Outcomes of a Midwestern Drug Diversion Pilot Program: A Cost Analysis

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Abstract

The purpose of this research is to assess the outcomes and cost-efficacy of a four-year drug diversion pilot program in a large Midwestern county across different levels of treatment intensity, defined based on American Society of Addiction Medicine levels of care (ASAM LOC). Using a set of binary logistic analyses, this work aims to determine 1) if there are significant differences in recidivism outcomes, as measured by re-arrest rates, between completers and non-completers by treatment intensity, and 2) the cost efficacy across the treatment settings within the pilot diversion effort. Findings illustrate decreases in 6- and 12-month recidivism for individuals who completed treatment in the highest intensity treatment setting (3.5 ASAM) and those who completed treatment in the therapeutic community setting. Further, the highest intensity treatment exhibited the highest cost efficacy of all treatment settings supported by the pilot program. Results of this research extend the current conception of efficacy as it relates to drug diversion program completion, recidivism, and program costs.

Introduction

Recent estimates have determined that up to 65% of incarcerated individuals have an active substance use disorder (SUD), and an additional 20% were incarcerated for a crime involving drugs or drug use (NIH, 2020). As such, individuals actively using substances constitute a substantial portion of corrections and are disproportionately represented throughout criminal justice system in the United States. To address this, local jurisdictions have implemented various diversion programs where justice involved individuals with SUDs are given an opportunity to substitute prosecution and incarceration for mandatory treatment participation. Drug court programs serve as an example of a post-booking programs that utilize community treatment and intensive oversight to decrease confinement and stem the frequency of contacts with the police and carceral institutions for individuals with SUD.

The success of diversion programs for those with SUDs depends on the efforts and coordination of multiple corrections agencies, treatment service providers, and local and/or state court systems. Given the large investment of community resources into this effort, salient concerns include whether the outcomes of diversion programs are meaningful relative to their costs. Although there is some evidence that drug courts produce some cost savings (Carey & Finigan, 2004; Crumpton et al., 2004; Marchand et al., 2006), there are few published long-term cost analyses that assess efficacy of treatment across varying levels of American Society of Addiction Medicine levels of care (ASAM LOC). This work looks to supplement existing examinations of the cost efficacy of drug treatment programs by exploring a court-based pilot program in a Midwestern county. This particular program is unique in that it engages individuals across multiple justice-system contexts, and prescribes treatment using an ASAM LOC methodology, in direct contrast to the 'one size fits all' approach applied by many drug courts.

Findings of this work will lend insight into a) the efficacy of a novel program that emphasizes appropriate and tailored treatment over increased supervision, and b) the cost-efficacy by level of ASAM LOC to illuminate the benefits of varying treatment levels.

Literature review

Cost effectiveness methodology

Measuring the cost-effectiveness of substance use treatment programs is complicated by the fact that there is considerable variability in substances of use, history and trajectory of use, and outcome measures for corresponding treatments. Nonetheless, there is considerable literature that has been dedicated to measuring both the durability and costs of positive treatment outcomes (Mark et al., 2020; French et al., 2008; Brown, 2010). Sindelar and colleagues (2004) offer an explanation as to why studies may differ on the findings cost effectiveness analysis in substance use treatment; specifically, that there is little convergence on what single criteria would represent effective treatment. For example, studies have relied upon abstinence, reduced drug use, criminal desistence, and employment among other measures to determine effective treatment (Roebuck, French & McLellan, 2003; Laudet & Stanick, 2010; Walton & Hall, 2016). Moreover, there is a growing body of literature that is critical of criminal justice outcomes like recidivism as an outcome measure for any form of criminal justice rehabilitation program (Butts & Schraldi, 2022; Rosenfield & Griggs, 2022; Demleitner, 2020).

Appropriate treatment

There are several ways to match patients to treatments for SUD and their comorbidities. A patient can be fitted to treatment based on clinical variables which can be paired with specific types of counseling. For example, traumas or psychiatric illness may be paired with trauma informed care or pharmacotherapies (Gastfriend & McLellan, 1997). In contrast, the ASAM

criteria match a patient by determining a level of care (LOC) that is prescribed by assessing

biopsychosocial measures through the application of validated tools like the Addiction Severity

Index or ASI (McLellan et al., 2006; Stallvik et al., 2015; Stallvik & Gastfriend, 2014). The

ASAM LOC assessment has proved effective in both outcomes and costs since its dissemination

in 1991 (Gastfriend & Mee-Lee, 2004; Kampman & Jarvis, 2015). This approach compares

favorably to both over-matching and under-matching. In other words, implementing the LOC

suggested by ASAM criteria has proven to produce more effective treatment outcomes when

compared to less intensive levels of care (Stallvik et al., 2015). In addition, implementing the

LOC suggested by ASAM criteria has proven to produce more effective treatment outcomes

when compared to more intensive levels of care (Stallvik et al., 2015). As it is generally accepted

that more intensive treatment is more expensive than less intensive, for example inpatient versus

outpatient treatment (Harrison & Asche, 1999), an over prescription for LOC would logically be

less cost effective than a lower LOC.

Cost effectiveness of ASAM programs

There are multiple studies that demonstrate both outcome and effectiveness of treatment

that begins with assessing the prescribed LOC through the ASAM criteria (Baker & Gastfried,

2004; Levine et al., 2004; Stallvik & Gastfriend, 2014). In a report required by law in the State of

New Hampshire (2020), high intensity treatment (ASAM level 3.5) required an average

expenditure of $2,638 to achieve a one unit change in a composite score of the National

Outcomes Measures (NOMS) in substance abuse treatment. The costs ranged according to

substance of abuse with alcohol requiring a lower expenditure for the one unit change in

outcome than heroin and other opiates. In the findings of this report, the most commonly cited

positive influence on program outcome was length of time spent in a high quality, supportive

care environment. This finding is also supported by a California study that examined the implementation of ASAM criteria in a Medicaid demonstration project (Mark et al., 2020). The authors noted improved retention in programs that implemented ASAM criteria to determine treatment plans and begin with residential treatment. In line with this conclusion, this study evaluates the outcomes and cost-effectiveness of a drug diversion program that incorporates ASAM methodologies into its development.

Program components and current study

The subject of this work is a pilot diversion program based in a Midwestern county. There are several meaningful characteristics that differentiate this program from other established drug courts. First, the program engaged individuals coming from many parts of the CJ system, including the county's circuit court, adult probation, and community corrections, and capitalized on strong connections across a number of community partners that specialized in the provision of recovery services. Second, the program focused on recommending services that were in-line with the severity of need for each individual; specifically, based in ASAM LOC methodologies. Resultingly, this specific diversion program would be more accurately described as a court-based SUD referral program rather than a court supervision program.

Data were collected using an intent-to-treat approach that allowed for the evaluation of program outcomes and estimated cost effectiveness. Using a set of binary logistic analyses, this work aims to determine 1) if there are significant differences in future (6- and 12-month post-treatment) recidivism outcomes between completers and non-completers and 2) the cost efficacy across the three treatment settings, ranging from the most intensive (3.5 ASAM) setting to the least intensive (therapeutic care, or TC).

Methods

Sample

From March of 2018 to June 2021, a total of 483 participants were referred to the diversion program. Across the 483 participants, missing data related to prior arrests and recidivism reduced the final sample size to 429. To be considered an eligible participant for referral to this program, individuals must be at least eighteen (18) years of age; charged with a felony offense in the county of interest; under the court-ordered supervision of community corrections, diversion services, or probation; and must have a diagnosed SUD as outlined in the DSM-5 and prior difficulty engaging in recovery. Referrals to the pilot program came from the agencies listed above, in addition to any of the county's other treatment courts (e.g., mental health court, veterans' court, and recovery court).

Measures

Recidivism. Recidivism was measured through a binary variable, and recidivism rates were reported using an intent-to-treat approach. As such, any new arrest during or after participation in the diversion pilot program counts as recidivism, regardless of program completion status. Thus, if an individual was arrested after beginning treatment through the diversion program, the recidivism variable took a value of 1. Otherwise, the value of the recidivism variable was 0.[1]

Program completion. To assess completion rates, we considered the reported outcomes of treatment. Individuals who completed their stay in treatment were considered "program completers," and the completion variable took a value of 1. The completion variable took a value of 0 if an individual was prematurely removed from treatment as a result of violation, incarceration, or some other infraction.

Control variables. In addition to the variables listed above, the analysis used several control variables shown to correlate with recidivism. These variables include the participant's race/ethnicity[2], gender, age, and number of prior arrests in the previous 12 months.

Analytic strategy

To address the first of two research questions, we examined differences in recidivism across individuals who do and do not complete treatment across treatment levels. Six negative binomial regressions were used to estimate the effects of program completion across ASAM LOC on twelve-month recidivism.

To determine program cost effectiveness, we examined the average number of days in treatment by facility type and implementation costs. We then used a dose-response methodology to establish relationships between varying levels of treatment (i.e. the dose) and outcomes of interest (i.e. the response). To measure respective dose, we consider the effects of the intensity of treatment and completion of treatment. To measure response, we consider the likelihood of 12-months post-program recidivism. The results presented outline the average number of days in treatment for completion, the reduction in recidivism, the implementation costs per person (based on cost per bed per day and the average number of days spent in treatment), and the 12-month cost-effectiveness ratio.

Results

[TABLE 1 HERE]

Differences across program completers and non-completers

Table 1 delineates differences in key variables across program completion status. For individuals enrolled in 3.5 ASAM level treatment through the diversion program, over 85% (n = 197; 85.28%) completed programming. Approximately 79% of individuals enrolled in 3.1

ASAM treatment completed (n = 88; 79.28%), and 73% of individuals in therapeutic

communities completed treatment (n = 64; 72.73%). There are differences in the observed and

expected frequencies across treatment levels, with individuals significantly more likely to

complete 3.5 ASAM level treatment than other treatment forms (χ^2 = 18.95, p = .044). With

respect to completion, women were much less likely to complete treatment than men as

approximately half of the women who in engaged treatment completed (n = 67; 55.83%),

compared to 80% of men (n = 190; 81.97%). There were no differences by race or age; however,

individuals who completed treatment had more arrests prior to treatment than individuals who

did not complete treatment (t = 18.95, p = .048).

We also assessed differences in recidivism across completers and non-completers. A chi-

square test illustrated differences at the 10% level in recidivism 6- and 12-months post-treatment

across completers and non-completers (χ^2= 4.19; p = 0.04 and χ^2 = 2.69; p = 0.09, respectively).

Granular analyses across multiple treatment levels reveal a more thorough picture of recidivism

outcomes across treatment intensity.

[TABLE 2 HERE]

[TABLE 3 HERE]

Tables 2 and 3 present the effects of program completion on recidivism likelihood

through logistic regressions. Specifically, Table 2 outlines the odds ratios of each ASAM

treatment level on 6-month post-program recidivism, while Table 3 outlines the odds ratios of

each ASAM treatment level on 12-month post-program recidivism. Column 1 of these tables

presents findings across all levels of treatment. Overall, Table 2 shows program completion

across all levels of treatment resulted in a 66% reduction in the likelihood of recidivism 6-

months after program completion relative to non-completers (OR = 0.34; p = 0.01). Across all

control variables, gender and prior arrests served as the greatest correlates of recidivism; women were 69% less likely to recidivate in the first six months post-program (OR = 0.31; p = 0.03), and individuals with a previous record of arrests were 845% more likely to be re-arrested (OR = 8.45; p < 0.01). These trends remained in Table 3 using 12-month recidivism as the independent variable of interest. Program completion of any level decreased the likelihood of recidivism 12 months after program participation by 60% (OR = 0.40; p = 0.02). Women were 64% less likely to recidivate in the first 12 months post-program (OR = 0.36; p = 0.02), and individuals with a previous record of arrests were twelve times more likely to be re-arrested (OR = 12.17; p < 0.01).

After investigating the effects of all treatment types, we next isolated the effects of each level of treatment. Column 2 of Tables 2 and 3 presents the results of 3.5 ASAM treatment completion. Completion of 3.5 ASAM treatment resulted in an 82% reduction in the likelihood of 6-month recidivism relative to non-completers (OR = 0.18; p = 0.01). Similar to the overall results, gender and prior arrests were associated with recidivism; women were 81% less likely to recidivate in the first six months post-program (OR = 0.19; p = 0.01), and individuals with a previous record of arrests were 802% more likely to be re-arrested (OR = 8.02; p < 0.01). These trends remained in the analysis using 12-month recidivism as the outcome variable. Program completion of any level decreased the likelihood of recidivism by 80% (OR = 0.20; p = 0.01). Women were 75% less likely to recidivate in the first six months post-program (OR = 0.25; p = 0.01), and individuals with a previous record of arrests were eleven times more likely to be re-arrested (OR = 11.32; p < 0.01).

The models that investigated the effects of 3.1 level ASAM treatment and therapeutic community treatment revealed differing results relative to 3.5 level treatment. Columns 3 and 4

of Tables 2 and 3 presents these results. Completion of 3.1 ASAM treatment did not have a statistically significant effect on the likelihood of 6-month (OR = 0.72; p = 0.63) or 12-month recidivism (OR = 1.12; p = 0.86). However, completion of therapeutic community programming decreased likelihood of re-arrest 6-months post program by 82% (OR = 0.18; p = 0.07) and 85% 12-months post program (OR = 0.15; p = 0.10).

In light of these results, there are two important notes: first, because only one woman was assigned to 3.1 level ASAM treatment, this variable was not included in the 3.1 ASAM model. Second, prior arrests were highly related to recidivism for individuals who participated in therapeutic community treatment; individuals with a prior record of arrests were 25 times (OR = 24.87; p < 0.01) and 71 times (OR = 71.00; p < 0.01) more likely to be re-arrested 6- and 12-months after treatment in the sample of individuals who participated in TC treatment. This could indicate that the more relax TC treatment leads to more opportunities for recidivism for those with prior arrests, as a less intensive treatment program may lead to greater opportunity to slip into old habits.

[TABLE 4 HERE]

Cost efficacy across treatment levels

In light of the meaningful differences in efficacy across treatment outcomes, we also considered the cost efficacy of programming across treatment levels. Table 4 displays the results of the cost analysis across the three treatment modalities. The following section identifies differences in cost efficacy across treatment levels based on the average number of days in treatment, annual implementation costs, and the 12-month reduction in recidivism. The resulting metric of cost efficacy is the cost per % reduction in recidivism for a client to complete in each treatment level.

For the highest intensity treatment, the average number of days in treatment was approximately 24 days, and the implementation cost was $5,283.85. Those that completed the residential treatment program were 80% less likely to recidivate relative to those who did not complete. The 12-month cost effectiveness ratio for high-intensity, clinically managed residential care was $66.04, which translates to $66.04 per 1% reduction in recidivism.

At the 3.1 level of treatment, the average number of days in treatment was 26, and the implementation cost was $4,272.25 for a treatment regimen completion. Those that completed the residential treatment program were 14% less likely to recidivate relative to those who did not complete treatment. The 12-month cost effectiveness ratio for high-intensity, clinically managed residential care was $305.16, which translates to $305.16 spent for a 1% reduction in recidivism.

For TC treatment, the average number of days in treatment was 113, and the implementation cost was approximately $7,381.94 for a completed stay in a therapeutic community. Those that completed the residential treatment program were 85% less likely to recidivate relative to those who did not complete. The 12-month cost effectiveness ratio for high-intensity, clinically managed residential care was $78.52, which translates to $78.52 spent for a 1% reduction in recidivism.

Discussion

Diversion programs are an important part of the growing movement in the criminal justice system aimed at providing alternatives to incarceration for substance and justice involved individuals. Previous research has shown court-based programs, and drug courts in particular, have the potential to lower costs relative to incarceration (Downey & Roman, 2010; Trood et al., 2022; Hiller et al., 2021), though they often present negative externalities including increased supervision and, consequently, an increased likelihood of technical violations (Hamilton, 2010).

This analysis builds on the previous literature by exploring the effectiveness and cost-effectiveness of a pilot drug-diversion program that focuses on appropriate treatment provision rather than heightened supervision. The advantage of our study lies in both the long-term nature of the study and the multiple treatment regimes employed in this pilot program. Individuals were enrolled in one of three programs, ranging in program length and treatment intensity. The shortest, most intensive treatment program (3.5 ASAM) takes just 24 days to complete on average, while the longest, least intensive program (TC) spans 113 days on average. We not only explore the reduction in recidivism associated with each of the three diversion programs, but also the cost-effectiveness of each program in terms of dollars spent per 1% reduction in recidivism. As programs of this nature are difficult to implement and require buy-in from a number of community stakeholders, the cost effectiveness of treatment is of primary interest when evaluating the success of a given program.

We find that this particular program has a meaningful ability to reduce recidivism over both a 6- and 12-month horizon for individuals who complete treatment relative to those who do not. The most statistically robust form of treatment is the most intensive 3.5 ASAM program, leading to an 82% reduction in 6-month recidivism and an 80% reduction in 12-month recidivism relative those who fail to complete the program at the .01% significance level. Further, due to the short time span of this treatment type (24 days vs 26 days vs 113 days) and its high efficacy, this program is the most cost-effective among those explored in the 4-year drug diversion program, costing just $66.04 per 1% reduction in recidivism. The 3.1 ASAM program has both a smaller effect size (28% reduction in 6-month and 14% reduction in 12-month recidivism) and fails to meet the standard for statistical significance, even at the 10% significance level.

The TC program is the least intensive; however, it's impact on recidivism reduction (83% over 6 months and 85% over 12 months) is greater than the 3.5 ASAM program, albeit less tightly identified as results are significant the 10% significance level. However, the 3.5 ASAM program is clearly the most efficacious, as the potential increase in recidivism reduction from the TC program comes at a cost of an additional $12.48 per 1% reduction in recidivism, a 19% increase in cost relative to the 3.5 ASAM program. Thus, it appears that short-intensive treatment programs have an advantage over other forms of treatment as (1) they have the highest completion rates among the 3 treatment options, (2) they have the highest cost-adjusted impact on reducing recidivism for individuals who complete the program.

The ability to evaluate cost outcomes over a 12-month horizon, along with the unique attributes of this court-based diversion program, separates our study from previous investigations of drug court programs. We find that the ASAM LOC provide a unique framework to examine the efficacy of diversion programming.

Limitations

In light of these findings, there are several limitations of the research. First, we acknowledge that recidivism, and particularly re-arrests, presents a flawed measure of discontinuation of substance use (Rosenfeld & Grigg, 2022). Specifically, using re-arrests as a measure of recidivism is flawed, as arrests and convictions are not the same. Further, a lack of re-arrest or conviction does not meaningfully represent abstinence from substance use. Lastly, an arrest or conviction for criminal activity involving substance use does not definitively determine that substance use treatment is a necessary or helpful intervention. Many people use substances and people recover without programming (Granfield & Cloud, 2009). As a result, we would like to emphasize that the results of this research should be considered with this caveat in mind.

In addition, there were methodological concerns with the present analysis that may have affected our results. We are unable to establish causality using current methods of this research. Ideally groups would be randomly assigned, so a third group of individuals who were not offered any form of treatment could serve as the baseline against which outcomes associated with some treatment and successful completion of treatment could be compared. However, by measuring treatment effectiveness as we have, we are likely attenuating the true treatment effect associated with these programs as incomplete treatment should have a greater impact on recidivism reduction than no program participation at all. Thus, our measurements likely reflect a low-end estimate of the effectiveness of treatment on recidivism.

The potential presence of omitted variable bias may have also impacted our results. That is, there may be factors correlated with program completion that may in turn influence recidivism. A follow-up with participants outlining reasoning behind program non-completion could shed light on mechanisms driving our results. It would be helpful to understand what structural barriers are in the way of individuals completing programs (financial need, family obligations, travel limitations) and if these same barriers coincide with drivers of re-arrest.

Finally, these results may not be generalizable across space and time. We considered the results of a diversion effort in a Midwestern county during the emergence of the COVID-19 pandemic, which may have affected the results of the program across the dates considered. Future work examining the cost-effectiveness outside of an urban setting in the Midwest and outside of the emergence of a global pandemic would help to solidify these results as a general phenomenon and not specific to this unique to this place or time period.

Conclusion

The majority of justice-involved individuals suffer from a substance use-disorder, which has led to increased interest in utilizing drug courts to re-direct individuals from the carceral system. One hurdle to expanding these programs is the limited availability of resources, both social and fiscal, which are required to create successful diversion programs. As such, it is of paramount importance to implement diversion programs that are both effective in improving outcomes for justice-involved individuals by reducing future recidivism which also utilize scarce resources in a cost-effective manner. This study examines a drug diversion pilot program in a Midwestern county in order to understand the most efficacious means of reducing recidivism for individuals that are substance- and justice- involved.

This research provides evidence in support of several treatment regimes, with both a short, intensive program (3.5 ASAM) and a longer, less intensive program (TC) leading to statistically significant reductions in recidivism for program completers relative to non-completers. However, once costs are considered, the shorter and more intensive program is more effective in terms of recidivism reduction per dollar spent. The shorter program also has the advantage of a higher completion rate over the longer program (85% vs 73%), meaning individuals who enter this treatment regime are more likely to experience the benefits associated with this form of treatment.

In sum, the integration of a cost analysis has helped to identify the efficacy of treatment in reducing recidivism across the ASAM spectrum. The findings of this work are largely positive, reflecting the importance of appropriate treatment in the context of drug diversion programming. Drug court programs often engage in intensive supervision, which can consist of frequent court appearances, drug screenings, mandatory participation in group therapy and recovery meetings, education requirements, employment training or coaching, and parenting

classes to name a few. None of these activities are a direct measure of desistance from substance use, the presumed goal. As such, diversion programs that result in increased criminal justice involvement act in opposition to the goals of effective treatment and recovery. We advocate for further research in the vein of health and health outcomes research, in line with literature supporting the treatment of SUD as a medical condition rather than a moral failing or criminal proclivity.

Notes:

1. We acknowledge that recidivism, and particularly re-arrests, presents a flawed measure of success (Rosenfeld & Grigg, 2022). However, in light of this limitation, we felt comfortable using this measure, especially given the low correlation of racialized minority status with recidivism.

2. We would like to emphasize that a person's race does not have a direct effect on recidivism. Rather, a person's race affects recidivism indirectly through inherent structural bias based on race.

Table 1. Descriptive statistics across program completers/non-completers

Variables	(1) Complete n (%) or x̄ (S.E.)	(2) Incomplete n (%) or x̄ (S.E.)	t or χ^2
Treatment Level			
3.5 ASAM	197 (85.28%)	34 (14.72%)	
3.1 ASAM	88 (79.28%)	23 (20.72%)	
TC	64 (72.73%)	24 (27.27%)	
			$\chi^2 = 18.95**$
Gender			
Male	190 (81.97%)	44 (18.80%)	
Female	67 (55.83%)	53 (44.16%)	
			$\chi^2 = 25.65**$
Race/Ethnicity			
White	190 (70.63%)	79 (29.36%)	
Racial/ethnic minority	67 (78.82%)	18 (21.18%)	
			$\chi^2 = 2.17$
Age	34.97 (0.64)	34.65 (1.03)	
			$t = -0.25$
Prior arrests	0.45 (0.03)	0.40 (0.05)	
			$t = -0.86$
6-month recidivism			
No re-arrest	204 (75.28%)	67 (24.72%)	
Re-arrest	20 (58.82%)	14 (41.18%)	
			$\chi^2 = 4.19*$
12-month recidivism			
No re-arrest	194 (75.19%)	64 (24.81%)	
Re-arrest	30 (68.83%)	17 (36.17%)	
			$\chi^2 = 2.69^{\dagger}$

Notes:
[†] p<.10; *p<.05; **p<.01

Table 2. Logit regression, 6-month recidivism

	(1) All treatment forms (n=429) OR (S.E.)	(2) 3.5 ASAM (n=231) OR (S.E.)	(3) 3.1 ASAM (n=111) OR (S.E.)	(4) TC (n=88) OR (S.E.)
Program completion	0.34**(0.14)	0.18** (0.11)	0.72 (0.49)	0.18[†] (0.10)
Female	0.31* (0.17)	0.19* (0.12)	-- --	0.14 (0.19)
Racial/ethnic minority	0.73 (0.34)	0.86 (0.44)	1.19 (0.76)	0.61 (0.57)
Age	0.98 (0.02)	0.98 (0.02)	1.00* (0.03)	0.96 (0.04)
Prior arrests	8.46**(4.07)	8.02**(4.16)	15.67* (16.72)	24.87**(30.46)
Constant	0.22 (0.19)	0.42 (0.41)	0.02* (0.03)	0.26 (0.49)

Notes: Because only one woman in the sample was recommended to 3.1 ASAM treatment, the gender variable was not included in this regression.
[†]$p<.10$; *$p<.05$; **$p<.01$

Table 3. Logit regression, 12-month recidivism

	(1) All treatment forms (n=429) OR (S.E.)	(2) 3.5 ASAM (n=231) OR (S.E.)	(3) 3.1 ASAM (n=110) OR (S.E.)	(4) TC (n=88) OR (S.E.)
Program completion	0.40* (0.16)	0.20**(0.12)	0.86 (0.68)	0.15[†] (0.16)
Female	0.36* (0.16)	0.25* (0.15)	-- --	0.19 (0.21)
Racial/ethnic minority	0.70 (0.29)	0.96 (0.45)	0.92 (0.52)	0.23 (0.22)
Age	0.96 (0.02)	0.97 (0.02)	0.98 (0.03)	0.92 (0.04)
Prior arrests	12.16**(5.44)	11.32**(5.76)	16.82*(13.23)	71.00**(90.18)
Constant	0.38 (0.30)	0.71 (0.69)	0.07* (0.08)	0.85 (1.60)

Notes: Because only one woman in the sample was recommended to 3.1 ASAM treatment, the variable was not included in this regression. [†]$p<.10$; *$p<.05$; **$p<.01$

Table 4. Cost analysis by treatment level

	(1) Average # of days in treatment	(2) Implementation costs (annual)	(3) 12-month recidivism reduction	(4) Cost per % reduction in recidivism
3.5 ASAM	23.67	$5,283.85	80%	$66.04
3.1 ASAM	26.13	$4,272.25	14%	$305.16
TC	113.22	$7,381.94	85%	$78.52

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