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**TREATMENT EFFECTIVENESS FOR  
ADOLESCENTS AND YOUNG ADULTS:  
A RE-ANALYSIS OF THE JOB CORPS  
DRUG TREATMENT ENRICHMENT  
PROJECT (DTEP) DATA**

**March 2001**

**Battelle Centers for  
Public Health Research  
and Evaluation**



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## FOREWORD

The Center for Substance Abuse Treatment (CSAT) works to improve the lives of those affected by alcohol and other substance abuse, and through treatment, to reduce the ill effects of substance abuse on individuals, families, communities, and society at large. Thus, one important mission of CSAT is to expand the knowledge about the availability of effective substance treatment and recovery services. To aid in accomplishing that mission, CSAT has invested and continues to invest significant resources in the development and acquisition of high-quality data, and the analysis of these data, about substance abuse treatment services, clients, and outcomes.

In support of these efforts, the CSAT Program Evaluation Branch (PEB) established the National Evaluation Data Services (NEDS) contract to provide a wide array of data analysis and scientific support services across various programmatic and evaluation activities and to re-examine existing data whose potential has not been fully explored. NEDS is a pioneering effort for CSAT that provides a mechanism to pull together a wide array of databases for analytic purposes. One of the specific objectives of NEDS is to provide CSAT with a flexible analytic capability to use existing data to address policy-relevant questions about substance abuse treatment. This report was produced with that objective in mind.

Early in the 1990s, CSAT recognized that the Department of Labor Job Corps Program was an opportunity for a drug treatment demonstration project. The unique characteristics of Job Corps—namely, that high-risk young people attend a residential employment and training program for an average of seven months—appeared to provide a controlled environment in which adolescent drug intervention services could be examined. At the same time, there was growing recognition that drug use among Job Corps students was at least as present as, if not in excess of, use among the adolescent population at large. As a result, the idea to develop, implement, and evaluate a substance abuse intervention demonstration within a sample of Job Corps Centers appealed to both CSAT and the National Office of Job Corps. This unique opportunity led to the formation of the Drug Treatment Enrichment Project (DTEP) demonstration. This report draws from data compiled through CSAT's evaluation of DTEP. The result findings presented here result from an examination of the specific types of services offered under DTEP and their effects upon Job Corps students' substance abuse behaviors approximately one year after leaving the program. The analysis presented in this report provides a step toward a better understanding of the types of treatment services that may lead to better outcomes for substance abusing youth.

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Project Director  
National Evaluation Data Services

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Caliber Associates is the prime contractor for NEDS in partnership with Battelle; the Lewin Group; and National Opinion Research Center (NORC). Many individuals within the NEDS team contributed significantly to this report, including Patricia Devine, Richard Finkbiner, Marsha Morahan, Terry Johnson, Mary Kay Dugan, Kate Lynch, and Lorrent Smith.

The analysis presented in this report is based on a complete data set collected as part of a CSAT-DOL Office of Job Corps jointly sponsored demonstration of the introduction of substance abuse interventions within a sample of four Job Corps Centers (experimental Centers) and compared with a matched set of four Job Corps Centers (control Centers). CSAT and the NEDS contractors and analysts are extremely appreciative of this adolescent treatment pioneering effort. We wish to acknowledge the creative thinking combined with sound research and treatment knowledge of Dr. Jaffe and Ray Milkman (formerly of CSAT) together with Peter Rell (Director, Office of Job Corps), Dr. Charles Hayman and Carol Miller, formerly of the Job Corps Student Health Services and the Center Directors and staff of the following Job Corps Centers: Delaware Valley, Gainesville, Knoxville, Oneonta, Potomac, Sacramento, San Diego, and Woodstock.

## **EXECUTIVE SUMMARY**

Substance abuse among adolescents has been a persistent problem during the past three decades, and gaining a better understanding of adolescent substance abuse patterns and treatment experiences is of great interest to CSAT and the treatment field. To enhance the knowledge of adolescent substance abuse patterns and adolescent treatment outcomes, the Center for Substance Abuse Treatment (CSAT) National Evaluation Data Services (NEDS) conducted an analysis of an existing adolescent treatment database so as to determine the effectiveness of specific treatment components in reducing substance abuse among adolescents and young adults.

### **1. INTRODUCTION**

This report presents the results of an analysis of data collected for the CSAT-sponsored evaluation of the Job Corps Drug Treatment Enrichment Project (DTEP). The CSAT evaluation compared the experiences of adolescents who received enhanced intervention services as a part of DTEP with the experiences of adolescents who received Job Corps' standard services of drug testing and counseling. The present analysis focused on DTEP participants only and examined the relationship among specific types of counseling and other services and self-reported substance abuse outcomes. More specifically, this analysis examined the types of services and the quantity and timing of the services that were associated with drug abstinence and reduced substance use approximately one year after leaving Job Corps.

In total, almost one-half of the Job Corps students were between the ages of 18 and 20 years while one third were younger and less than one fifth were 21 years or older. Approximately two-thirds of the students were male and a similar proportion were African American. Almost four-fifths of the students completed ninth to eleventh grades while one-fifth completed eighth grade or less. Over one-half of the students reported having committed a crime. The majority of the Job Corps students had experimented with some form of substance use. Almost three-fourths had used alcohol, more than one-half had used at least one drug and the predominate drug used was marijuana. The average age of first drug use was less than 15 years. In summary, the Job Corps students included in the analysis were from low socio-economic backgrounds with low academic achievement and some experience with juvenile crime. As demonstrated by the rates of experimentation, this group of adolescents was at higher than average risk for substance abuse.

### **2. METHODS**

The analysis presented in this report is based on a total of 313 students who reported substance use (primarily marijuana) within the 12 months preceding enrollment in Job Corps,

participated in DTEP, and completed a follow-up interview at least six months after they left Job Corps. To validate the self-report substance use, a urine test was conducted on 100 percent of the Job Corps student sample at intake and on 20 percent of the Job Corps student sample at follow-up. For each DTEP service, data were obtained on: session date and duration; type of session and topic; and, the specialty of the staff member conducting the session. Thirty-six different session topics were collapsed into nine discrete categories based on a combination of the session topic and the DTEP specialist who provided the session. These nine session types sorted all DTEP services into either group or individual counseling devoted exclusively to substance abuse topics, group or individual counseling sessions that cover other topics, and other sessions intended to assist students based on the intervention plan developed at Job Corps entry.

The analysis focused on two substance abuse outcome measures at the time of the follow-up interview: (1) “abstinent” from drug use and (2) “improved” drug use behavior. Students were considered abstinent at follow-up if they reported no illicit drug use since leaving Job Corps. The improved group included the abstinent group plus any individuals who (1) reported a reduction in frequency of marijuana use and no other drug use or (2) reported using fewer drugs at follow-up than at Job Corps entry and reported no increase in marijuana use.

Three multivariate logistic regression models were estimated for the overall sample and for the subset of students who stayed in Job Corps for at least six months, so as to determine the effects of different types of services, differences in intensity of these services, and differences that may occur at different points in program enrollment. The first model examined the effects of sessions devoted to substance abuse and the effects of complementary sessions. The second model included variables for each of the nine DTEP session types based on the number of different days a student attended each session type. The third model estimated separate effects for each of the nine types of sessions depending on whether the sessions occurred in the first 3 months after program enrollment, or after month 4. All estimates were adjusted for the date in which students enrolled in Job Corps, gender, ethnicity, and other enrollment-based measures including work experience, prior arrest history, highest grade completed, whether lived with their biological parents, and the number of drugs they reported using in the previous 12 months.

### **3. RESULTS**

At the time of the follow-up interview, over one-third (37%) of all DTEP participants were abstinent from all drugs and over one-half (53%) showed “improved” drug use behavior. A somewhat higher success rate was observed among the subset of DTEP participants who stayed at least six months: two-fifths (44%) were abstinent from all drugs at the time of the follow-up

interview and almost three-fifths (58%) exhibited improved drug use behavior. Of the types of sessions offered to DTEP students, group sessions, particularly those dedicated exclusively to substance abuse issues or led by the substance abuse specialist, tended to occur in the first few months of a student's participation. The distribution of individual sessions was more spread out throughout the participation. Sessions that focused on improving educational skills or enhancing "life skills" tended to be conducted in the latter portion of the student's stay at Job Corps.

Overall, DTEP students participated in sessions that addressed substance abuse topics or sessions conducted by a substance abuse specialist on an average of 7.7 different days. This compares to an average of 6.6 days for sessions that addressed other complementary issues. Students who stayed in Job Corps six months or more received twice as many services in months 4-12 than the group as a whole, while in the first 3 months their numbers are comparable. Except for group counseling for substance abuse or sessions led by a substance abuse specialist, students received more days of counseling sessions in the latter part of the program.

The results from the first set of models described above indicated that complementary treatment sessions are associated with improved drug outcomes. Specifically, the odds ratio for the number of different days a student attended complementary treatment sessions was significantly greater than unity for being abstinent at follow-up. The results from the models that examined the timing of services were broadly consistent across the outcome measures and analysis samples. Taken together, the results indicated that individual counseling sessions devoted to complementary treatment issues that occurred later in the program (months 4-12) increased the odds in favor of better drug use outcomes. Also, the odds ratios for life skills sessions tended to be considerably larger than unity for the improved drug use behavior measure among those who stayed at least six months. Recreation sessions appeared to increase the odds in favor of better drug use outcomes later in the program.

#### **4. IMPLICATIONS FOR RESEARCH, POLICY, AND PRACTICE**

The results of the present analysis of the Job Corps DTEP program indicated that the treatment components not exclusively geared towards addressing substance abuse issues were effective in addressing substance abuse issues. A plausible interpretation of this finding is that these other services may have enhanced the value of the core substance abuse sessions. That is, since the complementary services were part of an integrated substance abuse intervention program, they probably addressed other related student needs, issues or problems. As a result, these complementary services most likely contributed to improved student functioning. This finding is consistent with much of the current substance abuse literature that empirically

recognizes the therapeutic importance of these other services in conjunction with traditional substance abuse counseling within adult treatment programs. It also is consistent with CSAT's comprehensive treatment model.

The findings suggest that enhanced programs in which practitioners provide complementary services such as life skills, recreational sessions, vocational and educational skills training, and individualized counseling to treat specific problems associated with substance abuse problems can have a positive effect on subsequent drug use of adolescents. Like many studies of adolescent drug abuse (Bruner, 1998; Parrish, 1994), this suggests a need to deal with multiple problems and provide a comprehensive array of services.

Group counseling has been adopted in many settings in recent years because some view it as roughly comparable in effectiveness to individual counseling. Furthermore, some advocates of group counseling believe that it has certain advantages over individual counseling. In the present analysis, however, individual sessions appeared more conducive to abstinence and improvement at follow-up than group sessions, regardless of whether or not the sessions were directed at substance abuse issues. This finding must be caveated, however, by the fact that the DTEP group sessions were not designed as clinical interventions, were not led by clinically certified group therapists, but were intended as supplemental to the individual sessions. The group sessions ranged in length of time, frequency, topics discussed, and required participation. This finding, however, indicates that practitioners should examine the use of group sessions in terms of the purpose, objectives, staffing, and scheduling.

The present analysis did not focus on the use of "alcohol only" in the outcome measures despite the fact that "alcohol only" use is well documented in the DTEP data. This was not because alcohol is a less serious problem among adolescents—alcohol abuse is a serious health risk that has been shown to contribute to other, subsequent drug abuse and other health consequences (e.g., auto accidents)—but rather because of the interpretative difficulties with respect to "alcohol only" use among this population (given, for example, that the follow-up sample ranged in ages over 21 years or the legal age for alcohol consumption). These difficulties could be overcome through further analysis, however. We therefore recommend further analyses of the Job Corps data to build on the knowledge gathered here and to investigate the effects of the services on post-Job Corps "alcohol only" use and abuse.

We also recommend that future analytic efforts be devoted to substance abuse treatment programs that are designed for and delivered to an adolescent population. There is currently little empirical information on the outcomes of substance abuse treatment for adolescents or on the

treatment components that are most effective for this population. First, future research could usefully build on the early findings and implications of the analyses presented in this report. Second, adolescent treatment services that include clinically standardized group counseling or therapy sessions should be investigated to determine if this service delivery method has positive outcomes and/or if group sessions have different (stronger or less strong) outcomes as compared to individual counseling and/or therapy. In addition, data are needed on the severity of addiction among adolescents at intake to make inferences about the relative benefits of particular services based on the drug addiction severity of the individual. The implementation of this recommendation could begin with seeking out other data sets that have sufficient information about adolescent demographic and substance using characteristics combined with information about treatment services and outcomes.

## **I. INTRODUCTION**

# I. INTRODUCTION

Substance use and abuse among adolescents has been a persistent problem during the past three decades and gaining a better understanding of adolescent substance abuse patterns and adolescent experiences with substance abuse treatment and other interventions is of great interest to CSAT and the substance abuse treatment field. To enhance the knowledge and understanding of adolescent substance abuse together with adolescent treatment outcomes, the Center for Substance Abuse Treatment (CSAT) National Evaluation Data Services (NEDS) conducted an analysis of an existing adolescent treatment database so as to determine the effectiveness of specific treatment components in reducing substance abuse among adolescents and young adults. This analysis focused on research questions and data elements that were not included in the original evaluation.

This report presents the results of the re-analysis of data collected for the CSAT-sponsored demonstration and evaluation of the Job Corps Drug Treatment Enrichment Project (DTEP). The original CSAT evaluation compared the experiences of adolescents who received enhanced drug abuse interventions as a part of DTEP with the experiences of adolescents who received Job Corps' standard services of drug testing and counseling. The present analysis focused solely on these DTEP participants and examined the relationship between the specific types of treatment components received and the post-program substance abuse outcomes. More specifically, the analysis examined the types of services that are more closely associated with self-reported drug abstinence and reduced drug use approximately one year after leaving Job Corps. The analysis also examined how the quantity and timing of the services affected drug abstinence and reduced drug use among the DTEP participants at follow-up.

The remainder of the introduction provides background information on CSAT, the Job Corps program, and the DTEP demonstration and evaluation. Then, the relevant adolescent substance abuse treatment literature is briefly summarized so as to draw from the literature to support the approach used in this analysis and the results of the analyses. This chapter concludes with an overview of the purpose of the analysis and the organization of the report.

## 1. BACKGROUND

In 1991, the Center for Substance Abuse Treatment (CSAT) initiated an enriched drug treatment demonstration project in cooperation with the U.S. Department of Labor (DOL) Office of Job Corps. The design of the original program (DTEP) drew from the expertise of adolescent job training program specialists (including the then Assistant Secretary of Labor and the then Director of the Office of Job Corps) together with the expertise from numerous substance abuse

treatment researchers, policy analysts, and clinicians. The purpose of this section is to provide information on these Federal agencies and the background to the DTEP demonstration and evaluation.

### **1.1 Center for Substance Abuse Treatment (CSAT)**

Since its inception, the Substance Abuse and Mental Health Services Administration (SAMHSA) Center for Substance Abuse Treatment (CSAT) has provided Federal leadership to improve substance abuse treatment accessibility, quality, effectiveness, and efficiency. CSAT's mission and associated activities include a services support orientation as well as a knowledge-generating and performance assessment (evaluation) orientation.

CSAT has a two-pronged mission: (1) to expand the availability of effective treatment and recovery services for alcohol and other substances of abuse and (2) to evaluate the treatment effectiveness and cost effectiveness of these programs. CSAT leads the Federal effort to enhance and expand the nation's treatment infrastructure through the sponsorship of: (1) direct support for treatment knowledge development activities and (2) evaluation of treatment processes and outcomes. The evaluation results, according to CSAT's mission, are then to be fed-back so as to continually improve treatment approaches. As a part of the knowledge development efforts, CSAT initiated the enriched drug treatment project in cooperation with the Office of Job Corps.

### **1.2 Office of Job Corps**

The legislation authorizing the Job Corps indicates "the purpose of Job Corps is to assist young individuals who need and can benefit from an unusually intensive program operated in a group setting to become more responsible, employable and productive citizens" (Betsey et al., 1985). Job Corps is designed to serve economically disadvantaged youth ages 16 to 24 through a comprehensive, competency-based service philosophy and delivery system. The emphasis on residential treatment reflects the program's concern with young people's "disruptive home life, or other disorienting conditions" that must be overcome to achieve self-sufficiency. The Job Corps program philosophy entails an individualized, competency-based service model that includes assessment, basic education, and vocational skills training and work experience. This holistic approach to basic services is complemented by health education, medical services, individual and group counseling, and structured residential and recreation programs. There are currently 118 Job Corps centers nationwide, which vary in size from about 150 to over 2,000 students. Job Corps serves approximately 65,000 young people annually.

Approximately 60 percent of Job Corps students are male, about one-half are African-American and the average age at entry is approximately 18 years (Caliber, 1996). The majority (56%) comes from urban areas and almost 28 percent come from families on public assistance. About 78 percent are high school dropouts, 80 percent read at an eighth grade level or below and 75 percent have never been employed full-time. As a group, Job Corps students represent an economically disadvantaged population typically considered, on the basis of socioeconomic and demographic factors, to be at high risk for illegal drug use and abuse.

### **1.3 CSAT and the Office of Job Corps DTEP Demonstration**

As a program that serves high-risk youth in a residential employment training program for an average of seven months, CSAT recognized the potential of the Job Corps program to serve as a controlled environment in which adolescent substance abuse intervention services could be examined. The 1991 Job Corps Program appeared to bear a certain resemblance to adolescent therapeutic communities (TCs) that were thought to be beneficial to adolescent substance abusers. While the Job Corps Program had many elements similar to a TC, it was clearly recognized that the primary focus of the Job Corps Program was on job training skills, not substance abuse treatment. The DTEP program designers hypothesized that by introducing substantive substance abuse interventions within Job Corps, the program could expand its utility, at the margin, and assist high risk youth with both their employment readiness and their abstinence from substance abuse. It also should be noted that in the absence of an intervention such as DTEP, the adolescents who were abusing alcohol and drugs were either dropping out of the Job Corps Program or were being asked to leave. The increasingly growing drop-out rates were detrimental to the Job Corps Program and to the adolescents for whom Job Corps was an important opportunity to achieve a more mainstream socio-economic lifestyle.

This unique opportunity led to the development of the Drug Treatment Enrichment Project (DTEP) demonstration and evaluation. The DTEP evaluation involved the implementation of DTEP in four Job Corps centers in 1993-1994, and selected four matched control centers that provided the standard Job Corps Alcohol and Other Drugs of Abuse (AODA) program for comparison purposes. The primary objectives of the DTEP evaluation were to:

- Identify both the immediate effects of DTEP on students in Job Corps and the longer term impacts once students left Job Corps
- Determine the DTEP program factors that affect student outcomes, as well as those factors associated with efficient implementation and operations

- Measure the costs of providing DTEP services on the centers and determine if the value of program benefits equaled or exceeded program costs.

The following paragraphs provide a summary of the standard Job Corps substance abuse intervention, the Alcohol and other Drugs of Abuse (AODA) program, and the demonstration initiative, the Drug Treatment Enrichment Project (DTEP).

### **The Job Corps' AODA Program**

At the time of the demonstration/evaluation implementation, Job Corps' AODA policies prohibited the possession and/or use of alcohol or illicit drugs either on or off the center and required that all centers implement an AODA program. The AODA program consisted of four components: biochemical testing, intake assessment by a full-time AODA certified specialist, a written intervention plan for each student (including a behavior agreement), and AODA education. The biochemical testing was mandated for all students entering Job Corps within 48 hours of arrival and for students exhibiting behaviors that suggested possible substance use. A full-time, certified AODA specialist conducted an intake assessment for those students who tested positive for substance use and initiated AODA intervention for those students identified as needing services. A written intervention plan was developed for each participating student that specified repeat testing to be conducted, the consequences of repeated positive test results, a behavior agreement between Job Corps and the student, and student attendance at four, one-hour sessions on the self-help process.

### **The Drug Treatment Enrichment Project (DTEP)**

As an enhancement to the AODA Program, the DTEP provided five new DTEP personnel who were specialists in substance abuse counseling, activities/program coordination, education, assessment, and a project assistant. This enhanced initiative included individual and group counseling, participation in life skills seminars, weekly case management meetings for substance abuse interventions, development of individual intervention plans, peer leadership programs, relapse intervention programs, after care treatment, remedial/enhanced education intervention plans, individual and group learning sessions, and tutorial programs for education.

DTEP was designed to draw from and coordinate with existing Job Corps center staff and activities. The underlying DTEP philosophy was one of empowerment, which included helping people to take charge of their lives, and self-efficacy, which involved the belief in self-directed change. A primary DTEP objective was to enable students to make informed choices about

substance use. One of the hallmarks of the DTEP design was the tailoring of the interventions to meet the individual needs of each student who was identified as a substance abuser.

Within the first ten working days on center, the Assessment Specialist conducted a comprehensive Individual Assessment Profile (IAP) interview with each new student. Once the IAP was completed, the Assessment Specialist developed a student file that included the IAP, biochemical test results, and other background information. If the student had a positive biochemical test and/or positive drug/alcohol history, the Assessment Specialist alerted the Substance Abuse Specialist. The Substance Abuse Specialist reviewed the file and determined the student's need for services and, if in need, enrolled the student in DTEP and developed an intervention plan and behavioral agreement. The DTEP design called for the Substance Abuse Specialist to provide intensive individual counseling to each DTEP student for 30 minutes to an hour per week for a minimum of three months.

In addition, the DTEP design included "group counseling" sessions. The group sessions were a disparate set of group activities which were neither regulated by clinical group counseling standards nor were led by professionals who were certified as group counselors. Group sessions included AA/NA groups facilitated by community AA leaders, support groups that focused on specific topics (such as family problems), guidance for relapse prevention, and planning for "aftercare" (e.g., when students completed Job Corps and returned to their home communities, guidance for seeking out AA groups).

The Education Specialist conducted an assessment of the student's reading and math abilities through a review of the student's academic test records. To support the education intervention plan, the Education Specialist provided individual and group learning sessions for math, reading, and GED-related requirements. Similarly, the Activities Specialist responsible for providing DTEP oversight and staff supervision conducted a DTEP student assessment. The Activities Specialist was responsible for two discrete interventions, including special activities and Life Skills Seminars that were aimed at improving students' self-concept and self-efficacy. The Project Assistant was responsible for assisting both the Activities Specialist with overall DTEP management and the Assessment Specialist with data collection of treatment experiences and computerized data entry.

In addition to the DTEP design and the individual components, all of which provided essential data for the evaluation, the DTEP evaluation design included a follow-up interview that, by design, was to be conducted 12 months following Job Corps termination. The follow-up data collection activity included a detailed interview (designed to last from 60 to 90 minutes) that

collected self-report data on demographics, family composition, education, criminal activity, health and mental health treatment, and substances used during the follow-up period. To validate the self-report substance use, a urine test was conducted on 20 percent of the follow-up sample.

## **Original DTEP Evaluation Results**

The findings from the original evaluation of the DTEP are described in Caliber/Battelle's Final Report on the "CSAT Demonstration: Evaluation of Job Corps Drug Treatment Enrichment Project" (September 1996). That evaluation focused on a comparison of the outcomes of participants in the enhanced substance abuse treatment regimen (DTEP) with the outcomes of participants in the standard drug counseling program (AODA). The original analysis examined outcomes such as drug use, job placement, and criminal involvement, using data obtained through a follow-up interview conducted with participants approximately one year after leaving Job Corps. The findings revealed a significantly greater reduction in marijuana and crack cocaine use among Job Corps students who participated in the DTEP as compared to AODA program participants. The original analysis was limited however to differences in outcomes between the DTEP group and the AODA group and did not fully evaluate participant characteristics associated with success or the differential impact of specific treatment components within the DTEP protocol.

## **2. ADOLESCENT SUBSTANCE ABUSE TREATMENT LITERATURE**

Substance use by adolescents is widely recognized as a major public health concern. Substance use and abuse is associated with the three leading causes of mortality among adolescents: accidents (in particular automobile accidents), suicides, and homicides (Windle and Windle, 1999). Moreover, several studies and health surveillance systems point to increased drug use among adolescents since the late 1980s and early 1990s, as well as a decline in the age of first use (Johnston et al., 1999; Brasseaux et al., 1998). Thus, research examining the prevention of substance use and the treatment of substance abusing youth is an important first step in beginning to address this social problem.

Because this analysis focused on evaluating the types of services and the amount and timing of services offered under an enhanced drug treatment program (DTEP) for Job Corps' youth, the analysis team reviewed the literature on treatment programs generally and, to the extent that they exist, on treatment programs that have been targeted towards substance abusing youth. The results are summarized below. Specifically, this section presents a review of the literature that addresses the use of enhanced treatment services (such as DTEP) as a predictor of

successful treatment outcomes. This section also summarizes research concerning the effectiveness of particular types of treatment services, length of time in treatment, and pre-treatment factors that have been shown to predict successful treatment outcomes.

## **2.1 Enhanced Adolescent Treatment Services and Outcomes**

Current prevention and treatment programs targeting the problems of substance abuse among adolescents have focused on community-based prevention strategies that emphasize parent, peer, and community involvement in the prevention and treatment of substance abuse (Comerci and McDonald, 1990; Fishman et al., 1997; Weinberg et al., 1998; Windle and Windle, 1999; and Jenson et al., 1999). The development of treatment services designed specifically for substance abusing adolescents and young adults have included both traditional and non-traditional treatment methods. Traditional or standard treatment methods usually include individual or group counseling, recreation, family and school support efforts, and participation in self-help programs such as Alcoholics Anonymous (AA), Narcotics Anonymous (NA), and Cocaine Anonymous (CA). Some of the emerging non-traditional treatment programs are comprised of complementary or supplemental services that are designed to enhance those services offered under the traditional model. Enhanced services may include (but are not limited to) vocational training, case management, specialist services, and community referral linkages.

Enhanced treatment services (such as those provided through the DTEP model) have generally been established in the literature as important predictors of post-treatment outcomes, particularly among adults (McLellan et al., 1992; McLellan et al., 1998; Crome, 1999). Treatment programs that include provisions for additional specialized services (e.g., educational, vocational, recreational, and contraceptive services) show some of the most promising outcomes among adult treatment clients. In particular, treatment services that include employment training and vocational counseling have been demonstrated to be effective supplemental therapy in substance abuse treatment services (Higgins et al., 1991; Catalano et al., 1991). In addition, the integration of supplemental social services (in the form of case managers) within substance abuse treatment services has been shown to be an effective strategy in improving the outcomes of addiction treatment (McLellan et al., 1998).

Substance abuse treatment programs for youth that focus on a more comprehensive and integrated approach—addressing multiple risk factors for substance abuse similar to the DTEP approach—are expected, based on the adult treatment experiences, to be beneficial. The risk factors that many adolescent prevention and early intervention programs address often include family support, individual strengths (life skills and socialization), peer group influences, and the

larger social environment (Comerci, 1990). In addition, as part of a more comprehensive treatment approach, many prevention and early intervention programs now advocate individualized treatment that focuses on treating individual factors and that engage youth in long-term relationships with the prevention and early intervention providers (Crome, 1999). Early research suggests that treatment services that pay inadequate attention to individual differences among substance abusing adolescents in terms of demographic, psychological, or social factors that are related to substance abuse may be ineffective in treating certain adolescents, suggesting that more tailored strategies that treat individual needs are the most effective (Wagner et al., 1999; Friedman, 1992).

## **2.2 Effectiveness of Particular Types of Treatment**

There has been very little research that identifies the particular service mix that leads to the most successful outcomes (Wagner et al., 1999). Although it is believed that treatment services that provide both individual treatment services and group therapy offer advantages to substance abusing youth, group counseling is often adopted and viewed as roughly comparable in effectiveness to individual counseling. Further, some advocates believe group counseling has certain advantages over individual counseling. Although individual counseling can focus on the issues specific to the individual, proponents of group therapy believe it offers advantages in terms of providing group reassurance for youth and a peer reference group (Fishman et al., 1997).

A clearer understanding of the factors that influence treatment success is needed (Catalano, et al., 1991). For example, research examining individual characteristics at the initiation of treatment has been found to be predictive of substance use status after treatment among adult clients (McLellan et al., 1994). Factors such as severity of dependence (Babor et al., 1988), presence of family and social supports (Havassy et al., 1989), severity of psychiatric symptoms (McLellan et al., 1993), and presence of an antisocial personality diagnosis (Alterman and Cacciola, 1991) are among the most salient variables associated with adult post-treatment outcomes. In addition, the length of time adult clients spend in substance abuse treatment has been shown consistently to be an important predictor of post treatment outcomes. That is, the longer a client spends in treatment, the better the outcomes following discharge from most therapy settings (Gossop et al., 1999; Ball and Ross, 1991; Hubbard et al., 1989; Simpson et al., 1997). These findings from research on substance abuse treatment for adults may provide some insight into the important treatment variables and treatment components for adolescents.

Additional research is needed to examine the relationship among outcomes and specific elements of the treatment process, including treatment environment and delivery of services for

adolescents (Simpson et al., 1997). The analysis presented in this report provides a step toward a better understanding of the types of treatment services that may lead to better outcomes for substance abusing youth.

### **2.3 Use of the Literature in the Present Analysis**

The present analysis uses data for participants in the DTEP intervention to examine the services students received under the CSAT demonstration and to provide insights concerning the types of services that appear to be most closely associated with intervention success. More specifically, the analysis quantifies and examines the types, amount, and timing of the services received by students participating in the DTEP demonstration and evaluates the effect on substance use behaviors approximately one year after termination from DTEP and Job Corps.

As described above, the literature suggests that enhanced substance abuse treatment services, integrated within a residential program, that address many interrelated issues may be more effective for youth than those that focus exclusively on substance abuse issues. The DTEP data was sufficiently detailed so as to be categorized into the set of services that students received in DTEP by sessions devoted exclusively to substance abuse and those sessions involving complementary services. Based on the literature, the analytic expectations are that sessions that are complementary to the traditional substance abuse services will contribute to producing positive outcomes for Job Corps youth after Job Corps exit.

Second, the DTEP data support the analysis of whether individual sessions in conjunction with group therapy sessions are effective in producing positive outcomes at follow-up. The analysis hypothesizes that more individualized sessions—whether they are exclusively devoted to substance abuse problems or more complementary aspects of treatment—will be relatively more effective than group therapy sessions. Because both serve different therapeutic purposes, this is not to imply one should be used exclusively.

Finally, the literature supports the concept that, for adults, longer stays in treatment are associated with better outcomes. As described above, the Job Corps is designed to provide job training and academic skills. The extent to which students stay longer in the Job Corps program and complete the job training and education portions of the program as well as receive more intensive drug treatment services, the better the outcomes one would expect in terms of substance use following program exit. Specifically, the analysis expects that students who stay in the Job Corps program longer and receive more educational and vocational services along with more

drug treatment services as part of DTEP, will be more likely to experience positive outcomes at follow-up compared to DTEP participants who left the program early.

The present study used the program services data collected for all students who participated in DTEP. Data were collected in the form of sign-in sheets and program logs that identified the services received under the program. Information on the staff member who provided the service, the session date, type of session, topic, and duration were recorded. This information was used in the present analysis to evaluate the effectiveness of different service patterns on students participating in the DTEP program. Specifically, this analysis examined the types, number, and timing of students' services while in the program, and evaluated their effect on drug use behaviors approximately one year after termination from Job Corps.

### **3. PURPOSE AND ORGANIZATION OF THE REPORT**

The primary purpose of this report is to present the results of the re-analysis of the CSAT-sponsored DTEP evaluation data on Job Corps students' substance use and the effectiveness of specific treatment components. The present analysis was designed to answer two primary analysis questions and several secondary questions about students entering the Job Corps DTEP who were using drugs at intake:

- Which kinds of substance abuse treatment services are most closely associated with abstinence and reduced substance use approximately one year after leaving the Job Corps? More specifically:
  - Do substance abuse treatment services that are not exclusively devoted to substance abuse but part of an enhanced, integrated treatment program contribute to abstinence or reduced substance use behavior?
  - Do individual substance abuse treatment counseling sessions lead to more positive treatment outcomes than group sessions (that are either community-based, such as AA, or are conducted by non-clinical group leaders)?
- How do the quantity and timing of substance abuse treatment services affect abstinence and/or reduced substance use approximately one year after leaving the Job Corps? More specifically:
  - Do students who stay longer in the program receive more services?
  - Do students who stay longer have better substance abuse outcomes?

The remainder of this report is divided into three chapters. Chapter II presents the methods used in this analysis. Chapter III presents the results of the re-analysis, and Chapter IV presents the analytic conclusions and implications for research, policy, and practice. The report also includes three appendices. Appendix A provides a detailed description of the DTEP evaluation design and data collection procedures. Appendix B presents data on analyses not shown in the report. Specifically, Appendix B presents “Average Number of Days Spent in Sessions Devoted Exclusively to Substance Abuse Issues by Period of Program and Student Characteristics.” Appendix C presents “Average Number of Days Spent in Supplemental Sessions by Period of Program and Student Characteristics.”

## **II. METHODS**

## II. METHODS

The purpose of this chapter is to describe the methodology used to conduct a re-analysis of the Job Corps Drug Treatment Enrichment Project (DTEP) data. The chapter is divided into three sections. The first section presents a description of the data used in the analysis including the sample of Job Corps students and the DTEP services data. The second section provides a description of the analysis methods including the outcome measures selected, the statistical models, and the co-variate analyses. The chapter concludes with a description of the study limitations.

### 1. DTEP DATA USED IN THE ANALYSES

Services data were available for a total of 313 Job Corps students who participated in the DTEP intervention components. The following paragraphs describe the sample of 313 Job Corps students and the types of services data available for these analyses.

#### 1.1 Job Corps Student Sample

The analysis presented in this report is based on a total of 313 students who participated in DTEP at one of four Job Corps centers and who met certain additional criteria. Specifically, the criteria for inclusion in the analysis sample were: (1) student used drugs (and alcohol) in the 12 months before enrollment in the program; (2) student had complete DTEP service records; and (3) student completed a follow-up interview at least 6 months after leaving Job Corps. The students in the analysis sample represent about two-thirds of the 466 students overall who participated in DTEP in one of the four centers and who completed a follow-up interview. The large majority of the 153 students excluded from the analysis sample either had missing substance use history data or no DTEP service records.

Descriptive information on the demographic characteristics and substance use histories of the 313 students included in the analysis are presented in Exhibit II-1. As this Exhibit indicates, the youth in the analysis sample were from racial/ethnic minorities, economically disadvantaged, and primarily used marijuana before enrolling in Job Corps. For example, 75 percent of the sample were either African American or Hispanic, 41 percent had completed at most ninth grade, 33 percent had no prior work experience and nearly one-half (46%) had been arrested at least once. Ninety-eight percent of the sample used marijuana in the 12-month period before Job Corps enrollment and for 73 percent of the sample, marijuana was the only drug used in the prior year. Moreover, 13 percent of the sample used uppers and marijuana before enrollment and 10 percent used cocaine and marijuana.

<b>EXHIBIT II-1 CHARACTERISTICS AND DRUG USE OF JOB CORPS STUDENTS IN ANALYSIS SAMPLE (N=313)</b>	
<b>Characteristics</b>	<b>Percent %</b>
Male	74
African American	50
Hispanic	25
16-17 years old	42
18-20 years old	39
Education of 9th grade or less	41
Education of 10th -11th grade	43
No work experience	33
One or more arrests	46
Marijuana use	98
Marijuana and Other Drugs <sup>1</sup>	
None	73
Cocaine	10
Crack cocaine	3
Uppers	13
Hallucinogens	8
PCP	3
Downers	2
Heroin	1

<sup>1</sup> Because some students reported more than one combination, these total to more than 100%.

## 1.2 DTEP Services Data

The 313 students in the analysis sample participated extensively in DTEP. One indication of the level of participation is that there were a total of 5,045 service records (or program sessions) available for these students. This corresponds to over 16 sessions per student on average, with a median of 11 sessions. Among DTEP students who stayed in Job Corps for at least three months, the mean number of sessions was 25.5, with a median of 19. Sessions varied considerably in duration: 25 percent were 15 minutes or less, 25 percent were between 20 and 40 minutes, 40 percent were about an hour in length, and another 10 percent were reported as lasting longer than an hour.

Each student service or session record included the following information:

- Session date and duration
- Type of session
- Specialty of the staff member conducting the session.

The session topic was recorded for each student. Thirty-six different session topics were identified. The session topics for the 313 students were categorized within nine discrete categories based on a combination of the session topic and the DTEP specialist who conducted the session. These nine categories were created to collapse the many different session types into a smaller number of sessions for purposes of analysis. These nine types effectively sort the DTEP sessions into group and individual counseling devoted exclusively to substance abuse topics, group and individual counseling sessions that cover other topics, and other kinds of sessions intended by the DTEP to assist the student according to the intervention plan developed during enrollment and assessment.

It should be noted that all of the sessions, regardless of whether the coded topics were substance abuse or not, were part of a planned regimen of “enhanced” substance abuse treatment. As such, sessions characterized as devoted to other topics were in reality complementary treatment sessions that provided supplemental services and may have included substance abuse discussions.

The nine services categories are presented in detail in Exhibit II-2 along with the number and percent of sessions and students receiving each of the session types. As shown in Exhibit II-2, individual counseling sessions dedicated to substance abuse topics were the most frequently provided session type (31.5%) of all of the types of services provided. Exhibit II-2 also demonstrates that the majority of students received counseling that was devoted exclusively to substance abuse issues (84% of students received individual counseling; and, 74% received group counseling devoted exclusively to substance abuse issues).

<b>EXHIBIT II-2</b>			
<b>SESSION CATEGORIES BY TOPIC AND STAFF SPECIALIST: NUMBER AND PERCENTAGE OF SESSIONS AND STUDENTS BY SESSION CATEGORY</b>			
<b>Session Category</b>	<b>Session Topic and Staff Specialist</b>	<b>Sessions: No. (%)</b>	<b>Students: No. (%)</b>
<i>Group counseling: substance abuse issues</i>	Group counseling sessions conducted by a Substance Abuse Specialist or sessions with subjects: "Being A/D Free," "12 Step," "Codependency," "Self Help" and "Relapse Prevention."	870 (17.2)	231 (73.8)
<i>Individual counseling: substance abuse issues</i>	Individual counseling sessions conducted by a Substance Abuse Specialist or sessions with subjects: "Being A/D Free," "12 Step," "Codependency," "Self Help" and "Relapse Prevention."	1,591 (31.5)	263 (84.0)
<i>Other group counseling sessions</i>	Group counseling including topics: confidentiality/trust; self-help; anger/ stress management, self-esteem, loss and grief, HIV awareness, and interactive skills. Sessions given by staff other than the Substance Abuse Specialist.	223 (4.4)	92 (29.4)
<i>Other individual counseling sessions</i>	Individual counseling including topics: confidentiality/trust; self-help; anger/ stress management, self-esteem, loss and grief, HIV awareness, and interactive skills. Session given by staff other than the Substance Abuse Specialist.	350 (6.9)	86 (27.5)
<i>Community resources - NA/AA</i>	Community resource sessions	45 (0.9)	22 (7.0)
<i>Life skills sessions</i>	Life skills	301 (6.0)	82 (26.2)
<i>Education sessions</i>	Education sessions or group or individual sessions conducted by an Education Specialist	867 (17.2)	146 (46.6)
<i>Recreation and other activities</i>	Recreational activities or group or individual sessions conducted by an Activities Specialist	252 (5.0)	69 (22.0)
<i>Case management sessions</i>	Case management	323 (6.4)	88 (28.1)
<i>Total</i>		5,045 (100)	313 (100)

After each service record was classified into one of these nine session categories, a history of treatment services was constructed for each student. For purposes of analysis, each student's participation in the program was broken into two time periods: (1) sessions that occurred in the first three months of the student's Job Corps tenure, and (2) sessions that

occurred after the first three months. The analysis divided the service periods into two distinct periods for two reasons. First, under the DTEP program, substance abuse treatment sessions were scheduled on a weekly basis for the first three months. As such, the delivery of services during the first three months was planned to be more regular and intensive than subsequently, and this may affect outcomes. Second, by dividing a student's experience in the program into two distinct time periods, the analysis was able to examine the effects of different types of sessions at different points in time while still maintaining adequate cell sizes for analysis.

Also, summary measures of DTEP services were created, including: (1) the number of sessions within each type of session; (2) the total time spent in each type of session; and, (3) the number of different days on which a student attended each type of session. This third measure has several advantages over other service summary measures, as it helps avoid potential duplication of records, and more appropriately accounts for sessions on the same day that are interrupted and re-convened. As such, the results reported in the next chapter primarily use this service measure.

## **2. ANALYTIC METHODS**

The analytic methods used for the re-analysis of the Job Corps DTEP data are described below.

### **2.1 Outcome Measures**

The analysis focuses on two specific substance abuse outcome measures: (1) self-reported "abstinent" from substance use; and, (2) self-reported "improved" substance use behavior at the time of the follow-up interview. Job Corps students participating in DTEP were defined as "abstinent" at follow-up if they self-reported no illicit drug or alcohol use of any kind after leaving the Job Corps program up until the time of the follow-up survey. Students were considered to have "improved" substance use behavior if they were abstinent or if: (1) they reported a reduction in their frequency of marijuana use and no use of other drugs (including underage drinking), or (2) they reported using fewer drugs than they had previously used (and less underage drinking) and reported no increase in marijuana use.

### **2.2 Statistical Models**

To examine the effects of different types of DTEP services on the two substance abuse outcome measures, three types of multivariate models were estimated. The first model examined

the effects of sessions devoted to substance abuse, as well as the effects of complementary treatment sessions. This was accomplished by combining individual and group sessions of different types to create two variables: (1) number of days devoted to substance abuse sessions; and (2) number of days in complementary treatment sessions.

The second model included nine DTEP service variables, one each for the number of days devoted to each of the nine categories of DTEP sessions, regardless of when the sessions occurred. This approach provided a general sense of the relative effects of different types of individual and group sessions on the substance abuse treatment outcomes. Finally, the third model estimated separate effects of each of the nine types of sessions depending on when they occurred. Specifically, two coefficients for each type of session were estimated, to capture the effects of sessions occurring during the student's first three months and those occurring after the first three months.

In addition to estimating these models over the entire sample, the same models were separately estimated for those students who stayed in the program at least six months. Although the average duration of stay in Job Corps is about seven months, the duration of stay varies greatly; many students complete the program earlier and some stay considerably longer. Time in the program may be correlated with both outcomes and the amount of services a student receives. As such, a separate analysis of students staying at least six months provided a way to observe the effects of DTEP sessions for students staying an average length of time within the Job Corps Center in which one would expect they would complete much of their Job Corps training.

Logistic regression was used to estimate the multivariate models. Adjusted odds ratios were calculated using the GLIMMIX macro included with the SAS system that iteratively calls the SAS PROC MIXED procedure to model a dichotomous outcome. To adjust for clustering within the four Job Corps centers from which these 313 students were drawn, the effect of each center was modeled as a random effect. This has the effect of adding an additional error term, which adjusts for the underestimation of standard errors because observations are correlated within centers. The number of cases and mean number of days spent in each type of session is presented for each of the four centers in Appendix B, "Average Number of Days Spent in Sessions Devoted to Substance Abuse Issues by Period of Program and Student Characteristics," and Appendix C, "Average Number of Days Spent in Complementary Treatment Sessions by Period of Program and Student Characteristics."

### **2.3 Covariates**

The multivariate statistical models described above included several covariates to control for the effects of factors that predict drug use at follow-up or that affect the likelihood that a student received certain DTEP services. To select the covariates, the original evaluation of the DTEP program (Caliber, 1996) was reviewed, and extensive exploratory analysis was conducted. Caliber reported that gender, ethnicity, criminal behavior, school suspensions, and running away from home best predicted the drug use measures they examined at follow-up. These factors were included in the preliminary analysis of abstinence and drug use behavior improvement because they affected the estimates of the DTEP session variables even though many were not statistically significant in models without the DTEP session variables. In addition, the number of illicit drugs a student used in the 12 months prior to Job Corps was consistently and significantly associated with lowered odds of being abstinent at follow-up for the overall sample and for the subgroup of students that stayed more than three months.

Caliber (1996) also reported that students with extensive drug use prior to their Job Corps enrollment had significantly lower duration of stay in the program. Models that included the duration of time in the program as an independent variable consistently showed this variable to be a strong predictor of being abstinent or improved at follow-up. When included in models with the counseling sessions, the effects of the counseling sessions disappeared for the total group. This was largely expected, since any measure of the number of days or the amount of time spent in counseling sessions would be closely correlated with the time in which the student was available for the sessions. Most importantly, the intention of this analysis was not to document that remaining in a program is closely related to the program's success, but to observe the differential effect of different kinds of services provided at different times in the program. Therefore, the competing effect of total time in Job Corps was excluded from the final models.

As a result of this review and exploratory analysis, the final statistical models included the following covariates: the year and quarter in which students enrolled in Job Corps, gender and ethnicity, whether they ever worked before enrollment, whether they had ever been arrested before enrollment, highest completed grade, whether they lived with their biological parents at enrollment, and the number of drugs they reported using in the 12-months prior to enrollment.

### **3. LIMITATIONS OF THE ANALYSIS**

In any study that analyzes data obtained from a previous evaluation, there are always design or data collection issues that potentially limit the results. The re-analysis of the Job Corps

DTEP project was no different. This section briefly describes the most important potential analytic limitations.

**Selection bias.** Perhaps the single most important limitation of the study design and analysis is the possibility of selection bias. The original DTEP evaluation compared DTEP to the standard Job Corps drug counseling program using a quasi-experimental design. The present analysis—focusing on the DTEP group only—is non-experimental in that students’ service mix was scheduled at intake based upon their assessment and need. Further selection bias may have been introduced by variability in attendance at scheduled services.

To account for selection bias, the re-analysis controlled for a number of measured characteristics that affect the likelihood of the services received and the outcome measures. Although this provides a measure of protection against the misinterpretation of selection bias as service effects, it cannot control for unmeasured factors that affect service receipt and drug use outcomes.

**Program implementation issues.** Not unlike other demonstration programs, the DTEP project experienced some startup problems. As a result, students who entered the program early received a diluted version of the program, while the last students to enroll (when the program was more stable and mature) were not included in the follow-up because sufficient time had not elapsed since their termination. To the degree that the delayed and inconsistent implementation diluted the strength of association between individual service components and outcomes, the **effect sizes found in the present study may be underestimated.**

**Self-reported drug use.** The drug use outcomes used in this analysis were based on self-reported drug use. Self-report of drug use frequently may be under-reported, particularly among youth. Drug screening was a regular part of the DTEP, however, and in the original report drug use was confirmed with these data. Hamid (1999) suggests that the knowledge that a urine test will be conducted before an interview can increase the accuracy of self-reported drug use. Urine tests were conducted during enrollment for all enrollees and for a sample of students at follow-up; therefore, it is reasonable to assume that the self-reported drug use data are reasonably valid.

**Follow-up variability.** The data collection design called for the follow-up interview to be administered approximately 12 months after students left Job Corps. Five students in the sample had follow-up periods of less than a year, however. Among those whose follow-up

period was at least 12 months, the actual periods ranged from 233 to 910 days, with a median of 475 days (15.6 months), which was quite long for a substance abuse treatment study.

Such a long follow-up period raises the possibilities that DTEP may have delayed time-to-relapse for many of the students who reported using at follow-up, or that some students sought additional treatment post-Job Corps which was not captured by the Job Corps services data, but may have influenced their abstinence or improvement status at follow-up. As such, it is likely that the configuration of students who were abstinent or improved at an earlier period (e.g., three or six months) would have differed from that observed during this re-analysis. It is even more likely that those earlier outcomes would have been more strongly related to the Job Corps service encounters, given the closer temporal proximity of services and outcomes. The consequence is that many of the service outcome relationships may have deteriorated during the long follow-up period, and the present findings may substantially underestimate the more near-term effects of the services.

**Marginal statistical power.** Statistical power to detect significant effects was limited by (1) the small sample sizes and (2) the heterogeneity of the intervention across the four centers. This is especially the case for the subset of eligible students staying at least six months (N=127). As a consequence, some service components with clinically significant effect sizes (e.g., life skill sessions in the first three months) nonetheless failed to reach the  $p < .05$  criterion.

### **III. FINDINGS**

### **III. FINDINGS**

This chapter presents the results of the re-analysis of the Job Corps DTEP data. More specifically, the findings from the analysis are presented in terms of the effects of the types, amount, and timing of DTEP services on Job Corps students' subsequent substance abuse behaviors. The chapter begins with the findings from the descriptive analyses including: (1) the descriptive results for the two outcome variables of interest: "abstinence" of drugs and "improvement" in drug use behavior at the time of the follow-up interview and (2) descriptive results showing the distribution of the types, number, and timing of services received by DTEP participants. Following the descriptive findings, the results of several multivariate models using logistic regression are presented. These include the findings from models showing the adjusted odds ratios of being abstinent of all drugs at follow-up. Identical logistic regression models is shown for the second outcome of interest, "improvement" in drug use behavior at follow-up.

#### **1. FINDINGS FROM THE DESCRIPTIVE ANALYSES**

The following paragraphs present the descriptive analysis results for the outcome measures and the distribution of the number and types of DTEP services that contributed to the findings on the Job Corps student DTEP outcomes.

##### **1.1 Distribution of Outcomes**

A total of 117 students (37% of the total cohort of 313) were abstinent of all drugs at the time of the follow-up interview. In addition to the 117 who were abstinent, 18 students who reported that they never used any other drugs besides marijuana at intake had reduced their marijuana use during the follow-up period. In addition, 31 students reduced the number of other drugs they used without increasing their use of marijuana. Since both of these groups reported some improvement in their drug use behavior following termination from Job Corps, they were combined with the 117 abstinent students to comprise the "improved" outcome group. Of the total of 313 students, 166 students (53%) showed "improved" drug use behavior at follow-up. These outcomes compare favorably with results from therapeutic community evaluations.

The percentage of students who were abstinent or improved at follow-up is somewhat higher for students staying in Job Corps at least six months. Among the 127 students staying at least six months, 56 students (44%) were abstinent of all drugs at the time of the follow-up interview. An additional 18 students reported improved drug use behavior based upon a reduction in marijuana use or a reduction in the number of drugs used without an increase of

marijuana use. Thus, of the 127 initial drug users that participated in DTEP and stayed in Job Corps at least six months, 74 students (58%) exhibited “improved” drug use behavior.

## **1.2 Distribution of DTEP Sessions**

Of the types of sessions offered to DTEP students, the analysis found that group sessions, particularly those coded as being exclusively dedicated to substance abuse issues or conducted by the substance abuse specialist, tended to occur in the first few months of a Job Corps student’s DTEP participation. The distribution of individual sessions on the other hand, tended to be more spread out throughout the Job Corps student’s participation. Sessions that focused on improving a student’s educational skills or enhancing “life skills” tended to be conducted in the latter portion of the student’s stay at Job Corps. Nearly one-half (2,295 or 46%) of all sessions occurred in the first three months of students’ stay in the Job Corps (and DTEP) program.

The distribution of days spent in each type of session overall and by the program time period (i.e., first 3 months and months 4-12) is presented in Exhibit III-1. Overall, DTEP participants had sessions that addressed substance abuse issues or sessions conducted by a substance abuse specialist on an average of 8 days, as compared to sessions on 6.6 days that addressed other complementary issues. The distribution of days attending different services are highly skewed, with students attending once or twice on average, if at all, and a small number of students attending many times on different days. It should be noted that a quarter of the 313 students dropped out of Job Corps within three months, leaving 234 students (75%) present at the beginning of month 4. A total of 127 students (41%) stayed at least six months.

The same information for the 127 students who stayed in Job Corps at least six months is presented in Exhibit III-2. A comparison of Exhibits III-1 and III-2 demonstrates, the number of DTEP sessions by the Job Corps students’ duration of stay at the center. As shown, in all categories, students who stayed in Job Corps six months or more received twice as many services in months 4-12 than the group as a whole, while in the first 3 months their numbers are comparable. Given that the means for students who stayed six months or longer are calculated on a subset of students with longer tenure in the program the comparison results are reasonable. Exhibit III-2 also shows that except for group counseling that dealt specifically with substance abuse issues or sessions that were led by a substance abuse specialist, students received more days of counseling sessions in the latter part of their stay in Job Corps. In particular, individual counseling sessions devoted exclusively to substance abuse issues or conducted by a substance abuse specialist increased from an average of 2.9 days of sessions in the first 3 months to an average of 4.6 days in months 4-12.

<b>EXHIBIT III-1</b>						
<b>DAYS IN COUNSELING SESSIONS BY TYPE AND TIME OF SESSION:</b>						
<b>ALL STUDENTS (N=313)</b>						
<b>Session Type</b>	<b>Total</b>		<b>First 3 Months</b>		<b>Months 4-12</b>	
	<b>Mean</b>	<b>Range</b>	<b>Mean</b>	<b>Range</b>	<b>Mean</b>	<b>Range</b>
Group counseling exclusively dedicated to substance abuse issues	2.7	0-13	1.9	0-8	0.8	0-11
Individual counseling exclusively dedicated to substance abuse issues	4.9	0-40	2.6	0-15	2.3	0-30
Group counseling: complementary treatment	0.6	0-19	0.3	0-6	0.3	0-15
Individual counseling: complementary treatment	1.0	0-27	0.4	0-13	0.6	0-25
Community resources (AA/NA)	0.1	0-6	0.04	0-6	0.1	0-5
Educational sessions	2.5	0-79	0.9	0-19	1.6	0-76
Life skills sessions	0.9	0-32	0.2	0-8	0.7	0-32
Recreation and other activities	0.8	0-55	0.3	0-8	0.5	0-49
Case management	0.8	0-14	0.2	0-11	0.6	0-14

Further breakdowns of these data by gender, age, ethnicity, and other covariates are presented in Appendix B, “Average Number of Days Spent in Sessions Devoted Exclusively to Substance Abuse Issues by Period of Program and Student Characteristics,” and Appendix C, “Average Number of Days Spent in Supplemental Sessions by Period of Program and Student Characteristics.”

<b>EXHIBIT III-2</b>						
<b>DAYS IN COUNSELING SESSIONS BY TYPE AND TIME OF SESSION: STUDENTS THAT STAYED IN JOB CORPS AT LEAST 6 MONTHS (N=127)</b>						
<b>Session Type</b>	<b>Total</b>		<b>First 3 Months</b>		<b>Months 4-12</b>	
	<b>Mean</b>	<b>Range</b>	<b>Mean</b>	<b>Range</b>	<b>Mean</b>	<b>Range</b>
Group counseling exclusively dedicated to substance abuse issues	3.8	0-13	2.1	0-8	1.6	0-11
Individual counseling exclusively dedicated to substance abuse issues	7.4	0-40	2.9	0-14	4.6	0-30
Group counseling: complementary treatment	1.1	0-19	0.4	0-5	0.7	0-15
Individual counseling: complementary treatment	1.8	0-27	0.4	0-10	1.4	0-25
Community resources (AA/NA)	0.2	0-6	0.01	0-1	0.2	0-5
Educational sessions	4.2	0-79	0.8	0-19	3.4	0-76
Life skills sessions	1.6	0-32	0.2	0-3	1.4	0-32
Recreation and other activities	1.3	0-55	0.2	0-6	1.1	0-49
Case management	1.3	0-14	0.1	0-5	1.2	0-14

## 2. FINDINGS FROM THE LOGISTIC REGRESSION ANALYSES

Logistic regression analyses were conducted to more precisely determine the outcomes from DTEP participation. The logistic regression models were used to examine drug abstinence and the reduction in drug use among the Job Corps students who participated in DTEP.

### 2.1 Analyses of Drug Abstinence at Follow-up

The results of the multivariate (regression models) models examining drug abstinence at follow-up showed the following results. A total of 117 students (37%) from the total sample of 313 were classified as abstinent at the time of the follow-up interview. Exhibit III-3 presents the odds ratios and significance of being abstinent at follow-up for three different models, adjusted for the covariates included. The odds ratios (OR) represent incremental increases that are scaled according to the number of days that a session was attended. In the column labeled "All Students (N=313) OR," we present the odds ratios for the models estimated over the entire sample. The column labeled "Students: 6+ Months (N=127) OR" shows the results for the subset of students that stayed at least six months in the Job Corps program. As described earlier, Model 1 presents a comparison of the days in sessions devoted exclusively to substance abuse

issues (group and individual counseling and community resource AA/NA) with the days in session for supplemental and other kinds of sessions. Model 2 presents a comparison of each of the nine different types of sessions and Model 3 presents a detailed comparison of the different session types broken into two distinct time periods—the first 3 months and months 4-12.

<b>EXHIBIT III-3</b>			
<b>ADJUSTED ODDS RATIOS OF BEING ABSTINENT OF ALL DRUGS AT FOLLOW-UP</b>			
<b>Session Type</b>		<b>All Students (N=313) OR</b>	<b>Students: 6 + Months (N=127) OR</b>
<b>Model 1</b>			
Exclusively devoted to substance abuse issues		1.019	0.996
Complementary treatment and topics		1.020+	1.028*
<b>Model 2</b>			
Group counseling dedicated to substance abuse issues		0.994	0.939
Individual counseling dedicated to substance abuse issues		1.027	1.016
Group counseling: complementary treatment		0.897	0.747
Individual counseling: complementary treatment		1.053	1.119
Community resources (AA/NA)		1.038	0.599
Educational sessions		1.011	1.011
Life skills sessions		1.104	1.123
Recreation and other activities		1.052	1.137+
Case management		0.999	0.974
<b>Model 3</b>			
Group counseling—substance abuse issues	First 3 Months	0.990	0.883
	Month 4-12	0.998	1.036
Individual counseling—substance abuse issues	First 3 Months	1.059	1.161
	Month 4-12	1.009	0.978
Complementary group counseling	First 3 Months	0.958	0.839
	Month 4-12	0.770	0.408*
Complementary individual counseling	First 3 Months	0.943	1.150
	Month 4-12	1.120	1.458*

<b>EXHIBIT III-3 (CONT.)</b>			
<b>ADJUSTED ODDS RATIOS OF BEING ABSTINENT OF ALL DRUGS AT FOLLOW-UP</b>			
<b>Session Type</b>		<b>All Students (N=313) OR</b>	<b>Students: 6 + Months (N=127) OR</b>
Model 3 (Cont.)			
Community resources (AA/NA)	First 3 Months	1.734	0.529
	Month 4-12	0.878	-
Educational sessions	First 3 months	0.970	0.822
	Month 4-12	1.020	1.030
Life skills sessions	First 3 Months	1.341	1.403
	Month 4-12	1.077	1.028
Recreation & other activities	First 3 Months	0.862	4.459+
	Month 4-12	1.140+	1.129
Case management	First 3 Months	0.832	29.98*
	Month 4-12	1.055	1.073

Odds Ratios are adjusted for year/quarter of enrollment, gender, ethnicity, education, work and arrest history, whether lived with biological parents and number of drugs used at enrollment

+ Significant at  $p < .10$

\* Significant at  $p < .05$

\*\* Significant at  $p < .01$

“-“ indicates coefficient could not be estimated

As shown in Model 1, there is a positive (OR=1.028,  $p=.037$ ) association between the complementary treatment sessions and being abstinent at follow-up for the 127 students who stayed at least six months in Job Corps. A similar result for the total sample of 313 is not statistically significant at conventional levels (OR=1.020,  $p=.062$ ) however the pattern is comparable. The estimates for the number of days in sessions devoted to substance abuse recovery issues are insignificantly different from unity.

When the more detailed categories of session type are used (see Model 2), none of the individual components are statistically significant at the .05 level for either the full sample or for the subset of students who stayed at least six months in Job Corps. There is, however, a consistent pattern or trend in which the odds in favor of being abstinent for the individual counseling variables are somewhat larger than for the group counseling variables. This trend holds true for days in sessions dedicated to substance abuse issues as well as days in sessions that address complementary treatment issues. Moreover, although not statistically significant, the point estimates of the odds ratios for the individual counseling variables tend to be greater than

unity, whereas the estimated odds ratios for the group counseling variables are consistently less than unity. This pattern is consistent with the important role of individual counseling and of integrating recovery issues other than substance abuse into the counseling sessions.

As shown in Model 3, when the sessions were divided into the first three months and those occurring later (months 4-12) none of the session variables are statistically significant at conventional levels for the overall sample of 313 students. Only the odds ratio for recreation and other activities in later months is significant at a 0.10 level (OR=1.140,  $p=.087$ ). For students who stayed at least six months, however, this model again shows trends in the timing of effects. For example, the odds ratio for group sessions with complementary treatment topics that occurred in the first three months was significantly lower than unity (OR=0.408,  $p=0.020$ ), while significantly higher odds ratios are shown for individual counseling sessions dealing exclusively with substance abuse issues (OR=1.458,  $p=0.045$ ) occurring in months 4-12. This supports the pattern noted above of higher odds ratios for individual counseling sessions than group counseling sessions. Also, recreational activities designed as part of the recovery treatment plan in the first three months are significant at the 0.10 level (OR=4.459,  $p=0.053$ ).

## 2.2 Analyses of “Improved” Drug Use Behavior at Follow-up

In this section the results of the logistic regression models examining “improved” drug use behavior at follow-up are presented. As indicated earlier, of the total sample of 313 DTEP students, 166 (53%) were classified as “improved”—defined as either a reduction in marijuana use or reduction in the use of other drugs at follow-up, with no increase in marijuana use. Exhibit III-4 presents the odds ratios and significance of exhibiting “improved” drug use behavior at follow-up for the same three statistical models presented above. As described below, the results for this outcome measure are quite similar to the results for the abstinence measure, in large part because of the strong overlap in the two measures.

<b>EXHIBIT III-4</b>		
<b>ADJUSTED ODDS RATIOS OF “IMPROVED” DRUG USE BEHAVIOR AT FOLLOW-UP</b>		
<b>Session Type</b>	<b>All Students (N=313) OR</b>	<b>Students: 6 + Months (N=127) OR</b>
Model 1		
Exclusively devoted to substance abuse issues	0.998	1.000
Complementary treatment and topics	1.024*	1.028+

<b>EXHIBIT III-4 (CONT.)</b>			
<b>ADJUSTED ODDS RATIOS OF “IMPROVED” DRUG USE BEHAVIOR AT FOLLOW-UP</b>			
<b>Session Type</b>		<b>All Students (N=313) OR</b>	<b>Students: 6 + Months (N=127) OR</b>
<b>Model 2</b>			
Group counseling dedicated to substance abuse issues		0.981	0.946
Individual counseling dedicated to substance abuse issues		1.003	1.018
Group counseling: complementary treatment		0.879	0.800
Individual counseling: complementary treatment		1.055	1.091
Community resources (AA/NA)		1.209	1.041
Educational sessions		1.009	1.010
Life skills sessions		1.117	1.138
Recreation and other activities		1.066	1.148
Case management		1.015	0.930
<b>Model 3</b>			
Group counseling: substance abuse issues	First 3 Months	0.956	0.946
	Month 4-12	0.995	0.950
Individual counseling: substance abuse issues	First 3 Months	1.040	1.063
	Month 4-12	0.985	0.977
Complementary group counseling	First 3 Months	0.847	1.149
	Month 4-12	0.771	0.948
Complementary individual counseling	First 3 Months	0.860	0.815
	Month 4-12	1.294*	1.215
Community resources (AA/NA)	First 3 Months	1.646	-
	Month 4-12	1.122	
Educational sessions	First 3 months	0.949	-
	Month 4-12	1.036	
Life skills sessions	First 3 Months	1.424	3.844+
	Month 4-12	0.986	1.052

<b>EXHIBIT III-4 (CONT.)</b>			
<b>ADJUSTED ODDS RATIOS OF “IMPROVED” DRUG USE BEHAVIOR AT FOLLOW-UP</b>			
<b>Session Type</b>		<b>All Students (N=313) OR</b>	<b>Students: 6 + Months (N=127) OR</b>
Model 3 (Cont.)			
Recreation & other activities	First 3 Months	0.906	-
	Month 4-12	1.151+	
Case management	First 3 Months	1.129	-
	Month 4-12	1.001	

Odds Ratios are adjusted for year/quarter of enrollment, gender, ethnicity, education, work and arrest history, whether lived with biological parents and number of drugs used at enrollment

+ Significant at  $p < .10$

\* Significant at  $p < .05$

\*\* Significant at  $p < .01$

“-“ indicates coefficients could not be estimated.

The results for Model 1 show a similar pattern for the “improved” outcome as shown for abstinence. Specifically, a significant and positive association between the complementary treatment sessions and being improved at follow-up (odds ratios of 1.024 ( $p=.040$ ) for the full cohort and 1.028 ( $p=.072$ ) for the long-term students) is demonstrated. In this case, however, the coefficient is significant for the total sample model, which primarily reflects greater sample size.

As with the abstinent outcome, none of the odds ratios reported in Model 2 for the nine detailed session types are significantly different from 1. However, the pattern of the estimated odds ratios for individual counseling sessions being greater than 1 and higher than for the similar session conducted in a group setting is also observed for this outcome measure.

Model 3, which divides sessions into those that occur during the first 3 months and those that occur later reveals a single odds ratio that is significantly different from unity at the .05 level. Specifically, individual counseling sessions devoted to complementary treatment occurring after the first 3 months are shown to significantly increase the odds of improved drug use behavior for the group as a whole (OR=1.294,  $p=.047$ ).

The odds ratio for this component is estimated to be greater than one for students staying six months or more as well, but it does not approach conventional levels of statistical significance (OR=1.215,  $p=.158$ ). It should be noted that recreation and other activities that occur during months 4-12 are significant at a 0.10 level (OR=0.906,  $P=.080$ ) for the overall

sample. For the 127 students staying at least 6 months, there also is a trend shown for sessions devoted to life skills (OR=3.844,  $p=.092$ ); however the significance is only at a  $p=.10$  level. Among the overall sample, the odds ratio for life skills in the first 3 months is greater than unity (OR=1.424) but not statistically significant ( $p=.124$ ).

## **IV. CONCLUSIONS AND IMPLICATIONS**

## IV. CONCLUSIONS AND IMPLICATIONS

This analysis examined the effects of individual treatment components within an enhanced treatment model for substance abusers who participated in the Job Corps Program DTEP intervention. The objectives of this analysis were to answer two primary research questions:

- First, which kinds of substance abuse treatment services are most closely associated with post-program abstinence and reduced substance use? More specifically:
  - Do substance abuse treatment services that are not exclusively devoted to substance abuse but part of an enhanced treatment program contribute to abstinence or decreased substance use behavior approximately one year after leaving Job Corps?
  - In addition, do individual substance abuse treatment sessions lead to more positive treatment outcomes than group therapy sessions?
- Second, how do the quantity and timing of substance abuse treatment services affect abstinence and reduced drug use?

In this chapter, the conclusions of the analysis are presented and the implications for future research, policy, and practice are described.

### 1. SUMMARY OF CONCLUSIONS

The presentation of the conclusions from this reported analysis of the CSAT-sponsored Job Corps DTEP demonstration are organized by the original analysis questions.

***Which kinds of services, i.e., session types, are most closely associated with drug abstinence and reduced substance use one year after leaving Job Corps?***

The results of the analysis of the Job Corps DTEP data indicate that the treatment components not exclusively geared towards addressing substance abuse issues show a promising trend in addressing substance abuse issues. For example, the analysis found that each additional day of a session dedicated to complementary treatment services increased the odds of being abstinent at follow-up by up to three percent depending on the outcome measure and the analysis sample. While this increase is modest, the results are statistically significant indicating that there may be added value to additional days of a session that focused on complementary services.

The results also followed a very consistent pattern in which individual sessions appeared more conducive to abstinence and improvement than group sessions regardless of whether the sessions were directed at substance abuse issues. Although this pattern was not statistically significant, it was consistently reflected in the direction of the odds ratios in all models. For both abstinence and improvement, all models presenting the nine session types, independently of when the session was conducted, showed a comparatively negative association with outcomes for group counseling sessions and a comparatively positive association for individual sessions. It must be noted that this finding does not apply to group therapy sessions, per se but rather to the group counseling sessions offered by the DTEP which were relatively unstructured and not conducted as certified clinical interventions.

***How do the quantity and timing of services affect drug abstinence and reduced drug use?***

The results the analysis show that the complementary treatment sessions that were not exclusively dedicated to substance abuse issues were an important part of the overall DTEP program. Moreover, an examination of when these complimentary services were conducted and how they affected subsequent drug use shows generally consistent results across the two outcome measures and analysis samples. Although relatively few coefficients were statistically significant at conventional levels, the estimated odds ratios generally followed consistent patterns. Taken together, the results seem to indicate that individual counseling sessions devoted to complementary treatment issues that occurred later in the program (months 4-12) increased the likelihood of reduced substance abuse outcomes at follow-up.

The analysis also found that complementary sessions other than individual counseling were an important part of the DTEP program. For example, it appears that sessions devoted to life skills given during the first 3 months of DTEP are associated with better treatment outcomes at follow-up. In addition, educational sessions given to students after the first 3 months of the program consistently showed a positive relationship with both abstinence and improvement at follow-up. Finally, in general, recreational activities given to students in the latter part of the program appear to be associated with better treatment outcomes.

**2. IMPLICATIONS FOR FURTHER RESEARCH, POLICY, AND PRACTICE**

Findings from the analysis of the Job Corps DTEP evaluation data serve two primary purposes. First, the findings support the hypothesis that individual counseling sessions, specifically, and counseling and other types of structured activities delivered to adolescents over an extended period of time serve to reduce or eliminate substance abuse one year following the

delivery of these services. Second, the findings support the identification of implications for further research, policy, and practice, as described below.

## **2.1 Implications for Research**

The present analysis did not focus on the use of alcohol only, in the outcome measures despite the fact that “alcohol only” use is well documented in the DTEP data. This was not because alcohol is a less serious problem among adolescents—alcohol abuse is a serious health risk that has been shown to contribute to other, subsequent drug abuse and other health consequences (e.g., auto accidents)—but rather because of the interpretative difficulties with respect to “alcohol only” use among this population (given, for example, that the follow-up sample ranged in ages over 21 years or the legal age for alcohol consumption). These difficulties could be overcome through further analysis, however. We therefore recommend further analyses of the Job Corps data to build on the knowledge gathered here and to investigate the effects of the services on post-Job Corps “alcohol only” use and abuse.

We also recommend that future analytic efforts be devoted to substance abuse treatment programs that are designed for and delivered to an adolescent population. As demonstrated in the literature review section (see Chapter I), there is little empirical information on the outcomes of substance abuse treatment for adolescents as well as the treatment components that are most effective for this population. First, future research could usefully build on the early findings and implications of the analyses presented in this report. Second, adolescent treatment services that include clinically standardized group counseling or therapy sessions should be investigated to determine if this service delivery method has positive outcomes and/or if group sessions have different (stronger or less strong) outcomes as compared to individual counseling and/or therapy. In addition, data are needed on the severity of addiction among adolescents at intake to make inferences about the relative benefits of particular services based on the drug addiction severity of the individual. The implementation of this recommendation could begin with the seeking out of other data sets that have sufficient information about adolescent demographic and substance using characteristics combined with information about treatment services and outcomes.

## **2.2 Implications for Policy**

The present analysis examined individual treatment components within the enhanced treatment model for adolescent substance abusers who participated in the Job Corps DTEP program. The original evaluation indicated that the enhanced Job Corps intervention model was more effective for treating substance abuse than the standard Job Corps intervention model. The

original evaluation did not identify treatment components within the enhanced model that were responsible for the model's effectiveness, however. The results of this analysis indicate that the treatment components not exclusively geared to addressing substance abuse were more effective than those counseling sessions specifically addressing substance abuse issues.

A plausible interpretation of this finding is that these other services may have enhanced the value of the core substance abuse sessions. That is, since the complementary services were part of an integrated substance abuse intervention, the adjunct services were designed to address other related needs, issues or problems experienced by the students in the sample. As a result, these complementary services possibly resulted in improved functioning on the part of the student. This finding supports the current substance abuse literature about adult treatment services that recognizes the therapeutic value of these services in conjunction with traditional substance abuse counseling. The extent to which this finding would withstand additional analyses; either in other adolescent treatment settings or other settings that include adolescents as well as adults is untested, however, and the extent to which this finding will generalize is unknown.

### **2.3 Implications for Practice**

The findings from this analysis suggest that enhanced substance abuse treatment services may have a positive effect on subsequent substance use among adolescents. These enhanced services included life skills, recreational sessions, vocational and educational skills training, and individualized counseling to treat specific problems associated with substance abuse. As previously stated, these findings may provide an important first step for substance abuse treatment providers who treat adolescent populations; these findings may support the provision of additional, complementary services as part of an integrated substance abuse treatment service.

In addition, the present analysis suggests that individual sessions appeared more conducive to abstinence and improvement at follow-up than group sessions. This finding must be strongly caveated, however, by the fact that the group sessions offered by the Job Corps DTEP Program were not clinically licenced or standardized. There may be some advantages to practitioners examining the individual versus group counseling sessions with an eye toward assessing the relative merits of each approach for adolescents.

Finally, life skills training and recreational sessions may also be useful as part of a comprehensive package that treats "the whole child." It is by now generally recognized within the substance abuse treatment field that treating the substance abuse problem without treating

related health and environmental problems is less likely to result in sustained recovery than a comprehensive approach that addresses a multitude of factors that contribute to substance abuse. This is potentially even more true when treating adolescents, where the contribution of rapid physical and emotional changes, family problems, school pressures, peer pressure, and undiagnosed mental health problems (including learning disabilities) can be overwhelming (Riggs, 1998). Options such as life skills training and recreational outlets present alternatives to drug abuse that relieve pressure as well as provide healthy opportunities for personal growth.

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**APPENDIX A:**  
**DESCRIPTION OF THE EVALUATION OF THE JOB CORPS DRUG**  
**TREATMENT ENRICHMENT PROJECT**

## **APPENDIX A: DESCRIPTION OF THE EVALUATION OF THE JOB CORPS DRUG TREATMENT ENRICHMENT PROJECT**

The Evaluation of the Job Corps Drug Treatment Enrichment Project (DTEP) collected Job Corps student and program data to compare the Job Corps' enhanced drug treatment program with its standard program. Data were collected for 6,510 students enrolling between February 1993 and July 30, 1994. Follow-up interviews were conducted approximately one year after Job Corps termination for 1,156 students.

### **1. EVALUATION DESIGN**

The following is reprinted from "CSAT DEMONSTRATION: EVALUATION OF JOB CORPS DRUG TREATMENT ENRICHMENT PROJECT, Final Report," September 1996.

"The Center for Substance Abuse Treatment (CSAT) sponsored a four-year drug intervention demonstration in conjunction with the U.S. Department of Labor, Office of Job Corps. Caliber Associates, with Battelle Human Affairs Research Center and Research Triangle Institute, was awarded the contract to evaluate the Drug Treatment Enrichment Project (DTEP) demonstration effort."

"Early in 1991, CSAT, in the Substance Abuse and Mental Health Services Administration (SAMHSA), recognized that the Job Corps program in the Department of Labor presented an opportunity for a drug treatment demonstration project. The unique characteristics of Job Corps—the fact that high-risk young people attend a residential employment and training program for an average of seven months—appeared to provide a controlled environment in which adolescent drug intervention services could be tested. At the same time, the Office of Job Corps had mounting evidence that drug use among Job Corps students was at least as prevalent as use among the adolescent population at large. Therefore, the idea of a substance abuse intervention demonstration within a sample of Job Corps centers appealed to both CSAT and the National Office of Job Corps. The advantages of the demonstration for Job Corps include the ability to provide an enhanced intervention service and the opportunity to gain information on the effectiveness of the enhanced services for curbing substance abuse among the student population. For CSAT, the Job Corps demonstration adds an important adolescent program evaluation to the complement of CSAT treatment programs evaluation and research."

"The DTEP demonstration involved implementation of DTEP in four experimental Job Corps centers, which were matched with four control centers that are providing the standard Job

Corps Alcohol and Other Drugs of Abuse (AODA) program. The demonstration was structured so that the efficacy of enriched substance abuse intervention services could be compared with the standard Job Corps AODA services.”

“Alcohol and Other Drugs of Abuse (AODA) Program Design: During the demonstration period (1992-1994), Job Corps AODA policies prohibited the possession and/or use of alcohol or illicit drugs either on or off center and required that all centers implement an AODA program. The AODA program, organizationally located within the Health Services Department, consisted of four components: biochemical testing, intake assessment, intervention, and education. Biochemical testing was mandated for all students entering Job Corps within 48 hours of arrival and for students exhibiting behaviors that suggested possible substance use. A full-time, certified AODA specialist conducted an intake assessment for those students who tested positive for substance use and initiated AODA intervention for those students identified as needing services. A written intervention plan was developed for each participating student, which specified repeat testing, the consequences repeated positive test results, a behavior agreement between Job Corps and the student, and student attendance at four, one-hour sessions on the self-help process.”

“Drug Treatment Enrichment Project (DTEP) Design: As an AODA enhancement, DTEP provided five new program personnel: an Activities Specialist/Project Coordinator, a Substance Specialist, an Education Specialist, an Assessment Specialist, and a Project Assistant. Within the first 10 working days on center, the Assessment Specialist conducted a comprehensive individual assessment profile (IAP) interview with each new student, and if the student had a positive biochemical test and/or positive drug/alcohol history, the Assessment Specialist alerted the Substance Specialist who reviewed the file, determined the student’s need for services, and developed an intervention plan and behavioral agreement. The Substance Specialist provided intensive individual and/or group counseling to each DTEP student, which included 30 minutes to an hour per week for a minimum of three months. The Education Specialist conducted an assessment through a review of the student’s reading entry scores on standardized assessment tests and then provided individual and group learning sessions for math, reading, and GED-related requirements. Similarly, the Activities Specialist, responsible for providing DTEP oversight and staff supervision, was also responsible for two discrete program interventions, including a program of special activities and Life Skills Seminars, which were aimed at improving student self-concept and self-efficacy.”

“DTEP Evaluation Design: The DTEP evaluation consists of a quantitative assessment of student outcomes while on center as well as outcomes post-Job Corps, and a qualitative

assessment of program implementation and operations activities across the participating centers. To identify the immediate impact of DTEP services on Job Corps students, this evaluation examines students' self-reported changes in substance usage, employment, and criminality along with objective measures of academic/vocational performance and substance use while students are still on center. Follow-up data measuring standard Job Corps outcomes coupled with indicators of substance abuse and criminal behaviors were gathered one year after Job Corps termination to determine the enduring impact of DTEP participation. Over the course of the demonstration, student performance was tracked at three points in time; Job Corps student record data (e.g., TABE scores, GED test results) were also captured for comparison."

"In addition, a two-phased qualitative assessment of program operations was conducted across centers. An initial round of site visits, which culminated in the First Annual Report, delivered to CSAT in December 1992, was conducted to gain a thorough understanding of program activities and to support a description of program components at each center. A second round of site visits was conducted to identify unresolved implementation problems, to describe program adjustments or modifications including staff changes, to assess organizational and administrative issues both within the DTEP program and between DTEP and other center activities, and to gather program operations cost data. Findings from the second round of site visits were presented in the Second Annual Report, delivered to CSAT in November 1993."

Additional findings on the implementation and operational assessment and analysis of within-program outcomes were presented in the Third Annual Report, while the focus of the Final Report was on the Job Corps student outcomes 12 months after leaving Job Corps.

## **2. DATA COLLECTION**

The following is reprinted from Caliber's "EVALUATION OF JOB CORPS DRUG TREATMENT ENRICHMENT PROJECT, DATA COLLECTION TRAINING MANUAL," February 1994.

"The data collection activities begin with preparation for the newly arriving students. All students entering the Job Corps center must participate in the intake assessment. That is, an Individual Assessment Profile - Intake (IAP-I) and a Brief Symptom Inventory (BSI) is administered to every new student. The Assessment Specialist or Program Assistant will prepare a file for each new student. The file will contain:

- IAP-I
- BSI
- Student Data Form.

Assessment Specialists received files with consent forms and information on the student supplied by Job Corps screeners. All students were required to have an IAP-I, BSI and Informed Consent in their file. When completed, the originals were transmitted to Caliber Associates. Student Data Forms were also initiated to record the services received on an on going basis.

Students with positive biochemical tests or histories of substance use were assessed as to their need for intervention services. All students who tested positive for substances had a record of interventions (Section III of the Student Data Form) in their file regardless if the test was done at entry or done after the student has been in Job Corps for a while. Students with positive histories who received services also required a record of interventions that was updated on an on-going basis. Assessment Specialists originally used the Specialist intervention plans as source documents, but later extracted the intervention data and recorded it on the record of interventions (Section III of the Student Data Form) on a bi-weekly or monthly basis from logs and sign-in sheets. Additionally, parts of the intervention forms were distributed to other appropriate specialists who recorded their encounters.

Students consenting to participate in the evaluation were administered the Individual Assessment Profile - Treatment (IAP-T) at three months or termination, whichever occurred first. The BSI was also administered again at this time, and these data were then transmitted to Caliber Associates.

When students terminated from the Job Corps, the Student Data Form was completed and transmitted to Caliber along with a computer printout (Student Profile) generated from the center's Office of Student Records. Caliber assembled the data from the Student Data Form as encounters in the services data set.

Throughout the 18 month follow-up phase, field interviewers from Research Triangle Institute interviewed, either in person or by telephone, students who had been terminated from Job Corps for one year. The follow-up interview was similar to that of the IAP-I with an emphasis on the student's employment history during the one year time period after Job Corps. A sample of the 1200 students (20%) was also asked to provide a urine sample. All DTEP

students were included in the follow-up while only samples of AODA students and students who did not receive services were selected.

### **3. FOLLOW-UP SAMPLE**

Of the 6,590 students, 5,287 were determined to be eligible for participation in the follow-up. A student was eligible if there was valid data about the student's assignment to a drug treatment program and if he or she could be matched to the Job Corps management information system database (SPAMIS), was determined to be a new rather than re-enrolled student, and did not refuse to participate. Of these 5,287 eligible students, 1,935 were selected for inclusion based on sampling proportional to the size of the center. Of these 1,935, there were 299 students who became ineligible because a period of one year had not elapsed since their termination. Among the remaining 1,636 students eligible, 1,156 were actually interviewed.

**APPENDIX B:  
AVERAGE NUMBER OF DAYS SPENT IN SESSIONS  
DEVOTED TO SUBSTANCE ABUSE ISSUES  
BY PERIOD OF PROGRAM AND STUDENT CHARACTERISTICS**

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**AVERAGE NUMBER OF DAYS SPENT IN SESSIONS**  
**DEVOTED TO SUBSTANCE ABUSE ISSUES**  
**BY PERIOD OF PROGRAM AND STUDENT CHARACTERISTICS**

	N	%	First 3 Months			Months 4 through 12		
			Group	Indiv.	CommRes NA/AA	Group	Indiv.	CommRes NA/AA
All Students	313	100.0	1.9	2.6	.05>	2.3	2.3	0.1
Job Corps Center								
Delaware	86	27.5	1.2	1.2	0.1	1.0	1.0	0.4
Gainesville	46	14.7	2.2	1.0	-	1.0	1.0	-
Potomac	58	18.5	0.9	2.0	.05>	1.8	1.8	.05>
San Diego	123	39.3	2.7	4.5	-	3.9	3.9	.05>
Enrolled								
1993, Qtr 1	10	3.2	1.0	1.4	-	1.6	1.6	-
1993, Qtr 2	54	17.3	2.1	3.1	-	2.2	2.2	.05>
1993, Qtr 3	68	21.7	2.2	2.9	-	3.2	3.2	0.1
1993, Qtr 4	57	18.2	1.4	2.6	-	2.1	2.1	0.3
1994, Qtr 1	75	24.0	2.1	2.7	0.1	2.9	2.9	0.1
1994, Qtr 2	40	12.8	1.6	2.2	0.1	0.7	0.7	.05>
1994, Qtr 3	9	2.9	1.2	0.1	-	-	-	-
Months in Program								
Mo# 1 in Prog	4	1.3	0.5	0.5	-	-	-	-
Mo# 2	35	11.2	0.5	1.3	-	-	-	-
Mo# 3	40	12.8	1.6	2.7	-	0.1	0.1	-
Mo# 4	51	16.3	2.4	3.4	0.1	0.7	0.7	.05>
Mo# 5	36	11.5	1.9	2.2	0.2	1.6	1.6	.05>
Mo# 6	20	6.4	2.0	2.3	0.1	1.8	1.8	0.2
Mo# 7	74	23.6	2.0	3.0	.05>	4.2	4.2	0.1
Mo# 10-12	32	10.2	2.5	3.1	-	6.1	6.1	0.3
Stayed >1 Year	21	6.7	1.9	1.8	-	3.6	3.6	0.3
Gender								
Males	232	74.1	1.9	2.7	.05>	2.2	2.2	0.1
Females	81	25.9	1.9	2.4	.05>	2.4	2.4	.05>

	N	%	First 3 Months			Months 4 through 12		
			Group	Indiv.	CommRes NA/AA	Group	Indiv.	CommRes NA/AA
<b>Ethnicity</b>								
Black	155	49.5	1.5	2.2	-	1.9	1.9	0.1
Hispanic	79	25.2	2.2	3.1	0.1	3.1	3.1	0.3
White & Other	79	25.2	2.3	3.0	-	2.2	2.2	-
<b>Age</b>								
16 years old	53	16.9	1.5	1.8	.05>	2.0	2.0	0.1
17	78	24.9	1.9	2.1	0.1	1.7	1.7	0.2
18	62	19.8	1.8	2.9	-	2.1	2.1	.05>
19	32	10.2	2.3	4.0	-	3.3	3.3	.05>
20	29	9.3	1.4	2.2	-	2.8	2.8	0.2
21	23	7.3	2.2	3.3	-	3.4	3.4	0.1
22-25 yrs	35	11.2	2.3	3.2	0.1	2.2	2.2	.05>
All	1	0.3	-	-	-	-	-	-
<b>Education</b>								
9 yrs or less	128	40.9	1.8	2.0	0.1	1.8	1.8	0.2
10-11 yrs educ	135	43.1	1.9	2.7	.05>	2.7	2.7	.05>
12+/GED	50	16.0	2.0	4.1	-	2.5	2.5	0.1
<b>Work History</b>								
Never Worked	104	33.2	2.0	2.8	-	2.6	2.6	0.1
Work Experience	209	66.8	1.8	2.6	0.1	2.1	2.1	0.1
<b>Arrest History</b>								
Arrested	144	46.0	1.7	2.9	.05>	2.5	2.5	0.1
Never Arrested	169	54.0	2.0	2.4	.05>	2.1	2.1	0.1
<b>Family/Household</b>								
No Adult	50	16.0	2.2	2.4	-	1.7	1.7	-
Adult Present	200	63.9	1.8	2.6	0.1	2.4	2.4	0.1
Parent Present	63	20.1	1.8	2.7	.05>	2.5	2.5	0.2
<b>Drug Use At Enrollment</b>								
1 Drug + Marij.	49	15.7	1.9	3.2	-	3.2	3.2	0.1
2 or more + Marij.	33	10.5	2.4	4.4	0.1	2.0	2.0	0.1

**APPENDIX C:  
AVERAGE NUMBER OF DAYS SPENT IN COMPLEMENTARY  
TREATMENT SESSIONS BY PERIOD OF PROGRAM AND STUDENT  
CHARACTERISTICS**

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CHARACTERISTICS**

	N	%	First 3 Months					Months 4 through 12				
			Complementary		Educ.	Life Skills	Rec & Activ	Complementary		Educ.	Life Skills	Rec & Activ
			Group	Indiv.				Group	Indiv.			
All Students	313	100.0	0.3	0.3	0.2	0.9	0.2	0.3	0.6	0.6	1.6	0.5
Job Corps Center												
Delaware	86	27.5	0.2	0.2	0.1	0.6	0.2	0.2	0.1	0.1	0.8	0.4
Gainesville	46	14.7	0.3	0.8	0.3	0.3	0.3	1.0	2.2	2.3	1.1	2.2
Potomac	58	18.5	0.5	0.7	0.3	2.4	0.4	0.4	0.6	0.3	3.9	0.1
San Diego	123	39.3	0.4	0.1	0.2	0.6	0.2	0.1	0.4	0.5	1.3	0.2
Enrolled												
1993, Qtr 1	10	3.2	0.1	0.1	0.2	1.7	0.3	0.6	-	0.4	0.8	0.2
1993, Qtr 2	54	17.3	0.7	0.5	0.2	1.1	0.6	0.5	0.5	0.1	2.4	1.1
1993, Qtr 3	68	21.7	0.2	0.2	-	0.5	.05>	0.2	0.5	0.4	3.0	0.3
1993, Qtr 4	57	18.2	0.1	0.3	.05>	0.2	0.2	0.5	1.2	1.3	0.8	1.0
1994, Qtr 1	75	24.0	0.3	0.3	0.2	1.3	0.3	0.3	0.9	0.9	1.5	0.3
1994, Qtr 2	40	12.8	0.7	0.6	1.1	1.3	0.2	0.1	0.1	0.7	0.3	-
1994, Qtr 3	9	2.9	0.4	0.2	0.6	1.0	-	-	0.1	-	-	0.1
Months in Program												
Mo# 1	4	1.3	-	-	-	0.3	-	-	0.3	-	-	-
Mo# 2	35	11.2	0.2	0.1	.05>	0.6	.05>	-	-	-	-	-
Mo# 3	40	12.8	0.3	0.5	0.5	0.9	0.3	.05>	0.1	-	0.3	-
Mo# 4	51	16.3	0.4	0.4	0.5	0.7	0.2	.05>	.05>	0.2	0.1	0.1
Mo# 5	36	11.5	0.3	0.2	0.1	1.1	0.3	0.1	0.2	0.2	0.8	0.2
Mo# 6	20	6.4	0.5	0.4	0.3	2.4	1.1	0.2	0.4	0.3	1.4	0.4
Mo# 7-9	74	23.6	0.3	0.5	0.2	0.7	0.2	0.6	1.2	1.3	1.8	0.7
Mo# 10-12	32	10.2	0.2	0.2	0.1	0.6	0.2	0.5	0.9	1.0	3.6	0.8
Stayed >1 Year	21	6.7	0.9	0.4	0.2	1.3	0.4	1.5	2.9	2.6	8.7	2.9
Gender												
Males	232	74.1	0.3	0.3	0.2	0.9	0.3	0.4	0.8	0.7	1.9	0.6
Females	81	25.9	0.3	0.4	0.3	0.8	0.2	0.2	0.2	0.6	0.9	0.1

	N	%	First 3 Months					Months 4 through 12				
			Complementary		Educ.	Life Skills	Rec & Activ	Complementary		Educ.	Life Skills	Rec & Activ
			Group	Indiv.				Group	Indiv.			
Ethnicity												
Black	155	49.5	0.4	0.5	0.3	1.2	0.3	0.4	0.6	0.5	2.3	0.5
Hispanic	79	25.2	0.3	0.2	0.1	0.5	0.2	0.2	0.2	0.3	0.8	0.4
White/Other	79	25.2	0.3	0.3	0.3	0.6	0.2	0.2	1.0	1.3	1.2	0.7
Age												
16 years old	53	16.9	0.2	0.6	0.4	0.4	0.2	.05>	0.2	0.4	0.6	0.2
17	78	24.9	0.3	0.2	0.2	1.0	0.3	0.1	0.2	0.3	1.4	0.3
18	62	19.8	0.2	0.2	0.2	0.7	0.1	0.3	1.1	1.2	0.8	0.8
19	32	10.2	0.6	0.4	0.3	1.6	0.3	0.5	0.7	0.8	2.7	0.2
20	29	9.3	0.3	0.4	0.2	1.2	0.2	0.6	1.7	0.9	4.3	0.2
21	23	7.3	0.6	0.8	0.3	0.9	0.3	1.3	0.7	0.6	2.3	2.3
22-25 yrs	35	11.2	0.4	0.1	0.1	1.0	0.5	0.3	0.5	0.6	1.4	0.5
All	1	0.3	-	-	-	-	-	-	-	-	2.0	-
Education												
<10 years	28	40.9	0.4	0.4	0.2	0.9	0.3	0.3	0.7	0.7	1.1	0.4
10-11 yrs	135	43.1	0.2	0.3	0.3	1.0	0.3	0.4	0.7	0.7	2.5	0.7
12+/GED	50	16.0	0.5	0.3	0.2	0.7	0.1	0.4	0.4	0.3	0.8	0.1
Work History												
Never Worked	104	33.2	0.3	0.4	0.1	0.5	0.3	0.5	0.8	1.0	1.1	0.9
Work Exp.	209	66.8	0.3	0.3	0.3	1.1	0.2	0.2	0.5	0.5	1.9	0.3
Arrest History												
Arrested	144	46.0	0.4	0.4	0.4	1.0	0.3	0.2	0.7	0.8	1.2	0.3
Never Arrested	169	54.0	0.3	0.3	0.1	0.8	0.2	0.4	0.6	0.5	1.9	0.7
Family/Household												
No Adult	50	16.0	0.3	0.2	0.3	1.5	0.3	0.3	1.0	0.8	4.0	0.1
Adult Pres.	200	63.9	0.3	0.4	0.3	0.7	0.3	0.4	0.6	0.7	1.1	0.7
Parent Pres.	63	20.1	0.4	0.3	0.2	1.1	0.2	0.2	0.3	0.4	1.3	0.2
Drug Use At Enrollment												
1 Drug + Marij.	49	15.7	0.3	0.6	0.1	0.4	0.3	0.2	0.6	0.3	0.9	0.3
2 or more + Marij.	33	10.5	0.5	0.4	0.3	1.5	0.2	0.2	0.5	0.7	3.3	0.1

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