

# THE BALTIMORE CITY DRUG TREATMENT COURT

## 3-Year Self-Report Outcome Study

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*This study reports results from interviews with 157 research participants who were interviewed 3 years after randomization into treatment and control conditions in the evaluation of the Baltimore City Drug Treatment Court. The interviews asked about crime, substance use, welfare, employment, education, mental and physical health, and family and social relationships. Program participants reported less crime and substance use than did controls. Few differences between groups were observed on other outcomes, although treatment cases were less likely than controls to be on the welfare rolls at the time of the interview. Effects differed substantially according to the originating court.*

**Keywords:** *drug treatment courts; randomized experiment*

Drug treatment courts were developed in response to a justice system overburdened by drug-related crimes. In contrast to traditional adjudication, drug treatment courts place a greater emphasis on rehabilitation than on case processing and punishment. Based on the legal philosophies of restorative

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justice and therapeutic jurisprudence, the criminal justice system is viewed more as a therapeutic tool, and the key stakeholders involved treat drug addiction as a relapsing disease (Wexler and Winick 1991; Kurki 1999). As such, efforts are made to tailor the intervention to the needs of individuals, including social, economic, and health conditions that may interfere with recovery, and to keep even noncompliant offenders in the program using a series of encouragements and sanctions. Although drug treatment courts vary in structure and process, they share a number of key features, including prompt identification and placement of eligible offenders, nonadversarial approach among prosecution and defense counsel, integration of drug treatment services with justice system case processing, frequent drug and alcohol testing, frequent status hearings with the judge, and intensive drug treatment (Drug Courts Program Office 1997). This combination of sanctions, drug treatment, and probation services is expected to reduce levels of substance use and crime as well as improve offender integration into the community by enhancing mental and physical health, social connections, and employment outcomes.

By most accounts, the drug treatment court movement has enjoyed widespread support, with courts proliferating across the country and farther still to other nations such as Canada and Australia. Initial research and evaluation of drug treatment court programs report many favorable outcomes. Retention rates for drug treatment courts are, on average, much higher than typically observed for offenders in treatment settings (Belenko 1998, 1999, 2001). Drug treatment courts have also been found to generate savings in criminal justice costs (Harrell, Cavanagh, and Roman 1998; Hora, Schma, and Rosenthal 1999; Finigan 1999). A number of studies have also shown that drug use, measured by urinalysis results, and rates of rearrest are substantially reduced for drug treatment court participants while they are in the program (Harrell, Cavanagh, and Roman 1998; Gottfredson and Exum 2002; Gottfredson, Najaka, and Kearley 2003; Wilson, Mitchell, and MacKenzie 2002). Although there is little data on other outcomes of interest, one evaluation of the Santa Barbara Substance Abuse Treatment Court included 12-month postadmission data on drug use and other social problems (Cosden, Peerson, and Orliss 2000). Findings from this study revealed that after 12 months in the drug treatment court, participants' scores on the Addiction Severity Index decreased on measures of drug and alcohol abuse as well as medical, psychological, and family/social problems.

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Although the research findings on drug courts have been positive, these findings are often based on small-scale, local process evaluations. In 1997, the U.S. General Accounting Office (GAO) found that a minority of drug treatment court programs collected follow-up data at all and that only a handful of rigorous studies had assessed the effects of drug treatment courts on recidivism and drug use outcomes. Nearly 5 years later, Belenko (2002) noted that many of the GAO's original criticisms of drug treatment court evaluations remained true. For example, little is known about the structural and process characteristics of drug treatment courts and how those characteristics relate to successful outcomes (Longshore et al. 2001; Goldkamp, White, and Robinson 2001). Furthermore, virtually no research has focused on outcomes of interest other than recidivism (such as employment, health, and social connections), and the few studies that addressed other outcomes were all plagued with problems such as small sample size, a limited follow-up period, and program implementation difficulties (Turner et al. 1999; Harrell, Cavanagh, and Roman 1998; Cosden, Peerson, and Orlliss 2000).

This study attempts to address some of the weaknesses of prior research. The current research incorporates an experimental design to examine whether differences exist between drug treatment court participants and control participants on a variety of follow-up outcomes including criminal activity, substance use, welfare status, employment status, education level, mental health, physical health, and family and social relationships. The data used here are derived from structured interviews with 157 research participants who were interviewed 3 years postrandomization into the Baltimore City Drug Treatment Court (BCDTC) study.

#### **BCDTC**

In response to a report that found nearly 85% of all crimes committed in Baltimore were addiction driven, the BCDTC was established in 1994 (Bar Association of Baltimore City 1990). At inception, the BCDTC included three tracks: (a) preconviction district court cases, known as the alternative sentencing unit (ASU); (b) postconviction, district court misdemeanor cases supervised by probation and parole; and (c) postconviction, circuit court felony cases supervised by probation and parole. The preconviction track (ASU) clients were diverted from prosecution and had their charges dropped on successful completion of the program. However, this track of the BCDTC was dropped in December 1999. Postconviction clients enter the drug treatment court program to avoid the standard adjudication of their case. These clients have their sentences suspended during participation in the drug

treatment court. If they successfully complete the program, their sentence remains suspended. If they reoffend, their original sentence is imposed.

To be eligible for the drug treatment court program, defendants must satisfy several requirements. First, they must admit to substance use and/or show evidence of past substance use charges. They must also reside in Baltimore, be at least 18 years old, and must not have any prior or current convictions for violent offenses. After these eligibility criteria are met, interested defendants may meet with a public defender to discuss their potential participation. After this meeting, provided the defendant is still interested, the public defender and state's attorney meet to determine whether the drug treatment court program best serves the defendant. If so, the defendant is sent to the drug court assessment unit. Personnel from this unit administer the Psychopathy Checklist (Hare et al. 1990) to evaluate the defendant's suitability for the program and the Addiction Severity Index (McLellan et al. 1992) to assess the defendant's motivation and need for treatment. Further information is collected regarding the defendant's drug and medical histories, employment status, and family and social relations. Once the assessment is completed, the assessor decides whether to recommend the defendant for the program. If recommended, the defendant, along with the state's attorney, public defender, and probation agent, appear before the drug treatment court judge to discuss the case.

The BCDTC program consists of four main elements: intensive probation supervision, drug testing, drug treatment, and judicial monitoring. Under intensive probation supervision, defendants must adhere to a monthly schedule of three face-to-face contacts with their probation officer, two home-visits, and verification of employment status. In addition, probation officers frequently review their clients' criminal records for violations. After a sustained period of compliance, defendants' level of supervision is downgraded from "intensive" to "standard high."

Similarly, drug testing is performed in a series of phases of decreasing intensity. Phase I, which lasts approximately 3 months, requires defendants to submit two urine samples per week. Phase II, also 3 months in length, requires one sample per week. Phase III, lasting a period of 6 months, requires one sample per month. After that time, drug testing is completed randomly over the defendants' remaining time in the drug treatment court.

Drug treatment is provided by one of eight providers located throughout Baltimore. These programs vary in terms of their treatment components and include three intensive outpatient centers, two methadone maintenance clinics, two residential treatment facilities, and one transitional housing complex. In addition to drug treatment, each program offers educational opportu-

nities, job training, life-skills training, and housing assistance. Drug treatment court participants are assigned to the program that best suits their treatment needs.

Judicial monitoring takes place in the form of frequent status hearings. At these hearings, the judge reviews reports from treatment and probation personnel to assess a participant's program compliance. Failure to comply with program requirements can result in a variety of sanctions including increased status hearings, increased probation supervision, increased drug testing, and curfews. The sanctions graduate to more severe measures such as home detention, temporary incarceration, and community service. In response to extreme noncompliance, the judge can reimpose the original sentence, which is often more severe than what might have been imposed under traditional adjudication.

#### **PRIOR EVALUATIONS OF THE BCDTC**

In 1995, researchers at the University of Maryland's Department of Criminology and Criminal Justice, in conjunction with the Baltimore Division of Parole and Probation, began an evaluation of the BCDTC program (Gottfredson, Coblenz, and Harmon 1997). Findings from this short-term (6-month) quasi-experimental evaluation were promising. The BCDTC program was successfully targeting nonviolent, drug-involved offenders. After controlling for preexisting differences across the treatment and control groups, participation in the BCDTC program was associated with a 50% decrease in the odds of rearrest for a new offense. However, the researchers concluded that a more rigorous evaluation was needed to yield conclusive results. The study recommended repeating the evaluation with a longer follow-up period, a larger number of participants, and random assignment of BCDTC-eligible participants to treatment and control conditions.

The Maryland Department of Public Safety accepted this recommendation and funded a second study of the BCDTC. This study began in February 1997 when the University of Maryland began to randomly assign clients who were eligible for drug treatment court (identified as described above) to be placed in the drug treatment court or to "treatment as usual." Data were collected on prior offense history, the offense that resulted in inclusion in the study, and several intake measures. These include demographics, educational and employment status, and substance use history. Data were also collected on the nature and duration of the drug treatment experiences, interactions with the criminal justice system (e.g., meetings with parole office, hearings, warrants, technical violations), and recidivism (arrests, disposition,

sentence, and time incarcerated) through 36 months following entry into the program.

The randomization procedure produced comparable study groups. When these groups were compared 12 months postrandomization, drug treatment court participants were significantly less likely than control participants to be arrested for new offenses (Gottfredson and Exum 2002). Specifically, 64.0% of control cases were arrested for new offenses versus 48.0% of drug treatment court cases. The drug treatment court sample also had significantly fewer arrests (0.9 vs. 1.3) and significantly fewer charges (1.6 vs. 2.4), as compared to controls. Findings from the 2nd year of the study showed sustained treatment differences with regard to recidivism (Gottfredson, Najaka, and Kearley 2003). Specifically, 66.2% of drug treatment court and 81.3% of control participants were arrested for new offenses. The number of new arrests (1.6 vs. 2.3) and new charges (3.1 vs. 4.6) was also significantly lower for treatment than for control group members, and these difference remained significant even after taking into account time not at risk during the follow-up period due to incarceration. Findings from the 3rd year of the study also showed sustained treatment differences with regard to recidivism. By 3 years postrandomization, 78.4% of drug treatment court and 87.5% of control participants were arrested for new offenses. New arrests (2.3 vs. 3.4) and new charges (4.4 vs. 6.1) were significantly lower for treatment than control group members, and these findings remained significant after adjusting for time at risk (Gottfredson, Najaka, and Kearley 2002).

The BCDTC's recidivism rate is consistent with rates nationally among drug treatment courts with similar populations, although few studies have incorporated follow-up periods longer than 12 months. A comparison of similar drug treatment courts at 12-month postentry revealed recidivism rates of 36% drug treatment court versus 69% comparison group in Erie, Pennsylvania; 37% drug treatment court versus 53% comparison group in Portland, Oregon; 53% drug treatment court versus 65% comparison group in Las Vegas, Nevada; and 42% drug treatment court versus 61% comparison group in Douglas City, Nebraska (Belenko 2001).

#### **THE CURRENT RESEARCH**

All of the data included in earlier reports from the evaluation of the BCDTC were from official records. The follow-up study described here builds on this prior work by reporting interview data on crime, substance use, and a number of additional outcomes. The specific objective of this study was to assess the effectiveness of the BCDTC for improving the following

outcomes: criminal activity and substance use, welfare status, employment status, education level, mental health, physical health, and family and social relationships.

## **METHOD**

### **DESIGN**

The evaluation of the BCDTC uses an experimental research design. As indicated earlier, eligible drug treatment court offenders were randomly assigned to the drug treatment court (treatment condition) or to standard adjudication (control condition). Assignment occurred just prior to the appearance before the drug treatment court judge. The randomization results were given to the judge as a recommendation and were followed in most cases because the judges had agreed to participate in the study. Randomization occurred between February 1997 and August 1998, at which time 235 clients had been assigned randomly to one of the two conditions. Study participants were randomly assigned at a ratio of one treatment to one control for circuit court cases and at a ratio of two treatments to one control for district court cases. This was done at the request of the district court judge who was concerned that all drug treatment court slots might not be filled if we kept with a 1-to-1 ratio. Of the 139 cases randomly assigned to the treatment group, we found records to indicate that 91% were actually dealt with in the drug treatment court. In comparison, approximately 7% of the 96 cases randomly assigned to the control condition were dealt with in the drug treatment court.

### **TRACKING AND INTERVIEWING**

Two hundred thirty-five research participants were initially contacted by mail using an address provided by the Division of Parole and Probation. A variety of additional strategies were employed for those participants who either (a) did not respond to the contact letter or (b) did not live at the address provided. To reach the nonresponders, project trackers continued to pursue them by phone, mail, and—with the most difficult cases—through home visits. To reach those with incorrect address information, project trackers began by telephone using directory assistance, reverse directories, and local phone books. Additional tracking methods included information searches of social

service agencies, other criminal justice sources, vital statistics records, official and commercial databases, and the Department of Motor Vehicles. When more aggressive strategies were necessary, project trackers attempted to locate research subjects by checking homeless shelters, high drug area “hangouts,” and community treatment centers.

When a research subject was located prior to their planned interview date (36 months after randomization into the study), a locator form was obtained that included full name; date of birth; nicknames or aliases; distinguishing features; place of birth; driver’s license, vehicle license, social security, and military numbers; residence address and phone; best mailing address and phone; work address and phone; name, address, and phone number of all immediate relatives and friends; name of caseworker, clinics, doctors, or other regular contact agency personnel; and other miscellaneous information (e.g., frequented bars, street corner hangouts). The locator form was later used to more easily locate the individual for the interview. Research participants were paid \$10 for the initial information.

One hundred fifty-seven research participants were interviewed between February 2000 and November 2001. An additional 15 subjects were confirmed to be deceased. Interviews were conducted in a private area, either in the offices of the Division of Parole and Probation, in jail or prison, or in a community location. The interviews lasted approximately 90 minutes, and participants were paid \$50 for their participation.

The overall response rate of the study was 72%. Table 1 reports the total number of research participants interviewed by experimental status and the response rates for each group. Seventy-two percent of the drug court participants and 70% of control participants were interviewed. Treatment cases were tracked for an average of 97.7 days prior to their interview, and control participants were tracked for an average of 100.2 days. The differences in follow-up rates and tracking days between the two groups were not statistically significant.

#### **DESCRIPTION OF INTERVIEWED PARTICIPANTS**

The participants included 157 individuals who were interviewed 3 years postrandomization into the BCDTC official records study. Table 2 shows the interviewed participants’ demographic characteristics and criminal history information. Approximately 74% of the sample were male and 89% were African American. The average age among the sample was 34.8 years. The mean number of prior arrests for the sample was 12.0, and the mean number of prior convictions was 5.3. The table also shows that the interviewed and



**TABLE 1: Interview Status by Treatment Condition**

<i>Condition</i>	<i>Interviewed</i>	<i>Not</i>		<i>Total</i>	<i>Response Rate (%)</i>
		<i>Interviewed</i>	<i>Deceased<sup>a</sup></i>		
Treatment	93	37	9	139	72
Control	64	25	7	96	70
Total	157	62	16	235	72

a. Deceased individuals were subtracted from the total when calculating response rates.

**TABLE 2: Demographic Characteristics, Offense History Data, and Recidivism by Interview Status**

	<i>Interview Status</i>	
	<i>Interviewed</i>	<i>Not Interviewed</i>
African American (%)	89.2	89.6
Male (%)	74.1	74.0
Age as of February 1, 1997 (years)		
<i>M</i>	34.8	34.7
<i>SD</i>	7.5	7.9
Prior arrests		
<i>M</i>	12.0	11.3
<i>SD</i>	8.8	7.1
Prior convictions		
<i>M</i>	5.3	4.6
<i>SD</i>	4.3	3.4
Number of arrests during 3-year follow-up (official data)		
<i>M</i>	3.2**	1.7
<i>SD</i>	3.2	1.6

NOTE: Number of cases is 157 for interviewed and 62 for noninterviewed participants.

\*\*Difference between interviewed and noninterviewed groups is significant,  $p < .01$ , two-tailed test.

noninterviewed participants were not significantly different from one another on the aforementioned characteristics.

The interviewed and noninterviewed participants did vary, however, on recidivism (see Table 2). Interviewed participants had a significantly higher number of arrests over the 3-year follow-up period (as measured through official records) than their noninterviewed counterparts did. This finding reflects the fact that jails and prisons were relatively reliable locations in which to find otherwise difficult-to-track individuals in our study. This bias

in the interviewed sample suggests that our results may generalize better to the higher risk (or more readily arrested) participants in the drug court population. We examined the extent to which this bias might also reduce the validity of the treatment versus control comparison by testing for an interaction between interview status and randomization condition. Results from these tests were nonsignificant, ruling out the possibility that any differences in follow-up outcomes across experimental conditions were due to the tendency for interviewed participants to have had a higher number of arrests.

### MEASURES

The interview protocol used in this study draws from existing surveys used in prior evaluations of drug treatment courts, including the Addiction Severity Index (ASI) and the High-Intensity Drug Trafficking Area Life Events Survey (McLellan et al. 1992, as modified for use in Harrell, Cavanagh, and Roman 1998). The protocol also includes the Brief Symptom Inventory (BSI), a widely used self-report measure of psychological symptoms (Derogatis 1996). The interview instrument, which combines single items and scales from these sources, contains measures of the following outcomes of interest: drug use, criminal activity, mental and physical health, family and social relationships, education, and employment. The main drug use and criminal activity measures use the past 12 months as a reference period, whereas measures of mental and physical health, family and social relationships, and employment and education attainment refer to the immediate time of the interview.

Interview questions were sometimes combined into multi-item scales. Table 3 shows the number of items comprising each scale and their reliability coefficients. Two scales were used to measure criminal activity: the maximum crime seriousness scale and the crime variety scale. The maximum crime seriousness scale combines data regarding 10 property, public order, and violent crimes. Each crime was given a numeric value based on the severity of the offense. The scale provides a maximum crime seriousness score for each individual based on the individual's most serious reported crime. The crime variety scale, based on the same 10 crimes, produces a score based on the total number of different types of crime an individual committed.

Three scales were used to measure alcohol and drug use, including the alcohol addiction severity scale, the drug addiction severity scale, and the drug variety scale. The alcohol addiction severity scale combined 15 questions relating to the individual's alcohol use and whether a number of alcohol-related scenarios had happened during the past year or more than a

**TABLE 3: Reliability of Scales**

<i>Measure</i>	<i>Number of Items</i>	<i>Alpha Reliability</i>	<i>n</i>
Maximum crime seriousness	10	.74	157
Crime variety	10	.70	157
Drug variety	11	.74	157
Alcohol addiction severity	15	.95	157
Drug addiction severity	13	.90	157
Addiction Severity Index (ASI) medical status	3	.86	157
ASI family and social relationships	14	.65	157
Brief Symptom Inventory global mental health severity	53	.97	142

year ago. A similarly worded 13-item scale on substance use formed the basis for the drug addiction severity scale. The drug variety scale combines data regarding 13 drugs/drug types and produces a score based on the total number of different drugs/drug types an individual consumed.

The ASI family and social relationships scale combines 14 items that measure an individual's level of conflict with friends, family, neighbors, and coworkers over the past 30 days. Three of the items also asked (a) if they had family problems in the past 30 days, (b) whether they were bothered by those problems, and (3) whether they were interested in treatment. The ASI medical status scale was composed of three items that asked (a) the number of days of medical problems in the past 30 days, (b) whether they were bothered by those problems, and (c) whether they were interested in treatment. Finally, the BSI global mental health severity scale combines 53 items and measures an individual's current level of symptomatology relating to a host of psychological disorders including somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism.

#### DATA ANALYSIS

A prior decision was made to employ one-tailed significance tests to balance the concerns of making a Type I error with the equally compelling concern of making a Type II error. As Lipsey (1998) and others have pointed out, Type II error can be particularly damaging in evaluations of public policy, when a program's future may depend on the results of researchers. Given the relatively small number of cases available for analysis and the preponderance of prior research studies (Wilson, Mitchell, and MacKenzie 2002) demon-

strating positive effects for drug treatment courts, we opted to use one-tailed testing in the examination of all BCDTC main effects.

Chi-square tests and *t* tests were used to compare the drug court and control participants. In addition, analysis of variance was used to test for interaction effects between experimental condition (drug court or control) and originating court (district or circuit). Doing so allowed for a determination of whether program outcomes differed by originating court. In instances in which multiple tests were conducted on a single construct (i.e., criminal activity and drug use), a Bonferroni adjustment was performed. In each instance, the alpha level of .10 was divided by the number of correlated variables.

In the first set of analyses, participants were treated as randomized, regardless of their actual treatment. That is, participants randomly assigned to the drug treatment court were analyzed as members of the treatment group regardless of their actual treatment, and participants randomly assigned to the control group were analyzed as members of the control group regardless of their actual treatment. This conservative strategy was adopted to preserve the comparability of the study groups. To address the concern of “broken experiments” (for a thorough discussion of the issue, see Barnard et al. 2003), a second set of analyses was conducted using a variable that captured the actual treatment participants received. Among the sample of interviewed participants, 7 control cases were actually treated as treatment cases and 7 treatment cases were treated as control cases. Differences in outcomes between the first and second set of analyses were found in the areas of criminal activity and drug use. These differences are noted in the text and in Table 4.

Because the randomization procedure resulted in a disproportionate number of drug treatment court sample members originating in the district court, the data were analyzed two ways. First, all analyses were conducted using unweighted data, giving all sample members equal weight regardless of whether they originated in the district court or the circuit court. Second, the data were weighted according to originating court. All participants originating in the circuit court were given a weight of 1, as these cases were randomly assigned to the drug treatment court and control conditions using a 1-to-1 ratio. In comparison, district court cases were randomly assigned using a 2-to-1 ratio. Because this resulted in a drug treatment court sample twice the size of the control sample, individuals in the control sample were given twice as much weight in the weighted analyses. Specifically, control participants were given a weight of 1.5, and drug treatment court participants were given a weight of 0.75. These weight values were used (as opposed to 2 and 1) because they produced a weighted sample size equal to the unweighted sample size while creating roughly equal numbers in the drug treatment court and

**TABLE 4: Self-Report Criminal Activity and Drug Use Outcomes by Assigned Treatment and Received Treatment**

Crime or Drug Use Measure	Treatment			Control			Significance
	M or %	SD	n	M or %	SD	n	
Arrested (past 12 months, %)	<b>49.5</b>		<b>93</b>	<b>57.8</b>		<b>64</b>	<b>.306</b>
	43.0 <sup>a</sup>		86	64.8		71	.007
Maximum crime seriousness	<b>1.1<sup>a</sup></b>	<b>1.6</b>	<b>93</b>	<b>1.9</b>	<b>1.9</b>	<b>64</b>	<b>.006</b>
	0.88 <sup>a</sup>	0.18	86	2.0	0.20	71	.000
Crime variety	<b>.07<sup>b</sup></b>	<b>.14</b>	<b>93</b>	<b>0.11</b>	<b>0.13</b>	<b>64</b>	<b>.090</b>
	0.05 <sup>a</sup>	0.01	86	0.13	0.02	71	.001
Days of drug use during the past 12 months							
Alcohol use	<b>50.3</b>	<b>87.4</b>	<b>93</b>	<b>77.4</b>	<b>125.2</b>	<b>64</b>	<b>.138</b>
	41.9 <sup>c</sup>	11.1	86	85.0	12.3	71	.011
Cocaine use	<b>66.6<sup>b</sup></b>	<b>117.6</b>	<b>93</b>	<b>86.1</b>	<b>141.9</b>	<b>64</b>	<b>.367</b>
	54.8	13.4	86	98.5	14.8	71	.032
Heroin use	<b>83.0</b>	<b>130.4</b>	<b>93</b>	<b>111.3</b>	<b>149.7</b>	<b>64</b>	<b>.224</b>
	69.9 <sup>c</sup>	14.8	86	124.4	16.3	71	.015
Alcohol addiction severity	<b>1.2</b>	<b>0.41</b>	<b>93</b>	<b>1.4</b>	<b>0.62</b>	<b>64</b>	<b>.034</b>
	1.2	0.06	86	1.4	0.06	71	.042
Drug addiction severity	<b>2.1<sup>b</sup></b>	<b>.46</b>	<b>93</b>	<b>2.2</b>	<b>0.49</b>	<b>64</b>	<b>.146</b>
	2.0 <sup>c</sup>	0.05	86	2.3	0.06	71	.004
Drug variety	<b>.14</b>	<b>0.12</b>	<b>93</b>	<b>0.18</b>	<b>0.14</b>	<b>64</b>	<b>.094</b>
	0.13 <sup>c</sup>	0.01	86	0.19	0.01	71	.004

NOTE: Analyses conducted comparing the treatment and control groups as randomly assigned (bolded) and as actually treated (unbolded).

a. Significant at Bonferroni adjusted  $p$  value of .033.

b. Significant interaction by originating court found. See Table 5.

c. Significant at Bonferroni adjusted  $p$  value of .016.

control samples. The results of the unweighted and weighted analyses were for the most part similar, and thus the unweighted results are presented. Instances in which the two sets of analyses produced meaningfully different results are noted in the text and tables.

## RESULTS

### EQUIVALENCE OF INTERVIEWED TREATMENT AND CONTROL CASES

To ensure the equivalency of participants at follow-up, demographic and arrest information was compared for those treatment and control cases that were located and interviewed. Age, race, gender, prior arrests, and prior conviction rates were compared for the two conditions, and no significant differences between the groups were found.

### CRIMINAL ACTIVITY AND DRUG USE OUTCOMES, TREATMENT AS ASSIGNED

The bolded results in Table 4 compare the participants assigned to treatment and control conditions on measures of substance use and crime. These results show that 49.5% of drug court cases self-report being arrested in the year prior to their follow-up interview versus 57.8% of controls (see bolded rows in Table 4). This difference was not statistically significant. Drug court participants also had significantly lower scores than controls did on a measure of maximum crime seriousness (1.1 vs. 1.9). The data suggest that control participants' most serious crimes were significantly more serious than those of drug court participants. Finally, drug court participants committed significantly fewer different types of crime than did controls as measured by the crime variety scale (0.07 vs. 0.11). However, a significant treatment by originating court interaction was found for the crime variety measure. As Table 5 shows, the treatment versus control group difference was larger in the circuit than in the district court. The difference reached statistical significance only for the circuit court cases. Using the more conservative Bonferroni adjusted *p* value of .033, the maximum crime seriousness measure was the only crime indicator that remained significant among the crime variables when differences are analyzed according to assigned treatment rather than actual treatment received.

**TABLE 5: Crime and Substance Use, Interactions Between Randomization Condition and Originating Court**

	District Court						Circuit Court					
	Treatment			Control			Treatment			Control		
	M	SD	n	M	SD	n	M	SD	n	M	SD	n
Crime variety score	0.10	0.17	53	0.09	0.10	27	0.04**	0.07	40	0.12	0.14	37
Days of cocaine use in past 12 months	97.6	134.1	53	99.6	157.3	27	25.5*	74.9	40	76.3	130.9	37
Drug addiction severity	2.3	0.43	53	2.1	0.47	27	1.9**	0.40	40	2.3	0.50	37

NOTE: This table reports results for participants as they were assigned to treatment. Analyses by treatment actually received also showed significant differences between circuit court treatment and control cases and no significant ( $p < .05$ ) differences between district court cases, although the crime variety score difference favored the treatment cases and was significant at  $p < .10$  for district court cases in this analysis.

\*Difference between treatment and control is significant,  $p < .05$ , one-tailed test.

\*\*Difference between treatment and control is significant,  $p < .01$ , one-tailed test.

As shown in the bolded rows of Table 4, among cases assigned to treatment and control conditions, drug court cases used significantly fewer different types of drugs than did controls as measured by the drug variety scale (0.14 vs. 0.18). Drug court participants also scored significantly lower on the alcohol addiction severity scale than did control participants (1.2 vs. 1.4). As with the crime measures, significant court interactions were found among some of the drug use measures. Drug court participants had significantly fewer days of cocaine use and lower scores on the drug addiction severity scale than did control participants, but only for circuit court cases (see Table 5). Using the more conservative Bonferroni adjusted  $p$  value of .016, neither the alcohol addiction severity nor the drug variety scale difference between the assigned treatment, and control cases remained significant.

#### **CRIMINAL ACTIVITY AND DRUG USE FINDINGS, TREATMENT AS RECEIVED**

The unbolded rows in Table 4 show the results comparing the treated to the untreated cases (regardless of assigned condition).<sup>1</sup> In these analyses, all significant differences found in the intent-to-treat analyses remained significant, and the drug variety difference that was not significant with the Bonferroni adjustment became significant. Additional significant differences emerge in the percentage arrested, heroin use, drug addiction severity, alcohol use, and cocaine use measures, although the latter finding is not significant with the more conservative Bonferroni adjustment. In the intent-to-treat analyses, these differences, although favoring the drug treatment court cases, were not statistically significant.

Caution is urged in interpreting these more positive findings unambiguously as true treatment effects, however, because a comparison of pretreatment characteristics for those who remained within their assigned treatment condition versus those who did not revealed important differences between the two groups. For example, a comparison of the treatment cases who received and did not receive treatment showed that the treatment cases that received treatment were older (35.1 vs. 32.6 years), with fewer prior arrests (11.3 vs. 17.0) and prior convictions (4.9 vs. 6.0). Similarly, a comparison of the control cases that received and did not receive treatment showed that the control cases that received treatment were also slightly older (34.6 vs. 33.7), with fewer prior arrests (8.5 vs. 12.0) and fewer prior convictions (3.0 vs. 4.8). In both groups, then, cases accepted into the treatment group were less at risk than those denied treatment. This resulted in the control group “cross-over” cases being less at risk than other control cases, and the treatment



“crossover” cases were more at risk than the other treatment cases. We believe the “as-treated” analyses can therefore not be interpreted unambiguously but grant that the true state of affairs probably lies somewhere between the more conservative intent-to-treat analysis and the less conservative as-treated analysis. Fortunately, both sets of analyses favor the treatment group, and the magnitude of the differences between the groups is meaningful in both analyses, regardless of their level of statistical significance.

#### **MORTALITY**

At the end of the interview follow-up period (November 2001), 16 participants—6.8% of the total sample—were reported deceased. Nine of the deceased were in the drug court group, representing 6.5% of treatment cases, and 7 were in the control group, representing 7.3% of control cases. Based on the medical examiner’s reports, the major cause of death among the participants was acute narcotic intoxication. Other causes of death, such as sepsis and AIDS, are considered correlates of intravenous drug use.

#### **EMPLOYMENT**

The percentage of participants presently employed at the time of the follow-up interview did not significantly differ by treatment status. As shown in Table 6, the percentage of drug court cases who received money from welfare was 4.3%, whereas the percentage of control cases receiving welfare was 10.9%. These differences were significant when the data were weighted.

#### **PHYSICAL AND MENTAL HEALTH**

Physical health was measured using the ASI medical status scale, and no statistically significant differences were found between drug court and control cases. Mental health was measured using the BSI global mental health severity index.<sup>2</sup> No statistically significant differences were found between the groups on this measure (see Table 6).

#### **FAMILY AND SOCIAL RELATIONSHIPS**

Family and social relationships were measured using the ASI family and social relationships scale (see Table 6). No statistically significant differences were found between drug court and control cases on this measure.

**TABLE 6: Employment, Physical Health, Mental Health, and Family and Social Relationships Outcomes by Assigned Treatment**

	Treatment			Control			Significance
	M or %	SD	n	M or %	SD	n	
Presently employed (%)	41.9		93	37.5		64	.580
Money from public assistance (%)	4.3 <sup>a</sup>		93	10.9		64	.067
Money illegally (%)	3.2		93	9.4		64	.138
Addiction Severity Index (ASI) medical status	0.18	0.32	93	0.15	0.28	64	.568
ASI family and social relationships	0.15	0.18	93	0.12	0.17	64	.431
Brief Symptom Inventory global mental health severity	0.57	0.62	93	0.60	0.73	64	.829

NOTE: No substantive differences were found between the analyses comparing assigned treatment and control groups and those comparing treatment as actually received.

a. Difference reaches statistical significance ( $p < .10$ ) only when data are weighted based on originating court.

## CONCLUSIONS AND DISCUSSION

Earlier reports from the evaluation of the BCDTC program showed that, according to official records, the program was reducing criminal offending in a population of drug-addicted, chronic offenders. This research (Gottfredson and Exum 2002; Gottfredson, Najaka, and Kearley 2002, 2003) showed that effects on rearrest rates ranged from a 16-percentage-point differential favoring the treatment participants 1 year postrandomization to a 10-point differential 3 years out. These positive effects on rearrest are in line with results from a meta-analysis of 41 drug court studies that shows, on average, a 14-percentage-point recidivism differential (Wilson, Mitchell, and MacKenzie 2002). In addition, a recent cost-benefit analysis of the BCDTC found that the court saved more than 2.5 million in criminal justice costs over a 3-year time frame (Crumpton et al. 2004).

This study sought to verify these positive effects on crime and extend them using a more extensive and detailed array of self-report measures and to ascertain the effect of the BCDTC on other outcomes, including drug use, welfare status, employment, education level, mental health, physical health, and family and social relationships.

When asked about their criminal involvement over the past year, approximately 3 years after having been assigned to the program, BCDTC participants reported less involvement in criminal activity than did similar offenders who did not receive BCDTC services. They reported being involved in less serious non-drug-related crime than the control group did. A positive effect was also observed on a measure of crime variety, but this effect was due primarily to drug court cases processed in the circuit court rather than the district court.

These positive effects on crime were mirrored in the area of substance use. Comparing the participants assigned and not assigned to the BCDTC program, the number of different substances used in the past year was lower for BCDTC cases than for control cases, and their scores on a measure of alcohol addiction severity were also significantly lower than controls, although neither of these differences remained significant after applying the more conservative Bonferroni adjustment. Drug court offenders processed in the circuit court reported significantly less frequent use of cocaine than the control group did. A measure of drug addiction severity produced similar findings, with addiction levels lowest among circuit court treatment cases. Several other differences favoring the treatment group emerged in a comparison of participants who actually received drug court services to those who did not.

This study also examined BCDTC effects on a variety of other outcomes of interest, but few significant differences between the groups were

observed. BCDTC participants and control cases reported similar physical and mental health statuses. The number of deaths among study participants during the 3 years following random assignment was roughly equal for treatment and control participants. Family and social relationships were also for the most part similar for those who did and did not participate in the program.

In terms of socioeconomic outcomes, the two groups reported similar levels of employment at approximately 3 years following randomization. However, BCDTC cases were less likely to be on the welfare rolls at the time of the interview.

These results add to a growing body of evidence about the effectiveness of drug treatment courts by showing that, using a randomized study design and a sample of drug-addicted individuals with substantial criminal involvement, the program is effective for reducing crime and substance use. All significant effects favored the treatment group and were especially strong among cases processed in the circuit court. This study, unlike others, also assessed effects of the court on a broader set of outcomes commonly targeted by drug treatment courts and claimed by advocates to be among the positive outcome of drug courts. The research demonstrated that, with the exception of welfare status, the positive effects of the drug treatment courts do not extend to the broader set of outcomes claimed by advocates, at least not by 3 years after randomization into the study. Future research employing longer follow-up periods will be necessary to detect any positive effects that emerge after this point. The finding that the percentage of participants on welfare is lower among program participants provides a hint that some broader life changes beyond changes in substance use and criminal involvement are occurring.

The finding that originating court moderated many of the key BCDTC outcomes suggests that important mechanisms through which the treatment works to reduce crime and substance use were operationalized differently in the two courts. A preliminary examination of participant characteristics found no significant differences by court of assignment for the following variables: age, gender, prior arrests, or prior convictions. Unfortunately, the quality of measures of drug use prior to entry into the program was generally too poor to support a thorough examination into the potential importance of addiction severity and levels of treatment motivation between the two groups. Nevertheless, the available data did show that circuit drug court clients were significantly less likely than district drug court clients to be daily users of hard drugs (Kearley and Gottfredson 2003).

Evidence summarized earlier on the BCDTC (Gottfredson et al. 2003) suggests that the court process and the actual services received by clients might also differ by implementing court. With regard to court processing, official data showed that district court drug court cases were significantly

more likely to be incarcerated for noncompliance than were circuit court cases, whereas circuit court cases were significantly more likely to attend status hearings than were their district court counterparts.

Future research on the BCDTC will employ mediation analysis to understand the mechanisms through which the BCDTC achieved the significant reductions in substance use and crime reported here and how those mechanisms differed in the two courts.

### NOTES

1. Seven treatment cases and 7 control cases were not treated as randomized.
2. The Brief Symptom Inventory also includes several subscales measuring a variety of psychological disorders. Analyses based on the subscales yielded no significant main effects.

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