of rearrest for different groups were estimated using logistic regression equations with all predictor and control variables entered:  $\text{Prob}(\text{event}) = 1/(1 + e^{-Z})$ , where  $Z = \sum B_k X_{ik}$  (Hanushek and Jackson, 1977; Lichter, 1989, Norusis, 1990).

time employment dramatically reduced the probability of rearrest. Figure 7 shows rearrest rates across the five institutions—recall that none of these differences reached statistical significance.

Life tables for survival and risk (hazard) of rearrest are shown in Table 13. For the comparison group, 130 (37%) of the 349 rearrestees were reincarcerated within 6 months following their release from prison; 241 (69%) of the rearrestees in the comparison group were returned to prison within 12 months. This percentage is lower than the 84% reincarcerated during the same 12-month period (Table 11), due to the high rate of prisoners returned to prison for technical violations rather than new arrests for criminal offenses. For the experimental group, 41 (41%) of the 99 rearrestees were rearrested within 6 months, and 73 (74%) were rearrested within 12 months. The first 12 months following release from prison accounts for the vast majority of rearrests in both groups, again confirming how critical this time period is for understanding recidivism. Although the experimental group overall had a significantly lower rearrest rate than the comparison group (Figure 5), Table 13 shows that the time elapsed until rearrest for the two groups was highly similar.

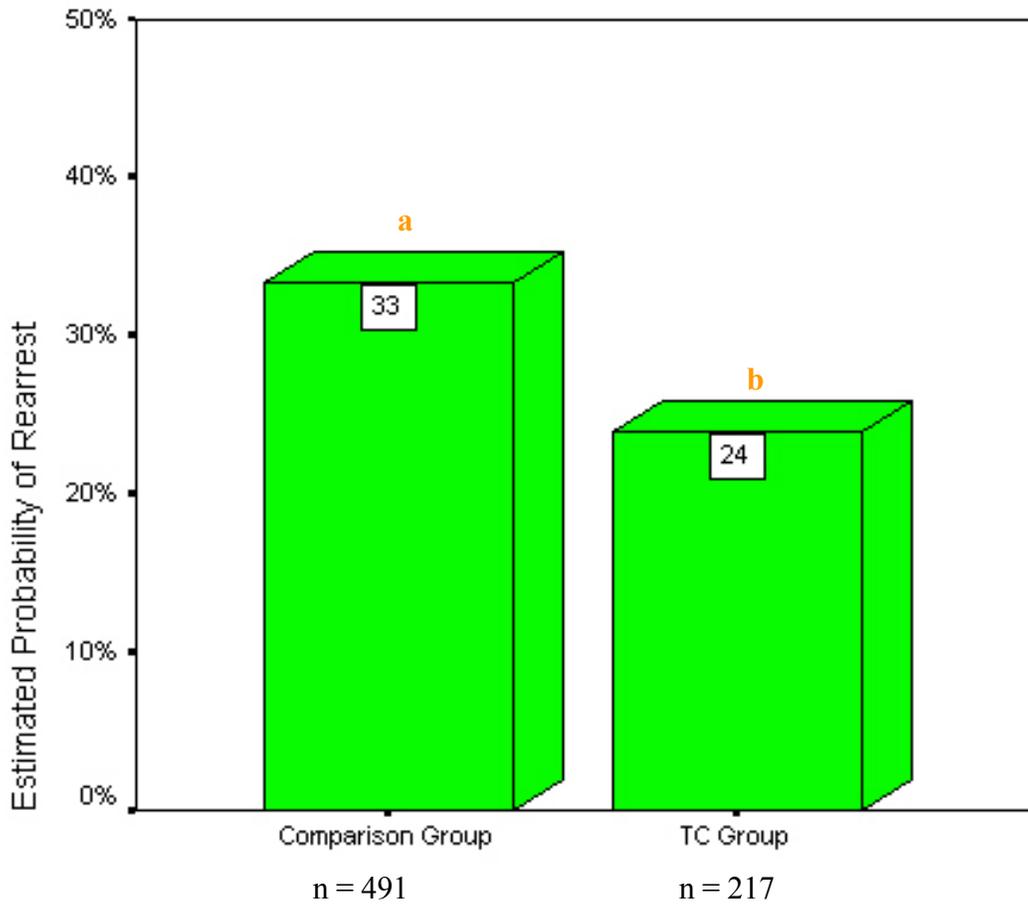
**Table 12****Logistic Regression of Rearrest on Predictor and Control Variables**

	Model 1			Model 2		
	B	S.E.	Exp(B)	B	S.E.	Exp(B)
AGE	-.044 *	.010	.957	-----		
TIME TO MIN	-----			-.018	.010	.982
OGS-CURRENT	-----			.272 *	.133	1.313
OGS-PRIOR	.119 *	.034	1.126	-----		
DRUG SCORE	-----	.135	1.178	-----		
TxGRAD	-----			-----		
PROGTYPE(1)	.392 *	.195	1.480	-----		
PRISON	-----			-----		
PRISON(1)	-----			-----		
PRISON(2)	-----			-----		
PRISON(3)	-----			-----		
PRISON(4)	-----			-----		
EMPST						*
EMPST(1)	-.964 *	.216	.381	-1.597 *	.596	.203
EMPST(2)	-.224	.410	.800	.381	1.327	1.464
EMPST(3)	-.609 *	.208	.544	-1.207	.658	.299
REST Scales (18)				-----		
CRC Scales (8)				-----		
Constant	.239	.440	1.271	-2.158 *	.834	.116
Chi-square (df)	63.42 *			14.22 *		
	(6 df)			(5 df)		
-2 Log likelihood	814.06			104.52		
N of cases	708			117		

\*p &lt; .05

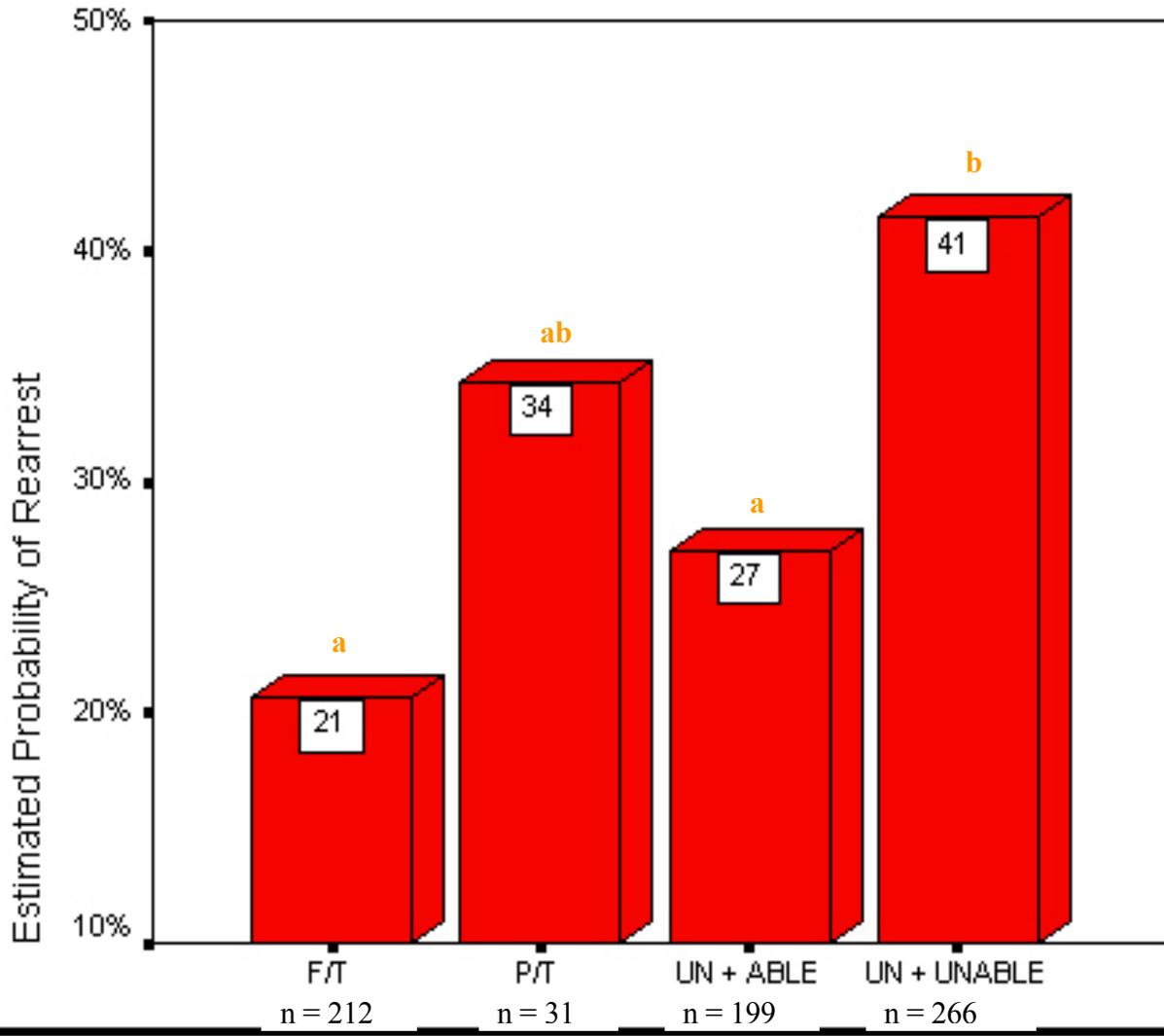
Note. TIME TO MIN = Time remaining to minimum release date at time of program admission; OGS = Offense Gravity Score, Current and Prior (1 - 10); TxGRAD: 1 = SUCCESSFULLY COMPLETED TREATMENT, 2 = UNSUCCESSFULLY DISCHARGED); PROGTYPE: 1 = COMPARISON GROUP, 0 = TC. PRISON: 1 = CRESSON, 2 = GRATERFORD, 3 = HOUTZDALE, 4 = HUNTINGDON; EMPST(1) = full time employment, EMPST(2) = part time employment, EMPST(3) = unemployed and able.

None of the REST or CRC coefficients reached statistical significance. For a list of REST and CRC scales, see Tables 7 and 8.



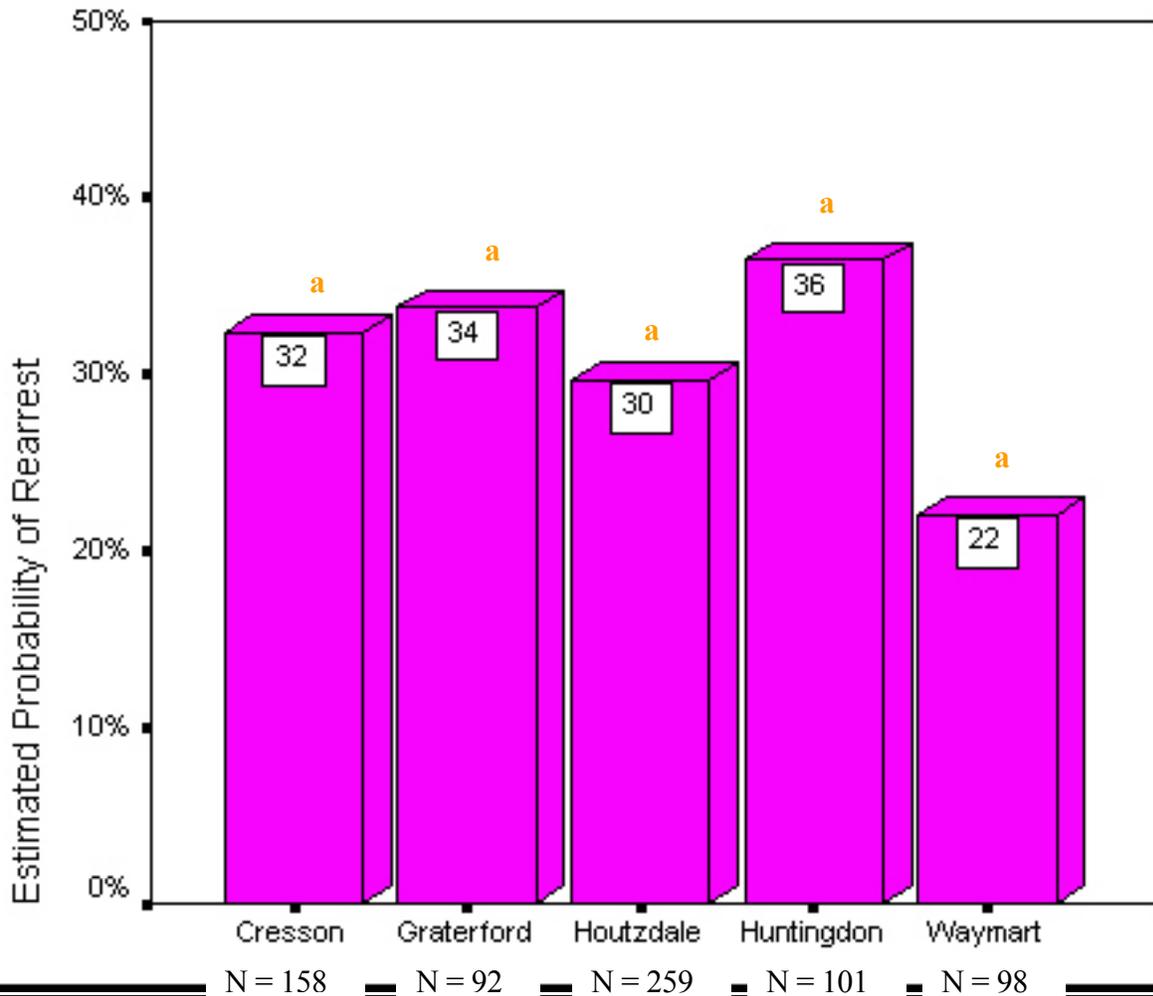
Note. Estimated probabilities are adjusted for all control variables, using logistic regression coefficients reported in Table 12, Model 1. Based on stepwise logistic regression results (Forward conditional) where N = 708 (TC = 217; Comp = 491). Criteria: pin (.1) pout (.1)  
Means with different subscripts are significantly different from each other ( $p < .05$ ).

**Figure 5. Estimated Probabilities of Rearrest for Comparison and TC Groups (Adjusted for Control Variables): Two-Year Follow-up Results**



Note. Estimated probabilities are adjusted for all control variables, using logistic regression coefficients reported in Table 12, Model 1. Based on stepwise logistic regression results (Forward conditional) where N = 708 (TC = 217; Comp = 491). Criteria: pin (.1) pout (.1). Means with different subscripts are significantly different from each other ( $p < .05$ ).

**Figure 6. Estimated Probabilities of Rearrest by Post-Release Employment Status (Adjusted for Control Variables): Two-Year Follow-up Results**



Note. Estimated probabilities are adjusted for all control variables, using logistic regression coefficients reported in Table 12, Model 1. Based on stepwise logistic regression results (Forward conditional) where N = 708 (TC = 217; Comp = 491). Criteria: pin (.1) pout (.1). Means with different subscripts are significantly different from each other ( $p < .05$ ).

**Figure 7. Estimated Probabilities of Rearrest by Institution (Adjusted for Control Variables): Two-Year Follow-up Results**

**Table 13**  
**Survival Analysis: Life Tables for Rearrest**

Life Table

Survival Variable PCCD\_SUR survival - pccd3  
 for COMP\_GRP comparison groups (TC v. Ed. or Outpatient)  
 = 0 Comparison Group

Intrvl Start Time	Number Entrng this Intrvl	Number Wdrawn During Intrvl	Number Exposed to Risk	Number of Termnl Events	Propn Termi-nating	Propn Sur-viving	Cumul Propn Surv at End	Proba-bility Densty	Hazard Rate
.0	349.0	.0	349.0	130.0	.3725	.6275	.6275	.0621	.0763
6.0	219.0	2.0	218.0	111.0	.5092	.4908	.3080	.0533	.1138
12.0	106.0	.0	106.0	65.0	.6132	.3868	.1191	.0315	.1474
18.0	41.0	.0	41.0	34.0	.8293	.1707	.0203	.0165	.2361
24.0+	7.0	.0	7.0	7.0	1.0000	.0000	.0000	**	**

Intrvl Start Time	SE of Cumul Sur-viving	SE of Proba-bility Densty	SE of Hazard Rate
.0	.0259	.0043	.0065
6.0	.0248	.0042	.0102
12.0	.0174	.0035	.0164
18.0	.0076	.0027	.0286
24.0+	.0000	**	**

Life Table

Survival Variable PCCD\_SUR survival - pccd3  
 for COMP\_GRP comparison groups (TC v. Ed. or Outpatient)  
 = 1 TC Group

Intrvl Start Time	Number Entrng this Intrvl	Number Wdrawn During Intrvl	Number Exposed to Risk	Number of Termnl Events	Propn Termi-nating	Propn Sur-viving	Cumul Propn Surv at End	Proba-bility Densty	Hazard Rate
.0	99.0	.0	99.0	41.0	.4141	.5859	.5859	.0690	.0870
6.0	58.0	.0	58.0	32.0	.5517	.4483	.2626	.0539	.1270
12.0	26.0	.0	26.0	16.0	.6154	.3846	.1010	.0269	.1481
18.0	10.0	.0	10.0	8.0	.8000	.2000	.0202	.0135	.2222
24.0+	2.0	.0	2.0	2.0	1.0000	.0000	.0000	**	**

Intrvl Start Time	SE of Cumul Sur-viving	SE of Proba-bility Densty	SE of Hazard Rate
.0	.0495	.0083	.0131
6.0	.0442	.0078	.0208
12.0	.0303	.0062	.0332
18.0	.0141	.0046	.0586
24.0+	.0000	**	**

## Drug Relapse and Other Parole Data

We received several types of post-release data from the Pennsylvania Board of Probation and Parole (PBPP), including risk supervision level, current supervision status, drug testing results, and employment status data.<sup>31</sup> Different data types varied in completeness.

Of 894 parolees for whom we received risk level data, 46 (5%) were classified by PBPP as a Minimum risk grade for supervision; 194 (22%) were classified as Medium, 604 (68%) were classified as Maximum, and 51 (6%) were classified as Enhanced. Of the 894 that we received employment data for, 260 (29%) were employed full-time, 34 (4%) were employed part time, 257 (29%) were unemployed but able, and 343 (38%) were unemployed and not able to work.

Of 915 parolees for whom we received supervision status data, 482 (53%) were reporting regularly, although 74 of the 482 were in Community Correctional Centers, where their freedom and movement were more restricted. Eighteen parolees (2%) were being held on county detainers or in mental institutions. The rest of the sample had already gotten into trouble in various ways. Sixty-one parolees (7%) had simply absconded. No fewer than 124 (14%) were rearrested, and 230 (25%) were revoked for technical violations. The rearrest and reincarceration rates reported earlier, therefore, may be conservative outcome measures by comparison. Many of these wayward parolees may eventually make their way back to state prison, some for a short visit (i.e., technical violators) and others for more extended stays (i.e., new convictions).

Drug testing data received for 947 parolees were the most thorough and complete (i.e., fewest missing cases). Relapse analyses examined 202 inmates in the Experimental (TC) group, and 448 inmates in the Comparison group. Because only a portion of inmates in the sample (especially TC graduates) had

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<sup>31</sup> Computerized data on parolee participation in aftercare treatment and more detailed employment measures (e.g., length and type of employment, employee performance) were not available from PBPP at this time. While the quality and intensity of aftercare treatment provided to ex-offenders was unknown,

been released from prison so far, we preferred the use of statistical controls to matching in order to minimize the loss of cases. Overall, positive drug tests occurred most frequently for cocaine (58% of those testing positive), cannabinoids (25%), opiates (21%), and ethanol (16%).

Using logistic regression, we next examined the impact of TC on drug relapse rates, controlling for selection differences between the TC and Comparison groups (Table 14). Control variables included prior and current criminal history, time remaining to minimum sentence at the time of program admission, age at the time of program admission, and standardized drug score (z-score). Other predictors included membership in either the TC (treatment) or Comparison group.

Three other categorical variables were entered as predictors. First, we examined whether the effects of TC varied by institution, since some differences in TC implementation were observed at the five institutions. We entered a categorical variable that reflected the effect of the institutional setting of each TC program. A second categorical variable reflected post-release employment status (full-time, part-time, unemployed but able, and unemployed and unable to work).<sup>32</sup> A third categorical variable represented whether the inmate successfully completed his treatment program or not. Inspections for possible multicollinearity revealed no difficulties (e.g., no paired correlations exceeded .40).

In contrast to findings reported for reincarceration and rearrest, institutional effects on drug relapse rates were statistically significant, suggesting that the impact of TC on drug relapse depended upon which institution the inmate received treatment at. Table 14 shows that two of the institutions (Cresson and Houtzdale) had significantly higher rates of drug relapse than the other three institutions. Examining the log-odds ratios reported in Table 14, we see that Inmates at Cresson and Houtzdale were 2.5 and 2.3 times as likely to relapse as other inmates in the sample.

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there was no reason to suspect that inmates in the TC v. Comparison group received different levels of aftercare, or that aftercare affected either group differently.

<sup>32</sup> We used the most recent employment status available from automated Parole Board data.

Other variables that significantly predicted drug relapse included age (younger inmates had a higher rate of relapse) and post-release employment status (inmates employed full-time had a much lower rate of relapse). Examining the log-odds ratios reported in Table 14, we see that inmates employed full-time after release from prison were only about half as likely to relapse as other inmates in the sample. We emphasize that these effects were statistically significant even when controlling for potential selection biases (i.e., differences in inmates admitted into the TC vs. Comparison groups), a major deficit of previous studies.

Several other variables failed to reach statistical significance and dropped out of the equation: time remaining to minimum release date, current and prior offense gravity scores, drug score, reason for treatment discharge (successful vs. unsuccessful), and treatment group (TC vs. Comparison group). The effect of TC on drug relapse (controlling for initial inmate differences) was nonsignificant.

We also wished to examine the impact on drug relapse of changes in inmate psychosocial characteristics and perceptions of treatment over time (as measured by REST and CRC scales). Unfortunately, too few of the TC inmates who had been tested on two or more occasions (at six-month intervals) had been released from prison at this time, leaving fewer than 100 cases for analyses ( $n = 44$ ),<sup>33</sup> inadequate to conduct meaningful multivariate analyses. We instead entered REST and CRC scores from time 1 only, controlling for other inmate differences (e.g., assessed level of need for drug treatment, current and prior criminal history). While these scores do not reflect change over time, they do provide valuable assessments of inmate psychosocial functioning that may be predictive of recidivism. The results are shown in Table 14, Model 2.<sup>34</sup>

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<sup>33</sup> As more of the TC inmates who were tested twice on the REST and CRC are released, larger samples will be available for analyses (see Tables 7 and 8).

<sup>34</sup> All eighteen REST subscales and all eight CRC subscales were entered, but only those resulting in statistically significant coefficients were shown here.

Significant predictors of relapse in Model 2 included age, post-release employment status, self-efficacy at time 1, risk taking at time 1, and a focus on self-confrontation at time 1. Inmates who displayed greater self-efficacy (i.e., psychological and social resources for coping with stress) within 30 days of their entry into TC were less likely to be relapse during the two-year follow-up period. Inmates who reported greater risk taking (i.e., higher likelihood of committing dangerous acts and perceiving excitement associated with such acts) were more likely to relapse, while inmates whose counselors reported a greater emphasis on self-confrontation during therapy sessions at time 1 were also more likely to relapse. It would be reasonable to conclude that inmates who counselors feel need to focus on self-confrontation issues have identified deficits in doing so. The picture that emerges from these data so far suggests that inmates with high levels of psychological need and low levels of coping resources require more focused, individualized attention to prevent relapse. The results in Model 2 also indicate that institutional effects (see Model 1) become non-significant when differences in inmate psychosocial functioning are controlled for (Model 2).

We then estimated relapse rates using predicted probabilities from logistic regression equations in Model 1.<sup>35</sup> Figure 8 shows that TC did not significantly reduce the probability of drug relapse in this sample (39% v. 35%), even when results were adjusted for the effects of all control variables. Figure 9 shows that full-time employment dramatically reduced the probability of relapse. Figure 10 shows relapse rates across the five institutions. Lowest relapse rates were observed for Waymart and Huntingdon, closely followed by Graterford.

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<sup>35</sup> Probabilities of relapse for different groups were estimated using logistic regression equations with all predictor and control variables entered:  $\text{Prob}(\text{event}) = 1/(1 + e^{-Z})$ , where  $Z = \sum B_k X_{ik}$  (Hanushek and Jackson, 1977; Lichter, 1989, Norusis, 1990).

Life tables for survival and risk (hazard) of relapse are shown in Table 15.<sup>36</sup> For the comparison group, 152 (72%) of the 212 inmates who tested positive for one or more illegal drugs relapsed within 6 months following their release from prison; 197 (93%) of those who relapsed did so within 12 months. For the experimental group, 45 (64%) of the 70 inmates who relapsed did so within 6 months of their release from prison, and 65 (93%) relapsed within 12 months. Table 15 shows that the time elapsed until relapse for the two groups was highly similar.

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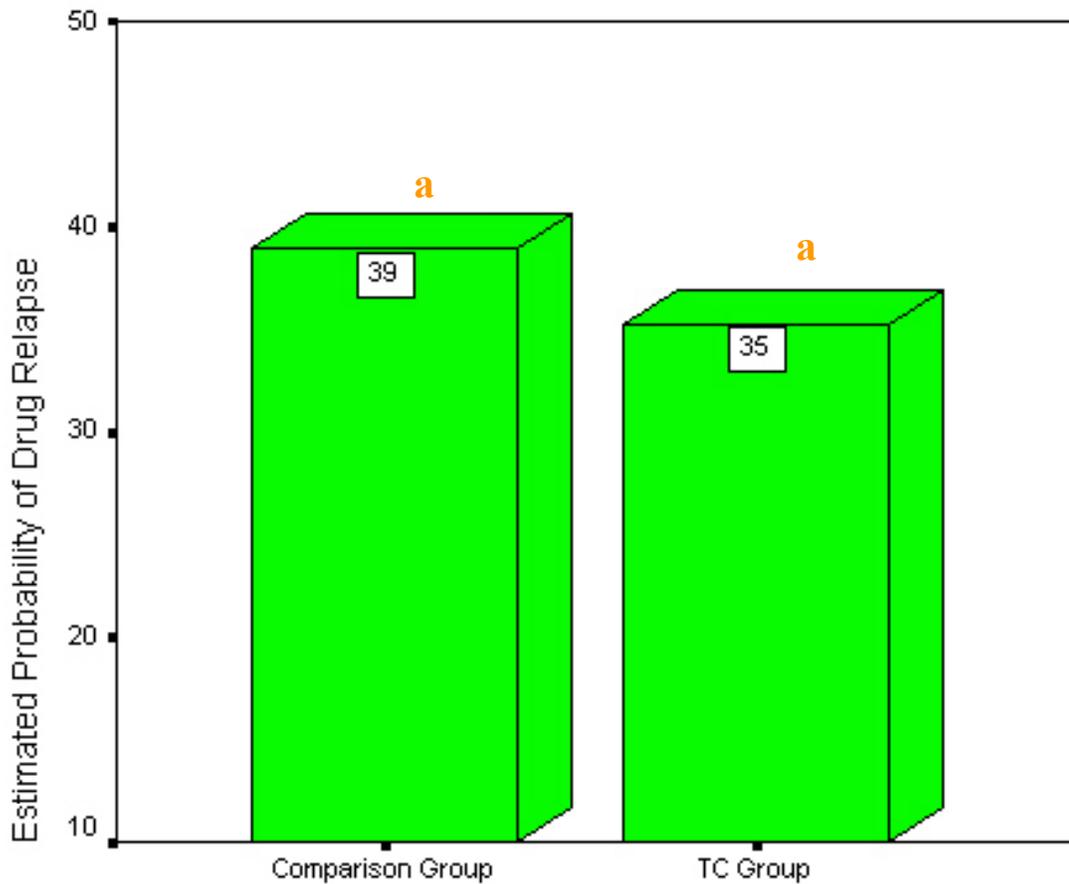
<sup>36</sup> Due to missing data and lags between the time of data collection and the time of data entry at the Parole Board, the sample sizes and follow-up periods available for drug relapse analyses were smaller than those available for the other outcome variables. It would be highly beneficial to conduct further research to extend the follow-up period for this sample and collect additional data.

**Table 14****Logistic Regression of Drug Relapse on Predictor and Control Variables**

	Model 1			Model 2		
	B	S.E.	Exp(B)	B	S.E.	Exp(B)
Age	.021 *	.010	1.022	.048	.027	1.049
Time To Min	-----			-----		
OGS-Current	-----			-----		
OGS-Prior	-----			-----		
Drug Score	-----			-----		
TxGrad	-----			-----		
Proctype(1)	-----			-----		
<b>Prison</b>						
Prison(1)	.934 *	.309	2.544	-----		
Prison(2)	.550	.353	1.734	-----		
Prison(3)	.831 *	.283	2.295	-----		
Prison(4)	.407	.346	1.502	-----		
<b>Employment Status</b>						
Employment Status (1)	-.582 *	.207	.559	-1.132 *	.562	.322
Employment Status (2)	-.205	.413	.815	22.495	21941.7	5.88+09
Employment Status (3)	-.285	.205	.752	-.098	.595	.907
<b>Self Efficacy (REST)</b>				-.085 *	.044	.918
<b>Risk Taking (REST)</b>				.066 *	.028	1.068
<b>Self Confrontation (CRC)</b>				.052 *	.025	1.053
<b>Constant</b>	-1.78 *	.536	.169	-2.891	3.318	.056
<b>Chi-Square (Df)</b>	28.96 *			26.27		
	(8 df)			(7 df)		
<b>-2 Log Likelihood</b>	830.30			109.77		
<b>N Of Cases</b>	650			110		

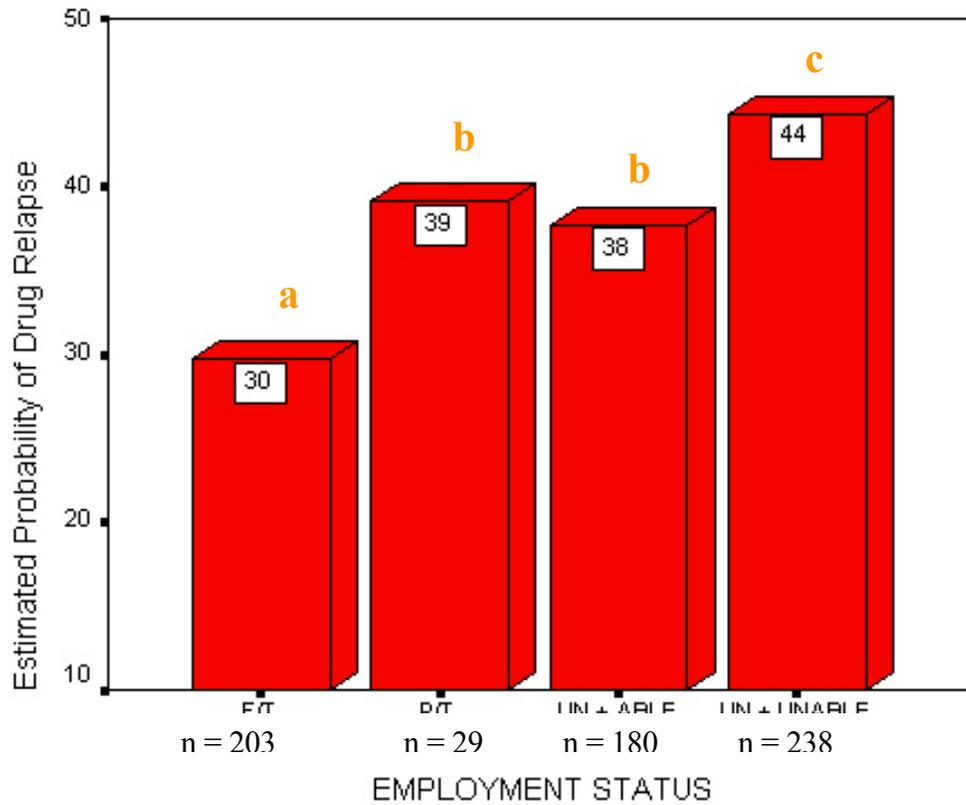
\*p &lt; .05

Note. TIME TO MIN = Time remaining to minimum release date at time of program admission; OGS = Offense Gravity Score, Current and Prior (1 - 10); TxGRAD: 1 = SUCCESSFULLY COMPLETED TREATMENT, 2 = UNSUCCESSFULLY DISCHARGED; PROGTYPE: 1 = COMPARISON GROUP, 0 = TC. PRISON: 1 = CRESSON, 2 = GRATERFORD, 3 = HOUTZDALE, 4 = HUNTINGDON; EMPLOYMENT STATUS (1) = full time employment, EMPLOYMENT STATUS (2) = part time employment, EMPLOYMENT STATUS (3) = unemployed and able.



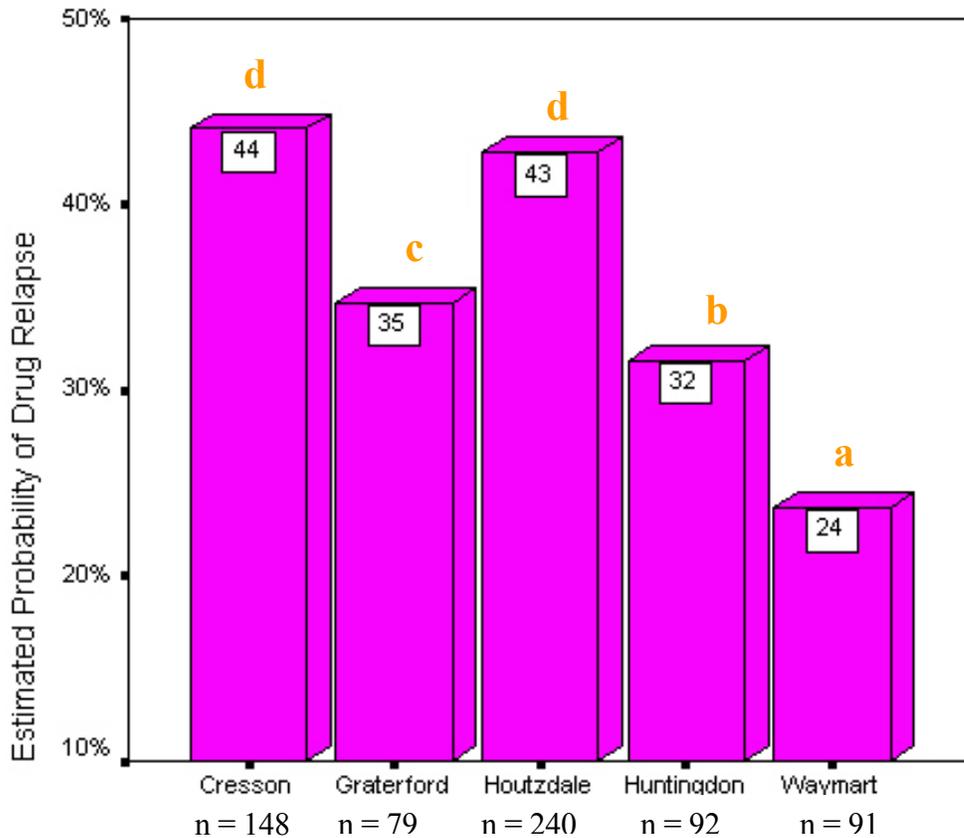
Note. Estimated probabilities are adjusted for all control variables, using logistic regression coefficients reported in Table 14, Model 1. Based on stepwise logistic regression results (Forward conditional) where N = 650 (TC = 202; Comparison = 448). Criteria: pin (.1) pout (.1) Means with different subscripts are significantly different from each other ( $p < .05$ ). The effect of TC was not significant at the .05 level of statistical significance.

**Figure 8. Estimated Probabilities of Drug Relapse by Comparison Group (Adjusted for Control Variables)**



Note. Estimated probabilities are adjusted for all control variables, using logistic regression coefficients reported in Table 14, Model 1. Based on stepwise logistic regression results (Forward conditional) where N = 650 (TC = 202; Comparison = 448). Criteria: pin (.1) pout (.1) Means with different subscripts are significantly different from each other (p < .05).

**Figure 9. Estimated Probabilities of Drug Relapse by Post-Release Employment Status (Adjusted for Control Variables): Two Year Follow-Up results**



Note. Estimated probabilities are adjusted for all control variables, using logistic regression coefficients reported in Table 14, Model 1. Based on stepwise logistic regression results (Forward conditional) where N = 650 (TC = 202; Comparison = 448). Criteria: pin (.1) pout (.1) Means with different subscripts are significantly different from each other (p < .05).

**Figure 10. Estimated Probabilities of Drug Relapse by Institution (Adjusted for Control Variables): Two Year Follow-Up Results**

**Table 15**  
**Survival Analysis: Life Tables for Drug Relapse**

Life Table  
Survival Variable RELAP\_SU drug relapse -survival  
for COMP\_GRP comparison groups (TC v. Ed. or Outpatient)  
= 0 Comparison Group

Intrvl Start Time	Number Entrng this Intrvl	Number Wdrawn During Intrvl	Number Exposd to Risk	Number of Termnl Events	Propn Termi-nating	Propn Sur-viving	Cumul Propn Surv at End	Proba-bility Densty	Hazard Rate
.0	212.0	.0	212.0	152.0	.7170	.2830	.2830	.1195	.1863
6.0	60.0	.0	60.0	45.0	.7500	.2500	.0708	.0354	.2000
12.0	15.0	.0	15.0	13.0	.8667	.1333	.0094	.0102	.2549
18.0	2.0	.0	2.0	2.0	1.0000	.0000	.0000	.0016	.3333

Intrvl Start Time	SE of Cumul Sur-viving	SE of Proba-bility Densty	SE of Hazard Rate
.0	.0309	.0052	.0125
6.0	.0176	.0047	.0239
12.0	.0066	.0027	.0456
18.0	.0000	.0011	.0000

Life Table  
Survival Variable RELAP\_SU drug relapse -survival  
for COMP\_GRP comparison groups (TC v. Ed. or Outpatient)  
= 1 TC Group

Intrvl Start Time	Number Entrng this Intrvl	Number Wdrawn During Intrvl	Number Exposd to Risk	Number of Termnl Events	Propn Termi-nating	Propn Sur-viving	Cumul Propn Surv at End	Proba-bility Densty	Hazard Rate
.0	70.0	.0	70.0	45.0	.6429	.3571	.3571	.1071	.1579
6.0	25.0	.0	25.0	20.0	.8000	.2000	.0714	.0476	.2222
12.0	5.0	.0	5.0	5.0	1.0000	.0000	.0000	.0119	.3333

Intrvl Start Time	SE of Cumul Sur-viving	SE of Proba-bility Densty	SE of Hazard Rate
.0	.0573	.0095	.0207
6.0	.0308	.0090	.0370
12.0	.0000	.0051	.0000

## V. CONCLUSIONS AND RECOMMENDATIONS

The purpose of this project was to examine multiple post-release outcomes for 2,809 inmates who participated in TC drug treatment programs or comparison groups at five state prisons, and to examine interactions between client selection, program structure, treatment process, responses to treatment and multiple measures of outcome.

Matched comparison groups made up of TC-eligible inmates participating in less intensive forms of treatment (e.g., short-term drug education and outpatient treatment groups) at the same five institutions were constructed based upon known predictors such as drug dependency, need for treatment and criminal history. Process and outcome measures incorporated institutional, intermediate (e.g., attitudinal and behavioral change) and post-release measures (e.g., drug relapse, rearrest, reincarceration). Below, we summarize findings, recommendations, and DOC responses to recommendations in five major areas: post-release outcomes, inmate characteristics, treatment process, programmatic variations, and information systems.

### ***Post Release Outcomes***

Overall, we found positive effects of TC on reincarceration rates and rearrest rates, but not drug relapse rates. Controlling for selection differences (e.g., criminal history and assessed level of need for drug treatment), reincarceration rates were significantly lower for TC inmates (30%) than Comparison inmates (41%). Interestingly, the strong, positive effects of TC were even surpassed in magnitude by post-release employment, with inmates employed full-time showing substantially lower rates of reincarceration, rearrest, and drug relapse, even when controlling for initial selection differences between the TC and Comparison groups. With the exception of drug relapse, programmatic effects were invariant across the five institutions.

TC significantly lowered the likelihood of reincarceration, especially when controlling for whether inmates successfully completed treatment or not. It appears that critics were right: proper diagnosis of treatment effects requires separate consideration of program graduates and failures (Austin, 1998). No significant interactions between TC and other variables (e.g., institutional setting, employment status) were found. Survival analyses showed visible effects of TC primarily after 12 months, although hazard rates began to rise sharply after 6 – 12 months.

Similar to findings for reincarceration, TC inmates had significantly lower rearrest rates (24%) than the Comparison group (33%) during the two-year follow-up period. Arrests, of course, may or may not result in formal charges, convictions, or reincarcerations. Confirmation of the positive effects of TC using multiple measures of recidivism strengthens the conclusion that TC is effective in reducing post-release recidivism. No significant interactions between TC and other variables (e.g., institutional setting, employment status) were found. However, full-time employment following release from prison once again showed a significant and substantial effect in lowering the likelihood of rearrest.

Last, but not least, we examined the effects of TC and other variables on parole outcomes including drug testing. Thirty-five percent of inmates in the TC group and 39% of inmates in the Comparison group had at least one positive drug test during the follow-up period. Although a positive drug test does not necessarily result in a technical parole violation (TPV), a new offense, a new arrest, or a new reincarceration, high relapse rates are certainly of concern. Relapse rates were significantly higher for two of the five institutions examined, the only instance in which we found any significant effect of institutional setting on treatment outcomes. Post-release employment once again had a strong effect on reducing the likelihood of relapse. Inmates who were employed full-time during the at-risk period were half as likely to test positive for drug use.

For each dependent variable, we also included interaction terms for variables found to significantly predict outcomes in previous analyses: institution X employment status, institution X comparison group, and comparison group X employment status. None of the interactions reached statistical significance.

Employment may help prevent drug relapse in several ways. First of all, to maintain full-time employment, the ex-offender's daily routine activities must be structured around work to a considerable degree rather than drug use or a criminal lifestyle. Second of all, full-time employment changes the nature and structure of one's peers. One might find positive role models to emulate at work, rather than (or in addition to) some of the negative ones that might be present in his/her neighborhood. Third, full-time employment can be rewarding to an ex-offender, in that it offers highly desired freedom and independence. Finally, full-time employment is heavily emphasized as part of an offender's release plan and recovery from substance abuse. It may be that some ex-offenders see employment as a tool to help them achieve meaningful goals (e.g., food and shelter; the potential for rebuilding meaningful relationships with friends and family). While studies of the reciprocal relationship between employment and incarceration have been inconclusive to date, there is evidence that employment may help an ex-offender to rebuild human and social capital following incarceration, resources that may play a considerable role in reducing the risk of reoffending (Western, Kling and Weiman, 2001).

**Finding:** Of the three major outcomes examined, TC significantly reduced the likelihood of reincarceration and rearrest, but not drug relapse. Post-release employment was strongly related to a lower likelihood of reincarceration, rearrest, and drug relapse.

**Recommendation:**

1. Correctional officials, in cooperation with Parole, Probation, Community Corrections Centers (CCC's) and privately contracted Community Correctional Facilities (CCF's) should further explore and evaluate strategies to enhance post-release employment prospects.

### **DOC Responses to Recommendation #1:**

- DOC began pilot testing a new Community Orientation and Reintegration Program (COR) in December of 2001. This program provides structured reentry preparation to inmates through two weeks of prison-based programming immediately prior to release from a state correctional institution, followed by four to six weeks of similar programming in a Community Corrections Facility after release. Programming includes job readiness training and placement, community and family reintegration, and decision-making skills. Beginning in fall of 2002, DOC began to implement COR on a system wide basis, with a majority of inmates released from DOC required to participate in the program.
- DOC also offers a mandatory, in-house Aftercare Program to ensure continuity of care for AOD abusing inmates moving from incarceration to the community (Pennsylvania Department of Corrections, 2002). The Aftercare Program is designed for inmates who have completed all of their AOD programming recommendations but have not yet qualified for community placement or parole. The program consists of 12 sessions lasting 2 hours each. Group size may not exceed 15 participants. Individuals have a chance to select specific treatment issues and obstacles to recovery. The Drug and Alcohol Treatment Specialist (DATS) who leads the group prioritizes individual and group objectives, and develops individualized treatment plans to be updated every thirty days. DATS inform inmates of the availability of AOD service in the community and encourage inmates to use these services.
- However, DOC officials state that much of the responsibility for inmate re-entry lies with community supervision agencies. At this time, it is difficult to reach beyond traditional roles

and service boundaries for brokering services across systems to facilitate continuity of care in the community. DOC is willing to explore this strategy further.

### ***Inmate Characteristics***

An inmate's total treatment exposure (duration and intensity) varies depending upon which specific combination of treatments the inmate enters and completes. Time in treatment and treatment exposure are among the most consistent predictors of drug relapse and recidivism (Lipton, 1995). Previous TC studies have often not accounted for these multiple program exposures; the perplexing result is that treatment migration seems likely and previously reported findings become questionable.

Treatment migration refers to problems in the delivery of treatment that result in biased comparison groups. The wrong treatment is delivered to one or more groups, or different treatment conditions are mixed. This sort of problem is surprisingly common and frequently unaddressed in evaluation studies, even those that attempt to use random assignment (Gartin, 1995). For example, Inciardi et al. (1997:266) state: "Many of the so-called no treatment comparison group did get some treatment help." While it is also true in our study that inmates in the comparison group received some treatment, the crucial questions are *what kind* of treatment, and *how much*?

Because we accounted for all admissions and discharges during the study period, we were able to precisely account for total treatment exposure for all inmates in our sample. Previous studies have failed to do so. Although we used a quasi-experimental design, rather than random assignment, we showed that the experimental (TC) and comparison groups differed dramatically on treatment exposure (by a factor of about 15:1), and we were able to examine the effects of treatment exposure as a control variable in our analyses.

Previous studies have often failed to account for program dropouts in analyses, prompting questions about the validity of their findings. As Austin (1998) and others have argued, treatment groups often evidenced only slightly lower reincarceration rates compared to control groups when program failures were included in calculations of recidivism (Austin, 1998). It is instructive to note that randomized designs do not eliminate biased attrition or problems such as treatment migration. Our results indicated that treatment effects were diminished but not eliminated when program failures were properly taken into account. This does not mean that there was no significant treatment effect, but rather that the effect of TC is much greater when researchers fail to separate program graduates from program dropouts in analyses of outcome. This finding raises important questions for policy consideration.

While the attrition rates reported in this sample were quite favorable compared to those reported in other drug treatment studies,<sup>37</sup> correctional policy makers must address the question of *why* so many inmates fail to complete TC or other drug treatment programs while in prison, and further explore means for enhancing the treatment induction and engagement process (e.g., Blankenship, Dansereau and Simpson, 1999; Hiller, Knight and Simpson, 1999). At best, high program attrition rates may indicate a waste of scarce treatment resources. At worst, they spell high rates of recidivism for inmates who fail to become engaged in or complete drug treatment.

While the overall termination rate for TC (26%) was consistent with other studies of prison-based TC (Simpson, 1997; Young, 2002), one program (Waymart) was quite low (5%); another (Graterford) was high (71%). Our data indicated that the Graterford program was fairly intense, and it made extensive use of peer support, confrontation and sanctions (e.g., helping measures). As in most aspects of life, though, neither extreme is ideal. Across TC programs, there appears to be a

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<sup>37</sup> A high proportion of inmates entering drug treatment programs fail to complete them; reported dropout rates vary from 30 – 90% (Simpson et al., 1997; Young, 2002).

high level of discretion by treatment staff about appropriate thresholds for success and appropriate grounds for dismissal. Of particular interest was the lengthy period of time inmates spent in TC programs prior to termination (19 – 32 weeks). Clearer guidelines specifying behavioral criteria for treatment success or failure may perhaps be needed, accompanied by strong monitoring of inmate behavior. Good decisions about who is appropriate for TC (or not) could perhaps be made within a shorter time span (DeLeon, 2000; Hiller, Knight and Simpson, 1999, ONDCP, 1999). Further inquiry might examine whether inmates are given adequate opportunity to correct their behavior prior to termination, and whether other procedures might strengthen inmates' therapeutic engagement and retention in the program (Hiller et al., 2000; ONDCP, 1999).

**Finding:** We found some inconsistencies in inmate selection and termination procedures across the five institutions. For example, two TC programs tended to recruit older, lower-risk inmates than the other TC programs. Attrition rates varied substantially (5 – 71%) across TC programs.

**Recommendations:**

2. Correctional administrators, working with researchers, drug treatment specialists, and program managers, should examine whether existing procedures aimed at improving inmates' therapeutic engagement and retention in the program can be strengthened.
3. DOC administrators should work with drug treatment specialists and correctional program managers to monitor compliance with recently implemented drug treatment standards and policies. For example, administrators should ensure that selection criteria for TC and other program types are consistently implemented so that program participants reflect appropriate levels of treatment need.

### **DOC Responses to Recommendations #2 and #3:**

- The Bureau of Inmate Services has standardized policies pertaining to TC program placement, program duration, phase-specific treatment techniques, TC House Rules, Learning Measures, and guidelines for termination (Pennsylvania Department of Corrections, 2002).
- Uniform standards for program completion include consistent criteria for voluntary and involuntary program termination. For example, inmates are encouraged to give 72 hours notice prior to voluntarily leaving the program. Prior to a potential involuntary termination, treatment staff provides counseling for any infraction of program rules. Learning Measures and Reinforcers are preferred, where possible, to help inmates resolve problems prior to termination. The Bureau of Inmate Services states that they now monitor TC program placements and terminations on a weekly basis.

Inmates placed into TC programs at the five institutions were definitely high need inmates, as evidenced by the severity of their criminal histories and high assessed level of need for drug treatment. However, inmates assigned to the Comparison group were almost as high-need. Most inmates in our sample, even those placed in low-intensity Education and Outpatient programs, met and surpassed the minimum eligibility criteria for TC placement. There are simply not enough TC beds to assign all high-need inmates to high-intensity treatment programs. This is true in general of prison-based drug treatment (Welsh and Zajac, 2001).

**Finding:** Many high-need inmates (e.g., relatively high prior offense severity scores and high need for drug treatment) were assigned to less intensive Outpatient programs rather than TC. These findings suggest that Outpatient programs are being used for high-need inmates who are unwilling, unsuitable or unable (for other reasons) to participate in more intensive TC programs.

**Recommendation:**

4. Correctional administrators should carefully monitor the implementation of assessment, screening and program placement procedures specified by treatment policies.<sup>38</sup> Verify that AOD staff at each institution understand and implement these guidelines. Monitor drug treatment program placements at each institution to ensure that high-need inmates are assigned to high-intensity treatment programs.

**DOC Responses to Recommendation #4:**

- Over the past three to four years, DOC has greatly expanded the number of intensive treatment beds available to inmates. As of the week ending January 24, 2003, the Therapeutic Communities Weekly Census indicated that 1,332 TC beds were available across the Commonwealth, and 1,249 of these beds (94%) were occupied.
- The new AOD Philosophy and Treatment Framework and the revised AOD Policy 7.4.1 (Pennsylvania Department of Corrections, 2002) state uniform standards for inmate screening and assessment for AOD treatment needs, and for monitoring AOD program service delivery (e.g., the AOD Quality Improvement Plan). To ensure consistency in screening and assessment, DOC has implemented the TCU Drug Screen and TCU Initial Assessment at the Diagnostic and Classification Center. The scores obtained from these standardized instruments now guide

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<sup>38</sup> While newly developed DOC standards regarding drug treatment content, structure, duration and intensity are generally clear (Pennsylvania Department of Corrections, 2002), standards applicable to Outpatient programming remain less clear than standards governing TC and Education programs. For example, Outpatient standards allow considerable discretion in treatment program format, intensity and duration.

AOD program placement. All Drug and Alcohol Treatment Specialists (DATS) received training on the administration and interpretation of these instruments.

- Program Analysts from Bureau of Inmate Services regularly visit institutions to monitor the actual implementation of these policies.

An unexpected finding concerned inmate eligibility and selection criteria for AOD programs (see Table 6). Minimum time remaining to release date was stated as a major criterion for admission into all AOD treatment programs including TC (Welsh, 2001). However, there was substantial variation on this criterion. Many inmates (especially those placed in Outpatient programs) were long past their minimum release dates; others still had several years remaining until their minimum release date.

According to DOC policy (Pennsylvania Department of Corrections, 2002), minimum release date is one critical screening criterion for AOD programs, along with an inmate's assessed need for treatment and the availability of different types of treatment slots at each institution. As an inmate gets closer to his/her minimum release date, he/she should receive a higher priority for AOD placement, especially since completion of AOD treatment can be a major factor influencing parole application decisions. For the five TC programs, minimum time remaining to minimum release date was listed at 15 months for Cresson, 9 months for Waymart, and 6 months for Huntingdon. For Graterford, eligibility criteria required "sufficient time to complete treatment." No written policy statement was found for Houtzdale.

This finding suggests that many inmates in drug treatment programs had already been denied parole at least once. Data inspections suggested that some inmates may have "rolled over" from one sentence to another (e.g., consecutive sentences for different convictions). As a result, they may have been assigned a new inmate number, but their old minimum release date remained

unaltered. Other inmates may have been released on parole and returned to prison for technical violations, without having a new minimum release date set by the courts. As a result, the minimum release date of record is not necessarily a reliable indicator of TC eligibility, in spite of DOC policies specifying its use.

DOC drug abuse treatment specialists (DATS) at each institution utilize diverse criteria when making AOD program placement decisions. This does not mean that minimum release dates are not considered, but they receive less priority than expected based on stated program admission guidelines (Welsh, 2001). Further policy review and/or program monitoring may be helpful to ascertain the degree to which minimum release date is actually used to determine admission into AOD treatment programs (Pennsylvania Department of Corrections, 2002).

**Finding:** Considerable variability was observed in time remaining to minimum release date. Missing data on other fields (e.g., scores on drug screening measures) hampered some analyses.

**Recommendation:**

5. Correctional administrators should regularly review, update and verify critical data fields entered into automated information systems. Critical data fields include data elements that are used to guide program eligibility, selection and placement decisions.

**DOC Responses to Recommendation #5:**

- DOC states that the Pennsylvania Additive Classification Tool (PACT) and the Inmate Needs Assessment Manual are primary tools used for inmate classification, needs assessment and programming recommendations. The PACT Automated Data System is used in all institutions, and numerical ratings are accessible to authorized treatment personnel.
- The same data system has been used to provide selected inmate data to Temple researchers over the past four years as part of the Temple/DOC Research Partnership. We have had

excellent success in obtaining data such as prior and current criminal history information. However, problems with missing data (e.g., missing scores on the PACSI and/or TCU instruments) and potentially irrelevant data (minimum release dates)<sup>39</sup> that precede program admission dates by several years) have also been identified and discussed at steering committee meetings. An inspection of data fields in automated data systems, including input from personnel who maintain data systems as well as personnel who utilize them, may yield useful findings for quality improvement.

### ***Treatment Process***

Using various subscales of the REST and CRC, we were able to examine changes in inmate psychological and social characteristics, as well as responses to treatment over time. Numerous, significant improvements were observed in inmate psychological and social functioning over the first six months of treatment (e.g., decreases in depression and risk taking).

Positive responses to treatment were also indicated (e.g., increases in inmate self-ratings of therapeutic engagement, personal progress, trust in group, program staff, counselor rapport, and counselor competence). Counselor ratings were consistent with inmate ratings in terms of significant improvements in therapeutic engagement, although counselor ratings indicated little change in denial and even an increase in inmate psychological problems.

We then entered various measures of inmate psychosocial characteristics, perceptions of treatment and responses to treatment (18 REST and 8 CRC scales) into stepwise logistic regression equations that controlled for selection differences (e.g., assessed level of need for treatment)

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<sup>39</sup> DOC policies and treatment personnel stated that time remaining until minimum release date was a primary criterion used to determine an inmate's priority for admission into a drug treatment program. However, because minimum release dates for many inmates in our sample (1098/2778 = 40%) *preceded* their treatment program admission dates by months or even years, this criterion cannot have been used in a substantial number of cases.

between the TC and Comparison groups. Variables predictive of reincarceration included anxiety, hostility, therapeutic engagement, counselor rapport, and rapport with other inmates. None of the REST or CRC scales significantly predicted rearrest rates, but measures of self-efficacy, risk taking, and self-confrontation were predictive of drug relapse. It would appear that certain types of inmates (a) may not be suitable for the emotional and social rigors of TC, and/or (b) certain types of inmates may need more specialized, intensive, individualized treatment regimens to benefit from TC.

Individual inmate needs might not be fully addressed by different TC programs. Inmates may need more specialized treatment for psychological problems than they currently receive. Research has shown that high, untreated anxiety, hostility or depression weakens inmate engagement in treatment and responses to treatment (Chien, 1980; Powell and Taylor, 1992; Simpson and Joe, 1993a). Similarly, many inmates may require more systematic, intensive induction strategies to help prepare them for the emotional challenges and interpersonal rigors of TC. Induction techniques help inmates identify resources, both internal and external, that can be used to maximize treatment participation and improve treatment outcomes. All TC programs have orientation procedures, but more intensive induction strategies such as cognitive enhancement and motivational interviewing should be considered (Blankenship et al., 1999; Farabee, Simpson, Dansereau and Knight, 1995).

While DOC screening and assessment procedures are well-structured, our data clearly showed that inmates with high levels of specific needs (e.g., high anxiety, hostility, risk taking) following admission to their AOD treatment programs were more likely to recidivate. These findings suggest a number of possibilities: (a) some inmate needs may go undiagnosed, either by DCC or treatment staff at the receiving institution, (b) certain psychosocial states (e.g., depression) may emerge after the inmate is processed at DCC, perhaps even years later, and/or (c) attempts to

treat specific conditions may be formulated but are less than 100% successful. Probably all of these are true to some (unknown) degree.

**Finding:** TC inmates may in some cases have psychological needs that are not being fully addressed, as indicated by REST (inmate self-report survey) and CRC (counselor ratings) change scores and coefficients predictive of recidivism.

**Recommendation:**

6. Correctional administrators, working with researchers, drug treatment specialists, and program managers, should identify clear and consistent standards for assessment of inmate psychological needs at each institution, as well as procedures for ensuring that such needs are addressed during the course of an inmate's treatment.

**DOC Responses to Recommendation #6:**

- As outlined in the *Access to Mental Health Care Procedures Manual* (Pennsylvania Department of Corrections, 2003), DOC provides a broad continuum of mental health services to ensure that appropriate levels of care are provided to inmates.
- An impressive battery of mental health screening and assessment instruments are administered at the Diagnostic and Classification Centers (DCC). Basic assessment includes literacy testing through the Test of Basic Education (TABE). The Psychology Department administers the Personality Assessment Inventory (PAI). The complete protocol and computer narrative are forwarded to receiving institutions along with a completed Clinical Interview Form and the DCC-PA Clinical Risk Assessment (DCC-PCRA). The Revised Beta III is also administered by the Psychology Department to detect possible mental retardation/developmental disabilities (MR/DD). MR/DD assessment also includes intelligence testing (Wechsler), adaptive behavior testing, and research to determine the age of onset. In addition, several comprehensive instruments that assess dynamic risk predictors are being field-tested and considered for

adoption. These include the Level of Service Inventory-Revised (LSI-R), the Novaco Anger Scale (NAS), the Hostile Interpretations Questionnaire (HIQ), the Criminal Sentiments Scale-Modified (CSS-M), and the Self Appraisal Questionnaire (SAQ).

- If any evidence of mental illness is detected, inmates receive more comprehensive psychological and psychiatric assessments, and the Psychiatric Review Team generates an Individual treatment Plan that accompanies the inmate to the receiving institution.
- DOC is developing mechanisms to obtain better mental health information from committing authorities.
- In collaboration with the Psychology Department, the AOD department provides Dual Diagnosis programs in all of its institutions. Participants are inmates who have been diagnosed with a mental health disorder (DSM-IV Axis I Diagnosis) and who have scored at least a “1” on the TCU Drug Screen II (possible scores range from 0 – 9). The interaction between AOD abuse and mental illness makes treatment of these individuals more complicated.

### ***Programmatic Variations***

One rarely finds discussion of programmatic variations or their influence on treatment outcomes in studies evaluating the effects of prison-based TC. This shortcoming, perhaps more than any other, has limited our ability to discern the true impact of TC (Welsh et al., 2001; Welsh and Zajac, 2001). We have attempted to provide some illustrative examples here, although a sample of 5 programs can only go so far. Further research examining larger samples of TC programs, as well as inmates, is needed to properly isolate inmate and programmatic effects.

Each unit, while consistently implementing the basic TC philosophy, also exhibited some programmatic variations. Two of the five TC units were quite large (100+ inmates). Large TC units make it more difficult to properly supervise and monitor inmate behavior, including inmate

committees (ONDCP, 1999). At Waymart, the TC is subdivided into two separate units. Houtzdale, on the other hand, has 124 inmates who all live on the same unit. Large TC programs, according to voluntary guidelines formulated by Therapeutic Communities of America (ONDCP, 1999), should be subdivided into units no larger than 50-75. All TC programs should aspire to meet guidelines such as #CP6 (ONDCP, 1999): *“Participants are accountable to each other and the community on a continuous basis, fostering a strong sense of responsibility for self and others”* (ONDCP, 1999:Appendix B, p. 3). Staffing levels can also affect these processes. The strongest area of consistency across the five TC programs was in the high ratings that inmates gave of counselor rapport and counselor competence. However, inmates at two of the TC programs complained that there was too little time for individual counseling.

**Finding:** Two of the TC programs did not use pull-ups or “Learning Measures,” and individual counseling was provided inconsistently across most programs.

**Recommendations:**

7. Correctional administrators, working with drug treatment specialists and correctional program managers, should examine whether current resources devoted to program quality assurance are sufficient (see ONDCP, 1999, DeLeon, 2000). A good model is provided by the Statewide Integrated Quality Assurance Model (SIQAM) for prison-based TC programs (Kressel, Zompa and DeLeon, 2002). This model is based upon the TC framework developed by DeLeon (2000) and critical program standards jointly developed by Therapeutic Communities of America (TCA) and the American Correctional Association.

**DOC Responses to Recommendation #7:**

- The Bureau of Inmate Services conducts an annual audit and inspection of AOD programs offered at each institution. The AOD Audit carefully monitors all aspects of AOD

programming, including compliance with DOC Policy 7.4.1 and ACA Standards governing prison-based drug treatment.

- More significantly, the DOC has recently developed an AOD Treatment Service Quality Improvement Plan (QI) that requires quarterly reports, annual evaluations, and corrective plans. The Statewide Quality Improvement Committee meets quarterly and is responsible for the development of AOD treatment guidelines, the selection of QI indicators, and evaluating QI Plan activities. The Statewide QI Committee distributes a QI checklist that incorporates the established quality indicators by January 31 of each year. The quarterly QI report is used to identify specific AOD training needs, identify needed resources (staff, videos, interactive journals, etc.), identify administrative problems that need to be resolved on a department-wide level, and identify performance indicators for the following year. The committee reviews reports received from institutions and develops revised target areas and quality indicators. Each state correctional institution (SCI) appoints an SCI QI Committee that meets quarterly and develops an institutional AOD QI plan. Each SCI QI Committee provides a quarterly AOD QI report to the Statewide Committee, and an Annual Institutional QI Plan Evaluation.
- Standardized quality indicators have been developed in fifteen areas: (1) Screening, Assessment And Placement, (2) Treatment Planning, (3) Records Review, (4) AOD Education, (5) Relapse Prevention, (6) Group Therapy, (7) Individual Counseling Sessions, (8) Aftercare Planning, (9) Aftercare Groups, (10) TC Community Meetings, (11) TC Therapeutic Milieu, (12) TC Encounter Groups, (13) Dual Diagnosis Groups, (14) Self Help Groups, And (15) Peer Assistant Program.

### ***Information Systems***

A good information system serves several purposes. First and foremost, a good information system can demonstrate accountability to funding agents (e.g., state legislatures) and other stakeholders. A good information system is also useful for planning: it allows program managers or policy makers to see how well current plans are going, identify problems, and make adjustments. A useful information system allows for continuous monitoring over time: it is sensitive to both intended and unintended changes in program or policy design. Sad to say, correctional agencies do not always do a stellar job of collecting core data elements.

A recent report by the U.S. Department of Justice (1998) assessed the current status of offender-based information systems in corrections and identified information needs and obstacles. Correctional administrators across the U.S. stated that they often lacked the basic information needed to formulate new policies or to defend existing practices. Researchers highlighted the difficulties of conducting comparative studies in the absence of basic agreement on data concepts and definitions, and diversity in the quality and coverage of data elements in correctional information systems. Such information is indispensable, however, for any correctional agency that wishes to effectively monitor and evaluate its offender programs (U.S. Department of Justice, 1998). Two types of high-priority needs are relevant to the long-term development and success of correctional program evaluation efforts.

Program-Based Databases. Significant variations typically exist in education, outpatient and inpatient drug treatment programs across different sites (Welsh et al., 2001; Welsh and Zajac, 2001). During the first year of the Temple-DOC research partnership (Welsh, 2001), we found that treatment exposure and duration varied, sometimes considerably, for Education and Outpatient programs across different institutions. Programmatic variations in either prison-based or community-based AOD treatment programs, where they exist, need to be assessed and recorded in a program-based database. In this way, any inmate admitted into any program participating in an

evaluation study can be linked with a specific set of program descriptors (e.g., duration, intensity, primary treatment approach, program performance measures, etc.).

Offender-Based Treatment Databases. Prior and current efforts by DOC to establish and develop computerized, *offender-based* treatment databases will strongly facilitate future evaluation efforts. In general, efforts to develop overall information system capacities regarding offender program participation will enhance offender monitoring, treatment integration and communication, and research on the effects of participation in various combinations of prison- and community-based treatment programs.<sup>40</sup>

**Finding:** At the time of this study, there was a lack of computerized data on several measures (e.g., admissions and discharges from prison-based treatment programs, participation in aftercare treatment) that would facilitate program evaluation.

**Recommendations:**

8. Correctional, parole and probation officials should ensure that appropriate levels of aftercare treatment are being identified and provided to inmates upon their release from prison. DOC and PBPP administrators should work together to further develop and strengthen automated procedures for tracking inmate post-release behavior, including but not limited to compliance with conditions of supervision.
9. Correctional officials should continue to strongly support the development of offender-based treatment information systems.

**DOC Responses to Recommendations #8 and #9:**

- While DOC provides structured in-house aftercare programs for all inmates, continuity of care upon release is a system wide issue that is continually addressed. BIS regularly meets with PBPP and community providers to address these issues.

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<sup>40</sup> Because aftercare treatment may interact with other variables such as employment to influence recidivism (e.g., Knight, Simpson and Hiller, 1999; Martin, Butzin, Saum and Inciardi, 1999), it

- BIS is organizing a community outreach program in Harrisburg and Philadelphia called *Bridging the Gap* that includes community service organizations.
- In response to previous recommendations, DOC recently completed development of a *Unit Management System* that captures diverse aspects of offender program participation. For example, this database includes an inmate's name and number, date of program admission and discharge, and reason for discharge (successful v. unsuccessful). This database will provide critical information for program monitoring and evaluation. Program admission decisions can be better informed by information about the inmate's previous participation in treatment, as well as the inmate's assessed need for treatment and other program eligibility criteria (e.g., type of offense, minimum release date). The same data are vital for setting up valid comparison groups for outcome evaluation (e.g., matching designs).
- Bureau of Inmate Services and Management Information Systems are currently working together to develop an offender-based data management system to be called the *Inmate Program Report*. This project is currently in the draft stage; specific policies and procedures are being developed.

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would be highly desirable for correctional and parole agencies to collaborate on the collection and reporting of computerized data on such variables.

## **Limitations**

As noted, the major limitations in the present study were the brevity of the follow-up periods so far and the attendant sample sizes available for multivariate outcome analyses. Inmates were not released from prison as quickly as we had expected based on program eligibility criteria such as minimum release date. As more inmates are released, and as average time at risk increases, we will revisit the analyses and conclusions formulated in this report.

The sample reduction between the first, second and third administrations of the REST and CRC instruments also placed limits on the types of analyses we were able to conduct. Too few of the inmates who completed repeated measures on the REST and CRC instruments had been released from prison at this time, precluding some analyses of REST and CRC change scores and interactions between treatment process and outcome. Again, our ability to conduct such analyses will increase as we follow released inmates over greater periods of time.

More research on how prison-based drug treatment interfaces with critical post-release mechanisms such as parolee supervision, employment and aftercare treatment would be valuable. Over the past twenty years, concern about prisoner re-entry has been heightened by the growth in imprisonment rates, the fragmentation of sentencing philosophy, the weakening of parole supervision, and the concentrated return of offenders to disadvantaged communities (Clear, Rose and Ryder, 2001; Travis and Petersilia, 2001). Prisoners are less prepared for reintegration and less connected to community-based social services such as drug treatment and vocational, family, and health services (Harrison, 2001).

We found a strong, robust effect of full-time employment on all three post-release outcomes examined (reincarceration, rearrest, and drug relapse). However, our ability to examine post-release outcomes was limited by the unavailability of automated data regarding participation in

aftercare treatment. Participation in aftercare may interact with employment and other observed predictors to influence outcomes. Future research should examine ways to better integrate prison-based drug treatment with post-release needs and resources.

It was difficult to determine the degree to which full-time employment was a cause or an effect. To do so, we would need more detail on post-release employment (and prior employment history) to examine how non-relapsing parolees might differ from others. For example, it would be useful to obtain more detailed information on parolees' type of post-release employment, employee performance, income, etc. To disentangle potential causes, we would also need to determine how other factors (e.g., personal characteristics, intelligence, cognitive abilities, education, in-prison and pre-prison work history, job training) might influence relationships between employment and drug relapse (as well as reincarceration and rearrest). However, none of the control variables examined in this study (e.g., assessed level of need for drug treatment, prior and current offense severity, age) substantially weakened the observed relationship between employment and reduced recidivism, leading us to conclude that the effect of post-release employment is quite robust.

## ***Conclusion***

The validity of our findings were bolstered by the fact that we that we were able to precisely account for total treatment exposure for all inmates in our sample, and we examined the effects of treatment exposure as a control variable. Previous studies have failed to do so.

The effects of TC were statistically significant and encouraging, although not unqualified. TC significantly lowered the likelihood of reincarceration and rearrest, although the effects of TC on reducing drug relapse failed to reach statistical significance. Post release employment emerged as the strongest predictor of recidivism regardless of the three outcome measures examined.

Results suggest that policies regarding prison-based drug treatment should focus on **strengthening and enhancing TC quality and implementation so as to maximize treatment effects**. Guidelines formulated by professional associations and informed by both clinical practice and research suggest that the bar could profitably be raised (DeLeon, 2000; Farabee et al., 1999; Kressel, Zompa, and DeLeon, 2002; ONDCP, 1999; Taxman and Bouffard, 2002). Where TC is sufficiently intense but supportive, treatment engagement should be intentionally maximized. Further policy-relevant research should continue to explore and evaluate productive strategies in these directions, while examining more detailed interactions between inmate characteristics, treatment process, and post-release outcomes.

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## **Appendices**

**Appendix 1. Subject Consent Form**

**Appendix 2. TCU Drug Screen**

**Appendix 3. TCU Resident Evaluation of Self and Treatment (REST)**

**Appendix 4. TCU Counselor Rating of Client (CRC)**

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