

National Center for State Courts

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Virginia Adult Drug Treatment Courts

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PREFACE

The Virginia Drug Treatment Court Act (*Code of Virginia* §18.2-254.1) directs the Office of the Executive Secretary of the Supreme Court of Virginia (OES), in consultation with the state drug treatment court advisory committee, to develop a statewide evaluation model and conduct ongoing evaluations of the effectiveness and efficiency of all local drug treatment courts. This report is prepared at the request of OES to fulfill this reporting mandate.

EXECUTIVE SUMMARY

To date, Virginia has formally implemented 16 adult drug treatment courts. Data from twelve of Virginia's adult drug treatment courts are included in this report. The twelve adult drug court sites included in this study are:

- Charlottesville/Albemarle Adult Drug Court
- Chesterfield/Colonial Heights Adult Drug Court
- Hampton Adult Drug Court
- Henrico Adult Drug Court
- Loudoun Adult Drug Court
- Newport News Adult Drug Court
- Norfolk Adult Drug Court
- Portsmouth Adult Drug Court
- Rappahannock Regional Adult Drug Court
- Roanoke Adult Drug Court
- Richmond Adult Drug Court
- Staunton Adult Drug Court

The other four operational adult drug treatment courts - Tazewell Adult Drug Court, Hopewell/Prince George Adult Drug Court, Bristol Adult Drug Court and Chesapeake Adult Drug Court – were excluded from the study due to limited available data. A total of 1,156 drug court participants were included in the primary analysis of demographics and service level information. For all of the remaining analysis, only the participants that were matched with the comparison group are included (n=972).

This report summarizes evaluation findings with respect to several primary issues, such as post-program recidivism, within-program outcomes, and drug treatment court performance measures. Several interesting findings have emerged which are consistent with prevailing drug treatment court trends. Key findings are summarized below.

- Virginia drug courts provide a variety of services, substance abuse and ancillary, to participants while at the same time holding them accountable by means of drug testing, sanctions and incentives, and frequent contacts with the court and court staff.

- The profile of the typical drug court participant is a young male, unemployed, with limited education, and prior felony, misdemeanor, and drug convictions. This suggests that Virginia's adult drug courts service high-risk, high-needs offenders.
- Virginia drug court participants report cocaine, alcohol, and opiates as their primary drugs of choice. Frequent drug testing indicates that while most participants test positive for illicit drugs at some point in the program, drug use decreases dramatically over time. Lengthy periods of continuous sobriety are observed among drug court participants while enrolled in drug court. Results also indicate that participants are more likely to be employed when they exit their respective programs than when they entered their programs.
- About 50 percent of drug court participants successfully graduate their program, very much in-line with national estimates. On average, graduates spend around 1.7 years in their respective programs before graduation, which is slightly higher than recommended best practices. Participants that do not graduate spend about a year in drug court before termination. It is recommended that Virginia drug court programs critically examine their termination policies and strive to reduce their rate of terminations.
- Drug court graduates are significantly less likely than terminated clients to recidivate than drug court participants as a whole (combining graduates with non-graduates).
- A carefully selected comparison group was used to allow for comparisons between the drug court group, as a whole, and a "business as usual" comparison group. Propensity score matching eliminated or reduced most of the differences between drug court participants and offenders convicted of drug court eligible offenses who did not go to drug court, enabling valid comparisons of program outcomes and impacts described in subsequent analyses.
- Drug court participants (graduates and non-graduates combined) are significantly less likely than the propensity score matched comparison group to recidivate while participating in their respective programs. The latter result suggests that Virginia's drug courts are doing a good job of protecting public safety.
- Recidivism was measured using different indices, including arrests, convictions, felony convictions, misdemeanor convictions, and drug offense convictions. When the recidivism rates of drug court participants as a whole (i.e., including both graduates and terminations) are compared to those of the propensity score matched comparison group using all of these indices, drug court participants far out-perform the comparison

group. A similar pattern was observed when post-exit recidivism was examined in isolation from in-program recidivism (with the exception of new drug convictions, where no significant difference was observed). These findings, combined with those of the Kaplan-Meier Survival functions, suggest a robust and sustained impact of drug court on recidivism compared to the business-as-usual alternative (probation, jail, and/or prison). These findings need to be confirmed by a multivariate analysis that will control for differences noted between the drug court participants and the comparison group that persisted after propensity score matching.

INTRODUCTION AND BACKGROUND

The first drug court began operating over twenty years ago in response to increasing numbers of drug-related court cases entering and cycling through the criminal justice system. As of December 31, 2009, there were an estimated 2,459 drug courts nationwide, located in every state and territory in the United States serving approximately 120,000 people per year (Huddleston & Marlowe, 2011). Drug Courts have proliferated at a remarkable rate, growing in aggregate number by 40% in the past five years.

A drug court is a specialized docket within the court system designed to treat non-violent, drug-addicted defendants. A drug court judge serves as the leader of an inter-disciplinary team of professionals. The collaboration between the court and treatment provider is the center of the drug treatment court program but numerous other professionals, such as probation and law enforcement officers, play a vital role in making these programs successful. Drug courts have demonstrated the ability to reduce recidivism and substance abuse among high-risk substance abusing offenders and increase their likelihood of successful rehabilitation through:

- early, continuous, and intense treatment,
- close judicial supervision and involvement (including judicial interaction with participants and frequent status hearings),
- mandatory and random drug testing,
- community supervision,
- appropriate incentives and sanctions, and
- recovery support aftercare services.

The specific design and structure of drug treatment courts is typically developed at the local level, to reflect the unique strengths, circumstances, and capacities of each community.

Virginia Drug Treatment Courts

Much like the growth of drug courts nationally, Virginia's adult drug treatment courts developed locally in response to local needs. Virginia's first drug treatment court program, located in the Twenty-third Judicial Circuit, started in 1995. Since then, fifteen additional drug courts have become operational in Virginia.

In 2004, the Virginia General Assembly passed the Drug Treatment Court Act (§18.2-254.1). The Act directed the Supreme Court of Virginia to provide administrative oversight for the state's drug treatment court programs, including distribution of funds, technical assistance to local courts, training, and program evaluation. The five specific goals outlined in legislation for Virginia's drug treatment courts include: 1) reducing drug addiction and drug dependency among offenders; 2) reducing recidivism; 3) reducing drug-related court workloads; 4) increasing personal, familial, and societal accountability among offenders; and 5) promoting effective planning and use of resources among criminal justice system and community agencies.

The General Assembly currently provides funds to the Supreme Court of Virginia to administer to a total of 14 (10 adult and 4 juvenile) drug treatment court programs in Virginia. To date, Virginia has formally implemented 28 drug treatment courts utilizing the four different models (adult, juvenile, family, and DUI models). Currently, there are sixteen adult courts, eight juvenile courts, two family courts, and two regional DUI court operating in Virginia. Eighty-three percent of Virginia's adult felony drug courts began operating after going through the federal planning process as a planning court.

There are two primary models for how the adult drug courts are legally structured in Virginia: deferred prosecution (diversion) and post-adjudication. In a diversion/deferred

prosecution program, the defendant enters into a plea agreement with the Commonwealth Attorney, with the requirement that the defendant successfully complete the program. After successful completion, the charge may be dismissed by the Commonwealth Attorney, with the concurrence of the Court. This approach provides an incentive for the defendant to rehabilitate because conviction and incarceration are contingent upon successful compliance with the rigorous supervision and treatment requirements imposed in the drug treatment court.

In the post-adjudication type program, the offender is already on probation for a felony conviction. He or she requests drug treatment court after being charged with a probation violation. The violation of probation is typically connected to the probationer's ongoing addiction. If accepted into the drug treatment court the probationer avoids additional incarceration for the probation violation on the condition that he or she successfully complete the program. In both models, termination from drug treatment court may result in incarceration.

As noted above, the overarching goal of adult drug courts is to reduce recidivism and drug use among drug-abusing participants. In serving this population, adult drug court programs utilize a blend of court-ordered supervision, drug testing, treatment services, court appearances, and behavioral sanctions and incentives. Sixteen adult drug treatment court programs are currently operational in Virginia, with program capacities ranging from approximately 16 to 100 cases. The adult drug court programs that receive state funds tend to be serving a larger number of participants than those that do not receive state funds. All of the adult drug treatment courts require a minimum of 12 months of participation for program completion, with one requiring as much as 36 months.

PROJECT APPROACH

In July 2011, the Supreme Court of Virginia contracted with the National Center for State Courts (NCSC) to complete a cost-benefit analysis of Virginia's Adult Drug Courts. The project is designed to be completed in two stages. In year 1 (current report), the NSCS was asked to complete an impact evaluation of the adult drug courts operating in Virginia. The primary purpose of the impact evaluation is to answer key impact questions related to the adult drug courts operating in the Commonwealth of Virginia. Specifically, the evaluation seeks to answer the following questions:

- Who is being served in the adult felony drug courts in Virginia?
- What combination and types of services are being delivered in the adult felony drug courts in Virginia?
- Do drug court participants reduce their substance abuse during program participation?
- How do outcomes differ between drug court graduates and non-graduates?
- How do recidivism rates differ between drug court participants and the "business as usual" group?

In the fall of 2012 a second report will be completed that will be a cost-benefit analysis of the twelve adult drug courts.

SOURCES OF DATA

For this report, a variety of data collection techniques were employed to maximize the depth of the evaluation process. Participant-level data were collected for the cohort actively participating in one of the twelve adult drug courts being studied between July 1, 2006 and June 30, 2009.

Supreme Court of Virginia Drug Court Database

On July 1, 2007, the Supreme Court of Virginia deployed a statewide, web-based drug court database to support statewide drug treatment court evaluation and case management. Data

collected from this source included participant demographic information; drug and alcohol histories, program compliance information, program completion type, and program completion dates. To capture the most accurate information, the study sample was restricted to drug treatment court participants who entered one of the twelve drug courts between July 1, 2006 through June 30, 2009. Cases that could not be matched with Virginia State Police data were excluded from the sample. This process resulted in an initial cohort of 1,156 participants.

Supreme Court of Virginia Circuit Court Case Management System

A list of all defendants found guilty of a “drug court eligible” offense during the study time period in the jurisdictions being served by the twelve drug courts included in the study was obtained from the Supreme Court. All drug court participants were removed from the list of defendants. Criminal history information for the remaining defendants was then obtained from the Virginia State Police. Defendants with convictions for felony-level violent offenses, drug distribution or sex offenses were removed from the pool of defendants. The remaining 3,254 defendants became the pool of potential comparison group defendants.

Virginia State Police Data

Pre-program criminal history and all new arrest and conviction data were obtained from the Virginia State Police for the drug court participants as well as the comparison group. This information was requested in September 2011.

NCSC Drug Court Coordinator Survey

The National Center for State Courts created an online survey for drug court coordinators to complete. The survey was designed to collect basic information about program characteristics,

such as capacity, target population, structure, services and basic operation. The survey was distributed in the fall of 2011 and 100% of the project sites completed the survey.

Selecting the Treatment and Control Groups – Propensity Score Matching

Observational studies face significant challenges providing evidence of causal effects. Unlike experimental designs, studies of observational data cannot guarantee that the treated and control groups are randomly different from each other in terms of relevant observed and unobserved characteristics that may have a relationship with the outcome. Ideally, the distribution of these background characteristics in the studied groups should be equal, a quality referred to as “balance.” With observational studies, the assignment of individuals to treatment and control groups is unlikely to be random or unrelated to such characteristics. For instance, offenders referred to drug court are unlikely to be similar, on average, to offenders who are not, although there will be some individuals in the latter group who are similar to drug court participants. Comparing only those who are similar to each other should reduce the likelihood that differences in outcomes between the groups are a result of underlying differences created by assignment.

A popular method used to approximate the balance achievable in experimental studies is “matching” (Stuart, 2010). The goal of matching is to produce a collection of treated and control observations that are as similar as possible in terms of a set of observable covariates. Doing so should prevent unjustified extrapolation when comparing outcomes of treated and untreated individuals and avoid confounding the effects of assignment criteria with the treatment. Note that matching is not an estimation technique, but a data processing step that precedes analysis of the data (Ho, et al., 2007).

Many methods have been developed to perform matching (Sekhon, 2009), but in this application we rely on what is likely the most commonly used method, matching on propensity scores.¹ Propensity Score Matching (PSM) selects treated and untreated observations for analysis based on similarity of the estimated likelihood of being in the treatment group given a set of covariates (Stuart, 2010). PSM represents a practical advance over exact matching—choosing treated-control dyads for analysis that are precisely the same on all observed characteristics—which becomes difficult or impossible when covariates are many or measured at an interval level. In the present application, selection of treatment and control cases was performed with propensity scores estimated via logit using the following covariates: 1) the number of prior felonies committed; 2) the number of prior misdemeanors; 3) age at the time of referral; 4) the most serious of individuals' instant (referring) offenses²; 5) gender; and 6) racial category.³

Propensity scores were estimated using the pooled drug court and comparison group individuals and then used to match between the groups. During the second stage, we restricted matches between groups to the twelve jurisdictions in the study and specified one-to-one matching without replacement. Thus, the matched drug court and comparison group samples are the same size overall and within jurisdiction. The table below summarizes the differences

¹ To test the sensitivity of the process to the choice of matching method, we compared the results of PSM with Mahalanobis Distance Matching (Sekhon, 2009) and found that the set of observations selected was virtually identical regardless of which method we employed.

² The hierarchy of referring offenses is, in descending order, property offenses, drug offenses, public order offenses, and technical offenses (the excluded category). Individuals with instant or prior personal offenses were excluded, as such offenses make one ineligible for referral to drug court. Referring offenses were entered separately as indicator variables (dummies).

³ Race categories were African American, white (the excluded category), and a third category for those whose racial classification was either denoted as unknown or so infrequently observed that inclusion as a separate category would almost uniquely identify the individual.

between groups in these characteristics before matching and in the matched samples. It can be seen that the matching procedure dramatically reduced possible sources of bias between the sample of drug court participants and the comparison group.

Table 1: Virginia Felony Drug Court Attendees & Comparison Group Matching Characteristics					
Sample	Complete		Matched		
Covariate	Drug Court (Mean/%)	Comparison (Mean/%)	Drug Court (Mean/%)	Comparison (Mean/%)	Bias Reduced (%)
Prior Felonies	2.7***	5.1	2.9*	3.7	66.7%
Prior Misdemeanors	3.5***	4.7	3.6*	4.0	66.7%
Age (Years)	34.4*	35.2	34.4	35.0	21.7%
Property Referring Charge	18.4%***	57.2%	19.1%	38.9%	49.4%
Drug Referring Charge	53.1%***	33.3%	51.3%	51.3%	100.0%
Public Order Referring Charge	1.7%***	0.1%	1.7%**	0.3%	13.7%
Gender (% Female)	40.8%***	22.1%	40.4%	34.3%	67.4%
Race (African American)	45.4%***	64.2%	46.6%	46.9%	98.4%
Race (Other)	1.1%***	0.2%	1.1%	0.5%	36.5%

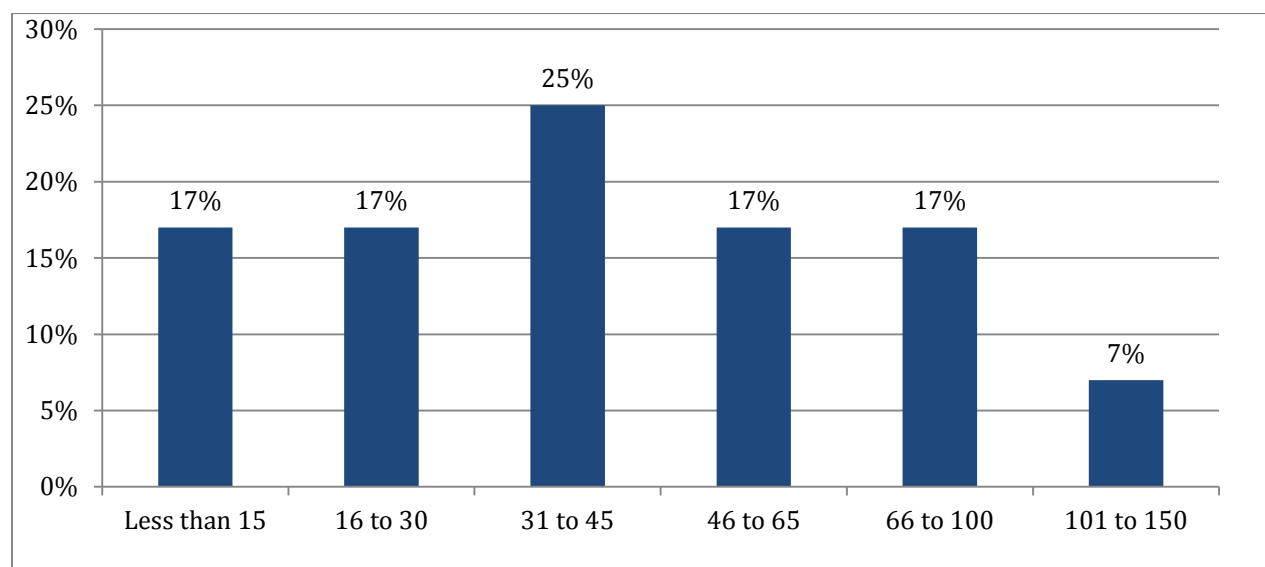
Significantly different at $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Question 1: What is the structure and design of the Virginia Drug Courts?

This section examines the structure and design of Virginia’s adult felony drug courts. A brief overview regarding program capacity and number of active participants is provided, followed by a discussion of allowable entry points for participants, eligibility, assessment, staffing, treatment, infractions and sanctions, drug testing and evaluation.

Capacity. Adult felony drug courts in Virginia are dynamic organizations that were developed to meet the needs of local constituents. Program capacity ranges from as few as 16 to as many as 150 participants. Figure 1 shows the current average number of active participants in the 12 adult felony drug courts surveyed. It should be noted that best practice data suggest that courts with a caseload of 125 or more produce poorer outcomes than courts with smaller caseloads (Carey et al., 2012).

Figure 1: Average Number of Active Participants

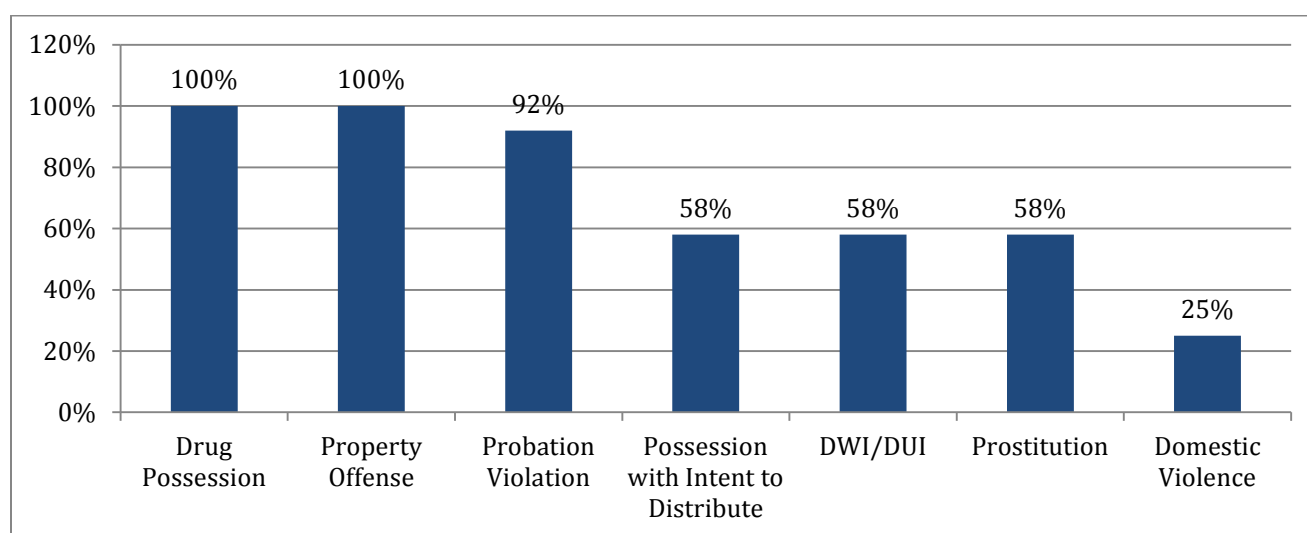


Ancillary Services. Virginia’s adult drug courts offer a variety of ancillary services. Anger management, housing assistance, and transportation assistance are the most common ancillary

services, each offered by 83 percent of adult felony drug courts surveyed, while in-home counseling, batterer's programs, and financial counseling are the least offered ancillary services. Ancillary services should be used to address offender's criminogenic needs (Andrews & Bonta, 2003) to reduce their probability of re-offending.

Eligibility. All of Virginia's adult drug courts accept both felony level drug and property offenses. Figure 2 shows the percentage of courts that allow specified charges.

Figure 2: Types of Criminal Charges Accepted by Virginia's Adult Drug Courts



The most common exclusion criteria are refusal to participate, lack of substance abuse dependence, status as a sex offender, prosecution discretion, severe mental disorder, prior drug trafficking convictions, having other pending cases, and having a severe medical condition. All but one of the adult felony drug courts require participants to sign a contract agreeing to program rules and 75 percent of courts require participants to sign a contract agreeing to provider rules.

Assessment. All but one adult felony drug court reported that clinical assessments and self-reported drug use history were used to determine eligibility. Virginia's adult drug courts are

using a variety of screening and assessment instruments. A quarter of the courts report using the Addiction Severity Index and/or the Simple Screening Instrument to screen for addiction. Court staff designed assessment instruments were used by 33 percent of adult felony drug courts while 50 percent of courts reported using some other type of assessment instrument. Formal mental health screenings varied from court to court. Half of adult felony drug courts do not currently screen for mental health at entry while 33 percent reported screening all participants, and 17 percent reported screening some participants.

Staffing. Virginia's adult felony drug courts have an average of six staff. Ninety-two percent of judges, drug court administrators, prosecutors, and the most senior probation officers, and 100 percent of the most senior treatment providers reported having two or more years of service in their respective fields suggesting that most staff working in drug court are experienced professionals. All of Virginia's adult felony drug courts reported having staff meetings weekly or more frequently. All but one court reported that the program director and treatment provider representatives routinely attend staff meetings. Seventy-five percent of courts reported that judges and probation officers routinely attend staff meetings and 67 percent of the courts have defense counsel and prosecution representation at the weekly staff meetings. Seventy-five percent of adult felony drug courts indicated that the judge sometimes overrules staff recommendations, while 25 percent of courts reported that judges never overrule staff recommendations.

Treatment. Sixty-seven percent of adult felony drug courts have clinicians that work, on contract, for the actual drug court. Four courts reported having one treatment provider each, two reported having two treatment providers each, and four courts reported having three to

five treatment providers each. All courts indicated that their treatment providers work for the local Community Services Board. All but one adult felony drug court indicated that self-help and relapse prevention substance abuse services are available through drug court providers. Eighty-three percent of courts reported having intensive outpatient services, outpatient group counseling, and drug education and 75 percent of courts reported having outpatient counseling. Additionally, 83 percent of adult felony drug courts indicated that mental health and substance abuse treatment is integrated.

A number of evidence-based treatment approaches have been identified in the national literature. Some of these approaches are currently employed in Virginia's drug courts. It is recommended that Virginia's drug courts continue to expand the use of these treatment models including:

- cognitive behavior therapy such as Moral Reconation Therapy and the Matrix Model
- motivation enhancing therapies
- contingency management-based interventions, such as the Community Reinforcement Approach
- medically assisted treatment.

Infractions and Sanctions. Seventy-five percent of Virginia's adult drug courts have a schedule defining sanctions. Of the courts with sanctioning schedules, all but one court reported providing participants with a written schedule of the sanctioning system. Fifty-five percent of courts with sanction schedules report almost always adhering to the schedule, while the remaining courts always adhere to the schedule. In national studies, outcomes are consistently better for drug courts that have a written and coordinated sanctioning strategy that is communicated in advance to team members and participants (see, e.g., Zweig et. al., 2012). Drug courts should not, however, follow a rigid template when imposing sanctions and

incentives. Both Carey et. al. (2012) and Zweig et. al. (2012) found better outcomes when the drug court teams reserved a reasonable degree of discretion and flexibility, which in turn allowed them to modify their responses based on the circumstances presented in individual cases.

Jail, community service, and verbal reprimands from the court are sanctions common to all courts, while an increase in treatment and essay writing are common to all courts except one. Other common sanctions include an increase in court reporting requirements and an increase in the frequency of drug testing, as reported by 75 percent and 67 percent of courts respectively. The least common sanction type reported was electronic monitoring.

All of the drug courts indicated that sanctions progressed in severity. The length of time between a drug test and an infraction varied but all of the courts were able to respond within one week of the offense.

Drug Testing. Eleven courts reported drug testing three to four times a week, and one court reported testing twice a week. Most courts are using urine drug testing. Additionally, one court reported using a patch drug test sample, and two courts indicated they also used saliva drug testing. The probation department was the most common collector of drug test samples, collecting 50 percent of samples. The remaining drug test sample collection was performed evenly between court staff, law enforcement, and treatment providers.

Eighty-three percent of drug test samples were tested on-site, while the remaining samples were processed at a lab. All felony adult drug courts reported testing for cocaine, opiates, alcohol (by breathalyzer), methamphetamine, and benzodiazepines, and all except one court tested for marijuana. Ten of the 12 courts reported testing for stimulants and prescribed drugs,

and nine courts reported testing for PCP. The least common drugs tested were Spice or K2 (reported by 33 percent of courts) and LSD (reported by 42 percent of courts).

Evaluation. Sixty-seven percent of Virginia’s adult felony drug courts report having been previously evaluated by an external party. Half of the courts report having a previous outcome/impact evaluation while 33 percent report having had a process evaluation and a quarter report having a cost benefit evaluation conducted. National research has shown that drug courts that use feedback from evaluations to modify program practices have 85 percent greater reductions in recidivism and 100 percent greater cost savings than programs that do not (Carey et. al., 2012).

Conclusion. This section illustrates the diverse nature of Virginia’s adult felony drug courts. The program capacity and number of active participants varies from site-to-site, as do the eligibility requirements. The types of assessments used to decide felony drug court eligibility vary only slightly, with all but one adult felony drug court reporting that both clinical assessments and self-report drug use history are used to determine eligibility. Seventy-five percent of drug court staff has worked at their respective drug court locations for at least two years, and most staff has worked in his or her respective profession for at least two years. Seventy-five percent of Virginia’s adult felony drug courts have their own substance abuse programs that provide treatment to participants, with treatment being delivered through the local Community Services Boards. Infractions and sanctions vary from court to court, yet jail, community service, and verbal reprimands are reported as common sanctions imposed by all courts. Generally speaking, there was little variance in the types of drugs that were tested by courts. All felony adult drug courts report testing for cocaine, alcohol (by breathalyzer),

opiates, methamphetamine, and benzodiazepines. Additionally, 67 percent of courts report that their programs have been evaluated by an external party.

Collectively, these results suggest that Virginia's adult drug courts are using clinical assessments and offense histories as the principal means to determine drug court eligibility. It is recommended that all Virginia drug courts also assess potential participants for their criminogenic risk and needs and use this information, in conjunction with a clinical diagnosis of dependency or addiction, to determine eligibility and to develop individualized case plans. Studies have identified the relationship between the number of criminogenic needs targeted and reduced recidivism; the higher the number of needs targeted, the lower the rate of recidivism (Dumora & Carey, 2009). The results also suggest that Virginia drug courts provide a variety of services, substance abuse and ancillary, to participants while at the same time holding them accountable by means of drug testing, sanctions and incentives, and frequent contacts with the court and court staff.

Question 2: Who is being served in the adult felony drug courts in Virginia?

In the following, we examine characteristics of Virginia drug court participants, including demographics (gender, race, age), marital status, education, employment at entry and criminal history. We also examine prior involvement with the adult criminal justice system, focusing on prior arrests and convictions for both misdemeanors and felonies. Additionally, we discuss placement charges in the context of participants with one charge versus multiple charges. The data uses the full sample of adult felony drug court participants as opposed to the matched sample. Consequently, these data provide the most valid and comprehensive picture of adult felony drug court participants.

Demographics. Drug court participants were 58 percent male and 42 percent female. Figure 3 shows that 52 percent were Caucasian and 47 percent were African American. Asian and racial groups labeled “other” were less likely to participate in adult felony drug court.

Figure 3: Racial Profile of Adult Drug Court Participants

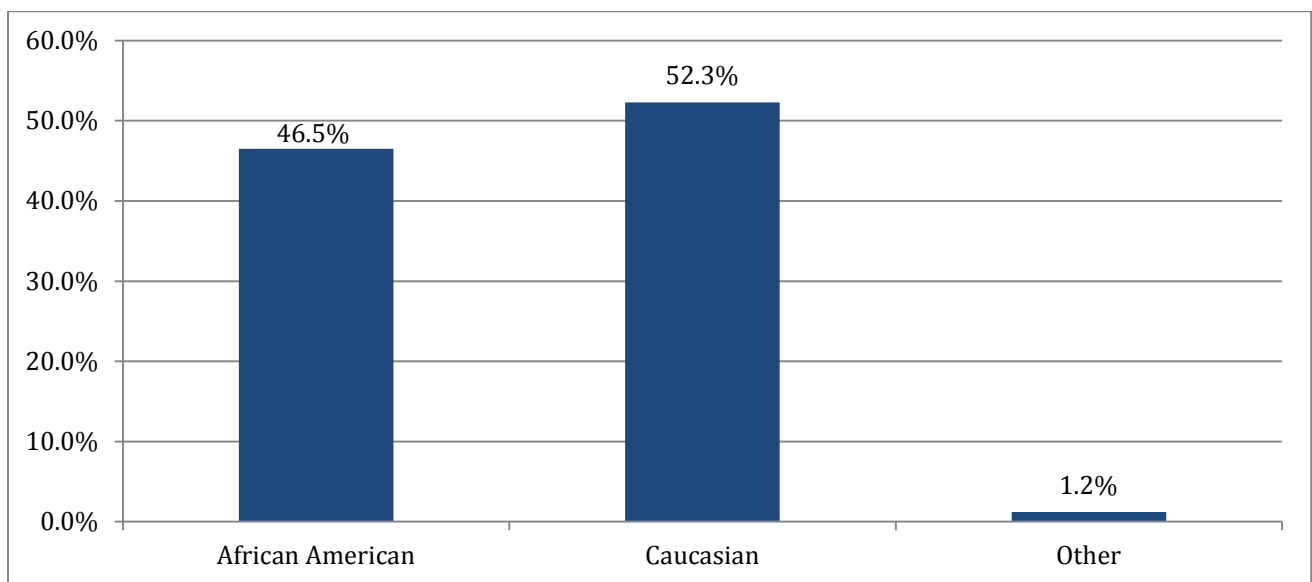
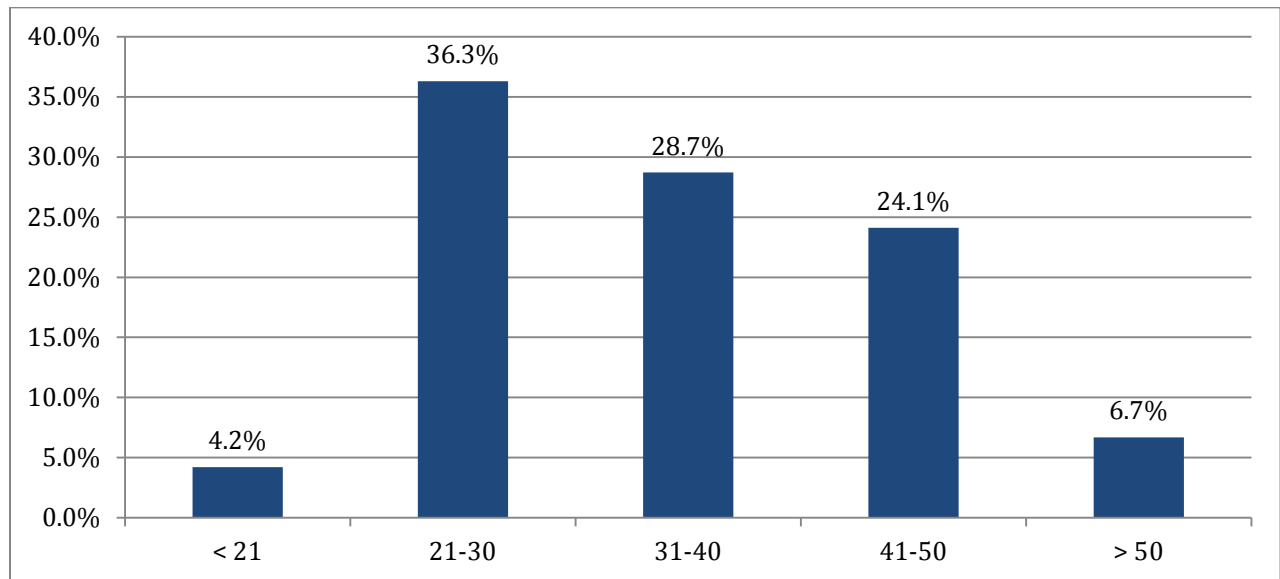


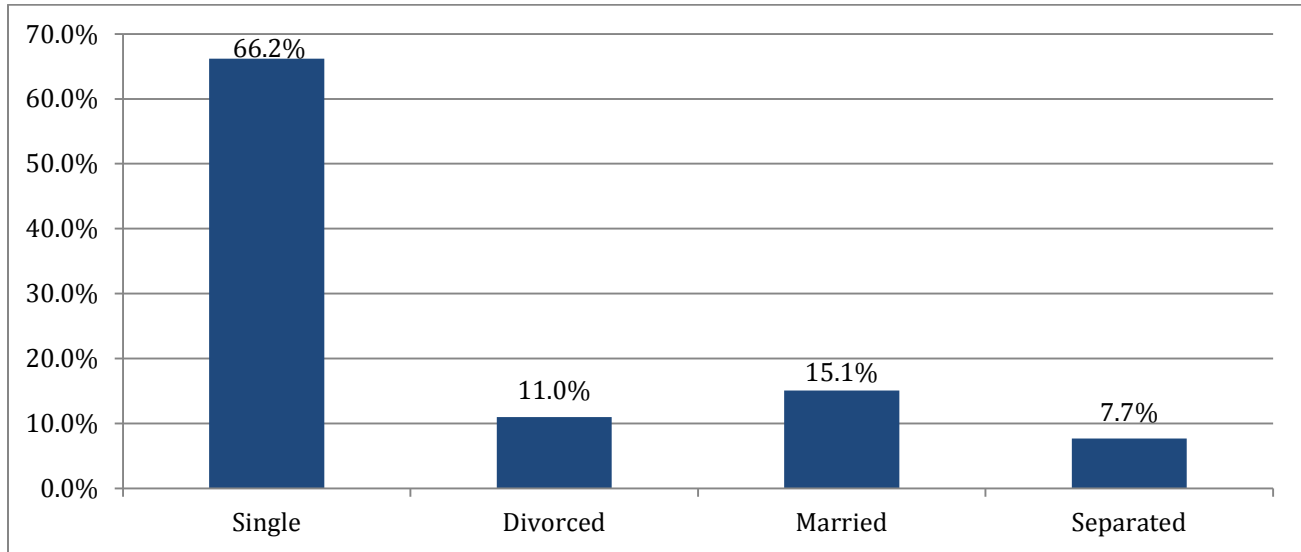
Figure 4 shows Virginia felony drug court participants by age at entry. The majority of adult felony drug court participants were between the ages of 21 and 50. The highest proportion of adult drug court participants were in the 21-30 age range (36 percent), followed by the 31-40 age range (29 percent) and the 41-50 age range (24 percent) (see Figure 4).

Figure 4: Age Distribution of Drug Court Participants



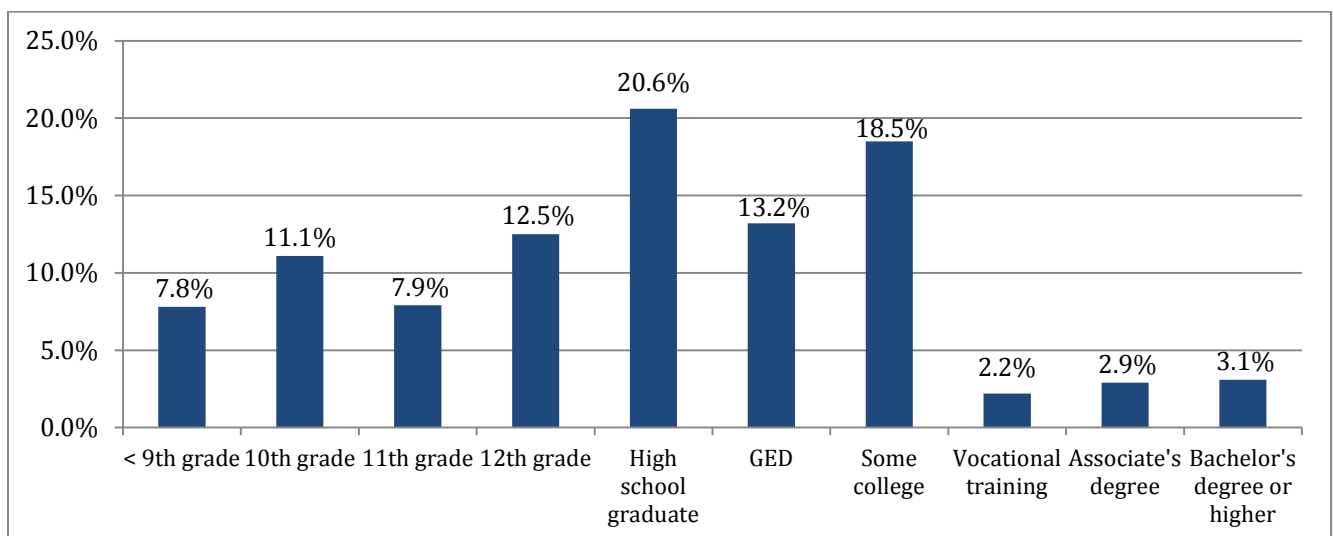
Marital Status. Figure 5 shows Virginia felony drug court participants by marital status at entry. The majority of participants were single (66 percent). Married and divorced participants comprised the next largest categories, with 15 percent and 11 percent of the total respectively. Less than 10 percent of felony drug court participants were separated or cohabitating (see Figure 5).

Figure 5: Marital Status of Drug Court Participants



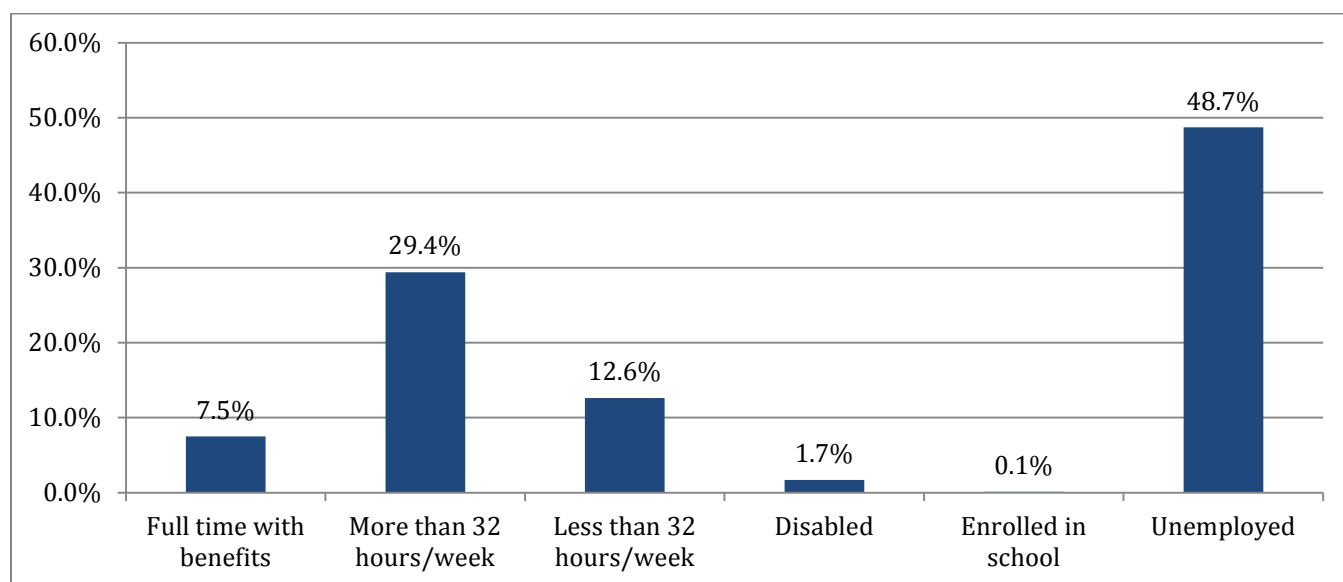
Education. Figure 6 illustrates the highest educational level achieved at entry for felony drug court participants. Thirty-nine percent of participants were not high school graduates, 21 percent of participants were high school graduates, and 13 percent received a GED. The remaining felony drug court participants had a variety of educational experiences including some college (18 percent), a Bachelors Degree (3 percent) and vocational training (2 percent) (see Figure 6).

Figure 6: Educational Attainment of Participants at Entry

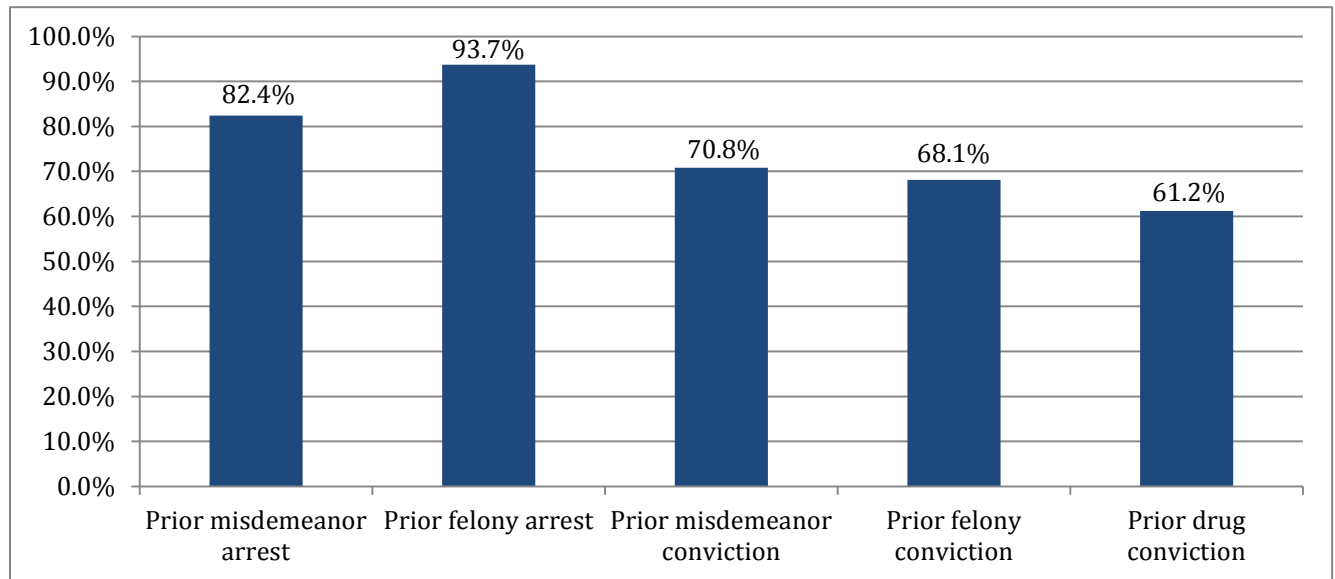


Employment at Entry. Figure 7 illustrates the employment status at entry for Virginia felony drug court participants. Nearly half of participants were unemployed at the time of entry and the majority of those that were working did not have full-time employment with benefits. Drug court participants who worked less than 32 hours per week comprised approximately 13 percent of total participants and less than 1 percent of participants reported working part time (see Figure 7).

Figure 7: Employment Status at Drug Court Entry



Criminal History. Figure 8 displays prior involvement with the adult criminal justice system for drug court participants. Most drug court participants had a history of both prior misdemeanor and felony arrests. Ninety-four percent of participants had felony arrests and 82 percent had prior misdemeanor arrests. Prior misdemeanor and felony conviction numbers for participants were also high. Seventy-one percent of participants had prior misdemeanor convictions and 68 percent had prior felony convictions. Virginia’s drug court participants averaged 3.5 misdemeanor convictions and 2.7 felony convictions prior to entering into drug court.

Figure 8: Prior Criminal History of Drug Court Participants

Placement Charge. Table 2 explores the types of charges that brought participants into drug court. The majority of participants (86.8%) enter into drug court on just one charge. However, drug courts do allow participants to enter into drug court on multiple charges and Table 2 shows the distribution of charges for drug court participants.

Table 2: Distribution of Charges for Drug Court Participants		
Type of Offense	1 Charge	> 1 Charge
Property Charge	113	1,885
Drug Charge	484	1,120
Public Order Charge	5	3
Probation Violation Charge	252	333

Drug charges followed by technical charges were the most common charges for participants that had just one charge, while property charges followed by probation violations were most common for participants with more than one charge. Both groups had relatively small numbers

of public disorder charges (typically Driving on a Suspended Operator's License). Within the group that had multiple charges, 27 participants had drug and property charges, 12 had drug and public order charges, and 12 had property and public order charges. Among those that had multiple charges, probation violation charges were the most common charge, usually in a combination of probation violation charges and drug charges (see Table 3).

Table 3: Distribution of Drug Court Participants with Multiple Offense Types by Charge Type			
Offense Type	Drug Charge	Public Order Charge	Probation Violation Charge
Property Charge	27	12	30
Drug Charge		12	35
Public Order Charge			24

Conclusion: This section examined a variety of characteristics of those being served in the adult felony drug courts in Virginia. Demographics suggest that most adult felony drug courts participants are male, Caucasian, between the ages of 21 and 51 and single. Approximately half of adult felony drug court participants have graduated from high school or have a GED and nearly 50 percent were unemployed. Most drug court participants had a high percentage of prior felony and misdemeanor convictions. These findings will be further discussed when comparing drug court participants to the business as usual comparison groups later in this report. The profile of the typical drug court participant as a young male, unemployed, with limited education, with prior felony, misdemeanor, and drug convictions suggests that Virginia drug courts service high risk, high needs offenders

Question 3: What combination and types of services are being delivered in the adult felony drug courts in Virginia?

In the following section, we discuss the types of services delivered to participants enrolled in drug court as well as the incentives and sanctions imposed as a result of program compliance and non-compliance. In all of the tables, the figures represent the average for both graduates and non-graduates. It is important to note, in reviewing the service level data, that the average length of stay for all participants (graduates and non-graduates combined) in the program is 492 days or 16 months. This is consistent with recommended best practice that program length should be between 12 to 16 months (Shaffer, 2006; Carey et. al., 2012). Five of the adult drug courts were excluded from data analysis of service level data due to questionable data quality.

Treatment and Recovery Support Services. Table 4 shows a summary of the mean and median number of hours of treatment and recovery support services delivered to participants of drug court (both graduates and non-graduates) for seven of the twelve adult drug courts included in the study.

Table 4: Treatment and Recovery Support Services Delivered to Drug Court Participants		
Service	Mean # of Hours	Median # of Hours
Group Therapy	183 hours	169 hours
Individual Therapy	26 hours	17 hours
Family Therapy	26 hours	12 hours
Support Services (AA/NA)	156 hours	128 hours
Total	391 hours	326 hours

NOTE: Table 4 excludes data from Norfolk, Rappahannock, Richmond, Roanoke, and Portsmouth

Table 4 shows that the participants receive an average of 391 hours of treatment and recovery support services during their tenure in drug court with a range from 1 session

(representing participants that abscond at entry) to 654 hours of group therapy over the course of participation in drug court.

Probation Services. Table 5 shows a summary of the mean and median number of probation meetings participants attend while in drug court (both graduates and non-graduates) for seven of the twelve adult drug courts included in the study. During these meetings, participants typically review their program compliance, including requirements for employment, fee payment and community service.

Table 5: Probation Services Delivered to Drug Court Participants		
Service	Mean # of Probation Visits	Median # of Probation Visits
Probation Supervision Visits	106 visits	84 visits

NOTE: Table 5 excludes data from Norfolk, Rappahannock, Richmond, Roanoke, and Portsmouth

Table 5 demonstrates that drug court participants are intensely supervised by probation during their tenure in drug court with an average of 106 probation visits over the course of their tenure in drug court. The range, among all participants in the study, was from 1 (representing participants who absconded after the first week) to 501 probation visits.

Court Appearances. Table 6 shows a summary of the mean and median number of court appearances made by drug court participants (both graduates and non-graduates) for seven of the twelve adult drug courts included in the study. During the judicial review hearings, the judge discusses the participant's progress in treatment and supervision directly with the participant. Five of the adult drug courts were excluded from data analysis in this section due to questionable data quality.

Table 6: Court Appearances by Drug Court Participants		
Service	Mean # of Court Appearances	Median # of Court Appearances
Court Appearances	28 appearances	25 appearances

NOTE: Table 6 excludes data from Norfolk, Rappahannock, Richmond, Roanoke, and Portsmouth

A primary component of drug court is ongoing judicial supervision of participants. The majority of Virginia’s felony adult drug courts require weekly appearances in court in Phase 1 with a tapered off schedule of appearances as the participant progresses through the program. In addition to the frequent scheduled judicial reviews, participants who violate program rules are ordered to appear before the court for sanctioning the following week. On average, drug court participants appear before the court 28 times over the course of their participation in drug court. The range, among all participants in the study, was from 1 to 101 court appearances.

Sanctions and Incentives. The use of sanctions and incentives is firmly grounded in scientific literature and is a key component of drug courts throughout the United States. Within drug court programs, positive reinforcement (incentives) and negative reinforcement (sanctions) are used to increase desired behavior.

Sanctions. Programs use a variety of sanctions in an effort to modify negative behavior. The twelve drug courts vary in the types of sanctions they use and the quantity of sanctions imposed on participants. Figure 9 represents the most common reasons for applying sanctions, as reported by drug treatment court staff. The table suggests that the majority of sanctions are imposed for testing positive or missing a drug screen. There is a broad category of “other” that is undefined that could be further clarified in the database.

Figure 9: Most Frequent Reason for Sanctions in Virginia's Adult Drug Courts

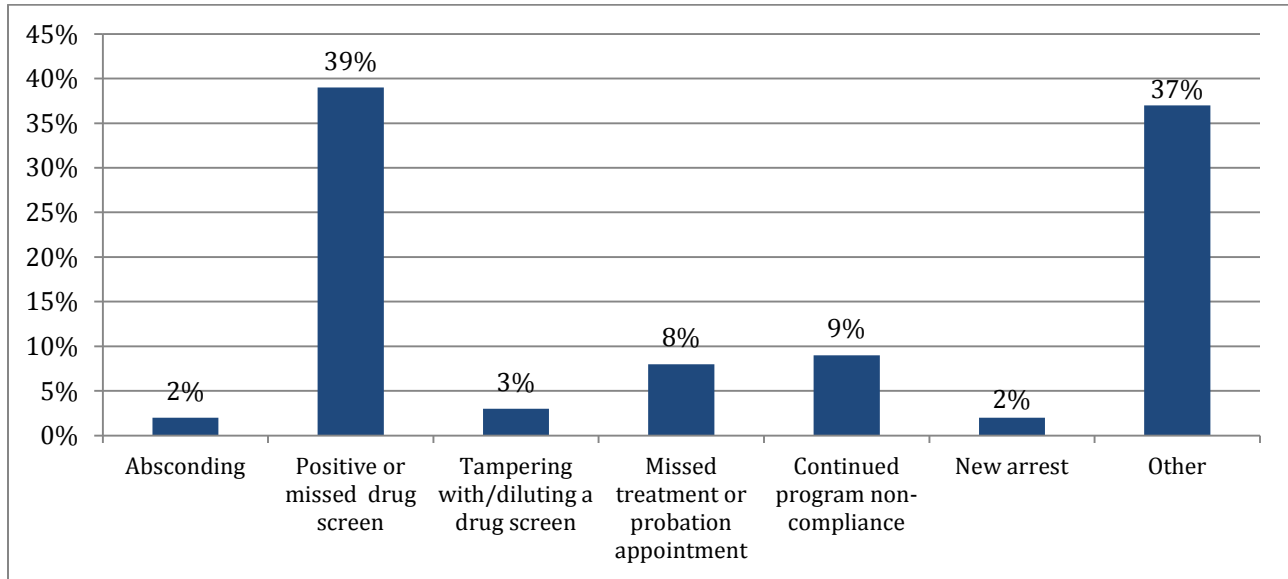
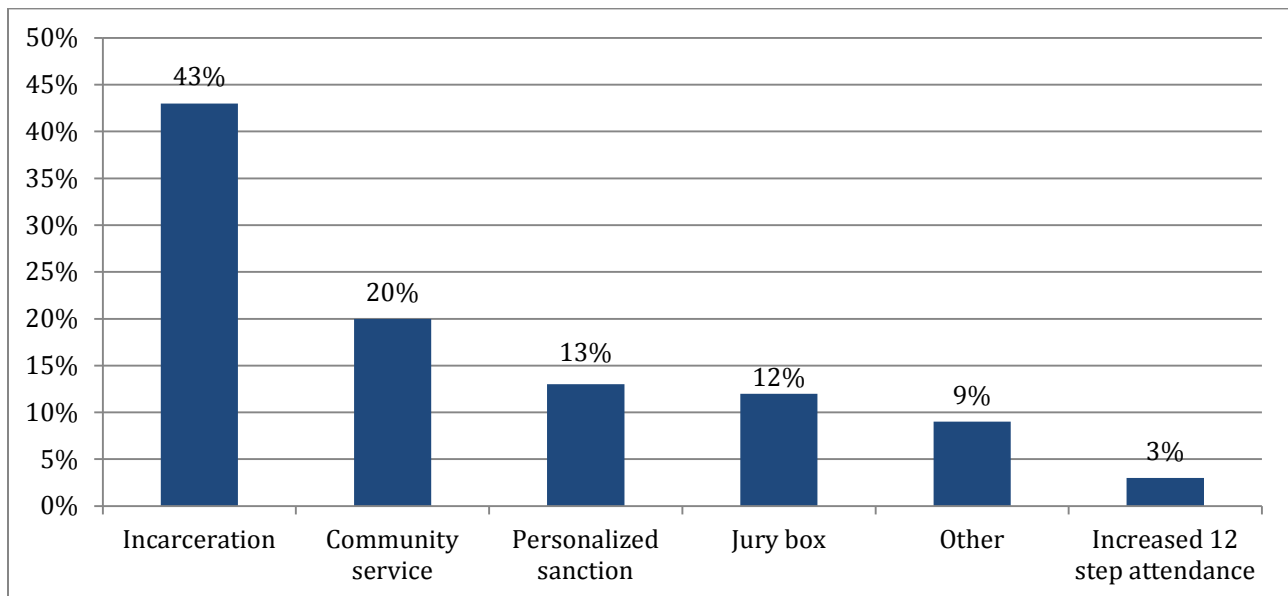


Figure 10 shows the most frequent types of sanctions imposed in Virginia's adult drug courts.

Incarceration (typically a brief jail stay), followed by community service and a personalized sanction specific to the individual (such as an essay) are the most common sanctions imposed.

Figure 10: Most Frequently Imposed Sanctions in Virginia's Adult Drug Courts



According to the national research, sanctions tend to be least effective in the lowest and highest magnitudes, and most effective within the intermediate range (see, e.g., Marlowe and Wong, 2008). Drug courts tend to be more effective and cost-effective when they use jail detention sparingly. One study found that drug courts that tended to apply jail sanctions of less than two weeks duration reduced crime approximately two and a half times more than those tending to impose longer jail sanctions (Carey et. al., 2012). Moreover, because jail is an expensive resource, drug courts that tended to impose jail sanctions of longer than two weeks had 45 percent lower cost savings in the national study.

Incentives. Incentives are used in drug court and in other treatment settings to motivate participant behavior towards pro-social behavior. Incentives are used to shape behavior gradually by rewarding the participant's positive behavior or achievement of a specific target behavior in order to reinforce this positive behavior. Long-term gains are more likely to be realized if drug courts use positive reinforcement to increase productive behaviors that compete against drug abuse and crime after participants are no longer under the authority of the drug court. Incentives can be as simple as praise from a staff member or the drug court Judge, a certificate for completion of a specific milestone of the program or medallions that reward and acknowledge specific lengths of sobriety.

Figure 11 represents the proportion of the total incentives given, by type, as reported by drug treatment court staff. Certificates and medallions (small coins representative of the types of coins given in the self-help community), followed by a small gift/book, and drawing for rewards were the most frequent incentives given.

Figure 11: Types of Incentives Used in the Adult Drug Court

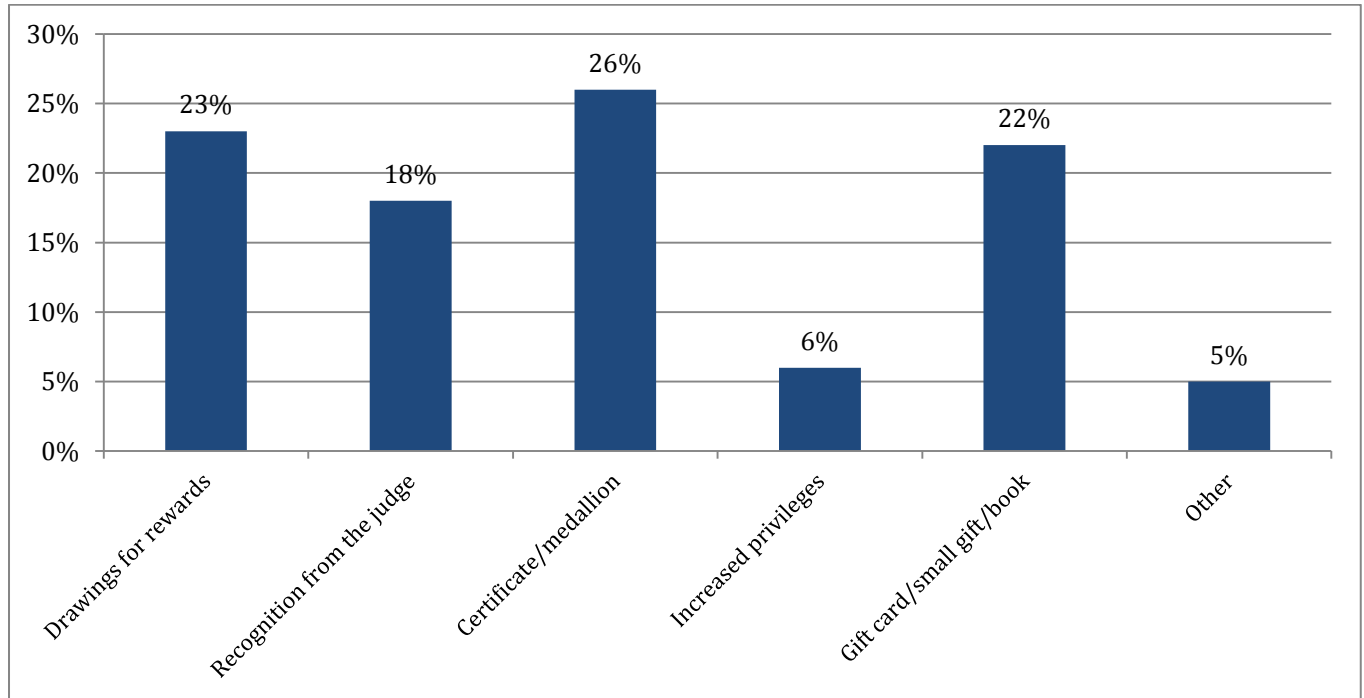


Figure 12 further portrays the most commonly reported reasons for applying incentives. The clear majority of incentives are given to recognize sobriety.

Figure 12: Reasons Incentives Were Given

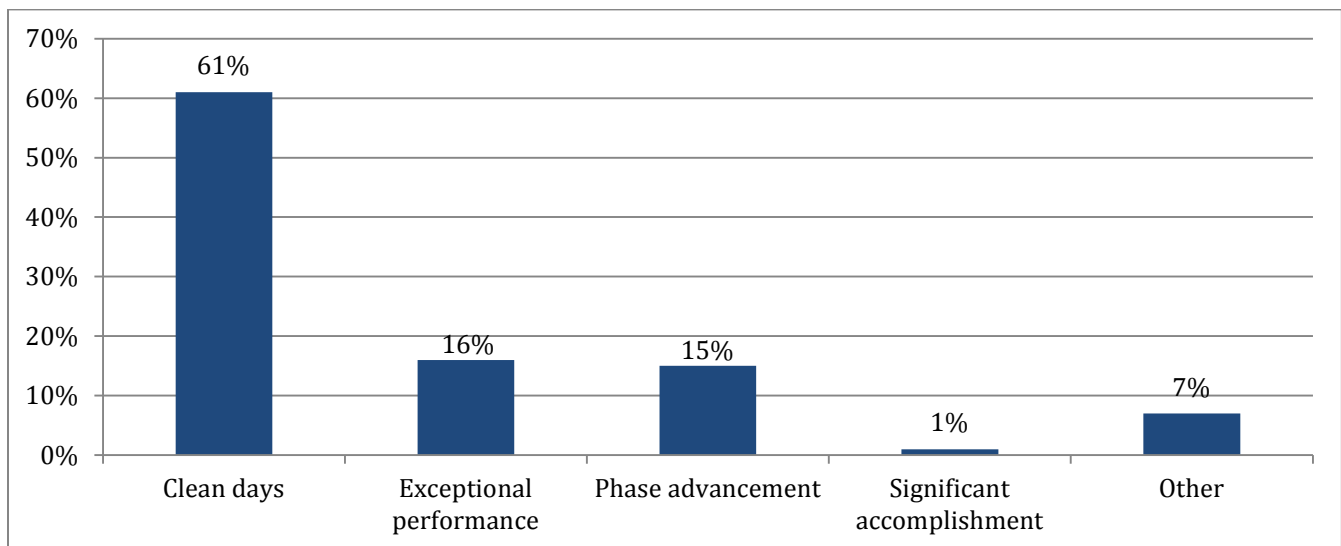


Table 7 shows a summary of the number of incentives and sanctions given to drug court participants.

Table 7: Number of Incentives and Sanctions Given to Drug Court Participants	
Total # of incentives	6,572
Average # of incentives	5.95
Total # of sanctions	4,151
Average # of sanctions per participant	3.75

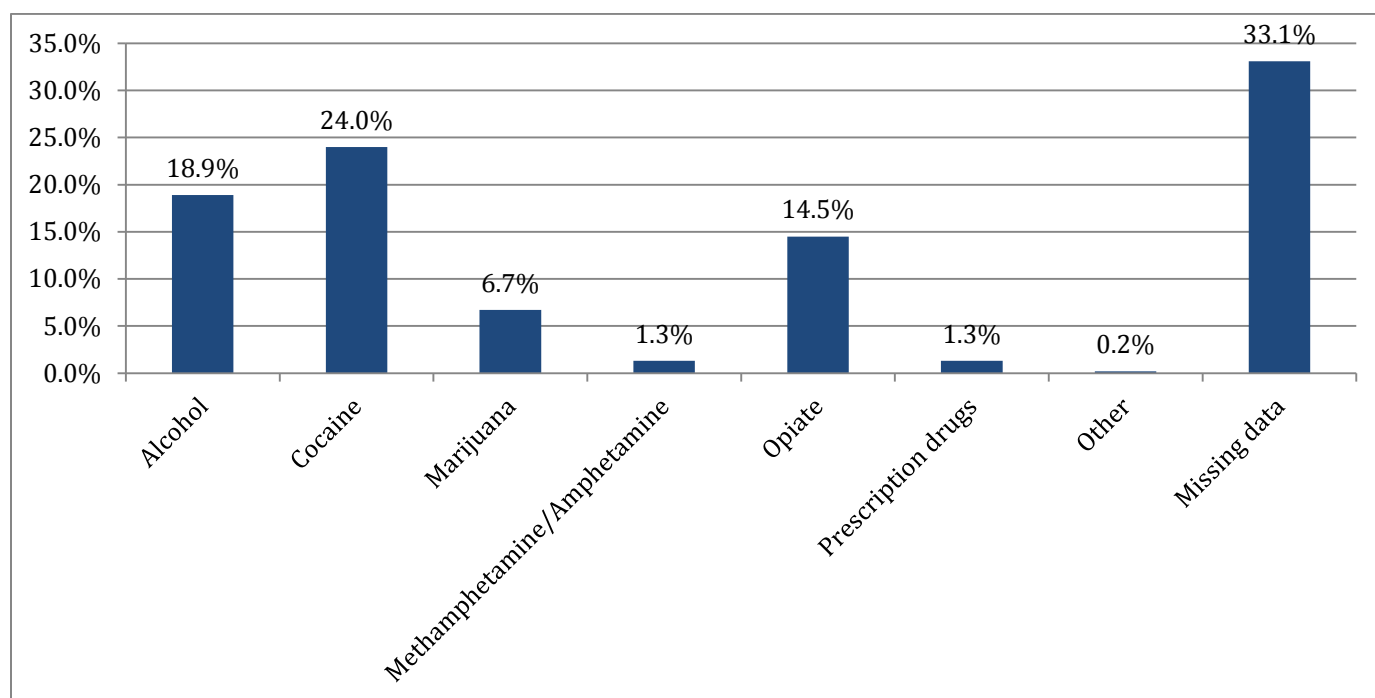
A total of 6,572 incentives and 4,151 sanctions were imposed on participants during the study period. Some studies (e.g., Gendreau, 1996) have found that a 4:1 ratio of incentives to sanctions was associated with significantly better outcomes among offenders. Virginia drug courts should strive to ensure a balance of sanctions and rewards are given.

Conclusion. Virginia drug court participants receive significant dosages of services including group and individual therapy, family therapy, and support services. They are supervised in part by significant numbers of court appearances and probation supervision visits. Sanctions and to a lesser extent, incentives, are frequently employed to manage offender behavior and compliance with program and treatment requirements.

Question 4: Do drug court participants reduce their substance abuse and gain employment while in drug court?

Drug of Choice. Upon admission into the adult drug court program, participants are asked to disclose their preferred drugs of choice. The data collection form allows for up to three drugs to be recorded and categorized by primary, secondary, and tertiary drug of choice. Information is based on self-report but may be interpreted by staff in light of other available information, such as the drug involved in the offense at referral and the results of baseline drug tests at intake. It is important to note that not all participants are forthcoming about the nature and extent of their drug use at intake or assessment and this may become clearer once the participant is involved in the program. In addition, preference for multiple drugs is common among participants. Figure 13 portrays the most frequently cited drugs of choice reported by participants:

Figure 13: Drug of Choice Among Drug Court Participants



This analysis reveals that the majority of participants report cocaine, alcohol, and opiates as the top three preferred drugs. Unfortunately, data were missing in nearly a third of the cases so a complete picture of the participant's drug using behavior is limited.

Sobriety. Sobriety, both during and after drug court participation, is a goal of all drug courts because it fosters offender rehabilitation, public safety, and offender accountability. The adult drug treatment court programs conducted over 142,524 drug tests during the evaluation period, with an average of 109 drug screens per participant. Graduates had, on average, 139 drug screens in the program while non-graduates had an average of 78 drug screens while in the program. The majority of participants (68%) demonstrate some level of substance relapse while active in the drug treatment court program. Two aspects of sobriety were examined: (1) Percent of drug tests failed and (2) Period of longest continuous sobriety.

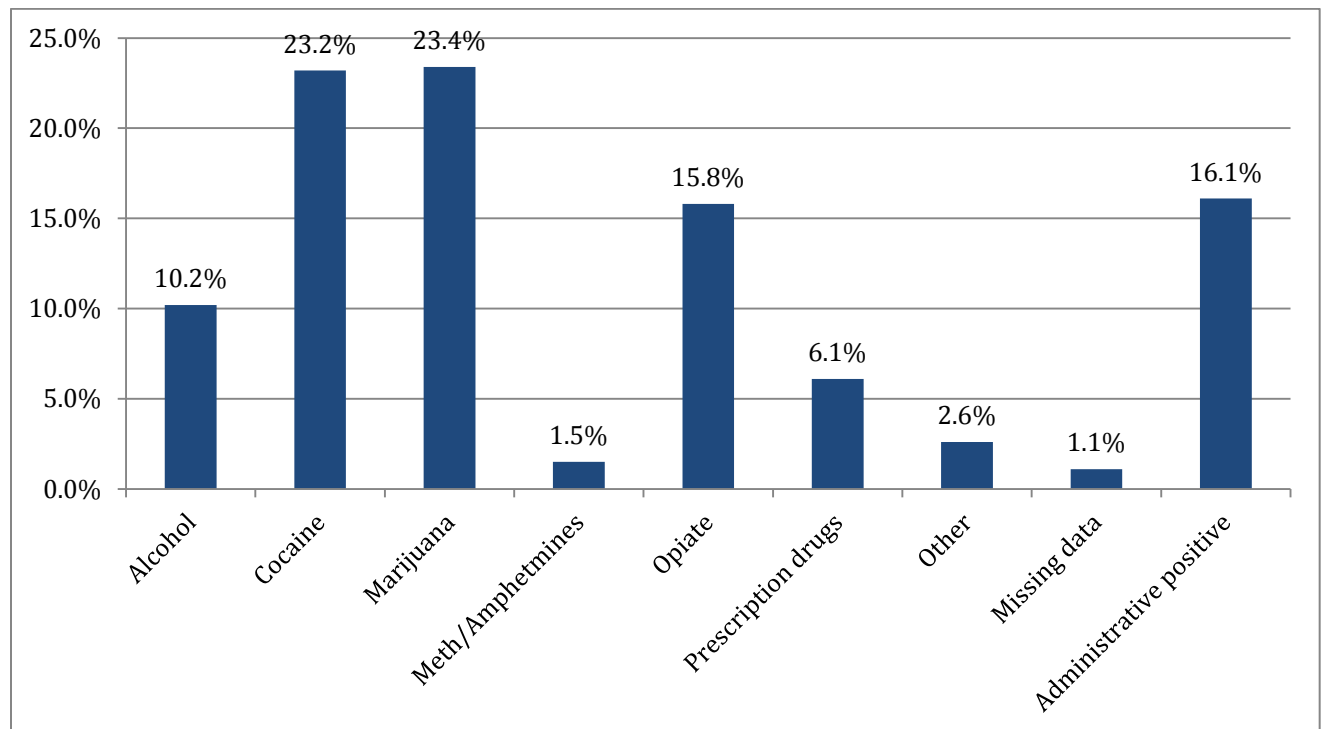
Table 8 shows that the majority of participants test positive for illicit drugs at some point in the program. At least half of the participants who go on to graduate test positive at some point in the program while 82% of the participants that go on to be terminated test positive at some point in the program. Participants who graduate have a lengthy period of sobriety – an average of 511 days but even the participants who go on to be terminated have 256 days of sobriety. Research in multiple drug courts shows that drug courts that have a requirement of 90 days abstinence (measured by continued negative drug tests) before graduation had 164 percent greater reductions in recidivism than programs that required less clean time or that had no minimum required clean time before graduation (Carey et. al., 2012). Not surprisingly,

there is a higher rate of positive drug screens overall among the terminated drug court participants compared to the graduates.

Table 8: In-Program Sobriety by Participant Type			
Type of exit	Percent of participants that test positive at least once while in drug court	Maximum # of days of sobriety	Percent of all drug tests that were positive
Graduate	56%	511 days	2%
Terminated/Withdrew	82%	256 days	13%
Total	68%	388 days	7%

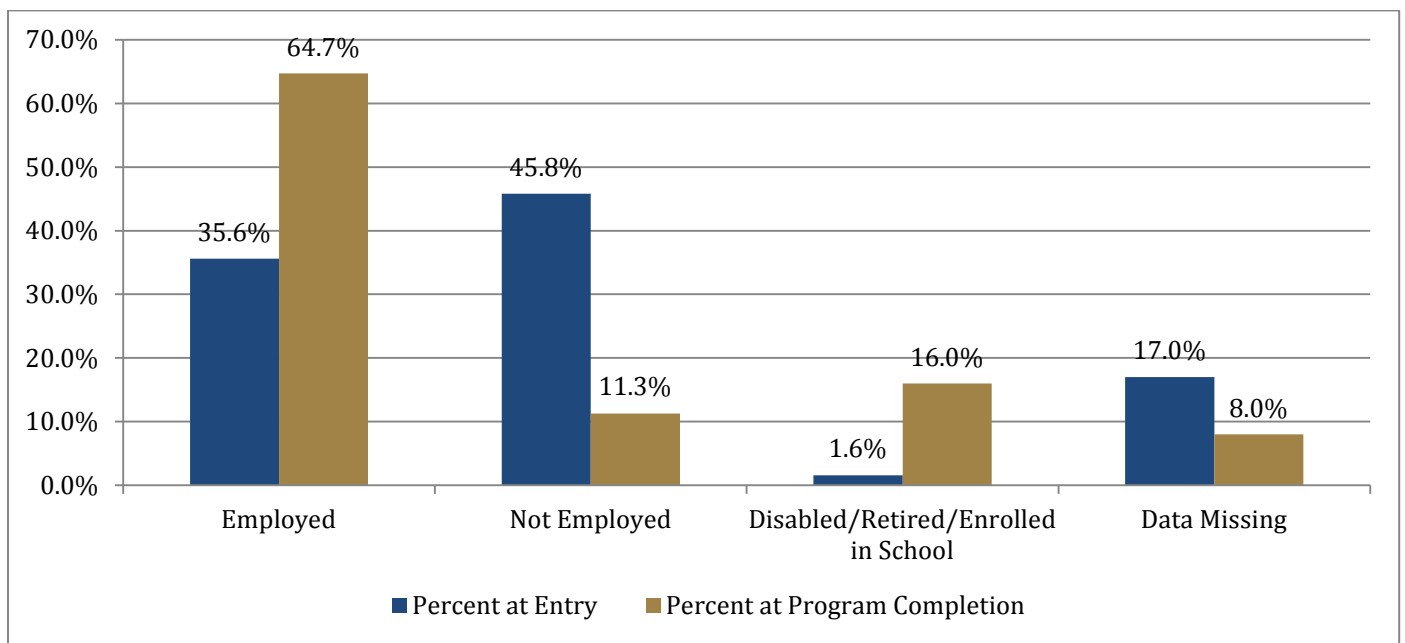
Figure 14 examines the types of drugs for which participants test positive for when they test positive. Cocaine, marijuana and heroin represent the most common drug identified in drug screens that are positive.

Figure 14: Drugs Detected in Positive Drug Screens from Drug Court Participants



Employment. Figure 15 examines another key interim outcome area for participants in drug court which is gains in employment. While only a third of participants enter the drug court program employed, 64.7% of all participants (graduates and non-graduates) leave drug court employed. Another 16% leave drug court disabled, retired or enrolled in school suggesting that a full 80% have obtained stable incomes and/or are improving their education.

Figure 15: Percent of Drug Court Participants Employed at Program Entry and Program Completion



Conclusion. Virginia drug court participants report cocaine, alcohol, and opiates as their primary drugs of choice. Frequent drug testing indicates that while most participants test positive for illicit drugs at some point in the program, usage decreases dramatically over time as attested by the finding that significant periods of continuous sobriety are observed prior to their respective programs. Results also indicate that participants are more likely to be employed when they exit their respective programs than when they entered their programs.

Question 5: How do outcomes differ among the drug court sample by exit type?

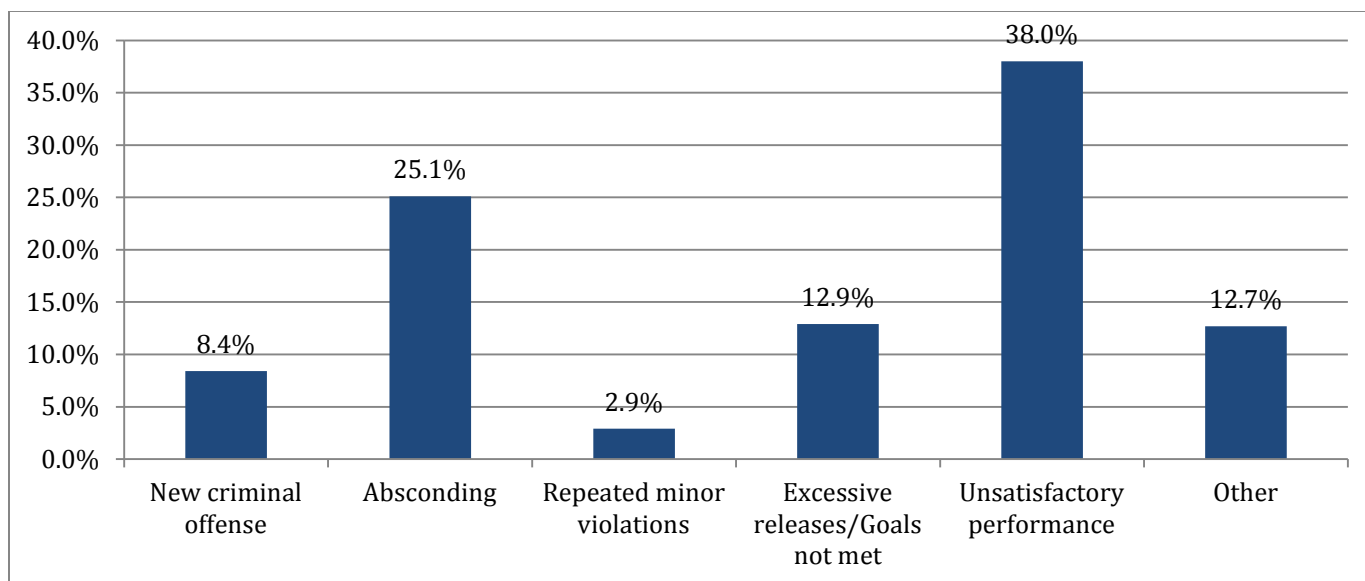
“Outcomes” measure how the offender’s status changes during participation, in this case, during participation in drug court. In the following, we examine outcomes related to how participants exited from the drug court program, time from admission to exit (by exit type), the reason for termination, the point in the program when terminations occur, and in-program recidivism. Note that the number of drug court participants used in the analyses that follow are slightly different than the number reported in previous analyses because a few (N=117) drug court participants that lacked crucial data were eliminated from further analysis.

Type of Exit: Almost exactly 50 percent of the 1,109 drug court participants (unmatched sample) exited successfully from their drug court program by means of graduation, the same percentage as reported nationally (Cooper, 2000). Another 47.4 percent were terminated. While graduates and terminations account for around 98 percent of participants who exited, another 1.8 percent exited by means of voluntary withdrawal. Six participants in the sample exited due to their deaths, while one was “referred” to another program before drug court completion.

Figure16 shows the reasons for termination. Note that two of the biggest categories (“Unsatisfactory Performance” and “Other”) lack specificity though they collectively account for 51 percent of the terminations. The Supreme Court should strive to bring greater specificity to these categories. Absconding accounts for more than half of terminations associated with specific types (N=259). Absconding, new criminal offenses, and repeated minor violations can be considered to be “behavioral” reasons for termination and collectively account for 74 percent of terminations associated with specific types. The other 26 percent of terminations

associated with specific types represent “treatment” failures (excessive relapses and recovery goal not achieved).

Figure 16: Reasons for Program Termination



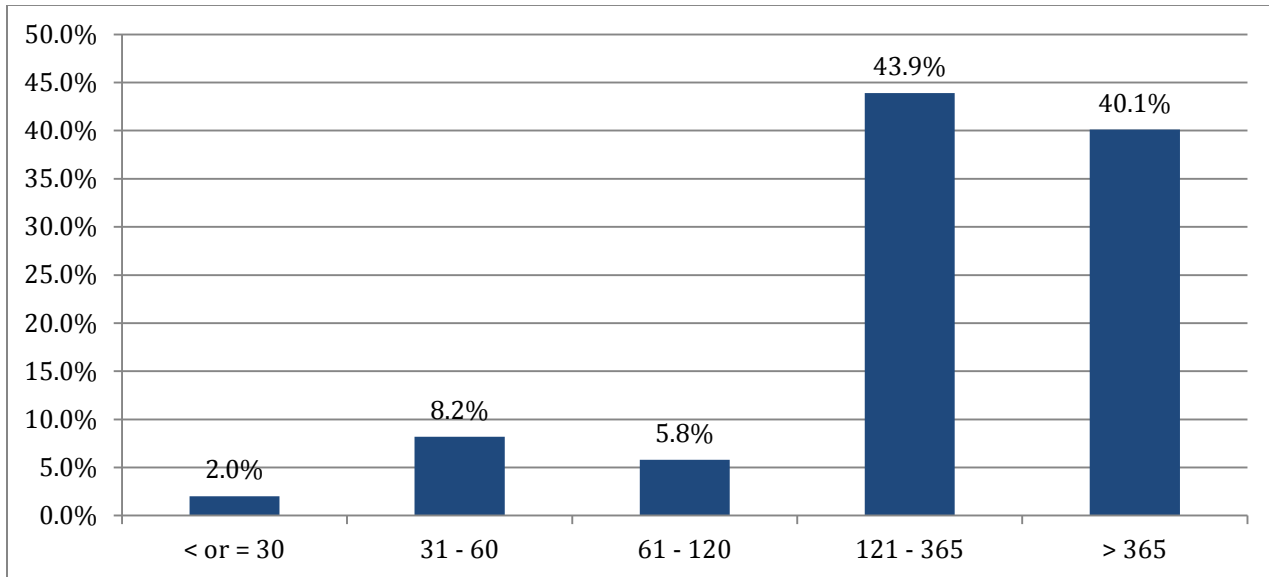
Time-in-Program. On average, graduates spent 619 days (1.7 years) in program, with a maximum of 1, 427 days (3.9 years). Half of all graduates spent more than 566 days (1.5 years) in their respective programs. Best practices recommend that participants should graduate after 12 to 16 months (Shaffer, 2006), suggesting that Virginia drug court programs should critically examine this part of their programs.

Non-graduates (terminations and withdrawals) spent an average of 360 days, almost a year, in program, with a maximum of 1, 541 days (4.2 years). Half of all non-graduates spent more than 295 days in their respective programs.

A sub-analysis of the amount of time between program acceptance and termination was conducted, as shown in Figure 17 for the 501 drug court terminations for whom data were available. Only 16 percent were terminated within the first 120 days (four months) after

acceptance, while almost 44 percent were terminated between four months and one year after acceptance. The remaining 40 percent were terminated more than a year after acceptance.

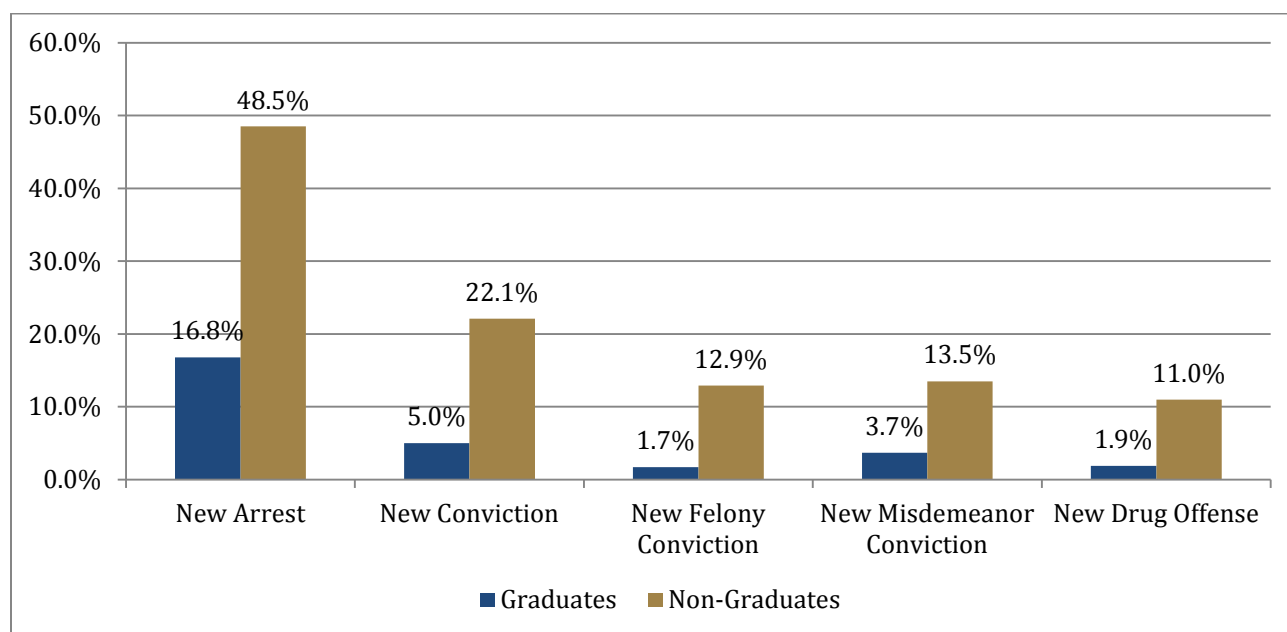
Figure 17: Number of Days from Program Entry to Termination



These data reflect that participants are not routinely terminated without first having been given ample time to succeed in drug court. They also reflect that drug courts are investing resources in participants that are for the most part terminated late in their drug court programs. Given this investment, drug courts should avoid termination if at all possible. It is recommended that individual programs examine the point in time that terminations occur in their programs (similar to the analysis above) and seek to strengthen their programs at the points where most terminations occur. In this section, recidivism is examined from several different perspectives.

In-Program Recidivism. Figure 18 below compares in-program recidivism rates for drug court graduates and non-graduates, using the matched sample of drug court participants. As can be seen, drug court graduates were significantly less likely to get a new arrest, conviction, felony conviction, or misdemeanor conviction than terminates during program participation. The differences were all highly significant (the odds are only one in one thousand that these differences could have occurred by chance alone).

Figure 18: In Program Recidivism Rates of Graduates versus Non-Graduates

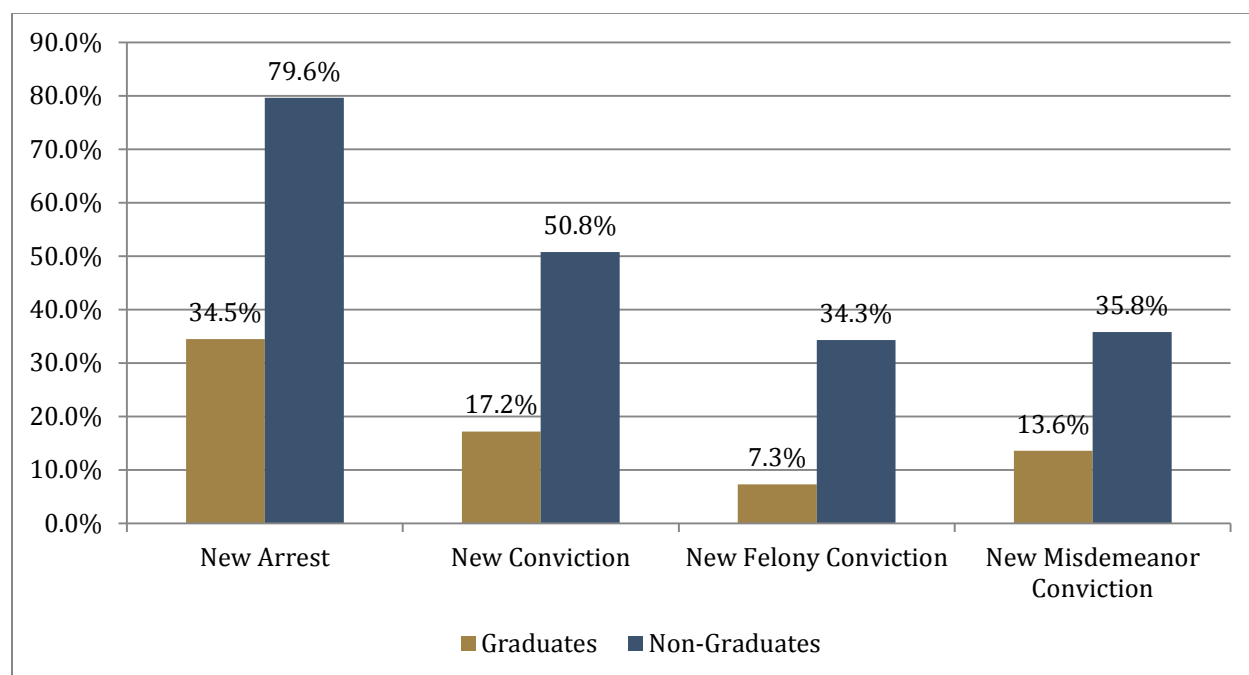


All differences are significant at the $p < .001$ level

In-Program and Post-Program Recidivism. Figure 19 compares in-program and post-program recidivism rates for drug court graduates and non-graduates. Figure 19 shows that slightly more than one third of the graduates were re-arrested and that only about half of the arrests resulted in a conviction. Non-graduates were more than twice as likely to be re-arrested than graduates with almost 80 percent being re-arrested and 50 percent being reconvicted. Non-

graduates were more than four times as likely to be convicted of a new felony offense than graduates with less than eight percent of the graduates receiving a new felony conviction. Graduates were almost twice as likely to receive a new misdemeanor as opposed to a felony conviction, though only about 14 percent received such a conviction. Non-graduates were more than two and a half times as likely as graduates to receive a misdemeanor conviction. Terminations were more than three and a half times as likely to be convicted of a new drug offense than graduates, though only about six percent of the graduates were convicted of a new drug offense. Note that non-graduates averaged almost two convictions while graduates averaged less than half a conviction. All of these differences were highly significant.

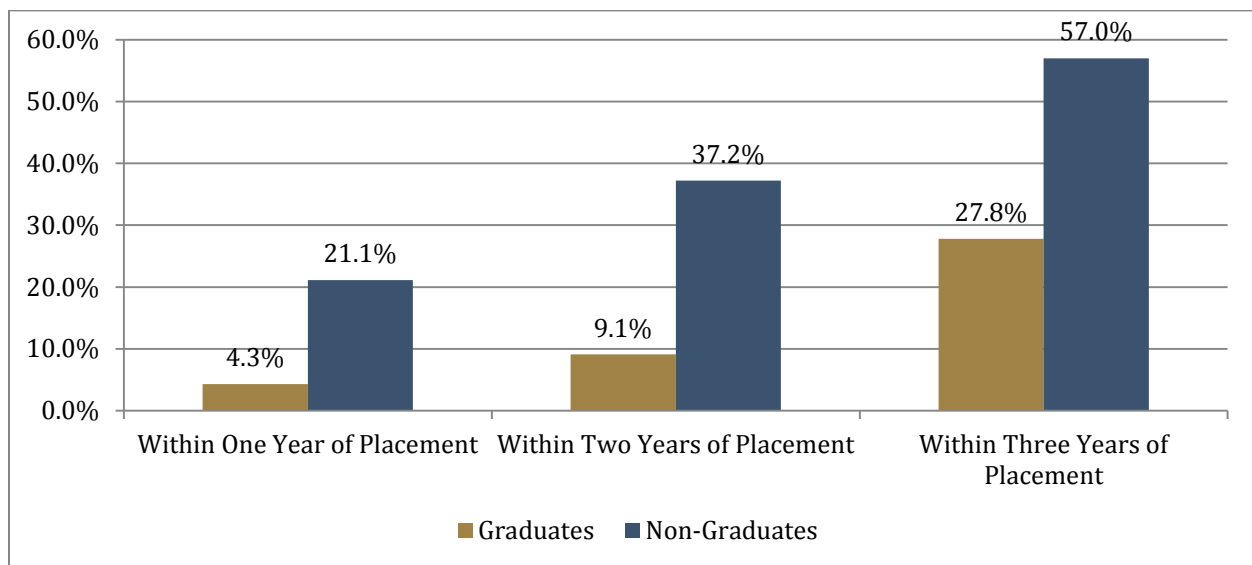
Figure 19: Drug Court Graduates and Non-Graduates Recidivism (In Program and Post Program)



All differences are significant at the $p < .001$ level

Time to New Conviction Among Graduates and Non-Graduates. Figure 20 shows that more than a fifth of the terminations were re-convicted within one year of termination compared to only 4.3 percent of the graduates. Within one year of exit from drug court, terminations were almost five times as likely to be re-convicted as graduates, within two years about four times as likely, and within three years, about 3.2 times as likely, all highly significant differences.

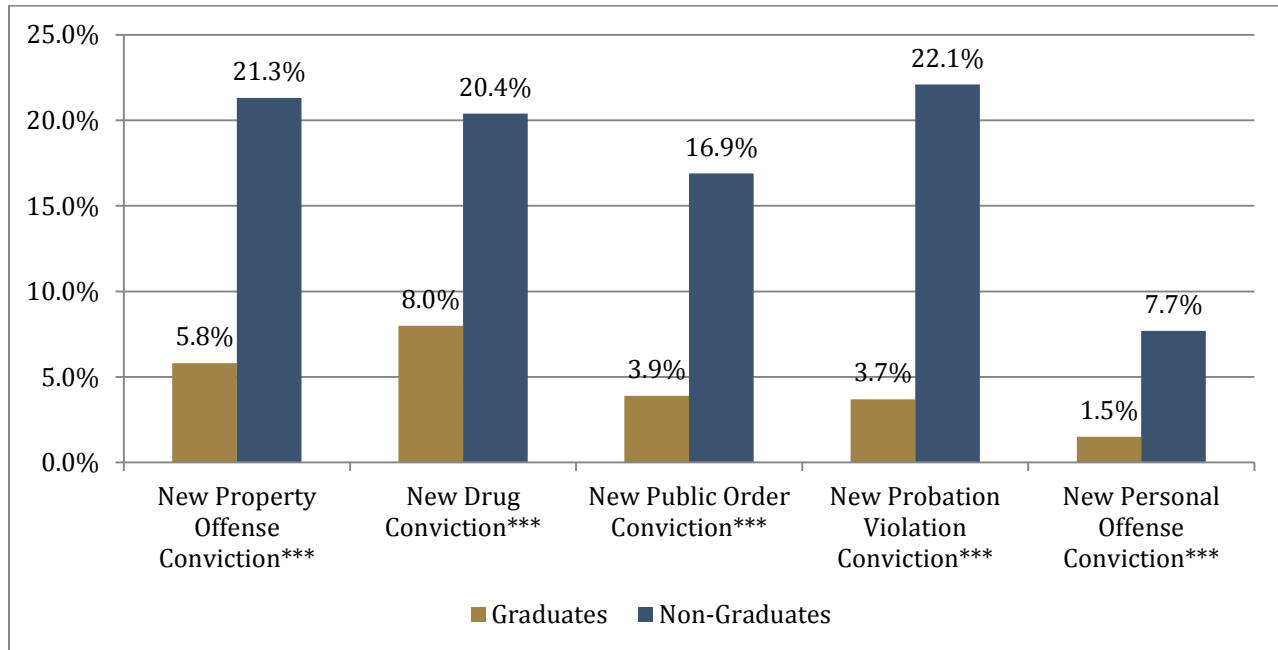
Figure 20: Time From Placement to New Conviction for Graduates versus Non-Graduates



All differences are significant at the $p < .001$ level

Types of New Convictions Among Graduates and Non-Graduates. Finally, Figure 21 examines the types of new convictions among graduates and non-graduates. Graduates who have new convictions are most likely to be convicted of a new drug offense followed by a new property offense. However, in all categories, graduates had statistically significant fewer new convictions than non-graduates.

Figure 21: Types of New Convictions Among Graduates and New Graduates



Significantly different at $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Conclusion. In this section, it was shown that about 50 percent of drug court participants successfully graduate their program, very much in-line with national estimates. On average, graduates spend around 1.7 years in their respective programs before graduation, which is slightly higher than recommended best practices. Terminations spend about a year in their respective programs before termination, after a considerable expenditure of program resources. It is recommended that Virginia drug court programs critically examine their termination policies and strive to reduce their rate of terminations. Finally, using a variety of indices, it was shown that drug court graduates were significantly less likely than terminated clients to recidivate while participating in their respective drug court programs and after.

Question 6: How do the participants being served in the adult felony drug courts differ from the business as usual comparison group?

In the following, we compare offender demographics (age, race, sex), charges at arrest, and offense history between drug court participants collectively (regardless of their type of exit) and the comparison group, using both non-adjusted and adjusted samples. The non-adjusted samples can be used to compare drug court participants with offenders charged with drug court-eligible offenses but who did not go drug court. Any differences that emerge from this comparison will reflect both the explicit criteria used to select offenders for drug court as well as any unintended factors that differentiate the two groups. The comparison between the adjusted samples allows one to gauge the success of the propensity-score matching procedure in reducing differences between the two groups. It also alerts us to differences between the two groups that persist after propensity score matching which must be controlled for statistically in future analyses.

Demographics. Table 9 shows that a significantly higher proportion of drug court participants were in the 21-30 age range than offenders convicted of drug court eligible offenses who did not go to drug court. A comparison of the adjusted samples reveal that propensity score matching has rendered the age distributions of both samples virtually identical.

Table 9: Virginia Felony Drug Court Participants & Comparison Group by Age				
Sample	Non-Adjusted		Adjusted	
Age Category	Drug Court (%)	Comparison (%)	Drug Court (%)	Comparison (%)
< 21	40* (3.9%)	180 (5.5%)	36 (3.7%)	54 (5.5%)
21 – 30	393** (37.8%)	1,049 (32.2%)	365 (37.6%)	339 (34.9%)
31 – 40	293 (28.2%)	959 (29.5%)	280 (28.8%)	280 (28.8%)

41 – 50	245 (23.6%)	828 (25.5%)	230 (23.7%)	242 (24.9%)
51 – 60	66 (6.4%)	224 (6.9%)	59 (6.1%)	54 (5.6%)
> 60	2 (0.2%)	14 (0.4%)	2 (0.2%)	3 (0.3%)
Total	1,039 (100%)	3,254 (100%)	972 (100%)	972 (100%)

Significantly different at $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Table 10 shows that about 53 percent of the drug court participants were Caucasian and another 45 percent were African American. Drug court participants are significantly less likely to be African-American and significantly more likely to be Caucasian or “Other” (see Table 26) than offenders convicted of drug court eligible offenses who did not go to drug court. Propensity score matching virtually eliminated differences in the racial composition of the two groups.

Table 10: Virginia Felony Drug Court Participants & Comparison Group by Race				
Sample Racial Group	Non-Adjusted		Adjusted	
	Drug Court (%)	Comparison (%)	Drug Court (%)	Comparison (%)
African American	472*** (45.4%)	2,088 (64.2%)	453 (46.6%)	456 (46.9%)
Caucasian	554*** (53.3%)	1,153 (35.4%)	509 (52.4%)	510 (52.5%)
Asian	2 (0.2%)	8 (0.3%)	1 (0.1%)	1 (0.1%)
Other (Hispanic, Native American, Alaskan Native or Unknown)	11*** (1.1%)	5 (0.2%)	9 (0.9%)	5 (0.5%)
Total	1,156 (100%)	3,254 (100%)	972 (100%)	972 (100%)

Significantly different at $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Table 11 shows that drug court participants were about 59 percent male and 41 percent female. Drug court participants were significantly less likely to be male than offenders

convicted of drug court eligible offenses who did not go to drug court. Propensity score matching attenuated the differences in the gender distribution between the two groups but did not eliminate them, meaning that future multivariate analyses will need to control for this difference.

Table 11: Virginia Felony Drug Court Participants & Comparison Group by Gender				
Sample Gender	Non-Adjusted		Adjusted	
	Drug Court (%)	Comparison (%)	Drug Court (%)	Comparison (%)
Male	617*** (59.2%)	2,535 (77.9%)	579* (59.6%)	639 (65.7%)
Female	425*** (40.8%)	719 (22.1%)	393* (40.4%)	333 (34.3%)
Total	1,042 (100%)	3,254 (100%)	972 (100%)	972 (100%)

Significantly different at $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Type of Charge at Eligible Arrest. Table 12 below shows that drug court participants were most likely to be charged with a drug offense followed by a technical violation, and then a property offense. In cases where there was more than one charge at the time of arrest, the most serious offense was used for this analysis. About 88 percent of the drug court participants had only one charge, though some offenders had more than 100 charges. The additional charges were primarily for property and drug offenses, respectively. Drug court participants were significantly more likely to be charged with a drug offense or a technical violation than offenders convicted of drug court eligible offenses who did not go to drug court, as well as a public order offense though the numbers for the latter were small. Although the propensity score matching attenuated differences between drug court participants and the comparison group, the comparison group was still significantly more likely to be charged with a property

offense and less likely to be charged with a technical violation or a public order offense than the drug court participants.

Table 12: Virginia Felony Drug Court Attendees & Comparison Group by Primary Qualifying Offense				
Sample Offense Type	Non-Adjusted		Adjusted	
	Drug Court (%)	Comparison (%)	Drug Court (%)	Comparison (%)
Property	192*** (18.4%)	1,861 (57.2%)	186*** (19.1%)	378 (38.9%)
Drug	554*** (53.1%)	1,084 (33.3%)	499 (51.3%)	499 (51.3%)
Public Order	18*** (1.7%)	3 (0.1%)	16** (1.7%)	3 (0.3%)
Technical	279*** (26.0%)	306 (9.4%)	271*** (27.9%)	92 (9.5%)
Total	1,043 (100%)	3,254 (100%)	972 (100%)	972 (100%)

Offense History. Table 13 shows that more than 93 percent of both the drug court participants and offenders convicted of drug court eligible offenses who did not go to drug court had at least one prior felony arrest and that the latter group was significantly more likely to have a prior felony arrest than the former group. However, the felony arrests were significantly more likely to result in a conviction for offenders convicted of drug court eligible offenses who did not go to drug court than for drug court participants, a difference that persisted even after propensity score matching.

Table 13 also shows that more than 82 percent of both the drug court participants and offenders convicted of drug court eligible offenses who did not go to drug court had at least one prior misdemeanor arrest and that the latter group was significantly more likely to have a prior misdemeanor arrest than the former group. Further, the misdemeanor arrests were significantly more likely to result in a conviction for offenders convicted of drug court eligible

offenses who did not go to drug court than for drug court participants, a difference that persisted even after propensity score matching.

Finally, Table 13 also shows that more than 61 percent of the drug court participants but only 8 percent of the offenders convicted of drug court eligible offenses who did not go to drug court had a prior drug conviction, a highly significant difference that persisted even after propensity score matching. It is clear from Tables 29 and 30 that drug court participants appear to be generally “high-risk” cases, with extensive histories of felony and misdemeanor arrests and convictions and with histories of convictions for drug offenses.

Table 13: Virginia Felony Drug Court Participants and Comparison Group with Prior Involvement with Adult Criminal Justice System				
Sample	Non-Adjusted		Adjusted	
Type of Involvement	Drug Court (%)	Comparison (%)	Drug Court (%)	Comparison (%)
Prior Felony Arrest	988* (93.7%)	3,209 (97.2%)	861 (97.7%)	952 (97.9%)
Prior Felony Conviction	750*** (68.1%)	3,151 (96.8%)	663*** (68.2%)	915 (94.1%)
Prior Misdemeanor Arrest	869*** (82.4%)	2,943 (89.2%)	770 (87.4%)	852 (87.7%)
Prior Misdemeanor Conviction	779*** (70.8%)	2,757 (84.7%)	689*** (70.8%)	781 (80.3%)
Prior Drug Conviction	676*** (61.0%)	278 (8.4%)	595*** (61.2%)	112 (11.5%)

Significantly different at $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Table 14 shows that the average number of prior misdemeanor convictions was around 3.5 for drug court participants while the offenders convicted of drug court eligible offenses who did not go to drug court had around five, a significant difference. Around 79 percent of the drug court participants had five or fewer prior misdemeanors, compared to around 67 percent of the drug court eligible offenses who did not go to drug court.

Table 14: Virginia Felony Drug Court Participants & Comparison Group Average Number of Prior Offenses				
Sample Offense Type	Non-Adjusted		Adjusted	
	Drug Court Avg.	Comparison Avg.	Drug Court Avg.	Comparison Avg.
Prior Felony Convictions	2.7***	5.1	2.9***	3.7
Prior Misdemeanor Convictions	3.5***	4.7	3.6	4.0
Total	1,043 (100%)	3,254 (100%)	972 (100%)	972 (100%)

Significantly different at $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Finally, it is interesting to examine arrest rates in the period 2 years before acceptance into drug court or the alternative sanction for the comparison group to gauge whether offenders were on an increasing or decreasing trajectory of offending. Table 15 provides this data. It can be seen that drug court participants averaged slightly more than four arrests, compared to more than seven for the offenders convicted of drug court eligible offenses who did not go to drug court, a significant difference that persisted after propensity score matching. Similarly, drug court participants averaged close to 1.5 drug arrests, compared to around one for the offenders convicted of drug court eligible offenses who did not go to drug court, a significant difference. Thus, both groups appear to have been on increasing trajectories of continued criminal involvement though the offenders convicted of drug court eligible offenses who did not go to drug court seem to have been on a steeper trajectory (i.e., were offending at a higher rate) than drug court participants, differences attenuated by propensity score matching but not eliminated.

Table 15: Virginia Felony Drug Court Participant & Comparison Group Average Number of Arrests within Two Years before Program				
Sample	Non-Adjusted		Adjusted	
Offense Type	Drug Court Avg.	Comparison Avg.	Drug Court Avg.	Comparison Avg.
Prior Arrests (2 years)	4.3***	7.2	4.5***	6.2
Prior Drug Arrests (2 years)	1.4***	0.9	1.2*	1.4
Total	1,043 (100%)	3,254 (100%)	972 (100%)	972 (100%)

Significantly different at $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Conclusion. In this section, characteristics of drug court participants were compared to those of offenders convicted of drug court eligible offenses who did not go to drug court. Drug court participants tended to be younger, more likely to be Caucasian, and more likely to be female than offenders convicted of drug court eligible offenses who did not go to drug court. Drug court participants were more likely to be charged with a drug offense or technical violation than offenders convicted of drug court eligible offenses who did not go to drug court. Both groups had extensive criminal histories, but offenders convicted of drug court eligible offenses who did not go to drug court were significantly more likely to have prior felony arrests and convictions, as well as misdemeanor arrests and convictions than drug court participants but drug court participants were more likely to have a prior drug conviction. Offenders convicted of drug court eligible offenses who did not go to drug court had significantly higher numbers of prior felony and misdemeanor convictions as well as misdemeanor arrests than drug court participants but drug court participants were more likely to have a prior drug conviction. Both groups had multiple arrests in the two years before acceptance into their respective programs but offenders convicted of drug court eligible offenses who did not go to drug court were arrested

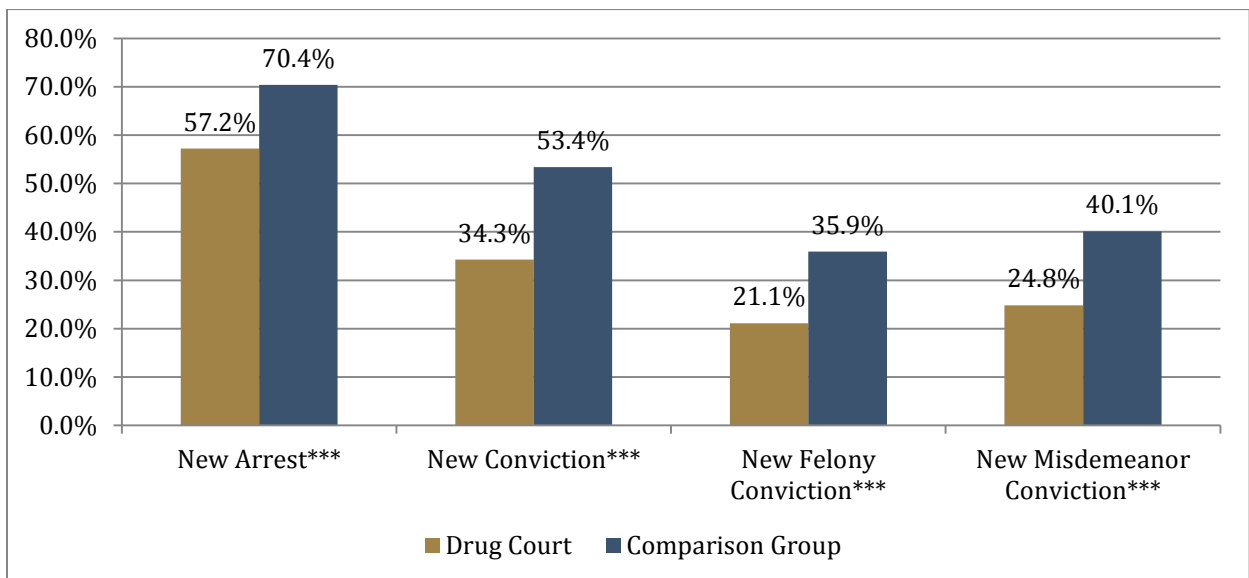
at a significantly higher rate than drug court participants while drug court participants were significantly more likely to be arrested for a drug offense.

These results suggest that Virginia drug courts are for the most part serving serious, high-risk offenders with histories of drug involvement. Propensity score matching eliminated or reduced most of the differences between drug court participants and offenders convicted of drug court eligible offenses who did not go to drug court, enabling valid comparisons of program outcomes and impacts described in subsequent analyses.

Question 7: How do recidivism rates differ between drug court participants and similar offenders processed by “business as usual”?

Next, we compare the recidivism rates of the combined drug court sample (graduates and non-graduates) with that of the comparison group, again using the broad gauge of recidivism that combines in-program with post-exit recidivism. Figure 22 shows that slightly more than 57 percent of the drug court participants were re-arrested but that only about a third were re-convicted. In contrast, about 70 percent of the comparison group was re-arrested and slightly more than a third were re-convicted. About a fifth of the drug court participants were convicted of a new felony offense compared to a little more than a third of the comparison group. About a quarter of the drug court participants were convicted of a new misdemeanor offense compared to about 40 percent of the comparison group. The comparison group averaged 2.0 new convictions while the drug court group averaged 1.1 new convictions. All of these differences were highly significant.

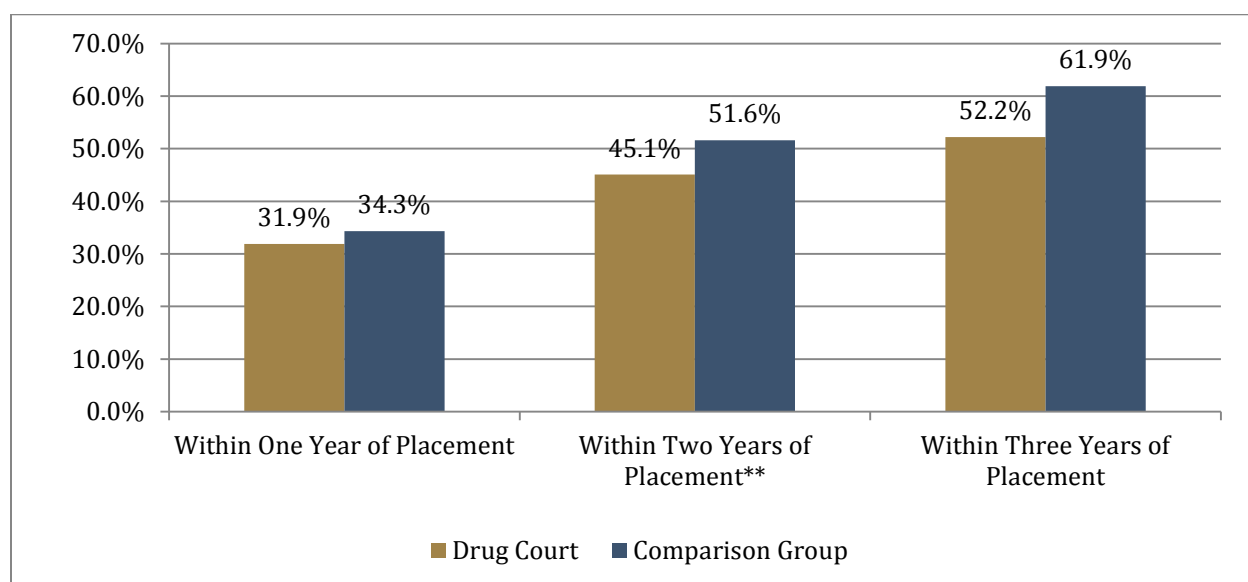
Figure 22: Virginia Drug Court Participants and Comparison Group Recidivism Rates (in program and post program)



Significantly different at $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Time to New Arrest. Figure 23 shows that the pattern of recidivism, measured by re-arrests, for the drug court participants and the comparison group is similar. About a third of both groups had a new arrest within one year of acceptance into their respective programs. And while the comparison group was significantly more likely than the drug court participants to have a new arrest after two years from acceptance, the odds of having a new arrest after three years were not significantly different.

Figure 23: Time to New Arrest for Drug Court Participants versus Comparison Group



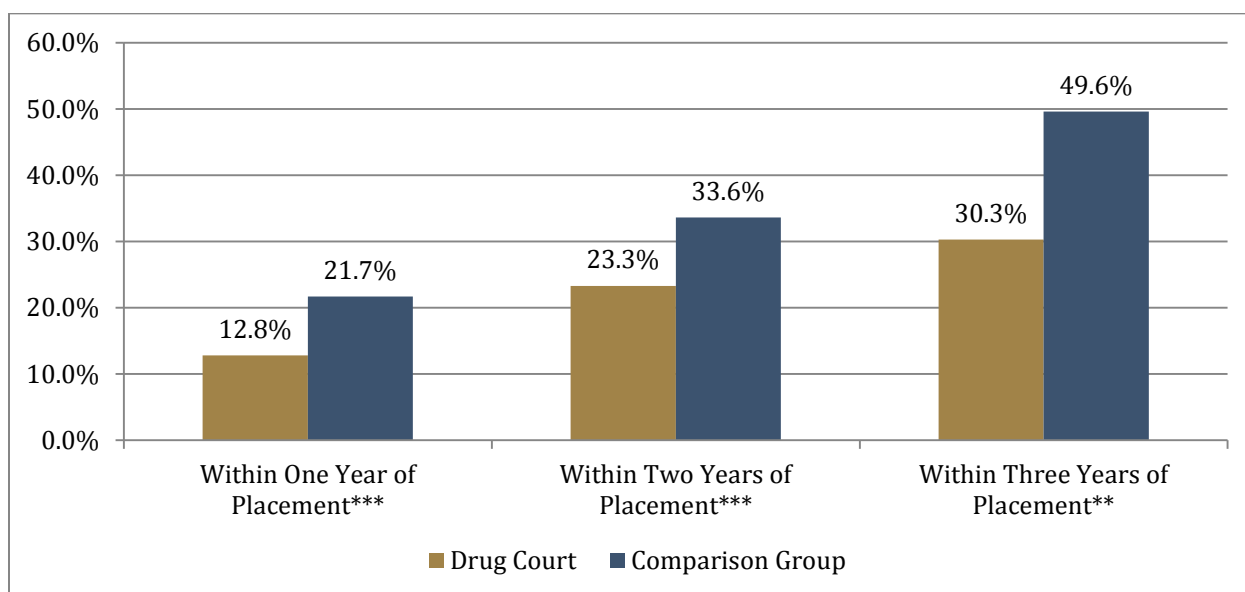
Significantly different at $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

To put these results in perspective, the multi-site drug court evaluation of 23 drug courts in 8 states (Rossman, et al. , 2011) reported a re-arrest rates of 52 percent, 24 months past enrollment. Table 16 reports the corresponding rate for Virginia as 45.1 percent, indicating that Virginia drug courts as a whole are out-performing many drug courts in other states.

Time to New Conviction. When the criteria for recidivism is made more stringent by measuring re-arrests that resulted in a conviction, as opposed to just rearrests, a different pattern

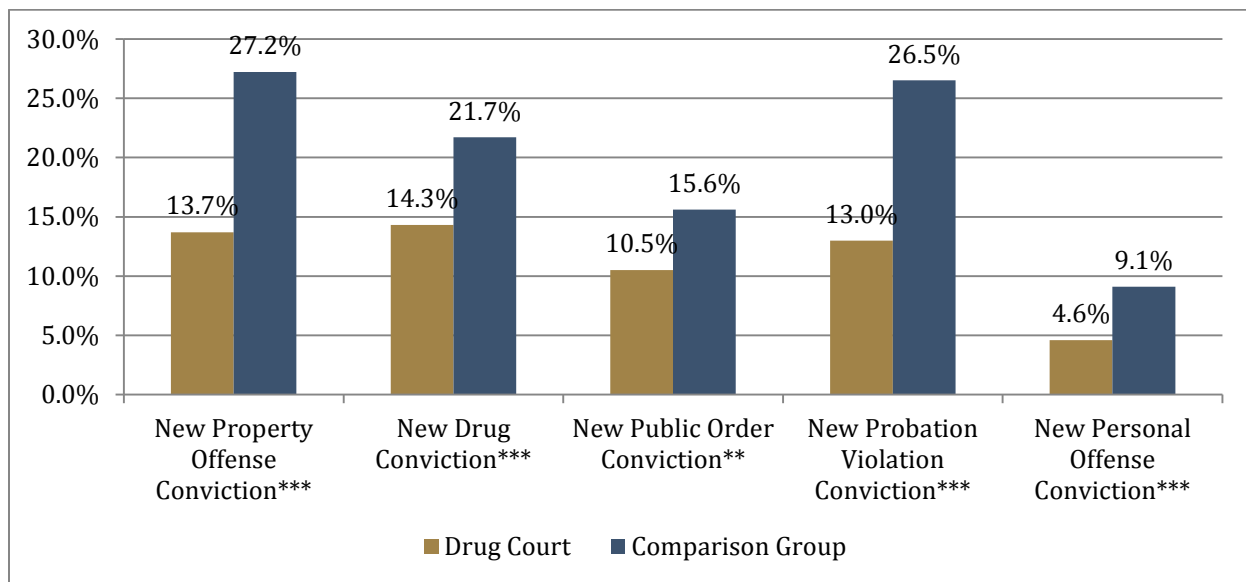
emerges. Within one year of acceptance, about a fifth of the comparison group had recidivated at a rate that was 1.7 times greater than the rate for the drug court participants. After two years, the probability of a new conviction for the comparison group was 1.4 times greater for the comparison group than the drug court participants and after three years it was about 1.6 times greater. All of these differences were highly significant.

Figure 24: Time to New Convictions for Drug Court Participants versus the Comparison Group



Significantly different at $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Type of New Convictions. Finally, Figure 25 examines the types of new convictions among the drug court group versus the comparison group. The drug court group was most likely to be convicted of a new drug offense followed by a new property offense. However, in all categories, graduates had statistically significant fewer new convictions than non-graduates.

Figure 25: Types of New Convictions for the Drug Court Group versus the Comparison Group

Significantly different at $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Survival Analysis. Figures 26 and Figure 27 display Kaplan-Meier Survival Functions that show how the probability of “survival” (in this case defined as “not recidivating”) changes over time.

The vertical axis displays the probability of “not recidivating” while the horizontal axis is the amount of follow-up time. As can be seen in Figure 36, the probability of “not recidivating” or surviving declines over time but at a significantly steeper rate for the comparison group than the drug court participants. Note that the confidence intervals that surround curves representing the “best guess” estimates of the probability of survival for the two groups do not overlap, indicating a robust impact of drug court on recidivism that is sustained over time.

Figure 27 separates graduates from terminations and show that the pattern of survival over time for the terminations is very similar to that for the comparison group. This finding may be an artifact of a very successful matching process.

Figure 26: Kaplan-Meier Survival Function for the Drug Court Group versus the Comparison Group

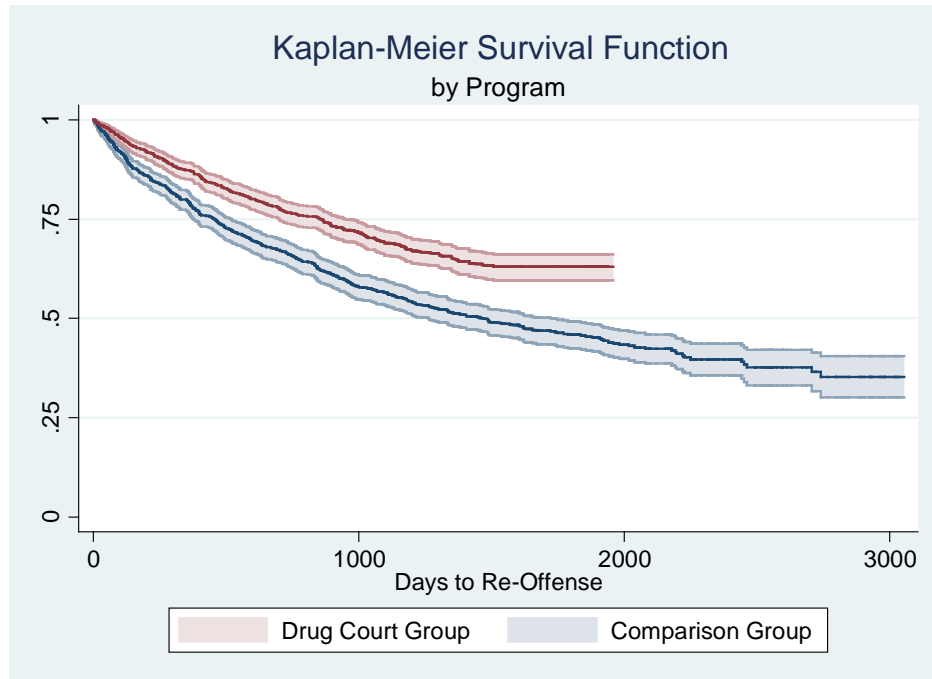
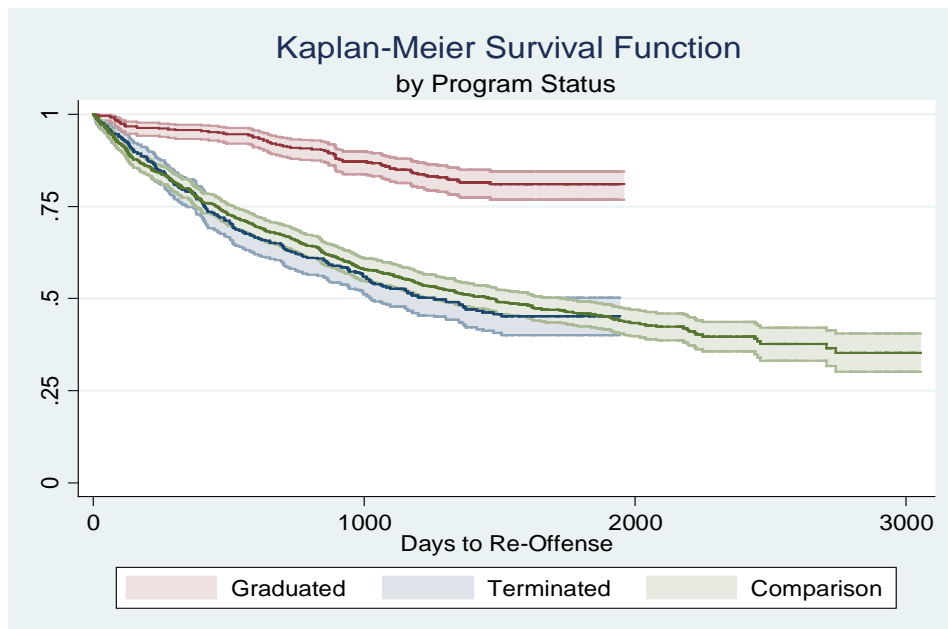


Figure 27: Kaplan-Meier Survival Function by Program Status



Post Program Recidivism. Finally, we look at recidivism measured after program exit, not including offenses committed during program participation. This index of recidivism is the best gauge of the long-term impact of drug court. Table 16 shows that recidivism rates, measured by new convictions, felony convictions, and misdemeanor convictions, were all significantly lower for the drug court participants as a whole (and the graduates in particular) than the comparison group. Drug court graduates also had a significantly lower probability of a new drug conviction than the comparison group while terminations had a higher probability of such a conviction than the comparison group. These findings also suggest a significant impact of drug court on the probability of recidivism.

Table 16: Virginia Felony Drug Court Participants (Graduates, Terminated and Pooled) and Comparison Group Post-Program Recidivism				
Re-Offense	Graduates (464)	Terminated (480)	Drug Court (972)	Comparison (972)
New Conviction (%)	13.8%***	39.6%	26.6%***	40.4%
New Felony Conviction (%)	5.6%***	24.4%	15.2%***	26.1%
New Misdemeanor Conviction (%)	11.0%***	27.9%	19.3%***	30.3%
New Drug Conviction (%)	4.5%***	18.3%**	11.4%	12.2%

Significantly different at $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Conclusion. In this section, recidivism was measured using different indices, including arrests, convictions, felony convictions, misdemeanor convictions, and drug offense convictions. By all

of these indices, using a broad gauge of recidivism that includes in-program as well as post-program recidivism, drug court graduates far out-perform the terminations. When the recidivism rates of drug court participants as a whole (i.e., including both graduates and non-graduates) are compared to those of the propensity score matched comparison group using all of these indices, drug court participants far out-perform the comparison group. A similar pattern was observed when post-exit recidivism was examined in isolation from in-program recidivism (with the exception of new drug convictions, where no significant difference was observed). These findings combined with those of the Kaplan-Meier Survival functions, suggest a robust and sustained impact of drug court on recidivism compared to the business-as-usual alternative (probation, jail, and/or prison). These findings need to be confirmed by a multivariate analysis that will control for differences noted between the drug court participants and the comparison group that persisted after propensity score matching.

References

- Andrews, D. and Bonta, J. (2003). *The psychology of criminal conduct (3rd ed.)*. Cincinnati, OH: Anderson.
- Carey, S. M., Mackin, J. R., & Finigan, M. W. (2012). What works? The 10 key components of Drug Court: Research-based best practices. *Drug Court Review*.
- Cooper, C. (2000) *2000 drug court survey report: Program operations, services, and participant perspectives*. American University
website: <http://spa.american.edu/justice/publications/execsum.pdf>
- Domurad, F., & Carey, M. (2010) *Coaching Packet: Implementing Evidence-Based Practices*. Center for Effective Public Policy. Retrieved
from: <http://www.cepp.com/documents/Implementing%20Evidence%20Based%20Practices.pdf>
- Gendreau, P. (1996). The principles of effective intervention with offenders. In A. Harland (Ed.), *Choosing correctional options that work* (pp. 117-130). Thousand Oaks, CA: Sage.
- Ho, D., Imai, K., King, G., and Stuart, E.. (2007). Matching as Nonparametric Preprocessing for Reducing Model Dependence in Parametric Causal Inference. *Political Analysis*, 15(3), 199-236.
- Marlowe, D. B., & Wong, C. J. (2008). Contingency management in adult criminal drug courts (pp. 334-354). In S. T. Higgins, K. Silverman, & S. H. Heil (Eds.), *Contingency management in substance abuse treatment*. New York: Guilford Press.
- Rempel, M. and Green, M. (2011) Do drug courts reduce crime? In Rossman, S., Roman, J., Zweig, J., and Lindquist, C. *The Multisite Adult Drug Court Evaluation the Impact of Drug Court (Vol 4)*. Washington DC: Urban Institute.
- Sekhon, J.. (2009). Opiates for the matches: Matching methods for causal inference. *Annual Review of Political Science*, 12, 487-508.
- Shaffer, D. K. (2006). *Reconsidering drug court effectiveness: A meta-analytic review* (Dissertation). Available from Proquest Dissertations and Theses database. (UMI No. 2121113).
- Stuart, E. (2010). Matching Methods for Causal Inference: A Review and a Look Forward. *Statistical Science*, 25(1), 1-21.
- Zweig, J. M., Lindquist, C., Downey, P. M., Roman, J., & Rossman, S. B. (2012). Drug court policies and practices: How program implementation affects offender substance use and criminal behavior outcomes. *Drug Court Review*.