RAND

An Experimental Evaluation of Drug Testing and Treatment Interventions for Probationers in Maricopa County, Arizona

Elizabeth Piper Deschenes, Susan Turner, Peter W. Greenwood, James Chiesa

DRU-1387-NIJ

July 1996

Prepared for The National Institute of Justice

PREFACE

In 1992, an experimental program of drug testing and alternative interventions was implemented in cooperation with the Maricopa County (Arizona) Adult Probation Department. The goal of the experiment was to determine the effects on the subsequent drug use and criminal behavior of adult probationers convicted of drug possession. The alternative interventions included (1) variations in the frequency of drug testing during probation supervision and (2) a treatment drug court model that utilized a carefully structured set of rewards and punishments. The four experimental conditions that were compared in this study included:

1. No drug testing;
2. Low-rate (monthly) random drug testing;
3. High-rate (bi-weekly) scheduled drug testing; and
4. Treatment drug court, involving integrated drug testing, treatment, and sanctions.

Probationers assigned to the first three conditions were supervised by regular probation officers, using routine responses to technical violations (including positive drug tests). Probationers assigned to the fourth condition were placed in a drug court, with counseling and treatment provided by a private agency, and supervision provided by probation staff and the drug court judge.

The experiment was limited to first-time felony offenders, convicted of drug possession or use (not selling) and sentenced to a term of three years probation. Six hundred and thirty adult probationers from throughout Maricopa County (primarily the Phoenix metropolitan area) were randomly assigned by the evaluators to one of the four experimental conditions.

RAND's data collection efforts included: 1) Background information on each participant, including personal characteristics and prior record, variables known to be predictive of future risk of drug use and crime; 2) process information on the characteristics of supervision and services provided under each experimental condition, and each participant's exposure to them; and 3) twelve-month follow-up data on

the prevalence and frequency of probationers' subsequent drug use, crime, and pro-social activities.

Results of the study indicate that at the end of twelve months, sixty percent of drug court participants had either successfully graduated from drug court or were still in the program. Participants in drug court received more treatment and counseling during the twelve month period, in comparison to offenders on standard probation. However, drug court participants had fewer drug tests per month and were less likely to fulfill conditions of probation, such as community service and payment of fees. Different levels of testing had no impact on recidivism as measured by any arrest for a new criminal offense; neither did drug court participation. Yet among those arrested, drug court participants were less likely than those on standard probation to receive a prison sentence. More frequent testing among standard probation conditions resulted in higher levels of technical violations and a shorter time to the first violation. Drug court participants had lower levels of technical violations and a longer time until first technical. Estimated costs for drug court participants were slightly lower than costs for standard probation, given that the majority of drug court participants spent less time on probation. These findings suggest that (1) increasing levels of drug testing provides a quick measure of substance use and increases technical violations, and (2) the drug court program has been successful in providing treatment for drug offenders, but has had little impact on officially-recorded recidivism.

CONTENTS

Preface iii

Figures vii

Tables ix

Summary xi
Approach and Implementation xi
Effects xiii
Conclusion xvi

Acknowledgments xix

1. Introduction 1
Prior Research on Correctional Options for Drug Offenders 2
Intensive Supervision 2
Drug Testing 3
Drug Treatment 7
Drug Courts 9
Need for Further Research 11
The Current Study 11

2. The Maricopa County Adult Probation Department 13
Existing Procedures and Policies 13
Pilot Study 13
Sentencing 15
Characteristics of Drug Offenders 15
Caseloads, Contact Levels and Drug Testing 15
Sanctions 17
Critical Issues 17
The Experimental First Time Drug Offender (FTDO) Program 20
Drug Testing Program Design 21
Drug Court Program Design 22
Biopsychosocial Treatment 25
The Target Population 26
Anticipated Benefits of Drug Court 27

3. Characteristics of the Evaluation 29
Research Design 29
Overview 29
Sample Sizes and Power Analysis 29
Random Assignment Procedure 30
Data Collection 32
Offender Background Measures 32
Program Measures 32
Outcome Measures 32
Instrumentation 33
Status (Street-Time) Calendar 33
Drug Court Information 35
Contextual Information 35
Cost Data 36

Data Analysis 36
What Services Were Delivered? 36
What Was the Impact on Substance Use and Recidivism? 37
What Was the Impact on the Offender's Social Adjustment? 38
For Which Offenders Does the FTDO Program or Increased Testing Prove Most Effective? 39
What Did the Various Treatments Cost? 39

4. Characteristics of Study Participants and Program Implementation . 40
Background Characteristics 40
Demographic and Criminal History Profile of Probationers 40
Probation Conditions 44
Program Implementation 46
Length of Supervision 49
Frequency of Contacts 50
Frequency of Testing 51
Program Participation 55
Community Service 55
Counseling and Drug Treatment 57
Training and Employment 57
Program Costs 58

5. Drug Court Participation 63
Status Hearings and Court Response 63
Participation and Retention in Treatment 68

6. Effects on Substance Use 71
Extent and Frequency of Substance Use 71
Action Taken for Positive Tests 79

7. Impact on Recidivism 86
Nature and Extent of Recidivism 86
Time to Failure 95

8. Predicting Recidivism 116

9. Conclusions and Policy Implications 128
Frequency of Testing and Use of Sanctions for Probation 129
Program Implementation 129
Program Participation and Outcomes 130
Comparison to Other Studies 131
Drug Court Versus Standard probation 132
Program Implementation 132
Program Outcomes 133
Comparison to Other Drug Courts 134
Policy Implications 135
Testing and Sanctions 135
Treatment-Oriented Drug Courts 136

Appendix A. Drug Court Program Forms 139

Appendix B. Supplementary Tables 145

Bibliography 149

FIGURES

S.1 Frequency of Drug Testing, by Probation Alternative xiii

S.2 Percent of Tests Positive for Any Drug or for Marijuana over Twelve Months, by Track xiv

S.3 Percent Arrested over Twelve Months, by Track v

S.4 Percent with Any Time in Jail or Prison over Twelve Months, by Track xvi

S.5 Average Days per Year Spent in Various Conditions, by Track xvii

2.1 Design of First Time Drug Offender Program 19

5.1 Drug Court Status at Twelve Months 70

7.1 Time to First Felony Arrest, All Tracks 99

7.2 Time to First Felony Arrest, Court versus Probation 100

7.3 Time to First Technical Violation, All Tracks 102

7.4 Time to First Technical Violation, Court versus Probation ... 103

7.5 Time to First Felony Arrest/Technical Violation, All Tracks . 106

7.6 Time to First Felony Arrest or Technical Violation, Court versus Probation 107

7.7 Time to First Drug Arrest, All Tracks 111

7.8 Time to First Drug Arrest, Court versus Probation 112

7.9 Time to First Technical Violation for Drugs, All Tracks 114

7.10 Time to First Technical Violation for Drugs, Court versus Probation 115

TABLES

2.1. Maricopa County Pilot Study 14
3.1. Data Collected on Individual Offenders 34
4.1. Background Characteristics 41
4.2. Probation Conditions Ordered 45
4.3. Length of Supervision and Confinement 48
4.4. Monthly Contact Levels 52
4.5. Offender Participation in Programs 56
4.6. Average Cost of Supervision and Confinement 60
5.1. Number of Drug Court Status Hearing Appearances 64
5.2. Probation and Treatment Recommendations and Judge Action at Hearings 64
5.3. Action Taken by Hearing Number 67
5.4. Action Taken at Each Hearing 67
6.1. Extent and Frequency of Substance Use 72
6.2. Extent and Frequency of Substance Use, Tested Offenders Only . 74
6.3. Percent Positive for Substance Use by Individual Test 77
6.4. Any Action Taken for Positive Test 80
6.5. Most Serious Action Taken for Positive Test 82
6.6. Most Serious Action Taken for Each Positive Test 85
7.1. Extent of Recidivism 87
7.2. Most Serious Recidivism 89
7.3. Annual Technical Violation Rates 92
7.4. Annual Arrest and Conviction Rates 94
7.5. Rearrest Survival by Track 98
7.6. New Technical Survival by Track 101
7.7. Recidivism Survival by Track 105
7.8. Time to First Drug Arrest by Track 110
7.9. Time to Technical Violation for Drugs by Track 113
8.1. Variables Related to Recidivism 118
8.2. Correlation Matrix 119
8.3. Prediction Models and Parameter Estimates for Any Technical . 121
8.4. Prediction Models and Parameter Estimates for Any Arrest 123

8.5. Prediction Models and Parameter Estimates for Any Recidivism 125
B.1. Mean Number of Drug Tests by Month 146
B.2. Mean Number of Drug Tests by Month, Tested Offenders Only ... 147

SUMMARY

The capacities of courts, jails, and prisons have been strained in recent decades by an inflow of drug offenders. Between 1965 and 1990, such offenders made up an increasing portion of state and local arrests. In 1979, only 6 percent of those entering state prisons had been convicted of drug offenses; by 1989, it was 30 percent. And, as with those convicted of other crimes, recidivism is high. Over half of all felony drug offenders on probation in 1986 were arrested for another felony within three years, and over a quarter of those arrests were for another drug offense.

The strain on criminal-justice system capacities has resulted in adjudication delays and early releases from prisons. In response, judges, prosecutors, and others have sought alternatives to prison and enhancements to standard probation that might lessen drug use and lower recidivism. Among the alternatives implemented in various jurisdictions have been increasing the frequency of drug testing during probation and instituting "drug courts" or other programs providing for treatment integrated with court monitoring and sanctions. Evaluations of such alternatives have yielded mixed results and have been hampered in that implementors have not taken an experimental approach with random assignment to comparison groups. Recognizing such shortcomings, the National Institute of Justice in 1992 sponsored an experimental program of probation alternatives in cooperation with the Maricopa County (Arizona) Adult Probation Department. RAND helped design the experiment and analyzed the results.

APPROACH AND IMPLEMENTATION

The experiment's objective was to compare the drug use and criminal behavior of probationers assigned to four alternative regimes or tracks:

- Standard probation, but no drug testing.
- Standard probation, with random monthly drug tests.
- Standard probation, with testing scheduled twice a week.

- Drug court, an integrated program of drug testing, treatment, and sanctions.

Probationers assigned to the first three tracks were supervised by regular probation officers, using routine responses to violations of the terms of probation (such as positive drug tests). Probationers assigned to the fourth track were supervised by both a probation officer and a drug court judge, and they were counseled and treated by a private agency. The intent of the drug court program was to provide a carefully structured set of rewards and punishments responding to successes or failures in meeting specified behavioral goals.

The experiment was limited to first-time felony offenders convicted of drug possession or use (not sales) and sentenced to a term of three years probation. Six hundred thirty probationers from throughout Maricopa County (Phoenix metropolitan area) were randomly assigned to one of the four experimental regimes and tracked for a 12-month period. Analysis of probationer characteristics showed that the random assignment was successful in producing similar groups. Among the few significant differences: Those assigned to frequent testing were less likely than those in the other groups to have been arrested (this time) for possession of narcotics (e.g., heroin) and a greater likelihood to have been arrested for possession of drug paraphernalia (as used, e.g., with cocaine). However, the types of drugs that participants admitted having at some point used were similar.

Care was taken to monitor the experiment's implementation by measuring the services rendered and disposition of cases. And in fact, testing was not actually administered in adherence to the protocols. Participants in the no-test track were tested occasionally, and those in the high-frequency track were tested much less often than planned. Particpants in all three standard-probation tracks could to some degree predict the dates of testing. However, all standard-probation tracks did differ significantly from each other in the average testing rate (see Figure S.1). And, though drug counseling, education, and, especially, treatment (e.g., group sessions) remained options for

standard probation services, they were much more frequently prescribed in the drug court track.

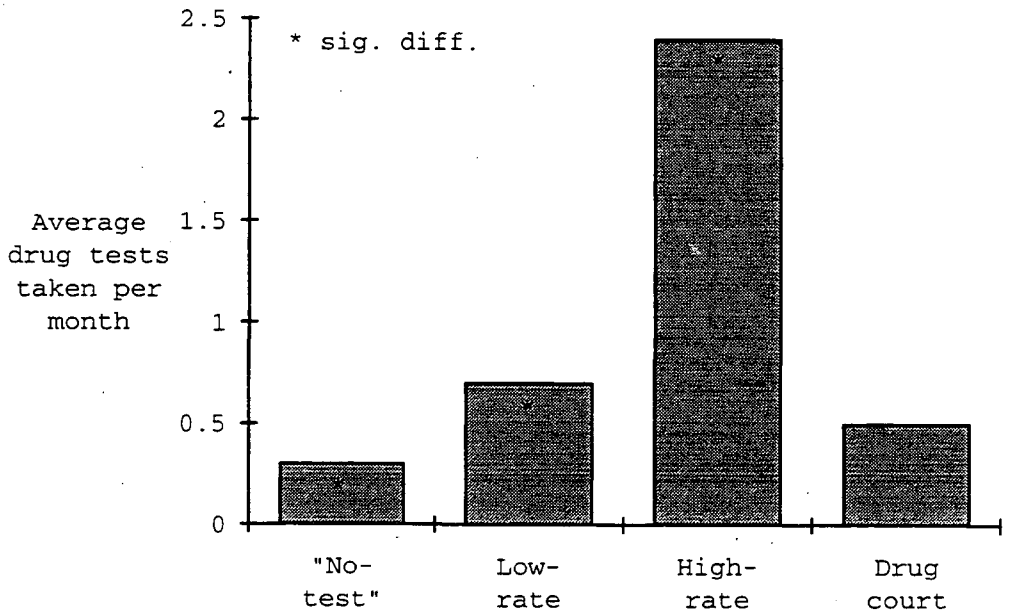


Figure S.1--Frequency of Drug Testing, by Probation Alternative

However, the drug court alternative was not just a counseling, education, and treatment regime, but one in which the court responded to probationer behavior at scheduled court hearings over the course of probation. Rewards included progress to a less intensive phase of the program and, eventually, graduation and early release from probation. Sanctions included repetition of the previous phase, possibly for one month instead of the typical two, and, for no-shows, issuance of an arrest warrant. And these options were actually all employed--each at 12 to 30 percent of the individual hearings. (Other, less frequently employed options, e.g., jail time, were also available.)

EFFECTS

This system of treatment and response had essentially no beneficial effect on prevalence of drug use (as measured by testing). However, the use of high-rate testing did appear to deter drug use. As shown in

Figure S.2, a lower fraction of tests administered more than twice a month (high-rate track) turned up positive than of tests administered only once every few months ("no-test" track). Tests for specific drugs were also analyzed, and there were no significant between-track differences in the likelihood that a test would be positive for three of the four most commonly used illegal drugs. The exception was marijuana, which, again, appeared to be less frequently used among those tested at a higher rate. It was *more* frequently used by drug court participants than by standard probationers (all three tracks taken together).

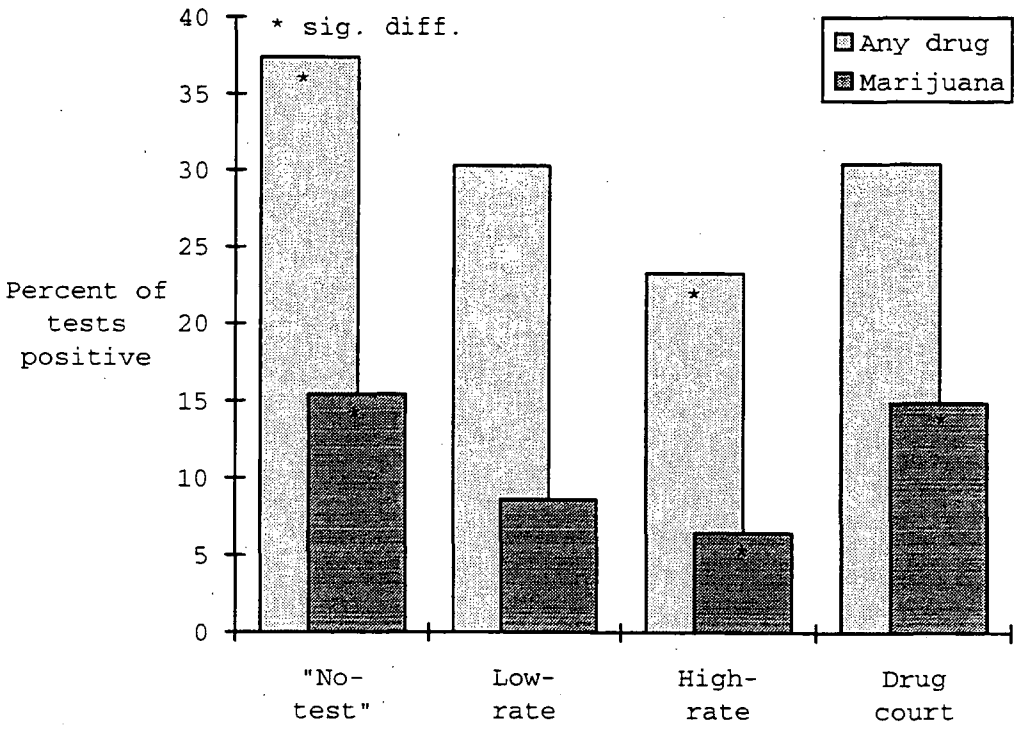


Figure S.2--Percent of Tests Positive for Any Drug or for Marijuana over Twelve Months, by Track

Neither frequency of drug testing nor participation in drug court had an effect on the likelihood that probationers would be arrested over the 12-month analysis period (see Figure S.3). Likelihood of spending time in jail was also unaffected (see Figure S.4, light bars). However, drug court participants were less likely to spend time in prison than

were those on standard probation (darker bars). This is consistent with the average amounts of time spent in and out of the criminal justice system by those on the various tracks (see Figure S.5). While the total amount of time spent in confinement (jail plus prison) by those in drug court was not significantly different from that spent by those on the standard probation tracks (taken together), the time spent in prison was (4 days vs. 13 days). Those in drug court also spent 22 days less under the supervision of a probation officer than did those on the other three tracks. The complement to these differences is that those in drug court spent some 27 days a year free, on average. (There was no release option for those on standard probation.) Differences among standard-probation tracks in where time was spent were not significant.

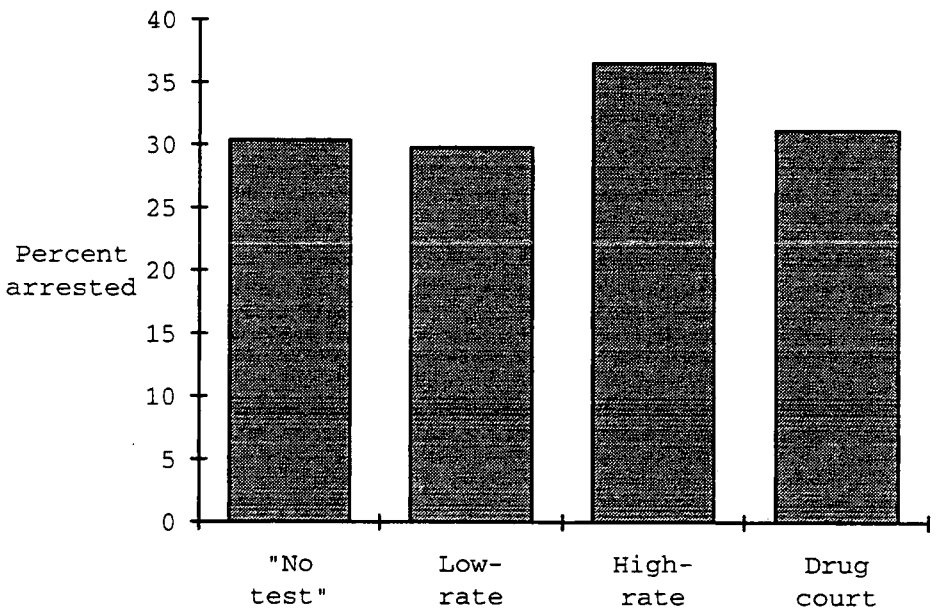


Figure S.3--Percent Arrested over Twelve Months, by Track

Do the shorter lengths of time spent within the system by drug court participants translate into lower costs to the public? The cost per probationer for the low-rate testing track was around $2600 per year. This track included standard probation services and a rate of testing similar to that for drug court. Drug court costs were more

difficult to ascertain, but appeared to run between $2500 and $2900 annually per participant. The costs for standard probation and drug court are similar because the savings in confinement and supervision costs achieved with the drug court are eaten up by the extra costs of running the court and treating offenders. The high-rate testing track appeared to be even more expensive, both because of the additional testing and because of the greater time spent by participants in confinement (see Figure S.5).

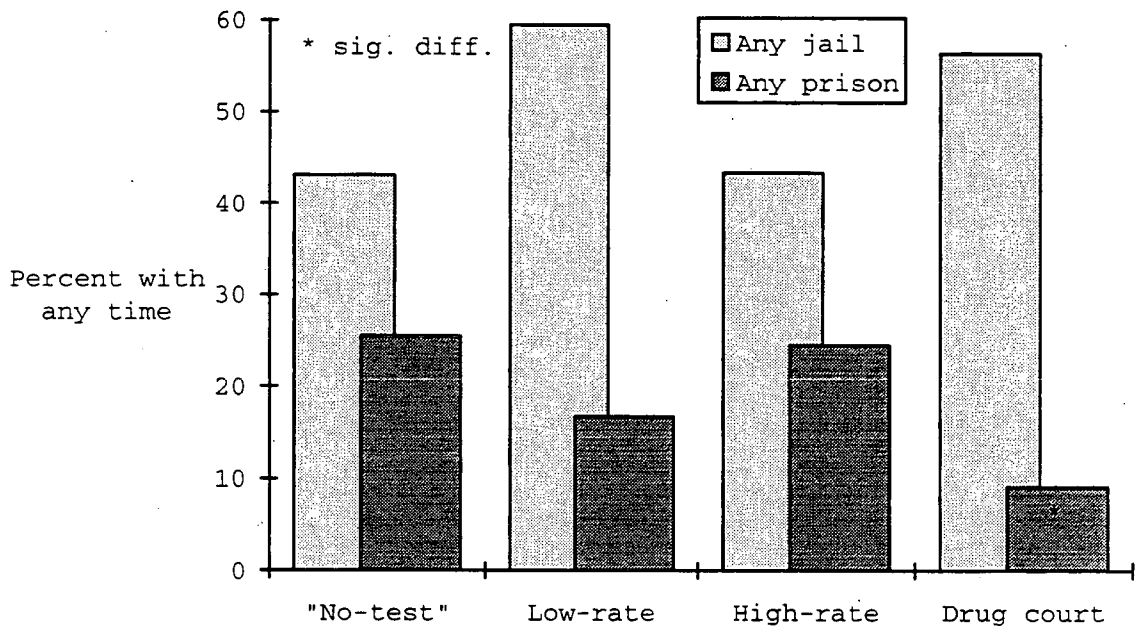


Figure S.4--Percent with Any Time in Jail or Prison over Twelve Months, by Track

CONCLUSION

What can be concluded from the Maricopa County experiment, and where do we go from here? The findings lend some support for increased testing. Drug use, and particularly marijuana use, was less frequent among those tested at a higher rate. High-rate testing did not, however, improve recidivism and may even have had an adverse effect. Further examination of this approach is needed, and variations may yield more broadly favorable outcomes. One variation of high-rate testing is

to levy a sanction immediately after a positive test. Such an approach is now being tried in Washington, D. C.

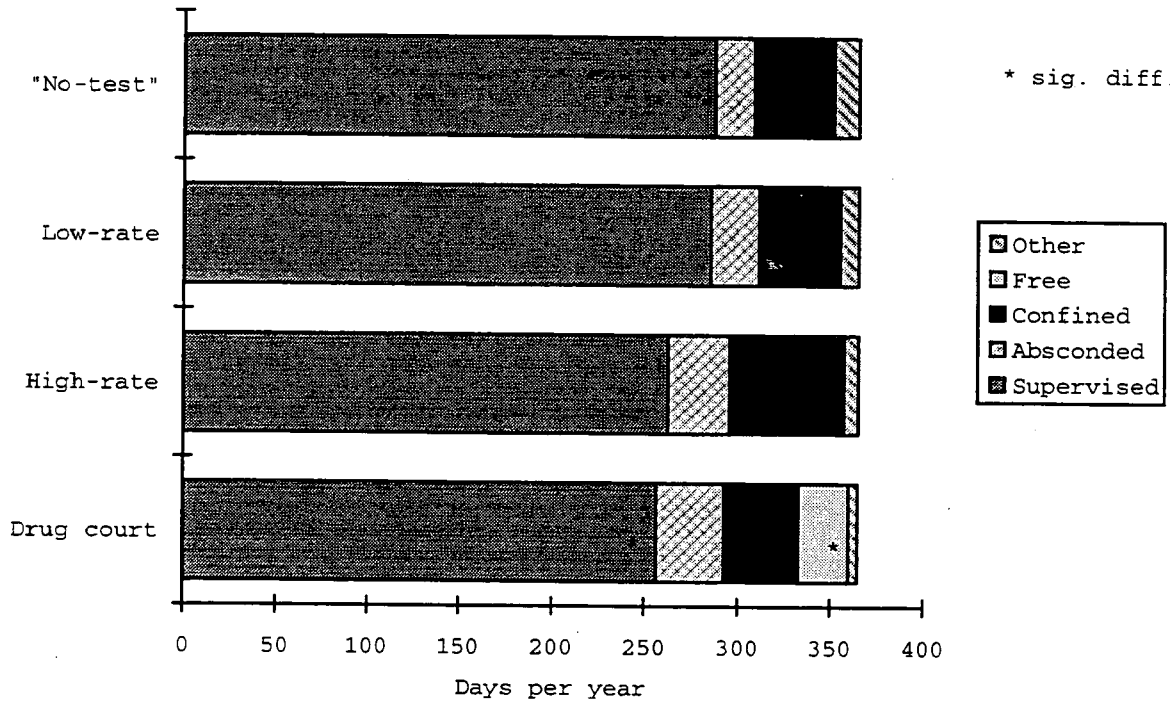


Figure S.5--Average Days per Year Spent in Various Conditions, by Track

Responsive sanctions are, of course, part of the Maricopa drug court program, as is a more intensive interaction with a judge--and treatment for drug use. The Maricopa drug court experiment has reduced recidivism according to some measures, but not drug use; in fact, it increased marijuana use (though use of other drugs may have exhibited compensating decreases, our sample sizes were insufficient to verify their significance).

Since the RAND experiment, Maricopa County has significantly changed the drug court program. A new treatment and response protocol has been developed, including quicker sanctions and more intensified relapse prevention treatment for those testing positive. Participant fees have been raised and other steps have been taken to reduce costs, and participation has been expanded. Those interested in drug courts as a probation alternative might benefit from monitoring Maricopa County's further experience with its program.

ACKNOWLEDGMENTS

This research was supported by Grant Number 91-DD-CX-K050 awarded to RAND by the National Institute of Justice, U.S. Department of Justice. Points of view or opinions stated in this document are those of the authors and do not necessarily represent the position or policy of RAND or the U.S. Department of Justice.

The authors would like to thank the following members of the Maricopa County Adult Probation Department for their participation in this evaluation: Chief Probation Officer, Norm Helber; Deputy Chief, Dot Faust; Drug Court Supervisor, Robert Cherkos; Probation Supervisors, Mark Hendershot and Mary Anne Legarski; Lead Probation Officers, Jill Heuer and Manuel Gomez; Assignment Clerk, Jean Haskell; Computer Specialist, Rob Payne; FTDO Probation Officers, Jimmy Martinez, Eve Grimshaw, Dorothy Price, Nick Crowder, Sandy Mize, Evelyn Rodela, Scott Batchelor, Darrin Harris, Chuck LeVinus, Maria Martinez, Julie Begonia, Fred Wilhalme, Cathy Seelinger, Dominick Ladato, Kyle Mickel, Mark Bergman, Paddy McDonnagh, and Kit Russell; and Accounting Specialist, Linda Ettari. In addition, the following persons were instrumental in design and support for the drug court: Superior Court Judges, Michael Ryan and Ron Reinstein; Drug Court Judge, Susan Bolton; Public Defenders, Nora Greer and Tom Klobas; County Attorney, Abigail Kennedy; Treatment Counselors, Judy MacFarlane and Tara Krock; and Director of Mountain Valley Counseling, JoAnn Chechak. Acknowledgment also goes to RAND staff who helped in collecting, coding and editing data, Rebecca Petersen, Carol Dulisse, Kathy Rosenblatt, and Stella Bart; analyzing data, Terry Fain; and in providing secretarial support, Mary Sauters and Carolyn Kono.

1. INTRODUCTION

During the last decade, the increasing number of offenders identified as drug users has had a significant impact on the criminal justice system. The heavy burden on our criminal justice system is clearly evidenced in recent statistics. For example, in 1992, between 47 and 78 percent of male arrestees and between 44 and 85 percent of female arrestees in 24 sites nationwide tested positive for drugs (National Institute of Justice, 1993). Between 1965 and 1990, drug offenses made up an increasing proportion of all state and local arrests (Bureau of Justice Statistics, 1992; hereafter BJS, 1992). This increased number of arrestees placed a strain on court dockets and led to overcrowding in the jails and prisons.

The situation is worsened by the high rates of recidivism as measured by new arrests for drug offenses and violations of probation. Over half of all felony drug offenders on probation in 1986 were rearrested for another felony within three years and over one quarter of these arrests were for a new drug offense (BJS, 1992). Many of these recidivists are sent to prison. The proportion of inmates admitted to state prisons for drug offenses increased from 6 percent in 1979 to 30 percent in 1989 (BJS, 1992). Between 1986 and 1991 the number of inmates sentenced for drug offenses were largely responsible for a 44 percent increase in the prison population (BJS, 1993). A national survey of judges and prosecutors by the Lazar Institute in 1992 found that "court system personnel, particularly in large jurisdictions, are not satisfied with the tools available to them for handling drug-related cases" (Milkman et al., 1992: 14). They concluded that "despite substantially increased resources, felony court systems are still having great difficulty in dealing with drug-related crime" (Milkman et al., 1992: 14). Although the increases due to drug using offenders have not been as great in recent years (1993-1995), offenders with substance use problems still represent a significant portion of the criminal justice system population, particularly within prisons.

In response to this crisis, during the 1980s and 1990s there was considerable expansion in the development of alternatives or enhancements to standard probation or prison. Most of the alternative programs have focused on either increasing levels of supervision, drug testing, or treatment. The correctional options run the gamut from pre-trial diversion drug-testing to boot camps with aftercare. Some of these programs, such as intensive supervision (ISP) which provides more frequent supervision contacts and drug testing, have been implemented within probation or parole. Other programs, such as Treatment Alternatives to Street Crime (TASC), divert clients into treatment or provide a link between the criminal justice system and treatment community. TASC programs offer clinical assessment, referral to treatment, and case-management of offenders. The most recent innovation, drug courts, emerged in the late 1980s. Most drug courts are diversion programs that place offenders in treatment and rely on the use of court monitoring and sanctions.

PRIOR RESEARCH ON CORRECTIONAL OPTIONS FOR DRUG OFFENDERS

Many of the alternative programs have been the focus of evaluation research sponsored by the National Institute of Justice. For example, RAND conducted an experimental evaluation of intensive supervision in fourteen sites nationwide. Numerous studies have been conducted on the effectiveness of pre-trial drug testing. An experimental evaluation of TASC programs is currently being conducted by RAND and UCLA. In contrast, very little research has been conducted on drug courts. Overall, as summarized briefly below, the evaluations of ISP, drug testing, and TASC programs have shown mixed results regarding the effectiveness of the various correctional options.

Intensive Supervision

Intensive Supervision Programs (ISPs) specifically designed for drug offenders were a part of the newer generation of ISPs which were implemented in various jurisdictions nationwide during the 1980s. These ISP programs were designed to fill the gap between prison and probation and provide enhanced services to offenders (Petersilia and Turner,

1992). Typically, ISP programs involve small caseloads, frequent contact with the officer, strict enforcement of conditions of supervision, curfew, community service, employment, and random drug testing. Some ISPs have been used as enhancements to standard probation or parole, while others were designed as alternatives to prison.

There is a considerable body of literature on the effectiveness of ISP in general, yet few studies of ISP programs that were specifically designed for drug offenders. One of these studies, an experimental evaluation of Drug ISP programs was conducted by RAND. About 600 offenders in five jurisdictions were randomly assigned to either standard probation/parole or ISP in RAND's experimental evaluation.[1] Each site had the responsibility for designing its own program and identifying who would be eligible for the program. Thus, the level of drug testing and contacts, plus the availability of sanctions varied considerably by site.

The type of offenders assigned to the Drug ISP programs varied by site in levels of drug dependency and criminal involvement. The results of the RAND analysis suggested that intensive supervision did not affect drug use (as measured by positive drug tests) and did not reduce recidivism (technical violations or new arrests). Across all sites fewer than half of the offenders received any type of drug treatment, usually because treatment slots were unavailable. Turner et al. (1992) also found the ISP programs were more expensive than routine supervision for drug offenders. Increased costs tended to be a result of the greater number of technical violations for those on ISP and the use of incarceration as a sanction. Despite the apparent lack of success in reducing recidivism and increased costs, most jurisdictions continued their ISP program since it provided enhanced supervision and testing.

Drug Testing

Drug testing has been an integral component of correctional supervision for many years. Most practitioners tend to see the utility of drug testing in screening for recent drug use, as a tool for the

[1] See Turner et al., 1992 for a report of the results.

objective monitoring of probationers or parolees, and an indicator of the need for treatment (Turner et al., 1994; NIJ, 1995). Recently, the use of drug testing has expanded to other arenas within the criminal justice system. Drug testing can perform several functions, including (1) aiding judicial decision-making in setting bail or conditions of release, (2) monitoring drug use, (3) deterring drug use, (4) facilitating drug treatment, (5) measuring drug use, and (6) improving the efficiency of the criminal justice system (Office of National Drug Control Policy, 1991). States have been urged to implement a uniform drug testing policy.

Research examining the use of drug testing in criminal justice has explored its utility for identifying chronic users, screening for recent use, and tracking drug-use trends. The effectiveness of drug testing at different stages in the criminal justice system has also been studied. One area of research has focused on drug testing during pre-trial diversion. These studies generally ask two questions: (1) can urine testing be used to predict pretrial misconduct, e.g., failure to appear (FTA) and rearrest? and (2) can urine monitoring deter crime, e.g., reduce rates of rearrest, while offenders are awaiting trial?

There is some evidence, based on studies of offenders in Washington, DC and Manhattan (NY), that the use of drug tests can improve the prediction of risk for failure to appear (Wish, Cuadrado and Magura, 1988; Toborg et al., 1989; Visher, 1992). On the other hand, a study in Dade County, Miami by Goldkamp et al. (1990) indicated that drug test results were not useful for predicting failure to appear. Two separate studies analyzing data from Manhattan had different results. While Smith et al. (1989) found that the number of drugs for which offenders tested positive was correlated with higher rates of rearrest, Belenko et al. (1992) concluded that drug testing was not a cost-effective mechanism for identifying high-risk defendants for FTA. Using data from Miami, Goldkamp et al. (1990) found that defendants who were not tested or tested negative (in comparison to those who tested positively) during pretrial release had lower rates of "flight" (e.g., failure to appear) and crime (e.g., pretrial arrest). Thus, whether

drug testing can be used to predict pretrial misconduct remained unclear.

The results of studies examining the second question have also been controversial. For example, an experimental study designed to measure differences between no pretrial services, treatment, or urine monitoring showed no differences between the three groups in pretrial misconduct (Yezer et al., 1988). However, reanalysis of the data suggested that urine-monitored persons who appeared for three or more tests significantly reduced pretrial misconduct (Visher, 1988).

Given the mixed results of prior research, the National Institute of Justice sponsored replications of the Washington DC experiment in six sites.[2] In two of four sites researchers found that those who tested positive posed a greater risk of FTA and rearrest (Visher, 1992). Drug monitoring during pre-trial diversion produced modest effects in reducing FTA and rearrest in only two of the four sites (Visher, 1992). In reviewing all the evidence Visher (1992) concluded that interpreting the results depends on one's point of view. Opponents of drug testing could point to the discrepancies in the results as indicative of failure, while proponents could minimize the problems.

In a recent reanalysis of the data from eight of these sites with pretrial drug testing, Rhodes et al. (forthcoming) found that drug testing appeared useful for predicting rearrest during pretrial release and failure to appear among those with a recent positive test.[3] However, after other predictors, such as criminal record and community ties, were taken into account, there was no additional benefit to the information from drug testing results. Rhodes et al. caution that these results are limited because urinalysis is not a precise measurement (e.g., it does not always indicate the intensity of drug use) and there are differences between the types of drug users which are not always

---

[2] The six sites included Prince George's County, MD; Milwaukee, WI; Multnomah County, OR; Pima and Maricopa Counties, AZ; and New Castle County, DE

[3] The eight settings included three studies conducted in Washington DC; three of the replication sites (Milwaukee, Prince George's, Maricopa Counties) Manhattan and Miami (Dade County).

taken into account by the research. Thus, there is still inconclusive evidence on the utility of drug testing in pretrial diversion.

Research examining the use of drug testing during supervision has also produced contradictory evidence. For example, in a study of heroin addicts admitted to methadone maintenance programs in Southern California in the 1970s, significant reductions were found in daily narcotics use and property crime during periods of probation or parole with urine testing (when clients were being tested an average of three times per month), in comparison to periods of probation or parole without urine testing (Anglin et al., 1990). On the other hand, in studying the impact of increased testing of offenders on ISP, Turner et al. (1992) found it did not deter drug use or crime. In comparison to routine supervision, the increased levels of testing led to a greater frequency of technical violations and increased use of incarceration. Regardless of the observed results on recidivism, ISP site staff indicated they planned to continue to use drug testing for ISP clients because it enabled them to identify persons who were in need of additional of services and treatment (Turner et al., 1994).

The impact of sytemwide drug testing was recently tested in Multnomah County, Oregon.[4] The Drug Testing and Evaluation (DTE) Program was designed for all levels of offenders, both pre-trial and post-conviction (probation and parole). Evaluators found that over 40 percent of clients on pretrial release missed more than half of their tests; only 14 percent appeared for all scheduled tests; and more than half (60 percent) of the clients tested positive at least once (National Institute of Justice, 1995; hereafter NIJ, 1995). There was also no significant difference in new arrests between those in pretrial DTE and those in a control group. Sanctions for positive tests were not related to reductions in recidivism (NIJ, 1995). Only 17 percent of post-conviction offenders were referred to DTE by corrections officers who selected offenders based on the need for close monitoring. Almost half of the post-conviction offenders tested positive at least once. The

[4] For a complete description of this evaluation, see Cavanagh and Harrell, 1995.

researchers concluded that the DTE program had multiple problems in implementation, including poor utilization of drug treatment assessments and ineffective responses to drug test results by DTE. Similar to findings from other programs, the evaluators found treatment slots were often unavailable and there was little coordination between pretrial and post adjudication phases of DTE. Researchers concluded that since the program was not fully implemented and the evaluation had some limitations (such as the lack of random assignment), it was difficult to assess the impact of the systemwide drug testing model (NIJ, 1995).

Drug Treatment

Diversion of drug offenders from the criminal justice system into treatment began in the 1960s. Civil commitment of heroin addicts into compulsory treatment was first practiced in New York and California. These programs were generally found to be successful (McGlothlin et al., 1977; Anglin and Hser, 1990), but most were discontinued with the advent of methadone maintenance. As trends in drug use changed (mostly from heroin to cocaine use), there was a need for other types of treatment programs. Nonetheless, most researchers agree that legal coercion (e.g., criminal justice system referral to treatment) plays an important role in the success of drug abuse treatment (Wexler, Lipton, and Johnson, 1988; Anglin and Hser, 1990).

TASC programs were developed in the early 1970s as a bridge between the treatment and criminal justice communities. The TASC model incorporates a number of criteria that allow the programs to function as autonomous case managers for criminal justice clients. The primary goals of the TASC program are to (1) identify and screen drug using offenders in the criminal justice system, (2) provide referrals to appropriate treatment, and (3) provide monitoring for the criminal justice system (Inciardi and McBride, 1992). Early TASC programs were generally a form of pretrial diversion for young offenders, primarily those who were likely to become heroin addicts (Inciardi and McBride, 1992). Today TASC programs have expanded nationwide and operate at many points in the criminal justice process. A substantial number of these programs involve post-conviction monitoring of offenders and many

provide transitional services for parolees. TASC programs can also serve as an adjunct to jail.

Findings from the Treatment Outcome Perspectives Studies (TOPS) indicated that TASC-referred clients increased time in treatment (both outpatient drug-free and residential) programs (Hubbard et al., 1989). This structure led to improved outcomes, such as lower use of drugs, more full-time employment, and fewer self-reported illegal activities (Collins and Allison, 1983). Referral by TASC was also found to decrease the number of arrests and increase the percent of time abstinent for older, longer-term heroin addicts referred to drug-free treatment, but not for those referred to Methadone maintenance, in comparison to a group of clients chosen randomly from these drug treatment programs (Salmon and Salmon, 1983).

A more recent evaluation of five TASC programs by researchers from RAND and UCLA is nearing completion (Turner and Longshore, 1996). The study sample included 2,000 offenders: half were referred to TASC and half to routine criminal justice processing. In three of the sites the clients consisted of adult probationers; one site handled adult diversion cases; and one site had juveniles on probation. Interviews gathering information on drug use, criminal behavior, and services received were conducted with all 2,000 clients at intake and six months. Preliminary results show that a greater proportion of offenders in TASC programs than those in the comparison group received services such as urinalysis testing and drug counseling. In some sites the TASC program reduced the number of drug use days and the total number of times drugs were used. In one site TASC was associated with a decrease in the number of drug crimes. The effects seems to be qualified by the baseline characteristics of offenders. Thus, the authors suggest that TASC programs may be most cost-efficient for those offenders whose behavior (criminal, drug history or sex-risk behavior) is more problematic (Turner and Longshore, 1996).

In looking at the future of TASC programs, Inciardi and McBride (1994) suggested that while judges are supportive of TASC programs, there are limited opportunities for feedback to the judicial system about the individual's progress in treatment. They propose that this

frustration with the lack of reporting is one reason for the "judicial grass roots movement that has become the Drug Courts" (1994: 59).

Drug Courts

The drug court models that emerged in the late 1980s have become the latest correctional option to sweep across the country. Two basic types of drug court models have been developed--differentiated case management and dedicated drug treatment. The former model segregates narcotics cases into one court and focuses on the swift processing of cases, sometimes by offering more lenient sanctions (Belenko et al., 1994). The majority of drug courts currently in operation follow the dedicated drug treatment model. The major goals of this type of court are to link defendants to community-based drug treatment and address defendant needs of more intensive case management and supervision (Belenko and Dumanovsky, 1993).

An excellent overview of the operational characteristics and implementation issues of drug courts can be found in Cooper (1995). One of these issues is selection of a target population. Even though each court identifies its own eligibility criteria, common to most courts is exclusion of cases of offenders who have violated parole with the recent charge for possession. Most often the type of offender targeted for drug court is typically one charged with drug possession (usually cocaine or crack), but some courts include drug trafficking cases. Most of the courts require weekly contacts with the treatment provider and use a system of graduated sanctions for positive drug tests and failure to attend treatment. A lack of adequate funding was the most frequently cited problem in implementation of these drug court programs. Some of the courts report a reduction in judicial dockets, in probation caseloads, avoidance of jail bed days, savings in police overtime, and general savings in system costs.

One of the first drug courts to become operational was the Dade County drug court in Miami (Goldkamp and Weiland, 1993a; Klein, 1990). Similar diversionary drug courts are located in Broward County (Fort Lauderdale, FL), Multnomah County (Portland, OR), Travis County (Austin, TX), Las Vegas (NV), Los Angeles (CA), Seattle (WA), Kansas City (MS),

and Washington D.C., and vary somewhat from the Dade County model. The FIRST program in Oakland (Alameda County, CA) is also a diversionary drug court, but is distinguished from the Miami drug court by several important structural differences, such as individual contracts, progressive sanctions, and incentives programs (Tauber, 1993).

Research on drug courts has been limited. Statistics compiled by the Alameda County Probation Department regarding the FIRST program in Oakland showed a substantial reduction in recidivism. Tauber (1991) reported that those who entered the FIRST program in 1991, in comparison to a group referred to another diversion program in 1990, had significantly lower recidivism rates (36 percent to 58 percent) in the first eight months of program participation. These results should be interpreted with caution, however, since the reduction may have been due to differences between the experimental and comparison groups since they were not randomly assigned. The comparison group was selected from an earlier cohort of defendants: thus, differences in outcomes between the two groups might be attributed to changes occurring between 1990 and 1991 in the criminal justice system or type of defendants referred, rather than the drug court program itself.

Most, but not all, of the evaluations of Miami's (Dade County) drug court have heralded its success (Finn and Newlyn, 1993; Goldkamp and Weiland, 1993a,b). In discussing the implementation of the drug court, Finn and Newlyn point out the large number of defendants (4,500) who entered the program during the first four years and the relatively low costs of the diversion program in comparison to jail (about $800 per client per year). A follow-up evaluation by Goldkamp and Weiland (1993b) presented some promising results. About 60 percent of defendants who were processed in Miami's drug court had favorable treatment outcomes. In addition, those in drug court had lower rearrest rates and were less likely to be sentenced to incarceration, in comparison to non-drug court felony drug defendants. On the other hand, a separate study of the Miami drug court by Davis, Smith and Lurigio (1994) found no difference in rearrest rates between 281 drug court cases and 93 non drug-court cases. Approximately one-third of defendants in the two Miami courts had a new felony arrest and about 20

percent had a new drug arrest. The inconsistencies between the research on the Miami drug court by Goldkamp and Weiland (1993a,b) and that by Davis et al. (1994) are probably due to methodological differences such as sample design, (e.g., the lack of random assignment to experimental and comparison groups) and measures of recidivism.

Need for Further Research

The evidence available from recent evaluations of correctional options shows mixed results for systemwide drug testing and little impact of intensive supervision on recidivism. The prior studies of drug courts have been limited and suffer from methodological flaws. Yet the extant research does suggest that many forms of treatment can be effective when they are properly implemented, use appropriate techniques for fostering behavioral change, and are applied to appropriate client populations. The addition of routine urine testing to treatment or supervision provides an objective assessment of drug use and can be used to identify and monitor substance users during periods of legal supervision. Moreover, time spent in treatment appears to increase the likelihood of positive long-term outcomes. Unfortunately, findings from previous studies of correctional options for drug offenders do not tell us exactly what levels of testing and kinds of treatment programs will be most effective with various types of offenders.

THE CURRENT STUDY

Given the wide use, but limited knowledge, on the effectiveness of drug testing and treatment for probationers, in 1991 the National Institute of Justice requested proposals to study possible linkages between drug testing, criminal sanctions, and drug abuse treatment. RAND responded to the solicitation by designing an experimental evaluation in Maricopa County, Arizona that examined both drug testing and treatment for probationers convicted of felony drug possession.

The current study involved three major components: (1) assistance in developing an experimental program in community corrections involving random assignment among various levels and combinations of drug testing, treatment, and intermediate sanctions; (2) monitoring implementation of

the experimental program; and (3) evaluating the effects of alternative combinations of drug testing, drug treatment, and intermediate sanctions on drug use, crime, and pro-social behavior among probationers under community supervision. The evaluation included two experiments--one comparing different levels of drug testing for offenders on probation and the other comparing standard probation to drug court. The research was designed to address several key questions:

1. Does the frequency of drug testing have any discernible effect on probationers' drug use, criminal behavior, or involvement in treatment?

2. For which types of offenders and with which response strategies does urinalysis testing prove most effective in reducing recidivism and improving social adjustment?

3. How is the effectiveness of drug testing affected by combining it with additional treatment resources (e.g., a drug court)?

The results of RAND's experimental evaluation of the First Time Drug Offender (FTDO) Program are presented in this report. The next section of this report presents a brief overview of the drug testing policies in Maricopa County and the design of the FTDO program. In Section 3 we describe the characteristics of the experimental research design, including the sampling and random assignment procedures, the data collection instruments, and outcome measures. The presentation of our findings of the process evaluation are contained in Sections 4 and 5. Section 4 describes the characteristics of the participants, implementation of the FTDO program, comparing levels of contact and testing for drug court versus standard probation, and costs of the drug court program versus probation with various levels of testing. Section 5 provides additional information on the drug court program, such as participation and time in treatment and action taken at court status hearings. The results of the outcome evaluation, including tests of the various hypotheses regarding relapse, recidivism, and social adjustment are incorporated in Sections 6-8. Section 9 contains a summary of our findings and a discussion of the policy implications.

2. THE MARICOPA COUNTY ADULT PROBATION DEPARTMENT

The Maricopa County Adult Probation Department is organizationally responsible to the Superior Court of Arizona. Its primary responsibilities include the preparation of presentence investigation reports (PSIs) and supervision of felons. There are 18 geographic Field Services Units, each with about 11 officers, spread across 3 Divisions. Systemwide in 1995, the office provided supervision for about 30,638 clients; up from 23,032 in 1990 and 14,388 in 1985. Of those on probation in 1995, roughly 9,628 had been convicted of drug sales or possession. Approximately 3 percent of probationers sentenced in 1990 were offenders with a first-time felony arrest for drug possession (N=726). A pilot study was conducted by RAND in 1990 to assess the feasibility of an experimental evaluation of drug testing and sanctions for drug offenders. In this section we discuss the policies and procedures regarding testing, treatment, and sanctions in existence at the time this study began, the issues in the development of the First Time Drug Offender (FTDO) program, and the design of the experimental FTDO program.

EXISTING PROCEDURES AND POLICIES

Pilot Study

A preliminary study of drug offenders on probation in Maricopa County was conducted one year prior to implementation of the evaluation. The purpose of this study was not only to learn more about the existing policies and procedures, but also to determine the feasibility of an experiment by examining the system case flow. Two of the 18 probation units were selected and data were collected during a three-month time period.

Table 2.1

Maricopa County Pilot Study

N	169
% Male	82
Median age	27
Prior Record	
% No priors	23
% Misdemeanors only	63
% Prior felony conviction	7
% Prior prison term	7
Current Offense	
% Violent	11
% Drug	34
% Property	43
% Other	12
Most Serious Drug Used	
% Cocaine	45
% Heroin	9
% Other hard drug	11
% Marijuana use only	35
Drug Tests	
% Of probationers actually tested	38
Current frequency of testing per month	1
% Dirty tests	35
% Of probationers with positive tests	33
Sanctions (n=21)	
% No action taken	33
% Increased testing	10
% Referred to treatment	43
% Probation Revoked	14

Sentencing

On the day of sentencing, a felon who is placed on probation is assigned to a specific probation officer (PO) by geographic area, unless the PSI identifies a problem requiring a specialized caseload. The probation order from the court includes 11 standard terms and conditions, one of which requires the probationer to submit to urine testing as ordered by the PO. All probationers are also required to pay a $30 monthly supervision fee.

During the initial meeting with the client, the PO conducts an intake assessment based on the PSI, the client's self-report (there is a standard assessment form used) and possibly a urine test. The PSI may recommend a specific residential placement if the client has an extensive criminal record and has failed in previous programs. There may also be an assessment of treatment needs.

Characteristics of Drug Offenders

Of the 229 cases assigned during the pilot study time period, 169 (74 percent) were identified as being drug users or addicts. As shown in Table 2.1, of the 169 drug users on probation, 82 percent were male and the median age was 27. The majority of probationers had no prior felony convictions, prison terms, or prior probation terms. Most of these offenders (61 percent) were classified as medium risk on the NIC Risk Score; 21 percent were low risk cases and 18 percent were high risk cases. Of the 169 cases, 90 percent were currently charged with a felony and 9 percent were charged with a misdemeanor. All were identified as non-dangerous offenders who committed mostly property crimes (43 percent) or drug crimes (34 percent).

Caseloads, Contact Levels and Drug Testing

In December of 1990 each of the 18 field units supervised about 1,000 cases. There were about 900 new cases assigned to probation each month. The average caseload size for those actively on probation was about 69 probationers per officer. Typically, each probation officer would handle caseloads with varying levels of supervision. However, some officers would carry only specialized drug offender caseloads.

There are three levels of supervision for probation -- maximum, medium, and minimum. The maximum level of supervision requires at least 1 field and 1 office contact per month. The medium level of supervision requires at least 1 contact per month. Every other month this is to be a field contact. The minimum level of supervision requires 1 contact every 90 days. All standard probation cases start out at the medium level of supervision with one contact per month.

Generally, about 60 to 70 percent of cases involve discretionary drug testing, even though all probationers with an arrest for drug possession have drug-testing orders as a condition of probation. The probation officer (PO) determines the need and frequency of drug testing for each offender. Drug testing is conducted during regular office contacts, with a PO required as a witness. Urine samples are sent out for analysis by the local TASC Program where tests are run for ten different drugs including amphetamines, barbiturates, Benzedrine, Valium, cocaine, opiates, and PCP, but not marijuana or alcohol.[5] Positive results are phoned in to the PO the next day. Since drug testing is somewhat costly, tests are usually ordered once per month. At the time this study began, the department reported spending about $150,000 per year on drug testing.

In our pilot study sample, of the 70 identified drug abusers (e.g., those addicts using drugs on a regular basis), one-half were abusing cocaine. Not all offenders identified as abusers or users of drugs were tested for drugs. Overall, 38 percent of offenders were tested an average of once per month and 33 percent of those offenders tested positive. During the three-month period of the study, 41 percent of probationers classified as drug abusers were tested for illicit drugs. Abusers were tested more frequently than users (about once per month in comparison to two times in three months) and were more likely to test positive.

---

[5] Tests for these last two substances were seen as too unreliable.

Sanctions

The MCAP departmental policy is based on a system of graduated sanctions, but officers are given discretion in following these guidelines. The suggested punishment grid for probationers ranges from referral to a self-help program, followed by outpatient counseling, then residential treatment, to more severe sanctions including jail time or prison. If a client tests positive, the probation officer has several options and can use discretion in deciding how to respond to the positive drug test. The most frequent response for a first positive test is to increase the frequency of contacts and testing. For subsequent tests, clients are referred to treatment, transferred to a specialized drug caseload,[6] or enrolled in a special department-run 12 week counseling program (Community Punishment Program). Further positive tests could also result in return to court for sanctions, including transfer to ISP and/or revocation of probation.

The results of our pilot study showed that in one-third of the cases, no action was taken for a positive drug test. Testing frequency was increased for 10 percent of the cases, over 40 percent were referred to treatment, and 14 percent had their probation revoked.[7] The percentage who actually received treatment was not available.[8]

Critical Issues

During the late 1980s, key staff in the court, corrections, and treatment domains identified similar problems with the existing system's handling of drug cases. Even though several new options were being tested, such as the "Do Drugs, Do Time" and Focused Offender Disposition programs, along with a diversion program operated by TASC, there appeared to be several critical issues that were not being addressed.

---

[6] The specialized officers are allegedly better educated and more interested in working with the client's drug problems than regular POs.

[7] These data are based on a small sample and do not take into account the number of prior positive drug tests, so they may not be an accurate reflection of the current policies.

[8] Data from the 1988 DUF study in Phoenix indicated that approximately 22 percent of arrestees were probably in need of drug treatment but the need for treatment was uncertain for another 46 percent (Gerstein and Harwood, 1990).

Though not unified in their concerns, the major problems noted by various agencies were: (1) the lack of funding for urine testing; (2) the unavailability of adequate treatment; and (3) the overuse of revocation as a response to positive drug tests.

For the Maricopa County Adult Probation Department (MCAP), the primary concern was developing a system of supervision and sanctions that would be most effective in reducing drug use and recidivism among first time felony offenders. Some of the questions being asked by MCAP were whether drug testing was an effective tool for deterring and detecting drug use, and what frequency of testing was most cost effective.

Another problem identified by MCAP was the type of sanctions currently being used in response to positive drug tests (UAs). Officers reported that the most common patterns of responses were to increase testing, transfer the individuals to probation officers with specialized drug caseloads, or refer the individual to the MCAP counseling program (CPP) before considering revocation.

Other primary issues identified by the probation department were the lack of residential treatment and the inadequacy of outpatient treatment services for probationers. Staff in the probation department stated they were concerned with the adequacy of existing treatment services. Although several outpatient programs existed, probation officers were not sure about the kinds of treatment their clients actually received from them. Furthermore, the programs provided officers with little information on their clients' progress.

The major concerns voiced by the public defender's office were accessibility to treatment and sanctions for positive UAs. They felt that the criminal justice system offered very little for their clients. Those on standard probation were not likely to get intensive treatment and, even if they were referred to treatment, there was little communication between treatment providers and probation officers about cases in treatment. According to the public defender, the most frequent response to positive UAs for those on standard probation was a petition to revoke.

Figure 2.1 Design of First Time Drug Offender Program

Target Population

First, second, or third-time felony offender

First charge for possession or use, no sales offenses

Source - Presentence

Identification by Presentence officer

Added term - Participate in First Time Drug Offender program

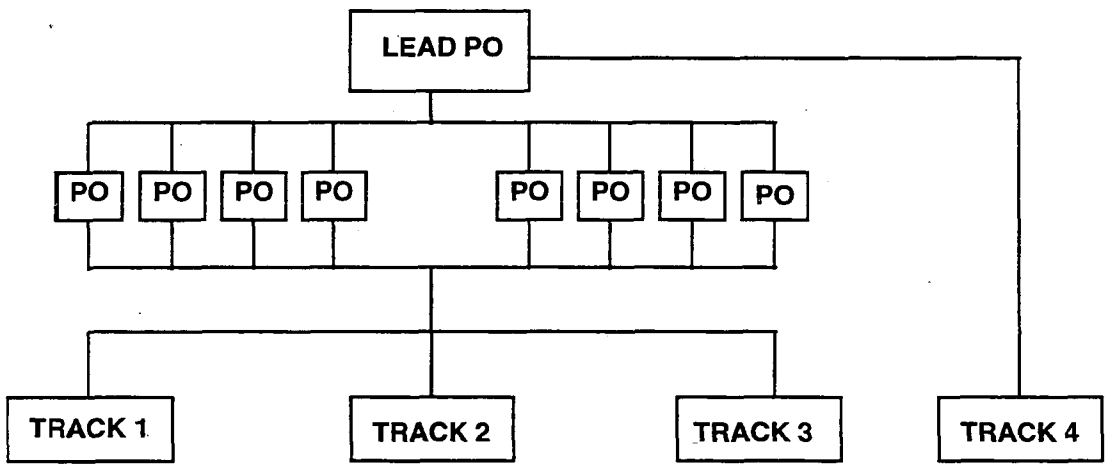
Assignment - All First Time Drug Offenders assigned to Lead Probation Officer

Lead Probation Officer

Oversee Assignment Desk in random assignment to Tracks 1-4

Assign Tracks 1-3 to specialized field officers based on geographic area

Manage all Track 4 assignments to Drug Court division



No UA Testing	**Random U/A Testing One per month**	**Scheduled U/A Testing Mon. & Thurs.**	**Random U/A Testing One per month**
Treatment determined by PO	**Treatment determined by PO**	**Treatment determined by PO**	**Intensive Outpatient treatment**
			Drug Court

Increasing the use of drug testing to monitor drug use, getting probationers into treatment, and reducing recidivism were the main concerns voiced by the county attorney's office. Because individuals on standard probation were not being tested frequently, they could continue to use drugs without detection and there was little accountability for behavior.

Given these major concerns for the handling of drug offenders by members of the criminal justice system, the probation department responded to the solicitation by the National Institute of Justice. This solicitation called for departments who were willing to conduct an experiment with testing, treatment, and sanctions to develop these programs in conjunction with an evaluator. RAND worked with MCAP in developing the experimental program and evaluation described in this report.

THE EXPERIMENTAL FIRST TIME DRUG OFFENDER (FTDO) PROGRAM

Concerns of all parties were incorporated in the design of the Maricopa County First Time Drug Offender (FTDO) Program and RAND's evaluation of the two experiments. One of the RAND experiments was to evaluate the impact of different levels of drug testing. For the other experiment, MCAP wanted to test the new drug court model that was operational in Oakland (Alameda County, CA), the FIRST program.[9] Figure 2.1 shows the basic design of the experimental programs. Tracks 1-3 would vary in the level of drug testing and Track 4 was to implement a drug court. Track 1 was to have no drug testing, with the frequency of visits to the PO determined by the risk/needs score. Track 2 was to have a low-rate of testing, with one bimonthly visit to the PO and one monthly unannounced urine test. Track 3 was to have a high-rate of testing with scheduled testing twice per week. Track 4, the drug court, would incorporate integrated drug testing and treatment to be provided by an outside contractor, and sanctions under the supervision of the

[9] Other drug courts were in operation in Miami (Dade County, FLA) and other jurisdictions, but RAND suggested that MCAP adopt the Oakland model.

court. In the following sections we describe the design of the two experimental programs.

Drug Testing Program Design

The experimental drug testing program was designed to measure differences in levels of testing and their impact on subsequent levels of substance use and criminal behavior. As mentioned previously, the current policy in operation by MCAP at the time the experiment began was to test probationers randomly once per month. The experiment was to compare three conditions: no testing, random or low-rate testing, and scheduled or high-rate testing (twice per week). Probation officers were to follow this regime for the twelve-month evaluation period. All other conditions of probation were to remain the same.

Under agreement between MCAP and RAND, certain exceptions were allowed to the variations in the level of testing. For example, clients under the no-testing condition could be tested if the probation officer suspected substance use. Probationers under low-rate testing could have the frequency of tests increased as a sanction in response to a dirty test or if the probation officer felt it were necessary. Probationers under the high-rate testing could have the frequency of tests reduced if they tested clean for a three-month period. The approved changes in the level of testing were designed so that there would still be sufficient differences between Tracks 1, 2, and 3.

A special policy was also adopted for marijuana tests since MCAP did not routinely test for marijuana and RAND requested that these tests be conducted for the evaluation. Due to the nature of drug testing for marijuana, it made little sense to test clients more than once per month.[10] Thus, in Track 1 there would be no testing for marijuana. In Track 2, clients were to be tested for marijuana once every three months. For the high-rate testing group on Track 3, marijuana tests were to be conducted once per month. This special policy was to apply only for the marijuana tests. Regardless of the type of arrest charge, probationers were to be tested for the full screen of drugs according to

[10] Using most drug testing procedures, evidence of marijuana use can be detected for approximately 30 days after the last use.

the experimental level. Thus, even those arrested for possession of marijuana would be tested for other drugs at the same rate as specified in the experimental design.

Another exception to the design of the experimental testing program was for probationers in the "no test" condition. These clients were to be tested at least once if the judge had ordered drug testing as a condition of the probation sentence.

All drug tests with offenders on Tracks 1-3 were to be conducted by the probation officers, as was routine policy at MCAP, and sent to the same drug testing lab. Probationers on Track 4 in the drug court program were to be tested by the drug treatment program at a minimum rate of once per month. The treatment counselor was to schedule these tests as needed.[11]

These differences between Tracks in the design and implementation of the testing programs should be kept in mind when reviewing the results of the experiment. One consequence may be the possibility of bias as probationers may have "gamed" the system. In other words, if they knew in advance what day they were to be tested, persons could use different techniques to try and cover up any actual drug use. These problems are usually avoided in other drug testing situations by insuring that testing is unannounced and random.[12]

Drug Court Program Design

The drug court model requires changes in the way cases are handled by the system. In particular, members of the drug court team--judge, prosecutor, public defender, and probation officer--must perform different roles from the normal court setting.[13] As described earlier, the FIRST drug court, which was used as a model for the FTDO program, combines drug treatment with judicial supervision. A drug court team,

---

[11] The drug court program contracted with a different drug testing lab than that used by MCAP.

[12] In MCAP's new drug court program all testing has been contracted through TASC. Probationers are tested on a random schedule using a color scheme. This color scheme makes it more difficult to game the system as a new color is posted each day.

[13] For example, see Goldkamp and Weiland, 1993a.

comprised of the judge, prosecutor, public defender, and probation, work together towards rehabilitation of the offender. Individuals are given behavioral contracts that specify the level of participation in treatment for various program phases. The role of the judge is to provide swift rewards and punishments to offenders for compliance with the behavioral contract through frequent court status hearings. Tauber (1993) suggests there are four key elements in the drug court model: (1) *structural accountability*, (2) *judicial control*, (3) *individual accountability*, and (4) *progressive sanctions*. According to Tauber (1993), the team approach of the drug court builds accountability into the structure of the criminal justice system because the judge, probation department, prosecutor, public defender, and treatment provider work together towards the common goal of rehabilitating the drug-using offender. This team approach increases both the communication between those responsible for carrying out the task of dealing with the drug offender and the sense of responsibility for that individual.

The Maricopa County First Time Drug Offender (FTDO) Program is a unique innovation of the drug court model because it is a post-adjudication program for offenders sentenced to probation for a felony drug offense.[14] The lead probation officer worked with RAND staff, a team of consultants from Alameda County (CA), court and probation personnel from Maricopa County (AZ) in designing the program. The special characteristics of the FTDO drug court program and accompanying treatment are described below.[15]

The original FTDO drug court program combined specialized drug treatment, contracted with an outside provider, with court supervision. The program was designed to last a minimum of 6 months and a maximum of

---

[14] The program described here is the original FTDO program. Slight modifications were made during its implementation.

[15] Subsequent to the RAND evaluation which provided funding for the treatment program, the Maricopa County Adult Probation Department made several changes in the drug court program, including the hiring of an in-house treatment counselor. Thus, the current drug court program is somewhat different from what we have described in this evaluation report.

12 months. The court supervision consists of an initial orientation session and monthly progress reports or status hearings. After sentencing, the clients are told to report to their probation officer who gives them the date for court orientation and treatment referral. In drug court orientation, the judge informs offenders about the rules and expectations of the program. Each offender is given a contract that solidifies their participation in the treatment program.[16] Then the judge explains the system of rewards and punishments. For each class, process group, or 12-step meeting attended, the client receives 1 point. For each negative urine test the client receives another point. Based on the point total, clients can receive rewards, including a reduction in the probation sentence and deferred jail time,[17] they can progress to the next phase, or they can repeat the phase or receive sanctions, such as jail time. During orientation, clients are also given the date of their next court appearance for a status hearing, which is usually about two months from the orientation date. Prior to the status hearing, the drug court team meets to discuss the treatment provider's progress report and to review recommendations.

The drug court session is both formal and informal and can be dramatic at times. Clients who are currently in the drug court program and those just being initiated to the program are present at the status hearings. The first item of business on the agenda is the progress reports. These proceedings are often used to demonstrate the rewards and consequences of program participation to offenders who are just entering the program. Often the judge will first call cases who are graduating and then will take cases who are failing. The judge either rewards positive behavior with reduced time on probation or reduced jail time and progresses the client to the next phase or the judge may indicate that the client repeat the phase and shorten the time to the next appearance or order more drug testing or jail time. A bench warrant for an arrest is usually filed if drug court participants do not show up for their court date.

---

[16] See Appendix A for an example of this contract.

[17] Most of the convicted offenders receive a 36 month term of probation and 60 days of deferred jail.

Biopsychosocial Treatment

The enhanced treatment program was designed and implemented by Mountain Valley Counseling (MVC), the private contractor.[18] The intent was to provide a broad-based program, combining more traditional drug education and counseling and 12-step techniques with social skills training, relapse prevention, and group therapy. The objective was to treat the whole person and not to simply focus on the drug use, which is regarded as a symptom of other problems. The program had four components: (1) drug education classes, (2) process groups, (3) case management, and (4) aftercare. Individual counseling for the probationer was also available. All probationers assigned to the treatment program underwent an initial assessment prior to entering the program.

The treatment program had three phases. Each phase lasted two months and could be repeated at any time during the client's participation in the FTDO program. During the initial phase, known as *orientation*, which focused on drug education and social skills training, the client was expected to attend 1 class, 1 process group, and at least one 12-step meeting per week, to contact his or her probation officer once per week, and to submit to random urine tests. The curriculum included: drug education and awareness, treatment modalities--the 12-step method, the psycho pharmacology of addiction, relapse prevention, AIDS and sexually transmitted disease, family roles, codependency, conflict resolution, social skills training (e.g., decision making, communication, coping with anxiety, developing empathy, dealing with authority, coping with anger), the developmental model of recovery, spirituality, self-esteem, and goal setting. The focus of the second phase, known as *stabilization*, was on relapse prevention. The client was expected to continue to attend 1 process group and at least one 12-step meeting per week and to continue to comply with other terms of probation including random urine testing. During the final or *transition* phase, the client would continue attending 12-step meetings and 1 process group meeting per week. Clients who completed all three

[18] Two providers responded to a bid for services and MVC was selected by RAND for the contract under this evaluation.

phases of the program within 6-12 months could have their probation terminated early or, if they had probation conditions, such as community service hours or financial obligations, to complete, they would be transferred to standard probation.

After completing the three phases of the treatment program, the client could receive *aftercare* for up to 9 months. During this phase, clients would continue to attend a weekly process group. Booster sessions in drug education, the developmental model of recovery, or relapse prevention were offered for clients who were experiencing difficulty in becoming or remaining drug free.

Case management was an integral part of the treatment program. The treatment counselor developed individual treatment plans with clients and monitored their progress towards treatment goals. Program phases or classes could be repeated as often as necessary and clients could remain for a longer period of time in the intensive process groups. Probationers could also be referred to inpatient residential treatment and discharged from the drug court program. The counselor also evaluated the clients' progress and determined whether they were ready to graduate to aftercare.

The Target Population

The Maricopa County Adult Probation Department wanted to focus the drug court population within the continuum of available sanctions. Based on the belief that offenders with different types of drug problems would require different types of treatment and sanctions, MCAP decided to limit the target population for the experimental program to first-time felony drug offenders and to exclude defendants convicted of drug sales or transportation. In addition, offenders who were sentenced to special programs within probation, such as intensive supervision or the Community Punishment Program, were excluded. Thus, the FTDO program was limited to felons who were sentenced to probation for a first conviction for possession of marijuana, dangerous drugs, narcotics, or drug paraphernalia.[19]

---

[19] Eligible participants may have prior felony convictions for non-drug offenses.

Anticipated Benefits of Drug Court

As noted earlier, each of the key players in the design and implementation of the drug court had specific concerns with the existing system and hoped the drug court would address these issues. For MCAP, the drug court model offered the promise of higher treatment participation rates for probationers with substance abuse problems. The drug court model also offered a new solution to the problem of positive UAs, that is, to refer the problem back to the treatment provider and to encourage the individual to stay clean and receive the rewards of treatment and possible early termination from probation. In comparison to standard probation where officers often file multiple referrals to the judge for a positive test before any action is taken, the probation officer in the drug court model has a more active role in the decision process. On the first positive test the probation officer can recommend the most appropriate response to the drug court judge and receive immediate feedback.

Other key personnel in the Maricopa County drug court, (i.e., the judge, public defenders, the county attorney, and treatment provider) expressed different issues regarding program benefits and outcomes. From the judge's point of view, the drug court model provided more direct case management and control in an individual case. The scheduled status hearings, a key component of drug court, provided regular contact with the court, which helps to reinforce the fact that the probationer is subject to penalties if he or she does not comply with the conditions of probation. On standard probation, the relationship between the offender and the court is mediated by the probation officer. If a client violates the conditions of probation, it is up to the probation officer to determine whether the client should be brought back in front of the judge. The frequency of the contacts in the drug court model emphasizes offender accountability and the court's capability to respond immediately to program violations. Probation staff believed these factors would be important in having a long term effect on reducing relapse and recidivism. From the public defender's point of view, the drug court offered the promise of treatment, greater intensity of supervision, and more equitable sanctions.

The drug court model was supported by the county attorney's office because it would increase the testing and treatment and hopefully make the probationers more accountable. There is an increase in the intensity of monitoring and clients are able to build a personal relationship with the judge. The prosecutor also has a new role to play in the drug court team and can make recommendations to the judge on the need for more testing, treatment, or sanctions.

The primary concern expressed by the treatment provider was to help the individual learn to live without drugs and alcohol. Beyond the drug education and therapy, it is also important that clients identify the issues underlying their drug use and get their lives under control. For the treatment provider, the drug court model has several advantages over the model of regular supervision with referral to treatment. One of the advantages is the system of rewards and sanctions. Drug court offers more incentives for clients to complete treatment. The drug court model also offers more control because the judge can sentence those who are non-compliant to short-term jail sentences. Another major advantage of the drug court model is the power of the judge as an authority figure. Because many substance abusers come from dysfunctional families where there is no authority figure, the additional benefit of the drug court is that it encourages individual accountability.

Perhaps the most important aspect of the FTDO drug court program is that it fits within the continuum of punishments available for drug offenders in Maricopa County. As such it is "smart punishment", or "the imposition of the minimum amount of punishment necessary to achieve the twin sentencing goals of reduced criminality and reduced drug use" (Tauber, 1994, pg. 33).

3. CHARACTERISTICS OF THE EVALUATION

RESEARCH DESIGN

Overview

A classic experimental design was used in evaluating the Maricopa County FTDO Program. The design called for random assignment of probationers to four different interventions, as shown earlier in Figure 2.1:

Track 1. No drug testing;

Track 2. Low-rate (monthly) random drug testing;

Track 3. High-rate (bi-weekly) scheduled drug testing; and

Track 4. Treatment drug court, involving integrated drug testing, treatment, and sanctions.

Data collection included measures taken before, during, and after the intervention. Information on process and outcome measures were collected for each offender during a 12-month follow-up period starting from the date of random assignment (usually the same day as an individual was sentenced to probation).

Sample Sizes and Power Analysis

In general, study samples should be large enough to detect differences of interest between experimental and control groups with a high degree of confidence. Statistical power analyses aid the researchers in determining whether study sample sizes are adequate (Lipsey, 1990). Specifically, power analysis provides estimates of the probability of rejecting the null hypothesis (no difference between experimental and control groups) under various hypothesized differences between the experimental and control groups. These expected differences are often known as "effect sizes," or the degree to which the phenomenon exists (Cohen, 1977, p.4). Expected effect sizes can be estimated from the literature, or from other available data relevant to the proposed research. All other things being equal, the larger the sample size, the greater the power, or ability to detect differences, of the design.

In correctional research, expected effect sizes tend to be modest. Studies of correctional interventions have found differences between the outcomes of the experimental and control groups on the order of 10-20 percent (Andrews et al., 1990). This generally translates into a small (.2) or medium (.3 to .4) effect size, depending on the outcome variable. With these effect sizes, sample sizes generally need to be about 100 in each cell in order to detect expected differences with a high degree of confidence.

Power calculations were conducted in the planning stages for the evaluation to help determine the optimal number of subjects necessary for each of the four study conditions. We assumed a base rearrest rate of 30% (the overall recidivism rate for the BJA Drug-ISP Evaluation) for the study. A small effect (.23) translates into a 10 percentage point reduction in rearrest (to 20 percent); a medium effect (.36) translates into a raw difference of 15 percent (e.g., from 30 percent to 15 percent rearrest). With a sample of 600 offenders, or 150 per condition, our study had a power of .50 to detect a small effect and .75 power to detect a medium effect.[20] Thus, with a small difference between groups (effect size), there is a 50 percent probability of rejecting the null hypothesis. A 15 percent difference between groups (medium effect size) would mean a 75 percent probability of rejecting the null hypothesis. In other words, with a sample size of 600 (or 150 per condition), for differences between the experimental conditions to be statistically significant, the program would need to reduce recidivism rates from 30 percent to less than 15 percent.

Random Assignment Procedure

To construct the sampling frame, cases of all offenders convicted for felony drug possession were screened for eligibility by the lead probation officer at the time of the presentence investigation (PSI)[21].

---

[20] Cohen's (1977) power tables for proportions were used in these calculations.

[21] A positive answer to any of the following four questions excluded the defendant from eligibility for the drug court program: (a) Is there a need for inpatient counseling?, (b) Does the case require CPP counseling?, (c) Is there a need for specialized caseload supervision?,

If they met the eligibility criteria for the target population, the probation officer conducting the PSI made a recommendation to place the offender in the FTDO program, along with other recommendations regarding the conditions of supervision. At the time of sentencing, the judge made the final decision regarding the placement of the offender into FTDO. If the offender was sentenced to probation, he or she was told to proceed immediately to the adult probation department for further processing.

All individuals identified as eligible for the FTDO program and sentenced by the judge as eligible were randomly assigned to the study groups at the time they appeared for their initial probation assignment. The clerk at the assignment desk used a computer-generated program designed by RAND[22] to assign the individuals to one of the four tracks. Once data were entered and the assignment came back, the clerk informed the probationer to report to the appropriate probation officer. As indicated earlier in Figure 2.1, Track 4 probationers were all assigned to one probation officer, while Tracks 1-3 were assigned geographically to one of 10 probation officers selected to implement the assigned drug testing tracks.[23] Probationers in Tracks 1-3 received the standard probation services -- only their levels of drug testing varied.

Random assignment of probationers to the FTDO program began in March of 1992 and continued until April of 1993 when the sample size reached the desired level. A total of 639 offenders were randomly

---

and (d) Is the defendant appropriate for FARE probation (a fine only probation targeted at probationers who posed on risk or needs under supervision)?

[22] The computer program specified pre-determined proportions for each track and assignments were given as each name was entered into the computer. Initially an equal proportion was assigned to each track (.25). When it became necessary to fill the available slots in the drug court program so that the services could be delivered under the one-year contract with the agency, the proportion was changed so that one-half of all slots were assigned to track 4 with the remaining half split between the other three tracks. Once the Track 4 slots were full one-third were assigned to each of the 3 remaining tracks.

[23] The probation officers with FTDO clients carried a normal size caseload. The number of FTDO clients was proportional to the number of probationers who would have been assigned to these officers without the FTDO program.

assigned to the four different conditions. Due to missing data for the twelve-month follow-up,[24] however, only 630 cases were included in the final analysis sample.

DATA COLLECTION

The process and outcome measures cover three major areas: (1) who participated in and completed the experiment; (2) what services were received within the four primary types of models; and (3) what outcomes were experienced.

Offender Background Measures

To determine who participated in the experiment, baseline measures were collected on the demographic characteristics of individuals in the study (race, sex, education, employment, marital status), prior criminal record (juvenile and adult arrests and convictions), prior criminal justice system intervention, substance abuse history, prior drug treatment, current offense information, and risk/need assessment.

Program Measures

In measuring program implementation, we were interested in the type of services received and the nature of the case management for study participants during the follow-up period. Collecting this information assures us of compiling a comprehensive record of services provided to the clients over the course of their follow-up. Utilizing probation records, the number and type of face-to-face and phone contacts with clients, the extent and nature of monitoring checks performed (e.g., criminal record checks, employment verification); number of drug tests performed; results of drug tests; and referrals to treatment were recorded for each study participant.

Outcome Measures

The research was designed to measure the impact of drug testing and the drug court on a range of outcomes, including drug use; involvement in drug treatment; rearrest record; drug-related criminal activity;

[24] The probation files for these cases could not be located after several attempts.

processing burdens on the justice system; employment and other socially productive behavior. Outcome measures were gathered from probation files and from the treatment program in which the drug court offenders participated. Gathering information from treatment files themselves was critical since the effectiveness of the local program is linked to the effectiveness of the community-based program with which it works.

Instrumentation

Data were collected for each offender at three points: after initial assignment and at six and twelve months after assignment. Immediately following random assignment, the intake data were collected from probation files, based on the Presentence Investigation Report and other information. Within a month of the six-month and twelve-month follow-up dates, information was coded from the probation and treatment files using the RAND Six-Month and Twelve-Month Follow-Up forms. Most of the forms used in this study were modified from the BJA Drug-ISP Evaluation (Petersilia et al., 1992). The major items collected for each study participant are listed in Table 3.1.

Status (Street-Time) Calendar

A severe deficiency in many prior corrections evaluations is the failure to track the time that offenders are actually "on the streets" as opposed to time in custody during the follow-up period. A record of the "free" and "in-custody" days for each offender is critical for computing valid contact rates and for assessing program costs. To compute monthly contact rates and to measure program costs accurately, it is necessary to know how many days of each type of sanction (e.g., ISP, probation, residential treatment, jail) the offender underwent during the one-year follow-up period. Our data collection form was designed to actually track offenders as they moved in and out of various sanctions (e.g., probation, jail, ISP, prison) during the twelve-month follow-up period.

Table 3.1

Data Collected on Individual Offenders

Background Assessment Form
- Demographics
  - Date of birth
  - Race
  - Sex
  - Education
  - Marital status
  - Number of dependents
  - Living arrangements at time of arrest
- Prior Criminal Record
  - Number of prior arrests or official juvenile citations
  - Date of first arrest or official juvenile citation
  - Date of first conviction/adjudication
  - Number of prior convictions
  - Number of prior sentences to probation, jail, state/federal prison
  - Number of prior probation, parole revocations
- Current Offense Information
  - Status at time of arrest
  - Date of current arrest and conviction
  - Type of conviction offense(s)
  - Type and length of current sentence imposed
  - Date this probation term began
- Risk and Needs Assessment
  - Number of address changes in last 12 months
  - Percent time employed/in school/in training in last 12 months
  - Offender's attitude
  - Academic/vocational training needs
  - Need for employment assistance
  - Need for financial management assistance
  - Alcohol treatment needs
  - Other drug treatment needs
  - Marital/family counseling needs
  - Need for health counseling or assistance
  - Health status
  - Type of companions
  - Offender's emotional stability
  - Sexual behavior (normal or dysfunctional)

Table 3.1 (cont.)

Six-Month and Twelve-Month Reviews
- Services received
  - Number and type of face-to-face contacts
  - Number and type of phone and collateral contacts
  - Number and type of monitoring and record checks performed
  - Community service hours performed
  - Number and type of sessions in counseling
  - Number of days in vocational or educational training, by type
  - Number of sessions in treatment program, by type of program
  - Number of days in paid employment and earnings
  - Number of drug tests taken
  - Number of alcohol tests taken
  - Amount of restitution paid
  - Amount of fines and court costs paid
- Recidivism
  - Record of each new arrest, its disposition, and sentence/sanction
  - Record of each technical violation and action taken
  - Record of positive drug tests and action taken
- Current status of offender (i.e., still on probation or successful termination)

Drug Court Information

A special form was developed to record information about each drug court participant's progress in drug court. The *Drug Court Review* collected data on the number of court appearances, as well as the recommended action and outcome of each court hearing. The form was also used to record information from the treatment provider and probation officer which was used by the judge to evaluate the case at each status hearing. Information collected included the number of treatment sessions, drug education, and AA (NA/CA) meetings attended, and general recommendation of the treatment provider.

Contextual Information

Whether the FTDO program is judged successful in the long run will depend on not only how the numbers stack up, but also its success in achieving acceptability within the criminal justice community. That in turn will depend on how it was implemented, and other factors impinging on the department at the time it is being tested.

Information on these "contextual factors" was gathered from materials generated during the course of developing and implementing the

program, and from periodic site visits by RAND staff. For example, the Probation Department provided critical information and progress reports during the course of the project. In addition, the RAND staff made several site visits during the course of the project to observe the program and discuss implementation issues.

Cost Data

In order to understand the cost implications of the alternative FTDO study conditions, we used a methodology developed for a comparison of the costs of prison versus felony probation in California (see Petersilia and Turner, 1986). For that assessment, the average costs for correctional supervision (e.g. standard probation, ISP), police processing of rearrests, and jail and prison incarceration were obtained. Each offender was then "billed" for each service he used during the follow-up period (e.g. each new arrest, each subsequent day spent in jail or prison). In the current study we obtained the average per diem costs of probation, ISP, jail, prison, residential treatment from MCAP. The actual costs expended for the urinalysis testing contract with MCAP and the treatment program contract were used to measure the costs of testing and drug court. These costs were used along with the calendar data to estimate the total costs for an average offender.

DATA ANALYSIS

The data analysis addressed the key research questions outlined earlier concerning the effectiveness of various levels of drug testing and treatment. For all of the analyses, we initially compared the drug court (Track 4) and standard probation (Tracks 1-3) conditions to measure the impact of treatment versus no treatment on probationer outcomes. Subsequent analyses compared varying levels and schedules of frequency of testing for those on standard probation (Tracks 1-3).

What Services Were Delivered?

Specifically, we wanted to know: (1) To what degree was the planned program actually delivered?, and 2) To what extent did the experimental services differ from those provided to the controls? Data

collected from the Six- and Twelve-Month Review forms were analyzed to determine the nature and extent of services received by offenders in all 4 groups. These analyses include:

1. Frequency and outcomes of urinalysis testing
2. Frequency and nature of face-to-face and phone contacts with client
3. Nature and extent of client referral to drug programs

In our past research, we have found it useful to express many of the program implementation measures in terms of rates per month (i.e., the number of urine tests per month; the number of face-to-face contacts per month). Rates were calculated by dividing the frequency of contacts by the offender's street time (i.e., days on probation, but not incarcerated or on abscond status).[25]

These delivered rates were then compared with the rates specified in the program design (e.g., bimonthly contact with random testing once per month, or scheduled testing twice per week). As noted above, we initially tested for differences between testing conditions, then for differences between treatment and no treatment.

What Was the Impact on Substance Use and Recidivism?

We tested for differences between different levels of testing and then for differences between the drug court and standard probation groups in the recidivism and substance use outcomes.

To be as comprehensive as possible, we used multiple indicators of recidivism, including both static and dynamic measures. Static measures represent simple counts of events, without taking into account the timing of the events. Dynamic measures take into account the timing of events, e.g., the time to first arrest. The static measures included: (1) the proportion who have been arrested, convicted, and incarcerated, twelve months after program assignment; (2) the same measures broken down by type of offense; (3) the proportion who have experienced a technical violation, twelve-months after program assignment; and (4). the type of technical violation. We also report the "most serious

[25] The street time measures were obtained from the "status calendar" contained in the Six- and Twelve-Month Review forms.

outcome," each offender incurred over the entire twelve-month follow-up period. The severity of recidivism was scaled from most to least severe in terms of any new conviction, any new arrest, or any new technical violation or none of the above. In addition, the analysis examined the rate of arrests and convictions, which refer to the number of arrests or convictions per year, per individual during the follow-up period. This measure takes into account follow-up period variation (i.e., street time). Earlier evaluations have not always adequately taken into account differential time at risk. This omission has created problems for comparisons of recidivism rates across participants. The evaluation also reports the status of offenders at the end of twelve month follow-up. For example, how many of those assigned to various treatment groups were still "active" in the program, how many have absconded, were in jail, returned to prison, etc.

Relapse to substance use was measured both as any positive drug test and the number of positive drug tests. In this analysis we again compared the three levels of testing and then probation versus drug court. We also examined the various responses to positive drug tests by these different conditions.

The final analysis for this evaluation used survival analysis, a technique that measures the pace of recidivism among offenders. The strength of this analysis, over fixed-period observations, is that it specifies the proportion of offenders who survive by not recidivating (and, conversely, the proportion who fail) across specified intervals within the follow-up period, making it possible to describe these proportions within every month of the follow-up period. The analyses examined the time until first technical violation, and time until first arrest, and the time until either a technical violation or arrest.

What Was the Impact on the Offender's Social Adjustment?

Program effectiveness involves more than recidivism. Probation programs encourage (and in some instances, mandate) that participants be employed, attend treatment, perform community service, pay victim restitution, etc. The Six- and Twelve-Month Review Forms recorded the extent to which offenders actually participated in such activities, and

the response of staff when offenders failed to comply. Program participation rates were used to examine the differences between standard probation and the drug court participants in services received.

For Which Offenders Does the FTDO Program or Increased Testing Prove Most Effective?

One of the often asked questions in program implementation and in criminal justice and drug treatment research is whether one is able to match offenders to specific treatment or punishment strategies. In order to answer this question we examined whether any of the background characteristics, e.g. sex, race, prior record, needs or risks, made a difference in the outcome for the different types of conditions.

Logistic regression analyses were used to determine the interaction effect between condition (different levels of testing and treatment) and background characteristics on the various outcomes. As described earlier, these outcomes included dichotomous measures of technical violations and arrests, and recidivism (any arrest or technical violation).

What Did the Various Treatments Cost?

The costs of local sanctions were obtained from the Maricopa County Adult Probation Department. The average cost per offender and total costs were estimated with the information on the Status Calendar from the Six- and Twelve-Month Reviews regarding the number of days for each type of condition (probation, drug court, prison, jail, etc.). We then used these estimates to compare the costs of the various testing and treatment conditions, as well as the costs of the various sanctions applied, such as community punishment, ISP, or referral to a different treatment program.

4. CHARACTERISTICS OF STUDY PARTICIPANTS AND PROGRAM IMPLEMENTATION

In conducting a process evaluation it is important to describe both the study sample and program implementation so that comparisons can be made to statistics from other jurisdictions. This study of the Maricopa County FTDO program included contrasts between participants in the drug court program and standard probation with varying levels of testing in terms of services received. In this section we first describe the study sample overall and compare it to similar populations of drug offenders on probation or in drug court programs. Second, we describe program implementation in terms of contacts and services provided by probation and the court, length of time under supervision or in confinement, and program costs for each of the separate study conditions.

BACKGROUND CHARACTERISTICS

Demographic and Criminal History Profile of Probationers

Background data, shown in Table 4.1, provide a profile of the average study offender convicted of a first-time felony for drug possession and sentenced to probation. The target population was generally similar to drug offenders on probation in other jurisdictions nationwide, with the exception of slightly higher proportions of Anglo-Americans and Hispanics, and a lower proportion of African-Americans.[26] In Maricopa County, Arizona the average age at current conviction was 30; about three-quarters of the group were male; about 50 percent were Anglo-American, 25 percent were Hispanic and 20 percent were African-American; very few (18 percent) were married. Approximately half of the probationers did not have a high school diploma and slightly more than 40 percent were unemployed at the time of their current arrest that lead to their probationary sentence.

---

[26] See, for example, Turner et al., 1992 for a description of background characteristics of other drug offenders from other jurisdictions.

Table 4.1

Background Characteristics

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Track 1-3 Probation	Track 4 Drug Court
Sample Size (N)	(168)	(141)	(145)	(454)	(176)
% in group	26.7	22.4	23.0	72.1	27.9
Demographic/individual					
% Male	80.4	73.0	82.1	78.6	76.1
% African-American	19.0	24.1	13.1	18.7	21.6
% Hispanic	20.2	20.6	29.7	23.3	27.8
% Anglo-American	59.5	54.6	52.4	55.7	48.3
% Less than H.S. education	42.9	46.8	51.0	46.7	56.3
% Married	14.3	18.4	19.3	17.2	18.2
% Unemployed at arrest	39.1	44.2	40.0	41.0	46.6
Type of Occupation					
% Prof. clerical, service	32.7	24.6	27.9	27.5	32.0
% Skilled, semi-skilled	28.3	38.4	31.4	31.3	39.0
% Unskilled, never worked	18.9	16.7	25.0	19.4	18.6
% Unemployed	20.1	20.3	15.7	18.1	10.5
Drug History					
Age at first drug use[#]	16.0	15.5	14.6[c]	15.5	15.7
Age at first drug abuse[#]	23.7	22.7	24.8	23.7	24.1
% Prior drug treatment	43.5	35.5	34.7	38.2	39.4
% Drug dealer	16.1	21.3	20.7	19.2	17.6
History of use/abuse					
% Alcohol	83.3	78.0	83.8	81.8	84.4
% Marijuana	60.8	57.4	59.0	59.2	51.2
% Methampehtamines	19.3	20.6	20.8	20.2	14.2
% Cocaine	41.0	41.8	39.6	41.0	37.6
% Crack	3.6	5.0	6.9	5.1	2.9
% Heroin	11.4	5.7	5.6	7.8	4.0
% Other drugs	6.6	9.2	6.9	7.5	6.9
Polydrug use	84.5	82.3	85.5	84.1	72.2*
% Alcohol and marijuana	50.6	45.4	50.3	48.9	43.8
% Alcohol and cocaine	33.9	37.6	37.2	36.1	32.4
% Alcohol and heroin	8.9	3.6	3.4	5.5	2.3
% Marijuana and cocaine	20.8	16.3	18.6	18.7	15.9
% Marijuana and heroin	6.6	1.4[a]	0.7[c]	3.1	1.1
% Cocaine and heroin	6.0	5.0	4.8	5.3	2.8

[#] More than 75% missing data for this variable

* Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using chi-square tests of association for categorical measures.

a Indicates a statistically significant difference ($p<.05$) between "no test" and low-rate testing groups based on chi-square test of association for categorical variables or t-tests for continuous measures.

[c] Indicates a statistically significant difference ($p<.05$) between "no test" and high-rate testing groups based on t-test for continuous variables and chi-square test of association for categorical variables.

Table 4.1

(continued)

Background Characteristics

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Track 1-3 Probation	Track 4 Drug Court
Sample Size (N)	(168)	(141)	(145)	(454)	(176)
Prior criminal record					
Age at first conviction	24.7	23.5	24.3	24.2	23.2
Mean no. of prior arrests	4.2	4.5	3.9	4.2	4.5
Mean no. prior prob. terms	0.6	0.7	0.5	0.6	0.6
Mean no. of prior jail terms	0.7	0.9	0.7	0.8	0.9
Mean no. prior prison terms	0.1	0.2	0.1	0.1	0.1
% No priors	18.8	21.2	23.5	21.1	22.4
% Prior arrests only	22.7	21.2	27.2	23.7	20.0
% Prior probation terms	14.9	13.1	10.3	12.9	17.0
% Prior jail	35.1	32.8	30.9	33.0	32.1
% Prior prison	8.4	11.7	8.1	9.4	8.5
% Low risk (0-9 on scale)	28.6	27.7	26.9	27.8	27.8
% Medium risk (10-14)	48.2	51.1	46.2	48.5	44.3
Average risk score	11.9	12.1	12.0	12.0	12.6
Average need score	16.0	16.7	16.8	16.5	16.1
Ave. age current conviction	31.0	29.4	29.5	30.1	29.2
Type of current offense					
% Possession of Narcotics	22.6	27.0	11.7[bc]	20.5	26.1
% Possession Dangerous Drugs	8.9	13.5	11.0	11.0	10.2
% Possession of Marijuana	33.3	29.1	33.1	31.9	29.5
% Poss. Drug Paraphernalia	35.1	30.5	44.1[bc]	36.6	34.1
Type of current sentence					
% Probation only	83.9	84.4	75.2	81.3	75.6
% Probation and jail/prison	16.1	15.6	24.8	18.7	24.5
Length term imposed (mos.)	34.3	34.9	33.5	34.2	35.0

NOTES:

* Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using chi-square tests of association for categorical measures.

a Indicates a statistically significant difference ($p<.05$) between "no test" and low-rate testing groups based on chi-square test of association for categorical variables or t-tests for continuous measures.

b Indicates a statistically significant difference ($p<.05$) between low-rate testing and high-rate testing groups based on chi-square test of association for categorical variables or t-tests for continuous measures.

[c] Indicates a statistically significant difference ($p<.05$) between "no test" and high-rate testing groups based on t-test for continuous variables and chi-square test of association for categorical variables.

Of those reporting prior substance use, the majority had started using alcohol or drugs at the age of 16, but those in Track 3 reported a significantly younger age at onset.[27] They were frequent drug users or dependent on drugs by the time they were in their early twenties. After alcohol, the primary drug of choice was marijuana for about half of the probationers. A history of prior cocaine use was indicated for 40 percent of the sample. Less than 20 percent had a history of methamphetamine use or abuse; even fewer had used or abused other types of drugs (including heroin, PCP, and LSD).

Almost 40 percent of the sample had a history of prior substance abuse treatment. This was higher than expected, based on our earlier pilot study in Phoenix which indicated few probationers received treatment. Less than 20 percent of the study offenders reported being drug dealers. This is low in comparison to the clients in some of the other drug courts around the country that do not exclude dealers from the program.

Although the majority of study offenders in all groups reported past use of several drugs, a significantly lower proportion of those assigned to the drug court program in comparison to those on standard probation reported polydrug use (72 versus 84 percent). The most common combination of substances was alcohol and marijuana, with alcohol and cocaine a close second. In general, with the exception of a lower reporting of crack cocaine use, the history of substance use and dealing among this sample of felony drug offenders makes them similar to drug offenders in intensive supervision programs in other jurisdictions.[28]

The criminal history of this sample appears to be similar to other first (or second) time felony offenders in drug courts in other jurisdictions.[29] On average, the study offenders have four or five prior arrests and have been in jail or on probation once before. Nonetheless, the type of current offense distinguishes this sample from

---

[27] These results may be biased since there is more than 75 percent missing data for this item. With all persons reporting, the difference between tracks may not be statistically significant.

[28] See, for example, Turner et al., 1992.

[29] See, for example, Goldkamp and Weiland, 1993a.

other drug court populations that primarily include offenders charged with possession of cocaine or crack and few marijuana users. In Maricopa County about 35 percent of sample subjects were charged with possession of drug paraphernalia, another 30 percent with possession of marijuana, 23 percent with possession of narcotic drugs, and 10 percent with possession of dangerous drugs.

There were only two other significant differences in background characteristics (in addition to age at first drug use) between those probationers randomly assigned to standard probation with different levels of testing that may have had an impact on the evaluation of the drug testing experiment. A significantly higher proportion of individuals in Track 3 had been arrested for possession of drug paraphernalia and a corresponding lower proportion of individuals had an arrest for possession of narcotics, in comparison to those individuals in Tracks 1 and 2. However, since over half of those arrested for possession of drug paraphernalia reported a history of cocaine use and 10 percent reported prior use of heroin (both of which were significantly higher than those not arrested for possession of paraphernalia), this reduces the possible difference between the Tracks in type of drug used. When comparing the probationers to those in drug court, the differences between the proportion of those arrested or not arrested for possession of drug paraphernalia were not significant.

Probation Conditions

Most probationers in Maricopa County convicted of a drug possession felony are sentenced to a standard term of 36 months probation. In addition, the judge can order special conditions of probation at the time of sentencing. In most drug-related cases, special conditions include orders for drug testing or a treatment program, and no use of drugs. In other cases it may be an order to attend special counseling or training or refrain from contact with specified persons. Almost all probationers are ordered to perform community service and pay probation fees and a mandatory assessment.

Table 4.2

Probation Conditions Ordered

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Track 1-3 Probation	Track 4 Drug Court
Sample Size (N)	(168)	(141)	(145)	(454)	(176)
No special conditions	0.0	0.0	0.7	0.2	1.1
Rehabilitation					
Seek/maintain employment	3.0	2.8	4.1	3.3	4.6
Vocational training	19.6	26.2	20.7	22.0	29.2
Educational program	21.4	26.2	23.4	23.6	36.9*
Psychological treatment	12.5	9.9	8.3	10.4	13.7
Anger management counseling	6.6	6.4	9.0	7.3	12.0
Perform community service	72.6	77.3	69.4	73.1	69.1
Participate in CPP program	0.6	0.7	0.7	0.7	0.0
Surveillance/monitoring					
Inform PO of residence	3.0	2.8	4.8	3.5	4.0
Submit to searches	3.0	2.6	4.1	3.5	4.0
No contact with specific persons	9.5	9.9	12.4	10.6	6.9
No possession of firearms	10.1	9.2	11.7	10.4	9.1
No contact with victim	3.6	1.4	4.2	3.1	0.6
Abide by special curfews	0.0	0.7	0.7	0.4	0.0
Substance Use Restrictions					
No alcohol use	100.0	99.3	99.3	99.6	99.4
No drug use	21.4	19.2	23.4	21.4	24.0
Submit to urine testing	38.1	34.8	39.3	37.4	32.6
Substance abuse treatment	83.3	84.4	82.8	83.5	87.4
Financial Obligations					
Pay victim restitution	4.8	8.5	9.7	7.5	8.0
Pay probation fees	98.8	97.9	98.6	98.5	96.6
Pay fines	85.1	85.1	86.9	85.5	88.6
Pay reimbursement	1.2	1.4	2.1	1.5	1.1
Pay mandatory assessment	99.4	99.3	98.6	99.1	100.0
Serve jail time	16.1	14.2	25.0[bc]	18.3	24.0
Other condition#	4.2	6.4	7.6	6.0	6.3

NOTE:

* Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using chi-square tests of association for categorical measures.

b Indicates a statistically significant difference ($p<.05$) between low-rate testing and high-rate testing groups based on t-test for continuous variables and chi-square test of association for categorical variables.

[c] Indicates a statistically significant difference ($p<.05$) between "no test" and high-rate testing groups based on t-test for continuous variables and chi-square test of association for categorical variables.

Other conditions include: restrictions on employment, travel, and financial conditions; report to immigration service; further specifications on taking medications or other drugs.

The different types of conditions ordered for the sample population are displayed in Table 4.2. Given that these conditions were ordered prior to study assignment we expected no differences due to Track assignment. We found few statistically significant differences between Tracks on the conditions ordered. Less than five percent of offenders were ordered to seek or maintain employment, keep the probation officer informed of residence, submit to searches, pay special reimbursement fees, participate in the CPP program, abide by special curfews, or refrain from contact with a victim. On the other hand, the majority (at least 70 percent) of offenders were required to participate in a substance abuse treatment program, pay fines, probation fees, and mandatory assessments, perform community service, and refrain from alcohol use. Even though all offenders had been convicted of felony drug possession, only 22 percent of probationers had a special condition of no drug use and 36 percent had orders for urine testing. Slightly fewer than ten percent were ordered to pay victim restitution, refrain from contact with specified persons, not possess a firearm, attend psychological treatment or anger management counseling. Between twenty and thirty percent were ordered to attend vocational or educational training. Probationers referred to drug court were more likely to have had an order for educational training. Additional jail time as a condition of probation was ordered in about twenty percent of the cases. Those in the high-rate testing group (Track 3) were more likely to have jail time ordered than those in either Tracks 1 or 2. This difference is due to random chance in assignment of cases and may be related to the type of offense with which the offender was charged.

PROGRAM IMPLEMENTATION

To get a better comprehension of program outcomes, it is essential to understand the nature of program implementation. Without measuring the services delivered, we cannot know whether the drug court program and different levels of testing were implemented as planned. For this analysis we compared the actual levels of testing and supervision to those planned. The four different tracks were designed to vary only in terms of the levels of drug treatment and testing, not in frequency of

contacts or other conditions of probation. Offenders assigned to Track 2 (low-rate testing) were most like other offenders on probation not in the FTDO program. On average, offenders on probation are required to see their probation officers at least once per month, usually in the office. Phone contact is minimal as are collateral contacts. Drug tests, when ordered by the judge or probation officer, are usually given about once per month. Offenders assigned to Track 1 were to have similar rates of contact, but no testing. Those assigned to Track 3 were to have similar rates of contact, but more frequent testing. Offenders assigned to Track 4 were to have the same level of drug testing as Track 2, but had different levels of contact with the probation officer.

In measuring program implementation, we analyzed differences between the four tracks on a number of variables, including traditional measures of program participation and services, as well as the number of days on supervision, absconded, in confinement, or other status. Tracks 1-3 were designed to vary in levels of testing; thus we compared the actual number of tests ordered and taken among these tracks. Track 4 was designed to provide additional treatment and counseling; thus we compared the number of sessions in outpatient and inpatient treatment or counseling. To determine whether the groups differed on implementation measures that were not supposed to vary, we compared the frequency of contacts for the four groups. Track 4 was also designed to offer a shorter probation sentence to offenders who could successfully complete drug court within a 12-month time period. To determine the effectiveness of the drug court program in reducing length of stay, we compared the number of days under supervision, confinement, or free and examined the offender status at 12 months, contrasted with the other three conditions.

Table 4.3

Length of Supervision and Confinement During 12-Month Follow-up and Status of Offenders One Year After Assignment

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Tracks 1-3 Probation	Track 4 Drug Court
Sample size (N)	(168)	(141)	(145)	(454)	(176)
Days on Supervision	287.0	284.9	262.6	278.5	256.1*
Routine Supervision	278.6	278.6	246.8[bc]	268.5	235.1*
Intensive Supervision	2.4	3.0	8.2	4.4	0.7
Standard Probation	6.0	3.2	7.5	5.6	20.3*
Average Days Absconded	21.3	26.1	32.8	26.5	36.3
Days Special Services	5.9	5.0	3.9	5.0	0.4*
Recovery House	1.4	0.1	0.2	0.6	0.1
Residential Treatment	4.5	4.9	3.7	4.4	0.3
Days in Confinement	43.1	44.3	60.8	49.1	40.7
Jail	31.1	32.2	45.8	36.2	36.7
Prison	12.0	12.1	15.0	13.0	4.1*
Days in Other Status	7.6	4.6	4.8	5.7	31.2*
Out of state	5.7	3.7	2.9	4.2	0.6
Dead	1.6	0.0	0.0	0.1	0.0
Free	0.3	0.0	1.1	0.5	26.7*
Other	0.0	0.9	0.8	0.5	4.0*
Status at 12 Months (N)	(168)	(140)	(145)	(453)	(175)
% Still active	76.2	66.0	66.2	69.8	40.9*
% Terminated - Free	0.0	0.0	1.4	0.4	25.0*
% Absconded	7.7	10.6	13.1	10.4	13.6
% In jail	6.0	13.5	9.7	9.5	14.2
% In prison	7.7	7.8	9.0	8.2	4.6
% Other#	2.4	2.1	0.7	1.8	1.7

NOTES:

Other status includes death, deportation, or out of state.

* Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

b Indicates a statistically significant difference ($p<.05$) between low-rate testing and high-rate testing groups based on t-test for continuous variables and chi-square test of association for categorical variables.

[c] Indicates a statistically significant difference ($p<.05$) between "no test" and high-rate testing groups based on t-test for continuous variables and chi-square test of association for categorical variables.

Length of Supervision

The average days on supervision, absconded, or in confinement are shown in Table 4.3. The total time on probation was less for those in drug court in comparison to those in Tracks 1-3. On average, those in the FTDO program spent nine months (or 269 days) out of the twelve on probation, but those in the high-rate testing group (Track 3) spent less time on probation than the average. Participants in drug court spent even less time on probation than those in Tracks 1-3 an average of 235 days or eight months. This difference was counter-balanced by the fact that some individuals were sentenced to standard probation following completion of the drug court program since they had not met all the requirements of probation, such as payment of fees or community service time. Thus, probationers on Track 4 spent an extra 20 days, on average, on standard probation, beyond the time spent in the drug court program.

There were no significant differences by track in the amount of time spent absconded from supervision. In all groups, probationers spent an average 30 days absconded. As indicated in the status of offenders at 12 months, a little more than 10 percent of the probationers were on abscond status at the end of the follow-up.

In response to violations of probation and arrests for new offenses, probationers were likely to either spend time in residential treatment for substance use, or confined in jail or prison as a response to technical violations or new arrests. Clients in Tracks 1-3 were more likely to spend time in residential treatment than those in drug court, where the latter emphasized outpatient treatment. The average offender on probation spent slightly more than one month in jail. In comparison to the average four days served by a probationer sentenced to drug court, those not in drug court spent significantly more time (13 days) in prison.[30] There were no differences between Tracks 1-3 in length of time on probation or in prison.

---

[30] Time in jail or prison was calculated according to the type of sentence given for a new offense or technical violation. The date of transfer from probation to incarceration was checked in the probation file and on the LEGIS system.

There was a significant difference between participants in the drug court program and those in Tracks 1-3 in the amount of time free from supervision or confinement. Among those in drug court an average of about one month's time was spent free or on some other status, while those on probation spent less than one day free, since they were serving a three-year term.

At the end of the twelve month follow-up, 41 percent of drug court participants were still active, either serving a probation term, in drug court, or on intensive supervision. Over 20 percent had successfully completed the drug court program and been released from probation. Another five percent had been terminated from drug court and probation. The majority (70 percent) of clients on standard probation were still under supervision. Fourteen percent of drug court participants had absconded from probation; another 14 percent were serving time in jail. At the end of the 12 months, roughly half as many drug court participants were in prison, in comparison to those on probation (5 versus 8 percent), but this is not a statistically significant difference. In sum, the drug court program effectively reduced the number of clients on probation by reducing the number of months served at no additional cost in jail and prison time, however most clients did not make it through the program within a six-month time period.

Frequency of Contacts

The drug court program was designed to decrease the number of face-to-face contacts between the probation officer (PO) and client; monitoring was to be conducted via telephone. Table 4.4 shows that the frequency of face-to-face contacts between drug court participants and the PO was significantly less than for the average probationer--about once every two months rather than once per month.[31] On the other hand, the average number of phone contacts was significantly higher among drug court participants in comparison to those on standard probation; approximately twice per month. Thus, the FTDO drug court program

[31] The drug court program was designed to stress intervention from the treatment provider rather than probation officer contact. Thus, we expected the rates of face-to-face contacts to be lower.

significantly reduced the number of face-to-face office visits. Drug court participants were less likely than those on standard probation to have a home visit by their PO. However, the level of collateral contacts (i.e. contacts with employers or family members) was higher for drug court participants than standard probationers (e.g., a rate of 0.4 per month in comparison to 0.3 per month for those on probation).

Among the three tracks of standard probationers there were significant differences in levels of contact. Those under high-rate testing had higher levels of contact than those probationers on low-rate or no testing. The intent of the FTDO drug testing program was to increase only testing, however, it appears that it may also have increased the number of PO visits. When probationers came in for the drug test this may have been recorded as an office visit with the PO.

Frequency of Testing

The implementation of the FTDO drug testing and treatment programs did result in different levels of testing among probationers. Table 4.4 shows the average levels of testing ordered and taken over the twelve-month period. In comparison to those on standard probation, those in the FTDO drug court program were tested less frequently, an average of less than once per month (0.5). This difference is mostly explained by the higher level of testing for those in Track 3. In comparison to those in the low-rate testing condition (Track 2), whose testing levels were to be the same as drug court levels, drug court rates were not statistically different. However, anecdotal evidence suggests that for drug court clients testing was not done on a scheduled basis, as planned, but on an "as needed" basis by the drug treatment counselor.[32]

[32] The counselor acknowledged that clients were tested when they appeared to be using drugs, based on the counselor's perception. Since clients were seen at least once a week, the counselor believed she had a very good judgment as to whether they were using drugs.

Table 4.4

Monthly Contact Levels

(Means averaged over the one-year follow-up)

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Tracks 1-3 Probation	Track 4 Drug Court
Sample size (N)	(168)	(141)	(145)	(454)	(176)
Face-to Face Contacts	1.1	1.3	1.8[bc]	1.4	0.6*
At office	0.9	1.1	1.5[c]	1.1	0.6*
At work/school	0.0	0.0	0.0	0.0	0.0
At home	0.1	0.1	0.2	0.1	0.0*
In the community	0.0	0.0	0.0	0.0	0.0
Other location/jail	0.1	0.1	0.1	0.1	0.0*
Phone Contacts	0.2	0.2	0.2	0.2	2.3*
Collateral Contacts	0.3	0.3	0.3	0.3	0.4*
Drug Tests					
Ordered#	0.1	0.8[a]	4.7[bc]	1.8	0.5*
Taken	0.3	0.7[a]	2.4[bc]	1.1	0.5*

NOTES:

* Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using t-tests for continuous measures.

a Indicates a statistically significant difference ($p<.05$) between "no test" and low-rate testing groups using t-tests for continuous measures.

b Indicates a statistically significant difference ($p<.05$) between low-rate testing and high-rate testing groups using t-tests for continuous measures.

c Indicates a statistically significant difference ($p<.05$) between "no test" and high-rate testing groups using t-tests for continuous measures.

Few probation officers actually recorded information in the offender's file regarding changes in the number of tests ordered per month. In some cases these data reflect estimates made by the coders in levels of testing ordered, based on knowledge of how many tests were being taken and what Track had been assigned.

As planned, Track 3 probationers, who were to have drug tests at least twice per week had higher levels of tests taken than probationers on low-rate testing and "no testing". However, these levels were less than one-third of those planned. For example, those in Track 3 were tested only twice per month on average. Those under low-rate testing were tested an average of once per month, as planned. Probationers who were not to have drug tests according to the program design (Track 1) were tested on average less than once every two months.

Probation officers who were surveyed explained these variations from planned levels of drug testing. In some cases probationers in Track 3 who were testing clean for several months had their levels of testing reduced.[33] In other cases, when the PO suspected that a client in Track 1 was using drugs, drug tests were ordered.[34] Probation officers were asked to keep a record in the probationer's file of these changes in the number of drug tests ordered and the reasons for such changes.[35] Even though the level of testing was not as planned, there were significant differences in the expected direction between all three groups in the average number of tests taken, thus maintaining the integrity of the research design.

---

[33] During an initial meeting with the FTDO probation officers responsible for implementing the testing in Tracks 1-3, there was some question as to whether levels of testing could be reduced or increased as needed without compromising the experimental conditions. It was agreed that for those on Track 3 the level of testing could be reduced from twice per week given certain conditions. For example, if a client tested clean for three consecutive months, he or she could be reduced from twice per week to once per week. If the client remained clean for nine of the twelve months, the testing was reduced to once per month.

[34] Similar to the patterns of decreases for probationers on Track 3, clients on Tracks 1 and 2 could have testing increased. For example, if a client on Track 1 was suspected of using drugs or a client on Track 2 had a dirty urine test, the levels of testing could be increased. The first increase after three months on probation would be to two tests per month, then once per week, and if the client needed increased testing by month 10 the level could be increase to twice per week.

[35] In coding information from the probation files we found that very few POs actually recorded the changes in ordered levels of testing and the reasons for these changes. Thus, we were not able to track whether POs were following the guidelines for increasing and decreasing ordered levels of urine testing. Instead, we were able to track differences in actual testing practices.

Variation in the level of tests per month for each month during the twelve-month follow-up are provided in detail in Appendix Table B.1. Unlike Table 4.4 which gives the rates for testing and controls for the number of days under supervision, Table B.1 shows the actual number of tests taken, without controlling for time under supervision. These tables which show the number of tests confirm the PO statement that levels were reduced after the first few months for clients on Track 3 (high-rate testing) and increased for those on Track 1 ("no test"). The number of drug tests taken among probationers on Track 2 decreased over time from about one per month in months 2 and 3 to 0.7 per month in months 4 through 8, down to 0.4 per month in months 11 and 12. On the other hand, among those in the high-rate testing group (Track 3), the number of tests taken started with 3.4 in month two and decreased to an average of once per month in month twelve. Looking at only those persons who were actually tested or ordered to test during the total follow-up time period (Appendix Table B.2), the average number of tests taken remained higher, dropping no lower than twice per month for those in the high-rate testing group (Track 3) and going no higher than twice per month for the low-rate testing group (Track 2).

PROGRAM PARTICIPATION

In addition to frequent contacts with a probation officer, all clients on probation are expected to work towards better social adjustment. Thus, they are required to attend counseling, perform community service, maintain 40 hours per week employment, educational or vocational training, and to pay mandatory probation or other fees. Drug court participants were expected to participate in treatment and counseling each week during the FTDO program. Probationers were also expected to perform 360 hours of community service during their 36-month probation sentence.[36] Table 4.5 indicates the average level of participation by the different groups of probationers in these various activities during the twelve-month follow-up. Prevalence rates are presented in this table since detailed information on the number of sessions in counseling or treatment or the number of hours employed was not available in probation files for all four groups. Those on Track 4 were more likely to receive counseling and drug treatment but less likely to participate in community service, be employed, or meet fee requirements than those on Tracks 1-3.

Community Service

On average, about a third of all probationers performed community service during the twelve month follow-up. Drug court participants had lower levels of community service than those on standard probation. A higher proportion of Track 2 probationers in comparison to those on Track 3 performed community service (43 percent to 28 percent).

---

[36] Probationers convicted of possession of marijuana usually only receive 36 hours of community services. The requirement for 360 hours of community service was changed for some drug court participants during this study since their expected length of stay on probation was shorter than 36 months. Currently the drug court judge is able to grant probationers who successfully graduated from the program a credit for 180 hours of community service.

Table 4.5

Offender Participation in Programs

(In percent of each group)

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Tracks 1-3 Probation	Track 4 Drug Court
Sample size (N)	(168)	(141)	(145)	(454)	(176)
Community Service	35.1	43.3	28.3[b]	35.5	37.5
Counseling	8.3	13.5	8.3	9.9	88.1*
Individual	4.2	10.6	5.5	6.6	45.5*
Group	3.6	4.3	2.8	3.5	87.5*
Family	0.6	0.7	0.0	0.4	0.6
Other	0.6	0.7	0.7	0.7	0.6
Drug Treatment	47.6	42.6	46.9	45.8	85.2*
Inpatient/Resid.	11.9	7.8	10.3	10.1	2.8*
Outpatient	38.7	36.2	38.6	37.9	71.6*
Drug Education	8.3	7.1	5.5	7.0	82.4*
Vocational Training	1.8	0.7	1.4	1.3	2.3
Educational Training	8.9	9.9	10.3	9.7	2.8*
Paid Employment	69.0	64.5	60.7	65.0	55.7*
Full-time	60.7	51.8	46.9[bc]	53.5	47.7
Part-time	12.5	13.5	18.6	14.8	9.6
Both full/part	0.0	0.0	0.7	0.2	0.0
Unknown type	10.7	11.3	11.0	11.0	8.5
Job Hunting	11.9	9.9	5.5	9.2	0.0*
Payments	64.9	72.3	60.0	65.6	9.7*
Type unknown	63.7	69.5	57.9	63.7	7.4*
Victim restitution	3.1	6.4	4.1	4.4	0.0*
Probation fees	4.8	7.1	4.1	5.3	2.3
Mandatory assessment	0.6	0.7	0.0	0.4	1.1
Fines	3.6	5.7	3.4	4.2	2.3
Summary measure#	2.2	2.4	2.0	2.2	2.8*

NOTES:

The summary measure was calculated as the sum of the dichotomous measures, any community service, any counseling, any treatment, any employment, and any payments.

* Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using a chi-square test of association.

a Indicates a statistically significant difference ($p<.05$) between "no test" and low-rate testing groups using a chi-square test of association.

b Indicates a statistically significant difference ($p<.05$) between low-rate testing and high-rate testing groups using a chi-square test of association.

c Indicates a statistically significant difference ($p<.05$) between "no test" and high-rate testing groups using a chi-square test of association.

Counseling and Drug Treatment

As expected, those in the drug court program were more likely to receive counseling and drug treatment than those on standard probation. Eighty-eight percent of those referred to drug court participated in counseling, eighty-five percent in treatment, and eighty-two percent in drug education classes, in comparison to 10 percent of those on standard probation who received counseling, 46 percent who were in treatment, and seven percent who received drug education. The rates of participation among drug court clients were higher for both individual and group counseling. The majority of drug court participants received outpatient counseling, in programs such as Alcoholics and Cocaine Anonymous and only 3 percent were referred for inpatient treatment. By contrast, 10 percent of those on standard probation were referred for residential inpatient treatment and 39 percent participated in outpatient treatment. Thus, the drug court program not only significantly increased the proportion of clients who received drug education, counseling and treatment, but it also appeared to reduce the use of inpatient residential care.

Training and Employment

Few probationers, less than five percent, were in vocational or educational training. However, over half of all probationers were employed, either full or part-time during the first twelve months following assignment to probation. Drug court participants were less likely than those on standard probation to maintain paid employment and/or seek jobs (56 percent versus 65 percent, respectively for any paid employment). Levels of employment appear to vary by involvement in testing and treatment conditions, but the only significant difference was between those in Tracks 1-3 in comparison to those in Track 4. Track 1 probationers ("no test" condition) had higher levels of employment than any other group, Track 2 (low-rate testing) was higher than Track 3 (high-rate testing), which was in turn higher than those in Track 4 (drug court). Full-time employment was lowest among those in Track 3. Drug court participants were much less likely than other probationers to comply with the requirements to pay probation fees,

victim restitution, or mandatory assessment fees. Approximately ten percent of those on Track 4, in comparison to 66 percent of those on standard probation made some form of payment during the twelve-month period.[37] One possible reason for the lower payments among drug court participants may be that a benefit from compliance with the drug court contract meant a reduction in probation fees (see Appendix A for sample drug court contracts).

A composite measure of program participation was constructed to summarize the number of activities (community service, counseling, treatment, training, employment, payments) engaged in by each probationer. Those in the FTDO drug court program, on average, participated in more activities than those on standard probation. This suggests that the drug court contract and judge supervision ensured that these probationers were more involved in activities that would promote social adjustment than those on standard probation.

PROGRAM COSTS

Cost-effectiveness is a central concern in most correctional programs. Many times when the experimental program provides more services than the control program, it is more expensive. If the benefits of the program do not outweigh the costs, the experimental program may be eliminated. While cost-effectiveness was not the primary issue in evaluating the FTDO drug court program, one goal of the program was to shorten the term of probation and thereby save on criminal justice system costs. In order to compare the cost implications of the FTDO drug court and standard probation with urine testing, we used a method that determined the average costs for correctional supervision, jail, and prison, along with the number of days an average study offender spent under the different states. Estimates of the average costs for supervision and confinement were provided by the Maricopa County Adult Probation Department for the 1992 fiscal year.

---

[37] During the course of the evaluation, probationers in drug court were required to pay fees. However, the drug court program as operated today waives the payment of all fees, with the exception of drug court treatment fees, so that clients can afford to pay for their treatment.

The costs for the additional urine monitoring required estimation based on RAND's subcontract with Maricopa County Adult Probation.[38] Since clients were tested at different levels and we did not charge by the individual urine test screen, it is impossible to calculate the actual cost difference for different levels of testing. However, we estimated costs by dividing the total costs of the drug testing subcontract by the total number of tests taken. The total number of tests taken were estimated by looking at the average number of tests taken during the twelve month follow-up period for each subgroup. For example, thirty-two percent of probationers under routine supervision were on Track 3 and were tested an average of 2.4 times per month, at a level eight times higher than those on Track 1 who represented 37 percent of the group. The average cost per year for urine testing for a client on Track 1 was estimated at $22, for a client on Track 2, the average cost was estimated at $53, and for a client on Track 3, the estimated average cost per year was $183.

The overall costs for the drug court program component were estimated in two ways. First, we calculated the average cost per offender based on our subcontract with Mountain Valley Counseling for Treatment and our subcontract with MCAP for a lead probation officer. Second, we used the average cost per offender for drug court provided by MCAP at the end of this evaluation.[39] Neither estimate includes the costs of the drug court judge or other court personnel or court-related costs; both estimates include the salaries of drug court program staff in probation and drug treatment component (either MVC or MCAP), urine testing, standard supplies, equipment and overhead.

---

[38] The subcontract between RAND and MCAP allotted specific dollar amounts for urine testing, computer hardware and software, and salary costs for the lead probation officer for the drug court program. During the subcontract period, MCAP was reimbursed for actual costs. The costs of providing urine testing for all FTDO probationers (Tracks 1-3) was $38,864. Dividing this by the total number of probationers in Tracks 1-3 (N=454), we get an average cost per year of $86 per offender.

[39] In August 1993, according to MCAP, the estimated cost of the new drug court program was $7.22 per client per day for 60 clients and $5.77 per client per day for a caseload of 75 clients. The lower cost is used in the table since the average caseload was closer to 75 than 60.

Table 4.6

Average Cost of Supervision and Confinement During 12-Month Follow-up
(in dollars)

	Average Cost per Offender per Day	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Track 1-3 Probation	FTDO Drug Court	New MCAP Court
Sample size (N)		(168)	(141)	(145)	(454)	(176)	(176)
Supervision		$ 902	$ 901	$ 986	$ 932	$ 79	$ 79
Regular Probation[a]	$ 2.26	643	637	575	619	46	46
Intensive Supervision	$ 10.81	26	32	89	48	8	8
Residential Treatment	$ 35.70	211	179	139	179	25	25
Drug Court[b]	$4.13-$5.77	0	0	0	0	971	1,357
UA Testing[c]	na	22	53	183	86	0	0
Confinement		1,636	1,679	2,293	1,863	1,491	1,491
Jail[d]	$ 35.76	1,112	1,151	1,638	1,295	1,312	1,312
Prison	$ 43.66	524	528	655	568	179	179
TOTAL		$2,538	$2,580	$3,279	$2,795	$2,541	$2,926

NOTES: a Regular probation includes both the FTDO routine supervision testing tracks, standard probation (e.g., no special caseload), and any other probation services.

b The total costs were calculated based on the contract with MVC to provide treatment and the contract with MCAP for an additional probation officer for a caseload of 180 clients. Since only 176 clients were assigned to the drug court, the total costs were then divided by 176 to get an estimate of the per client cost and divided again by the average number of days spent in drug court to get an estimate of the per diem cost of $4.13. The current costs for the drug court under the direction of MCAP were estimated to be between $5.77 and $7.22 per offender per day, which would result in an annual cost between $1,357 and $1,697 if clients remained in the drug court program for the average 235 days spent by this sample. The total costs based on the lower cost per day are shown in the far right column.

c The costs for drug testing of the drug court clients are included in the drug court costs.

d Jail costs include work furlough.

na The cost has been estimated for each of the testing tracks based on the frequency of actual testing. If all 454 clients were tested at the same rate, the cost per client per year would have been $85.60.

Table 4.6 displays the estimated costs for each of the probation tracks and the drug court. Once costs of supervision, urine testing, and drug court were estimated, we calculated the costs for the average probation offender, by multiplying the cost for services used by the number of days. For example, the average offender on Track 1 spent 285 days on probation (see Table 4.3), at a cost of $2.26 per day. Multiplying the number of days by the estimated cost per day, we have an average of $643 per offender per year, as shown in column three of Table 4.6.

On average, comparing the FTDO drug court to probation, the average yearly cost was lower than that of probation, $2,541 versus $2,795. Using the cost estimates for the newer drug court program provided by MCAP, we see that the estimated cost for the drug court program per offender per year was $2,926. Thus, depending on which costs are included in the estimate for drug court, it could be more or less expensive than standard probation (with varying levels of drug testing).

Most of the differences in costs between the drug court and standard probation can be attributed to less time in prison for those in drug court. It would appear that the frequent appearance before the drug court judge and the altered sanctions may lead to fewer new crimes and prison sentences, and thus a lowering in overall costs. In comparison to the low-rate testing condition, which is the routine type of supervision provided by MCAP, the FTDO drug court appears to have been no more expensive when the lower costs with the RAND subcontract are used.

In comparing the three levels of drug testing, there was very little difference between Tracks 1 and 2, "no test" and low-rate testing. Offenders on Track 3 with more high-rate testing were responsible for the higher costs of standard probation. Not only was the cost inflated by more frequent urine testing, but offenders on Track 3 spent more days in jail and prison, probably as a result of technical

violations and dirty drug tests.[40] The analysis of positive drug tests in Chapter 5 and recidivism in Chapter 6 provide more information to test this hypothesis.

---

[40] In earlier analyses comparing intensive supervision (ISP) with drug testing to routine supervision, Turner et al. (1992,1994) found that the increased drug tests led to an increase in violations and greater prison time, thus making ISP more expensive than standard probation or parole.

5. DRUG COURT PARTICIPATION

The drug court program incorporated components not traditionally included in standard probation. In this section we examine the implementation of the drug court program. The analyses contain measures of the number of court status hearings and the action taken by the judge at each of these hearings. In addition, we measure the success of the drug court program by examining the status of the offender at the end of the twelve month follow-up period.

STATUS HEARINGS AND COURT RESPONSE

The drug court program was designed to include status hearings once every two months. As indicated in Chapter 2, at the orientation hearing each client would sign a contract indicating the conditions of the program and the points earned for compliance with the program. During the status hearing the judge reviewed the number (or percentage) of points earned and, depending on the individual's compliance with the treatment program and other conditions of probation, the judge would decide whether the client should repeat the path, progress to the next phase, or be terminated.[41] Thus, at each hearing the judge could increase or decrease the frequency of court hearings. Those clients who did well in the treatment program and progressed to the next phase might graduate from drug court within six months, with only three court hearings. Clients who repeated a path one or more times might stay in the drug court program for up to twelve months and have seven or more status hearings. In order to track each client's progress in the drug court program, we recorded the individual's point total (or percentage of points), the recommendations of the treatment counselor and probation officer, and the action taken by the judge at each court hearing.

---

[41] Even though the drug court program was designed to have hearings every two months, the judge had discretionary power to impose one-month contracts. In addition, the judge could terminate the contract with a client for just cause.

Table 5.1

Number of Drug Court Status Hearing Appearances

	Number of Persons	Percent	Cumulative Percent
None	25	14.5	14.2
One	16	9.1	23.3
Two	21	11.9	35.2
Three	36	20.5	55.7
Four	24	43.6	69.3
Five	24	13.6	82.9
Six	20	11.4	94.3
Seven or more	10	5.7	100.0
Average	176	4.1	

Table 5.2

Drug Court Status Hearings:
Probation and Treatment Recommendations and Judge Action
(In percent of time based on number of hearings)

	Probation Officer	Treatment Counselor	Judge Action
Sample size (N)	(151)	(151)	(151)
Repeat path	20.4	24.9	14.0
One-month contract	11.2	6.3	17.0
Progress to next path	27.5	32.1	29.5
Attend counseling	2.9	1.2	1.4
Fulfill probation conditions	2.3	0.1	1.8
Refer to inpatient treatment	2.3	5.9	0.6
Jail time	12.7	8.8	5.7
Issue bench warrant	0.2	0.0	13.2
Revoke probation	2.3	0.9	0.6
Termination	1.4	0.7	1.5
Graduation	10.7	11.9	11.8
Other#	1.0	3.4	1.0
Unknown	4.9	3.8	1.8

NOTE:
Other types of action include going to detox, additional support meetings, making up mixed classes, and participation in aftercare.

The total number of status hearings are shown in Table 5.1. Clients averaged four court hearings during the twelve month follow-up period. Sixteen individuals (nine percent) had only one hearing before the judge and ten individuals (six percent) appeared in court seven or more times. About half of the clients had at least three hearings during the twelve months, which would be expected given the program design.

The type of recommendation given by the probation officer and treatment counselor and the action taken by the judge for all status hearings over the twelve month period are shown in Table 5.2.[42] Several different recommendations for action could be given simultaneously. For example, the judge might recommend that the client repeat the path and come back after one month. Or the client might be ordered to increase his or her attendance at counseling sessions and fulfill other conditions of probation. The most frequent type of action recommended by the counselor and PO and taken by the judge was to progress to the next path, which occurred about 30 percent of the time. Whereas the counselor and PO would recommend 20-25 percent of the time that a client repeat a path, the judge only did so fourteen percent of the time. The counselor and PO were less likely to recommend a one-month contract, but the judge was likely to give this order 17 percent of the time. On the other hand, the counselor and PO often recommended jail time (9-13 percent of the time), but the judge was less likely to use this sentence (only about 6 percent of the time). A bench warrant for arrest was issued by the judge 13 percent of the time that clients were supposed to appear in court and failed to do so. The PO was likely to recommend that probation be revoked two percent of the time, whereas this action was not likely to be recommended by the counselor and was rarely taken

[42] We coded the recommendations of the PO and counselor from the progress reports which were submitted to the judge prior to the status hearings. Usually, the day prior to a status hearing the drug court team would meet to review the progress reports and discuss all current cases. While there was usually consensus at these meetings about what type of action would be taken, the judge had discretion in making the final decision at the status hearing. The action taken by the judge at the hearing was coded in our forms. Thus, the way in which we coded the information may reveal more discrepancies than actually existed.

by the judge. The only type of action on which the counselor, PO and judge appeared to be in agreement was in graduating the client from the drug court program.

In order to examine the progress of each client during the FTDO program, we examined specific types of action taken at each hearing both for those appearing for the particular hearing and for the group overall for the first six hearings.[43] Tables 5.3 and 5.4 include only the number of cases that resulted in a bench warrant, termination, or graduation. In all other cases, clients were either continued on the current phase or progressed to the next phase of the drug treatment program. Table 5.3 indicates the action taken by hearing number for the overall group of clients who participated in drug court while Table 5.4 shows the action taken for those appearing at the particular hearing number.

A bench warrant for arrest was most often issued at the first court hearing. This was most likely to occur among those clients who decided not to participate in the drug court program and absconded from supervision. Bench warrants were also issued at the second and fourth hearings as other individuals dropped out of the program and failed to appear. At any given hearing, except the first where thirteen percent of clients failed to appear, a bench warrant was issued for less than five percent of the total group. Terminations were also infrequent--only four percent of the total sample was terminated. Eighteen percent of the drug court participants graduated at the third status hearing (e.g., the anticipated six month program length). Another nine percent graduated at the fourth hearing and seven percent at the fifth hearing.

[43] The number of clients who appeared at seven or more hearings was too small to analyze.

Table 5.3

Action Taken by Hearing Number
(in percent of total group N=176)

	Bench Warrant	Terminated	Graduated
First	13.1	0.0	0.0
Second	5.1	1.1	2.3
Third	1.1	1.7	15.3
Fourth	4.0	0.6	8.5
Fifth	0.6	0.0	6.8
Sixth	1.1	0.6	1.7

Table 5.4

Action Taken at Each Hearing
(in percent of each group of those scheduled to appear)

	Number of Persons	Bench Warrant	Terminated	Graduated
First	151	15.2	0.0	0.0
Second	135	6.7	1.5	3.0
Third	114	1.8	2.6	23.7
Fourth	78	9.0	1.3	19.2
Fifth	54	1.9	0.0	22.2
Sixth	30	6.7	3.3	10.0

For the 151 clients who appeared in drug court at least once (see Table 5.4), 85 percent were continued in the program while 15 percent received a bench warrant for arrest. The next highest proportion who failed to appear was at the fourth status hearing. Between two and three percent of clients were terminated at almost every hearing, for a variety of reasons. The highest number of graduates occurred at the time of the third status hearing and remained high for the fourth and fifth hearings, averaging about 20 percent of clients remaining in the program at the time. Only ten percent of the 30 clients who appeared in court for a sixth time graduated and a bench warrant was issued for seven percent of the cases.

PARTICIPATION AND RETENTION IN TREATMENT

A major objective of the FTDO program was to increase the number of probationers who participated in drug treatment. As described earlier, the treatment program was a mandatory part of drug court participation. As indicated in Chapter 4, the majority of drug court clients (85 percent) actively participated in the drug education and counseling that was part of the program, although 19 individuals never received the drug court program.[44] This is a substantial increase over the 38 percent of individuals on standard probation who were in an outpatient treatment program and ten percent who were in inpatient/residential treatment.

Figure 5.1 indicates that 61 percent of offenders assigned to drug court either completed the drug treatment program or were still in treatment at twelve months. A total of 30 percent successfully graduated and were discharged from probation and another 11 percent graduated from the program but were transferred to standard probation to complete the conditions of their sentence, such as community service hours. At the end of the twelve month follow-up, about 18 percent of those assigned to drug court were still in the treatment program because they started late or had to repeat one or more phases of the program. A small proportion (2 percent) were discharged while still in the

[44] Some of the cases never made it to the program and a few others were not suited to the program, due to language problems or medical disabilities.

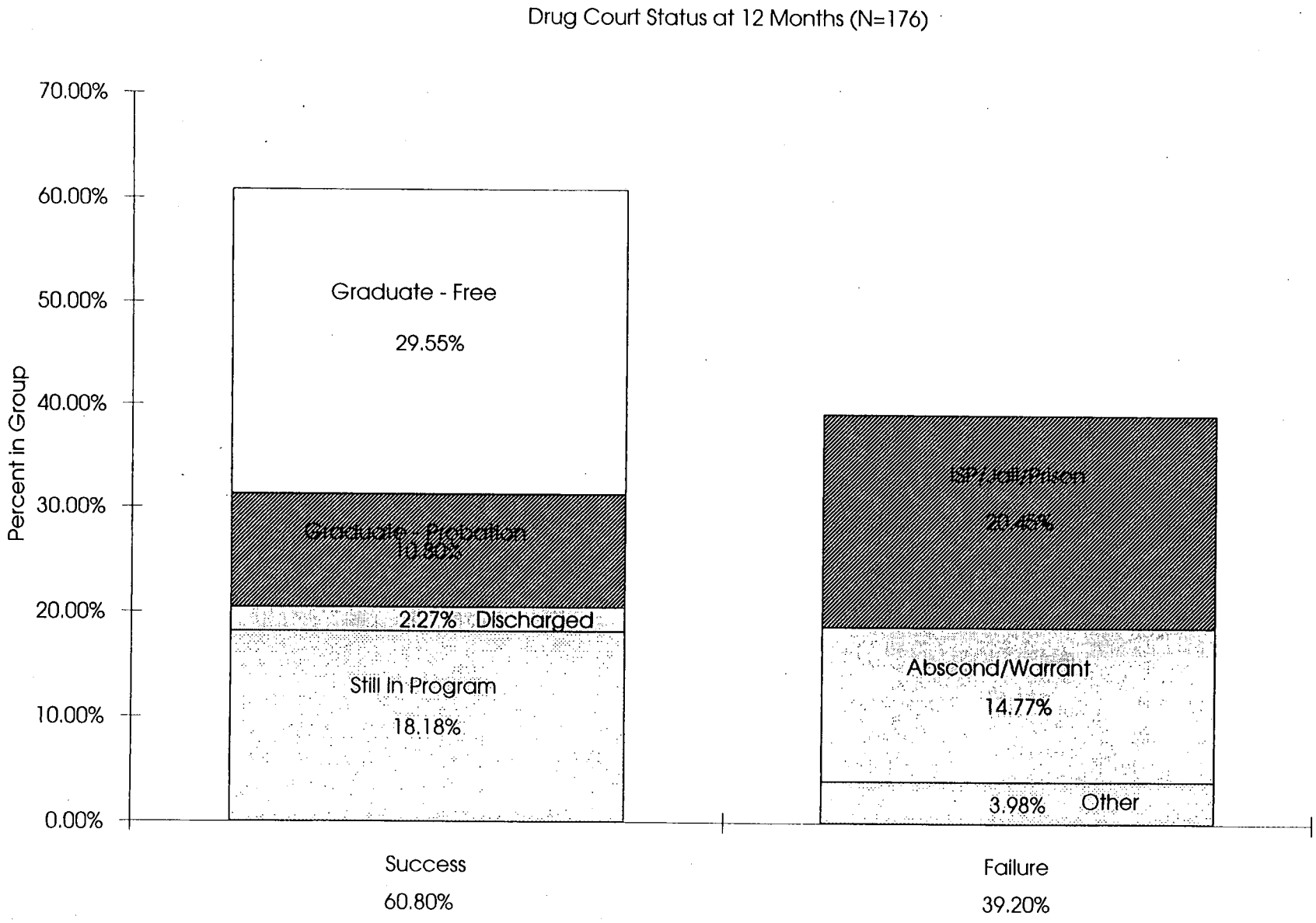
program.[45] Thus, the drug court program increases the proportion of offenders who complete or stay in drug treatment.

Among the 39 percent with unfavorable outcomes at the end of the twelve month period, 15 percent absconded or had a warrant out for their arrest and 4 percent were terminated for some other reason. Twenty percent received a sentence of ISP, jail or prison for a technical violation or new arrest. Some of these offenders may have returned to the drug court program after serving these sentences to complete the drug treatment program, since a technical violation or new arrest did not necessarily mean that they were terminated from the drug court program.

---

[45] These individuals either had shorter terms of probation or were discharged due to medical conditions or age.

Figure 5.1


Drug Court Status at 12 Months (N=176)
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Percent in Group
Graduate - Free
29.55%
Graduate - Probation
10.50%
2.27% Discharged
Still In Program
18.18%
ISP/Jail/Prison
20.45%
Abscond/Warrant
14.77%
3.98% Other
Success
60.80%
Failure
39.20%

6. EFFECTS ON SUBSTANCE USE

Drug testing is viewed as a useful tool for identifying chronic users, screening for recent use, and a tool for the objective monitoring of probationers. Others claim that drug testing may deter individuals from drug use. Earlier studies comparing the impact of regular supervision to intensive supervision, found no differences in substance use and higher rates of technical violations due to higher levels of testing (Turner, Petersilia, and Deschenes, 1992). One of the aims of the current evaluation was to determine whether more frequent testing would in fact deter individuals from use or simply increase technical violations and costs of supervision. We expected few differences between the "no test" and low-rate testing groups, but anticipated higher levels of positive tests for those with more frequent testing. Even though the drug court program was to include testing at the same frequency as the low-rate testing group, we expected that the intensive drug education and counseling would lead to less frequent positive tests among drug court participants in comparison to those on standard probation.

EXTENT AND FREQUENCY OF SUBSTANCE USE

The percent of probationers testing positive for drugs by the type of drug is shown in Table 6.1. Almost half of all probationers, both those in drug court and those on standard probation, tested positive for at least one substance during the twelve-month follow-up. Since they were tested less frequently, those in the "no test" condition were less likely to test positive than those on low-rate or high-rate testing, about 35 percent in comparison to over half of those tested more frequently.

Table 6.1

Extent and Frequency of Substance Use During 12-Month Follow-Up
(In percent of each group)

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Tracks 1-3 Probation	Track 4 Drug Court
Sample size (N)	(168)	(141)	(145)	(454)	(175)
% Testing Positive	34.5	54.6[a]	58.6[c]	48.5	49.7
Cocaine/crack	11.3	27.0[a]	34.5[bc]	23.6	16.0*
Heroin	7.1	7.1	9.0	7.7	2.9*
Uppers	11.9	18.4	22.8[bc]	17.4	16.6
Downers	0.0	0.4	0.0	0.2	0.6
PCP	0.0	0.7	0.7	0.4	0.0
Marijuana	17.3	20.6	24.8	20.7	28.6*
Valium	0.6	0.0	0.0	0.2	2.3*
Alcohol	0.6	2.1	0.7	1.1	3.4*
Unknown type	0.6	2.1	0.7	1.1	3.4*
Total No. of Positives					
None	65.5	45.4	41.4	51.5	50.3
One	13.7	19.2	11.7	14.8	18.3
Two or More	20.8	35.5	46.9	33.7	31.4
Type of Substance					
Positive for 1	22.0	35.5	34.5	30.2	32.6
Positive 2 or more	12.5	19.2	24.1	18.3	17.1
Monthly Rate Positive#					
Any Drug	0.14	0.16	0.46[bc]	0.25	0.15*
Cocaine	0.06	0.06	0.19[bc]	0.10	0.03*
Heroin	0.02	0.01	0.05	0.03	0.01
Uppers	0.03	0.05	0.16[bc]	0.08	0.04
Downers	0.00	0.00	0.00	0.00	0.00
PCP	0.00	0.01	0.03	0.01	0.00
Marijuana	0.05	0.04	0.11[bc]	0.06	0.07
Valium	0.00	0.00	0.00	0.00	0.01
Alcohol	0.00	0.01	0.00	0.00	0.01

NOTES:

Calculated as the number of positive drug tests per month of time under supervision. The rate for any drug includes multiple positive tests.

* Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

a Indicates a statistically significant difference ($p<.05$) between "no test" and low-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

b Indicates a statistically significant difference ($p<.05$) between low-rate testing and high-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

c Indicates a statistically significant difference ($p<.05$) between "no test" and high-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

There were several significant differences between the tracks in terms of the type of substance used. Among probationers, cocaine or crack was the type of drug most frequently used (24 percent of the cases in comparison to 16 percent of those in drug court), whereas those in drug court were more likely to test positive for marijuana (29 percent versus 21 percent of those on standard probation).[46] Sixteen percent of drug court participants tested positive for methamphetamines as did seventeen percent of those on standard probation. Drug court participants were more likely to test positive for valium and alcohol than those on standard probation, but the prevalence rates for both substances were quite low (two and three percent). On the other hand, drug court participants were less likely to test positive for heroin than those in Tracks 1-3 (three percent versus eight percent). A higher proportion of those in Track 3, being tested more frequently, had a positive test for cocaine or methamphetamines (34 percent and 23 percent respectively). The past history of abuse seems unrelated to the current higher proportion of offenders positive for cocaine and methamphetamines, since those on Track 3 were more likely to have been convicted of possession of drug paraphernalia and less likely to have been convicted of possession of narcotics than those on Tracks 1 and 2.

The total number of positive tests appear to be a reflection of the number of tests taken during the twelve month follow-up period. For example, participants in the FTDO drug court were less likely to have six or more positive tests than those on standard probation. Whereas 50 percent never tested positive, 30 percent had only one or two more positive tests, in comparison to 25 percent of those on probation. Probationers on Track 3 who were tested more frequently were likely to have the highest number of positive tests (21 percent had six or more positive tests during the twelve-month follow-up period).

---

[46] As part of the evaluation of the FTDO program, the two tracks with drug testing (Tracks 2 and 3) and drug court participants were to have marijuana testing at least once a month, which is different from probation's usual practice of no marijuana tests. While the drug court participants were routinely tested for marijuana, we have insufficient information about the implementation of marijuana testing for Tracks 2 and 3.

Table 6.2

Extent and Frequency of Substance Use During 12-Month Follow-Up
(For Tested Offenders Only in percent of each group)

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Tracks 1-3 Probation	Track 4 Drug Court
Reduced sample size (N)	(106)	(124)	(124)	(354)	(156)
% of Full Sample Tested	63.1	87.9	85.5	78.0	88.6
Any Postitive Test	53.8	62.1	68.5	61.8	55.5
Cocaine/crack	17.9	30.6[a]	40.3[c]	30.2	16.8*
Heroin	11.3	8.1	10.5	9.9	3.2*
Uppers	18.9	21.0	26.6	22.3	18.7
Downers	0.0	0.8	0.0	0.3	0.6
PCP	0.0	0.8	0.8	0.6	0.0
Marijuana	26.4	23.4	29.0	26.3	32.2
Valium	0.9	0.0	0.0	0.3	2.6*
Alcohol	0.9	2.4	0.8	1.4	3.9
Number of Positives					
None	46.2	37.9	31.4	38.1	44.5
One	21.7	21.8	13.7	18.9	20.6
Two	10.4	16.1	11.3	12.7	12.9
Three	8.5	8.1	4.8	7.1	11.0
Four	5.7	5.6	8.1	6.5	3.9
Five	3.8	4.0	5.6	4.5	4.5
Six or more	3.8	6.4	25.0	12.2	2.6
Type of Substance					
Positive for 1	34.0	40.3	40.3	38.4	36.8
Positive 2 or more	19.6	21.8	28.3	23.5	18.7
Percent Positive Tests#					
Any Drug	37.4	30.3	23.3[c]	30.0	30.5
Cocaine	10.1	12.9	10.8	11.3	7.3
Heroin	5.1	2.4	1.8	3.0	1.2
Uppers	13.2	8.5	7.2	9.5	8.4
Downers	0.0	0.0	0.0	0.0	0.0
PCP	0.0	0.8	0.6	0.5	0.0
Marijuana	15.4	8.6	6.5[c]	9.9	14.9*
Valium	0.0	0.0	0.0	0.0	2.1
Alcohol	0.0	0.0	0.0	0.0	0.0

NOTES:

Calculated as the ratio of the number of positive tests per tests taken, adjusting for multiple positive tests on any one date.

* Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

a Indicates a statistically significant difference ($p<.05$) between "no test" and low-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

c Indicates a statistically significant difference ($p<.05$) between "no test" and high-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

Each time a client was tested, a multiple screen procedure was used to verify whether one or more drugs were present. Polydrug use is fairly common among chronic substance users, many of whom use marijuana in combination with other drugs such as cocaine or heroin. Eighty percent of offenders in this sample admitted use of more than one substance when interviewed during the presentence investigation. During the twelve month follow-up period, about a third of those who tested positive did so for only one type and 17 percent tested positive for more than one type of drug.

The average number of positive tests per month by type of drug is also shown in Table 6.1. The rate for any type of drug was lower among drug court participants than those on standard probation. Among those on Tracks 1-3, the rate was highest for those being tested most frequently. Many of the patterns found with respect to the average number of positive tests by type of drug were similar to those found for the percent testing positive, with some exceptions. For example, there were no differences between drug court participants and those on standard probation in the rates testing positive for marijuana, heroin, or alcohol, yet a lower proportion of drug court participants never tested positive for these drugs. Those in Track 3 generally had a higher rate of positive tests than those in Track 1 and 2, regardless of type of drug.

Many of the differences between the different conditions most likely are accounted for by the different levels of testing. It's likely that the current use was more easily detected since those on Track 3 were being tested more frequently than those on Tracks 1 or 2. Thus, two other analyses were conducted to examine the patterns of substance use. First, most of the analyses in Table 6.1 were repeated only for those who were tested. These results are presented in Table 6.2. Second, the percent testing positive at each test for the first six tests was analyzed for the four groups. Table 6.3 shows the results of this second set of analyses.

Among tested clients, there were fewer differences between groups. Between 85 and 90 percent of all probationers on the low-rate and high-rate testing tracks and those in drug court had at least one test and 63

percent of those who were not supposed to be tested were in fact tested at least once.[47] There were no longer any differences in the percent testing positive for any drug, once controlling for those actually being tested. However, some patterns remained when looking at the type of drug. For example, fewer drug court participants tested positive for cocaine or heroin and more tested positive for valium. On the other hand, the only significant difference that remained between probationers on Tracks 1-3 was a higher level of clients on Track 3 testing positive for cocaine. The findings with respect to the total number of positives remained about the same since clients on Track 3 were being tested more frequently than any other track. On the other hand, the differences between the groups in terms of polydrug use disappeared.

When controlling for the number of tests taken and looking at the percent of tests that were positive by type of drug there were different results among tested offenders only. Although most probationers and drug court clients were positive for almost one-third of all tests taken (see Table 6.2), those on high-rate testing (Track 3) had a lower percent positive than those in the "no test" (Track 1) group (23 percent versus 37 percent respectively).[48] The type of drugs for which probationers most frequently tested positive were cocaine, uppers, and marijuana, and less frequently for heroin. Those in drug court were more likely than those on standard probation to test positive for marijuana (15 percent to 10 percent respectively).

---

[47] As mentioned previously, at least one test was given to probationers in the "no test" condition in order to comply with the judge's orders on the conditions of probation.

[48] The percent positive was adjusted for multiple positives at any one test, e.g., if a client tested positive for both cocaine and marijuana at one test this was only counted as one positive.

Table 6.3

Percent Positive for Substance Use During 12-Month Follow-Up by Test
(For Tested Offenders Only)

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Tracks 1-3 Probation	Track 4 Drug Court
Reduced sample size (N)	(106)	(124)	(124)	(354)	(155)
% of Full Sample Tested	63.1	87.9	85.5	78.0	88.6
First Test	53.8	62.1	68.6	61.9	55.5
Second Test	32.1	40.3	54.8[c]	42.9	34.8
Third Test	21.7	24.2	43.6[bc]	30.2	21.9*
Fourth Test	13.2	16.1	38.7[bc]	23.2	11.0*
Fifth Test	7.8	10.5	30.6[bc]	16.7	7.1*
Sixth Test	3.8	6.4	25.0[bc]	12.2	2.6*

NOTES:

* Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

a Indicates a statistically significant difference ($p<.05$) between "no test" and low-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

b Indicates a statistically significant difference ($p<.05$) between low-rate testing and high-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

c Indicates a statistically significant difference ($p<.05$) between "no test" and high-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

Table 6.3 shows the percent positive by each individual test taken for those who were tested. In all groups, the proportion with a positive test decreased over time. By the sixth test during the twelve-month period, 25 percent or fewer offenders had a positive test. There were no significant differences between groups on the first test. On the second test those in the high-rate testing track were more likely to have a positive test (55 percent) in comparison to those on the "no test" track. At all subsequent tests, there were significant differences between the drug court participants (Track 4) and all standard probationers and between Track 3 (high-rate testing) and other standard probationers (Tracks 1 and 2). In each instance, fewer participants in drug court tested positive in comparison to those on standard probation and a higher proportion of those in Track 3 tested positive than those in other groups. The differences between drug court participants and those on standard probation were primarily driven by the higher rates of those being tested more frequently. The first six tests shown here probably represent only the first month of probation for those on Track 3, while they probably represent the first six months of probation for those on Tracks 2 and 4. If we compare only those on Tracks 2 and 4, who were tested once per month on average, we see that the prevalence rates for a positive test were very similar, decreasing over time from roughly 60 percent of the group at the first test, to less than 10 percent at the sixth test.

ACTION TAKEN FOR POSITIVE TESTS

Sanctions for positive drug tests varied significantly by condition. Table 6.4 indicates the types of action taken for those who tested positive. Standard probationers were monitored by probation officers who would follow the probation department guidelines of graduated sanctions. However, these officers had a wide range of discretion and the responses could vary from increasing levels of testing and referral to outpatient treatment, to court appearance. A survey of probation officers who participated in the FTDO program revealed that many officers would repeatedly file reports with the judge, but no action would be taken until the fourth or fifth positive test. The action taken by the judge was not always recorded in the file. Thus, the only action specified in some cases for clients on standard probation was referral to the judge.[49] In comparison, for participants in the drug court program a specific action was taken by the drug court judge for each positive test. The drug court judge often preferred to give clients a warning or refer clients to additional treatment before using more severe sanctions such as jail time or revocation of probation.[50]

---

[49] Probation officers referred positive tests to the judge and recommended what action was to be taken. If they received the judge's approval this would be the action taken. For offenders with multiple positive tests, probation officers would file a petition with the court to revoke probation.

[50] Typically, participants in the drug court program were admonished to try and stay clean. The reasoning behind this action was to keep the clients in treatment so they could work towards remaining sober, rather than revoking probation and returning individuals to jail. They did not earn points when the urine tests were positive. The current drug court program has a special relapse group for those with positive urines that lasts four weeks.

Table 6.4

Any Action Taken for Positive Test During 12-Month Follow-Up
(In percent of each group)
(Positive Offenders Only)

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Tracks 1-3 Probation	Track 4 Drug Court
Sample size (N)	(58)	(77)	(85)	(220)	(88)
Minor action taken	24.1	20.8	30.6	25.4	0.0
Change in conditions	1.7	1.3	4.7	2.7	0.0
Increased testing	10.3	13.0	11.8	11.8	0.0*
Referred to judge	31.0	50.6	51.8	45.9	85.2*
Jail	0.0	1.3	3.5	1.8	5.7
Outpatient treatment	50.0	40.3	45.9	45.0	3.4*
Residential treatment	13.8	14.3	16.5	15.0	4.5*
Technical violation	20.7	28.6	28.2	26.4	8.0*
Petition to revoke	0.0	1.3	2.4	1.4	0.0
Warrant issued	10.3	9.1	21.2	14.1	4.6*
Probation revoked	3.4	1.3	7.1	4.1	1.1

NOTE:

Percentages do not add to 100 percent since the categories refer to any action taken over multiple positive tests.

* Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

As indicated in Table 6.4, the difference between the design of the drug court program and standard probation meant that for those in the drug court program the primary response was a referral to the judge, who might simply issue a warning, which was given about eighty-five percent of the time in contrast to 46 percent of the time for those on standard probation. Those on standard probation were more likely to have some type of minor action taken for a positive test, such as a warning or being continued on the current program. About three percent of the time clients on standard probation received a sanction that involved a change in the conditions of probation, such as imposing a new fine or enhanced supervision. An increase in testing was also more likely among clients on standard probation in comparison to those in drug court (12 percent versus none). Since clients on standard probation were not receiving any counseling, another sanction that was often used was referral to outpatient treatment (45 percent); a few clients (15 percent) were referred to residential treatment for a positive test. A little more than one quarter of clients on standard probation, in comparison to five percent of those in drug court, received a technical violation report (26 percent versus 8 percent). Clients on standard probation were more likely to have a warrant issued for arrest (14 percent) than those in the drug court. Overall, the response to positive tests for those on standard probation was often to provide the same type of remedy as the drug court program itself--more treatment and judge supervision.

Table 6.5

Most Serious Action Taken for Positive Drug or Alcohol Test During 12-Month Follow-Up
(In percent of each group)
(Positive Offenders Only)

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Tracks 1-3 Probation	Track 4 Drug Court
Sample size (N)	(58)	(77)	(85)	(220)	(88)
Minor action taken	8.6	11.7	12.9	11.4	5.7
Change in conditions	0.0	1.3	1.2	0.9	0.0
Increased testing	1.7	3.9	7.1	4.6	0.0
Referred to judge	22.4	26.0	21.2	23.2	68.2*
Jail	0.0	0.0	2.4	0.9	5.7
Outpatient treatment	34.5	20.8	17.7	23.2	2.3
Residential treatment	6.9	7.8	7.1	7.3	4.6
Technical violation	15.5	18.2	14.7	15.9	8.0
Petition to revoke	0.0	0.0	1.2	0.4	0.0
Warrant issued	8.6	9.1	11.8	10.0	4.6
Probation revoked	1.7	1.3	3.5	2.3	1.1

NOTE: * Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

The most serious action taken for any positive drug or alcohol test is shown in Table 6.5. Among those in drug court, the majority of clients (68 percent) were only sanctioned by a referral to the judge, in comparison to 23 percent of those on standard probation. About thirteen percent of clients in drug court received a serious sanction such as a technical violation, a warrant for arrest, or revocation of probation. By contrast, 26 percent of clients on standard probation received that type of sanction. The most frequent response to a positive test for those on standard probation was either referral to a judge or to outpatient treatment (23 percent of the group for both types). Although not statistically different, those in Track 1 with no testing were more likely to be referred to outpatient treatment than clients on Tracks 2 or 3.

The most serious action taken on each specific drug test by track (for positive offenders only) for the first four tests is shown in Table 6.6.[51] For all probationers, except those in Track 1, the most frequent response to the first test was to refer the client to the judge. Those in Track 1 were more likely to be referred to outpatient treatment. The same patterns hold true for the second positive test. It is likely that those in Track 1 may have been referred to treatment more quickly since they were less likely to be tested unless the PO felt that testing was absolutely necessary to monitor possible use. The second most frequent responses for the first positive test for those on standard probation were to take minor action (or no action), refer clients to outpatient treatment, or file a report of a technical violation. By the second positive test, a referral to outpatient treatment and a technical violation report were more common than minor action. The three most frequent responses to a positive third test for those on standard probation were also referral to a judge, outpatient treatment, and filing a technical violation report. However, those on Track 1 were almost equally likely to have a warrant issued for the third positive test. The type of response changed slightly by the time of the fourth

[51] Only the first four tests are shown here since the N within each group is very small for most of the tracks at subsequent tests (less than 15 in all but Track 3).

positive test for most groups and more serious action was likely to be taken. Those in Track 1 were likely to be referred to the judge or have a warrant issued. Those on Track 2 were likely to be referred to outpatient treatment, have a technical violation filed, or be referred to the judge. Probationers on Track 3 were most likely to have a technical violation filed or be referred to outpatient treatment. For participants in the drug court program the most frequent response was referral to the judge. More serious action was not taken until the third or fourth positive test, at which time filing a technical violation report or referral to residential treatment became more common.

Table 6.6

Most Serious Action Taken for Each Positive Test During 12-Month Follow-Up
(In percent of each group)
(Positive Offenders Only)

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Tracks 1-3 Probation	Track 4 Drug Court
First Test (N)	(58)	(77)	(85)	(220)	(88)
Minor action taken	15.5	10.4	14.1	13.2	5.7
Change in conditions	0.0	0.0	0.0	0.0	0.0
Increased testing	6.9	6.5	3.5	5.4	0.0
Referred to judge	22.4	36.4	35.3	32.3	84.1*
Jail	0.0	0.0	1.2	0.4	1.1
Outpatient treatment	29.3	15.6	14.1	18.6	0.0*
Residential treatment	6.9	3.9	3.5	4.6	1.1
Technical violation	13.8	20.8	14.1	16.4	4.6
Warrant issued	5.2	6.5	12.9	8.6	3.4
Probation revoked	0.0	0.0	1.2	0.4	0.0
Second Test (N)	(35)	(50)	(68)	(153)	(55)
Minor action taken	8.6	8.0	11.8	9.8	5.4
Change in conditions	0.0	0.0	1.5	0.6	0.0
Increased testing	2.9	2.0	4.4	3.3	0.0
Referred to judge	14.3	36.0	23.4	25.5	78.2*
Jail	0.0	2.0	0.0	0.6	1.1
Outpatient treatment	42.9	26.0	22.1	28.1	3.6*
Residential treatment	5.7	6.0	4.4	5.2	0.0
Technical violation	17.1	12.0	19.1	16.3	7.3
Warrant issued	8.6	6.0	13.2	9.8	1.8
Probation revoked	0.0	2.0	0.0	0.6	1.8
Third Test (N)	(24)	(30)	(54)	(108)	(34)
Minor action taken	8.3	13.3	9.3	10.2	5.9
Change in conditions	0.0	0.0	0.0	0.0	0.0
Increased testing	8.3	3.3	5.6	5.6	0.0
Referred to judge	20.8	30.0	18.5	22.2	64.7*
Jail	0.0	0.0	3.7	1.8	5.9
Outpatient treatment	20.8	26.7	18.5	21.3	2.9*
Residential treatment	4.2	6.7	9.3	7.4	5.9
Technical violation	16.7	13.3	22.2	18.5	14.7
Warrant issued	16.7	0.0	11.1	9.3	0.0
Probation revoked	0.0	3.3	1.8	0.9	0.0
Fourth Test (N)	(14)	(20)	(48)	(82)	(17)
Minor action taken	14.3	5.0	6.2	7.3	0.0
Change in conditions	7.1	5.0	2.1	3.7	0.0
Increased testing	7.1	5.0	2.1	3.7	0.0
Referred to judge	21.4	20.0	14.6	17.1	82.4*
Jail	0.0	0.0	4.2	2.4	0.0
Outpatient treatment	7.1	25.0	20.8	19.5	0.0
Residential treatment	7.1	10.0	2.1	4.9	11.8*
Technical violation	7.1	20.0	27.1	24.4	5.9
Warrant issued	21.4	0.0	14.6	12.2	0.0
Probation revoked	7.1	0.0	2.1	2.4	0.0

NOTE: * Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

7. IMPACT ON RECIDIVISM

The major goals of many correctional programs are to reduce recidivism, protect the public safety, and, often, to rehabilitate offenders. Thus, these goals are measured as the reductions in the proportion of offenders with new arrests, convictions, or technical violations. For the current evaluation we examined several measures of recidivism, including the prevalence of technical violations, new arrests and convictions; incidence rates for technical violations, arrests, and convictions; and the time to failure, e.g. a technical violation or new arrest.

NATURE AND EXTENT OF RECIDIVISM

The nature and extent of recidivism during the twelve-month follow-up period were measured in terms of the proportion of offenders with a technical violation, arrest, or conviction; the number of technical violations and new arrests; and the types of violations or arrests; as well as the type of system response to these behaviors. Results are shown in Tables 7.1 through 7.6.

Twelve month outcome recidivism measures for the Maricopa County FTDO program and standard probation are presented in Table 7.1. Between 40 and 55 percent of all probationers in the different conditions had a technical violation during the follow-up period. Although the prevalence rates of technical violations were almost the same for those assigned to drug court in comparison to those on standard probation (39 percent vs. 46 percent respectively), the average number of violations for drug court participants was significantly lower.[52] Those in drug court averaged only two violations as compared to three violations for the control group, within the twelve month period.

[52] There were no programmatic differences between the drug court probation officer and other probation officers in terms of the enforcement practices for violations. Any variation in responses to technical violations would be due to normal variation among officers.

Table 7.1

Extent of Recidivism During 12-Month Follow-Up
(In percent of each group)

Sample size (N)	Track 1 "No Test" (168)	Track 2 Low-Rate (141)	Track 3 High-Rate (145)	Tracks 1-3 Probation (454)	Track 4 Drug Court (176)
Any Technical Violation	39.9	44.7	54.5[c]	46.0	39.2
Fees	19.0	19.8	26.9	21.8	18.2
Community service	11.9	14.2	16.6	14.1	9.7
Employment	9.5	14.2	11.0	11.4	10.8
Alcohol-related	4.8	4.3	3.4	4.2	1.1
Treatment	1.2	1.4	1.4	1.3	0.0
Drug-related	16.1	27.0	35.2[c]	25.6	9.1*
Victim contact	0.0	1.4	0.7	0.7	0.0
No show/abscond	25.0	31.2	33.8	29.7	21.0*
Other#	32.1	36.2	37.9	35.2	33.0
Ave. Number of Violations	2.1	2.5	4.1[bc]	2.8	1.6*
Any Arrest	30.4	29.8	36.6	32.2	31.2
Person	5.4	5.0	6.2	5.5	5.7
Property	7.7	10.6	11.0	9.7	6.8
Drug	14.9	14.9	23.4	17.6	18.2
Other	17.3	12.8	15.2	15.2	11.4
Average Number of Arrests	0.4	0.4	0.5	0.4	0.4
Any Conviction	14.3	17.7	22.1	17.8	14.8
Any Incarceration	10.7	15.6	15.9	13.9	14.2
Any Jail Time	18.4	26.2	24.8	22.9	23.9
Any Revocation	1.2	1.4	4.1	2.2	1.7
Any Prison	8.9	7.1	9.6	8.6	4.5
Of Those with Technical	(67)	(63)	(79)	(209)	(69)
Any Jail Time	43.3	52.4	41.8	45.4	50.7
Any Revocation	3.0	3.2	7.6	4.8	4.3
Any Prison	19.4	14.3	17.7	17.2	10.1
Of Those Arrested	(51)	(42)	(53)	(146)	(55)
Any Jail Time	43.1	59.5	43.4	47.9	56.4
Any Revocation	3.9	2.4	5.7	4.1	1.8
Any Prison	25.5	16.7	24.5	22.6	9.1*

Other technical violations include curfew, weapons, association with minors, and summary charges.

* Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

b Indicates a statistically significant difference ($p<.05$) between low-rate testing and high-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

c Indicates a statistically significant difference ($p<.05$) between "no test" and high-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

One third of all offenders failed to meet specific conditions of probation. For example, twenty percent of offenders had a technical violation for failure to pay probation fees, ten percent failed to perform community service, and ten percent failed to maintain employment. Another third of all offenders had a technical violation of some other condition, including curfews, possession of a weapon, failure to keep the probation officer informed of residence, or payment of other fines, or for a multiple violations.

There were few statistically significant differences between drug court participants and offenders on standard probation. Drug court participants were less likely to have committed serious violations than those on standard probation. For example, fewer drug court participants had a violation that was drug-related (9 percent versus 26 percent of those on standard probation) and fewer drug court participants had a technical for no show (e.g., missing an appointment with the probation officer) or absconding from probation (21 versus 30 percent of those on standard probation). On the other hand, there were several differences between those on standard probation under the different testing conditions. Clients with higher levels of testing were more likely to have a technical violation filed during the twelve month period. For example, 40 percent of those on Track 1, 45 percent of those on Track 2, and 55 percent of those on Track 3 had a violation. Most of these differences are a result of drug-related technical violations (35 percent of those on Track 3 in comparison to 16 percent on Track 1 and 27 percent on Track 2). The higher rates of technical violations that were drug-related may have been the direct result of the variation in levels of testing among the three tracks.

Table 7.2

Most Serious Recidivism During 12-Month Follow-Up
(In percent of each group)

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Tracks 1-3 Probation	Track 4 Drug Court
Sample size (N)	(168)	(141)	(145)	(454)	(176)
None	53.6	46.8	36.6[c]	46.0	51.1
Technical Violation	16.1	23.4	27.6	22.0	17.6
Arrest	16.1	12.1	13.8	14.1	16.5
Conviction	14.3	17.7	22.1	17.8	14.8
Most Serious Arrest for Those Arrested	(51)	(42)	(52)	(145)	(55)
Other	21.6	19.0	17.3	19.3	16.4
Drug	37.2	35.7	44.2	39.3	45.4
Property	23.5	28.6	21.2	24.1	20.0
Person	17.6	16.7	17.3	17.2	18.2
Most Serious Conviction for Those Convicted	(24)	(25)	(32)	(81)	(26)
Other	16.7	12.0	6.2	11.1	7.7
Drug	45.8	48.0	68.8	55.6	69.2
Property	29.2	20.0	21.9	23.5	23.1
Person	8.3	20.0	3.1	9.9	0.0

NOTES:

* Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

a Indicates a statistically significant difference ($p<.05$) between "no test" and low-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

b Indicates a statistically significant difference ($p<.05$) between low-rate testing and high-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

c Indicates a statistically significant difference ($p<.05$) between "no test" and high-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

There were no statistically significant differences in the proportion of offenders with a new arrest. About one third of all probationers were arrested for a new offense within the first twelve months on probation. There were also no statistically significant differences between groups in the type of offense for which they were arrested. Few offenders were arrested for a person or property offense (six percent and nine percent respectively). Eighteen percent of all probationers were arrested for a drug offense and fourteen percent were arrested for some other minor offense. On average, this sample of probationers was arrested only once during the twelve month period (0.7 times). There were no differences in conviction and incarceration rates. Overall, eighteen percent of probationers were convicted of a new offense.

The proportion of offenders who had their probation revoked, were given jail time, or were sentenced to prison for a technical violation or new arrest did not differ by track. Overall, about two percent had probation revoked, 23 percent had jail time, and eight percent were sentenced to prison. There were also no statistically significant differences among those with a technical violation in terms of the type of action taken--few were revoked, almost half received some jail time, and about 14 percent received a prison sentence. Of those arrested, a jail sentence was given about half the time. On the other hand, a significantly smaller proportion of those in drug court were sentenced to prison (nine percent of drug court participants in comparison to 23 percent of other probationers).

We examined the most serious type of recidivism by track. The severity of recidivism was scaled from most to least severe in terms of any new conviction, any new arrest, any technical violation, or none of the above. The results of this analysis are presented in Table 7.2. Half of all offenders had no technical violations or new arrests. While there were no statistically significant differences between those in drug court and those on standard probation, there were significant differences between Tracks 1-3. Those in the "no test" condition were most likely to have no technical violations, arrests or convictions (54 percent), followed by those with low-rate testing (47 percent), and

those with high-rate testing (37 percent). These differences are related to the greater proportion of probationers on Track 3 who had a technical violation (28 percent versus 23 percent of Track 2 and 16 percent of Track 1). Comparing drug court participants to those on standard probation (table not shown), the most serious technical violation for seven percent of drug court participants was for a condition other than those specified in the terms of probation. The most serious technical for thirteen percent of those on standard probation was drug-related, in comparison to three percent of drug court participants. The most serious violation for between four and five percent of all probationers was a technical violation for no show or abscond. Roughly one-third of all offenders had a new arrest and about half of them were convicted. Of those arrested, there were no statistically significant differences by track in the type of most serious offense. A new arrest for a drug offense was the most serious type of recidivism among 39 percent of probationers in Tracks 1-3 and 45 percent of drug court participants (not a statistically significant difference). The most serious conviction was for a drug offense for over half of all those convicted (n=107).

Table 7.3

Annual Technical Violation Rates During 12-Month Follow-Up
(Controlling for one year of supervision)

	Track 1 "No Test"	Track 2 Low-Rate	Track 3 High-Rate	Tracks 1-3 Probation	Track 4 Drug Court
Sample size (N)	(167)	(141)	(145)	(451)	(176)
All Technicals	5.4	6.2	9.4[c]	6.9	3.2*
Other	1.7	1.7	1.9	1.8	1.3
Fees	0.4	0.4	0.8	0.6	0.5
Community service	0.2	0.3	0.4	0.3	0.2
Employment	0.3	0.7	0.4	0.4	0.2
Alcohol-related	0.1	0.1	0.1	0.1	0.0
Drug-related	0.8	1.1	3.6[bc]	1.8	0.3*
Victim contact	0.0	0.0	0.4	0.0	0.0
No Show/abscond	1.6	1.9	2.1	1.8	0.7*

NOTES:

* Indicates a statistically significant difference ($p<.05$) between standard probation and drug court groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

a Indicates a statistically significant difference ($p<.05$) between "no test" and low-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

b Indicates a statistically significant difference ($p<.05$) between low-rate testing and high-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

c Indicates a statistically significant difference ($p<.05$) between "no test" and high-rate testing groups using a chi-square test of association for categorical measures or t-tests for continuous measures.

Measuring recidivism simply as the proportion of offenders who do or do not have a new conviction, arrest or technical violation ignores the fact that some individuals may be incarcerated and are therefore not able to commit a new offense. In order to control for the time at risk, we annualized rates using the number of technical violations or arrests as the numerator, with time an individual was at risk (e.g., under supervision or free on the street) as the denominator. Tables 7.3 and 7.4 present annualized rates for technical violations, arrests and convictions respectively, for the study offenders.

Drug court participants had lower levels of technical violations than any other group during the twelve-month follow-up period: a rate of three per year in comparison to a rate of seven per year for those on standard probation. Clients in the high-rate testing had the highest level of technical violations per year (9.4) of all those on standard probation. This higher rate can be attributed mostly to a higher rate of violations that were drug-related. Drug court participants had significantly lower rates of technical violations than standard probationers for a drug-related violation and failure to show or absconding (less than one per year on average as opposed to about two per year for those on standard probation). Offenders on standard probation had the highest rates for failure to show or absconding, drug-related violations, and other miscellaneous types (about two per year).

Unlike the differences found for technical violations, there were no significant differences between offenders in the four different tracks in terms of rearrest rates. On average, both groups were arrested once during the twelve month follow-up. As might be expected, the highest rates were for drug offenses. While not significantly different, those in drug court had lower arrest rates than those on standard probation. The same overall patterns were found for conviction rates with those in drug court having slightly lower rates (but not significantly so) and the rates being higher for drug offenses.

Table 7.4

Annual Arrest and Conviction Rates During 12-Month Follow-Up
(Controlling for one year of supervision)

	Track 1 "No Test"	**Track 2 Low-Rate**	**Track 3 High-Rate**	**Tracks 1-3 Probation**	**Track 4 Drug Court**
Sample size (N)	(168)	(141)	(145)	(451)	(176)
All Arrests	0.82	1.14	0.91	0.95	0.67
Person	0.22	0.50	0.09	0.27	0.08
Property	0.26	0.37	0.29	0.30	0.16
Drug	0.27	0.71	0.51	0.48	0.35
Other	0.44	0.24	0.38	0.36	0.23
All Convictions	0.48	0.83	0.55	0.61	0.28
Person	0.04	0.48	0.01	0.17	0.00
Property	0.16	0.23	0.19	0.19	0.06
Drug	0.15	0.25	0.40	0.26	0.20
Other	0.18	0.03	0.02	0.08	0.03

TIME TO FAILURE

Dichotomous measures of any arrest and any technical violation present outcomes for all individuals within a standardized time frame. This approach overlooks the dynamic nature of changes within individuals, which are particularly important among a drug-using population. Even though not all offenders will succeed at remaining abstinent and not committing any crimes, those that do fail will do so at varying rates. These survival (or failure) rates of study groups can be graphed and different survival patterns statistically compared using event history or survival analysis (Blossfeld et al., 1989). This approach can be used to evaluate the differences in the time until the first arrest or first technical violation. The use of the survival model not only allows examination of changes over time, but also reduces the amount of bias that might be encountered with standard regression techniques (Allison, 1984).

For the present study, the standard Kalbfleisch-Prentice (1980) survival model, or non-parametric life table method and Wilcoxon rank tests, was employed.[53] Using the official arrest record information and calendar dates mentioned earlier, we were able to mark a starting event and a terminal event for each individual, and calculate the number of days until failure or recidivism. For this analysis the starting event was either the date of assignment to probation, or the date of release from jail for those who were in jail at the time of assignment.[54] The end date for the follow-up period for all offenders was twelve months from the date of assignment (or 365 days).

The observations of those who did not fail during the time period or for some reason could not fail during the time period were censored. Right-hand censoring of the event occurred if the terminal event for the individual did not occur until after the end of the follow-up period. Censoring also occurred during the time period of observation if individuals were removed from the "at-risk" status, e.g. were

---

[53] Analyses were conducted using the SAS LIFEREG procedure.

[54] Some individuals were not immediately released from jail at the date of assignment to probation as they were serving time for another offense or had not been released for other reasons.

incarcerated, deported to another state, or died during the follow-up period. All of these events would be considered a form of middle-censoring.

Time to failure, or recidivism, was defined in three ways. First, we measured the time to first arrest, censoring any cases who were locked up for a technical violation during the follow-up period or did not fail.[55] Second, we measured the time to first technical violation, censoring any cases who were locked up for a new arrest or did not fail.[56] Third, we measured time to either a new arrest or technical violation, censoring those who were deported or died during the follow-up period or those who did not fail.

For all three sets of analyses, the lifetest model was used and the total time period broken up into 30 day periods. The results of these analyses are shown in Tables 7.5-7.7 and Figures 7.1-7.6. These analyses were first conducted comparing probationers with different levels of testing (Track 1 versus Track 2 versus Track 3) and then repeated, comparing those on probation (Tracks 1-3) to those in drug court.[57]

Analyses revealed only slight variations in the pace of arrest during the follow-up period and no statistically significant differences among groups were found. Table 7.5 and Figure 7.1 show that among those on standard probation during the first 60 days (two months) the number who failed was similar, but the number of offenders on Track 3 (Scheduled Testing) who survived into the fourth month was lower. In comparison, those in the drug court program appear to have survived during the first 90 days or three months (e.g., there were fewer failures), but had problems during the fourth, fifth and sixth months of the program (e.g., where the slope of the line becomes steeper in Figure 7.1). Another drop in the survival rate occurred between months six and seven for those in Track 3 (Scheduled Testing), and a lower percentage

---

[55] Cases who were deported or died were also censored.

[56] Ibid.

[57] Statistical tests were run comparing all four tracks, but only the results presented in the tables only show the statistical tests comparing the three testing levels and probation to drug court.

succeed during the twelve month follow-up. The 3-way Log-Rank and Wilcoxon Tests for the comparison of survival rates among Tracks 1-3 indicate there were no statistically significant differences, paralleling results in the rearrest rates. When the three probation tracks are combined and compared to the drug court track, we also found no significant differences, as indicated in the Chi-square probabilities associated with the 2-way Log-Rank and Wilcoxon tests. Figure 7.2 shows that over 90 percent of those in drug court were able to survive without arrest during the first 90 days but during the next 90 days about 10 percent were arrested for a new offense. In comparison, there was a steady failure rate among those on probation from the first 30 days to the end of the follow-up period.

The results were quite different when the survival curves for time to first technical violation were examined. Significant differences were found between Tracks 1-3, as indicated by the Chi-square probabilities associated with the 3-way Log-rank and Wilcoxon tests in Table 7.6. Probationers on Track 3 who were being tested more frequently failed at the fastest rate; less than 70 percent of offenders survived without a violation during the first 90 day period. This pattern continued until the end of the follow-up period, with a gradual leveling off at about 180 days. The survival curves for the other two probation Tracks (1 and 2), in comparison to Track 3 showed slower failure rates which appear to be related to the frequency of testing. Those on Track 4 were least likely to have technical violations and failed at a slower rate than any other group during the follow-up period. The differences between those on probation (Tracks 1-3) and those in the drug court (Track 4) are more clearly shown in Figure 7.4. The Chi-square probabilities associated with the 2-way Log-Rank and Wilcoxon tests confirm the significance of these findings.

Table 7.5

Rearrest Survival by Track

Time In Days	Number Failed					Number Censored					Number Exposed					Proportion Surviving				
	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	Track 1	Track 2	Track 3	Track 1-3	Track 4
0-30	4	5	3	12	3	2	0	3	5	0	167	141	144	452	176	1.000	1.000	1.000	1.000	1.000
30-60	8	7	6	21	2	1	0	0	1	0	162	136	139	436	173	.9760	.9645	.9791	.9734	.9830
60-90	4	5	10	19	2	0	0	0	0	1	153	129	133	415	170	.9277	.9149	.9368	.9266	.9716
90-120	7	5	7	19	10	1	0	0	1	1	148	124	123	396	168	.9034	.8794	.8664	.8842	.9602
120-150	3	5	2	10	9	1	2	0	3	0	140	118	116	374	157	.8609	.8440	.8171	.8417	.9029
150-180	6	5	5	16	6	1	0	0	1	0	136	112	114	362	148	.8425	.8082	.8030	.8192	.8511
180-210	3	2	7	12	5	0	0	1	1	0	130	107	108	346	142	.8054	.7721	.7678	.7831	.8166
210-240	2	4	2	8	3	0	2	1	3	3	127	104	100	332	136	.7869	.7577	.7182	.7559	.7879
240-270	5	0	3	8	2	0	0	0	0	3	125	99	98	322	130	.7745	.7286	.7040	.7376	.7704
270-300	3	1	3	7	5	1	0	1	2	2	120	99	94	313	125	.7435	.7286	.6824	.7193	.7585
300-330	5	3	3	11	3	1	1	1	3	2	116	98	90	304	118	.7248	.7212	.6607	.7032	.7282
330-360	0	0	2	2	3	1	1	1	3	0	110	94	86	290	114	.6934	.6990	.6388	.6777	.7097
360+	1	0	0	1	2	108	93	84	285	109	55	46	42	144	56	.6934	.6990	.6241	.6730	.6910
Total	30	30	37	32	31	70	70	63	68	69										
Percent																				

Mean Survival Time	
Track 1	298.3
Track 2	265.1
Track 3	265.6
Track 4	303.9

Test 3-way	Chi-sq.	df	Pr (Chisq)
Log-Rank	1.91	2	0.38
Wilcoxon	1.70	2	0.43
-2Log(LR)	1.99	2	0.37

Test 2-way	Chi-sq.	df	Pr (Chisq)
Log-Rank	0.23	1	0.63
Wilcoxon	0.59	1	0.44
-2Log(LR)	0.21	1	0.65

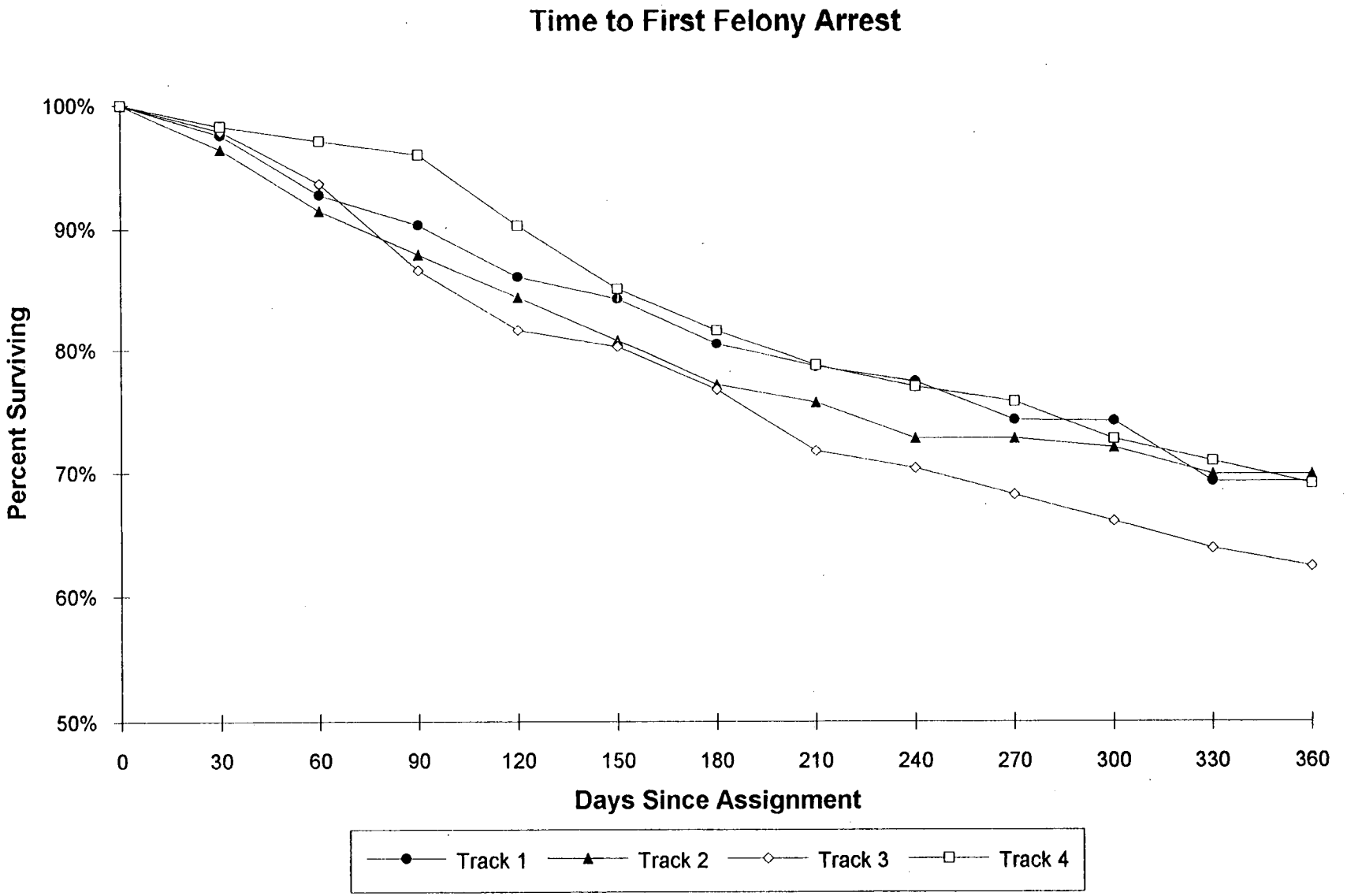

Time to First Felony Arrest
100%
90%
80%
70%
60%
50%
Percent Surviving
0
30
60
90
120
150
180
210
240
270
300
330
360
Days Since Assignment
Track 1
Track 2
Track 3
Track 4

Figure 7.1

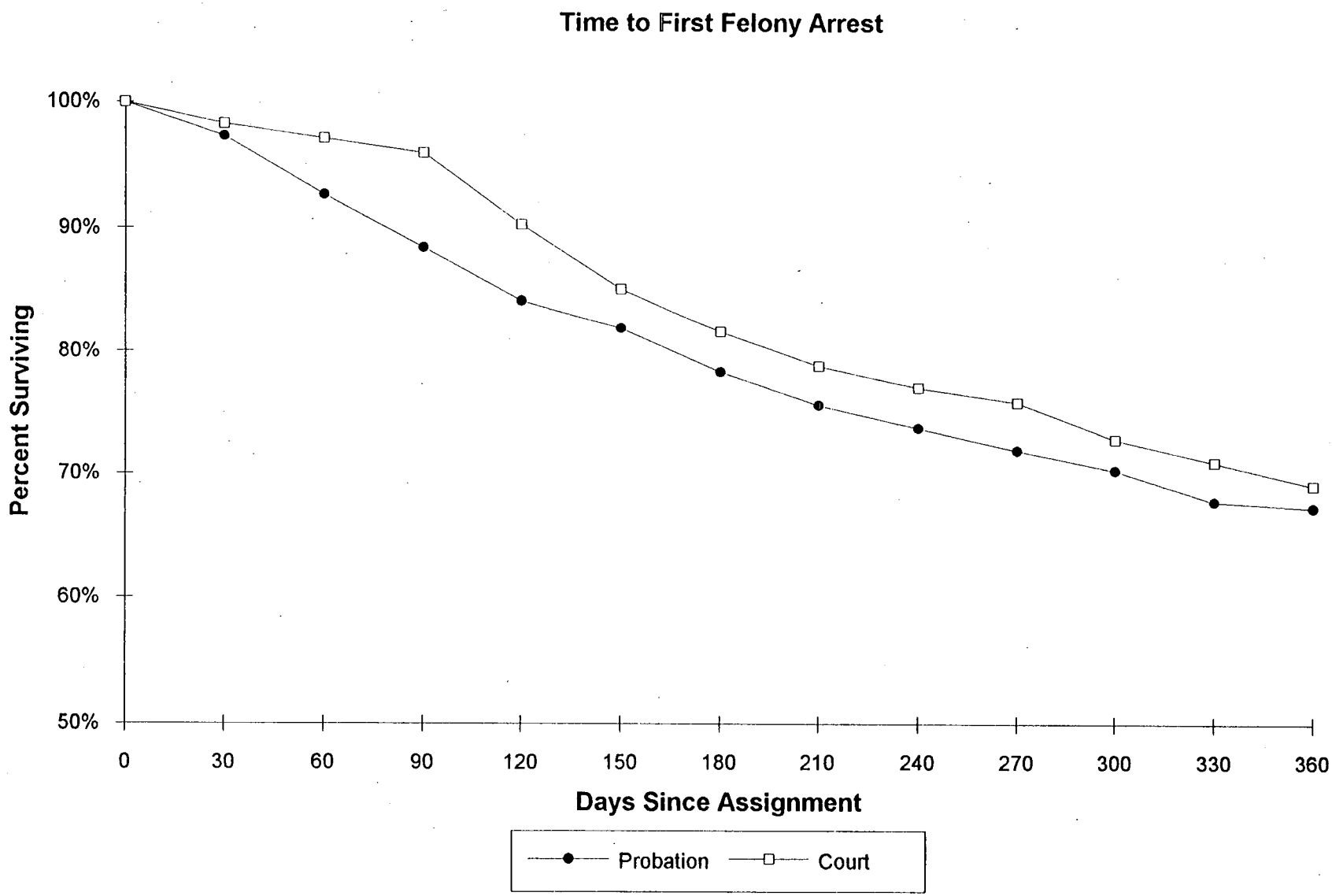

Time to First Felony Arrest
Percent Surviving
100%
90%
80%
70%
60%
50%
0
30
60
90
120
150
180
210
240
270
300
330
360
Days Since Assignment
Probation
Court

Table 7.6

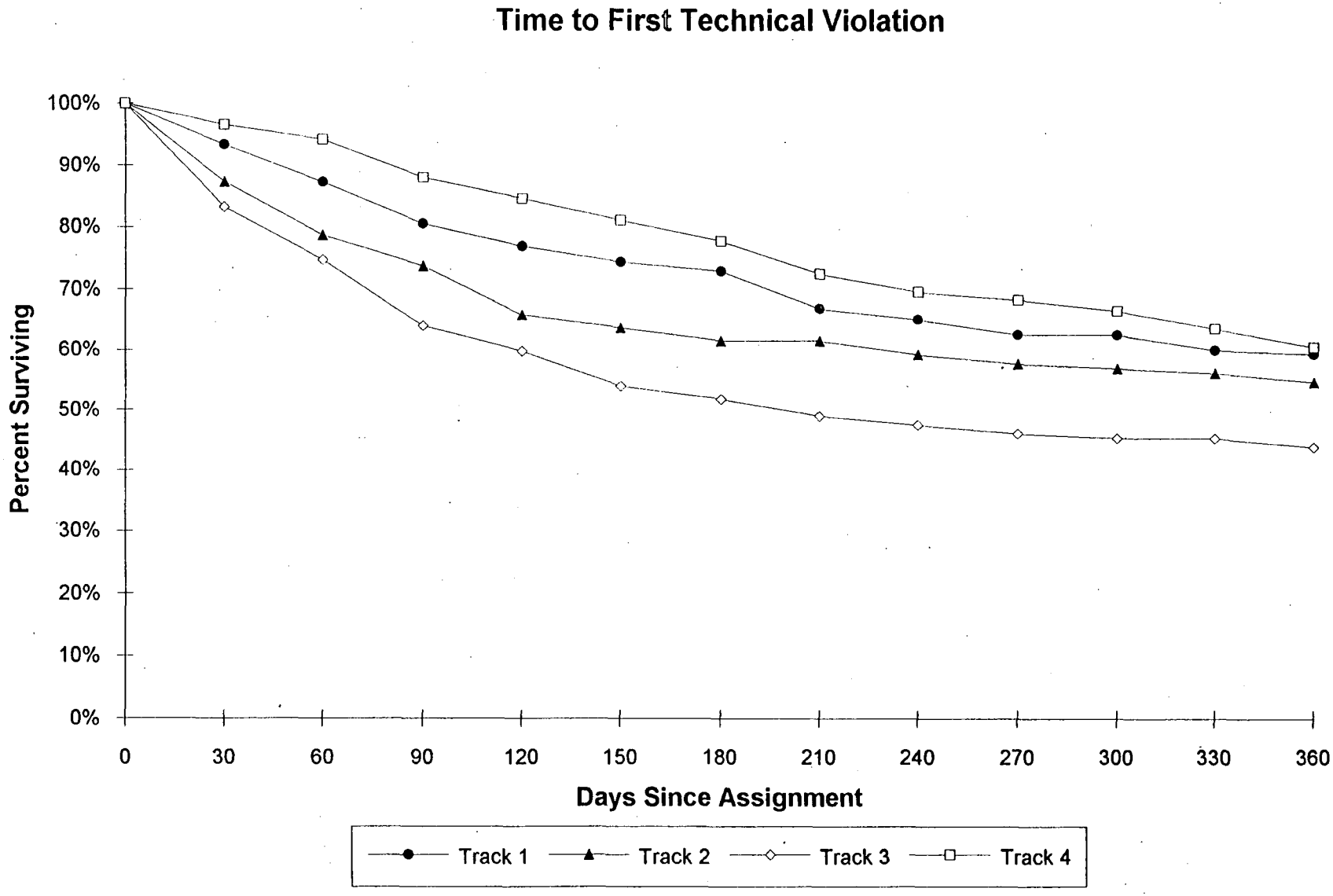
New Technical Survival by Track

Time In Days	Number Failed					Number Censored					Number Exposed					Proportion Surviving				
	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	Track 1	Track 2	Track 3	Track 1-3	Track 4
0-30	11	18	24	53	6	2	0	3	5	0	166	141	144	450	176	1.000	1.000	1.000	1.000	1.000
30-60	10	12	12	34	4	1	0	1	2	0	154	123	118	394	170	.9337	.8723	.8328	.8824	.9659
60-90	11	7	15	33	11	0	1	0	1	1	143	110	105	358	166	.8729	.7872	.7477	.8062	.9432
90-120	6	11	6	23	6	1	0	1	2	0	132	103	90	324	154	.8058	.7374	.6409	.7320	.8805
120-150	4	3	8	15	6	1	1	0	2	0	124	92	83	299	148	.7690	.6586	.5979	.6800	.8462
150-180	4	3	3	10	6	0	0	0	0	1	120	88	75	283	142	.7443	.6370	.5403	.6459	.8119
180-210	8	0	4	12	9	0	0	0	0	0	116	85	72	273	135	.7195	.6153	.5187	.6231	.7775
210-240	3	3	2	8	5	0	2	0	2	2	108	84	68	260	125	.6699	.6153	.4899	.5575	.7256
240-270	4	2	2	8	2	0	0	1	1	1	105	80	66	250	118	.6513	.5933	.4755	.5774	.6966
270-300	0	1	1	2	3	1	0	0	1	1	100	78	63	242	116	.6264	.5785	.4609	.5589	.6848
300-330	4	1	0	5	5	1	1	1	3	1	100	76	62	238	112	.6264	.5711	.4536	.5543	.6671
330-360	1	2	2	5	5	2	1	1	4	1	94	74	60	229	106	.6013	.5636	.4536	.5426	.6371
360+	0	0	0	0	1	92	72	58	222	99	46	36	29	111	50	.5949	.5485	.4386	.5308	.6069
Total	40	45	54	46	39	60	55	46	54	61										
Percent																				

Mean Survival Time	
Track 1	249.6
Track 2	232.7
Track 3	202.3
Track 4	284.8

Test 3-way	Chi-sq.	df	Pr (Chisq)
Log-Rank	10.27	2	0.0059
Wilcoxon	11.98	2	0.0025
-2Log(LR)	12.22	2	0.0022

Test 2-way	Chi-sq.	df	Pr (Chisq)
Log-Rank	5.75	1	0.0165
Wilcoxon	9.91	1	0.0016
-2Log(LR)	6.56	1	0.0104


Time to First Technical Violation
Percent Surviving
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Days Since Assignment
Track 1
Track 2
Track 3
Track 4

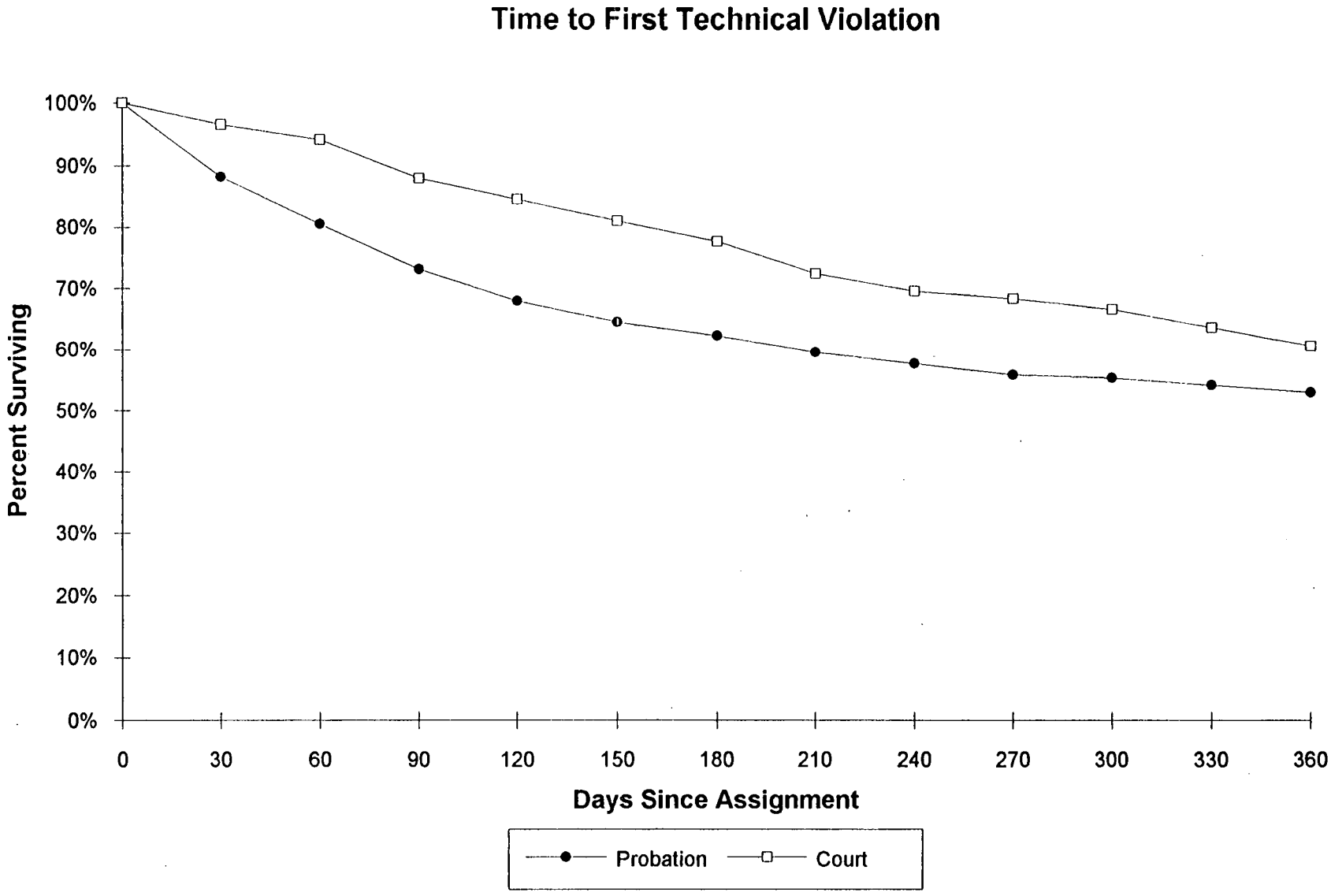

Time to First Technical Violation
Percent Surviving
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Days Since Assignment
Probation
Court

Figure 7.4

Since both a new arrest and a technical violation can be considered a form of relapse or recidivism, we also measured the time to either event, whichever occurred first. These results, shown in Table 7.7 and Figures 7.5 and 7.6, indicate statistically significant differences between the four groups in rates of recidivism. As might be expected from the earlier results, probationers on Track 3 (Scheduled Testing) failed faster than any other group, with almost 20 percent failing within the first 30 days, and another 20 percent in the next 60 days. Those on Track 2 had a similar survival/failure rate for the first 180 day period, but leveled off during the second-half of the follow-up period. Probationers on Track 1 failed at a slower rate, with about 8 percent of the group failing during each 30 day period for the first 90 days. about 6 percent of the group during each 30 day period for the next 120 days and then leveling off. Participants in the drug court program had the highest survival rate (lowest failure rate) during the first 180 days of the follow-up period and then continued at about the same level as probationers on Track 1 ("no test"). The Chi-square probabilities associated with the 3-way and 2-way Log-rank and Wilcoxon tests indicate the differences between levels of testing (Tracks 1-3) and between probation and drug court (Tracks 1-3 versus 4) were statistically significant. Figure 7.6 shows that the participants in drug court survived longer without a new arrest or technical violation in comparison to those on standard probation, with over 70 percent of the group remaining free from arrest or technical violation for the first 180 days of the follow-up period.

Table 7.7

Recidivism Survival by Track

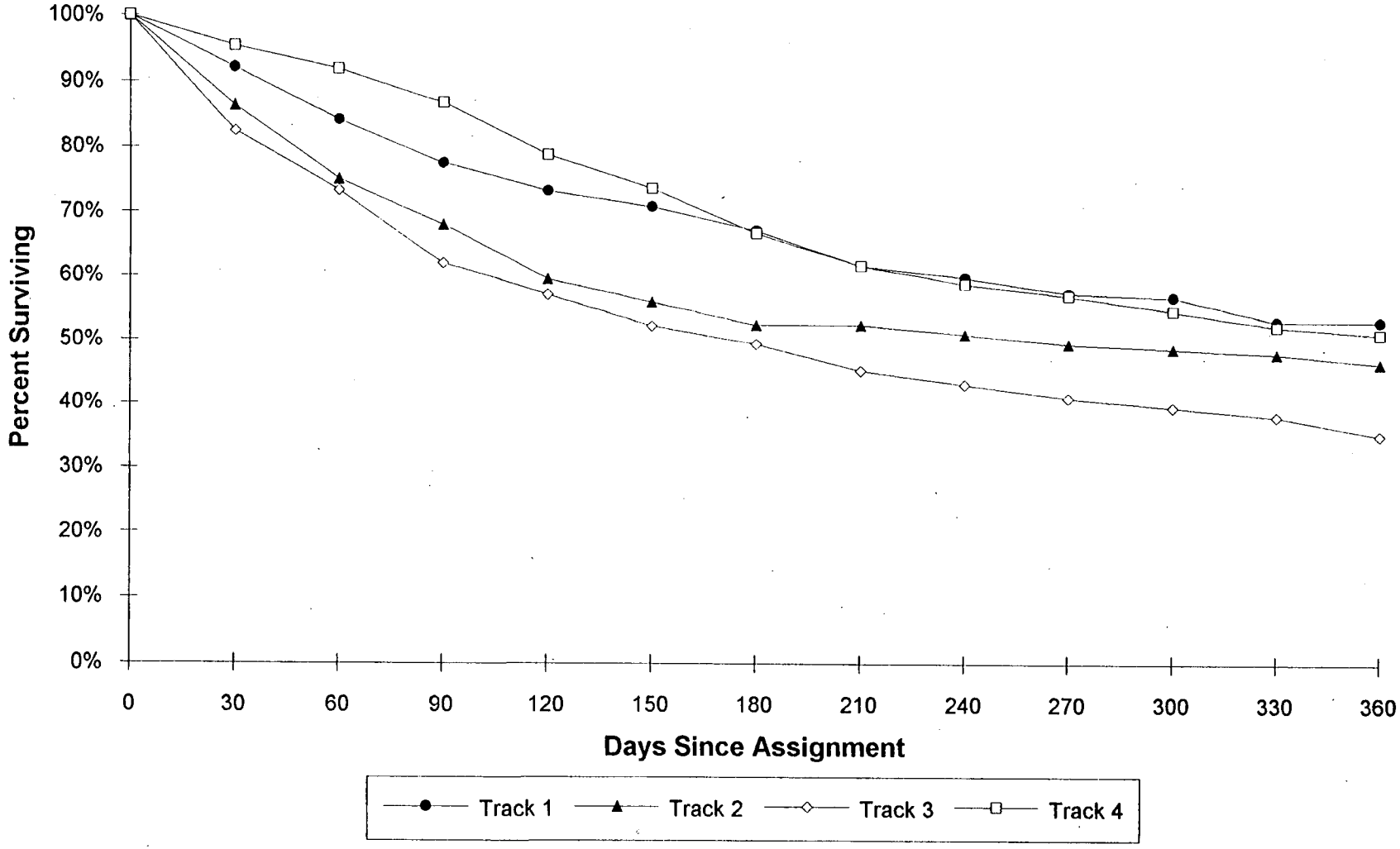
Time In Days	Number Failed					Number Censored					Number Exposed					Proportion Surviving				
	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	Track 1	Track 2	Track 3	Track 1-3	Track 4
0-30	13	19	25	57	8	2	0	3	5	0	166	141	144	450	176	1.000	1.000	1.000	1.000	1.000
30-60	13	16	13	42	6	0	0	0	0	0	152	121	117	391	168	.9217	.8652	.8258	.8735	.9545
60-90	11	10	16	37	9	0	0	0	0	1	139	106	104	349	162	.8429	.7518	.7340	.7796	.9205
90-120	7	12	7	26	14	0	0	0	0	0	128	96	88	312	152	.7762	.6809	.6211	.6970	.8692
120-150	4	5	7	16	9	1	1	0	2	0	120	84	81	285	138	.7337	.5957	.5717	.6389	.7891
150-180	6	5	4	15	12	0	0	0	0	0	116	78	74	268	129	.7094	.5601	.5223	.6030	.7376
180-210	9	0	6	15	9	0	0	0	0	0	110	73	70	253	117	.6727	.5242	.4941	.5693	.6690
210-240	3	2	3	8	5	0	1	0	1	2	101	72	64	238	107	.6176	.5242	.4517	.5355	.6176
240-270	4	2	3	9	3	0	0	0	0	1	98	70	61	229	100	.5993	.5097	.4305	.5175	.5887
270-300	1	1	2	4	4	1	0	0	1	1	94	68	58	220	96	.5748	.4951	.4094	.4972	.5711
300-330	6	1	2	9	4	1	1	1	3	0	92	66	56	214	92	.5687	.4879	.3952	.4881	.5475
330-360	0	2	4	6	2	1	1	1	3	0	84	64	52	202	88	.5314	.4805	.3810	.4675	.5237
360+	0	0	0	0	1	84	62	48	194	85	42	31	24	97	44	.5314	.4656	.3520	.4536	.5118
Total	46	53	63	54	49	54	47	37	46	51										
Percent																				

Mean Survival Time	
Track 1	230.4
Track 2	209.9
Track 3	190.2
Track 4	257.3

Test 3-way	Chi-sq.	df	Pr (Chisq)
Log-Rank	11.77	2	0.0028
Wilcoxon	12.73	2	0.0017
-2Log(LR)	13.99	2	0.0009

Test 2-way	Chi-sq.	df	Pr (Chisq)
Log-Rank	4.10	1	0.0429
Wilcoxon	8.01	1	0.0047
-2Log(LR)	4.20	1	0.0403

Time to First Felony Arrest or Technical Violation



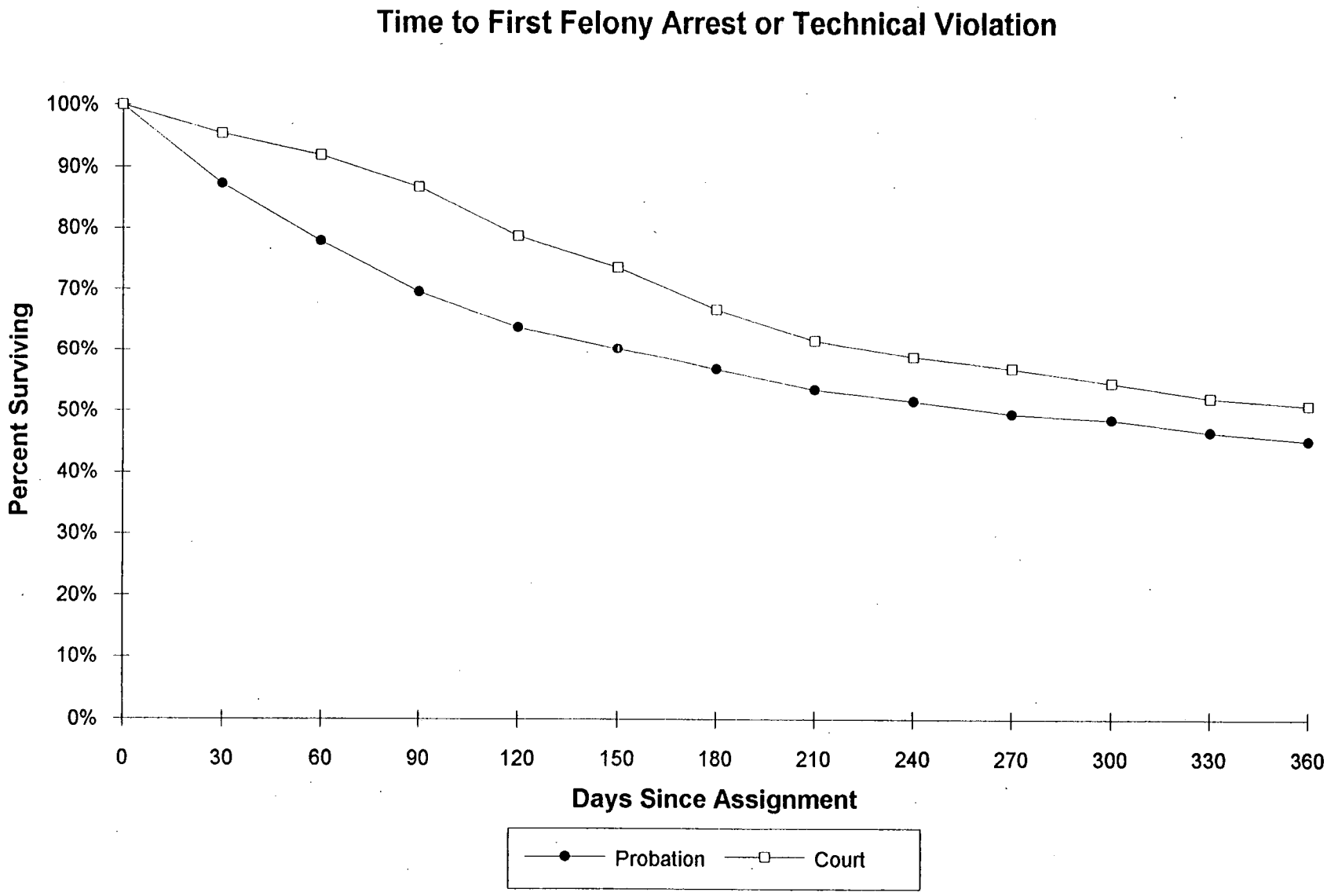

Time to First Felony Arrest or Technical Violation
Percent Surviving
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Days Since Assignment
Probation
Court

Figure 7.6

Since all of the offenders in the study had been arrested for possession of drugs, we repeated the survival analyses focusing only on new arrests for a drug offense or a technical violation that was drug-related. Table 7.8 and Figures 7.7 and 7.8 show the results for time to first arrest for a drug offense. As shown earlier for any arrest, no significant differences were found between tracks for a new drug offense. Those on Track 3 failed faster than any other group, particularly between the second and fourth months on probation (60 and 120 days). When comparing all those on standard probation to those in drug court (Figure 7.8), we find fewer differences between probation and drug court, with almost identical survival rates following the end of the drug court program (210 days).

The differences between tracks in the survival curves for technical violations for drugs were more pronounced than the earlier findings regarding any technical violation. As shown in Table 7.9 and Figures 7.9 and 7.10, probationers on Track 3 had the highest failure rate, followed by those on Track 2 and those on Track 1; those on Track 4 in drug court had the highest survival rate. During the first 60 days over 90 percent of those on Track 1 ("no test") and Track 4 (drug court) survived without violation. In comparison, roughly 20 percent of offenders in Tracks 2 and 3 had a drug-related technical violation within the first 60 days. By months three and four (90 and 120 days) probationers on Track 1 had a higher rate of drug-related technical violations than those in drug court (Track 4). However, those on Track 3 who were being tested more frequently continued to have a higher failure rate, while those on Track 2 leveled off.

The difference in survival rates between those on probation and those in drug court is clearly shown in Figure 7.10. Those in drug court had a significantly lower rate of technical violations during the entire follow-up period. The fact that some offenders were released from probation following successful completion of the drug court program may account for some of the differences between the two groups. These lower rates may be a result of by programmatic differences between the lead probation officer working with drug court clients and other

probation officer supervising offenders on standard probation in terms of policies towards technical violations.

Table 7.8

Time to First Drug Arrest by Track

Time In Days	Number Failed					Number Censored					Number Exposed					Proportion Surviving				
	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	Track 1	Track 2	Track 3	Track 1-3	Track 4
0-30	1	2	2	5	2	2	0	3	5	0	166	141	144	450	176	1.000	1.000	1.000	1.000	1.000
30-60	2	3	2	7	1	3	0	1	4	0	162	139	140	441	174	.9940	.9858	.9861	.9889	.9886
60-90	3	1	7	11	0	0	1	0	1	1	159	136	137	432	172	.9817	.9645	.9719	.9732	.9830
90-120	4	3	6	13	6	3	0	0	3	2	154	134	130	418	171	.9632	.9574	.9223	.9484	.9830
120-150	1	1	2	4	4	1	2	0	3	0	148	130	124	402	164	.9383	.9360	.8797	.9189	.9485
150-180	2	3	2	7	2	1	0	0	1	1	146	128	122	396	160	.9320	.9288	.8655	.9098	.9253
180-210	2	1	3	6	6	0	0	1	1	0	144	125	120	388	157	.9192	.9070	.8513	.8937	.9137
210-240	1	2	1	4	2	1	2	1	4	3	142	123	116	380	150	.9065	.8998	.8299	.8799	.8788
240-270	3	1	2	6	2	0	0	1	1	3	140	120	114	374	144	.9001	.8851	.8228	.8707	.8671
270-300	2	1	3	6	3	2	0	1	3	4	136	119	110	366	139	.8808	.8778	.8083	.8567	.8551
300-330	4	2	1	7	2	1	1	2	4	3	132	118	106	356	132	.8678	.8704	.7863	.8426	.8266
330-360	0	1	3	4	0	2	3	1	6	0	127	114	104	344	129	.8416	.8556	.7789	.8261	.8240
360+	0	0	0	0	2	126	111	100	337	127	63	56	50	168	66	.8416	.8480	.7563	.8165	.8240
Total	15	15	23	18	18	85	85	77	82	82										
Percent																				

Mean Survival Time	
Track 1	295.9
Track 2	306.8
Track 3	293.6
Track 4	328.2

Test 3-way	Chi-sq.	df	Pr (Chisq)
Log-Rank	5.16	2	0.0757
Wilcoxon	5.24	2	0.0726
-2Log(LR)	4.93	2	0.0850

Test 2-way	Chi-sq.	df	Pr (Chisq)
Log-Rank	0.003	1	0.9564
Wilcoxon	0.002	1	0.9607
-2Log(LR)	0.005	1	0.9411

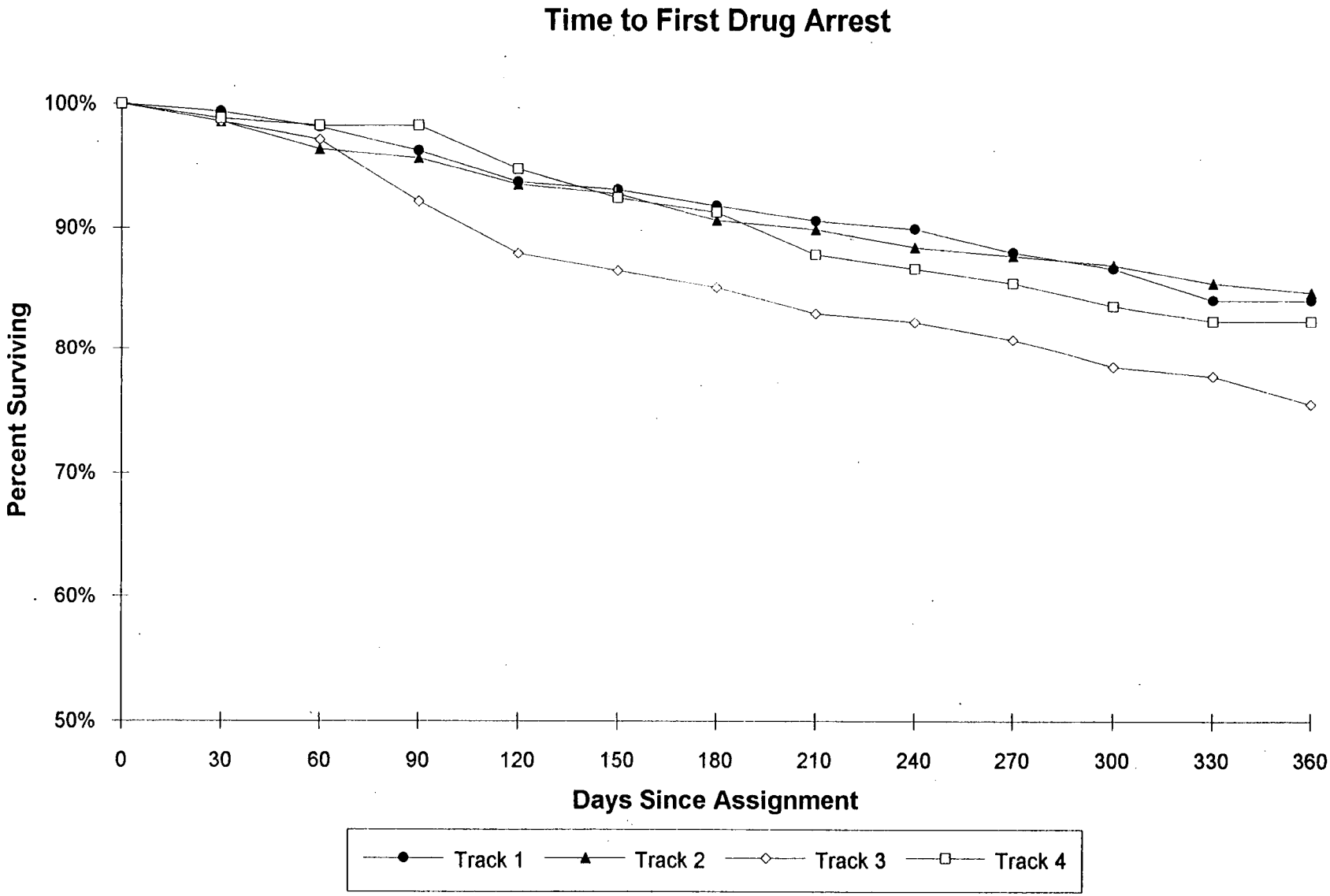

Time to First Drug Arrest
100%
90%
80%
70%
60%
50%
Percent Surviving
0
30
60
90
120
150
180
210
240
270
300
330
360
Days Since Assignment
Track 1
Track 2
Track 3
Track 4

Figure 7.7

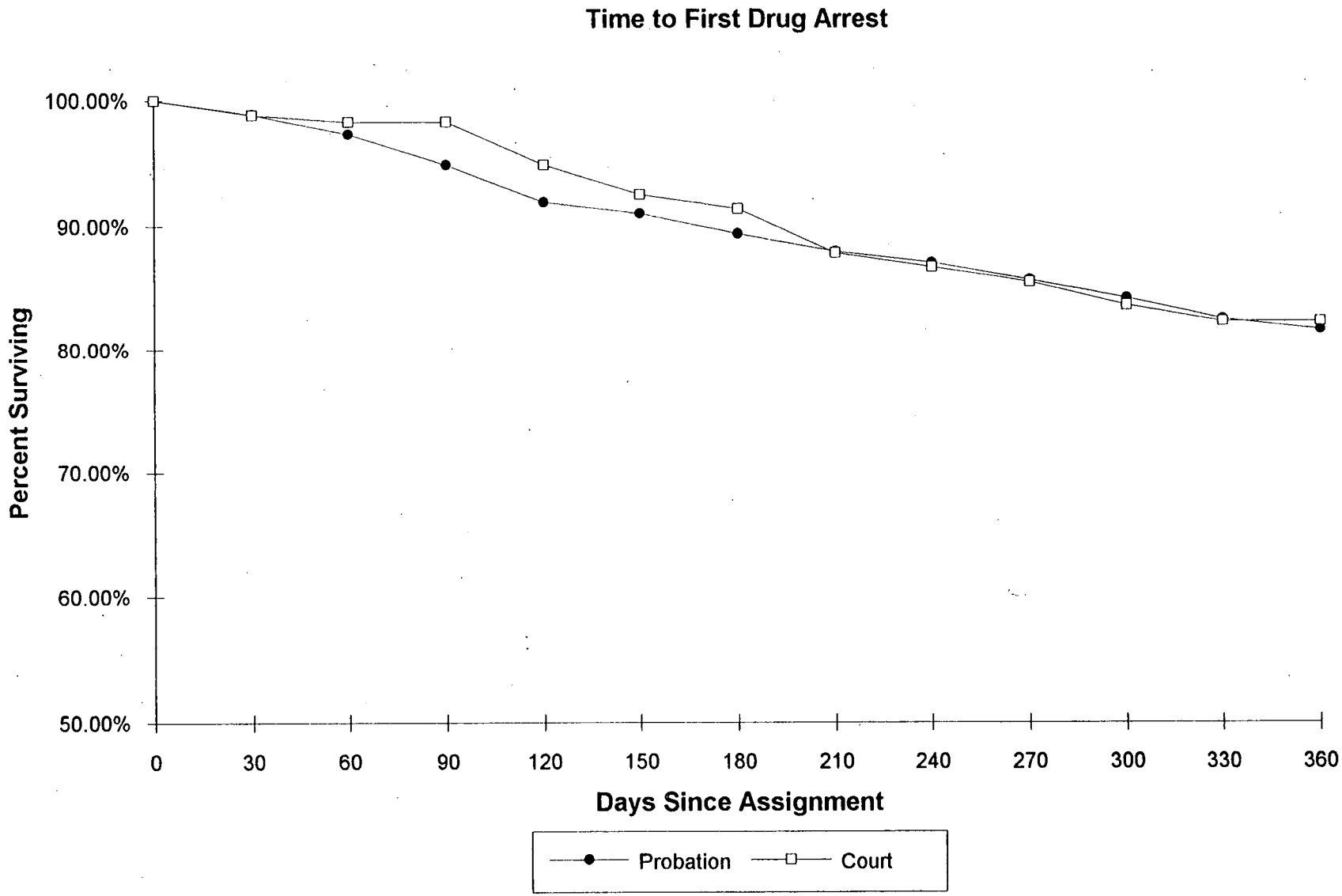
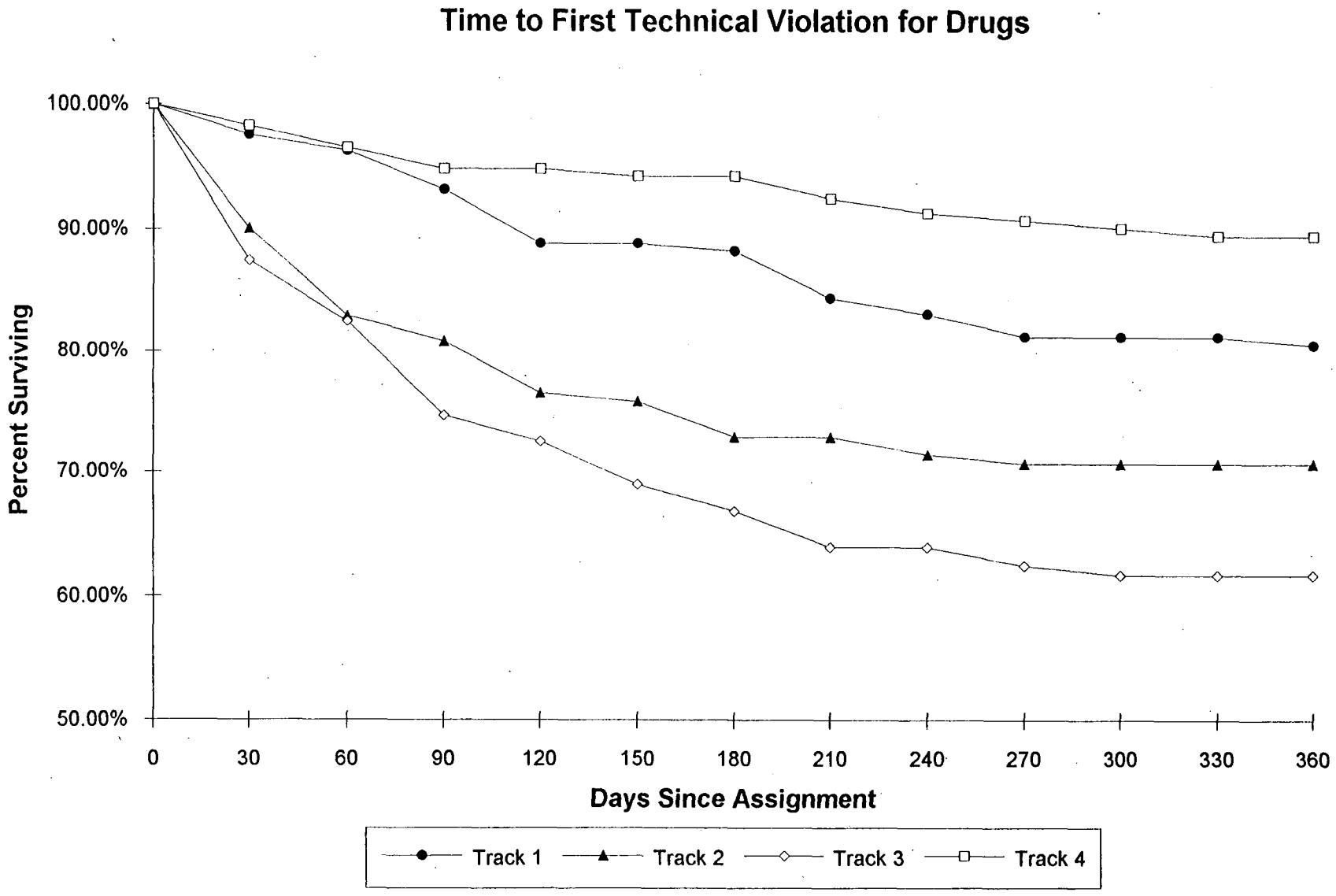

Time to First Drug Arrest
100.00%
90.00%
80.00%
70.00%
60.00%
50.00%
Percent Surviving
0
30
60
90
120
150
180
210
240
270
300
330
360
Days Since Assignment
Probation
Court

Table 7.9

Time to Technical Violation for Drugs by Track

Time In Days	Number Failed					Number Censored					Number Exposed					Proportion Surviving				
	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	TRK 1	TRK 2	TRK 3	TRK 1-3	TRK 4	Track 1	Track 2	Track 3	Track 1-3	Track 4
0-30	4	14	18	36	3	2	0	3	5	0	165	141	144	450	176	1.000	1.000	1.000	1.000	1.000
30-60	2	10	7	19	3	2	0	1	3	0	159	127	124	410	173	.9758	.9007	.8746	.9199	.9830
60-90	5	3	11	19	3	0	1	0	1	1	156	116	116	388	170	.9635	.8298	.8250	.8772	.9659
90-120	7	6	3	16	0	3	0	1	4	2	150	113	104	367	165	.9326	.8084	.7468	.8343	.9488
120-150	0	1	5	6	1	1	2	0	3	0	140	106	101	348	164	.8889	.7655	.7253	.7980	.9488
150-180	1	4	3	8	0	1	0	0	1	2	140	104	96	340	162	.8889	.7583	.6894	.7842	.9430
180-210	6	0	4	10	3	0	0	0	0	0	138	100	93	331	161	.8826	.7291	.6679	.7657	.9430
210-240	2	2	0	4	2	0	3	1	4	2	132	98	88	319	157	.8442	.7291	.6391	.7426	.9255
240-270	3	1	2	6	1	0	0	1	1	3	130	95	88	312	152	.8314	.7143	.6391	.7333	.9137
270-300	0	0	1	1	1	1	0	1	2	3	126	94	84	305	148	.8122	.7068	.6245	.7192	.9077
300-330	0	0	0	0	1	1	1	1	3	4	126	94	82	302	144	.8122	.7068	.6171	.7168	.9016
330-360	1	0	0	1	0	2	1	1	4	1	124	92	82	298	140	.8122	.7068	.6171	.7168	.8953
360+	0	0	0	0	0	122	92	81	295	140	61	46	40	148	70	.8057	.7068	.6171	.7144	.8953
Total	18	29	37	28	10	81	71	63	72	90										
Percent																				

Mean Survival Time		Test 3-way	Chi-sq.	df	Pr (Chisq)	Test 2-way	Chi-sq.	df	Pr (Chisq)
Track 1	296.5	Log-Rank	15.30	2	0.0005	Log-Rank	22.80	1	0.0001
Track 2	196.6	Wilcoxon	17.27	2	0.0002	Wilcoxon	23.70	1	0.0001
Track 3	202.6	-2Log(LR)	17.41	2	0.0002	-2Log(LR)	29.08	1	0.0001
Track 4	286.0								


Time to First Technical Violation for Drugs
100.00%
90.00%
80.00%
70.00%
60.00%
50.00%
Percent Surviving
0
30
60
90
120
150
180
210
240
270
300
330
360
Days Since Assignment
Track 1
Track 2
Track 3
Track 4

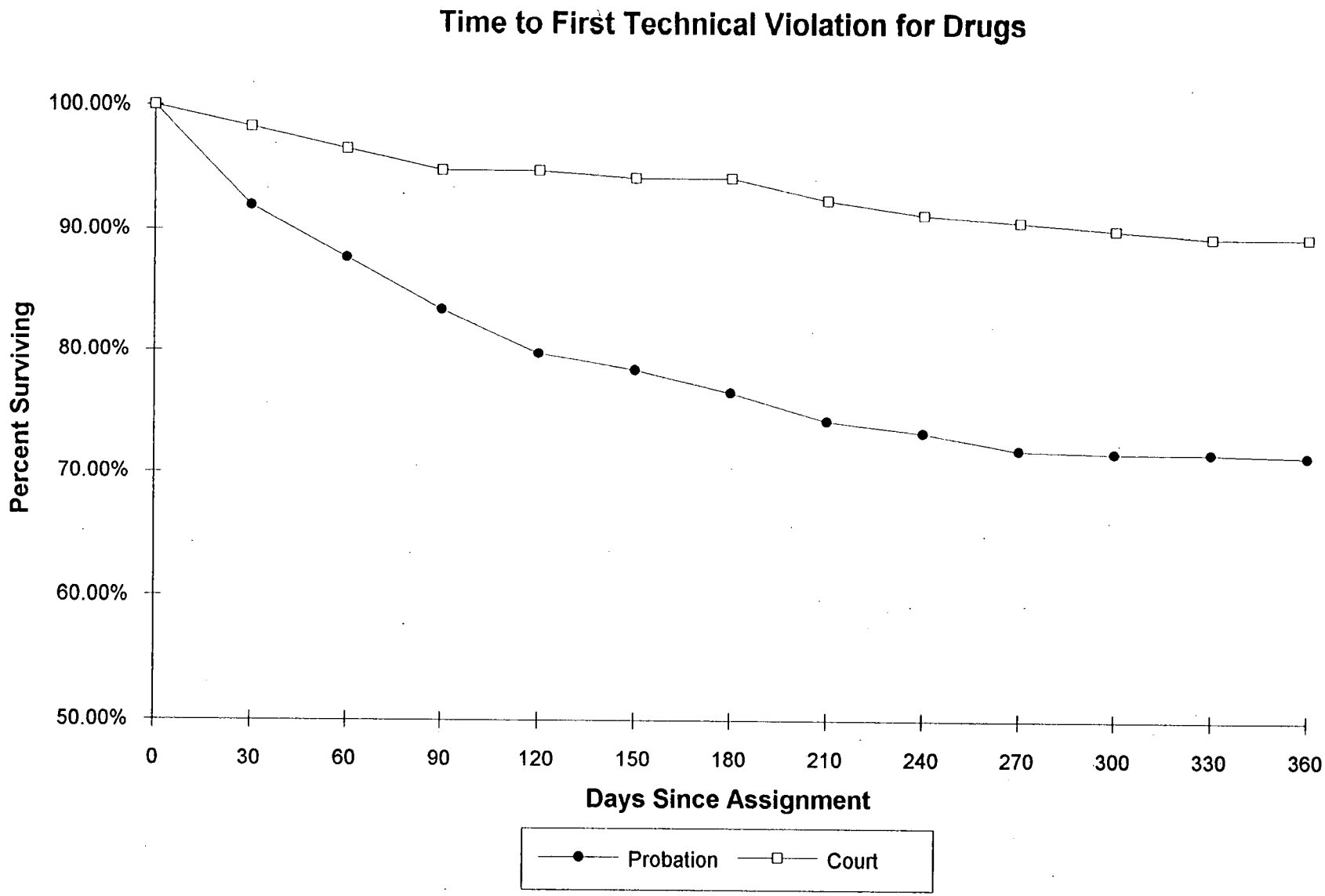

Time to First Technical Violation for Drugs
100.00%
90.00%
80.00%
70.00%
60.00%
50.00%
Percent Surviving
0
30
60
90
120
150
180
210
240
270
300
330
360
Days Since Assignment
Probation
Court

Figure 7.10

8. PREDICTING RECIDIVISM

In addition to identifying the proportion of offenders with a new arrest or technical violation, we wanted to determine what characteristics were associated with recidivism. Knowing those least and most likely to recidivate helps to predict those who are more likely to succeed in the program. The variables used in predicting recidivism include characteristics measured prior to the current probation sentence that are traditionally believed to be predictors of recidivism. These measures included age at first conviction, number of prior arrests, risk level, and a composite measure of drug use history.[58] The measure of drug use history was created based on a past history of use of a specific drug or a current arrest for possession of that drug.[59] We also included measures from the pre-sentence investigation such as prior drug treatment and reported drug dealing. Demographic variables, e.g., sex and race, as well as the experimental condition (e.g., Tracks 1-4), were also included as independent variables.

In discussing the results, it is necessary to recognize the limits of the analyses. Two major problems typically associated with prediction models and classification schemes based on prior behavior or characteristics are: false positive and false negative errors in prediction (Gottfredson, 1987). A false positive refers to the prediction of an event (or behavior) that does not occur, whereas a false negative happens when one does not predict the event (or behavior) and it does occur. If the false positive or negative rates for the particular model are relatively low (less than 10 percent error), then

---

[58] The risk level refers to the score obtained from the Pre-sentence Investigation report and reported earlier in Table 4.1.

[59] This measure was based on a hierarchy of more serious to less serious drug use. Those arrested for possession of heroin, or reporting any prior heroin use were considered heroin users. Those with an arrest for possession of cocaine or reporting prior cocaine use were considered cocaine users. All others with an arrest for possession of other dangerous drugs, marijuana, or drug paraphernalia with no history of prior heroin or cocaine use were placed in the third category of other drug use.

the model is deemed relatively accurate and has potential. Yet this is often not the case, and the model is generally less accurate than we would like.

Our analysis strategy followed a two step procedure. First, prior to running the models, we examined the relationship between each of the predictors and the three outcome variables. Chi-square tests were used to examine the association between the dichotomous dependent variables (any arrest, any technical violation, any recidivism) and the categorical independent variables. One way analysis of variance or t-tests were used to compare the independent variables measured as continuous variables. We analyzed the correlation between the independent variables in order to check for collinearity among the predictors. The results for the chi-square and t-tests are shown in Table 8.1; the correlation matrix is displayed in Table 8.2.

Significant associations with having a technical violation, as shown in Table 8.1, were found for being on Track 3, being African-American or Hispanic (versus white), having a prior history or arrest for use of some drug other than cocaine or heroin, having a higher number of prior arrests and a higher risk level. Table 8.1 also includes two concurrent measures which were not used in predicting recidivism due to the possible confounding with the experimental condition. Clients with no counseling or treatment were more likely to have a technical violation than those with counseling or treatment during the twelve-month follow-up period.

For any arrest, significant associations were not found by Track, but were found with race and other drug use and all of the measures of criminal record history, i.e., mean age at first conviction, number of prior arrests, and risk level. The likelihood of a new arrest was not related to gender, or experimental condition, being a drug dealer, having prior drug treatment, or having counseling or treatment during the follow-up period. The independent variables associated with recidivism included experimental condition (Track 3), race (being African-American or Hispanic), drug use (heroin or other drugs), risk level, and counseling or treatment during the follow-up period.

Table 8.1

Variables Related to Recidivism

	Any Technical	Any New Arrest	Any Recidivism
Sample size (N)	(630)	(630)	(630)
Condition			
Track 1	39.9	30.4	46.4
Track 2	44.7	29.8	53.2
Track 3	54.5*	36.6	63.4*
Track 4	39.2	31.2	48.9
Demographics			
Male	42.8	32.8	51.5
Female	48.9	28.8	56.1
Anglo-American	44.4	30.5	51.8
African-American	53.7*	47.2*	65.8*
Hispanic	35.5*	24.5*	43.2*
Other race (n=13)	53.8	7.7	53.8
Drug Use History			
Heroin Use or Current Arrest	49.7	36.5	59.9*
Cocaine Use or Current Arrest	48.6	33.8	57.6
Other Drug Use or Arrest	36.8*	27.3*	43.5*
Criminal Record History			
Mean Age at First Conviction[a]	24.5	23.1*	24.2
Average Number of Prior Arrests[b]	4.8*	5.2*	4.7*
Average Risk Level	12.7*	12.8*	12.6*
Drug-Related Factors			
Non drug dealer	44.5	32.2	53.1
Drug dealer	42.4	30.5	50.0
No prior drug treatment	45.6	31.4	53.9
Prior drug treatment[c]	41.7	32.6	50.4
Concurrent Activities			
No counseling	48.6	33.5	55.7
Any counseling	34.6*	28.7	44.2*
No treatment	52.9	32.7	59.2
Any treatment	38.0*	31.6	46.9*

Notes:

* Significant difference ($p < .05$) between those with and without characteristic (technical, arrest, or any recidivism)

[a] Sample size reduced to 616 due to 14 missing observations

[b] Sample size reduced to 627 due to 3 missing observations

[c] Sample size reduced to 628 due to 2 missing observations

Table 8.2

Correlation Matrix

	Sex	African-American	Hispanic	Heroin	Cocaine	Age Convicted	Priors	Risk	Dealer	Treatment
Sex	1.000 0.000									
African-American	-0.0566 0.1559	1.000 0.000								
Hispanic	0.1351 0.0007	-0.2814 0.0001	1.000 0.000							
Heroin	-0.0534 0.1809	0.1669 0.0001	0.0410 0.3040	1.000 0.000						
Cocaine	-0.0054 0.8921	-0.0470 0.6704	-0.0443 0.2669	-0.4247 0.0001	1.000 0.000					
Age Convicted	-0.1732 0.0001	0.0464 0.2505	-0.0726 0.0716	0.0793 0.0490	0.0436 0.2804	1.000 0.000				
Priors	0.1456 0.0003	0.0978 0.0143	0.0453 0.2575	0.0611 0.1264	-0.0352 0.3790	-0.3150 0.0001	1.000 0.000			
Risk	0.1236 0.0019	0.0151 0.7053	0.1626 0.0001	0.0303 0.4484	0.0787 0.0485	-0.3899 0.0001	0.4510 0.0001	1.000 0.000		
Dealer	-0.0193 0.6291	0.0304 0.4462	0.0658 0.0988	0.0620 0.1204	-0.0547 0.1706	-0.0568 0.1592	-0.0772 0.0532	0.0188 0.6376	1.000 0.000	
Treatment	0.0675 0.0910	-0.0775 0.0523	-0.0863 0.0306	0.0077 0.7482	0.0005 0.9894	-0.0384 0.3421	0.1384 0.0005	0.1345 0.0007	-0.0710 0.0756	1.000 0.000

Examining the correlation between independent variables in Table 8.2, we found moderate correlations (0.3-0.5) between measures of prior criminal record, e.g., age at first conviction and number of prior arrests, and risk level, but all other correlations were below 0.2. To avoid any problems with multi-collinearity, the measures of criminal record and age at first conviction were not included in the reduced models. These two variables were also excluded because they lowered the sample size.

In the second step of our analysis, logistic regression procedures were used to examine the predictors of recidivism. First the saturated models were constructed that included all of the independent variables, excluding the concurrent measures (any counseling or treatment during follow-up). Second, we performed a backwards stepwise procedure and tested various models to obtain the best-fitting reduced model. Tables 8.3-8.5 show the results for the saturated and reduced models for each of the dependent variables.

Predictors for any technical violation are shown in Table 8.3. The variables with the strongest association, as shown by the significance of the Wald Chi-square test, included: Track 3 condition, being Hispanic, having a prior history of or arrest for heroin use or possession, having a prior history of or arrest for cocaine use or possession, the age at first conviction, and criminal risk score.

Table 8.3

Prediction Models and Parameter Estimates for Any Technical

Sample size	Saturated Model (N=615)			Reduced Model (N=630)		
	Parameter Estimate	Wald Chi-Square	Odds Ratio	Parameter Estimate	Standard Estimate	Odds Ratio
Intercept	-1.1698	10.0711*	0.183	-1.2211		0.295
Condition						
Track 1	-0.1562	0.4079	0.855			
Track 3	0.5784	5.1547*	1.783	0.6605	0.1534	1.936
Track 4	-0.1664	0.4750	0.847			
Demographics						
Male	-0.2302	1.2026	0.794			
African-American	0.2628	1.3201	1.301			
Hispanic	-0.5198	5.6903*	0.595	-0.6423	-0.1526	0.526
Drug Use History						
Heroin Use/Possession	0.5025	5.1950*	1.653	0.5980	0.1456	1.818
Cocaine Use/Possession	0.4194	4.3942*	1.521	0.4113	0.1070	1.509
Criminal Record						
Age First Conviction	0.0268	4.3021*	1.027			
No. of Prior Arrests	0.0404	3.5772	1.041			
Average Risk Level	0.0560	5.8406*	1.058	0.0560	0.1386	1.058
Drug-Related						
Drug dealer	-0.0917	0.1745	0.912			
Prior drug treatment	-0.2660	2.1780	0.766			

* Wald Chi square significant at p <.05

Model Fit						
-2 Log L Chi-square	47.4	13 df	p=.0001	35.3	5 df	p=.0001
Residual Chi-Square				4.1	4 df	p=.3961

Prediction Table

	Actual Value			
Predicted Value	Any Technical	No Technical	Percent Correct	59.2
Any Technical	106 (38.1%)	85 (24.1%)	Sensitivity	38.1
No Technical	172 (61.9%)	267 (75.9%)	Specificity	75.9
	278 (44.1%)	352 (55.9%)	False Positive	44.5
			False Negative	39.2

The stepwise regression was then used to find a reduced model.[60] Following the stepwise regression, those variables found to be significant using the Wald chi-square test remained in the reduced model. In comparison to the saturated model, the reduced model provides almost as good a fit to the data, as evidenced by the difference in the -2 Log likelihood Chi-squares and the residual Chi-square values. The reduced model appears to provide a better fit to the data, as indicated by the reduction in the -2 Log Likelihood Chi-square value and the low value of the residual chi-square. The experimental condition of Track 3 -- high-rate testing was the strongest predictor of a technical violation, as shown by the higher values for both the parameter and standardized estimate. This status increased the odds of having a technical by almost a 2:1 ratio. Next in significance was being of Hispanic origin, which actually reduced the odds of having a technical violation. Having a prior history of cocaine or heroin use or a current arrest for possession of heroin or cocaine also increased the odds of a technical violation. The least important variable in the reduced model predicting a technical violation was the criminal risk score.

The prediction table shown at the bottom of Table 8.3 shows the accuracy of the reduced model in predicting the log-odds of any technical violation. The reduced model yielded correct values 59 percent of the time, but resulted in high false positive and false negative rates (44 and 39 percent respectively). As shown in the far left columns, only 38 percent of those who were predicted to have one actually had a technical violation. In comparison, 62 percent of those who had a technical were predicted not to have one. It would seem that predicting a technical violation using only demographic, drug use, and criminal history measures is not very accurate. The strength of the Track 3 variable replicates our earlier findings that more frequent testing is likely to lead to a greater probability of a technical violation.

---

[60] Since both age at first conviction and criminal risk score were significant, but age at first conviction has some missing observations and is correlated with the risk score, the age variable was omitted from the stepwise procedure.

Table 8.4

Prediction Models and Parameter Estimates for Any Arrest

Sample size	Saturated Model (N=615)			Reduced Model (N=627)		
	Parameter Estimate	Wald Chi-Square	Odds Ratio	Parameter Estimate	Standard Estimate	Odds Ratio
Intercept	-1.1682	4.2248*	0.311	-1.1717		0.310
Condition						
Track 1	0.1111	0.1788	1.118			
Track 3	0.5511	4.1655*	1.735			
Track 4	0.0873	0.1129	1.091			
Demographics						
Male	0.1346	0.3490	1.144			
African-American	0.7132	9.4463*	2.041	0.7590	0.1663	2.136
Hispanic	-0.4028	2.9026	0.668			
Drug Use History						
Heroin Use/Possession	0.4581	3.8629*	1.581			
Cocaine Use/Possession	0.3258	2.3163	1.385			
Criminal Record						
Age First Conviction	-0.0217	2.3564	0.979			
No. of Prior Arrests	0.0394	3.3351	1.040	0.0576	0.1473	1.059
Average Risk Level	0.0147	0.3788	1.015			
Drug-Related						
Drug dealer	-0.0774	0.1093	0.926			
Prior drug treatment	-0.0103	0.0030	0.990			

* Wald Chi square significant at p <.05

Model Fit						
-2 Log L Chi-square	38.5	13 df	p=.0002	25.3	2 df	p=.0001
Residual Chi-Square				6.8	6 df	p=.3375

Prediction Table

	Actual Value			
Predicted Value	Any Arrest	No Arrest	Percent Correct	68.3
Any Arrest	18 (9.0%)	16 (3.8%)	Sensitivity	9.0
No Arrest	183 (91.0%)	410 (96.2%)	Specificity	96.2
	201 (32.1%)	426 (67.9%)	False Positive	47.1
			False Negative	30.9

The saturated and reduced models predicting any arrest are shown in Table 8.4. According to the significance of the Wald Chi-square values, the variables related to any arrest during the twelve-month follow-up include: Track 3 condition, being an African-American, and a prior history of heroin use or current arrest for possession of heroin. When entered into the stepwise regression model, however, the only two variables retained in the reduced model were being an African-American and number of prior arrests. The stronger of these two variables was race, which increased the odds of an arrest greater than 2:1. Prior research has shown that having a prior arrest is a predictor of recidivism, thus it should come as no surprise that it increased the odds of an arrest among the study participants.

The reduced model provides an adequate fit to the data in comparison to the saturated model, as indicated by the chi-square values. However, as was found for the prediction of any technical violation, the model resulted in high false positive and false negative rates, even though 68 percent of the values were correctly predicted. The prediction table in the left-hand column indicates that the most frequent prediction was no arrest, which is due to the fact that two-thirds of the sample did not have a new arrest.

The last prediction model shown in Table 8.5 used recidivism, defined as any technical violation or any new arrest, as the dependent variable. Given that slightly over 50 percent of the sample had a technical violation or new arrest, we expected this model would have the best results of the three we tested. Those variables that had been associated with either a technical violation of arrest were found to be related to recidivism: Track 3 (high-rate testing) condition, being an African-American or Hispanic, having a prior history of heroin or cocaine use or an arrest for possession of cocaine or heroin, and criminal risk score.

Table 8.5

Prediction Models and Parameter Estimates for Any Recidivism

Sample size	Saturated Model (N=615)			Reduced Model (N=630)		
	Parameter Estimate	Wald Chi-Square	Odds Ratio	Parameter Estimate	Standard Estimate	Odds Ratio
Intercept	-0.9193	2.9742	0.399	-0.9998		0.368
Condition						
Track 1	-0.2408	0.9868	0.786			
Track 3	0.6475	6.2856*	1.911	0.7403	0.1719	2.097
Track 4	-0.1281	0.2865	0.880			
Demographics						
Male	-0.1632	0.5963	0.849			
African-American	0.5120	4.7150*	1.669	0.4992	0.1092	1.647
Hispanic	-0.5014	5.5122*	0.606	-0.5413	-0.1286	0.582
Drug Use History						
Heroin Use/Possession	0.6803	9.5644*	1.975	0.6621	0.1612	1.939
Cocaine Use/Possession	0.5324	7.1490*	1.703	0.4836	0.1258	1.622
Criminal Record						
Age First Conviction	0.0094	0.5284	1.009			
No. of Prior Arrests	0.0257	1.4146	1.026			
Average Risk Level	0.0460	3.9361*	1.047	0.0526	0.1301	1.054
Drug-Related						
Drug dealer	-0.1859	0.7214	0.830			
Prior drug treatment	-0.2095	1.3703	0.811			

* Wald Chi square significant at p <.05

Model Fit						
-2 Log L Chi-square	52.7	13 df	p=.0001	46.8	6 df	p=.0001
Residual Chi-Square				1.8	3 df	p=.6213

Prediction Table

	Actual Value		
Predicted Value	Any Recidivism	No Recidivism	Percent Correct 59.5
Any Recidivism	219 (66.2%)	143 (47.8%)	Sensitivity 66.2
No Recidivism	112 (33.8%)	156 (52.2%)	Specificity 52.2
	331 (52.5%)	299 (47.5%)	False Positive 39.5
			False Negative 41.8

All of the variables shown to be significant using the Wald Chi-Square test were retained by the reduced model after the stepwise regression. As was found for any technical violation, the strongest predictor was the Track 3 experimental condition, which increased the odds 2:1 of recidivism. A prior history or arrest for heroin use was the second strongest predictor, as shown by the higher values for the parameter and standardized estimates, which again increased the odds of recidivism almost 2:1. Being Hispanic decreased the odds, but being an African-American increased the odds of recidivism. A prior history of cocaine use or arrest for possession of cocaine was next in significance in predicting recidivism. The least important variable in the prediction model was the criminal risk score.[61]

The reduced model improved the fit only slightly, with a chi-square value of 46.8 and 6 degrees of freedom, even though the residual chi-square was very small and not statistically significant. This model was about as accurate as the other two, with 60 percent correct, but false positive and negative rates hovering around 40 percent. The sensitivity and specificity values indicate a better prediction model than the previous two. Looking at the actual and predicted values in the left-hand column of the table, it appears that this is the best model, correctly predicting 66 percent of those who actually did recidivate and 52 percent of those who did not recidivate.

In sum, the prediction models we tested indicate that it is perhaps unwise to rely solely on information that is routinely available at intake, such as race, prior history of drug use, type of current offense, and risk score, to predict recidivism among probationers. There are too many other unknowns which affect the chances of a new arrest or technical violation. Many other variables could be added which are not known at the time of intake. Although we did not add interaction terms to these models, there did not appear to be any reason

[61] Prior to this experiment the Maricopa County Adult Probation Department had decided to eliminate the NIC risk instrument from the presentence investigation. We asked that the instrument be used for the FTDO study since it would provide data on this sample of probationers that would be similar to the data collected for the nationwide evaluation of ISP.

to include them, since there were few relationships between these independent variables. The high false positive and negative rates remind us that predicting future human behavior is a risky business, given that people change over time. However, one may question whether assigning probationers to more frequent testing is either a set up for failure, or a good method to monitor drug use and other behavior that results in violations of probation, since this appears to be the strongest predictor of recidivism in these models.

9. CONCLUSIONS AND POLICY IMPLICATIONS

In 1992, Maricopa County, Arizona, became one of the first jurisdictions to implement a post-adjudication, as opposed to diversionary, drug court program. It also became one of the few sites at which an experimental evaluation was conducted, with offenders randomly assigned to drug court and other controlled programs, i.e. standard probation with various levels of drug testing. Under the 1994 Violent Crime Control and Law Enforcement Act (Part V, Title V), the National Institute of Justice, in conjunction with the Bureau of Justice Assistance and the Office of Justice Programs Drug Court Office, is supporting research on drug courts. The findings of the current evaluation supplement that ongoing research. They also provide further evidence regarding the usefulness of urinalysis for probationers who are drug users.

In RAND's evaluation of Maricopa County's First-Time Drug Offender (FTDO) program, 639 adult offenders beginning probation were selected from those who had been convicted of a first time felony for drug possession between March 1992 and April 1993. The selected participants were randomly assigned to four drug testing and treatment regimes and followed for a period of twelve months. The evaluation design prescribed regimes providing for no testing (Track 1), monthly testing on random dates (Track 2), scheduled frequent testing (Track 3), and a drug court program incorporating drug treatment and testing, and monthly status hearings before a superior court judge (Track 4). We compared the first three tracks with each other to determine the effects of testing frequency, and the fourth with the first three to determine the effects of drug court relative to standard probation. We were primarily interested in effects on drug use and recidivism, but we were also interested in process-oriented effects such as amount of treatment received, number of drug tests actually taken, and sanctions for positive tests. Our major research findings and some policy recommendations based on them are discussed in this final section of the report.

FREQUENCY OF TESTING AND USE OF SANCTIONS FOR PROBATION

In comparing the first three tracks, the main questions we sought to answer were these: Would monitoring offenders with scheduled drug tests twice weekly be more effective in deterring drug use and reducing crime than the routine level of testing once per month? Would any testing be more effective than no testing? For all levels of testing, probation officers were to follow the departmental guidelines of graduated sanctions for violations of probation conditions. Given the findings from prior research on intensive supervision (Petersilia and Turner, 1993), it was expected that the higher level of testing would lead to an increased level of technical violations, but would have little impact on recidivism.

Program Implementation

The FTDO program was designed so that the lead probation officer was responsible both for the oversight of the ten probation officers in the testing experiment and for the drug court program. The officer's caseload for the drug court was high, with approximately 20 new cases each month. In addition to weekly phone contact with clients, the PO had to prepare written progress reports for the status hearings once a month. Given these responsibilities, the lead PO seemed to focus more on the drug court regime than the testing regimes. Consequently, despite several meetings and memoranda intended to provide structure to the probation officers in the FTDO program, program implementation for the drug testing regimes was not as rigorous as desired.

Probation officers did not always comply with the ordered levels of urine testing for Tracks 1-3. For example, 63 percent of offenders in the "no test" regime (Track 1) had at least one test. Furthermore, those on Track 3 (high-rate, scheduled testing) averaged two tests per month, rather than the nine per month planned during their time on probation. Nonetheless, the level of testing for Track 3 was significantly higher than for Tracks 1 and 2, allowing us to compare the effects of increased testing on substance use and recidivism. For example, those on Track 1 averaged 0.3 tests per month and those on Track 2 (low-rate testing) averaged 0.7 tests, while those on Track 3

averaged 2.4 tests. On the other hand, the level of contact was significantly higher for those on Track 3 than for those on Tracks 1 and 2. The increased contact rate may have been a by-product of the increased testing rate; in any case, it was difficult to separate the effects of increased testing from increased contact.

Program Participation and Outcomes

The more frequently tested probationers -- those assigned to Track 3 -- spent significantly less time subject to routine PO supervision than those on Tracks 1 and 2; they spent more time in confinement (jail or prison), in intensive supervision, and absconded (though these differences were not statistically significant). They also had significantly higher rates of technical violations, due to positive drug tests, which led to revocation of probation and the jail time just mentioned. In addition, Track 3 was lower than Track 1 in proportion of offenders who were employed full-time or who performed community service during the twelve month follow-up.

After controlling for the number of persons tested, we found that a significantly lower percentage of drug tests for those on Track 3 turned out positive than for those on Track 1. Thus, rate of testing appeared to be inversely associated with frequency of drug use. For specific drugs, there were no associations between testing rate and use except in the case of marijuana, for which the most frequently tested (Track 3) again had a lower percent positive than the least frequently tested (Track 1).

The level of testing appeared to have no effect on offenders' arrest rates or on the time to their first arrest. However, Track 3 participants were more likely to have had a technical violation (for any reason, or a drug-related infraction). The difference in percent of offenders with a drug-related technical violation showed up by the third month of probation. Thus, it was no surprise that in our regression analyses, assignment to Track 3 was one of the strongest predictors of recidivism (where recidivism includes technical violations).

In sum, it appears on the basis of these data that more frequent testing deters drug use, particularly in the case of marijuana.

However, it did not have an impact on arrest or conviction rates. Not surprisingly, frequent testing appears to be an effective tool in catching sooner those who continue to use drugs while on probation. However, even though probationers on Track 3 had higher rates of drug-related technical violations, there appear to be no statistically significant differences between the groups in terms of sanctions or treatment as a result of these violations. We had hoped to include systematic variation in sanctions as part of the experiment by having different POs use different sanctions in response to technical violations. However, MCAP believed it was best to allow individual POs to retain their discretionary power in recommending sanctions.

Comparison to Other Studies

Prior research on the impact of drug testing during pre-trial release has shown mixed results. In the District of Columbia pretrial testing program, monitoring reduced failure to appear and rearrest. However, only two of six sites subsequently implementing that program (one of the six was Maricopa County) had similar results. In a study of the impact of system-wide drug testing in Multnomah County, Oregon, researchers found about half of the sample tested positive at least once (NIJ, 1995), which is fairly close to the analogous percentage in our sample (roughly 60 percent). They also found no significant decrease in rearrest rates of probationers or parolees (NIJ, 1995). Again, our results were similar to those in Multnomah County, Oregon, and to those in other sites where drug testing during pretrial release did not result in fewer arrests. The findings are also similar to those of an experimental evaluation of drug testing for parolees from the California Youth Authority, where there were no differences between groups with different levels of testing in terms of the impact on recidivism (Haapanen, 1995).

The findings of our drug testing experiment in Maricopa County are similar to earlier RAND findings related to urinalysis testing of offenders on intensive supervision versus routine supervision (Turner et al., 1994). In that study, we found that intensive supervision, with its more frequent testing, led to higher rates of technical violations

in three of five sites but no significant differences in likelihood of jail or prison time in most sites.

DRUG COURT VERSUS STANDARD PROBATION

A major objective of this experiment was to test the effectiveness of combining treatment with frequent court appearances as a means of supervision and sanctions. Preliminary evaluations of the Miami (Dade County) and Oakland (Alameda County) drug courts had found lower rates of rearrest among drug court participants in comparison to non-participants (Goldkamp and Weiland, 1993a; Tauber, 1991). However, as offenders were not randomly assigned to experimental and control conditions, we cannot be sure that the differences were not the result of selection bias.

In the current experiment, offenders were randomly assigned either to the drug court program with integrated treatment or to standard probation. Given the lack of available treatment for drug offenders on probation in Maricopa County, we expected that participants in drug court would receive more treatment and counseling. It was hoped that this treatment would reduce substance use and thereby lower technical violations and new arrests.

Program Implementation

The drug court program was fairly well implemented in terms of the levels of participation in drug education classes, counseling, and treatment. However, some clients referred to the drug court never appeared for drug treatment with the private provider, thus only 85 percent received the program as designed. Nonetheless, there were many statistically significant differences between the drug court program and standard probation.

For example, a greater proportion of clients in drug court participated in drug education and treatment and attended outpatient counseling than individuals on standard probation. Whereas 85 percent of drug court participants received treatment, less than half of those on standard probation received any drug treatment. Perhaps the most important difference between drug court and probation was the

significantly lower level of drug testing for those in drug court than for those on probation. Other differences included lower levels of employment and lower rates of fee payment among drug court participants than among those on probation. Thus, in comparing drug court participants to those on standard probation, the differences in outcomes might be due to the drug court program or due to different levels of drug testing, employment, and mandatory payments.

Program Outcomes

Regardless of differences in program implementation and participation during the twelve-month follow-up, there were few differences between those who participated in drug court and those on standard probation in terms of outcomes. The drug court program did not reduce overall substance use, as measured by the proportion of urinalysis tests that were positive. As for specific drugs, the only statistically significant difference was a higher proportion of positive tests for marijuana among drug court clients than among standard probationers (among tested offenders only). This was offset by rates of cocaine and heroin use that were lower among drug court clients, but not significantly so.

The most significant impacts of the drug court program were a reduced time spent on probation (and more time spent free) and a lower proportion of offenders who were sentenced to prison as a result of a new arrest. The latter appears to have been mainly the result of a lower likelihood of drawing a prison term for a property crime. Those in drug court also had fewer drug-related technical violations on average than those on standard probation, but the number of participants with at least one violation was not significantly lower. (This suggests that some probationers, i.e., those frequently tested, were responsible for a lot of violations, which was the case.) A smaller proportion of offenders in the drug court program had a technical violation for not showing up or absconding, perhaps because they knew they faced a bench warrant for failure to appear in court. Participation in drug court did delay the time until first technical violation, but had no impact on

time to first arrest. Neither did drug court participation affect likelihood of arrest or conviction.

In sum, the results of our twelve month follow-up evaluation show the Maricopa County drug court is having a significant impact on the proportion of probationers who are referred to, participate in, and successfully complete a treatment program. It also appears to have significantly reduced the time participants spend in prison. Otherwise, the difference in treatment participation levels does not appear to have translated into meaningful reductions in drug use or recidivism, but, with the exception of marijuana use, these outcomes have not worsened, either. Thus, drug court, which may not cost more than standard probation, may yield outcomes at least as favorable in most respects.

Comparison to Other Drug Courts

There are several aspects that distinguish the design and implementation of the Maricopa County FTDO program from other drug court programs described in the literature -- specifically Miami and Oakland. First, as was the intent of program design, the type of offender referred to drug court was a less severe or chronic drug user. The target population for the FTDO program included first time felons with a drug problem that could be appropriately treated with intensive counseling and education. Unlike Los Angeles, Miami, New York, and Oakland where a majority of drug court participants use crack cocaine, only one-third of offenders in the Maricopa FTDO program had a felony charge for narcotics or dangerous drugs. Less than five percent reported ever using crack and under ten percent had used heroin. The major drug problems were alcohol, marijuana, and powder cocaine.

The Maricopa County FTDO program involved less intensive treatment than did the Miami or Los Angeles County drug court. In both of those, clients are expected to attend treatment daily, and in Miami, they are expected to undergo acupuncture. In Maricopa County, clients were to attend a weekly drug education class and group counseling session for the first two months and to continue with the counseling for the next four months. Despite differences in treatment intensity, however, both the Miami and Maricopa County drug courts showed about a 60 percent

success rate for program completion.[62] But the difference in clientele was manifest in the drug use outcomes. When measured in terms of percent of participants testing positive at some point during treatment, the Maricopa County FTDO program was more successful than the Miami program. About half of those in the Maricopa County program had no positive tests during the first twelve months. By contrast, the majority of Miami clients had a positive test; only 17 percent had no positive tests during their involvement in drug treatment.

In terms of recidivism, it is difficult to compare the Maricopa and Miami programs because different evaluations of the latter have reached different conclusions. Goldkamp and Weiland (1993a) report fewer rearrests and longer times to rearrest for those in drug court than for felony drug defendants, but these differences may be due to selection bias. In their evaluation of the Miami drug court Davis et al. (1994) found no difference in rearrest rates between 281 drug court cases and 93 non-drug-court cases. As mentioned above, we found no significant differences between participants in the Maricopa County drug court and those on probation in terms of rearrest. But both drug courts appear to have had a positive impact on incarceration rates, as fewer drug court participants were sentenced to prison.

POLICY IMPLICATIONS

Testing and Sanctions

Our findings suggest that increased frequency of testing reduces drug use. But recidivism is not affected. Why? The answer may be in the responsiveness of sanctions. Our results indicate that by referring clients to outpatient treatment or to a judge, the MCAP avoids increased incarceration in jail or prison. However, the lack of a uniform system or more structured guidelines may also contribute to the lack of impact on recidivism. If positive drug tests were followed by more immediate consequences there may be more benefit. For example, in a study of drug testing for offenders on pre-trial release in Washington DC, the use of

[62] See Goldkamp and Weiland (1993a,b) for results of the evaluation of the Dade County court.

immediate sanctions in response to a positive test resulted in much lower rates of rearrest (Carver, 1993). Using an experimental design with random assignment to three different conditions for the Washington DC Superior Court Drug Intervention Program, researchers are comparing the effects of three alternatives--treatment, graduated sanctions for positive tests, and early intervention (Harrell and Cavanaugh, 1995). The graduated sanctions component of this experiment is unique in that every effort is being made to have more immediate sanctions, e.g., the next day. For the first positive test or missed appointment for drug testing, the sanction is three days observation of drug court from the jury box. This is followed by three days in jail for the second violation, and seven days in detox for the third violation. For the fourth violation, the sanction is seven days in jail. The five-year evaluation of this program is currently underway.

Treatment-Oriented Drug Courts

Although the results of our twelve month follow-up are mixed in terms of the impact on recidivism, they did indicate the drug court program had a significant impact in reducing the proportion of persons who ended up with a prison sentence for a new arrest. As such, the drug court program could be an important part of a continuum of correctional options for drug offenders that may keep drug offenders out of currently overcrowded prisons.[63] Thus, the Maricopa County drug court fulfills a different objective than many of the other diversionary drug court programs.

The drug court program continues to be run by the Maricopa County Probation Department. The latest version of the program charges all clients an additional fee for treatment in drug court, thereby reducing the costs.[64] The new drug court program also includes a special relapse prevention component. Offenders with a positive drug test are required to participate in additional relapse prevention treatment for four

---

[63] Current laws in Maricopa County, Arizona send the majority of felons with a second conviction for drug possession to prison.

[64] In order to further decrease costs, treatment is provided by an in-house counselor rather than by contract with a private treatment provider.

weeks. Proponents of the Maricopa County drug court program are encouraged by the number of individuals who have successfully participated in and graduated from drug court. However, it is still too early to tell what the long term impact of the drug court program will be on individual drug use and recidivism, the drug offender population and justice system in Maricopa County.[65]

---

[65] RAND's current 36-month follow-up evaluation of the FTDO program, funded by the National Institute on Drug Abuse, includes personal interviews which will provide additional information on self-reported drug use and criminal behavior.

Appendix

A. DRUG COURT PROGRAM FORMS

YES_____ NO_____

Defendants name_____

Cause Number_____Offense_____

PSI PO_____ Sentencing Date _____

Recommendation_____

Criteria For FTDO Program

	YES	NO
1) Is there a need for inpatient Counseling?	_____	_____
2) Does the case require CPP Counseling?	_____	_____
3) Is there a need for specialized caseload supervision?	_____	_____
4) Is the defendant appropriate for FARE Probation?	_____	_____
5) Is standard probation going to be the recommendation?	_____	_____
6) Does the defendant have a private attorney?	_____	_____
7) Is this an Attorney General Case?	_____	_____

Comments: _____

FIRST TIME DRUG OFFENDER PROGRAM
DRUG COURT CONTRACT

DEFENDANT__ _____ CR# _____

You have been placed in Drug Court for 3 yrs., and will have court dates scheduled in 2 months, 4 months 6 months and if necessary every two months thereafter. The purpose of the first court date is to inform the Judge of your progress in the first two months of the First Time Drug Offender Program. Your progress report will include review of your sentence of 60 days in the Maricopa County jail.

As part of the program, you are to attend a screening interview with Mountain Valley. Once screened, you will be responsible for completing the following:

X - Path-2:	POINTS
-Attend 8 weeks of drug education classes, including one class on AIDS awareness.	8
-Attend 8 weeks of process group.	8
-Contact Probation Officer once per week.	8
-Attend a 12-step program as directed by counselor (minimum of 8 Meetings.)	8
Total	32

The completion of your path will be your responsibility before the next court date. The following point totals can result in these specific court actions:

PATH-2	RESULT
27 to 32 Pts	*-Continue to next stage, Reduce probation term by six months, Reduce jail time by ten days, Reduce probation fees (up to $ 180.00)
22 to 26 Pts.	*-Repeat path or Continue to next stage, If continued, reduce probation term By three months, No reduction in jail time (start date may be deferred), Reduce probation fees (up to $90.00)
0 to 21 Pts.	*-Repeat path / Consider Sanctions, NO REDUCTIONS in probation term, probation fees, or jail time.

In addition to your point totals, the judge will also consider the following factors:

*-Random urine testing results.
*-Progress report from counselor.
*-Compliance to other terms of probation.

At your two month hearings, the First Time Drug Offender team (County attorney, Defense attorney, and Probation Officer) will make a RECOMMENDATION to the court based on the above information.

*-At any two month hearing, the court will consider all factors. If deemed necessary, the court may impose rewards or sanctions as a condition of continuing in the First Time Drug Offender Program.

Sanctions

Completion of community service hours, jail time or revocation of probation (if revocation proceeding are initiated, the case will return to the original sentencing Judge).

Rewards

Community service hours credit. If you are successful in all phases of probation, you may receive as early as your 6 month hearing, an EARLY TERMINATION from probation, if possible, a MISDEMEANOR DESIGNATION, and waiver of all 60 days jail time.

The court wishes you good luck in the next two months.

Your next court appearance is Fri June 19 1992 at 930 AM

in Judge Bolton's court.

Defendant _____ Date 4-16-92

Judge Susan R Bolton Date 4/16/92

DRUG COURT CONTRACT
SECOND TWO-MONTH PHASE

You have been granted drug court for _____ less _____ = _____. Jail time has been reduced to _____ Days. Your next court date to review your progress is scheduled for _____ at _____ before Judge Bolton

Before your next court date, you are expected to complete one of the following paths. Completion of path directives will result in a percentage of points. As in the first two-month period, the MORE POINTS YOU GET, THE BETTER.

_____ - PATH 1A

	* - Completed	/ Required	= PERCENT
Random urine testing (Neg Results/Total)	/		= %
Contact with probation officer bi-monthly	/	4	= %
Compliance to court sanctions	/		= %
Compliance to other terms of probation	/	5	= %

Total Percentage _____ %

_____ - PATH 2A

	* - Completed	/ Required	= PERCENT
Random urine testing (Neg Results/Total)	/		= %
Contact with probation officer bi-monthly	/	4	= %
Compliance to court sanctions	/		= %
Compliance to other terms of probation	/	5	= %
Attendance in process group	/		= %
Attendance in 12 step meetings	/		= %

Total Percentage _____ %

* - Percentage is amount successfully completed divided by amount required.

Point % for paths

85% or above - Continue to next stage, Probation term REDUCED by SIX MONTHS, Jail Time REDUCED by TEN DAYS, Probation Fees Reduced

70% to 84% Repeat / Continue, Probation Term REDUCED by three months, No Other Reductions

Below 69% Terminate / Repeat / Continue, NO REDUCTIONS

REWARDS OR SANCTIONS MAY BE APPLIED BY THE COURT.

Defendant _____ Date _____

Judge Date

CLIENT PARTICIPATION
IN THE
FIRST TIME DRUG OFFENDER PROGRAM

DEFENDANT _____ CR# _____

COUNSELING PARTICIPATION

Scheduled Initial Interview _____ When Interviewed _____

Class/Group Participation

Date	Class	Points
	Total	

12-Step Program Participation

Date	Meeting	Points
	Total	

PO CONTACTS

Date	Points

B. SUPPLEMENTARY TABLES

Table B.1

Mean Number of Drug Tests by Month

Sample Size (N)	**Track 1 "No Test"** (168)		**Track 2 Low-Rate** (141)		**Track 3 High-Rate** (145)		**Track 1-3 Probation** (454)		**Track 4 Drug Court** (176)	
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Month 1	168	0.14	141	0.42	145	1.23	454	0.58	176	0.19
Month 2	168	0.42	141	0.92	145	3.35	454	1.51	176	0.52
Month 3	168	0.36	141	0.96	145	3.35	454	1.50	176	0.44
Month 4	168	0.41	141	0.74	145	2.91	454	1.31	176	0.52
Month 5	168	0.28	141	0.69	145	2.30	454	1.05	175	0.47
Month 6	168	0.23	140	0.66	145	2.17	453	0.98	175	0.46
Month 7	168	0.23	140	0.67	145	2.04	453	0.95	176	0.40
Month 8	168	0.22	141	0.67	145	1.50	454	0.77	176	0.35
Month 9	168	0.21	141	0.56	145	1.54	454	0.74	176	0.27
Month 10	168	0.19	141	0.52	145	1.28	454	0.64	176	0.23
Month 11	168	0.12	141	0.45	145	0.92	454	0.48	176	0.17
Month 12	167	0.46	141	0.40	145	0.93	453	0.49	176	0.13
Month 13	168	0.04	141	0.12	145	0.41	454	0.18	176	0.04

Note: No statistical tests conducted

Table B.2

Mean Number of Drug Tests by Month
(Of those tested or ordered to test)

Sample Size (N)	**Track 1 "No Test"** (168)		**Track 2 Low-Rate** (141)		**Track 3 High-Rate** (145)		**Track 1-3 Probation** (454)		**Track 4 Drug Court** (176)	
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Month 1	21	1.14	46	1.28	64	2.80	181	2.00	32	1.03
Month 2	41	1.26	81	1.61	96	5.06	225	3.15	77	1.20
Month 3	31	1.94	72	1.88	90	5.40	215	3.53	68	1.13
Month 4	30	2.30	65	1.60	88	4.80	206	3.25	78	1.17
Month 5	21	2.24	63	1.54	78	4.28	195	2.95	79	1.05
Month 6	20	1.95	60	1.55	78	4.03	193	2.82	74	1.10
Month 7	19	2.05	59	1.59	74	4.00	176	2.82	64	1.11
Month 8	21	1.76	57	1.67	60	3.63	162	2.54	57	1.07
Month 9	19	1.90	60	1.32	65	3.43	161	2.35	45	1.04
Month 10	17	1.82	56	1.30	64	2.89	157	2.11	41	1.08
Month 11	13	1.54	47	1.34	55	2.44	150	1.89	30	1.15
Month 12	20	1.40	35	1.63	57	2.37	141	1.96	22	1.16
Month 13	7	1.00	15	1.13	29	2.03	60	1.63	7	1.00

Note: No statistical tests conducted

BIBLIOGRAPHY

Andrews, Don A., Ivan Zinger, R. D. Hoge, James Bonta, Paul Gendreau, and Francis T. Cullen, "Does Correctional Treatment Work? A Clinically-Relevant and Psychologically-Informed Meta-Analysis," *Criminology*, Vol. 28, No. 3, 1990, pp. 369-404.

Anglin, M. Douglas, and Yih-Ing Hser, "Treatment of Drug Abuse," in Michael Tonry and James Q. Wilson (eds.), *Drugs and Crime, Crime and Justice*, Volume 13, University of Chicago Press, Chicago, 1990, pp. 393-459.

Anglin, M. Douglas, George Speckart, and Elizabeth Piper Deschenes. Reexamining the Effects of Probation and Parole on Narcotics Addiction and Property Crime. Draft Manuscript, National Institute of Justice, Washington, DC, 1990.

Belenko, Steven, and Tamara Dumanovsky. "Special Drug Courts," *Bureau of Justice Assistance Program Brief*. Washington, DC: U.S. Department of Justice, 1993.

Belenko, Stephen, Iona Mara-Drita, and Jerome E. McElroy, "Drug Tests and the Prediction of Pretrial Misconduct," *Crime and Delinquency*, Vol. 38, No. 4, 1992, pp. 557-582.

Belenko, Steven, Jeffrey A. Fagan, and Tamara Dumanovsky, "The Effects of Legal Sanctions on Recidivism in Special Drug Courts," *The Justice System Journal*, Vol. 17, No. 1, 1994, pp. 53-81.

Bureau of Justice Statistics. *Drugs, Crime, and the Justice System: A National Report from the Bureau of Justice Statistics*. Washington, DC: U.S. Government Printing Office, 1992.

Bureau of Justice Statistics. *Survey of State Prison Inmates, 1991*. Washington, DC: U.S. Department of Justice, 1993.

Carver, John A., J.D., "Using Drug Testing to Reduce Detention," *Federal Probation*, Vol. 57, No. 1, 1993, pp. 42-47.

Cavanaugh, David P. and Adele Harrell, "Evaluation of Multnomah County Drug Testing and Evaluation Program," Washington, DC: Botec Analysis, Inc.,1995.

Cohen, Stanley, *Statistical Power Analysis for the Behavioral Sciences*. New York, NY: Academic Press. 1977

Collins, James J., and Margaret Allison, "Legal Coercion and Retention in Drug Abuse Treatment," *Hospital and Community Psychiatry*, Vol. 34, No. 12, 1983, pp. 1145-49.

Cooper, Caroline S., Drug Courts: An Overview of Operational Characteristics and Implementation Issues, Washington, DC: Bureau of Justice Assistance Drug Court Resource Center, U.S. Department of Justice, 1995.

Davis, Robert C., Barbara E. Smith, and Arthur J. Lurigio, "Court Strategies to Cope with Rising Drug Caseloads," *The Justice System Journal*, Vol 17, No. 1, 1994, pp. 1-18.

Finn, Peter and Andrea K. Newlyn, "Miami's Drug Court: A Different Approach," *National Institute of Justice Program Focus*. Washington, DC: U.S. Department of Justice, 1993.

Gerstein, Dean R., and Henrick J. Harwood. *Treating Drug Problems*. Washington, DC: National Academy Press, 1990.

Goldkamp, John, Michael R. Gottfredson, and Doris Weiland, "Pretrial Drug Testing and Defendant Risk," *Journal of Criminal Law and Criminology*, Vol. 81 , No. 3, 1990, pp.585-652.

Goldkamp, John S., and Doris Weiland. Assessing the Impact of Dade County's Felony Drug Court. Final Report to the National Institute of Justice. Philadelphia, PA: Criminal and Justice Research Institute, August, 1993a.

Goldkamp, John S., and Doris Weiland. "Assessing the Impact of Dade County's Felony Drug Court." *National Institute of Justice Research in Brief*, December, 1993b.

Gottfredson, Stephen D., "Prediction: An Overview of Selected Methodological Issues," In D.M. Gottfredson and M. Tonry, (eds.) *Prediction and Classification: Criminal Justice Decision Making*, Vol. 9, *Crime and Justice A Review of Research*, Chicago: University of Chicago Press, 1987, pp. 21-51.

Haapanen, Rudy, "Drug Testing for Youthful Offenders on Parole: An Experimental Study," *Western Society of Criminology Newsletter*, Fall 1995.

Harrell, Adele and Shannon Cavanagh, "Compliance with Drug Abstinence Requirements during Pretrial Release: A Comparison of Graduated Sanctions and Treatment for Drug Felony Defendants," Paper presented at the Annual Meetings of the American Society of Criminology, 1995.

Hubbard, Robert L.; Marsden, M.E.; Rachal, J.Valley; Harwood, Henrick J.; Cavanaugh, E.R.; and Ginzburg, H.M. *Drug Abuse Treatment: A National Study of Effectiveness*. Chapel Hill, NC: University of North Carolina Press, 1989.

Inciardi, James and Duane McBride, "Processes of Drug Treatment for Drug Using Criminal Justice Offenders," Unpublished report from the TASC evaluation, dated Sept. 21, 1994.

Inciardi, James and Duane McBride, "Reviewing the 'TASC' (Treatment Alternatives to Street Crime) Experience," *Journal of Crime and Justice*, Vol. 15, No. 1, 1992, pp. 45-61.

Klein, Herbert. *Strategies for Action Combating Drug and Alcohol Abuse in Dade County*, An Update. Florida: Dade County Superior Court, 1990.

Lipsey, Mark W. *Design Sensitivity: Statistical Power for Experimental Research*. Newbury Park, CA: Sage Publications, 1990.

McGlothlin, William H.; Anglin, M.Douglas; and Wilson, Bruce D. *An Evaluation of the California Civil Addict Program*. National Institute on Drug Abuse Research Monograph Series. DHEW Pub. No. (ADM) 78-558. Washington, DC: U.S. Government Printing Office, 1977.

Milkman, Ray, Bruce D. Beaudin, Kevin Tarmann, Nancy Landson. *Drug Offenders and the Courts: A National Assessment*. McLean, VA: The Lazar Institute, 1992.

National Institute of Justice. *Drug Use Forecasting 1992 Annual Report: Drugs and Crime in America's Cities*. Washington, DC: U.S. Department of Justice, 1993.

National Institute of Justice. "The Impact of Systemwide Drug Testing in Multnomah County, Oregon," *National Institute of Justice Update*, June 1995.

Office of National Drug Control Policy, "Cost of Drug Testing," *ONDCP Bulletin*, No. 3, Washington, DC: Executive Office of the President, August 1991.

Petersilia, Joan, and Susan Turner, *Prison versus Probation in California: Implications for crime and offenders recidivism*. R-3323-NIJ. Santa Monica, CA: RAND, 1986.

Petersilia, Joan and Susan Turner, "Intensive Probation and Parole," in M. Tonry and N. Morris (eds.), *Crime and Justice: A Review of Research*, Vol. 17, 1993, pp. 281-335.

Petersilia, Joan, Susan Turner, and Elizabeth Deschenes, "Intensive Supervision for Drug Offenders," in Byrne, J., Lurigio, A., and Petersilia, J. (eds.) *Smart Sentencing: The Emergence of Intermediate Sanctions*. Newbury Park, CA: Sage Publications, 1992, pp. 18-37,

Petersilia, Joan and Susan Turner, "Intensive Supervision for High-Risk Probationers," R-3936-NIJ. Santa Monica, CA: RAND, 1990.

Rhodes, William, Raymond Hyatt, and Paul Scheiman, "Predicting Pretrial Misconduct with Drug Tests of Arrestees: Evidence from Eight Settings," *Journal of Quantitative Criminology*, forthcoming.

Salmon, Ruth W., and Raphael J. Salmon, "The Role of Coercion in Rehabilitation of Drug Abusers," *The International Journal of the Addictions*, Vol. 18, No. 1, 1983, pp. 9-21.

Smith, Douglas A., Eric Wish, and G. Roger Jarjora, "Drug Use and Pretrial Misconduct in New York City," *Journal of Quantitative Criminology*, Vol. 5, 1989, pp. 101-126.

Tauber, Jeffrey S. "Drug Courts: Treating Drug-using Offenders Through Sanctions, Incentives". *Corrections Today*, Vol. 56, No. 1, 1994, pp. 28-29.

Tauber, Jeffrey S. "A Judicial Primer on Unified Drug Courts and Court-Ordered Drug Rehabilitation Programs". Paper presented at The California Continuing Judicial Studies Program, Dana Point, CA, 1993.

Tauber, Jeffrey S. "The Importance of Immediate Intervention in a Comprehensive Court-Ordered Drug Rehabilitation Program". Paper presented at The National Conference on Substance Abuse and the Courts, Washington, D.C., November, 1991.

Turner, Susan and Doug Longshore, "Drug Treatment for Criminal Offenders," *DPRC Newsletter*, Santa Monica, CA: RAND Drug Policy Research Center, forthcoming June 1996.

Turner, Susan, Joan Petersilia, and Elizabeth Piper Deschenes. "Evaluating Intensive Supervision Probation/Parole (ISP) for Drug Offenders," *Crime and Delinquency*, Vol. 38, No. 4, 1992, pp. 539-556.

Turner, S., J. Petersilia, and E.P. Deschenes, "The Implementation and Effectiveness of Drug Testing in Community Supervision: Results of an Experimental Evaluation," in D. MacKenzie and C. Uchida (eds.) *Drugs and Crime: Evaluating Public Policy Initiatives*, Thousand Oaks, CA: Sage, 1994, pp. 231-252.

Visher, Christy A., Assessment of Pretrial Urine Testing in the District of Columbia: A Reanalysis, U.S. Department of Justice, National Institute of Justice, Washington, DC, 1988.

Visher, Christy A., "Pretrial Drug Testing: Panacea or Pandora's Box," *The Annals of the American Academy*, Vol. 521, 1992, pp. 112-131.

Wexler, Harry K., Douglas S. Lipton, and Bruce D. Johnson, *A Criminal Justice System Strategy for Treating Cocaine-Heroin Abusing Offenders in Custody*, NCJ 108560, Washington, DC: National Institute of Justice, U.S. Department of Justice, 1988.

Wish, Eric, Mary Cuadrado, and Stephen Magura, "Drug Abuse as a Predictor of Pretrial Failure-to-Appear in Arrestees in Manhattan," Final Report submitted to the National Institute of Justice, U.S. Department of Justice, 1988.

Yezer, A. M. J., R. P. Trost, M. A. Toborg, J. P. Bellassai, and C. Quintos. Periodic Urine Testing as a Signaling Device for Pretrial Release Risk, Monograph No. 5 of the Study Assessment of Pretrial Urine Testing in the District of Columbia, Toborg Associates for the National Institute of Justice, Washington, DC, 1988.