

**Boone County Adult Treatment Court
Columbia, Missouri
*4-Track Model Program and Cost
Evaluation Report***

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**Office of State Courts
Administrator**
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BACKGROUND

Drug courts are designed to guide offenders identified as having a substance use disorder into treatment that will support recovery and improve the quality of life for the offenders and their families. Benefits to society include substantial reductions in crime and decreased drug use, resulting in reduced costs to taxpayers and increased public safety.

In the typical drug court program, participants are closely supervised by a judge who is supported by a team of agency representatives operating outside of their traditional roles. The team typically includes a treatment court administrator, case managers, substance use treatment providers, prosecuting attorneys, defense attorneys, law enforcement officers, and parole and probation officers who work together to provide needed services to drug court participants. Prosecuting and defense attorneys modify their traditional adversarial roles to support the treatment and supervision needs of program participants. Drug court programs blend the resources, expertise and interests of a variety of jurisdictions and agencies.

Drug courts have been shown to be effective in reducing criminal recidivism (GAO, 2005), improving the psycho-social functioning of offenders (Kralstein, 2010), and reducing taxpayer costs due to positive outcomes for drug court participants (including fewer re-arrests, less time in jail and less time in prison) (Carey & Finigan, 2004; Carey, Finigan, Waller, Lucas, & Crumpton, 2005). Some drug courts have been shown to cost less to operate than processing offenders through business-as-usual in the court system (Carey & Finigan, 2004; Carey et al., 2005).

More recently, research has focused not just on *whether* drug courts work but *how* they work, and *who* they work best for. Research based best practices have been developed (e.g., Volume I of NADCP's Best Practice Standards was published in 2013 and Volume II in July 2015). These Best Practice Standards present multiple research-based practices that have been associated with significant reductions in recidivism or significant increases in cost savings or both. The Standards also describe the research that illustrates for whom the traditional drug court model works best, specifically, high-risk/high-need individuals. The Standards recommends that drug court programs either limit their population to high-risk/high-need individuals, or develop different tracks for participants at different risk and need levels (i.e., follow a risk-need responsivity model). That is, drug courts should assess individuals at intake to determine the appropriate services and supervision level based on their assessment results (e.g., Andrews, Bonta, & Wormith, 2006; Lowenkamp & Latessa, 2005). In addition, the populations of participants at different risk and need levels should not mix as the research further shows that mixing leads to worse outcomes. Specifically, mixing low-risk individuals with high-risk individuals generally results in the low-risk becoming high-risk, and providing high intensity treatment for individuals with low needs not only wastes resources, but can result in these low-need individuals becoming high-need or otherwise creating unnecessary challenges in their lives. This research has led to the development of more sophisticated drug court programs, including programs that have implemented multiple tracks for their participants based on the four "quadrants" of risk and need (high-risk/high-need, high-risk/low-need, low-risk/high-need, and low-risk/low-need). The first known programs to implement all four tracks, or quadrants, were the drug courts in Greene County and the City of St. Louis, Missouri, followed shortly after by Jackson County, where the judicial officers/commissioners and coordinators worked

with their teams and with community organizations to develop appropriate supervision, treatment and other complementary services for participants at each risk and need level.

In October 2014, the Office of State Courts Administrator (OSCA) in Missouri, in partnership with NPC Research, received a grant from the Bureau of Justice Assistance, to perform process, outcome and cost evaluations of two drug courts operating in Missouri that are using the 4-track model and to assist in the expansion of this model into four additional Missouri drug courts. The Missouri Drug Courts Coordinating Commission (DCCC) was interested in the costs associated with implementing this model and subsequently contracted with NPC to evaluate the costs and potential benefits in two of the expansion sites, Boone and Osage-Gasconade counties.

All programs are using a specialized screening tool, the Risk and Needs Triage (RANT[®]), a scientifically validated screening tool developed by the Treatment Research Institute (TRI), to place offenders in one of the four risk-need “quadrants” (See Table 1). The programs have separate treatment and supervision requirements according to participants’ risk and need levels. The 4-track model implemented in these sites is an effort to tailor the treatment court programs to the risk and needs of participants in each quadrant with the expectation that this will improve effectiveness and be more cost and resource efficient. The evaluation in these four sites is intended to determine whether this expectation is accurate. That is, the study across these four sites (Greene, Jackson, Boone and Osage-Gasconade counties) is designed to answer the question, does implementing separate tracks based on participant risk and need in treatment courts actually result in more efficient use of program resources and in improved participant outcomes?

Table 1. The Risk and Need Quadrants

	High-Risk (HR)	Low-Risk (LR)
High-Need (HN)	Quadrant 1 (Q1) high-risk/high-need	Quadrant 2 (Q2) low-risk/high-need
Low-Need (LN)	Quadrant 3 (Q3) high-risk/low-need	Quadrant 4 (Q4) low-risk/low-need

This report contains the study results specifically for the Boone County 4-track treatment court. A summary of the study results across all four study sites is available at www.npcresearch.com under “Reports and Publications.” This report includes the specific evaluation methods used in Boone County, a brief description of the Boone County 4-track treatment court program, and the short-term outcome and program cost results for the Boone County Adult Treatment Court.

Evaluation Design and Methods¹

OSCA encouraged the implementation of the four tracks in the expansion sites as an approach to enhance the operational effectiveness of Missouri’s adult treatment court programs to improve the quality of court supervision and treatment services on treatment court participants. The main purpose

¹ Statistical analysis methods are included as Appendix A.

of the study in the Boone County treatment court was to determine if the implementation of the 4-track model resulted in a more efficient use of program resources. Therefore, the study design focused on a cost analysis and cost comparison of how the program operated pre- and post-implementation of the 4-track model.

Specifically, the evaluation was designed to address the following study questions:

1. Did the program operate differently before and after the implementation of the 4-track model?
 - a) Did the program requirements and provision of services change from pre-implementation to post-implementation?
 - b) Did the program provide services differently in the different quadrants?
2. Did graduation rates differ before and after 4-track implementation?
3. What were the costs of program participation before and after implementing the 4-track model?
4. Were there any cost efficiencies due to the implementation of the 4-track model? That is, did the program cost per participant decrease after 4-track implementation?

NPC selected a sample of participants pre-4-track implementation and a sample post-4-track implementation and tracked the participants in both groups in administrative datasets to determine the program requirements and services received. NPC performed interviews with treatment court team members at two time points, once pre-implementation and once post-implementation, to learn about how each team member spent their treatment court related time including treatment court activities and time spent on each activity.

The cost approach used by NPC Research is called Transactional and Institutional Cost Analysis (TICA). The TICA approach views an individual's interaction with publicly funded agencies as a set of transactions in which the individual utilizes resources contributed from multiple agencies. Transactions are those points within a system where resources are consumed and/or change hands. In the case of drug courts, when a drug court participant appears in court or has a drug test, resources such as judge time, defense attorney time, court facilities, and urine cups are used. Court appearances and drug tests are transactions. In addition, the TICA approach recognizes that these transactions take place within multiple organizations and institutions that work together to create the program of interest. These organizations and institutions contribute to the cost of each transaction that occurs for program participants. TICA is an intuitively appropriate approach to conducting costs assessment in an environment such as a drug court, which involves complex interactions among multiple taxpayer-funded organizations.

In order to maximize the study's benefit to policymakers, a "cost-to-taxpayer" approach was used for this evaluation. This focus helps define which cost data should be collected (costs and avoided costs involving public funds) and which cost data should be omitted from the analyses (e.g., costs to the individual participating in the program).

The central core of the cost-to-taxpayer approach in calculating benefits (avoided costs) for drug courts specifically is the fact that untreated substance use disorders will cost tax dollar-funded systems money

that could be avoided or diminished if substance use disorders were treated. In this approach, any cost that is the result of untreated substance use disorder and that directly impacts a citizen (through tax-related expenditures) is used in calculating the benefits of substance use treatment.

Finally, NPC's cost approach looks at publicly funded costs as "opportunity resources." The concept of opportunity cost from the economic literature suggests that system resources are available to be used in other contexts if they are not spent on a particular transaction. The term opportunity resource describes these resources that are now available for different use. For example, if substance use treatment reduces the number of times that a client is subsequently incarcerated, the local sheriff may see no change in his or her budget, but an opportunity resource will be available to the sheriff in the form of a jail bed that can now be filled by another person, who, perhaps, possesses a more serious criminal justice record than does the individual who has received treatment and successfully avoided subsequent incarceration. Therefore, any "cost savings" reported in this evaluation may not be in the form of actual monetary amounts, but may be available in the form of a resource (such as a jail bed, or a police officer's time) that is available for other uses.

The cost evaluation involved calculating the costs of the program at two time points, before and after 4-track implementation. To determine if there were any benefits (or avoided costs) due to program participation, costs pre- and post-implementation were compared.

SAMPLE/COHORT SELECTION

Between January 2009 and June 2017, a total of 609 individuals participated in the Boone County Adult Treatment Court (BCATC). In 2012, the BCATC began administering the RANT tool to all participants, and in 2015 the court implemented the 4-track model (fully operational in October 2015). Coinciding with the new 4-track model in 2015, a new judge began presiding over the BCATC. Between January 2012 and December 2014, the BCATC served 210 individuals with complete RANT information, and thus form the basis of the pre-4-track implementation sample. The post-4-track implementation sample was the population of individuals who entered the program from May 2015 to June 2017 ($n = 111$). This study uses an intent-to-treat design so all participants who entered the program, regardless of exit status, are included in the analysis.

Analyses were conducted to assess whether there were any differences between the pre-4-track implementation group with and without a RANT (i.e., individuals entering between January 2009 and 2012 had no RANT and individuals entering between 2012 and 2014 had a RANT). The results of these analyses showed that after the introduction of the RANT into BCATC's eligibility screening process, the demographics and background characteristics of participants differed in a number of areas. Although there were no differences between the two pre-4-track participant groups based on gender, age, marital status, or education; the pre-4-track group with RANT information had significantly more people of color, more people in unstable housing situations (e.g., temporarily staying with friends/family), fewer people with full time employment, and a higher number of prior person, property, drug, and felony arrests. In summary, the implementation of the RANT may have led to program staff more accurately identifying individuals with higher risks and higher social service needs than previous cohorts.

DATA COLLECTION AND SOURCES

Administrative Data

The data necessary for the evaluation were gathered from administrative databases as described in Table 2. The table lists the type of data needed and the source of these data.

Table 2. Boone County Treatment Court Data and Sources

Data	Source
<p><i>Treatment Court Program Data</i> <i>Examples:</i></p> <ul style="list-style-type: none"> • Participant demographics • Program start and end dates • Phase dates • Exit Status 	Judicial Information System (JIS)
<p><i>Traditional Court Data</i></p> <ul style="list-style-type: none"> • Dates of case filings • Charges • Convictions 	Judicial Information System (JIS)
<p><i>Incarceration Data</i></p> <ul style="list-style-type: none"> • Jail entry and exit dates 	Boone County Sheriff's Department/ Boone County Jail
<p><i>Drug Testing</i></p> <ul style="list-style-type: none"> • Dates of drug tests • Results of drug tests 	Redwood Toxicology Laboratory and JIS
<p><i>Treatment</i></p> <ul style="list-style-type: none"> • Entry and exit dates of treatment received • Treatment modality • Units of service 	McCambridge aka Compass Healthcare (women's tx) Reality House

Cost Data

The TICA methodology is based upon six distinct steps. Table 3 lists each of these steps and the tasks involved.

Table 3. The Six Steps of TICA

	Description	Tasks
Step 1:	Determine flow/process (i.e., how program participants move through the system).	Site visits/direct observations of program practice. Interviews with key informants (agency and program staff) using a drug court typology and cost guide.
Step 2:	Identify the transactions that occur within this flow (i.e., where clients interact with the system).	Analysis of process information gained in Step 1.
Step 3:	Identify the agencies involved in each transaction (e.g., court, treatment, police).	Analysis of process information gained in Step 1. Direct observation of program transactions.
Step 4:	Determine the resources used by each agency for each transaction (e.g., amount of judge time per transaction, amount of attorney time per transaction, number of transactions).	Interviews with key program informants using program typology and cost guide. Direct observation of program transactions. Administrative data collection of number of transactions (e.g., number of treatment sessions, number of drug tests).
Step 5:	Determine the cost of the resources used by each agency for each transaction.	Interviews with budget and finance officers. Review of websites, agency budgets and other financial paperwork.
Step 6:	Calculate cost results (e.g., cost per transaction, total cost of the program per participant).	Indirect support and overhead costs (as a percentage of direct costs) are added to the direct costs of each transaction to determine the cost per transaction. The transaction cost is multiplied by the average number of transactions to determine the total average cost per transaction type. These total average costs per transaction type are added to determine the program costs.

Step 1 (determining program process) was performed during site visits by OSCA staff, through analysis of program documents, and through interviews with key informants. Step 2 (identifying program transactions) and Step 3 (identifying the agencies involved with transactions) were performed through observation during site visits and by analyzing the information gathered in Step 1. Step 4 (determining the resources used) was performed through extensive interviewing of key informants, direct observation during a site visits, and by collecting administrative data from the agencies involved in the program. Step 5 (determining the cost of the resources) was performed through interviews with program and non-program staff and with agency financial officers, as well as analysis of budgets found online or provided

by agencies. Finally, Step 6 (calculating cost results) involved calculating the cost of each transaction and multiplying this cost by the number of transactions. For example, to calculate the cost of drug testing, the unit cost per drug test is multiplied by the average number of drug tests performed per person. All the transactional costs for each individual were added to determine the overall cost per program participant/comparison group individual. This was reported as an average cost per person for the program. In addition, due to the nature of the TICA approach, it is also possible to calculate the cost of the treatment court process per agency, to determine which agencies contributed the most resources to the program and which agencies gained the most benefit.

RESULTS

This section includes brief background and process information about the Boone County Adult Treatment Court and then a summary of the key results and recommendations. The section following this summary provides the detailed outcome and cost results.

The Boone County Adult Treatment Court (BCATC) located in Columbia, Missouri, was established in January 1998 to address the substance abuse and the associated lifestyle of felony offenders by providing a structured program designed to hold the offenders accountable, help the offenders gain control over their substance use disorders, and assure that they develop responsible living skills. The goals of the BCATC are to determine the best options for treatment and supervision for each participant that will optimize outcomes at the least cost to taxpayers and with the least threat to public safety, stop the revolving door of incarceration and criminal activity, and to return offenders to their families and the community as productive citizens. In July 2012 the BCATC began using the RANT to determine participant risk and needs and in July 2015, the BCATC began to place participants into tracks based on RANT prognostic risk and criminogenic need scores with the objective to use resources more efficiently by targeting the specific risks and needs of the participants. As of June 2017 there were 321 participants with RANT scores, 210 pre-4-track implementation, and 111 post-4-track implementation.

Process Evaluation Summary

From the site visit observations, team member interviews and participant focus groups, it was determined that overall, the BCATC follows many of the essential guidelines and best practices within the 10 Key Components of Drug Courts.² These include the following practices:

- Excellent team member communication
- A dedicated law enforcement representative on the team
- An MOU established with all team members
- Eligibility criteria that includes participants with a wide range of charges
- Once they have entered the program, participants are connected with treatment services swiftly
- A validated tool is used to assess for risk and need levels and has developed a 4-track model that separates participants by quadrant in court and in treatment
- Eligibility requirements are written and included in the policy and procedure manual
- The program accepts and provides services for offenders with mental health issues and intellectual disabilities
- Program length is a minimum of 12 months, and has at least three phases
- An array of treatment services is provided based on individual participants' assessed needs and uses evidence-based programming
- Relapse prevention education is provided while participants are active in the program and continuing care options following graduation

² The full process evaluation report can be found at <http://npresearch.com/wp-content/uploads/Boone-County-Drug-Court-Process-Evaluation.pdf>



- Gender specific services are provided
- Two agencies provided treatment to all participants
- Drug testing occurs at least twice per week
- Rapid results from drug testing
- Sanctions are imposed swiftly after non-compliant behavior
- Guidelines on program responses to participant behavior with a printed copy given to each team member
- The team consistently takes into account participant risk and need level, and proximal and distal behaviors in determining a response to participant behaviors
- Jail is used sparingly
- The commissioner participates in regular training to stay abreast of the latest research as well as training others
- The commissioner is respectful, fair, attentive, and caring in her interactions with the participants in court
- The commissioner consistently spends greater than 3 minutes with each participant

Although this program was functioning well, there were some primary areas of program improvement suggested by OSCA that arose in the staff interviews, participant focus groups and observations during the site visit.

- Ensure a representative from all key agencies, including the prosecutor's office and a defense counsel representative, attend staffing and court sessions
- The program should rely only on the standard assessments utilized (RANT and ASI) and not assess for amenability to treatment when considering admission into the treatment court
- Review treatment requirements for Q3 and Q4 participants to ensure they are not required to attend unnecessary services
- Ensure treatment group sizes are no more than 12 participants
- Specific, detailed procedures for UA collection should be included in the policy and procedure manual and the participant handbook
- Ensure that a prosecutor and defense attorney are consistently present at staffing meetings and court sessions
- Decrease the length of time from arrest to program entry
- In order to graduate, participants must have a sober housing environment
- Increase the focus on incentives for participants who are doing well
- Explain the reasons for rewards and sanctions in court and be aware of the importance of appearing fair
- Decrease the frequency of status hearing requirements for low-risk participants in Q2 and Q4
- Ensure the policy and procedure manual, the participant handbook and the participant contract are up to date
- Establish an advisory committee

4-Track Implementation

The BCATC began implementing the 4-track model in July 2015. RANT scores were used to place participants in four different quadrants 1) high-risk high-need; 2) low-risk low-need; 3) high-risk low-need and 4) low-risk low-need (see Table 1). The participants in each quadrant are placed in different tracks and should have different requirements designed to match the participants' specific risks and needs. Table 4 provides a summary of the key requirements for each track.

An examination of the quadrant requirements as listed in Table 4 (gathered from the program policy and procedures manual and from observations of the process on site visits, shows that, although the participants are separated into separate groups and are seen separately in court, the program has not actually changed the general supervision, court or support group requirements. Therefore, it is important to note that the BCATC has not fully implemented the 4-track model and the outcomes and cost results of the evaluation will reflect this. The results from this evaluation do not represent outcomes for a true 4-track treatment court model.

Table 4. Quadrant/Track Requirements

Quadrant ("Q")	Staffing Requirements	Court Requirements	Probation/Supervision Requirements	Treatment Requirements	Other Requirements
Q1 (HR/HN)	1x/week, reduces to 1x per month	<ul style="list-style-type: none"> 1x/week in Phase 1 & 2 1x/month in Phase 3, 4 & 5 	<ul style="list-style-type: none"> 2x/week in Phase 1 1x/week in Phase 2 1x every 2 weeks in Phase 3 & 4 1x/month or as needed in Phase 5 	Based on assessed level of care, specific to each participant.	<ul style="list-style-type: none"> Support groups 2x/week in Phase 2 Support groups ongoing in Phase 3, 4 & 5.
	Men and women in separate sessions				
Q2 (LR/HN)	1x/week, reduces to 1x per month	<ul style="list-style-type: none"> 1x/week in Phase 1 & 2 1x/month in Phase 3, 4 & 5 	<ul style="list-style-type: none"> 2x/week in Phase 1 1x/week in Phase 2 1x every 2 weeks in Phase 3 & 4 1x/month or as needed in Phase 5 	Based on assessed level of care, specific to each participant.	<ul style="list-style-type: none"> Support groups 2x/week in Phase 2 Support groups ongoing in Phase 3, 4 & 5.
Q3 (HR/LN)	1x/week, reduces to 1x per month	<ul style="list-style-type: none"> 1x/week in Phase 1 & 2 1x/month in Phase 3, 4 & 5 	<ul style="list-style-type: none"> 2x/week in Phase 1 1x/week in Phase 2 1x every 2 weeks in Phase 3 & 4 1x/month or as needed in Phase 5 	Based on assessed level of care, specific to each participant.	<ul style="list-style-type: none"> Support groups 2x/week in Phase 2 Support groups ongoing in Phase 3, 4 & 5.
Q4 (LR/LN)	1x/week, reduces to 1x per month	<ul style="list-style-type: none"> 1x/week in Phase 1 & 2 1x/month in Phase 3, 4 & 5 	<ul style="list-style-type: none"> 2x/week in Phase 1 1x/week in Phase 2 1x every 2 weeks in Phase 3 & 4 1x/month or as needed in Phase 5 	Based on assessed level of care, specific to each participant.	<ul style="list-style-type: none"> Support groups 2x/week in Phase 2 Support groups ongoing in Phase 3, 4 & 5.

Outcome and Cost Evaluation Results

Between January 2012 and June 2017, the BCATC served a total of 321 participants with complete RANT information. Between January 2012 and December 2014, the program served 210 participants (the pre-4-track implementation group) and between May 2015 and June 2017, the program served 111 participants. Across both time periods, about 80% of the BCATC population was determined high-risk/high-need. The proportion of participants falling into each risk-need quadrant did not differ before or after the implementation of the 4-track program. Table 5 shows the number of BCATC participants by quadrant before and after the 4-track implementation.

Table 5. BCATC Participant Characteristics Pre- and Post-4-Track Implementation

Quadrant	Pre-4-Track N (%)	Post-4-Track N (%)
1: High-Risk/High-Need	167 (80%)	88 (79%)
2: Low-Risk/High-Need	14 (7%)	5 (5%)
3: High-Risk/Low-Need	27 (13%)	12 (11%)
4: Low-Risk/Low-Need	2 (1%)	6 (5%)
TOTAL	210 (100%)	111 (100%)

As Table 5 illustrates, the number of participants in each quadrant varies considerably. Quadrant 1 (HR/HN) has by far the most participants, followed by Quadrant 3 (HR/LN). Quadrants 2 and 4 (the low-risk quadrants) have the least amount of participants. This indicates that the individuals referred to the BCATC are primarily high-risk. This could be due to the program eligibility and referral process (e.g., referrals are made after conviction and only for those with certain criminal histories) or also be the nature of the offender population in the program jurisdiction.

Although the proportion of participants in each quadrant did not vary appreciably after the 4-track implementation (Table 5), some of the demographic and background characteristics of the participants shifted over time (Table 6). Overall, the proportion of men in the program decreased (from 78% to 63%) and the proportion of White participants increased (from 63% to 74%) while the proportion of African American individuals decreased correspondingly (35% to 23%) after 4-track implementation.³ There was no difference in the average age of participants after 4-track implementation, which was about 30 years old. Table 6 illustrates the demographic characteristics of BCATC participants.

³ Two by two chi-square comparing gender and 4-track implementation: $\chi^2(1, N = 321) = 10.18, p < .01$. Two by two chi-square comparing White versus non-White participants and 4-track implementation: $\chi^2(1, N = 317) = 4.40, p < .05$.

Table 6. BCATC Participant Characteristics Pre- and Post-4-Track Implementation: Demographics

	Pre-4-Track N = 210	Post-4-Track N = 111
Gender, N (%)		
Male	167 (80%)**	70 (63%)**
Female	43 (21%)	41 (37%)
Race/Ethnicity, N (%)^a		
White	129 (62%)*	81 (74%)*
Black/African American	73 (35%)	25 (23%)
Other	6 (3%)	3 (3%)
Age at Entry Date		
Average age in years	29.5 years	30.0 years
Range	18 to 61	18 to 56

^a Two people from the post-implementation and two people from the pre-implementation group were missing information about race.

* $p < .05$, ** $p < .01$, *** $p < .001$

The demographics within and across the four quadrants were examined for differences. Consistent with the overall shift from pre- to post-4-track implementation, the demographics also varied by quadrant. In Quadrant 1 (HR/HN), the proportion of men decreased from 79% to 58% after 4-track implementation.⁴ The proportion of men in the program increased after 4-track implementation among each of the other three quadrants; however, the sample sizes were very small so these results may be an artifact of the few people in those quadrants, particularly quadrants 2 and 4. The proportion of White participants in Quadrant 1 increased from 65% to 78% after the 4-track implementation, but this trend was not statistically significant. Table 7 shows the percent of BCATC participants in each demographic category, by quadrant and 4-track implementation status.

⁴ Two by two chi-square comparing gender and 4-track implementation status, by quadrant, with Bonferroni correction: $\chi^2(1, N = 255) = 14.37, p < .002$.

Table 7. BCATC Participant Characteristics by Quadrant: Demographics

	Q1: HR/HN		Q2: LR/HN		Q3: HR/LN		Q4: LR/LN	
	Pre n=167	Post n=88	Pre n=14	Post n=5	Pre n=27	Post n=12	Pre n=2	Post n=6
Gender								
Male	80%**	58%**	71%	--	81%	92%	--	--
Female	20%	42%	29%	--	19%	8%	--	--
Race/Ethnicity^a								
White	64%	78%	86%	--	37%	42%	--	--
Black/African American	35%	20%	0%	--	56%	50%	--	--
Other	1%	2%	14%	--	7%	8%	--	--
Age at Entry Date								
Average age in years	30	30	29	31	26	31	32	30
Range	18 - 61	18 - 56	21 - 48	18 - 51	18 - 61	19 - 49	21 - 42	25 - 37

Note. Quadrants with fewer than seven participants were suppressed due to sample sizes too small for valid analyses and to protect the confidentiality of the individuals. ^a Two people from the post-implementation and two people from the pre-implementation group were missing information about race (all from Quadrant 1).

* $p < .05$, ** $p < .01$, *** $p < .001$

In addition to demographic characteristics, analyses also examined whether there were any differences in other background characteristics between the two cohorts of BCATC participants. As illustrated in Table 8, about three fourths of all BCATC participants were single, never married, about one out of four had no high school diploma, and just over half were unemployed at the time of program entry. There were no differences in marital status, education level, or employment status before or after 4-track implementation. However, after the implementation of the 4-track model, a significantly higher proportion of BCATC participants rent or owned their own home (45%) and fewer resided in unstable housing situations (55%), compared to prior to the 4-track implementation.⁵ None of these characteristics were significantly different by quadrant. Table 8 displays the background characteristics of BCATC participants before and after 4-track implementation, and Table 9 displays the information split by quadrant.

⁵ Two by two chi-square comparing housing status at entry by 4-track implementation status: $\chi^2(1, N=321) = 8.50, p < .01$.

Table 8. BCATC Participant Characteristics Pre- and Post-4-Track Implementation: Background

	Pre-4-Track <i>N</i> (%)		Post-4-Track <i>N</i> (%)
Marital Status at Entry			
Single, never married	157 (75%)		82 (74%)
Divorced/separated	31 (15%)		18 (16%)
Married	21 (10%)		10 (9%)
Widowed	1 (<1%)		1 (1%)
Highest Education Attained at Entry			
No High School Diploma	59 (31%)		26 (25%)
High School Diploma	69 (36%)		41 (39%)
Any Post-Secondary	65 (34%)		38 (36%)
Employment Status at Entry			
Unemployed	112 (53%)		62 (56%)
Employed Full Time	47 (22%)		26 (23%)
Employed Part Time	39 (19%)		20 (18%)
Full time student, disabled, or unable to work	12 (6%)		3 (3%)
Housing Status at Entry			
Rent or own home	60 (29%)**		50 (45%)**
Unstably housed	150 (71%)		61 (55%)
TOTAL	210 (100%)		110 (100%)

^a Unstably housed includes individuals temporarily living with friends or family, residing in transitional housing, or otherwise homeless.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 9. BCATC Participant Characteristics By Quadrant: Background

	Q1: HR/HN		Q2: LR/HN		Q3: HR/LN		Q4: LR/LN	
	Pre n=167	Post n=88	Pre n=14	Post n=5	Pre n=27	Post n=12	Pre n=2	Post n=6
Marital Status at Entry								
Single, never married	76%	73%	57%	--	78%	75%	--	--
Divorced/separated	16%	15%	7%	--	11%	25%	--	--
Married	8%	11%	36%	--	11%	0%	--	--
Widowed	1%	1%	0%	--	0%	0%	--	--
Highest Education at Entry								
No High School	29%	24%	7%	--	54%	50%	--	--
Diploma	38%	41%	14%	--	35%	25%	--	--
High School Diploma	33%	35%	79%	--	12%	25%	--	--
Any Post-Secondary								
Employment Status at Entry								
Unemployed	55%	60%	21%	--	63%	42%	--	--
Employed Full Time	20%	17%	64%	--	15%	33%	--	--
Employed Part Time	19%	19%	14%	--	19%	25%	--	--
Student, Disabled, or Unable to work	7%	3%	0%	--	4%	0%	--	--
Housing Status at Entry								
Unstably Housed	74%	59%	43%	--	70%	42%	--	--
Rent/Own	26%	40%	57%	--	30%	58%	--	--

Note. Quadrants with fewer than 7 participants were suppressed due to sample sizes too small for valid analyses and to protect the confidentiality of the individuals. * $p < .05$, ** $p < .01$, *** $p < .001$

BCATC program staff members tracked the primary substances used by their program participants. Prior to the 4-track implementation, about one third (32%) of participants reported that their primary substance used was marijuana and another third (32%) reported that alcohol was their primary substance. After the 4-track implementation, a significantly higher proportion of participants reported that marijuana was their primary substance (46%) and a smaller proportion reported alcohol as their primary substance (19%). Additionally, a higher proportion of post-4-track implementation participants reported opioids (17%) and methamphetamine (14%) as their primary substances, compared to pre-implementation cohort.⁶ A similar pattern is found in

⁶ Six by two chi-square comparing primary substance used by 4-track implementation status, with “none” treated as missing: $\chi^2(5, N = 295) = 21.04, p < .01$.

Quadrant 1 (due to Quadrant 1 having the largest sample size). As would be expected, Quadrant 3 (being low-need) has no individuals reporting use of the “harder” drugs (methamphetamine or Opiates). It was not possible to examine the results for patterns in Quadrant 2 or 4 due to the very small sample sizes. Table 10 shows the number and percent of BCATC participants and their reported primary substances used.

Table 10. BCATC Participant Characteristics Pre- and Post-4-Track Implementation: Primary Substance Used

Primary Drug of Choice	Pre-4-Track N (%)	Post-4-Track N (%)
None reported	26 (12%)	0 (0%)
Marijuana	67 (32%)	51 (46%)
Alcohol	64 (31%)*	21 (19%)*
Opioids	15 (7%)*	19 (17%)*
Amphetamines	15 (7%)	16 (14%)
Cocaine or crack	16 (8%)	3 (3%)
Other	7 (3%)	1 (1%)
TOTAL	210 (100%)	111 (100%)

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 11. BCATC Participant Characteristics Pre- and Post-4-Track Implementation: Primary Substance Used

Primary Drug of Choice	Q1: HR/HN		Q2: LR/HN		Q3: HR/LN		Q4: LR/LN	
	Pre <i>n</i> =167	Post <i>n</i> =88	Pre <i>n</i> =14	Post <i>n</i> =5	Pre <i>n</i> =27	Post <i>n</i> =12	Pre <i>n</i> =2	Post <i>n</i> =6
None reported	13%	0%	7%	--	15%	0%	--	--
Marijuana	30%	42%	29%	--	48%	75%	--	--
Alcohol	31%	17%	29%	--	26%	25%	--	--
Opioids	8%	21%	7%	--	0%	0%	--	--
Amphetamines	8%	17%	7%	--	0%	0%	--	--
Cocaine or crack	8%	2%	7%	--	7%	0%	--	--
Other	2%	1%	14%	--	4%	0%	--	--

Note. Quadrants with fewer than 7 participants were suppressed due to sample sizes too small for valid analyses and to protect the confidentiality of the individuals. * $p < .05$, ** $p < .01$, *** $p < .001$

In terms of criminal history, the BCATC participants pre- and post-4-track implementation were very similar. On average, both groups had an average of about two arrests in the 2 years prior to program entry, with roughly one of those arrests including a drug-related charge. The post-4-track group did have slightly higher prior drug arrests (1.1 prior arrests compared to 0.8).⁷ There were no other statistically significant differences in criminal history between the two program participant groups pre- and post-4-track implementation. Table 12 shows the criminal history for the BCATC participants pre- and post-implementation of the four tracks.

Table 12. BCATC Participant Characteristics Pre- and Post-4-Track Implementation: Criminal History

Average Number of Arrests 2 Years Prior to Program Entry	Pre-4-Track N = 207	Post-4-Track N = 110
Any Arrest Type	1.82	2.01
Range	0 - 9	0 - 7
Person Arrests	0.24	0.17
Range	0 - 2	0 - 2
Property Arrests	0.57	0.68
Range	0 - 5	0 - 5
Drug Arrests	0.82**	1.11**
Range	0 - 5	0 - 5
Other Arrests	0.21	0.22
Range	0 - 3	0 - 3
Misdemeanor Arrests	0.90	1.05
Range	0 - 8	0 - 6
Felony Arrests	1.12	1.28
Range	0 - 4	0 - 4

Note. Prior arrest information for four people from the pre group and 1 person from the post-implementation group was not available.

* $p < .05$, ** $p < .01$, *** $p < .001$

An exploration of the number of prior arrests by quadrant revealed that the average number of prior arrests varied across the quadrants, commensurate with risk levels. Within the same quadrant, there were some differences between pre-and post-4-track implementation with a trend toward fewer person arrests but more property and drug arrests in Quadrant 1 and the opposite trend in Quadrant 3. Quadrant 3 participants post-4-track had a trend toward more total prior arrests. However, none of these differences in the average number of prior arrests before or after 4-track implementation were significant. Table 13 shows the average number of prior arrests by type (e.g., person, property) and by severity.

⁷ Independent t test comparing participant prior criminal history (drug arrests) before and after 4-track implementation: $t(315) = -2.97, p < .01$

Table 13. BCATC Participant Characteristics Pre- and Post-4-Track Implementation: Criminal History by Quadrant

Average Number of Arrests 2 Years Prior to Program Entry	Q1: HR/HN		Q2: LR/HN		Q3: HR/LN		Q4: LR/LN	
	Pre n=165	Post n=87	Pre n=14	Post n=5	Pre n=26	Post n=12	Pre n=2	Post n=6
Any Arrest	1.90	2.05	1.07	--	1.77	2.33	--	--
Person Arrests	0.26	0.15	0.07	--	0.23	0.50	--	--
Property Arrests	0.57	0.78	0.36	--	0.65	0.42	--	--
Drug Arrests	0.87	1.11	0.71	--	0.58	1.25	--	--
Other Arrests	0.21	0.21	0.00	--	0.31	0.25	--	--
Misdemeanor Arrests	0.95	1.05	0.21	--	1.04	1.83	--	--
Felony Arrests	1.16	1.30	0.93	--	0.92	1.17	--	--

Note. Quadrants with fewer than 7 participants were suppressed due to sample sizes too small for valid analyses and to protect the confidentiality of the individuals. * $p < .05$, ** $p < .01$, *** $p < .001$

STUDY QUESTION #1: DID THE PROGRAM OPERATE DIFFERENTLY BEFORE AND AFTER THE IMPLEMENTATION OF THE 4-TRACK MODEL?

1a. Did the program requirements and provision of services change from pre-implementation to post-implementation?

1b. Did the program provide different services for the different quadrants?

Analyses were conducted to compare the average number of program events individuals participated in before and after 4-track implementation. Overall, the provision of services in terms of drug tests, the use of jail as a sanction, and treatment services differed before and after 4-track implementation. No differences in services within quadrants was observed, possibly due to the relatively small number of participants in Quadrants 2 through 4.

On average, all participants spent 280 days in the program (median = 344 days) before 4-track implementation and 257 days (median = 301 days) after 4-track implementation (not statistically significant). Prior to the implementation of the 4-track model, all program participants were administered an average of 66 drug tests (primarily urine analyses). After 4-track implementation, the average number of drug tests increased to 90 tests,⁸ even though the length of time spent in the program did not change, indicating a substantial increase in regular drug testing in all quadrants. Additionally, prior to the implementation of the 4-track program, all participants, on average, spent about 1.2 days in jail as a sanction for noncompliance. After the 4-track implementation, participants spent an average of 0.3 days—a significant decline in the use of jail sanctions,

⁸ Independent t test comparing average number of drug tests administered before and after 4-track implementation: $t(114) = -2.98, p < .01$.

which follows known research based best practices (e.g., Carey, Mackin, & Finigan, 2012).⁹ Table 14 displays the average number of program events per participant, before and after 4-track implementation.

Table 14. BCATC Program Characteristics Pre- and Post-4-Track Implementation:

Program Events	Pre-4-Track N = 198	Post-4-Track N = 100
Average Days in Program	280 days	257 days
Median	344 days	301 days
Range	21 - 623	0 - 546
Court Appearances	No Data Available	No Data Available
Average Number of Drug Tests ^a	66**	90**
Median	76.5	91.5
Range	1 - 164	1 - 426
Average Jail Sanction Days	1.2 days***	0.3 days***
Median	0 days	0 days
Range	0 - 14	0 - 7

Note. Includes only participants who exited (were no longer active) in the program (i.e., participants who graduated or were terminated; no active participants). ^a Four participants from the pre group and 8 from the post-implementation group were missing information about drug tests.

* $p < .05$, ** $p < .01$, *** $p < .001$

An analyses of the average number of program events per person by quadrant was performed to assess for any differences before and after 4-track implementation. Consistent with the overall results, there were no significant differences in the average length of time spent in the program, although Quadrant 2 participants (low-risk high-need) generally spent the longest time in the program (over a year). This is most likely due to more high-risk participants terminating from the program sooner while the lower risk participants were significantly more likely to graduate and therefore stay for the full length of the program. From pre- to post-4-track implementation, participants in every quadrant were drug tested more often, and there were differences among the quadrants.¹⁰ Participants in all post quadrants were administered around 15 to 20 more drug tests than their similar counterparts in the pre-groups. Additionally, participants in Quadrants 1 and 3 (both high-risk quadrants) were generally tested less often compared to Quadrants 2 and 4.

As previously mentioned, the BCATC significantly reduced its use of jail as a sanction with the implementation of the 4-track model. As can be seen in Table 15, this trend exists for all quadrants. There were no statistically significant differences among the quadrants, or any obvious trends, as all quadrants in the BCATC have

⁹ Independent t test comparing average number of drug tests administered before and after 4-track implementation: $t(284) = 4.45, p < .001$.

¹⁰ Two way ANOVA of quadrant and 4-track implementation status on average number of drug tests. Both main effects were significant: 4-track implementation = $F(1,278) = 9.96, p < .01$; quadrant = $F(3,278) = 4.06, p < .01$.

essentially the same program requirements. Table 15 shows the average number of days in the program, drug tests administered, and jail sanction days by quadrant and 4-track implementation status. While there is some variation, there is no consistent pattern based on risk-need quadrant.

Table 15. Program Events: Average per Participant by Quadrant Pre-and Post-4-Track Implementation

Program Requirements/Events	Q1: HR/HN		Q2: LR/HN		Q3: HR/LN		Q4: LR/LN	
	Pre n=157	Post n=79	Pre n=13	Post n=5	Pre n=26	Post n=11	Pre n=2	Post n=5
Average Days in Program	277	244	364	387	264	247	196	368
Median	350	261	357	392	329	259	196	434
Drug Tests (any type)	66	84	85	132	60	74	80	168
Drug Tests (urine analysis)	65	84	84	131	59	73	79	168
Jail Sanctions (Days)	1.0	0.4	0.1	0.0	2.6	0.2	2.5	0.0

Note 1. For informational purposes, these numbers are provided for all quadrants, including those with very small sample sizes. However, analyses for those quadrants with fewer than seven participants are not valid as they may not be representative of what might occur for a larger population of similar individuals.

Note 2. This table includes only participants who are no longer active in the program (i.e., participants who have been terminated or graduated; no active participants). Three participants from the pre group, Quadrant 1; seven from the post-implementation group, Quadrant 1; one person from the pre group, Quadrant 3; and 1 person from the post-implementation group were missing information about drug tests.

We examined treatment service data for BCATC participants to determine if there were any differences in utilization before and after 4-track implementation and by quadrant. Two providers were contracted by the BCATC and provided all of the treatment to participants during the study period. The most common types of treatment used were assessment, group counseling, group education, individual counseling, medication services, and residential services. The constellation of treatment services used significantly varied after the implementation of the 4-track model. During both time periods, all participants were assessed approximately one time. From pre- to post-implementation, the average number of hours spent in group counseling significantly decreased from 58 hours per participant to 44 hours.¹¹ Similarly, the average number of hours participants spent in individual counseling decreased from 32 hours per person to 21 hours per person.¹² Although not significant, there was a notable increase in education group services (e.g., moral reconnection therapy or MRT) from 34 hours to 44 hours after the implementation of the 4-track model. The use of medication services increased from almost no use up to 15 minutes (on average) in the post-4-track group.¹³ These findings may be due to the adjustment of treatment services to the specific needs of participants, though

¹¹ Independent *t* test comparing average number of group counseling sessions attended before and after 4-track implementation: $t(273) = 2.66, p < .01$.

¹² Independent *t* test comparing average number of individual counseling sessions attended before and after 4-track implementation: $t(273) = 3.60, p < .001$.

¹³ Independent *t* test comparing average number of individual counseling sessions attended before and after 4-track implementation: $t(89) = -4.18, p < .001$

this is better determined by examining the findings by quadrant (see Table 17). There was almost no use of family conferences, family therapy, or relapse prevention pre-or post-4-track implementation. The number of days in residential treatment increased (though not significantly) and the increase is due mainly to a single individual in the LR/LN quadrant who spent a particularly long time in residential treatment, which is inconsistent with assessed needs if that individual was correctly placed in the LN quadrant. Table 16 shows the average number of treatment services per participant, before and after 4-track implementation and Table 17 shows treatment services by quadrant.

Table 16. BCATC Participant Characteristics Pre- and Post-4-Track Implementation

Treatment Services (Units) ^a	Pre-4-Track N = 189	Post-4-Track N = 86
Assessment	0.84	0.72
Group counseling (hours)	58.1 hours**	43.8 hours**
Individual counseling (hours)	32.1 hours***	21.0 hours***
Education groups (hours)	34.1 hours	43.6 hours
Medication services (hours)	<0.1 hours**	0.31 hours**
Residential (days)	12.0 days	17.1 days
Family conferences (hours)	<0.1 hours	0.0 hours
Family therapy (hours)	0.0 hours	<0.1 hours
Relapse prevention (hours)	0.4 hours	0.0 hours

Note. Includes only participants who are no longer active in the program (i.e., participants who have been terminated or graduated; no active participants). ^a Nine people from the pre group and 14 from the post-implementation group were missing information about treatment services.

* $p < .05$, ** $p < .01$, *** $p < .001$

Treatment services were compared by quadrant, before and after 4-track implementation. While none of the differences were significantly different (probably due to small sample sizes), there does appear to be a consistent trend in the reduction of group counseling regardless of risk or need levels as well as individual counseling (with the exception of Quadrant 4 where the numbers are misleading due to the small number of individuals). Participants in Quadrants 1, 2, and 4 all attended more education group sessions in the post-implementation group and nearly every track increased the use of residential stays in the post-implementation group (except for Quadrant 3). As described above, the BCATC does not appear to provide family or relapse prevention services, though this could be an artifact of how that information is entered into the database, particularly if these services are incorporated into their group or individual treatment. The average number of treatment events by quadrant and 4-track implementation status is displayed in Table 17.

Table 17. Treatment Services: Average per Participant by Quadrant Pre- and Post-4-Track Implementation

Treatment Services (Units)	Q1: HR/HN		Q2: LR/HN		Q3: HR/LN		Q4: LR/LN	
	Pre n=152	Post n=66	Pre n=12	Post n=5	Pre n=23	Post n=10	Pre n=2	Post n=5
Assessment	0.9	0.7	0.8	0.8	0.9	0.9	0.5	0.6
Group Counseling (hours)	57.7	45.7	76.3	57.3	53.1	21.3	40.6	50.3
Individual Counseling (hours)	32.3	19.1	32.1	32.9	32.9	23.0	4.0	29.5
Education Groups (hours)	35.5	46.2	11.3	31.8	39.3	30.2	5.0	48.3
Medication Services (hours)	<0.1	0.4	0.1	0.3	<0.1	0.0	0.5	0.3
Residential (days)	13.7	18.1	0.0	7.8	7.7	6.9	0.0	34.6
Family Conference (hours)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Family Therapy (hours)	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0
Relapse Prevention (hours)	0.4	0.0	0.0	0.0	0.2	0.0	0.0	0.0

Note 1. For informational purposes, these numbers are provided for all quadrants, including those with very small sample sizes. However, analyses for those quadrants with fewer than seven participants are not valid as they may not be representative of what might occur for a larger population of similar individuals.

Note 2. Includes only participants who are no longer active in the program (i.e., participants who have been terminated or graduated; no active participants). ^a Nine people from the pre group and 14 from the post-implementation group were missing information about treatment services.

In answer to the research question about whether there was a change in program operation after implementation of the 4-track model, the findings show the amount of program events and treatment services in general appear to decrease after 4-track implementation in all quadrants. While the amounts of various types of treatment services and other program events (e.g., drug tests, jail sanctions) are larger in some quadrants than others, there are no consistent findings. This may be partially due to the very small sample sizes in some quadrants. However, overall, it does not appear that the program events or treatment services provided are adjusted based on the risk and need level of the participants. Because the program has not fully implemented the 4-track model, we are unable to authentically test whether the 4-track model is effective. What we are measuring in this study is whether separating the individuals in each quadrant into groups and seeing them separately in court has an impact on graduation rates and program costs.

STUDY QUESTION #2: DID GRADUATION RATES DIFFER BEFORE AND AFTER 4-TRACK IMPLEMENTATION?

Theoretically, adjusting program requirements and providing services based on assessed risk and needs should result in higher rates of successful program completion. Tables 18 and 19 provide the graduation rates by quadrant before and after implementation of the 4-track model. The graduation rate for all participants pre-4-track implementation was 53% compared with 48% post-implementation, which was not significantly

different.¹⁴ The average length of time spent in the program by graduates was between 390 and 400 days, and this did not differ by 4-track implementation status. The lack of difference in graduation rate is not unexpected, given that the program requirements and services provided did not differ consistently between the four tracks.

Table 18. Graduation Rates by 4-Track Implementation

Characteristic	Pre-4-Track N = 210	Post-4-Track N = 111
Program Status, N (%)		
Graduated	105 (50%)	40 (36%)
Terminated	93 (44%)	60 (54%)
Active	2 (1%)	9 (8%)
Other exit (e.g., death, transferred)	10 (5%)	2 (2%)
Average Program Length of Stay (days)		
Graduates	390 days	397 days
Terminated	156 days	164 days

Table 19 shows the percent of participants in each quadrant who graduated or were terminated from the BCATC program before and after 4-track implementation. Although there appears to be some variation in the graduation rates by quadrant, the very small number of people in Quadrants 2 and 4 make any comparisons difficult as there are not enough participants for these results to be considered valid or accurate. Across most quadrants (with the exception of Quadrant 4), the percent of participants successfully completing the BCATC program was lower post-4-track implementation, but none of these differences were statistically significant. Quadrant 2 (LR/HN) had the highest rates of graduation (above 80%), both before and after 4-track implementation and Quadrant 3 (HR/LN) generally had the lowest rates of graduation (about 40%). This is consistent with the concept that those individuals at lower risk (with lower criminogenic needs) are more likely to be able, and motivated, to complete program requirements. There were no significant differences in the amount of time graduates spent in the BCATC program among quadrants. Program length of time should be shorter for LR/LN participants. These participants should get minimal services as the concept behind adjusting services to fit risk and need levels is that the program should avoid pulling the LR/LN individuals deeper into the criminal justice system, and should also avoid over treating individuals who don't need intensive services, since over-treating can make people worse.

¹⁴ Since the minimum amount of time to complete the BCATC is 12 months, only participants who entered the program prior to October 1, 2016 (1 year before data extraction) were included in the overall graduation rates. Pre-track graduation rate is 53% or 105 graduates out of 198 with complete status information. Post-4-track graduation rate is 48% or 39 out of 81 participants with complete status information and entering at least 12 months prior to data extraction.

Table 19. Graduation Rates by Quadrant Pre- and Post-4-Track Implementation

Characteristic	Q1: HR/HN		Q2: LR/HN		Q3: HR/LN		Q4: LR/LN	
	Pre n=157	Post n=64	Pre n=13	Post n=5	Pre n=26	Post n=8	Pre n=2	Post n=4
Program Status, N (%)								
Graduated	52%	44%	92%	80%	42%	38%	50%	100%
Terminated	48%	56%	8%	20%	58%	63%	50%	0%
Average Program Length of Stay (days)								
Graduates	393	389	372	401	391	397	322	453
Terminated	153	159	273	336	171	192	70	30

Note 1. For informational purposes, these numbers are provided for all quadrants, including those with very small sample sizes. However, analyses for those quadrants with fewer than seven participants are not valid as they may not be representative of what might occur for a larger population of similar individuals.

Note 2. Includes only participants who are no longer active in the program (i.e., participants who have been terminated or graduated; no active participants), and those that entered prior to October 1, 2016.

STUDY QUESTION #3: WHAT WERE THE COSTS OF PROGRAM PARTICIPATION BEFORE AND AFTER IMPLEMENTING THE 4-TRACK MODEL?

Program transactions for which costs were calculated in this analysis included status review hearings (including staffings), case management, drug treatment, drug tests, jail sanctions, and program fees. The costs for this study were calculated to include taxpayer costs only. All cost results provided in this report are based on fiscal 2018 dollars or were updated to fiscal 2018 using the Consumer Price Index.

Program Transactions

A court session, for the majority of drug courts, is one of the most staff and resource intensive program transactions. These sessions include representatives from the following agencies:

- 13th Judicial Circuit Court (Commissioner, Administrator);
- Missouri State Public Defender (Assistant Public Defender);
- Boone County Prosecuting Attorney's Office (Assistant Prosecuting Attorney);
- Missouri Department of Corrections- Probation and Parole (Probation Officers);
- Reality House Programs (Executive Director, Counselors, RANT Assessor);
- McCambridge Center (Counselor).

The cost of a **Court Appearance or Status Review Hearing** (the time during a session when a single program participant interacts with the judge) is calculated based on the average amount of court time (in minutes) each participant interacts with the judge during the drug court session. This includes the direct costs for the time spent for each BCATC team member present, the time team members spend preparing for the session, the time



team members spent in staffing, the agency support costs, and jurisdictional overhead costs. Note that there are different costs for the pre-4-track and post-4-track groups as NPC obtained the time commitments for team members prior to the implementation of the 4-tracks as well as after implementation. The cost for a single BCATC court appearance is \$106.63 per participant for the pre-4-track group and \$122.37 per participant for the post-4-track group.

Case Management is based on the amount of staff time dedicated to case management activities during a regular work week and is then translated into a total cost for case management per participant per day (taking staff salaries and benefits, and support and overhead costs into account).¹⁵ The agencies involved in case management are the 13th Judicial Circuit Court, Missouri State Public Defender, Missouri Department of Corrections–Probation and Parole, Reality House Programs, and McCambridge Center. Note that there are different costs for the pre-4-track and post-4-track groups as NPC obtained the time commitments for team members prior to the implementation of the four tracks as well as after implementation. The daily cost of case management is \$4.11 per participant for the pre-4-track group and \$5.13 per participant for the post-4-track group.

Treatment Services for the majority of BCATC participants are provided by Reality House and McCambridge Center. The treatment costs used for this analysis are the contracted billing amounts between the Office of State Courts Administrator and Treatment Court Specialized Services Providers in each county. Each contract specifies the fixed price for each unit of service. Because total treatment costs per participant were included in the treatment dataset, there are no unit costs for treatment such as group treatment sessions or individual treatment sessions. Treatment is reported as an average cost per participant instead of unit cost per service received. (See Table 19).

Drug Testing is paid for by the 13th Judicial Circuit Court. Drug testing costs were obtained from the administrator. The average cost per UA test per participant is \$14.95.

BCATC participants pay a monthly \$75.00 **Program Fee** to the Circuit Court. However, the BCATC’s indigent policy may result in lower fees. NPC was able to obtain data on the actual amount paid by participants, so the program fee included in this cost analysis is the average amount *per participant* paid by the participants in each group.

Jail Sanctions are provided by the Boone County Sheriff. The cost per day of jail was obtained from information found in the 2017 Boone County Budget and statistics found on the Sheriff’s website. The cost per day of jail is \$68.17.

Program Costs

Table 20 displays the unit cost per program related event (or “transaction”), the number of events and the average cost per individual for each of the BCATC events for pre-4-track and post-4-track participants who exited

¹⁵ Case management includes meeting with participants, evaluations, phone calls, referring out for other help, answering questions, reviewing referrals, consulting, making community service connections, assessments, documentation, file maintenance, home/work visits, and residential referrals.

the program.¹⁶ The sum of these events or transactions is the total per participant cost of the BCATC program. The table includes the average for all pre-4-track BCATC participants ($N = 198$) and for all post-4-track BCATC participants ($N = 100$), regardless of their status upon program exit. That is, the participants included in the cost analysis are all participants who exited the program, both graduates and non-graduates (participants who were unsuccessfully discharged). It is important to include participants who were discharged as well as those who graduated as all participants use program resources, whether they graduate or not.

Table 20. Program Costs per Participant Pre- and Post-4-Track Implementation

Transaction	Unit Cost Pre/Post	Pre-4-Track		Post-4-Track	
		Avg. # of Events per Participant	Avg. Cost per Participant	Avg. # of Events per Participant	Avg. Cost per Participant
Case Mgmt Days	\$4.11/\$5.13	343.50	\$1,412	301.00	\$1,544
Court Appearances	\$106.63/\$122.37	19.30	\$2,058	16.98	\$2,078
Treatment ^a	N/A	N/A	\$2,756	N/A	\$2,537
Drug Tests	\$14.95	65.75	\$983	89.76	\$1,342
Jail Sanctions	\$68.17	1.19	\$81	0.30	\$20
Program Fees	N/Ab	1	(\$363)	1	(\$485)
TOTAL			\$6,927		\$7,036

^a Unit costs or the number of events for treatment were not included in this table due to the wide range of treatment modalities. The treatment services provided can be found in Tables 16 and 17 earlier in this report, and treatment costs by agency are displayed in Table 21. ^b The amount of fees actually paid varies by group, so the amount of program fees differs by column.

The unit cost multiplied by the number of events per person results in the cost per person for each transaction during the course of the program. When the costs of the transactions are summed the result is a total BCATC program cost per participant of \$6,927 pre-4-track and \$7,036 post-4-track. The cost per graduate is \$7,775 pre-4-track and \$8,138 post-4-track. Note that the graduates cost more than the participants in general, as graduates are typically in the program longer than non-graduates and use more resources. As would be expected from the earlier findings of no difference in overall program requirements and services provided pre- and post-4-track implementation, there is no significant difference in the per-participant cost of the program between pre- and post-4-track participants.

¹⁶ Program participants included in the program cost analysis are those who had sufficient time to complete the program and who exited the program either through graduation or termination. Active participants were not included in the analysis as they were still using program services so did not represent the cost of the full program from entry to exit.

Figure 1. Program Cost per Participant by Transaction

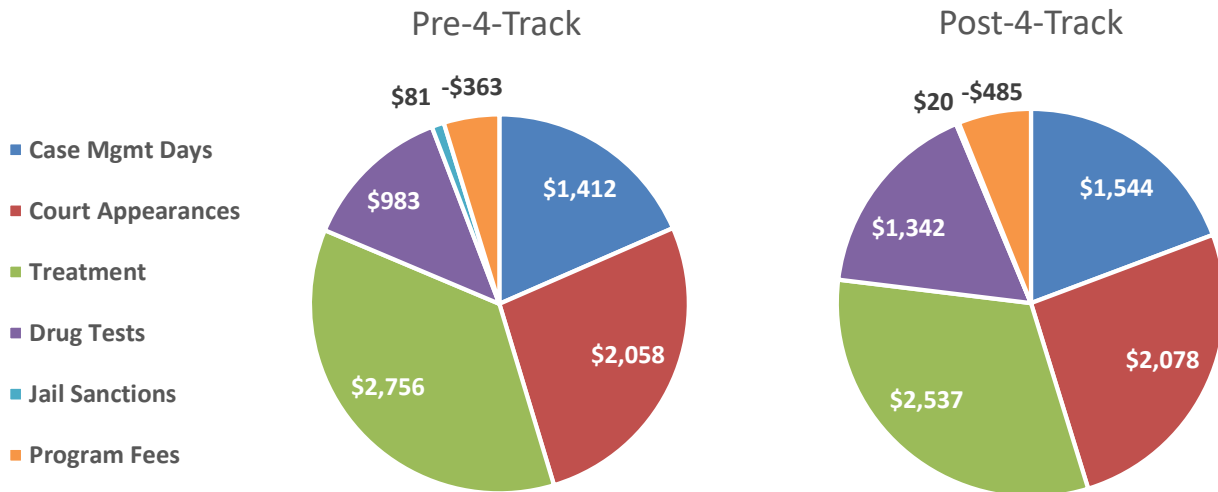


Figure 1 shows that the proportion of program costs devoted to treatment decreased slightly from pre-4-track (\$2,756) to post-4-track (\$2,537) while the proportion devoted to case management and drug testing increased. Program fees paid per participant also increased a small amount (from \$363 to \$485).

Another useful way to examine program costs is by the amount contributed by each agency involved in the program. Table 21 displays the cost per participant by agency for pre- and post-implementation groups.

Table 21. Program Costs per Participant by Agency Pre- and Post-4-Track Implementation

Agency	Average Cost per Person	
	Pre-4-Track	Post-4-Track
Circuit Court ^a	\$1,769	\$2,220
Prosecuting Attorney’s Office	\$174	\$146
Public Defender	\$102	\$85
Department of Corrections- Probation and Parole	\$939	\$1,247
Reality House	\$3,458	\$2,717
McCambridge Center	\$404	\$601
Sheriff	\$81	\$20
TOTAL	\$6,927	\$7,036

^a The program fee was included in the Circuit Court’s total as participants pay the fee to the court.

Figure 2. Program Cost per Participant by Agency

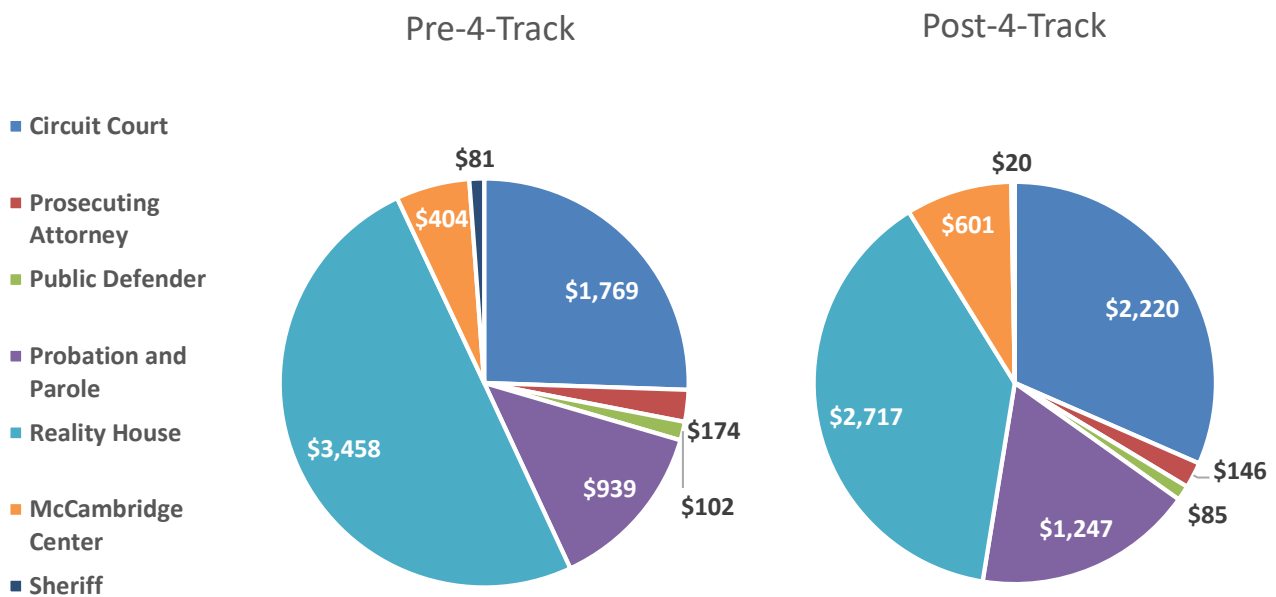


Figure 2 and Table 21 show that the costs accruing to Reality House (time spent on staffing, court sessions, case management, and provision of treatment) account for 39% of the total program cost per participant. The next largest cost (32%) is contributed by the Circuit Court, followed by Probation and Parole (18%) for time spent on staffing, court sessions and case management.

Table 22 provides the program costs by quadrant, pre- and post-4-track implementation. For Quadrants 1 and 3, the costs for each transaction, with the exception of drug testing, are lower post-4-track implementation. Although it appears that the reverse is true for Quadrants 2 and 4 (costs are higher post-implementation) the sample sizes are too small for valid comparison.

Table 22. Program Events: Cost per Participant by Quadrant Pre- and Post-4-Track Implementation

Program Requirements/Events	Q1: HR/HN		Q2: LR/HN		Q3: HR/LN		Q4L LR/LN	
	Pre n=157	Post n=79	Pre n=13	Post n=5	Pre n=26	Post n=11	Pre n=2	Post n=5
Case Management Days	\$1,439	\$1,339	\$1,467	\$2,011	\$1,350	\$1,329	\$806	\$2,226
Court Appearances	\$2,080	\$2,030	\$2,105	\$2,556	\$2,006	\$2,022	\$1,541	\$2,482
Treatment	\$2,828	\$2,568	\$2,492	\$2,692	\$2,555	\$1,717	\$1,229	\$3,619
Drug Tests	\$973	\$1,253	\$1,260	\$1,964	\$886	\$1,090	\$1,174	\$2,509
Jail Sanctions	\$70	\$24	\$5	\$0	\$176	\$12	\$170	\$0
Program Fees	(\$382)	(\$442)	(\$625)	(\$847)	(\$208)	(\$403)	(\$363)	(\$951)
TOTAL	\$7,008	\$6,772	\$6,704	\$8,376	\$6,765	\$5,767	\$4,557	\$9,885

Note. For informational purposes, these numbers are provided for all quadrants, including those with very small sample sizes. However, analyses for those quadrants with fewer than seven participants are not valid as they may not be representative of what might occur for a larger population of similar individuals.

Similar to the findings for each transaction, when the costs of the transactions are summed for each quadrant the results show that the total cost per participant is slightly lower post-implementation for Quadrants 1 and 3, but substantially higher in Quadrants 2 and 4. However, due to the very small number of participants in Quadrants 2 and 4, the results cannot be considered valid or accurate. The only consistent patterns that clearly differentiate the pre-4-track to post-4-track groups are that jail sanction use decreased in all tracks, drug testing costs increased in all tracks, and the amount of program fees paid increased. However, this does not vary by quadrant.

Table 23 provides the costs of different treatment modalities by quadrant. Similar to the other program events presented in Table 22, the costs of treatment services are lower post-4-track implementation for Quadrants 1 and 3, while Quadrants 2 and 4 show the opposite (though small sample sizes likely mean the Quadrant 2 and 4 numbers are inaccurate). Regardless, the 4-track model should result in lower treatment costs for participants who are low-need, but that is not the case for this program.

Table 23. Treatment Costs: Average per Participant by Quadrant Pre- and Post-4-Track Implementation

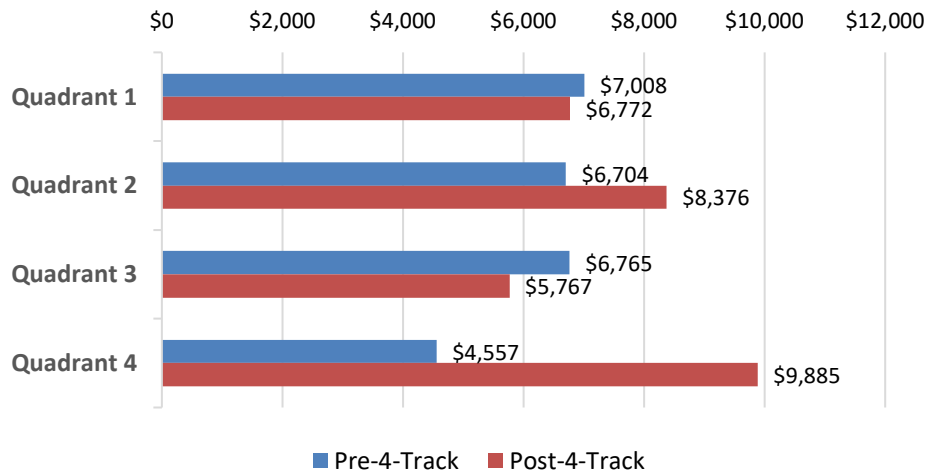
Treatment Services	Q1: HR/HN		Q2: LR/HN		Q3: HR/LN		Q4L LR/LN	
	Pre n=157	Post n=79	Pre n=13	Post n=5	Pre n=26	Post n=11	Pre n=2	Post n=5
Assessment	\$85	\$70	\$75	\$80	\$87	\$90	\$50	\$60
Group Counseling	\$702	\$635	\$1,104	\$758	\$597	\$250	\$875	\$714
Individual Counseling	\$1,193	\$706	\$1,185	\$1,213	\$1,212	\$849	\$148	\$1,088
Education Groups	\$328	\$427	\$104	\$294	\$363	\$279	\$46	\$446
Medication Services	\$9	\$78	\$24	\$66	\$9	\$0	\$110	\$64
Residential (days)	\$495	\$652	\$0	\$281	\$279	\$249	\$0	\$1,247
Family Conference	\$2	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Family Therapy	\$0	\$1	\$0	\$0	\$0	\$0	\$0	\$0
Relapse Prevention	\$16	\$0	\$0	\$0	\$8	\$0	\$0	\$0
TOTAL	\$2,830	\$2,569	\$2,492	\$2,692	\$2,555	\$1,717	\$1,229	\$3,619

Note. Total in this table may not match with the treatment total row in Table 21 due to rounding.

STUDY QUESTION #4: WERE THERE ANY COST EFFICIENCIES DUE TO THE IMPLEMENTATION OF THE 4-TRACK MODEL?

Figure 3 illustrates the program costs per quadrant pre- and post-4-track implementation.

Figure 3. Total Program Cost per Participant by Quadrant



As Figure 3 demonstrates, and as discussed throughout the cost section, the findings are mixed across quadrants with some costs increasing from pre- to post-4-track implementation and other costs decreasing. Together, Quadrants 1 and 3 have the majority of participants in the program and are therefore most representative of the program overall. These two quadrants demonstrate a slight decrease in costs post-4-track implementation. However, the cost difference is not significant. Most likely, the lack of difference between pre- and post-4-track implementation is due to all four tracks having the same program requirements, regardless of the risk and need level of participants, and to the similarity of services provided across all participants.

SUMMARY AND POLICY IMPLICATIONS

Although the BCATC 4-track program used the RANT consistently among participants entering the program and placed the participants in different tracks, the 4-track model was not appropriately implemented. The intention behind the 4-track model is not just to separate participants into four groups, but to adjust program requirements to fit the specific risks and needs of each individual. Low-risk participants should receive less supervision (e.g., fewer court sessions, lower intensity case management, and fewer supervision appointments) while high-risk participants receive higher levels of supervision. Similarly, low-need participants should receive fewer substance use disorder and mental health treatment services while high-need participants receive more services. In the BCATC program, the stated requirements for each track in the policy and procedure manual are the same, and the data collected from the court, treatment providers and drug testing agencies demonstrate that the participants are engaging in similar program requirements and similar treatment services in every track.

Due to the lack of full implementation of the 4-track model, it is not possible to accurately answer the key research questions posed in this evaluation; specifically, we are not able to answer whether the 4-track model improves participant successful completion rate, or whether there are cost efficiencies due to matching program requirements and services to participant risk and need.

REFERENCES

- Andrews, D. A., Bonta, J., & Wormith, J. S. (2006). The recent past and near future of risk and/or need assessment. *Crime and Delinquency*, 52(1), 7–27.
- Carey, S. M., & Finigan, M. W. (2004). A detailed cost analysis in a mature drug court setting: a cost-benefit evaluation of the Multnomah County Drug Court. *Journal of Contemporary Criminal Justice*, 20(3), 292–338.
- Carey, S. M., Finigan, M. W., Waller, M. S., Lucas, L. M., & Crumpton, D. (2005). *California drug courts: A methodology for determining costs and benefits, Phase II: Testing the methodology, final report*. Submitted to the California Administrative Office of the Courts, November 2004. Submitted to the USDOJ Bureau of Justice Assistance in May 2005.
- Carey, S. M., Mackin, J. R., & Finigan, M. W. (2012). What Works? The 10 Key Components of Drug Courts: Research Based Best Practices. *Drug Court Review*, VIII(1), 6-42.
- Government Accounting Office (GAO) (2005). “Adult Drug Courts: Evidence indicates recidivism reductions and mixed results for other outcomes.” February 2005 Report. Available at <http://www.gao.gov/new.items/d05219.pdf>
- Kralstein, D. (2010, June). *The impact on drug use and other psychosocial outcomes: Results from NIJ’s Multisite Adult Drug Court Evaluation*. Presentation at the 16th Annual Training Conference of the National Association of Drug Court Professionals. Boston, MA.
- Lowenkamp, C. T., & Latessa, E. J. (2005). Increasing the effectiveness of correctional programming through the risk principle: Identifying offenders for residential placement. *Criminology & Public Policy*, 4(2), 263–290.
- National Association of Drug Court Professionals (2013). *Adult Drug Court Best Practice Standards, Volume I*. Alexandria, VA: NADCP.
- National Association of Drug Court Professionals (2015). *Adult Drug Court Best Practice Standards, Volume II*. Alexandria, VA: NADCP.

APPENDIX A: STATISTICAL DATA ANALYSES METHODS

Once all data were gathered on the study participants, researchers cleaned and moved the data into SPSS 23.0 for statistical analysis. The analyses used to answer specific questions are described below.

RESEARCH QUESTION #1: DID THE PROGRAM OPERATE DIFFERENTLY BEFORE AND AFTER THE IMPLEMENTATION OF THE 4-TRACK MODEL?

1a. Did the program requirements and provision of services change from pre-implementation to post-implementation?)

Independent sample *t* tests were performed to compare the mean number of program events (e.g., drug tests administered, treatment sessions attended) for all BCATC participants who had exited the program (i.e., no longer active in the program). Groups were based on whether the participant was in the pre-4-track implementation or the post-4-track implementation group.

1b. Did the program provide services differently in the different quadrants?

Independent sample *t* tests and two way analysis of variance (ANOVA) were performed to compare the mean number of program events (e.g., drug tests administered, treatment sessions attended) for all BCATC participants who had exited the program (i.e., no longer active in the program). The two independent variables included quadrant and 4-track implementation status. Post hoc analyses were conducted to assess pairwise comparisons for any significant results.

RESEARCH QUESTION #2: DID GRADUATION RATES DIFFER BEFORE AND AFTER 4-TRACK IMPLEMENTATION?

Whether a program is bringing its participants to completion in the intended time frame is measured by program graduation (successful completion) rates, and by the amount of time participants spent in the program. The program graduation rate is the percentage of participants who graduated from the program out of the total group of participants who started during a specified time period and who have all left the program either by graduating or being unsuccessfully discharged (that is, none of the group is still active and all have had an equal chance to graduate). The average graduation rate (for participants entering between January 2012 and June 2016, to allow for enough time to complete the program) is compared by 4-track implementation status, by quadrant, and to the national average for BCATC graduation rates (discussed qualitatively). Crosstabs and chi-square analyses were run to examine differences in graduation rates among quadrants and 4-track implementation status. To control for Type I error when examining differences between quadrants, a Bonferroni correction was applied.

To measure whether the program is graduating participants in its expected time frame, the average amount of time in the program was calculated for participants who had enrolled in the BCATC program between January 2012 and June 2016, by 4-track implementation status and have been successfully discharged from the program. The average length of stay for graduates and for all participants was compared to the intended time to program completion, and the differences are discussed qualitatively.