Michigan's Adult Drug Courts Recidivism Analysis

Summary of Findings and Recommendations

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Executive Summary

This report summarizes evaluation findings for the Michigan Adult Drug Courts. The Michigan Community Corrections Act was enacted in 1988 to investigate and develop alternatives to incarceration. Four years later, in June 1992, the first female drug treatment court in the nation was established in Kalamazoo, Michigan. Since then, Michigan has implemented 84 problem-solving courts for adults, juveniles, family dependency, and DUI offenders (Michigan Courts: One Court of Justice, 2016).

In 2016, the State Court Administrative Office of Michigan contracted with the National Center for State Courts (NCSC) to complete an impact evaluation of the adult drug courts operating in Michigan to answer key impact questions related to Michigan's adult drug courts. To be included in the study, an adult drug court had to be operational between FY12 and FY16, have at least ten program completers, and contribute data to Michigan's Drug Court Case Management Information System (DCCMIS), which resulted in a ten-court study sample. Participant-level data were collected for the cohort actively participating in one of the ten adult drug courts being studied between FY12 and FY16. Analyses focused on describing the drug court participant sample, assessing program completion rates, and both two-year and four-year recidivism rates for drug court participants compared to a matched business-as-usual (BAU) comparison group.

Several interesting findings emerged that are consistent with prevailing drug treatment court trends. Key findings are summarized below:

- Demographics and Placement
    - The typical Michigan adult drug court participant was a single white male, aged 21 to 40 years at entry with a high school education. Most participants were unemployed at program entry and employed at program exit.
    - The majority of drug court participants were placed into drug court on a new felony drug offense. Most drug court participants had at least one prior conviction at the time of entry.
- Treatment and Diagnosis
    - The average number of days from arrest to treatment entry was approximately four months, and participants spent an average of two weeks between program entry and treatment initiation.
    - Nearly all drug court participants had a substance use diagnosis at entry and over half had previously received substance abuse treatment. The most common drug of choice among drug court participants was heroin/opiates.
    - The majority of participants received outpatient treatment and many received residential treatment. Treatment sometimes exceeded the participant's ASAM criteria level.[1]

[1] American Society of Addiction Medicine (ASAM) Criteria is a national set of criteria for providing outcome-oriented and results-based case for treating addiction. See http://www.asam.org/quality-practice/guidelines-and-consensus-documents/the-asam-criteria/about

    - Less than one-quarter of drug court participants had a co-occurring diagnosis at entry and approximately 25 percent had a history of mental illness.
- Incentives and Sanctions
    - Most participants received at least one incentive and one sanction during their time in the program and nearly half of participants received jail as a sanction.
- Completion Status and Length of Stay (LOS)
    - Over half of drug court participants were unsuccessfully terminated from the program and over one-third successfully graduated. The majority of terminated participants were terminated for non-compliance, with smaller proportions terminated for absconding or a new offense.
    - The average length of stay for drug court participants was 1 year and 1 month, with graduates spending more time in the program than non-graduates.
- Drug and Alcohol Testing
    - Over three-quarters of all drug court participants tested positive for drugs or alcohol at least once during their time in the program. Significantly fewer graduates tested positive during their time in the program compared to non-graduates, and graduates had a significantly longer period of time from entry until their first positive test.
- Recidivism
    - Significantly fewer graduates were reconvicted within one, two, three, and four years of program entry compared to non-graduates for all convictions, generally, and drug and alcohol convictions, specifically. Significantly fewer drug court participants were reconvicted of any offense within one and two years of entry compared to their matched BAU comparisons. Fewer drug court participants were convicted within three years of entry at a level approaching significance. There were no significant differences in the number of drug court and BAU comparisons reconvicted within four years of a drug or alcohol offense, specifically.

The NCSC evaluation team conducted hierarchical binary logistic regressions to examine which program-level and participant-level variables predict successful program completion, two-year recidivism, and four-year recidivism.

- Completion Status: Three program variables predicted successful program completion: program operational age less than 10 years, law enforcement not attending court, and not requiring four months' sobriety to complete. Four individual-level variables predicted successful program completion: race, medium proxy risk level (compared to high risk level), being drug tested at least twice per week on average, and a longer length of stay.
- Two-Year Recidivism: Three individual-level variables significantly predicted two-year recidivism: being unemployed at entry, a shorter length of stay in the program, and being under-treated. No program-level variables predicted two-year recidivism.
- Four-Year Recidivism: There were no program-level or individual-level variables that predicted four-year recidivism for drug court participants.

Based on the findings, the NCSC evaluation team makes the following recommendations:

Recommendation 1: Adjust the current matching process to include proxy risk variables.

- In order to adjust the current matching process to account for participant and comparison risk, other information could be gathered in the Judicial Data Warehouse, including factors for age at placement, age at first arrest (including juvenile arrests, if possible), and number of prior arrests (including juvenile arrests, if possible).
- Short of including a statewide risk-needs assessment discussed below, including age at placement, age at first arrest, and number of prior arrests in the matching process is the next best option to better ensure the participant-comparison pairs match in risk.

Recommendation 2: Adopt a statewide risk-needs instrument.

- For the court programs to best serve the high-risk/high-need population and reduce recidivism, NCSC recommends the adoption of a validated, statewide risk-needs assessment for both drug court participants and probationers in general.
- Not only would the use of a validated risk assessment instrument allow for better matching between drug court participants and their comparisons, it would also allow staff to better create case management, treatment, and supervision plans, taking into account participants' individual needs and risk levels.

Recommendation 3: Assess the use and effectiveness of residential treatment.

- The NCSC evaluation team recommends an examination of who is receiving residential treatment; to what extent drug court participants receive treatment above and below their ASAM criteria need; to what extent participants who receive residential treatment successfully complete; and to what extent residential treatment providers are effectively utilizing evidence-based practices.

Introduction and Background

The first drug court in the United States 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, 2014, there were an estimated 3,057 problem-solving courts nationwide, serving approximately 127,000 people per year (Marlowe, Hardin, & Fox, 2016). Nationally, 1,540 problem-solving courts were adult drug courts, 407 were hybrid adult and DUI courts and 262 were DUI courts. Drug Courts have proliferated at a remarkable rate nationally, growing in aggregate number by 24 percent in the past five years (Marlowe, Hardin & Fox, 2016).

In November 2016, the State Court Administrative Office (SCAO) chose to align Michigan's problem-solving courts with the federal definition of problem-solving courts found in *Painting the Current Picture: A National Report on Drug Courts and Other Problem-Solving Courts in the United States* (Marlowe et al., 2016). The model definitions include adult drug courts, which accept only non-impaired driving offenders, sobriety courts, which accept only impaired driving offenders, and hybrid courts, which accept both non-impaired driving and impaired driving offenders.

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 interdisciplinary 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 intensive 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.

Michigan's Drug Treatment Courts

Much like the growth of drug courts nationally, Michigan's problem-solving courts developed locally in response to local needs. Michigan Compiled Laws 600.1060(c) defines drug treatment courts as ". . . a court supervised treatment program for individuals who abuse or are dependent upon any controlled substance or alcohol." These courts are specially designed to reduce recidivism and substance abuse among nonviolent substance-abusing offenders and to increase the offenders' likelihood of successful habilitation through early, continuous, and intense judicially-supervised treatment; mandatory periodic drug testing; and use of appropriate sanctions.

Since the enactment of the Michigan Community Corrections Act in 1988, Michigan has implemented 84 problem-solving courts for adults, juveniles, family dependency, and DUI offenders. The five specific goals outlined in legislation for Michigan'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. As of 2016, Michigan's drug treatment courts operate in 13 counties; however, the five tribal drug courts have special jurisdictions (Michigan's Problem Solving Courts Report, 2016).

Project Approach

In 2016, the Michigan State Court Administrative Office contracted with the National Center for State Courts (NCSC) to complete an impact evaluation of the adult drug courts operating in Michigan. The primary purpose of the evaluation was to answer key impact questions related to the adult drug courts operating in Michigan. Specifically, the evaluation sought to answer the following questions:

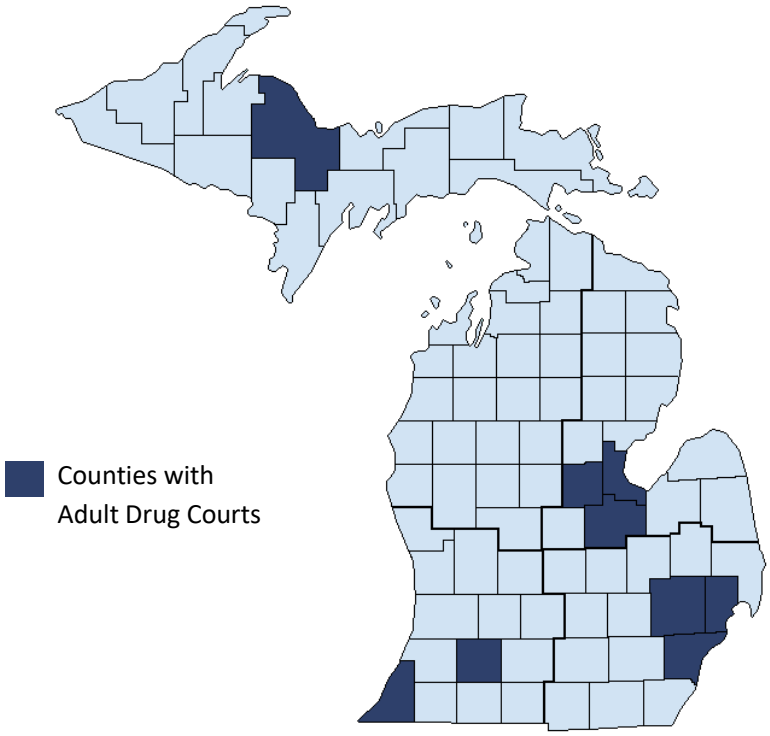
- Who was served by Michigan's adult drug courts during the study period?
- What was the operational structure of the Michigan adult drug courts during the study period?
- What combination and types of services were delivered in Michigan's adult drug courts during the study period?
- Do adult drug court participants reduce their substance use and make other positive changes while enrolled in Michigan's adult drug courts?
- How do participants exit Michigan's adult drug courts and what participant and program characteristics are associated with successful completion/graduation?
- How does the recidivism rate of Michigan's adult drug courts compare to the recidivism rates of a matched probation sample?
- What participant and program characteristics are associated with lower recidivism rates?

Courts Included in the Study

To be included in the study, an adult drug court had to be operational between FY12 and FY16, have at least ten program completers, and contribute data to Michigan's Drug Court Case Management Information System (DCCMIS). The ten adult drug court sites meeting these criteria and included in this study were:

- 2nd Circuit, Berrien
- UDCI - 3rd Circuit, Wayne
- 9th Circuit, Kalamazoo Men's
- 9th Circuit, Kalamazoo Women's
- UDCI - 10th Circuit, Saginaw
- 16th Circuit, Macomb
- 18th Circuit Court, Bay
- 25th Circuit, Marquette
- 42nd Circuit, Midland
- 52-1 District, Novi

Figure 1: Michigan Adult Drug Courts Included in the Current Study



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 ten adult drug courts being studied between FY12 and FY16.

Supreme Court of Michigan Drug Court Case Management Information System (DCCMIS) and Judicial Data Warehouse

The Michigan Supreme Court State Court Administrative Office (SCAO) administers a web-based case management system known as the Drug Court Case Management Information System (DCCMIS). Administrative data, including demographics, service delivery data (e.g., treatment services, drug tests, sanctions and incentives), and program completion rates were gathered from DCCMIS for the analysis of participant outcomes and to help assess program practices. The data contained in DCCMIS were extracted by the SCAO and used to identify a comparison group in the Judicial Data Warehouse. NCSC received a complete data extraction of all participants who entered a Michigan adult drug court between FY12 and FY16 as well as their matched comparison person. Courts that do not submit data to the Judicial Data Warehouse were excluded from the study, since a comparison group could not be pulled for this group.

FY14 Grant Applications

NCSC reviewed programmatic information submitted in the FY14 grant applications from funded courts in Michigan to identify program practices to be used in the evaluation model. The FY14 grant applications were used to align practices with the study period.

NCSC Drug Court Coordinator Survey

The National Center for State Courts created a web-based 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 not contained in the grant applications. The survey was distributed in the fall of 2016 and 100 percent of the study sites completed the survey.

Statistical Significance

Throughout this report, the term "statistically significant" is used. In any analysis, there is a possibility that a result is simply due to random chance or error, even if it looks convincing. A statistically significant result tells us there is strong evidence that a relationship is not due simply to random chance. We can more confidently say a result is true when it is statistically significant. The smaller the p-value, the more confident we are that the result is reliable. The conventional, accepted p-value of a statistically significant result is .05, although p-values between .10 and .051 are described in the report as approaching significance. *Table 1* provides an explanation for the p-values found throughout this report.

Table 1: Explanation of Statistical Significance

***p*-value**	**Possibility Finding is a Result of Chance/Error**	**Possibility Finding is the Result of Factors Studied**
.05	5%	95%
.01	1%	99%
.001	0.1%	99.9%

Participant Characteristics

Drug courts have been shown to reduce recidivism when compared to traditional criminal justice interventions (e.g., Aos, Phipps, Barnoski, & Lieb, 2001; Carey, Mackin, & Finigan, 2012; Carey & Waller, 2011; Government Accountability Office, 2005; Lowenkamp, Holsinger, & Latessa, 2005; Mitchell, Wilson, Eggers, & MacKenzie, 2012; Shaffer, 2011). The effectiveness of drug courts in reducing recidivism can be enhanced by adhering to evidence-based practices that have been shown to be associated with improved outcomes for participants. When conducting evaluations of individual drug courts, it is important to collect data that reflects differences between participants that could plausibly be related to differences in outcomes. These include both individual characteristics (e.g., their criminal history, drug of choice) and factors related to the programming they received (e.g., length of program, number of sanctions received). At the level of individual drug courts, there is no variation in the program characteristics at any given point in time, only variation at the participant level regarding individual characteristics and the programming (both type of programming and dosage) that the individual received. In the next two sections, we first review the literature to recognize participant characteristics that have also been identified as being related to outcomes, and then we review program-related variables related to participant outcomes that can be expected to vary between drug courts.

In the following section, we examine characteristics of Michigan adult drug court participants, including demographics (gender, race, age), marital status, education and employment at entry, placement offense information, and treatment history. The data use the full sample of adult drug court participants as opposed to the matched sample. Consequently, these data provide the most valid and comprehensive picture of adult drug court participants.

Demographics. Michigan drug court participants were 65.8 percent male and 34.2 percent female. *Table 2* shows that 80.3 percent were Caucasian and 15.9 percent were African American. Fewer participants were multi-racial, Hispanic or Latino, or belonged to racial groups labeled "other". The majority of adult drug court participants were between the ages of 21 and 50. The largest proportion of adult drug court participants were 21 to 30 years old at entry (48 percent), followed by 31 to 40 years old at entry (26.6 percent) and the 41 to 50 years old at entry (12.9 percent). Participant demographics have been shown to be highly related to recidivism, in particular age and gender (e.g., Lanagan & Levin, 2002), as well as race (e.g., Gendreau, Little, & Goggin, 1996). It should be noted that the effect of race is greatly diminished or disappears for some drug court outcomes when factors related to race (e.g., previous criminal history, unemployment, and education) are controlled (e.g., Dannerbeck, Harris, Sundet, & Lloyd, 2006), suggesting that race is a proxy for these variables.

Table 2: Demographics of Adult Drug Court Participants

Demographics	Number of Participants	% of Participants
Gender		
Male	534	65.8%
Female	277	34.2%
Age		
<21	63	7.8%
21-30	389	48.0%

Demographics	Number of Participants	% of Participants
31-40	216	26.6%
41-50	105	12.9%
51-60	36	4.4%
>60	2	0.2%
Race		
Caucasian	651	80.3%
African American	129	15.9%
Multi-racial	10	1.2%
Hispanic/Latino	7	0.9%
Other*	14	1.7%

*Other includes Asian American/Pacific Islander, Native American, and Other.

Marital Status. *Table 3* shows Michigan drug court participants by marital status at program entry. The majority of participants were single (72.5 percent). Married and divorced participants comprised the next largest categories, with 10.4 percent and 11.3 percent of the total respectively. Less than 6 percent of drug court participants were separated or widowed at entry.

Table 3: Marital Status of Drug Court Participants

	Number of Participants	% of Participants
Single	588	72.5%
Divorced	92	11.3%
Married	84	10.4%
Separated	36	4.4%
Widowed	11	1.3%

Education. *Table 4* illustrates the participants' highest educational level achieved at program entry. Twenty-eight percent of participants were not high school graduates, 26.5 percent of participants were high school graduates, and 23.7 percent received a GED. The remaining participants had a variety of educational experiences including: some college (13.4 percent); some completed a two-year college program (3.3 percent); some completed a four-year college program (2.2 percent); and some attended trade school (2.2 percent) or post-graduate school (0.5 percent).

Table 4: Educational Attainment of Participants at Entry

	Number of Participants	% of Participants
11th grade or less	228	28.1%
High school graduate	215	26.5%
GED	192	23.7%
Trade school	18	2.2%
Some college	109	13.4%
College graduate 2-year program	27	3.3%
College graduate 4-year program	18	2.2%
Some post graduate/advanced degree	4	0.5%

Employment Status at Entry/Prior or Current Military Status. *Table 5* illustrates participants' employment status at the time of program entry. A significant number of participants were unemployed at the time of program entry (73.5 percent), and the majority of those who were working

worked full-time (12.3 percent) with a smaller number of employed participants working part-time (8.4 percent). Very few participants (5.5 percent) had prior or current military service.

Table 5: Employment and Military Status at Drug Court Entry

	Number of Participants	% of Participants
Employment Status at Entry		
Unemployed	596	73.5%
Employed full-time	100	12.3%
Employed part-time	68	8.4%
Not in labor force	38	4.7%
Disabled	8	0.9%
Prior or Current Military Service		
Yes	45	5.5%
No	354	43.6%
Unknown	412	50.8%

Placement Offense. Michigan's adult drug courts accept a variety of placement offenses. *Table 6* shows the types of placement offenses entering Michigan's adult drug courts. The most common placement offense type was drug offenses (64.6 percent). Property offenses were the second most common type of offense accepted into Michigan's drug courts (21.6 percent). Examples of what is included in each category of offense can be found in *Appendix A.* It is likely that DUI offenses are included as a placement offense because one or more courts in the sample are presently classified as an adult program based on 2016 data and in prior years might have been classified as a hybrid court.

Table 6: Placement Offense Type in Michigan's Adult Drug Courts

	Number of Participants	% of Participants
Drug Offense	524	64.6%
Property Offense	175	21.6%
Other/Unknown Offense	84	10.4%
DUI/Alcohol Offense	16	2.0%
Traffic Offense	8	0.9%
Domestic Violence Offense	4	0.5%

Placement Offense Severity. The vast majority of participants entered a Michigan adult drug court on a felony-level offense (98.6 percent) as a result of a new criminal offense (85.0 percent) (see *Table 7*). Previous research shows type of offense appears to be related to recidivism, with property and drug offenses associated with greater risk (Lanagan & Levin, 2002). Evidence for the severity and type of entry offenses that are related to improved outcomes in drug courts is mixed. Carey et al. (2012) found that drug courts that accepted nondrug charges had 95% greater reductions in recidivism than drug courts that limited their entry offenses to drug charges. Conversely, Cissner et al. (2013) determined that drug courts that served more participants with drug-related offenses as opposed to property or other charges were more likely to see reductions in recidivism.

For severity, Carey et al. (2012) found that the inclusion of violent offenders did not affect recidivism rates positively or negatively, meaning courts that accept violent offenders do as well as those that do not. However, other studies have found the inclusion of violent offenders in drug court programs is associated with increases in recidivism (Mitchell et al., 2012; Shaffer, 2011). One explanation for these

disparate findings is the possibility that the key factor in entry offense type and severity is not the offense in and of itself, but how the court responds to offenders with different entry offenses, as related to the risks and needs described above.

Table 7: Placement Offense Severity and Legal Status

	Number of Participants	% of Participants
Placement Offense Level		
Felony	800	98.6%
Misdemeanor	11	1.4%
Legal Status at Placement		
New Criminal Offense	689	85.0%
Prob. Violation – New Crim. Off.	55	6.8%
Prob. Violation – Tech. Viol.	35	4.3%
Parole Violation – New Crim. Off.	23	2.8%
Parole Violation – Tech. Viol.	6	0.7%
New Petition	3	0.4%

Time to Placement. The average time from arrest to program entry is 116 days (see *Table 8)*. Once accepted into the drug court, participants enter treatment within an average of 14 days. Graduates and non-graduates did not significantly differ in the average number of days from arrest to treatment or the average number of days from program acceptance to treatment. Finally, research indicates that 50 days between arrest to program entry results in a greater reduction of recidivism (Carey, Mackin, and Finigan, 2012). Although non-graduates entered the program more quickly than graduates, the difference was not significant. The average participant, regardless of how they eventually exited the program, took more than 50 days to enter the program after arrest.

Table 8: Average Time to Placement

	Average Number of Days	Median Number of Days
Average number of days from arrest to program entry		
All participants	116 days	89 days
Graduates	143 days	95 days
Non-graduates	105 days	89 days
Average number of days from arrest to treatment		
All participants	123 days	97 days
Graduates	145 days	101 days
Non-graduates	112 days	94 days
Average number of days from program entry to treatment		
All participants	14 days	5 days
Graduates	14 days	5 days
Non-Graduates	14 days	6 days

Criminal History. The criminal history of drug court participants can also affect the success of drug court participants in terms of reducing the probability of future criminal behavior. *Table 9* displays the extent to which participants had prior involvement with the adult criminal justice system at the time they entered the adult drug court. Most drug court participants (89.6 percent) had at least one prior misdemeanor or felony conviction. Approximately 62 percent of participants had at least one prior

felony conviction and 81.0 percent had at least one prior misdemeanor conviction. Meta-analyses of adult offenders generally have found that prior arrests and time in prison are significant predictors of reoffending behavior (Gendreau et al., 1996).

Table 9: Prior Felony and Misdemeanor Convictions of Participants

	Number of Participants	% of Participants
Any Prior Conviction	727	89.6%
Prior Convictions by Offense Level		
Prior felony convictions	508	62.6%
Prior misdemeanor convictions	657	81.0%

Considering only Michigan drug court participants who had at least one prior conviction, *Table 10* demonstrates Michigan's drug court participants averaged 4.5 misdemeanor convictions and 2.3 felony convictions prior to entering drug court.

Table 10: Average Number of Prior Felony and Misdemeanor Convictions

Type of conviction	Average number of prior convictions
Average number of prior misdemeanor convictions	4.5
Average number of prior felony convictions	2.3

Drug of Choice. Upon admission into the adult drug court program, participants are asked to disclose their preferred drugs 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. *Table 11* portrays the most frequently cited drugs of choice reported by participants. This analysis reveals that the majority of participants report heroin/opiates, methamphetamines, and marijuana as the top three preferred drugs. For participants who reported, the average age of first use of drugs was 16 and the age of first use of alcohol was 15. Almost half of Michigan drug court participants reported a history of IV drug use (48.8 percent).

Table 11: Drug of Choice Among Drug Court Participants

	Number of Participants	% of Participants
Heroin/Opiates	312	38.5%
Methamphetamines	181	22.3%
Marijuana	99	12.2%
Cocaine/Crack Cocaine	83	10.2%
Alcohol	43	5.3%
Poly Drug	39	4.8%
Other*	54	6.7%

*"Other" includes sedatives/hypnotic drugs, club drugs, benzodiazepines, and amphetamines

Diagnosis at Entry and Treatment History Prior to Entry. *Table 12* shows that almost all participants had a diagnosed substance use disorder at drug court screening (97.9 percent). More than half (61.8 percent) of Michigan drug court participants had previous substance abuse treatment prior to

drug court entry. A sizeable portion of drug court participants had a co-occurring disorder at program entry (22.3 percent) and/or a history of mental health illness (24.9 percent).

Table 12: Treatment History and Diagnosis Prior to Program Entry

	Number of Participants	% of Participants
Diagnosis at Entry		
Substance Use Disorder Diagnosis	794	97.9%
Co-Occurring Disorder Diagnosis	181	22.3%
Prior Treatment History		
Prior substance abuse treatment	501	61.8%
Mental health history	202	24.9%

Proxy Risk. Michigan does not employ a statewide risk-needs assessment. In the absence of such a tool, NCSC calculated a proxy risk score for each probationer using the Proxy Risk Triage Screener (where data was available).[2] The Proxy Risk Triage Screener tool is a 3-item screen that calculates a risk score based on:

- age at program placement;
- age at first arrest; and
- number of prior adult arrests.

The NCSC evaluation team had access to the data points needed to calculate risk using this method with the exception of "age at first arrest," which was restricted to adult arrests only based on available data. The Proxy Risk Triage Screener has been used by other states and localities to triage offenders prior to conducting a full assessment with a third-generation risk and needs assessment tool (Hawaii); as part of reentry planning (Miami-Dade); and to make bond recommendations or screen at booking (Eau Claire, Wisconsin).

Like all screening and assessment instruments, proxy risk must be normed and validated for the target population. The sample of FY12 through FY16 completers was used to establish cut-off points for scoring purposes. Information about scoring proxy risk can be found in *Technical Appendix: Proxy Risk Scoring. Table 13* shows the distribution of proxy risk scores within the drug court sample.

[2] See Bogue, Brad, William Woodward, and Lore Joplin. 2005. *Using Proxy Score to Pre-screen Offenders for Risk to Reoffend*.

Table 13: Distribution of Proxy Risk Scores

Proxy Score	N	Distribution of Sample	Risk Level
2	9	1.5%	Low
3	32	5.3%	Low
4	51	8.4%	Low
5	71	11.7%	Low
6	126	20.8%	Medium
7	140	23.1%	Medium
8	134	22.1%	High
Unknown	42	6.9%	Unknown

Participant Level Variables Examined

In order to examine which participant-level variables predict successful completion from drug court and/or recidivism, the NCSC evaluation team conducted hierarchical binary logistic regressions. The full model included the following participant-level variables:

- gender;
- age;
- race;
- drug of choice;
- marital status at entry;
- employment status at entry (employment at discharge for the four-year recidivism model);
- placement offense category;
- participant proxy risk score;
- prior substance abuse treatment;
- total number of treatment hours;
- history of mental illness;
- number of days in court (median split at 420 days);
- drug tested twice per week on average; and
- substance abuse treatment type received (non-residential only, residential only, both residential and non-residential).

Additional information about these variables can be found in *Technical Appendix: Detailed Analysis*.

Conclusion. This section examined a variety of characteristics of participants served in the adult drug courts in Michigan. Demographics suggest that most adult drug court participants are male, Caucasian, between the ages of 21 and 40, and single. Approximately half of adult drug court participants have graduated from high school or have a GED, and nearly 74 percent were unemployed at entry. Most drug court participants entered the adult drug court program as a result of a felony offense and had a substantial number of prior felony and misdemeanor convictions. Almost all participants had a diagnosis of a substance use disorder at program entry, and 61 percent had participated in substance abuse treatment at some point prior to entering the adult drug court. Nearly one-quarter of participants had previous mental health history and 22 percent had a co-occurring disorder at program entry. The reported average age of first drug use was 16, and the average age of first alcohol use was

15. Almost half of Michigan drug court participants reported a history of IV drug use (48.8 percent). These results paint the picture of Michigan Drug Court participants as offenders with serious criminogenic needs, significant substance abuse problems with repeated failures of treatment, and extensive criminal histories.

Program Structure of Michigan's Adult Drug Courts

With substantial evidence that drug courts can be effective in producing such outcomes relative to traditional practices, a body of literature has developed in the last fifteen years focusing on the characteristics of effective drug court programs. Research has supported effective practices in program structure, drug testing intensity, judicial supervision, team staffing and participation, services and curriculum. This section examines the structure and design of Michigan's Adult Drug Court. A brief overview regarding years of program operation and program capacity is provided, followed by a discussion of eligibility, assessment, staffing, treatment, infractions and sanctions, drug testing and evaluation.

In the following section, we discuss the types of services delivered to participants enrolled in Michigan's adult drug courts 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 that in reviewing the service level data, the average length of stay for all participants (graduates and non-graduates combined) in the program was 387.4 days, or almost 13 months. This is consistent with recommended best practice that program length should be between 12 and 16 months (Shaffer, 2006: Carey et. al., 2012). *Table 14* reflects the number and proportion of programs by number of years of operation.

Table 14: Number of Years the Program has been Operational

	Number of Programs	% of Programs
Less than 5 years	3	30.0%
6 – 10 years	3	30.0%
11 – 15 years	2	20.0%
16+ years	2	20.0%

Number of Participants. Adult drug courts in Michigan are dynamic organizations that were developed to meet the needs of local constituents. Number of active participants ranges from as few as 20 to as many as 156 participants. *Table 15* shows the program capacity of the ten adult 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).

Table 15: Program Capacity

	Number of Programs	% of Programs
Fewer than 30 participants	2	20.0%
31 – 45 participants	2	20.0%
45 – 60 participants	4	40.0%
61 – 105 participants	1	10.0%
Greater than 105 participants	1	10.0%

Drug Court Team. Studies have assessed the impact of the relationships between drug court employees and treatment providers (including their assessment and curricula) on program success. Shaffer (2006) found that reductions in recidivism were associated with drug courts that employed internal treatment providers rather than external treatment providers. This finding was supported in a

subsequent study (Shaffer, 2011) which observed that drug courts with internal providers outperformed those with external providers, and multiple providers produced better outcomes than drug courts using a single provider. Findings related to team participation indicate that outcomes are improved when treatment providers are integral members of the drug court team and regularly attend staff meetings which can be difficult or impossible with a large number of treatment providers (Carey, et al., 2012). The presence of dedicated prosecutors and public defenders on the drug court team is also associated with reduced recidivism (Cissner et al., 2013).

While there was very little variation among the drug courts in terms of judicial, treatment and supervision attendance in staffing and court, *Table 16* shows that only 60 percent of drug courts had prosecutors who attended staffing on a regular basis and only 30 percent reported a prosecutor regularly attended court. Ninety percent of drug courts reported that a defense attorney regularly attended staffing and 60 percent reported the defense attorney regularly attended court. Finally, 40 percent of courts reported that a law enforcement representative regularly attended court. This data reflects practices as of 2014 to coincide with the study period and may not reflect current practices.

Table 16: Drug Court Team Attendance in Staffing and Court

Team Member	Attend Staffing Percentage of Courts	Attend Court Percentage of Courts
Prosecutor	60%	30%
Defense Attorney	90%	60%
Law Enforcement	Not available	40%

Substance Abuse Treatment Services. Substance abuse treatment is an effective intervention for individuals with substance use disorders (National Institute of Drug Abuse [NIDA], 2014). Drug court treatment produces its strongest effect on participant behavior and subsequent outcomes when it reflects the following characteristics: (1) a continuum of care for substance abuse treatment is offered (including detoxification, residential, sober living, day treatment, intensive outpatient and outpatient services); (2) one or two treatment agencies have primary responsibility for delivering treatment services and clinically trained representatives from these agencies are core members of the Drug Court Team; (3) treatment providers administer treatments that are manualized and demonstrated to improve outcomes for addicted offenders (e.g., Moral Reconation Therapy (MRT),the MATRIX model, and Multi-Systemic Therapy (MST); Marlowe, 2010); (4) participants are assigned to a level of care based on a standardized assessment of their treatment needs such as the ASAM criteria, as opposed to relying on professional judgment; and (5) participants have access to prescribed psychotropic or addiction medications (Medically-Assisted Treatment or MAT) when warranted (National Association of Drug Court Professionals [NADCP], 2013; Best Practice Standard V).

Seventy (70) percent of adult drug courts reported using more than two treatment providers. *Table 17* shows that most participants received outpatient treatment (69.8 percent) and over 30 percent received residential treatment.

Table 17: Substance Abuse Treatment Services

Substance Abuse Treatment	# of Participants	% of Participants
Outpatient	566	69.8%
Residential	278	34.3%
Intensive outpatient	156	19.2%
Sub-acute detox	2	0.2%

Table 18 shows a summary of the mean and median number of days of substance abuse treatment delivered to drug court participants (both graduates and non-graduates combined) for the ten adult drug courts participating in the study. Only participants who received each treatment are included in the averages. Of the treatment received, Michigan drug court participants spent the most hours in residential treatment (476) and outpatient treatment (129), respectively. Participants also attended 108 12-step program meetings on average while attending the drug court program.

Table 18: Substance Abuse Treatment Hours Per Participant by Treatment Type

Substance Abuse Treatment	Mean Hours	Median Hours
Residential	476	180
Intensive outpatient	129	113
Outpatient	33	25
Sub-acute detox	27	27

Participants must receive a sufficient dosage and duration of substance abuse treatment to enjoy long-term sobriety and recovery from addiction. Participants who receive six to ten hours of substance abuse counseling per week during initial phase of treatment and approximately 200 hours of counseling over nine to twelve months will achieve better outcomes than similar offenders who experience treatment of shorter duration and lower dosage (NADCP, 2013: Best Practice Standard V). Considering only participants who had some recorded data regarding treatment in the Michigan drug court participant sample, participants who later successfully completed the program received significantly fewer treatment contact hours compared to participants who did not later successfully complete the program. This effect is largely driven by the number of residential treatment hours received; non-graduates received significantly more hours of residential treatment on average (251 hours) compared to graduates (68 hours). This finding did not change based on participants' length of stay and should not be interpreted as support for providing less treatment. When the total of non-residential treatment hours is considered, graduates received significantly more treatment contact hours on average (64 hours) compared to non-graduates (43 hours), although the difference is explained by length of stay.

Table 19: Substance Abuse Treatment Hours by Completion Type

	Mean Hours	Median Hours
All Treatment Contact Hours		
All participants (N=740)	223	69
Graduates (n=305)	132***	65
Non-Graduates (n=389)	295	84
Residential Treatment Contact Hours		
All participants (N=740)	179	0
Graduates (n=75)	68***	0
Non-Graduates (n=185)	251	0

	Mean Hours	Median Hours
All Non-Residential Treatment Contact Hours		
All participants	52	28
Graduates	64***	40
Non-Graduates	43	21

***Significant $p < .001$

Table 20 further details the number and proportion of participants identified by ASAM level at program entry as well as the type of treatment participants in each level received during their tenure in the program. Nearly half of participants (45.3 percent) were identified as ASAM Level I Outpatient at entry and most of the remaining participants were identified as requiring Level II Intensive Outpatient/Partial Hospitalization (22.8 percent) or Level III Residential/Inpatient treatment (31.7 percent). The proportion of participants who received their identified level of treatment varies by ASAM level, with the number and percentage of participants who received each treatment type displayed in the table below. For some levels, participants were sometimes over-treated (Level I participants, for example) while participants were sometimes under-treated in other levels (Level III, for example). It is important to note that participants often received treatment of more than one modality within ASAM levels (Level I, for example) or treatment received is unknown (as shown by treatment received for Level 0.5 participants) so the proportion levels do not necessarily equal 100 percent.

Table 20: Assessed ASAM Level of Need Compared to Substance Abuse Treatment Services Received by ADC Participants

	Number of Participants N=811	%
Assessed ASAM Criteria Level		
Level 0.5 Early Intervention	2	0.2%
Level I Outpatient	367	45.3%
Level II Intensive Outpatient/Partial Hospitalization	185	22.8%
Level III Residential/Inpatient	257	31.7%
Treatment Received by ASAM Criteria Level		
Level 0.5 Early Intervention (n=2)		
Received SA Outpatient Detox Treatment	0	0.0%
Received SA Outpatient Treatment	1	50.0%
Received Intensive Outpatient Treatment	0	0.0%
Received SA Residential Treatment	0	0.0%
Received SA Sub-Acute Detox Treatment	0	0.0%
Level I Outpatient (n=367)		
Received SA Outpatient Detox Treatment	0	0.0%
Received SA Outpatient Treatment	310	84.5%
Received Intensive Outpatient Treatment	31	8.4%
Received SA Residential Treatment	37	10.1%
Received SA Sub-Acute Detox Treatment	1	0.3%
Level II Intensive Outpatient/Partial Hospitalization (n=185)		
Received SA Outpatient Detox Treatment	0	0.0%
Received SA Outpatient Treatment	91	49.2%
Received Intensive Outpatient Treatment	83	44.9%
Received SA Residential Treatment	11	5.9%
Received SA Sub-Acute Detox Treatment	1	0.5%
Level III Residential/Inpatient (n=257)		

	Number of Participants N=811	%
Received SA Outpatient Detox Treatment	0	0.0%
Received SA Outpatient Treatment	164	63.8%
Received Intensive Outpatient Treatment	42	16.3%
Received SA Residential Treatment	230	89.5%
Received SA Sub-Acute Detox Treatment	0	0.0%

Table 21 shows a summary of the mean and median number of recovery support groups (e.g., NA/AA) participants attended. Considering only participants who had data regarding the number of recovery support meetings attended, graduates completed an average of 136.7 recovery support meetings while non-graduates completed an average of 85.6 recovery support meetings. Although graduates attended more meetings than non-graduates, the difference only approached statistical significance (p = .078) likely due to the small sample size. The nearly significant difference, however, disappears when we controlled for the number of days spent in the program, meaning length of stay likely explains the difference in number of meetings attended.

Table 21: Recovery Support Services

	Participants Completing at Least One Meeting (%)	Mean Hours	Median Hours
All participants	55 (6.8%)	107.8	69.0
Graduates	29 (9.5%)	136.7	113.0
Non-Graduates	26 (5.9%)	85.6	34.5

Mental Health Treatment Services. Very few drug court participants had data entered for the type and frequency of mental health treatment services received. Only two participants, both non-graduates, were designated as having received mental health treatment; both received doctor/medication review services. *Table 22* shows the services provided in terms of treatment hours provided to drug court non-graduates.

Table 22: Mental Health Treatment Hours by Treatment Type

Mental Health Treatment	Mean Hours	Median Hours
Doctor/Medication review (n=2)	811.0	811.0

Participants who received mental health treatment received a sizeable number of hours. One participant received assertive community treatment, one participant received doctor/medication review, three participants received inpatient/partial day and five received therapy services. The highest number of hours provided were for doctor/medication review (1,599 hours) and assertive community treatment (1,329 hours). Therapy services were provided at almost 1,182 hours (1181.6 hours).

Court Appearances. The required court reporting schedule in Phase 1 varied across programs. Twenty (20) percent of courts required participants to report weekly; 60 percent required participants to report every other week; and ten percent required participants to report once a month in Phase 1. Ten (10) percent of courts did not specify court appearance schedule. During the judicial review hearings, the judge discusses the participant's progress in treatment and supervision directly with the

participant. *Table 23* shows a summary of the mean and median number of court appearances made by drug court participants (both graduates and non-graduates) for the adult drug courts included in the study. On average, drug court participants appeared before the court 20 times over the course of their participation in drug court with graduates having significantly more scheduled court appearances (29.6) than non-graduates (14.8), although this difference is tied to length of stay. The number of drug court appearances ranged, among all participants in the study, from 0 to 75.

Table 23: Scheduled Court Appearances by Participant

	Mean Number of Scheduled Court Appearances	Median Number of Scheduled Court
All participants	20.1	19
Graduates	29.6***	28
Non-Graduates	14.8***	12

***Significant p < .001

Drug Testing. The adult drug treatment court programs conducted over 111,017 drug or alcohol tests during the evaluation period, with an average of 137 drug or alcohol screens per participant (see *Table 24*). Graduates had, on average, 214 drug screens in the program (ranging from 17 to 826 tests) while non-graduates had an average of 92 drug screens while in the program (ranging from 0 to 535 tests). Graduates received significantly more drug/alcohol screens during their tenure in the program compared to non-graduates, even controlling for length of stay in the program. This may be because non-graduates were more likely to participate in residential treatment.

Table 24: Average Number of Drug/Alcohol Tests Administered

Program Completion Type	Average Number of Tests
All participants	137
Graduates	214***
Non-Graduates	92

*** Significant $p < .001$

While the above data reflects individual participant data, NCSC also collected information about drug testing policies as a program-level characteristic. Carey et al. (2012) found that programs that performed drug tests at least twice a week in the first phase experienced a 38 percent larger reduction in recidivism (Carey et al., 2012), supporting results of a previous study that associated such frequent drug testing with the most effective drug courts (Carey, Finigan, & Pukstas, 2008). A statewide analysis of Drug Court practices in New York, however, found no significant results from frequent drug tests within the first three months of the program on new arrests within three years (Cissner et al., 2013). The requirement that participants have no positive drug tests in the ninety days before program graduation is associated with improved outcomes (Carey et al., 2012).

Three drug courts (30 percent) reported using remote alcohol monitoring and six out of ten courts (60 percent) reported drug testing a minimum of twice a week in Phase 1. All ten adult drug courts reported testing for marijuana, cocaine, opiates, amphetamines, prescribed drugs, and benzodiazepines. Eight of ten courts reported testing for PCP and methamphetamine, and seven courts reported testing for

Methadone. The least common drugs tested were Spice or K2 (reported by 40 percent of courts) and bath salts (reported by 20 percent of courts).

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, reinforcement (incentives) and punishment (sanctions) are used to increase desired behavior. According to national research, sanctions tend to be least effective in the lowest and highest magnitudes, and most effective within the intermediate range (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 studies. 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. *Table 25* shows a summary of the number of incentives and sanctions given to drug court participants.

Table 25: Number of Incentives and Sanctions Given to Drug Court Participants

Behavioral Response	N = 811
Incentives	
% of participants who received at least one incentive	80.3%
Average # of incentives per participant*	11.1
Sanctions – General	
% of participants who received at least one sanction	81.5%
Average # of sanctions per participant*	4.1
Sanctions – Jail	
% of participants who received at least one jail sanction	48.7%
Average # of jail days (sanctions) per participant*	15.2

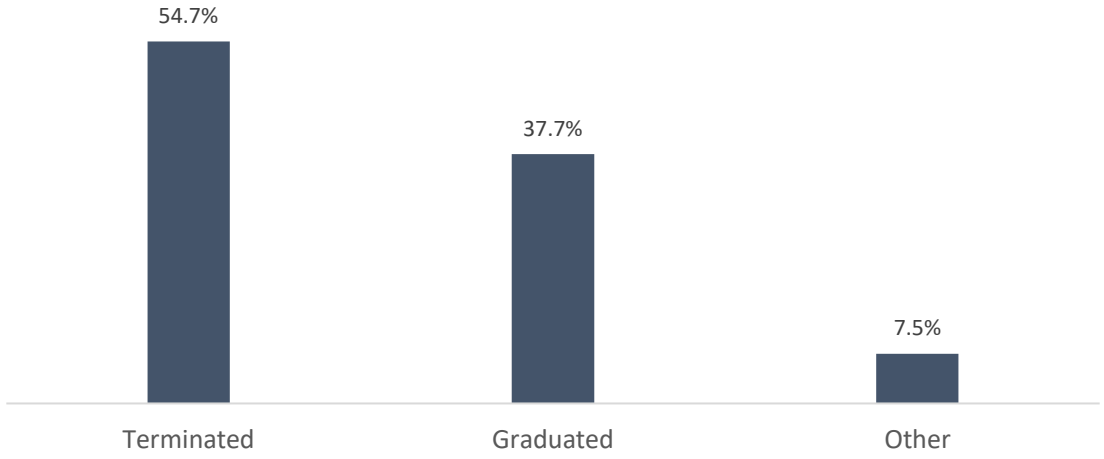
*Among those participants who received an incentive or sanction.

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. Michigan drug courts have a ratio of 11 incentives to 4 sanctions, applying the research-based ratio this is approximately 2.75 incentives to 1 sanction. Michigan drug courts should strive to ensure a better balance of sanctions and rewards.

Type of Program Exit.

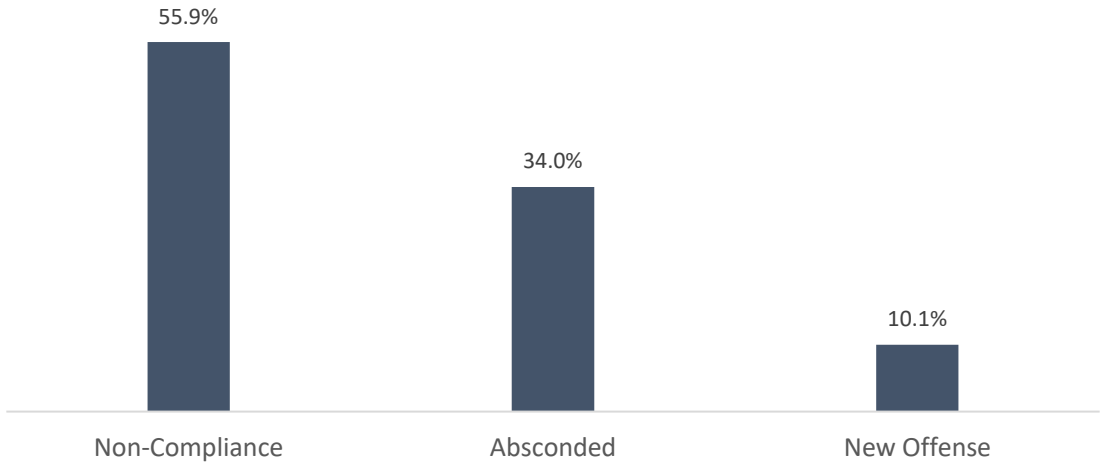
Figure 2 shows that approximately 38 percent of the 811 drug court participants exited successfully from their drug court program by means of graduation. Another 54.7 percent were terminated unsuccessfully and 7.5 percent exited by other means.

Figure 2: Type of Program Exit



Reason for Program Termination. *Figure 3* shows the reasons for termination for the 444 participants who unsuccessfully completed drug court. Non-compliance accounted for nearly 56 percent of unsuccessful program terminations. Absconding accounted for 34 percent of termination and new offenses accounted for approximately ten percent.

Figure 3: Reasons for Program Termination



Time in Program. On average, all program participants (graduates and non-graduates) remained in the program 387.4 days (see *Table 26*). Graduates spent 1.6 years (583.1 days) in the program, with a range of 378 (1 year) to 1,222 days (3.3 years). Non-graduates (terminated participants) spent an average of 9 months (277.7 days) in program, with a range of 9 days to 1,157 days (3.2 years) in the program. Half of all non-graduates spent more than 8 months (240 days) in the program. Graduates spent significantly more time in the drug court program compared to non-graduates.

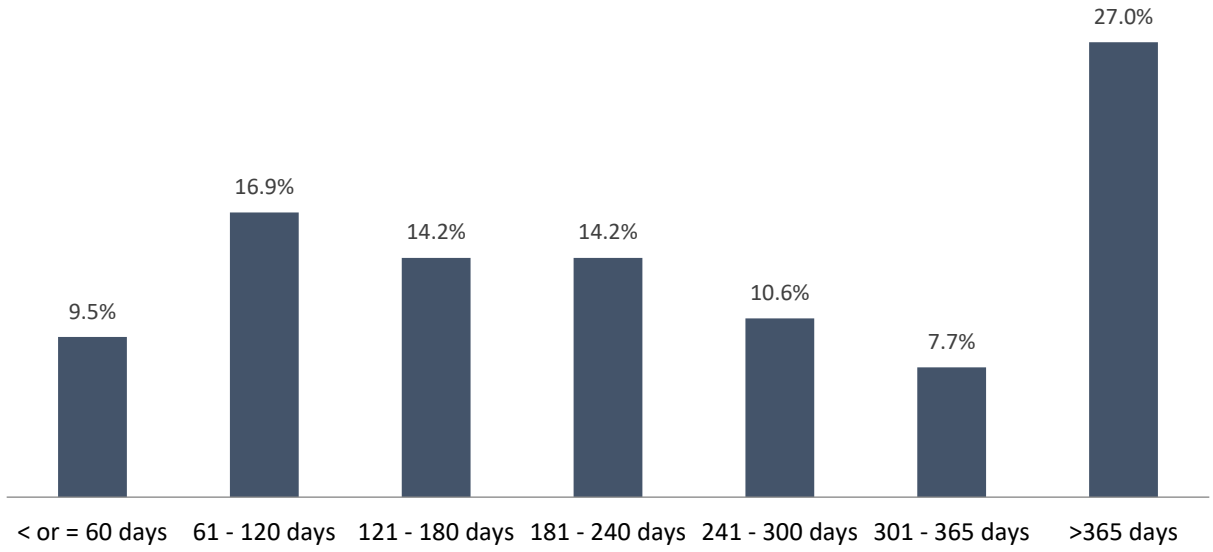
Table 26: Time in Program

	Average Length of Stay	Range
All Participants (N=811)	1 year, 1 month	9 – 1,222 days
Graduates (N=306)	1 year, 7 months***	378 – 1222 days
Terminated Participants (N = 444)	9 months	9 – 1,157 days

*This chart does not include the length of stay for the 61 participants who were closed as "Other." "Other" includes 30 participants without closure data, 15 voluntary withdrawals, 10 deaths and 6 medical discharges.
***Significant $p < .001$

A sub-analysis of the amount of time between program entry and termination was conducted, as shown in *Figure 4,* for the 444 drug court terminations. Approximately 26 percent were terminated from the program within the first 120 days (four months) after acceptance, while almost 47 percent were terminated between four months and one year after acceptance. The remaining 27 percent were terminated more than one year after acceptance.

Figure 4: 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.

Program Characteristics Examined

In order to examine which program-level variables predict successful completion from drug court and/or recidivism, the NCSC evaluation team conducted hierarchical binary logistic regressions. The full models may have included the following program-level variables:

- program capacity;

- program maturity, measured as younger than 10 years versus 10 years old and older;
- programs' average length of stay;
- programs' average length of stay in phase 1;
- programs' average time from arrest to treatment;
- programs that require weekly court attendance in phase 1;
- programs that require weekly contact with supervision in phase 1;
- programs that require daily AA meetings in phase 1;
- programs in which law enforcement attends court;
- programs in which prosecutor and defense attorneys attend staffing;
- programs in which prosecutor and defense attorneys attend court;
- programs with no more than two treatment providers;
- programs that maintain at least a 4:1 incentive to sanction ratio;
- programs that alcohol test weekly in phase 1;
- programs that drug test weekly in phase 1;
- programs that use remote testing;
- programs that require four months of sobriety to graduate; and
- rural versus suburban and urban courts.

Additional information about these variables can be found in the *Technical Appendix: Detailed Analysis*.

Conclusion. Michigan drug court participants receive significant treatment days including residential treatment (476.4 days) and intensive outpatient treatment (128.9 days). Sanctions and incentives are frequently employed to manage offender behavior and compliance with program and treatment requirements.

Short-Term Outcomes

Short-term outcomes are one measure of court program effectiveness. The following section describes sobriety during the drug court program and employment at program entry and program discharge.

Sobriety. Sobriety, both during and after drug court participation, is a goal of all drug courts because it fosters rehabilitation, public safety, and accountability. *Table 27* shows that the majority of participants tested positive for drugs and/or alcohol at some point in the program. Seventy-eight (78) percent of all participants demonstrated some level of substance relapse while active in the drug treatment court program. Significantly fewer participants who went on to graduate from the drug court program tested positive for drugs and/or alcohol at some point during the program (71 percent) compared to participants who eventually left the program unsuccessfully (84 percent). Overall, ten percent of all drug or alcohol tests were positive, although the rate of positive screens for graduates (1.6 percent) is statistically lower than the rate of positive drug screens for non-graduates (16.3 percent).

Table 27: In-Program Positive Drug Tests

	Percent of participants who tested positive at least once while in drug court	Percent of all drug/alcohol tests that were positive
All participants	77.7%	10.3%
Graduates	70.9%***	1.6%***
Non-Graduates	84.0%	16.3%

***Significant $p < .001$

Table 28 shows that the average number of days to the first positive drug or alcohol screen for the 630 participants who tested positive at least once during their time in the program. For all participants who tested positive at least once, the average number of days from entry to their first positive screen was 82 days. Graduates had a significantly longer period of time on average before their first positive screen (114.5 days) compared to non-graduates (65.7 days). Graduates also had significantly fewer positive tests (4.1) compared to non-graduates (8.3).

Considering all participants, regardless of whether or not they tested positive at least once in the program, *Table 28* shows that participants who graduated had a significantly longer period of sobriety (376 days) compared to participants who were terminated (91 days). Research in multiple drug courts shows drug courts that require 90 days of abstinence (measured by continued negative drug tests) before graduation have 164 percent greater reductions in recidivism than programs that require less clean time or that have no minimum required clean time before graduation (Carey et al., 2012).

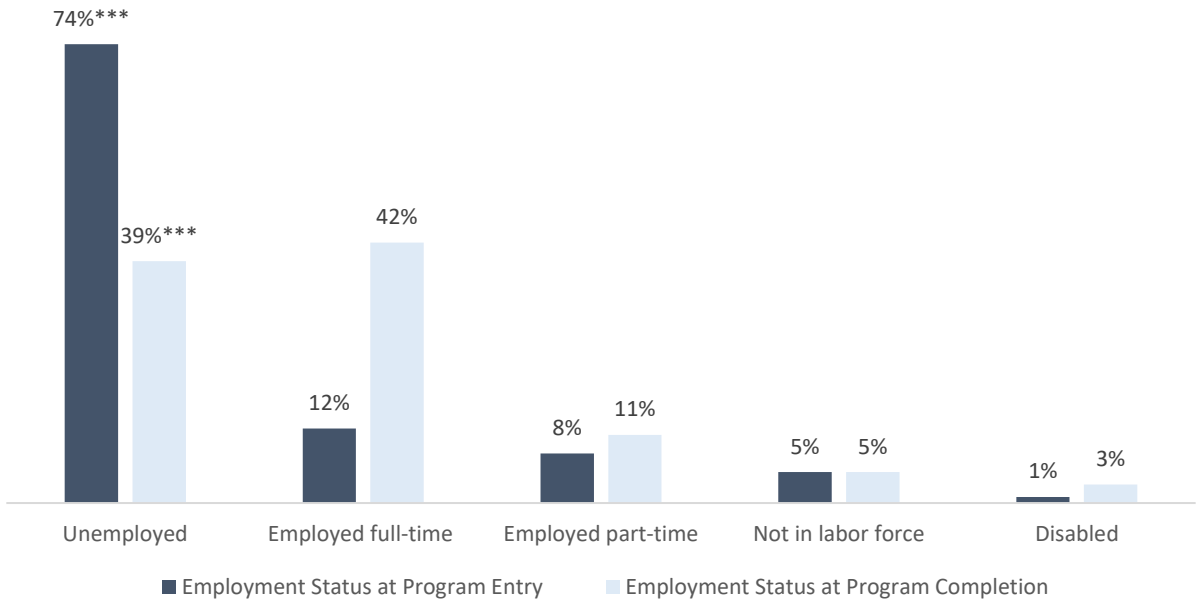
Table 28: In-Program Sobriety by Participant Closure Type

Type of Program Completion	Average Number of days to first positive screen N=630	Average # of positive drug/alcohol tests per participants N=630	Longest Period of Sobriety N=811
All participants	82.0 days	6.7	198 days
Graduates	114.5 days***	4.1***	376 days***
Non-Graduates	65.7 days	8.3	91 days

***Significant $p < .001$

Employment. *Figure 5* examines gains in employment, a key interim outcome area for participants in drug court. Seventy-four percent of all participants entered the drug court program unemployed, while 39 percent of all participants (graduates and non-graduates) left the drug court unemployed. The gains in employment between program entry and program completion demonstrated by a decrease in unemployment and increase in full-time employment are statistically significant.

Figure 5: Percent of Drug Court Participants Employed at Program Entry and Program Completion



***Significant $p < .001$

Among drug court graduates, the impact is more pronounced. Twenty-six percent of participants who went on to graduate from the drug court program were employed at entry and 87 percent were employed at program completion (see *Figure 6*). Furthermore, as displayed in *Figure 7*, significantly more graduates (77 percent) were employed full-time at program completion compared to non-graduates (18 percent).

Figure 6: Percent of Drug Court Graduates Employed at Program Entry and Program Completion

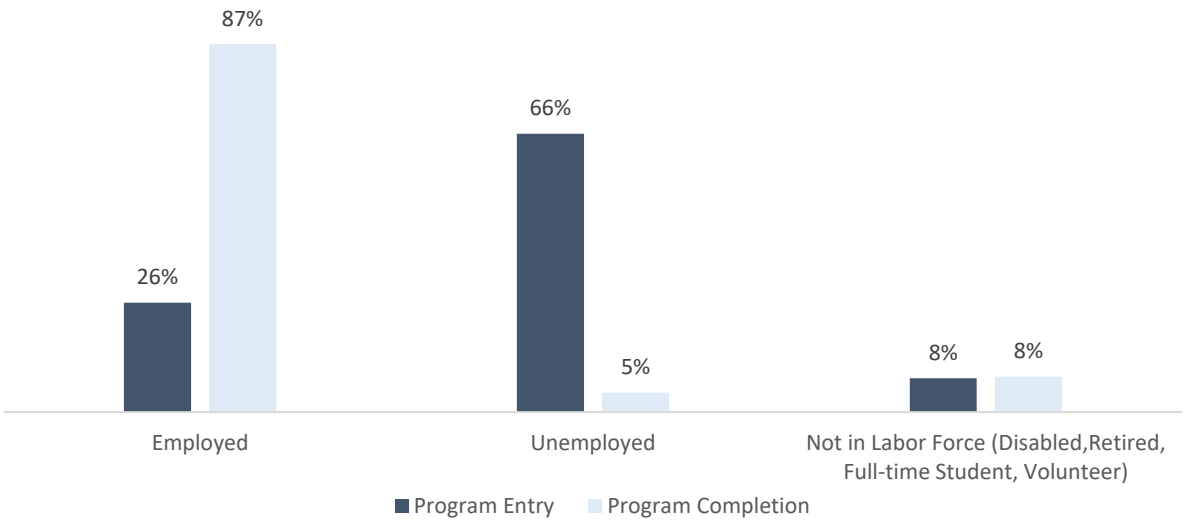
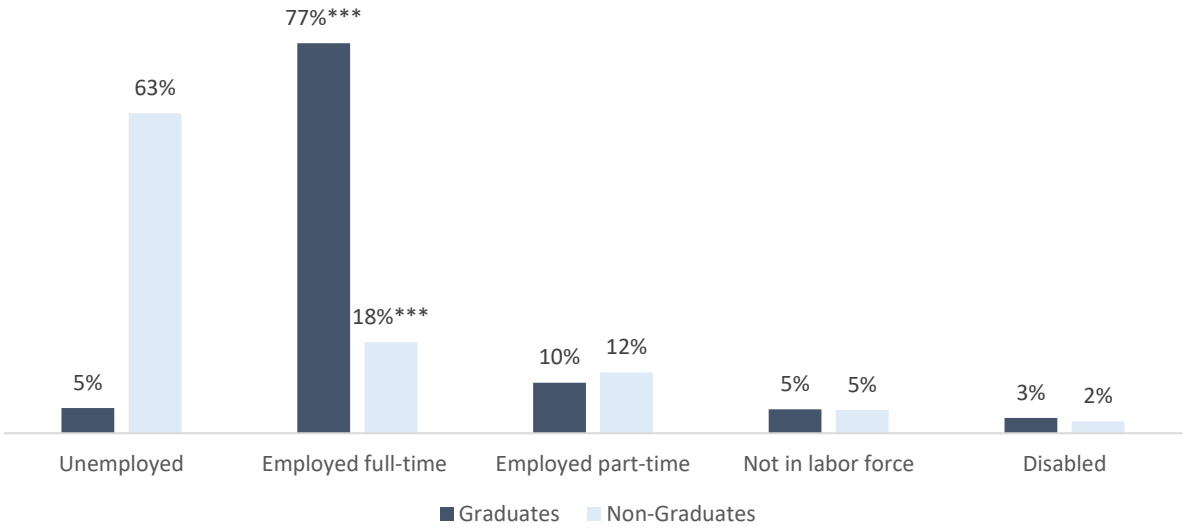


Figure 7: Percent of Drug Court Graduates and Non-Graduates Employed at Program Exit



*** Significant $p < .001$

Conclusion. Over three-quarters of Michigan adult drug court participants tested positive on at least one occasion during their participation in the program, with non-graduates accounting for the majority of positive tests. Participants who went on to successfully complete their drug court program (1) tested positive at least once during the program less often than non-graduates; (2) had fewer positive drug tests during the program compared to non-graduates; (3) had a significantly longer period of time before their first positive screen compared to non-graduates; and (4) had a significantly longer period of sobriety compared to non-graduates. Similarly, non-graduates had significantly more positive tests overall compared to graduates. Furthermore, successful participants experienced gains in employment between entry and exit more often than non-graduates. Although more participants were employed full-time at program exit than entry, significantly fewer non-graduates were employed full-time at program exit compared to graduates.

Predicting Successful Program Completion

Both qualities of the programs and characteristics of the participants may influence outcomes, such as successful program completion. To assess which program-level and individual-level variables predict successful program completion, the NCSC evaluation team conducted a hierarchical binary logistic regression, which first considered qualities of the program and then the characteristics of the participants. First, chi-square analyses, which assess the goodness-of-fit between expected and observed values, determined which program-level variables were related to program completion; program-level variables that were significantly related to program completion were included in the full model. The full chi-square analyses are in the *Technical Appendix: Detailed Analysis.* The program-level variables identified in the chi-square analyses and all individual-level variables were then included in the hierarchical binary logistic regression. Some program-level variables were fairly consistent across programs and therefore, were not good predictors of program completion. Not all program-level variables appear in the full models because when program-level variables were very similar across programs, they were excluded.

As displayed in *Tables 29* and *30* below, several program-level and participant-level variables significantly predicted successful program completion in the full model. Three program-level variables significantly predicted successful program completion (see *Table 24*). Controlling for all other factors entered into the model, participants in programs that are older than ten years old, had law enforcement attend court, and require a minimum of four months of sobriety to complete are less likely to successfully complete the drug court program. The full model, including all variables, is in *Technical Appendix: Detailed Analysis.*

Table 29: Program Variables Significantly Predicting Successful Program Completion

Program Variables	Impact	Significance Level *p*
Maturity of Program	The odds of successful completion for participants enrolled in an ADC program that is more than ten years old are 89% lower than the odds of participants enrolled in programs developed in the last ten years.	.028
Law Enforcement Attends Court	The odds of successful completion for participants enrolled in an ADC program that has law enforcement in attendance at court are 97% lower than the odds of participants enrolled in programs that do not have law enforcement in attendance at court.	.001
Program requires four months or more of sobriety to graduate	The odds of successful completion for participants enrolled in an ADC program that requires a minimum of four months of sobriety to graduate are 90% lower than the odds of participants enrolled in programs that do not require a minimum of four months of sobriety.	.028

As shown in *Table 30* below, four participant-level variables predicted successful program completion when included in the full model. Participants who were black (compared to white) and high-risk (compared to medium-risk) were less likely to successfully complete the program when controlling for the other factors in the model. Alternatively, participants who were drug tested at least twice per week on average during their time in the program and participants who spent at least 420 days in the program were more likely to successfully complete the program compared to their counterparts.

Table 30: Participant Variables Significantly Predicting Successful Program Completion

Participant Variables	Impact	Significance Level *p*
Race	The odds of successful completion for a black ADC participant are 83% lower than the odds of an otherwise similar white ADC participant.	.001
High Proxy Risk Level	The odds of successful completion for an ADC participant who is high-risk (per proxy risk) are 79% lower than the odds of an otherwise similar ADC participant who is medium-risk (per proxy risk).	.003
Drug Testing a Minimum of Twice a Week Throughout Program	The odds of successful completion for an ADC participant who is drug/alcohol tested a minimum of twice a week throughout the program are 182% higher than the odds of an otherwise similar ADC participant who is not drug/alcohol tested a minimum of twice a week.	.038
Time in Program	The odds of successful completion for an ADC participant who participates in the program for at least 420 days are 261.1 times more likely compared to an otherwise similar ADC participant who participates for less than 420 days.	< .001

Because the odds ratio is so large for Time in Program in the model above, the NCSC evaluation team conducted a second hierarchical logistic regression. The second model included a continuous variable for time in program which showed that the odds of successful completion for an ADC participant who spent more time in court was ten percent higher than the odds of successful completion for an ADC participant who spent less time in the program. The full model is in the *Technical Appendix: Detailed Analysis*.

Conclusion. Using hierarchical binary logistic regression, several program-level and individual-level variables predict successful or unsuccessful program completion, including the maturity of the program; law enforcement attending court; requiring four months' sobriety to complete; participant race; participant proxy risk score; number of days participant spent in court; and participants who were drug tested at least twice weekly during their stay.

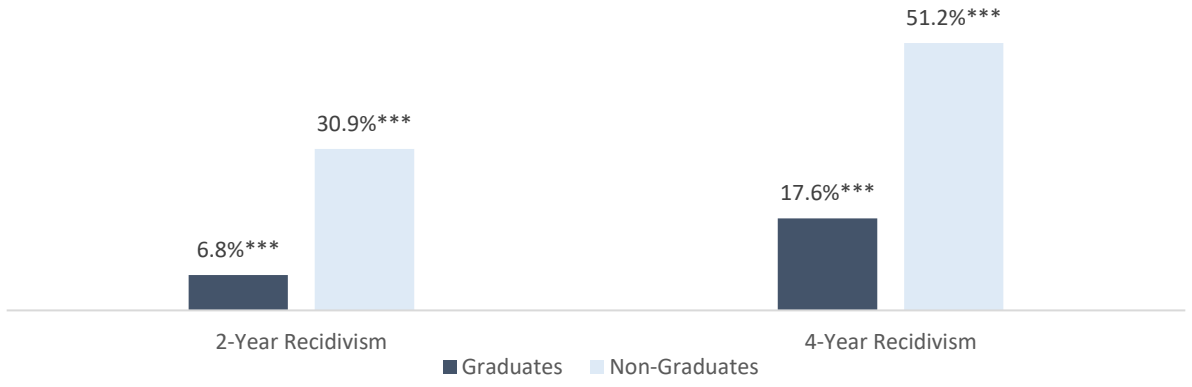
Long-Term Outcomes: Recidivism Rates of Drug Court Participants by Program Completion Type

One of the most important and interesting outcomes of a drug court program is the rate of participants who reoffend during and after the program. The Michigan State Court Administrative Office (SCAO) defines recidivism with two definitions and in two timeframes. First, recidivism is broadly defined as *any new conviction* falling within the following offense categories: violent offenses; controlled substance use or possession; controlled substance manufacturing or distribution; other drug offenses; driving under the influence of drugs or alcohol first offense; driving under the influence of drugs or alcohol second offense; driving under the influence of drugs or alcohol third offense; other alcohol offenses; property offenses; breaking and entering or home invasion; nonviolent sex offenses; juvenile status offenses of incorrigible, runaway, truancy, or curfew violations; neglect and abuse civil; and neglect and abuse criminal.

Second, recidivism is narrowly defined as a *new drug or alcohol conviction* falling within the following categories: controlled substance use or possession; controlled substance manufacturing or distribution; other drug offenses; driving under the influence of drugs or alcohol first offense; driving under the influence of drugs or alcohol second offense; driving under the influence of drugs or alcohol third offense; and other alcohol offenses. Both the broad (all convictions) and narrow (drug and alcohol convictions) recidivism rates are calculated within two years and four years of entry into the drug court program. The following analysis reports recidivism rates under both definitions from both two and four years from entry. Because of the time from entry requirement, all recidivism analyses included only those drug court participants (and later their business-as-usual (BAU) comparisons) who had sufficient time from entry to recidivate.

Figure 8 displays the two-year and four-year recidivism rates for both drug court graduates and non-graduates. Within two years of entry, significantly fewer graduates (6.8 percent) reoffended compared to non-graduates (30.9 percent). The pattern remained the same within four years of admission, such that significantly fewer graduates (17.6 percent) reoffended compared to non-graduates (51.2 percent).

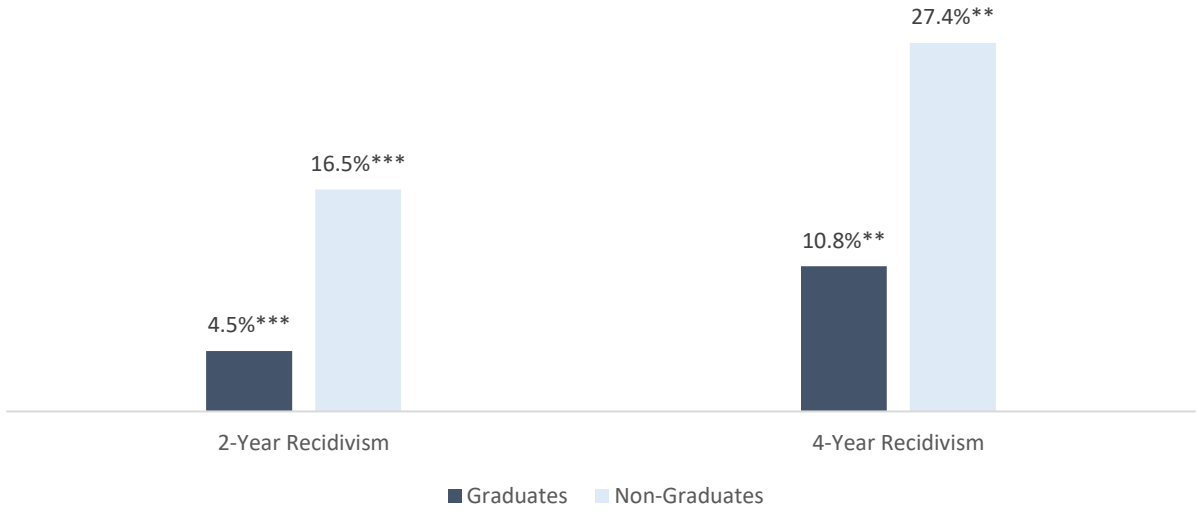
Figure 8: Drug Court Graduates' and Non-Graduates' General Recidivism Rates



***Significant $p < .001$

Figure 9 shows the two-year and four-year recidivism rates for drug court graduates and non-graduates for drug and alcohol convictions. Within two years of entry, significantly fewer graduates (4.5 percent) reoffended compared to non-graduates (16.5 percent). The pattern remained the same within four years of entry, such that significantly fewer graduates (10.8 percent) reoffended with a drug or alcohol offense compared to non-graduates (27.4 percent).

Figure 9: Drug Court Graduates' and Non-Graduates' Alcohol and Drug Offense Recidivism Rates

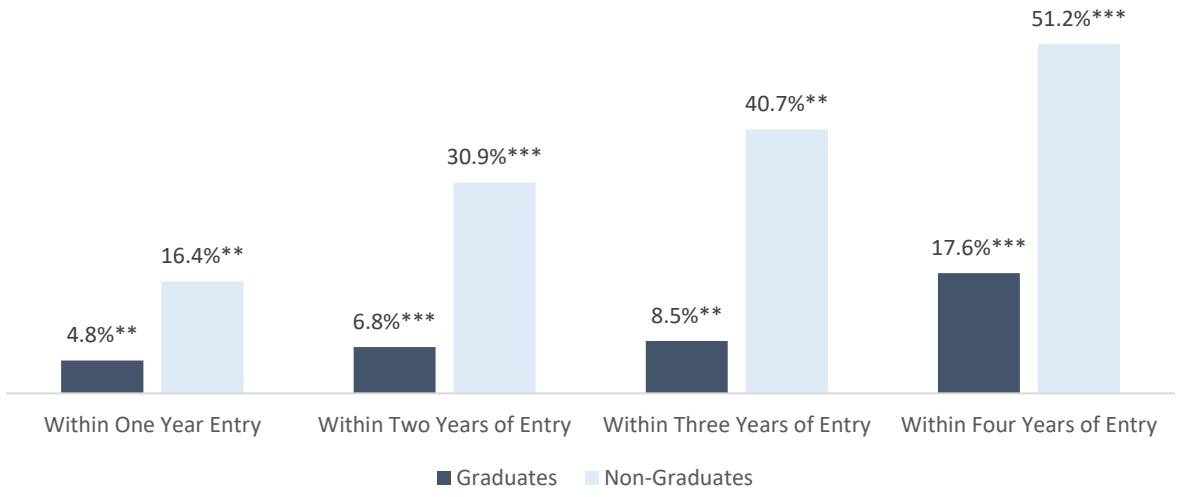


*** Significant $p < .001$ ** $p = .01$

Time to New Conviction Among Graduates and Non-Graduates.

Figure 10 shows that significantly more participants who went on to be non-graduates were reconvicted within one year of entry (16.4 percent) compared to graduates (4.8 percent). The pattern continues for convictions within two, three, and four years of entry such that significantly more non-graduates are consistently reconvicted compared to graduates.

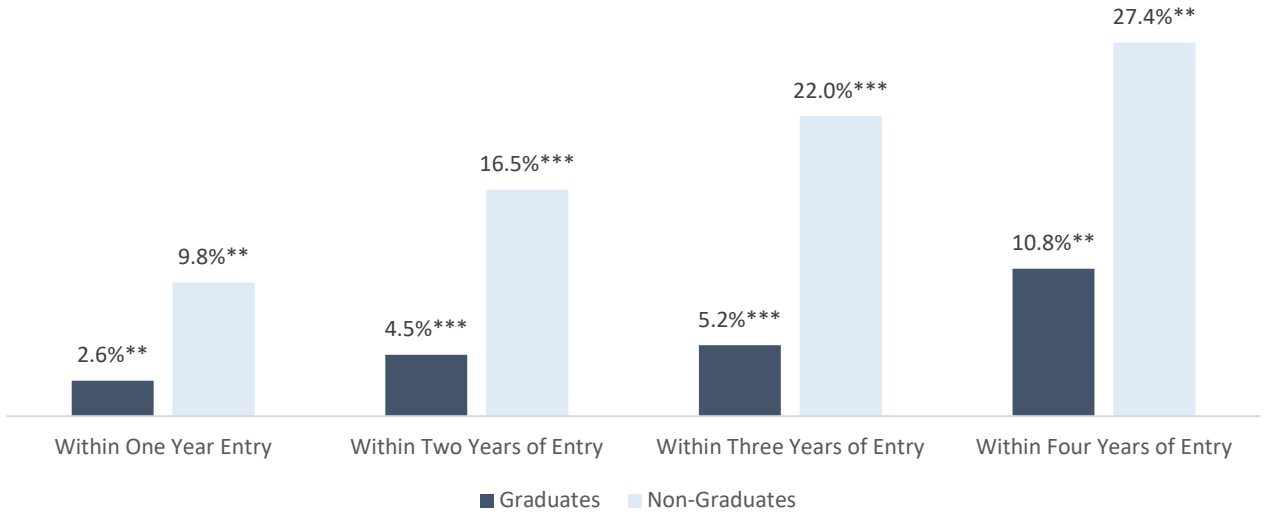
Figure 10: Time from Placement to New Conviction for Graduates versus Non-Graduates (All Convictions)



*** Significant $p < .001$ ** $p < .01$

Figure 11 shows the drug and alcohol reconviction rates of graduates and non-graduates at one, two, three, and four years from program entry. Like all reconvictions generally, significantly more non-graduates are consistently reconvicted of a drug or alcohol offense at all points post-entry.

Figure 11: Time from Placement to New Conviction for Graduates versus Non-Graduates (Drug and Alcohol Convictions)



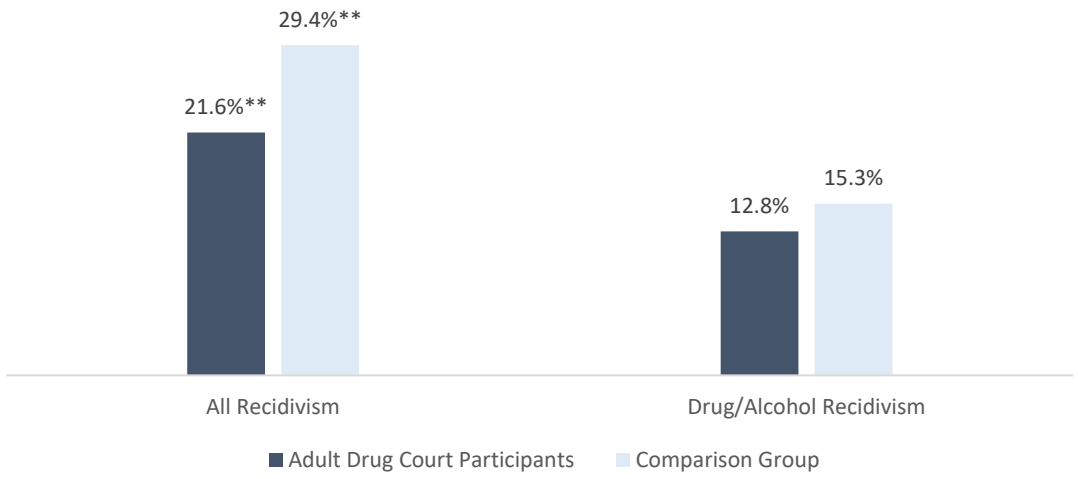
*** Significant $p < .001$ ** $p < .01$

Recidivism Rates of the Drug Court Participants Compared to Business-As-Usual

To accurately and practically examine recidivism rates among drug court participants, a matched comparison group was used. The Michigan SCAO uses the Judicial Data Warehouse to match each drug court participant to a comparison person. To be considered an appropriate match, the comparison person must have a matching offense in the same county and court as the drug court participant; the comparison person must be the same gender; fall within the same age group; year of offense group; same offense category; and have a similar number of cases in the previous two years as the drug court participant. To be matched to a drug court participant, the comparison group person must not have previously participated in any drug court program or have a violent offense on his or her record. Analyses examine whether the participant-comparison pair statistically differ from one another to ensure comparable pairs. Any new offenses are reported to the SCAO for both the drug court participant and their matched BAU comparison person.

Figure 12 displays the two-year recidivism rates for drug court participants and their BAU comparisons. Only drug court participants who had a matched comparison person were included in the following analyses. For all convictions, significantly more BAU comparison people were reconvicted of an offense within two years of entry (29.4 percent) compared to drug court participants (21.6 percent). The difference between drug court participants and BAU comparisons was not significantly different for drug or alcohol convictions within two years.

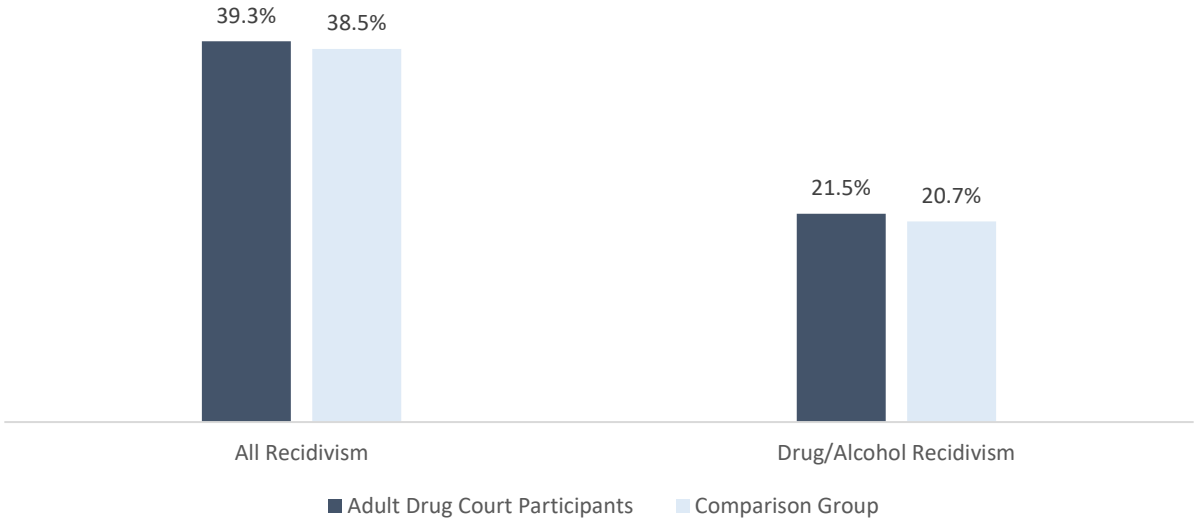
Figure 12: Two-Year Recidivism Rate for Drug Court Participants and Comparison Group



** Significant $p < .01$

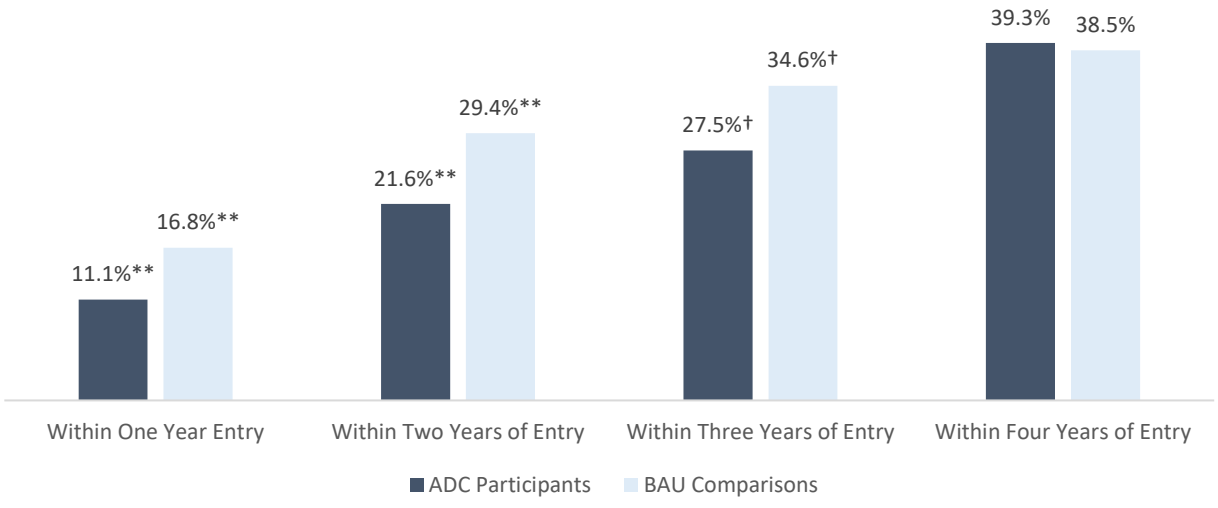
For four-year recidivism rates, there was no difference between drug court participants and BAU comparisons. Nearly the same proportion of drug court participants and BAU comparisons were reconvicted within four years of entry. Although the conviction rate for drug or alcohol offenses differed between drug court participants and BAU comparisons, the difference was not significant.

Figure 13: Four-Year Recidivism Rate for Drug Court Participants and Comparison Group



Time to New Conviction for the Adult Drug Court Participants versus the Business as Usual Comparison Group. *Figure 14* shows that significantly more BAU comparison people were reconvicted within one year of entry (16.8 percent) compared to drug court participants (11.1 percent). The pattern continues for reconvictions within two years of entry such that significantly more BAU comparison people were consistently reconvicted compared to drug court participants. Within three years at entry, more BAU comparisons were reconvicted compared to drug court participants and the difference approached statistical significance. Within four years of entry, drug court participants and BAU comparisons did not significantly differ in their rates of reconviction.

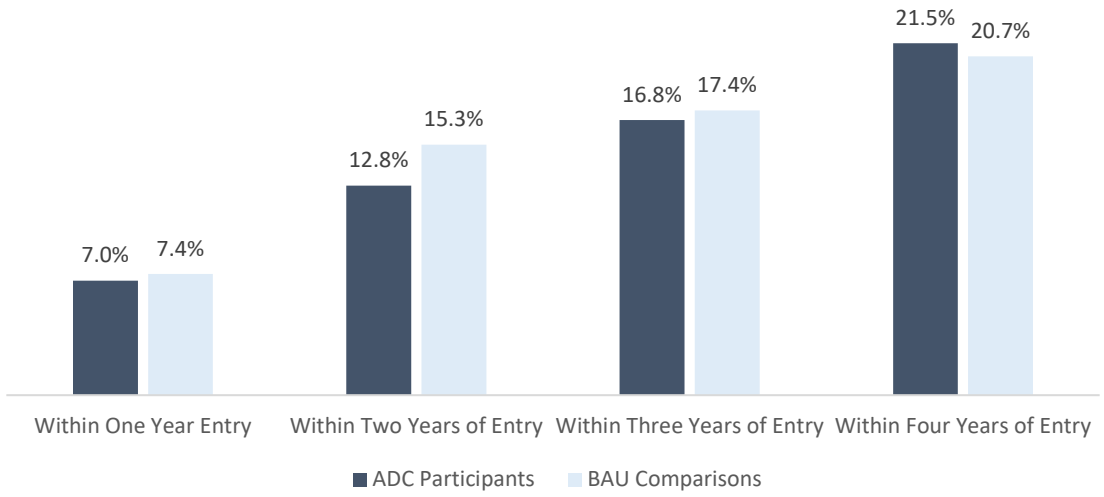
Figure 14: Time from Placement to New Conviction for ADC Participants versus BAU Comparisons (All Convictions)



** Significant $p < .01$ † $p = .063$

Figure 15 shows the drug and alcohol reconviction rates of drug court participants and BAU comparison people. Recidivism rates did not significantly differ within one, two, three, or four years of entry for drug court participants versus BAU comparisons.

Figure 15: Time from Placement to New Conviction for ADC Participants versus BAU Comparisons (Drug and Alcohol Convictions)



Predicting Recidivism

As with predicting successful program completion, the NCSC evaluation team conducted two hierarchical binary logistic regressions to assess which program-level and individual-level variables predict recidivism. First, chi-square analyses determined which program-level variables were related to two-year and four-year recidivism; program-level variables that were significantly related to recidivism were included in the full models. The full chi-square analyses are in the *Technical Appendix: Detailed Analysis.* The program-level variables identified in the chi-square analyses and all individual-level variables were then included in two hierarchical binary logistic regressions – one predicting two-year recidivism and one predicting four-year recidivism. Because some program-level variables were extremely consistent across programs and therefore not good predictors, it was not uncommon for program-level variables to drop out of the models due to collinearity. Moreover, while the sample size of participants used in the recidivism models is large enough to conduct the evaluation analysis, a larger sample size may result in more robust findings.

Two-Year Recidivism

As displayed in *Table 31* below, three individual-level variables significantly predicted two-year recidivism in the full model. Controlling for all other factors entered into the model, participants who were employed at entry, spent 420 days or more in the program, or received treatment greater than his or her ASAM level were less likely to recidivate within two years. No program variables reached statistical significance in the two-year model. The full model predicting two-year recidivism is in the *Technical Appendix: Detailed Analysis.*

Table 31: Participant Characteristics Predicting Two-Year Recidivism

Participant Characteristics	Impact	Significance Level *p*
Employed at Entry	The odds of recidivating within two years for a participant who was employed at entry are 82% lower than the odds of recidivating within two years for a participant who was unemployed at entry.	.019
Number of days in the program	The odds of recidivating within two years for a participant who is enrolled for 420 or more days are 69% lower than the odds of recidivating within two years for a participant who was enrolled for fewer than 420 days.	.022
Treatment greater than ASAM level	The odds of recidivating within two years for a participant who receives treatment at a level greater than their ASAM criteria are 98% lower than the odds of recidivating within two years for a participant who did not receive treatment at a level greater than their ASAM criteria.	.016

The NCSC team also conducted a binary logistic regression to examine the extent to which participant type (ADC versus BAU) and proxy risk category predict two-year recidivism. Generally, BAU comparisons

were significantly more likely to reoffend within two years of entry compared to drug court participants; low-risk participants and comparisons were significantly less likely to reoffend within two years compared to medium-risk participants and comparisons; and high-risk participants and comparisons were more likely to reoffend within two years compared to medium-risk participants and comparisons. The results were consistent when we weighted proxy risk category so that perfect proxy risk matches between participants and comparisons took precedent in the model. The full regression model is in the *Technical Appendix: Proxy Risk Scoring*.

Four-Year Recidivism

No variables reached statistical significance in the four-year model, although three individual-level variables approached statistical significance. The three individual-level variables that approached statistical significance were age, race (black compared to white), and offense category (other offenses compared to drug offenses).

Moreover, the NCSC team conducted a binary logistic regression to examine the extent to which participant type (ADC versus BAU) and proxy risk category predict four-year recidivism. Unlike the two-year recidivism model, participant type did not predict four-year recidivism. Generally, however, low-risk participants and comparisons were significantly less likely to reoffend within four years compared to medium-risk participants and comparisons; and high-risk participants and comparisons were more likely to reoffend within four years compared to medium-risk participants and comparisons. The results followed the same pattern when we weighted proxy risk category so that perfect proxy risk matches between participants and comparisons took precedence in the model. The full regression model is in the *Technical Appendix: Proxy Risk Scoring*.

Recommendations

Recommendation 1: Adjust the current matching process to include proxy risk variables.

The Michigan State Court Administrative Office (SCAO) compiles data from the Drug Court Case Management Information System (DCCMIS) in the Judicial Data Warehouse, which allows SCAO to match drug court participants to a comparable probationer. In order to be matched to a drug court participant, the comparison person must match the participant on (1) an offense in the same county; (2) gender; (3) age range; (4) year of offense range; (5) current offense category and (6) the number of court cases in the previous two years. The potential comparison person must not (1) have participated in a drug court program previously or (2) have a violent offense on his or her record. Once a match is made, the pair is assessed statistically to ensure they are comparable. Comparable pairs are matched in the system and any and all new offenses are recorded in the system.

Although the matching process ensures participants and their comparisons are matched on geography (court), some demographic factors (gender and age group), criminal history factors (number of cases two years prior and no violent offense history), and offense types (current offense category and year range), it does not attempt to match participant-comparison pairs on elements of risk. In the current assessment, NCSC evaluators created a proxy risk score for each participant and his or her comparison person based on (1) age at placement (either drug court or probation); (2) age at first adult arrest; and (3) number of prior adult arrests. This system allowed NCSC to identify participants and comparisons who were high-, medium-, or low-risk at entry, and analyses showed that approximately only 50 percent of the participant-comparison pairs perfectly matched on proxy risk score. To sum up, even though participants are comparable on geography, demographic factors, and criminal offense factors, that is only the first step to ensuring comparable participant-comparison pairs.

In order to adjust the current matching process to account for participant and comparison risk, additional information could be gathered in the Judicial Data Warehouse, including factors for age at placement, age at first arrest (including juvenile arrests if possible), and number of prior arrests (including juvenile arrests if possible). Short of including a statewide risk-needs assessment (as discussed below), including these factors in the matching process is the next best option to better ensure the participant-comparison pairs are comparable in risk.

Recommendation 2: Adopt a statewide risk-needs instrument.

A substantial body of research shows that drug courts that focus on high-risk/high-need defendants reduce crime approximately twice as much as those serving less serious defendants (Cissner et al., 2013; Fielding et al., 2002; Lowenkamp et al., 2005) and return approximately 50% greater cost savings to their communities (Bhati et al., 2008; Carey et al., 2008, 2012; Downey & Roman, 2010).

Criminogenic risk refers to the probability that a person under criminal justice supervision will reoffend at some time in the future and is, by definition, highly correlated with outcomes. Typically, third- and fourth-generation instruments used to assess criminogenic risk use both *static* factors, which are fixed and invariant (e.g., age of first arrest) and *dynamic* factors that are subject to change and are also

referred to as criminogenic needs (see below) (Andrews, Bonta, & Wormith, 2006). Drug courts should target high-risk/high-need offenders (NADCP, 2013: Best Practice Standard I).

Criminogenic needs are conditions or statuses of offenders that increase their risk for re-offending and should be addressed in case management planning (Andrews et al., 2006). For example, Andrews and Associates identify eight primary criminogenic needs (history of antisocial behavior, antisocial personality pattern, antisocial cognition, antisocial associates, family and/or marital, school and/or work, leisure and/or recreation, and substance abuse) while other researchers identify other needs such as financial problems and social adjustment (Northpointe, 2012). Many instruments (e.g., LS/CMI, LIS-R, COMPAS, ORAS) are used to assess and provide scores that reflect the magnitude of criminogenic needs and these scores are related to outcomes, some more strongly than others.

To ensure court programs best identify and serve the high-risk/high-need population and reduce recidivism, NCSC recommends the adoption of a validated, statewide risk-needs assessment for both drug court participants and probationers in general. Not only would the use of a validated risk assessment instrument allow for better matching between drug court participants and their comparisons, it would also allow staff to better create case management, treatment, and supervision plans, taking into account participants' individual needs and risk level.

Recommendation 3: Assess the use and effectiveness of residential treatment.

Due to the interesting findings surrounding residential treatment, the NCSC evaluation team recommends an examination of who is receiving residential treatment and to what extent the treatment is above or below their ASAM criteria level, to what extent participants who receive residential treatment successfully complete it, and the current practices of residential treatment providers.

First, NCSC recommends that further investigation be made into who is receiving what level of treatment and why it is warranted to determine the impact on outcomes. In some instances, participants received residential treatment below or exceeding their ASAM criteria level. The regression model showed that drug court participants who received treatment in excess of their ASAM criteria were less likely to reoffend within two years compared to those who were not over-treated.

Second, the NCSC evaluation team recommends a quality assurance assessment of treatment providers to ensure evidence-based practices are present and being accurately utilized. As previously discussed in this report, drug court treatment produces its strongest effect on participant behavior and subsequent outcomes when it reflects the following characteristics: (1) a continuum of care for substance abuse treatment is offered (including detoxification, residential, sober living, day treatment, intensive outpatient and outpatient services); (2) one or two treatment agencies have primary responsibility for delivering treatment services and clinically trained representatives from these agencies are core members of the Drug Court Team; (3) treatment providers administer treatments that are manualized and demonstrated to improve outcomes for addicted offenders (e.g., Moral Reconation Therapy (MRT),the MATRIX model, and Multi-Systemic Therapy (MST); Marlowe, 2010); (4) participants are assigned to a level of care based on a standardized assessment of their treatment needs such as the ASAM criteria as opposed to relying on professional judgment; and (5) participants have access to prescribed psychotropic or addiction medications (Medically-Assisted Treatment or MAT) when

warranted (National Association of Drug Court Professionals [NADCP], 2013; Best Practice Standard V). Investigation and quality assurance assessment into residential treatment practices should help explain the effects of residential treatment.

Finally, we know that residential treatment plays an important role in long-term outcomes, but one piece of the residential treatment puzzle is missing. Specifically, we do not know who successfully completed and who unsuccessfully completed residential treatment. Knowing whether someone successfully exited residential treatment may shed light on the outcomes of treatment type.

Appendix A: Explanation of Offense Categories

Table 32: Explanation of Offense Categories

Offense Category	Examples of Offenses within this Category
Drug Related	Controlled Substance Use/Possession Controlled Substance Manufacturing/Distribution Other Drug Offense
Alcohol Related	DUI of Alcohol/C.S. 1st DUI of Alcohol/C.S. 2nd DUI of Alcohol/C.S. 3rd Other Alcohol Offense
Juvenile	Juvenile Status Offense – Incorrigible Juvenile Status Offense – Runaway Juvenile Status Offense – Truancy Juvenile Status Offense – Curfew Violation
Neglect/Abuse	Neglect and Abuse Civil Neglect and Abuse Criminal
Other	Breaking and Entering/Home invasion Property Offense Non-violent traffic offense (criminal) Other traffic offense (criminal)

Technical Appendix: Detailed Analysis

Table 33: Program Variables included in Models

Program Variable	Description
Program Capacity > 40	Programs with capacity ≤ 40 = 0 Programs with capacity > 40 participants = 1
Program Maturity	Programs operational < 10 years = 0 Programs operation ≥ 10 years = 1
Average Length of Stay (LOS) < 12 Months	Programs with LOS ≥ 12 months = 0 Programs with LOS < 12 months = 1
Average Time from Arrest to Treatment < 90 Days	Programs with average time from arrest to treatment ≥ 90 days = 0 Programs with average time from arrest to treatment < 90 days =1
Require Weekly Court Attendance in Phase 1	Programs that do not require weekly court attendance in Phase 1 = 0 Programs that require weekly court attendance in Phase 1 = 1
Require Weekly Supervision Contact in Phase 1	Programs that do not require weekly supervision contact in Phase 1 = 0 Programs that require weekly supervision contact in Phase 1 = 1
Require Daily AA in Phase 1	Programs that do not require daily AA/NA in Phase 1 = 0 Programs that require daily AA/NA in Phase 1 = 1
Law Enforcement Officer Attends Court	Programs in which law enforcement does not attend court = 0 Programs in which law enforcement attends court = 1
Prosecutor & Defense Attend Staffing	Programs in which attorneys do not attend staffing = 0 Programs in which attorneys attend staffing = 1
Prosecutor & Defense Attend Court	Programs in which attorneys do not attend court = 0 Programs in which attorneys attend court = 1
No More than Two Treatment Providers	Programs with three or more treatment providers = 0 Programs with no more than two treatment providers = 1
Maintains at Least 4:1 Incentive to Sanction Ratio	Programs that do not maintain at least a 4:1 incentive to sanction ratio = 0 Programs that maintain at least a 4:1 incentive to sanction ratio = 1
Alcohol Tests Twice Weekly in Phase 1	Programs that do not test for alcohol twice weekly in Phase 1 = 0 Programs that test for alcohol twice weekly in Phase 1 = 1
Drug Tests Twice Weekly in Phase 1	Programs that do not test for drugs twice weekly in Phase 1 = 0 Programs that test for drugs twice weekly in Phase 1 = 1
Uses Remote Testing	Programs that do not use remote testing = 0

Program Variable	Description
	Programs that use remote testing = 1
Requires Four Months Sobriety to Complete	Programs that do not require four months of sobriety to complete = 0 Programs that require four months of sobriety to complete = 1
Court Location – Rural	Suburban or Urban programs = 0 Rural programs = 1

Table 34: Demographic Variables

Participant Factors	Explanation
Gender (compared to male)	Male = 0 Female = 1
Age Group (compared to < 21)	< 21 years old at entry = 0 21 – 30 years old at entry = 1 31 – 40 years old at entry = 2 41 – 50 years old at entry = 3 51 – 60 years old at entry = 4 > 60 years old at entry = 5
Race (compared to White)	White = 0 Black = 1 Other Non-White = 2
Drug of Choice Collapsed (compared to Opiates/Heroin)	Opiates/Heroin = 0 Alcohol = 1 Methamphetamine/Amphetamines = 2 Other = 3
Marital Status (compared to Non-Married)	Non-Married = 0 Married = 1
Employment at Entry (compared to unemployed)	Unemployed = 0 Employed = 1
Placement Offense Category (compared to Drug)	Drug = 0 Property = 1 Other = 2
Prior Convictions	No prior convictions = 0 Prior convictions = 1
Proxy Risk Category (compared to Medium Risk)	Medium Risk = 0 Low Risk = 1 High Risk = 2
Total Number of Treatment Hours (compared to < 100 hours)	< 100 hours = 0 100 – 200 hours = 1 > 200 hours = 2
Mental Health History	No mental health history = 0 Mental health history = 1
Number of Days in Court (Median Split)	< 420 days = 0 > 419 days = 1
Drug Tested Twice Per Week on Average	Not tested twice per week on average = 0 Tested twice per week on average =1
Substance Abuse Treatment Groups (compared to Non-Residential Only)	Non-Residential Only = 0 Residential Only = 1 Both Residential and Non-Residential = 2

Table 35: Chi-Square Analyses Assessing Which Program-Level Variables Are Related to Successful Program Completion

Program Variables	Completion					
	Non-Graduates		Graduates		Total	
Program Capacity > 40	**#**	**%**	**#**	**%**	**#**	**%**
X^2 (1, N=750) = 1.16, p = .283						
No	126	62.4%	76	37.6%	202	100.0%
Yes	318	58.0%	230	42.0%	548	100.0%
Program Maturity						
Significant: X^2 (1, N=750) = 5.04, p = .025						
No	117	66.4%	59	30.7%	176	100.0%
Yes	327	57.0%	247	43.2%	574	100.0%
Average Length of Stay < 12 Months						
X^2 (1, N=750) = 1.66, p = .198						
No	344	58.0%	249	42.0%	593	100.0%
Yes	100	63.7%	57	36.3%	157	100.0%
Average Phase 1 Length of Stay < 5 Months						
X^2 (1, N=750) = 0.02, p = .886						
No	291	59.4%	199	40.6%	490	100.0%
Yes	153	58.8%	107	41.2%	260	100.0%
Average Arrest to Tx < 90 Days						
Significant: X^2 (1, N=750) = 6.50, p = .011						
No	388	57.7%	285	42.3%	673	100.0%
Yes	56	72.7%	21	27.3%	77	100.0%
Require Weekly Court Attendance in Phase 1						
Significant: X^2 (1, N=750) = 10.91, p = .001						
No	347	56.4%	268	43.6%	615	100.0%
Yes	97	71.9%	38	28.1%	135	100.0%
Require Weekly Supervision Contact in Phase 1						
Significant: X^2 (1, N=750) = 23.46, p < .001						
No	163	49.4%	167	50.6%	330	100.0%
Yes	281	66.9%	139	33.1%	420	100.0%
Require Daily AA in Phase 1						
Significant: X^2 (1, N=750) = 5.47, p = .019						
No	184	64.6%	101	35.4%	285	100.0%
Yes	260	55.9%	205	44.1%	465	100.0%
Law Enforcement Attends Court						
Significant: X^2 (1, N=750) = 11.57, p = .001						
No	351	56.4%	271	43.6%	622	100.0%
Yes	93	72.7%	35	27.3%	128	100.0%
Prosecutor & Defense Attend Staffing						
Significant: X^2 (1, N=750) = 29.22, p < .001						
No	148	75.5%	48	24.5%	196	100.0%
Yes	296	53.4%	258	46.6%	554	100.0%
Prosecutor & Defense Attend Court						
X^2 (1, N=750) = 1.28, p = .258						
No	348	60.3%	229	39.7%	577	100.0%
Yes	96	55.5%	77	53.8%	173	100.0%
No More than Two Treatment Providers						
X^2 (1, N=750) = 2.46, p = .117						

Program Variables	Completion					
	Non-Graduates		Graduates		Total	
No	377	58.1%	272	37.3%	649	100.0%
Yes	67	66.3%	34	33.7%	101	100.0%
Maintains at Least 4:1 Incentive to Sanction Ratio N/A						
No	0	0.0%	0	0.0%	0	0.0%
Yes	444	59.2%	306	40.8%	750	100.0%
Alcohol Tests Twice Weekly in Phase 1 X^2 (1, N=420) = 0.74, p = .391						
No	166	47.9%	76	31.4%	242	100.0%
Yes	115	64.6%	63	35.4%	178	100.0%
Drug Tests Twice Weekly in Phase 1 *Significant*: X^2 (1, N=518) = 4.43, p = .03						
No	24	50.0%	24	50.0%	48	100.0%
Yes	307	65.3%	163	34.7%	470	100.0%
Uses Remote Testing *Significant*: X^2 (1, N=750) = 24.96, p < .001						
No	268	67.7%	128	32.3%	396	100.0%
Yes	176	49.7%	178	50.3%	354	100.0%
Requires Four Months Sobriety to Complete *Significant*: X^2 (1, N=750) = 4.41, p = .036						
No	58	69.9%	25	30.1%	83	100.0%
Yes	386	57.9%	281	42.2%	667	100.0%
Court Location – Rural X^2 (1, N=750) = 0.01, p = .916						
No	328	59.3%	225	40.7%	553	100.0%
Yes	116	58.9%	81	41.1%	197	100.0%

As a result of the above analysis, NCSC included all independent variables that had a significant chi-square into the regression model (although some were later excluded for collinearity). Program-level variables entered included:

- Program Maturity
- Average Arrest to Treatment < 90 Days
- Require Weekly Court Attendance in Phase 1
- Require Weekly Supervision Contact in Phase 1
- Require Daily AA in Phase 1
- Law Enforcement Attends Court
- Prosecutor & Defense Attend Staffing
- Drug Tests at Least Twice Weekly in Phase 1
- Uses Remote Testing
- Requires Four Month Sobriety to Complete Program

Table 36: Chi-Square Analyses Assessing Which Program-Level Variables Are Related to Two-Year Recidivism

Program Variables	Two-Year Recidivism					
	Participants Did Not Recidivate		Participants Recidivated		Total	
Program Capacity > 40 *Significant*: X^2 (1, N=516) = 15.16, p < .001	#	%	#	%	#	%
No	57	64.0%	32	36.0%	89	100.0%
Yes	352	82.4%	75	17.6%	427	100.0%
Program Maturity *Significant*: X^2 (1, N=516) =8.54, p = .003						
No	99	70.7%	41	29.3%	140	100.0%
Yes	310	82.4%	66	17.6%	376	100.0%
Average Length of Stay < 12 Months *Significant*: X^2 (1, N=516) = 5.23, p = .022						
No	393	80.2%	92	18.8%	490	100.0%
Yes	16	61.5%	10	38.5%	26	100.0%
Average Phase 1 Length of Stay < 5 Months X^2 (1, N=516) =1.13, p = .288						
No	317	78.3%	88	21.7%	405	100.0%
Yes	92	82.9%	19	17.1%	111	100.0%
Average Arrest to Tx < 90 Days *Significant*: X^2 (1, N=516) = 5.11, p = .024						
No	377	80.6%	91	19.4%	468	100.0%
Yes	32	66.7%	16	33.3%	48	100.0%
Require Weekly Court Attendance in Phase 1 X^2 (1, N=516) = 1.26, p = .262						
No	320	78.2%	89	21.8%	409	100.0%
Yes	89	83.2%	18	16.8%	107	100.0%
Require Weekly Supervision Contact in Phase 1 X^2 (1, N=516) = 2.86, p = .091						
No	221	82.2%	48	17.8%	269	100.0%
Yes	188	76.1%	59	23.9%	247	100.0%
Require Daily AA in Phase 1 *Significant*: X^2 (1, N=516) = 8.54, p = .003						
No	99	70.7%	41	29.3%	140	100.0%
Yes	310	82.4%	66	17.6%	376	100.0%
Law Enforcement Attends Court X^2 (1, N=516) = 1.84, p = .175						
No	337	80.4%	82	19.6%	419	100.0%
Yes	72	74.2%	25	25.8%	97	100.0%
Prosecutor & Defense Attend Staffing X^2 (1, N=516) = 0.29, p = .589						
No	119	77.8%	34	22.2%	153	100.0%
Yes	290	79.9%	73	20.1%	363	100.0%
Prosecutor & Defense Attend Court						

Program Variables	Two-Year Recidivism					
	Participants Did Not Recidivate		Participants Recidivated		Total	
Significant: X^2 (1, N=516) = 6.59, p = .010						
No	380	80.7%	91	19.3%	471	100.0%
Yes	29	64.4%	16	35.6%	45	100.0%
No More than Two Treatment Providers *Significant*: X^2 (1, N=516) = 15.16, p < .001						
No	352	82.4%	75	17.6%	427	100.0%
Yes	57	64.0%	32	36.0%	89	100.0%
Maintains at Least 4:1 Incentive to Sanction Ratio N/A						
No	0	0.0%	0	0.0%	0	0.0%
Yes	409	79.3%	107	20.7%	516	100.0%
Alcohol Tests Twice Weekly in Phase 1 X^2 (1, N=247) = 2.92, p = .087						
No	156	78.4%	43	21.6%	199	100.0%
Yes	32	66.7%	16	33.3%	48	100.0%
Drug Tests Twice Weekly in Phase 1 *Significant*: X^2 (1, N=334) = 7.15, p = .007						
No	27	62.8%	16	37.2%	43	100.0%
Yes	235	80.8%	56	19.2%	291	100.0%
Uses Remote Testing X^2 (1, N=516) = 3.18, p = .075						
No	186	75.9%	59	24.1%	245	100.0%
Yes	223	82.3%	48	17.7%	271	100.0%
Requires Four Months Sobriety to Complete X^2 (1, N=516) = 0.33, p = .566						
No	42	82.4%	9	17.6%	51	100.0%
Yes	367	78.9%	98	21.1%	465	100.0%
Court Location – Rural v. Non-Rural *Significant*: X^2 (1, N=516) = 13.91, p < .001						
No	366	81.9%	81	18.1%	447	100.0%
Yes	43	62.3%	26	37.7%	69	100.0%

As a result of the above analysis, NCSC included all independent variables that had a significant chi-square into the regression model (although some were later excluded for collinearity). Program-level variables entered included:

- Program Capacity
- Program Maturity
- Average Length of Stay < 12 Months
- Average Arrest to Treatment < 90 Days
- Require Daily AA in Phase 1
- Prosecutor & Defense Attend Court
- Court has No More than Two Treatment Providers
- Drug Tests at Least Twice Weekly in Phase 1
- Court Location Type – Rural

Table 37: Chi-Square Analyses Assessing Which Program-Level Variables Are Related to Four-Year Recidivism

Program Variables	Four-Year Recidivism					
	Participants Did Not Recidivate		Participants Recidivated		Total	
Program Capacity > 40 *Significant*: X^2 (1, N=165) = 4.08, p = .043						
No	12	46.2%	14	53.8%	26	100.0%
Yes	93	66.9%	46	33.1%	139	100.0%
Program Maturity X^2 (1, N=165) = 2.39, p = .123						
No	16	51.6%	15	48.4%	31	100.0%
Yes	89	66.4%	45	33.6%	134	100.0%
Average Length of Stay < 12 Months X^2 (1, N=165) = 0.58, p = .448						
No	104	63.4%	60	36.6%	164	100.0%
Yes	1	100.0%	0	0.0%	1	100.0%
Average Phase 1 Length of Stay < 5 Months X^2 (1, N=165) = 1.19, p = .276						
No	76	61.3%	48	38.7%	124	100.0%
Yes	29	70.7%	12	29.3%	41	100.0%
Average Arrest to Tx < 90 Days X^2 (1, N=165) = 0.07, p = .798						
No	95	63.3%	55	36.7%	150	100.0%
Yes	10	66.7%	5	33.3%	15	100.0%
Require Weekly Court Attendance in Phase 1 X^2 (1, N=165) = 0.54, p = .464						
No	75	62.0%	46	38.0%	121	100.0%
Yes	30	68.2%	14	31.8%	44	100.0%
Require Weekly Supervision Contact in Phase 1 X^2 (1, N=165) = 0.32, p = .575						
No	59	65.6%	31	34.4%	90	100.0%
Yes	46	61.3%	29	38.7%	75	100.0%
Require Daily AA in Phase 1 X^2 (1, N=165) = 2.39, p = .123						
No	16	51.6%	15	48.4%	31	100.0%
Yes	89	66.4%	45	33.6%	134	100.0%
Law Enforcement Attends Court X^2 (1, N=165) = 0.21, p = .645						
No	92	63.0%	54	37.0%	146	100.0%
Yes	13	68.4%	6	31.6%	19	100.0%
Prosecutor & Defense Attend Staffing X^2 (1, N=165) = 0.50, p = .478						
No	39	67.2%	19	32.8%	58	100.0%
Yes	66	61.7%	41	38.3%	107	100.0%
Prosecutor & Defense Attend Court *Significant*: X^2 (1, N=165) = 6.59, p = .010						
No	101	66.4%	51	33.6%	152	100.0%
Yes	4	30.8%	9	69.2%	13	100.0%

Program Variables	Four-Year Recidivism					
	Participants Did Not Recidivate		Participants Recidivated		Total	
No More than Two Treatment Providers *Significant*: X^2 (1, N=165) = 4.08, p = .043						
No	93	66.9%	46	33.1%	139	100.0%
Yes	12	46.2%	14	53.8%	26	100.0%
Maintains at Least 4:1 Incentive to Sanction Ratio N/A						
No	0	0.0%	0	0.0%	0	0.0%
Yes	105	63.6%	60	36.4%	165	100.0%
Alcohol Tests Twice Weekly in Phase 1 X^2 (1, N=75) =0.23, p = .635						
No	36	60.0%	24	40.0%	60	100.0%
Yes	10	66.7%	5	33.3%	15	100.0%
Drug Tests Twice Weekly in Phase 1 *Significant*: X^2 (1, N=101) = 9.20, p = .002						
No	3	25.0%	9	75.0%	12	100.0%
Yes	62	69.7%	27	30.3%	89	100.0%
Uses Remote Testing X^2 (1, N=165) = 0.46, p = .496						
No	45	60.8%	29	39.2%	74	100.0%
Yes	60	65.9%	31	34.1%	91	100.0%
Requires Four Months Sobriety to Complete X^2 (1, N=165) = 0.60, p = .440						
No	4	80.0%	1	20.0%	5	100.0%
Yes	101	63.1%	59	36.9%	160	100.0%
Court Location – Rural v. Non-Rural *Significant*: X^2 (1, N=165) = 6.59, p = .010						
No	101	66.4%	51	33.6%	152	100.0%
Yes	4	30.8%	9	69.2%	13	100.0%

As a result of the above analysis, NCSC included all independent variables that had a significant chi-square into the regression model (although some were later excluded for collinearity). Program-level variables entered included:

- Program Capacity
- Prosecutor & Defense Attend Court
- Court has No More than Two Treatment Providers
- Drug Tests at Least Twice Weekly in Phase 1
- Court Location Type – Rural

Table 38: Full Regression Model Predicting Successful Program Completion

Variables	B	S.E.	Odds Ratio
Program Variables			
Program Maturity (10+ Years)*	**-2.207**	**1.007**	**89.0%**
Require Weekly Contact with Supervision – Phase 1	-.337	1.382	-
Require Daily AA Meetings in Phase 1	-1.030	.766	-
Law Enforcement Attends Court***	**-3.416**	**1.075**	**96.7%**
Uses Remote Testing	.394	1.077	-
Requires Four Months Sobriety to Complete*	**-2.258**	**1.027**	**89.5%**
Individual Variables			
Gender (compared to male)	-.276	.411	-
Age Group (compared to < 21)			
21 – 30	-.260	.692	-
31 – 40	-1.124	.803	-
41 – 50	-.745	.853	-
51 – 60	.091	1.129	-
Race (compared to White)			
Black***	**-1.775**	**.546**	**83.0%**
Other Non-White	-.336	.900	-
Drug of Choice (compared to Opioids/Heroin)			
Alcohol	-.701	.924	-
Methamphetamines/Amphetamines	.570	.580	-
Others	.196	.483	-
Marital Status (compared to Non-Married)	.117	.545	-
Employment at Entry (compared to Unemployed)†	-.721	.387	-
Placement Offense Category (compared to Drug)			
DUI/Alcohol†	2.503	1.432	-
Property	.083	.459	-
Other	.261	.636	-
Prior Convictions (No v. Yes)	-.663	.656	-
Participant Proxy Risk Category (compared to Medium Risk)			
Low Risk	.589	.419	-
High Risk**	**-1.568**	**.536**	**79.2%**
Prior Substance Abuse Treatment (No v. Yes)	.517	.384	-
Total Number of Treatment Hours (compared to < 100)			
100 – 200 hours	.030	.614	-
> 200 hours†	-1.312	.673	-
Mental Health History (No v. Yes)	-.073	.399	-
Number of Days in Court (compared to < 420 days)***	**5.565**	**.650**	**26,011.5%**
Drug Tested Twice Per Week on Average*	**1.036**	**.499**	**181.7%**
Substance Abuse Treatment (compared to Non-Residential Only)			
Residential Only	-1.386	1.155	-
Both Residential and Non-Residential	-.209	.737	-
Constant	1.612	2.105	5.014

***Significant $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$

Table 39: Full Regression Model Predicting Successful Program Completion – Includes Number of Days in Court as Continuous Factor

Variables	B	S.E.	Odds Ratio
Program Variables			
Program Maturity (10+ Years)	-.824	.739	-
Require Weekly Contact with Supervision – Phase 1	.412	1.335	-
Require Daily AA Meetings in Phase 1†	-1.219	.686	-
Law Enforcement Attends Court*	**-2.082**	**.842**	**87.5%**
Uses Remote Testing	.949	1.053	-
Requires Four Months Sobriety to Complete	-.685	.939	-
Individual Variables			
Gender (compared to male)	-.290	.372	-
Age Group (compared to < 21)			
21 – 30	-.291	.620	-
31 – 40	-.634	.703	-
41 – 50	-.050	.779	-
51 – 60	.292	.898	-
Race (compared to White)			
Black***	**-1.842**	**.519**	**84.1%**
Other Non-White	.075	.803	-
Drug of Choice (compared to Opioids/Heroin)			
Alcohol	.284	.795	-
Methamphetamines/Amphetamines†	.888	.498	-
Others	.267	.430	-
Marital Status (compared to Non-Married)	.765	.518	-
Employment at Entry (compared Unemployed)†	-.700	.372	-
Placement Offense Category (compared to Drug)			
DUI/Alcohol†	1.438	1.167	-
Property	-.359	.416	-
Other	-.185	.573	-
Prior Convictions (No v. Yes)†	-.876	.528	-
Participant Proxy Risk Category (compared to Medium Risk)			
Low Risk	.560	.360	-
High Risk**	**-1.329**	**.493**	**73.5%**
Prior Substance Abuse Treatment (No v. Yes)	.299	.342	-
Total Number of Treatment Hours (compared to < 100)			
100 – 200 hours	.191	.538	-
> 200 hours*	**-1.275**	**.635**	**72.0%**
Mental Health History (No v. Yes)	.106	.353	-
Number of Days in Court***	**.010**	**.001**	**10.0%**
Drug Tested Twice Per Week on Average†	.704	.417	-
Substance Abuse Treatment (compared to Non-Residential Only)			
Residential Only	-1.121	1.093	-
Both Residential and Non-Residential	-.568	.667	-
Constant	-1.883	1.914	.152

***Significant $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$

Table 40: Full Regression Model Predicting Two-Year Recidivism

Variables	B	S.E.	Odds Ratio
Program Variables			
Average Length of Stay < 12 Months	1.029	1.009	-
Number of Treatment Providers†	-.770	.401	-
Number of Treatment Providers (polynomial)†	.036	.021	-
Court Location Type – Rural	-.809	.978	-
Individual Variables			
Gender (compared to male)	.286	.442	-
Age Group (compared to 21 – 30)			
31 – 40†	-.909	.532	-
41 – 50†	-1.290	.676	-
51 – 60†	-1.389	.836	-
Race (compared to White)	.307	.512	-
Drug of Choice (compared to Opioids/Heroin)			
Alcohol	-.114	.867	-
Methamphetamines/Amphetamines	-.736	.591	-
Others	-.522	.476	-
Marital Status (compared to Non-Married)	-.152	.830	-
Employment at Entry (compared to Unemployed)**	**-1.701**	**.725**	**82%**
Placement Offense Category (compared to Drug)			
Property	.076	.451	-
Other	-.329	.622	-
Prior Convictions (No v. Yes)	-.068	.586	-
Participant Proxy Risk Category (compared to Medium Risk)			
Low Risk	-.031	.476	-
High Risk	-.486	.456	-
Prior Substance Abuse Treatment (No v. Yes)	-.423	.417	-
Total Number of Treatment Hours (compared to < 100)			
100 – 200 hours	-.975	.719	-
> 200 hours	-.354	.813	-
Mental Health History (No v. Yes)	-.128	.403	-
Number of Days in Court (compared to < 420 days)*	**-1.180**	**.514**	**69%**
Discharge Status (compared to Non-Graduate)	-.925	.577	-
Drug Tested Twice Per Week on Average†	-.853	.439	-
Substance Abuse Treatment (compared to Non-Residential Only)			
Residential Only	.571	.899	-
Both Residential and Non-Residential	-.358	.828	-
Constant	4.372	1.653	79.185

**Significant $p < .01$, * $p < .05$, † $p < .10$

Table 41: Full Regression Model Predicting Two-Year Recidivism – Includes Overtreatment

Variables	B	S.E.	Odds Ratio
Program Variables			
Program Maturity (10+ Years)	.230	1.636	-
Average Length of Stay < 12 Months	-.302	1.648	-
Court Location Type – Rural	2.872	2.017	-
Individual Variables			
Gender (compared to male)	-.558	.933	-
Age Group (compared to 21 – 30)			
31 – 40	-1.216	.867	-
41 – 50	-.340	1.214	-
51 – 60	-.472	1.844	-
Race (compared to White)	1.736	1.210	-
Drug of Choice (compared to Opioids/Heroin)			
Alcohol	-.672	1.835	-
Methamphetamines/Amphetamines	1.054	1.625	-
Others	-1.639	1.388	-
Marital Status (compared to Non-Married)	-1.296	1.852	-
Employment at Entry (compared Unemployed)	-1.967	1.441	-
Prior Convictions (No v. Yes)	-.816	1.268	-
Participant Proxy Risk Category (compared to Medium Risk)			
Low Risk	-.273	1.077	-
High Risk	.073	.812	-
Prior Substance Abuse Treatment (No v. Yes)*	**-1.878**	**.912**	**85%**
Total Number of Treatment Hours (compared to < 100)			
100 – 200 hours	-5.754	6.924	-
> 200 hours	-5.398	6.935	-
Mental Health History (No v. Yes)	-.149	.887	-
Number of Days in Court (compared to < 420 days)*	**-1.604**	**.808**	**80%**
Drug Tested Twice Per Week on Average†	-1.513	.864	-
Overtreated (No v. Yes)*	**-3.990**	**1.658**	**98%**
Constant	8.269	7.569	-

***Significant $p < .05$, † $p < .10$

*Note: Due to collinearity and a limited data sample, some individual-level variables were excluded from the model.

Table 42: Full Regression Model Predicting Four-Year Recidivism

Variables	B	S.E.	Odds Ratio
Program Variables			
Program Capacity > 40	-.324	1.243	.723
Prosecutors & Defense Attend Court	.489	1.172	1.630
Number of Tx Providers	-.130	.162	.878
Individual Variables			
Gender (compared to male)	.234	.641	1.264
Age Group: (compared to 21 – 30)			
31 – 40	-1.075	.913	.341
41 – 50†	-2.132	1.098	.119
51 – 60†	-1.938	1.135	.144
Race (compared to White)			
Black†	1.488	.885	4.429
Other Non-White	.965	1.174	2.624
Drug of Choice (compared to Opioids/Heroin)			
Alcohol	1.771	1.144	5.876
Methamphetamines/Amphetamines	-.817	.804	.442
Others	.052	.713	1.053
Marital Status (compared to Non-Married)	-.629	.974	.533
Employment at Exit (compared Unemployed)	-.194	.679	.823
Placement Offense Category (compared to Drug)			
Property	-1.274	.899	.280
Other†	-1.648	.900	.192
Prior Convictions (No v. Yes)	-1.695	1.097	.184
Participant Proxy Risk Category (compared to Medium Risk)			
Low Risk	.240	.660	1.271
High Risk	.049	.726	1.050
Prior Substance Abuse Treatment (No v. Yes)	.890	.641	2.435
Total Number of Treatment Hours (compared to < 100)			
100 – 200 hours	-.306	.984	.736
> 200 hours	-1.510	1.073	.221
Mental Health History (No v. Yes)	-.413	.567	.662
Number of Days in Court (compared to < 420 days)	-.901	.806	.406
Discharge Status (compared to Non-Graduate)	-.406	.805	.666
Drug Tested Twice Per Week on Average†	-.305	.689	.737
Substance Abuse Treatment (compared to Non-Residential Only)			
Residential Only	1.568	1.697	4.798
Both Residential and Non-Residential	-.310	1.163	.733
Constant	4.057	2.099	57.807

† Significant $p < .10$

Technical Appendix: Proxy Risk Scoring

The cut-off points for each item are described in detail below.

Current age (at the time of probation/drug court placement): A value of 0, 1 or 2 was assigned based on the participant's age at placement, relative to the remainder of the population. A score of 2 was assigned to the youngest third of the population (anyone under 28.4 years of age at the time of probation placement), a 1 was assigned to the middle third of the population (anyone between the ages of 28.4 and 38.8 years of age), and a 0 was assigned to oldest third of the population (anyone over the age of 38.8).

Age at first adult arrest: A value of 3, 2 or 1 was assigned based on the participant's age at first arrest, relative to the remainder of the population. A score of 3 was assigned to the third of the population arrested at the youngest age (anyone first arrested before the age of 19.7), a 2 was assigned to the middle third of the population (anyone first arrested between the ages of 19.7 and 26 years of age), and a 1 was assigned to oldest third of the population (anyone first arrested after the age of 26).

Number of Prior Adult Arrests: A value of 3, 2 or 1 was assigned based on the number of times a participant had been arrested as an adult. A score of 3 was assigned to the third of the population with the highest number of prior offenses (more than 5 prior arrests), a 2 was assigned to the middle third of the population (anyone with 3-5 prior arrests) and a 1 was assigned to the third of the population with fewer than 3 prior adult arrests.

Table 43 shows the distribution of proxy risk across the drug court sample and the recidivism rate (as measured by a new conviction within two and four years of program placement) associated with each proxy risk score for all participants who had a proxy risk score. Recidivism levels are displayed in *Table 43* for only those participants who entered the program at an early enough date to have the opportunity to reoffend. Participants with proxy risk scores between 2 and 5 were considered low risk (26.9 percent of the sample) and had two-year recidivism rates of 16.3 percent and four-year recidivism rates of 28.6 percent. Participants with proxy risk scores of 6 or 7 were considered medium risk (44.0 percent of the sample) and had two-year recidivism rates of 19.2 percent and four-year recidivism rates of 35.1 percent. Participants with a proxy risk score of 8 were considered high risk (22.1 percent of the sample) and had two-year recidivism rates of 32.7 percent and four-year recidivism rates of 55.9 percent. A proxy risk score was not computed for approximately seven percent of drug court participants due to missing data.

Table 43: Proxy Risk Scores and Recidivism Rates of the Drug Court Sample

Proxy Score	N	Distribution of Sample	Two-Year Recidivism Rate	Four-Year Recidivism Rate	Risk Level
2	9	1.5%	0.0%	0.0%	Low
3	32	5.3%	10.3%	33.3%	Low
4	51	8.4%	12.2%	8.3%	Low
5	71	11.7%	24.2%	44.4%	Low
6	126	20.8%	16.4%	37.8%	Medium
7	140	23.1%	21.9%	32.5%	Medium
8	134	22.1%	32.7%	55.9%	High
Unknown	42	6.9%	10.5%	16.7%	Unknown

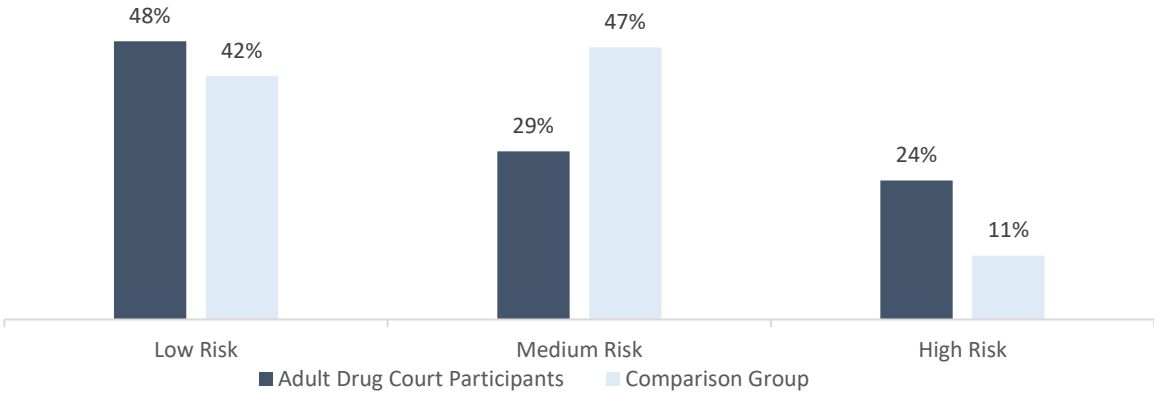
Table 44 shows the distribution of proxy risk across the BAU comparison group sample and the recidivism rate (as measured by a new conviction within two and four years of program placement) associated with each proxy risk score for all participants who had a proxy risk score. Recidivism levels are displayed in *Table 44* for only those participants who entered the program at an early enough date to have the opportunity to reoffend. Comparison group participants with proxy risk scores between 2 and 5 were considered low risk (42.0 percent of the sample) and had two-year recidivism rates of 23.8 percent and four-year recidivism rates of 23.1 percent. Comparison group probationers with proxy risk scores of 6 or 7 were considered medium risk (38.3 percent of the sample) and had two-year recidivism rates of 34.5 percent and four-year recidivism rates of 49.1 percent. Comparison group probationers with a proxy risk score of 8 were considered high risk (10.7 percent of the sample) and had two-year recidivism rates of 37.7 percent and four-year recidivism rates of 65.2 percent. A proxy risk score was not computed for approximately nine percent of BAU comparisons due to missing data.

Table 44: Proxy Risk Scores and Recidivism Rates of the BAU Comparison Group Sample

Proxy Score	N	Distribution of Sample	Two-Year Recidivism Rate	Four-Year Recidivism Rate	Risk Level
2	24	4.0%	25.0%	0.0%	Low
3	45	7.4%	14.6%	15.4%	Low
4	75	12.4%	24.3%	30.0%	Low
5	110	18.2%	27.2%	26.9%	Low
6	132	21.8%	33.9%	50.0%	Medium
7	100	16.5%	35.4%	47.8%	Medium
8	65	10.7%	37.7%	65.2%	High
Unknown	54	8.9%	10.9%	35.0%	Unknown

As shown in *Figure 16* below, significantly more drug court participants were lower risk than their BAU comparisons. In general, drug court participants are less likely to reoffend within two years compared to their comparisons; low-risk participants and comparisons are less likely to reoffend within two years compared to medium-risk participants and comparisons; and high-risk participants and comparisons are more likely to reoffend within two years of entry compared to medium-risk participants and comparisons, as expected (see *Table 45*). When we adjust for the differences in risk levels between the drug court participants and the comparison group, the pattern is consistent at a level approaching significance.

Figure 16: Proxy Risk Comparison Two-Year Recidivism Sample



**** Significantly more drug court participants were low risk and more comparison people were medium risk compared to their counterparts (p < .001).*

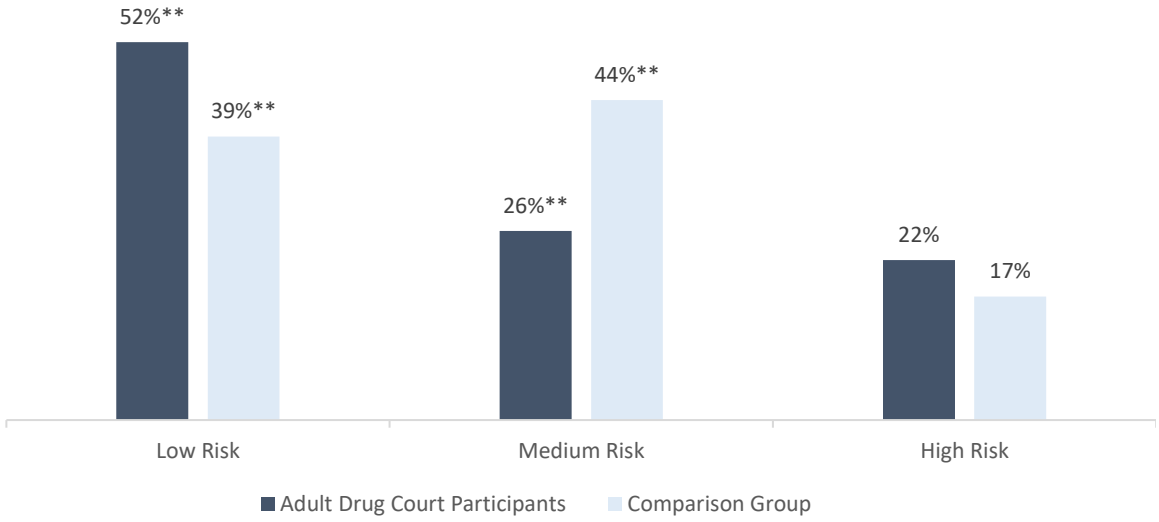
Table 45: Participant Type and Proxy Risk Predicting Two-Year Recidivism

Variables	B	S.E.	Odds Ratio
BAU (compared to Participant)***	**.547**	**.162**	**72.8%**
Proxy Risk Category: Medium Risk			
Proxy Risk Category: Low Risk (compared to Medium)*	**-.405**	**.181**	**33.3%**
Proxy Risk Category: High Risk (compared to Medium)*	**.430**	**.208**	**53.7%**
Constant	-1.300	.144	.273

***Significant $p < .001$, * $p < .05$

As shown in *Figure 17*, significantly more drug court participants were lower risk than their BAU comparisons. In general, drug court participants are not significantly more likely to reoffend within four years compared to comparisons. Moreover, low-risk participants and comparisons are less likely to reoffend within four years compared to medium-risk participants and comparisons; and high-risk participants and comparisons are more likely to reoffend within four years of entry compared to medium-risk participants and comparisons, as expected (see *Table 46*). When we adjust for the differences in risk levels between the drug court participants and the comparison group, the pattern is consistent.

Figure 17: Proxy Risk Comparison Four-Year Recidivism Sample



*** Significantly more drug court participants were low risk and more comparison people were medium risk compared to their counterparts (p < .01).*

Table 46: Participant Type and Proxy Risk Predicting Four-Year Recidivism

Variables	B	S.E.	Odds Ratio
BAU (compared to Participant)	.128	.262	-
Proxy Risk Category: Medium Risk			
Proxy Risk Category: Low Risk (compared to Medium)*	**-.658**	**.303**	**48.2**
Proxy Risk Category: High Risk (compared to Medium)*	**.741**	**.335**	**110.0%**
Constant	-.454	.217	.635

*Significant p < .05

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