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## Systematic review of the impact of adult drug treatment courts

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### Abstract

The U.S. correctional system is overburdened by individuals suffering from substance use disorders. These illnesses also exact a heavy toll in individual and public health and well-being. Effective methods for reducing the negative impact of substance use disorders comprise critical concerns for policy makers. Drug court treatment programs (DTCs) are present in over 1800 county, tribal, and territorial jurisdictions in the United States, as an alternative to incarceration for offenders with substance use disorders. This review article summarizes available descriptive information on representative drug treatment court populations, summarizes observational studies of drug court participants, and specifically reviews available experimental effectiveness literature on drug treatment courts. The review concludes by examining limitations of the current literature, challenges to conducting research in drug court samples, and potential future directions for research on drug treatment court interventions. Review of non-experimental and quasi-experimental literature regarding the impact of drug treatment courts point toward benefit vs. traditional adjudication in averting future criminal behavior and in reducing future substance use, at least in the short term. Randomized effectiveness studies of drug treatment courts are scant (three identified in the literature on U.S. adult drug courts), and methodological issues arise in combining their findings. These randomized trials failed to demonstrate consistent effect upon re-arrest rates for drug-involved offenders participating in drug treatment court vs. typical adjudication. The two studies examining reconviction and reincarceration, however, demonstrated reductions for the drug treatment court group vs. those typically adjudicated.

### Introduction

Drug treatment courts are a form of therapeutic jurisprudence falling under the more general modern rubric of “problem-solving courts” and have been called the most significant criminal justice initiative of the 20<sup>th</sup> century.<sup>1</sup> The basic philosophy behind problem-solving courts, drug treatment courts included, is that individuals committing crime often suffer from illness or psychosocial dysfunction which predisposes them to criminal behavior. Problem-solving courts target underlying illness or dysfunction through the provision of treatment services in conjunction with judicial supervision. This model, as opposed to typical adjudication, incarceration, or more traditional forms of community supervision (e.g. probation or parole), is thought to improve not only the health and reintegration of the offender, but public health and safety by addressing root causes of criminal behavior. The provision of services, such as substance abuse treatment or anger management counseling, are hypothesized to target

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disturbances which motivate the criminal behavior and, hence, to reduce the likelihood of recidivism.

## Societal costs of punitive drug policy

The impact of substance misuse upon the commission of crime and upon public health and safety are critical concerns for policy makers and for law enforcement. The relentless and costly expansion of the U.S. penal system is, at least in great part, the result of punitive policies intended to reduce public drug demand, but which frequently result in the confinement of addicted individuals, rather than high-level drug traffickers or manufacturers. One in four, or 509,000 inmates in the overall U.S. penal system (increased from one in eleven, or 57,975, inmates in 1983) are currently serving time or awaiting trial for a drug-related offense at an annual cost of \$8 billion.<sup>2</sup> Estimates from large national surveys indicate that, in 2003, 1.5 million arrestees were at risk for drug abuse or dependence.<sup>3</sup> Fifty-eight percent of these drug offenders have no record of violent criminal activity or high-level drug trafficking. Seventy-five percent of drug offenders in state prisons have been convicted of drug possession and/or non-violent crime.<sup>4</sup>

Bhati et al<sup>3</sup> merged and analyzed large national databases to provide estimates of the potential benefit, in terms of reductions in criminal behaviour, potentially achieved through the provision of substance abuse treatment to addicted offenders. This study drew together data from 3 large national datasets: the National Survey on Drug Use and Health, the Drug Abuse Treatment Outcomes Study, and the Arrestee Drug Abuse Monitoring system. Using these data, the authors specifically estimated that 9.9 million non-drug crimes, such as burglary and assault, would be averted if offenders with abuse or dependence were all treated with a 30-day residential treatment program; 6.7 million non-drug crimes would be averted if these same offenders were treated via outpatient treatment. In the same study, drug treatment courts were estimated to lead to the prevention of 34.4 million drug crimes annually. The authors further estimated that universal provision of treatment to eligible offenders would produce more than \$46 billion in benefits at a cost of \$13.7 billion.

Aggressive application of punitive policies also likely leads to the grossly disproportionate incarceration of low-income and minority Americans. A higher level of visibility of drug trade and use in low-income and minority communities likely contributes to the disproportionate incarceration of minorities when mandatory minimum sentences and local law enforcement are aggressively pursued.<sup>4-6</sup> Four of every five drug offenders are Black (56%) or Hispanic (23%),<sup>4</sup> a number far exceeding that which would be anticipated by the estimated rates of drug use in these populations (13% and 9% respectively).<sup>7</sup> In Wisconsin, these racial disparities in criminal justice treatment of minorities are particularly concerning. For offenses involving drug possession typically consistent with personal use (Class F-I felony possession), Black offenders are more than twice as likely to receive a prison sentence (as opposed to probation) when compared to White offenders.<sup>8</sup>

Given an overburdened criminal justice system and evidence indicating that service provision and treatment may more effectively foster desired outcomes than incarceration,<sup>9</sup> Dade County Florida instituted the first drug treatment court in the U.S. in 1989.<sup>10</sup> Since that time, drug treatment courts have spread widely and rapidly, with nearly 2000 currently in existence and many others in planning stages.<sup>11</sup>

A large body of literature, including studies in correctional populations, indicates that longer periods of treatment and the completion of treatment results in greater decreases in substance use and longer periods of time until relapse.<sup>12-17</sup> Drug treatment courts, likely due in part to the additional leverage of integrating treatment with the coercive power of the criminal justice system, tend to retain participants in substance abuse treatment for longer periods of time than

that seen in the general population of treatment-seeking adults.<sup>18</sup> Drug courts, hence, may enhance treatment outcomes among addicted offenders by facilitating retention in treatment for longer periods of time

This review article will summarize available descriptive information on representative drug treatment court populations, summarize observational studies of drug court participants, present a summary of experimental effectiveness literature on drug treatment courts, examine limitations of the current literature, challenges to conducting research in the drug court population, and potential future directions for DTC research. As such, this review will contribute to current knowledge by synthesizing a broad range of literature in order to draw conclusions regarding the effectiveness of DTCs overall and for particular high risk subpopulations. Findings will be of particular interest to treatment providers and policymakers in gearing case management conditions to the needs of participants in community supervision programs such as drug court.

While there is a burgeoning literature on juvenile and family drug treatment courts, the current review will be restricted to literature related to adult drug treatment courts. DUI (driving under the influence) courts are also excluded from this review. The review is also restricted to adult drug court models in the U.S.

## Review methodology

The following comprises a review of existing literature, and, as such, was deemed exempt from formal review by the University of Wisconsin Health Sciences Human Subjects Committee.

Given the overlap of multiple academic fields in the study of drug court participants and their outcomes, a wide variety of sources were searched to ensure a comprehensive and representative literature review. Traditional databases which were searched included PubMed, Sociological Abstracts, and PsychINFO. Databases focusing upon criminal justice literature were also searched including the National Criminal Justice Reference Service and Criminal Justice Abstracts. Since a good deal of drug court research is conducted by private foundations under contract by several jurisdictions, the websites of prominent agencies conducting this work were also searched, which included Northwest Professional Consortium, the Urban Institute, the National Drug Court Institute, and the Department of Justice. This allowed for the inclusion of program evaluations not published in the scientific literature. Based upon this search, appropriate literature from the bibliographies of appropriate articles was also obtained. Search terms included: drug treatment court, drug court, problem-solving court, therapeutic jurisprudence, substance related disorders AND crime, substance dependence AND crime.

Titles and abstracts were then reviewed to ascertain whether drug treatment courts were a primary intervention being examined and whether client outcomes (such as recidivism, substance abuse treatment completion and ongoing substance use) were addressed by the manuscript. Studies addressing important health determinants such as education, income, and employment were also included. Included articles were restricted to those examining adult drug treatment courts in the U.S.

For the purposes of providing a representative overview of the demographic characteristics of drug treatment court participants, data from process evaluations of DTCs in their early stages are included when describing “Epidemiological data on drug court participants.” The previously described data bases and search engines included such process evaluations as internal reports and included the demographic characteristics of early entrants to the local drug treatment courts. By their nature, however, outcomes data are not available on the populations described in these reports.

Appropriate literature was assembled and reviewed during the months of February through April of 2009. Through the previously described methods, a total of 44 reports were identified for inclusion in the current review. These publications included 29 studies or program evaluations which evaluated DTC outcomes. Three randomized trials were identified, one of which generated multiple manuscripts; and demographic data from 6 process evaluations were also included.

## Epidemiological data on drug court participants

Descriptive characteristics of representative drug court populations are presented in Table 1. To summarize, nationally among DTCs, populations are predominantly male (74%); typical age ranges from 28–40, with the most mean ages, where reported, ranging from 28–33. Ethnic make-up varies greatly by location, with a large number being predominantly (50–95%) white. Urban locations typically involve a larger proportion of minority participants. California drug courts contain a greater predominance of Hispanic participants than other locations. Many participants have prior arrest records with an average number of previous arrests ranging from 1–3 being typical. Numbers of prior arrests for participants tend to be higher in urban drug courts. (e.g. 11–12 in Baltimore) Polysubstance use is not generally an exclusion criteria, and many participants have alcohol use issues in addition to other drug issues (50–60%).

Eligibility criteria for participation in drug treatment court most generally include age over 18, drug charge not involving manufacture or distribution, no history of violent felony convictions, a demonstrated need for substance abuse treatment, and must not have used a weapon during the course of the offense resulting in the drug treatment court referral.<sup>19–30</sup> Additional criteria may include lack of gang affiliation<sup>29, 31</sup> facing a minimum jail sentence,<sup>21</sup> and the absence of significant mental health issues.<sup>3, 28, 31</sup> Capacity constraints also limit participation by all eligible offenders in the majority of jurisdictions.<sup>3</sup> Incentives for completion uniformly involve reduction or dismissal of charges or penalties resulting in the referral to drug treatment court.

Although frequently a criterion excluding an offender from drug court participation, mental health diagnoses and their severity are rarely presented in published or unpublished reports focusing upon potential DTC participants. Precise estimation of mental illness prevalence and severity is made more difficult by the fact that mental health status is often based upon client self-report of a mental health history and infrequently based upon validated measurements. This may be in large part due to the fact that many drug treatment courts do not have ready access to specialized mental health care for their participants, outside of substance abuse treatment.<sup>32</sup> Furthermore, screening instruments (such as the Beck Depression and Anxiety Inventories and the Addiction Severity Index) are more frequently used than instruments or interviews which allow for definitive mental health diagnoses (e.g. Structured Clinical Interview for DSM Disorders). Where drug court participants were recruited and mental health measures subsequently administered,<sup>33–35</sup> between 25 and 42 percent of participants were identified as having a psychiatric illness. Two studies used validated screening measures for anxiety and depression symptoms (Beck Anxiety Inventory and Beck Depression Inventory-II). Rates of moderate-severe or severe anxiety were 12%<sup>35</sup> and 35%<sup>34</sup>. Rates of depression warranting referral were 20.4%<sup>35</sup> and 42%.<sup>34</sup> Among a subset of participants reporting a history of traumatic events, 25% screened positive for post-traumatic stress disorder.<sup>35</sup> Studies in drug court settings indicate that mental health diagnoses are more common among female drug court participants.<sup>33, 36</sup> In one study, women were 60–80% more likely to require referral for further assessment and management of symptoms of mental illness, as measured by the BDI, the Modified MINI Screen, and the SF-36.<sup>35</sup> Bivariate correlations in another study indicated that mental health symptoms, as measured by the Brief Symptom Inventory, relate significantly to female gender.<sup>36</sup>

## DTC program characteristics

Drug treatment courts vary greatly in the number of annual participants, with 80–120 representing typical annual participation.<sup>3, 20, 21, 26, 27, 30, 31, 37, 38</sup> DTCs serving larger urban areas, however, frequently have much larger case loads (e.g. New York 453 in 1999, Los Angeles 884 in 11 separate drug courts in 2001, Travis County, Texas 300 in 2002).<sup>22, 26, 39</sup>

Drug courts most commonly work with multiple community agencies as providers of substance abuse treatment,<sup>19, 20, 26, 27, 40, 41</sup> (3 of 9 California counties<sup>31</sup>) though several, particularly smaller courts, refer to a single treatment agency (6 of 9 California counties<sup>31</sup>). Outpatient and residential treatment facilities are utilized by DTCs as indicated by client need.

Urine drug screening is a component of all drug court monitoring programs, but frequency varies greatly. Programs most often include an entry phase ranging from 1–4 months during which testing was more frequent (multiple times weekly).<sup>20, 21, 23–27, 30, 38, 39, 42</sup> Decreased frequency for urine submission is often used as a reward for participants adhering to DTC supervisory conditions.

Other services frequently provided to participants include anger management services,<sup>20, 43</sup> vocational training,<sup>20, 42</sup> parenting classes,<sup>20</sup> adult education, domestic violence counseling,<sup>20, 27, 42</sup> and home visits.<sup>1, 23–25, 42</sup> While mental illness is common in this population, description of resources available to address these issues is conspicuously absent in the literature. Mental health issues often falls outside the expressed purview of drug treatment court; and budget and other resource limitations may preclude specialist mental health assessment and management. Further, complicated mental health issues requiring specialist care often constitutes an exclusion criterion for drug court participation.

Drug treatment court procedures uniformly include appearances by the participant in court in front of a dedicated drug treatment court judge. Appearances before the drug court judge (for monitoring of progress, imposition of sanctions/rewards, and determination of graduation eligibility) are generally more frequent initially (weekly to every 6 weeks) and may decrease in frequency depending upon adherence to programming.<sup>20, 21, 23–27, 29, 31, 42</sup> Additional court and case management staff at these appearances varies between jurisdictions. Staff typically involved in the drug treatment court process include representatives of a treatment provider (or treatment case management),<sup>19–21, 26, 27, 30, 31, 38, 42, 44</sup> the district attorney,<sup>19–22, 26, 27, 30, 31, 38, 42, 44</sup> the public defender,<sup>19–22, 26, 27, 30, 38, 42, 44</sup> probationers,<sup>19–22, 26, 27, 30, 31, 38, 44</sup> and law enforcement.<sup>19, 20, 26, 27, 31, 38</sup> Length of minimum required drug court participation ranges from 6 months<sup>45</sup> to 12 months<sup>1, 19–21, 26, 29, 30, 38, 39</sup>, with 12 months being most common.

Drug treatment courts also incorporate a system of sanctions and rewards in an effort to foster adherence to substance abuse treatment and other case management conditions. Rewards most commonly involve the praise of the drug treatment court judge.<sup>20, 21, 26, 27, 38</sup> Thus, the personality of the drug court judge is likely an important factor in the success of any drug treatment court. Other common rewards have included tokens representing clean time and adherence,<sup>21, 38</sup> decreased frequency of appearances,<sup>19, 21, 27</sup> gift cards to local merchants.<sup>19, 21, 26, 38, 46</sup> Ultimately, the adherent participant is rewarded with a formal graduation ceremony often attended by family, friends, and individuals involved in the participant's treatment.<sup>20, 21, 27, 38</sup> Some programs require a period of continued probation after formal discharge from the drug court.<sup>20, 27</sup> Sanctions during participation may include judicial reprimand,<sup>20, 38</sup> community service,<sup>20, 21, 38, 46</sup> escalation of monitoring (urine drug screens, reporting to case management),<sup>21, 46</sup> or jail time.<sup>20, 21, 23–25, 27, 31, 37, 38, 45, 46</sup> Sanctions

are typically imposed for behavior such as missing treatment sessions, frequent positive urine drug screens, commission of a new crime, or missing court or court-ordered appearances.

Ultimately, the participant may be terminated from the drug treatment court, which most commonly results in the sentence the participant would have received if they had not participated in drug court.<sup>20, 21, 31, 37, 38</sup> Actions resulting in termination typically involve new crime committed, repeated positive urine screens, drug possession, or repeated failure to attend treatment visits, court appearances, or meetings with probation officers.<sup>21, 38, 47</sup>

Should a participant successfully complete substance abuse treatment and demonstrate reasonable adherence to other DTC conditions, the drug court judge may make a final determination that the participant has “graduated.” Graduation results in the dismissal or reduction of the charge which resulted in DTC participation or the dismissal or reduction of the associated sentence. Graduation requirements vary widely between jurisdictions, as well. All generally require a period of sustained drug-free time before graduation is allowed. Common durations of required abstinence, as measured by urine drug testing, range from 90 to 270 days.<sup>20, 21, 27, 31, 38</sup> There are requirements as great as 6 months (Douglas Co, Nebraska 29). Treatment adherence is a universal requirement, though specific criteria defining adherence vary widely. Additional requirements of some programs include community service hours,<sup>21</sup> obtaining stable employment and/or attainment of a high school equivalency degree,<sup>19, 21, 27, 29</sup> payment of fees to the drug court,<sup>21, 26</sup> completion of an autobiography or other written assignment,<sup>21, 38</sup> or completion of a specified number of steps in a traditional 12-step, group self-help program, such as Alcoholics Anonymous or Narcotics Anonymous.<sup>21, 38, 39</sup>

Graduation rates from drug treatment courts range from 30–70%, with the national average being around 48%.<sup>20, 21, 30, 31, 39, 45</sup> Barry Co, MI 44%<sup>20</sup> (Texas 6 counties 47–57%<sup>26</sup>) 72 percent, Harford, MD.<sup>21</sup> Okaloosa, FL 53%, Escambia, FL 48%<sup>42</sup>, Chester Co, PA 50+%<sup>30</sup>, 75% retention NY<sup>22</sup>

## Outcomes research

### Quasi-experimental recidivism studies

A summary of case-control studies examining recidivism among drug court participants versus comparison groups are shown in Table 2.

Quasi-experimental designs most often involved the use of a comparison group with similar drug-related offenses who did not participate in drug treatment court. Reasons for non-participation in the comparison group frequently involved lack of capacity to accept the members of the comparison group<sup>20</sup>, a group with similar charges who were not referred to drug treatment court often for unclear or undocumented reasons,<sup>20, 21, 27, 29, 39, 40</sup> or a historical comparison group before drug treatment court was instituted in the jurisdiction under study.<sup>26, 30, 38, 40</sup>

Case-control studies most commonly have found that rates of recidivism and substance use are reduced for drug court participants when compared to substance misusing offenders not exposed to drug court, particularly for drug-related crime.<sup>28, 29, 39, 42, 48, 49</sup> When survival analysis techniques are employed, drug court participants also demonstrate significantly longer times to re-arrest.<sup>39, 50, 51</sup> While a non-drug court group was not examined in the study, Peters and Murrin demonstrated a lower proportion being rearrested as well as a longer time to first arrest for drug court graduates vs non-graduates.<sup>42</sup>

Other system benefits of drug treatment courts appear to be a shortening of the time from arrest to sentencing, and shortening of the time of pre-sentencing confinement.<sup>40, 52</sup>

Studies in populations exposed to DTCs earlier in their evolution have been less likely to demonstrate positive effects of DTC vs. typical adjudication.<sup>40, 45, 53, 54</sup>

### Program Completion ('graduation')

The national average for program completion, or "graduation," by DTC participants is 48%. Studies reporting associations between participant characteristics and program completion are summarized in Table 3. The majority of manuscripts are summaries of program evaluations, where only aggregate statistics are presented, and statistical tests of correlation and significance had not been performed.

Minority ethnicity is associated with treatment failure in several studies.<sup>26, 30, 33, 55</sup> African-Americans have been particularly unlikely to graduate in quasi-experimental studies.<sup>30, 56, 57</sup> However, the literature conflicts on this point, and other studies have not found minority ethnicity to adversely affect graduation rates.<sup>58, 59</sup> In a study by Vito et al, where an African-American male ran the DTC, Black offenders actually out-performed White DTC participants.<sup>59</sup> Older age predicted successful treatment completion when examined,<sup>21, 26, 27, 55, 60</sup> and females have been more likely to graduate than males.<sup>33, 55</sup>

Substance use history and severity also likely influence the likelihood of successful graduation.<sup>20, 21, 27</sup> Measured in a variety of ways (days in last 30, history of previous treatment), a more severe or longer duration of substance use is associated with a lower likelihood of completion. Studies have also found that stimulant use disorders predict failure to complete treatment versus misuse of other substances.<sup>55</sup>

A history of untreated depression predicted failure to complete treatment in one study which examined this indicator. Interestingly, individuals currently receiving pharmacotherapy were more likely to complete treatment and DTC requirements.<sup>36</sup>

A single dedicated drug court judge with longer tenure on the bench has been associated with improved outcomes.<sup>21, 54</sup> (Dane County's drug treatment court, with a graduation rate of 70%, had a single drug court judge on the bench continuously from 1996–2004). Smaller programs also appear to graduate clients at higher rates.<sup>21, 26, 31, 61</sup> The establishment of rapport with drug court clients may be an important factor in moderating these outcome effects. In studies of treatment populations, which have included those in the criminal justice system, counselor-client rapport has been an important predictor of treatment retention, substance use outcomes, and repeat criminal behavior.<sup>62</sup>

### Substance use

When examined, drug court participants engaged in significantly less drug use as measured by urine drug screens than offenders going through typical adjudication.<sup>20, 21, 27, 30, 42</sup>

Interpretation of these results, however, is complicated by the fact that there is more often a defined protocol for obtaining urine drug screens in drug treatment courts, while probationers are more often tested when suspicion arises that they are using, thus, increasing the probability of a positive test in many comparison groups.

### Randomized controlled studies

Through the review procedure previously described, three studies of a randomized-controlled design in a U.S. adult drug treatment court setting were identified. Characteristics of these studies appear in Table 4.

Upon review of pertinent methodological issues, one study stands apart from the other two and warrants special consideration.<sup>43</sup> In this Washington DC study, drug offenders were randomly

assigned to one of 3 court “dockets:” (1) a drug treatment court condition, which included weekly urine drug testing, court-based day treatment for substance abuse; (2) a “sanctions” condition involving scheduled urine drug testing and a system of graduated sanctions for missed or for positive urine tests, and referral to community-based substance abuse treatment, or (3) a “standard” docket comprising scheduled urine drug screens with judicial monitoring and “encouragement” to obtain substance abuse treatment.

Important procedural departures for this particular court, called the Superior Court Drug Intervention Program (SCDIP), were that (1) potential participants were not necessarily addicted. Casual users were included, a significant departure from inclusion procedures in the majority of operating DTCs; (2) potential participants were not excluded based upon criminal justice history. Violent offenders and traffickers were included; (3) the intensity of the treatment track was also highly unusual: 6 hours per day, 5 days a week for 6 months. The generalizability of findings to traditional drug treatment courts is, therefore, highly questionable.

Sixty percent of those assigned to the treatment condition refused to participate (140 participated of 346 eligible). Many cited the required hours as a reason for non-participation. This also likely explains the fact that those who agreed to participate in the treatment track were more likely to be unemployed than those who refused (31% vs 44%,  $p < 0.05$ ). It also likely explains the unusually low graduation rate (19%). The participating group was also more likely to have a history of violent offenses.

Gottfredson et al<sup>23</sup> randomized 235 drug arrestees to “usual care” or to a DTC and followed individuals for 24 months. Eligibility criteria for study participation reflected typical inclusion criteria for drug treatment court participation and included: age over 18, residence in Baltimore, a lack of prior violent felony convictions, and a need for substance abuse treatment as determined by the Addiction Severity Index.<sup>63</sup> Ninety-one percent of those assigned to the DTC condition were handled in this way. Ninety-three percent of those assigned traditional court were, in fact, adjudicated as such. Analyses proceeded via intention-to-treat, with subjects analyzed as participants in the condition to which they were randomized, as opposed to the condition under which they were actually treated. Chi-squared testing was used to analyze re-arrest as a binary outcome variable (yes/no) during the period of observation. DTC participants had a lower likelihood of rearrest (81.3% vs. 66.2%,  $p < 0.05$ ) and a lower number of average rearrests (2.3 vs. 1.6,  $p < 0.05$ ).

Deschenes et al (1995) randomized 630 offenders to drug treatment court ( $n = 176$ ) or to one of three probationary tracks ( $n = 454$ ) involving different frequencies of formal supervision. The three probationary tracks were combined into one control group for analytic purposes. Eligibility criteria included: age over 18, first time offense for drug or drug paraphernalia possession. Those assigned to residential treatment were excluded. Whether or how a formal substance use disorder diagnosis was established was not described. A number of sample characteristics appeared to indicate a highly drug-involved population: “frequent use” or “dependency” reported by participants, and a history of prior substance abuse treatment reported by 40% of the overall sample. Indicators of socio-demographics, substance use and treatment history, and prior criminal justice involvement did not differ significantly between the study groups. Re-arrest rates did not differ for the study groups (33% for probation, 31% for drug court). The rate of incarceration during follow-up, however, was significantly lower for drug court participants (9%) vs. probationers (23%).



## Summary of Findings

The predominance of non-experimental and quasi-experimental literature appears to point toward benefit for drug treatment courts (DTCs) over traditional adjudication in terms of rates of and time to re-arrest. The limited number of investigations examining the outcome also appear to indicate that drug court participants are less likely to engage in substance use during program participation than are traditionally adjudicated offenders. This latter outcome may suffer, however, from potential bias due to observational study design; drug treatment court participants are more likely to undergo a more clearly specified protocol for urine drug testing frequency, whereas probationers and other comparison groups are more likely to be subject to urine screening when non-adherent to supervisory conditions and, therefore, when case managers are suspecting active substance use. Thus, comparison groups are theoretically more likely than DTC participants to test positive when submitting a urine drug test, potentially simply due to systems issues rather than differences in actual substance use.

Experimental studies of the effectiveness of adult DTCs are scant, and, among the 3 published randomized, experimental studies, significant variation exists between studies in terms of methodology and subject population. While re-arrest was not reduced by the drug court condition in randomized studies when results were combined, incarceration did appear to be reduced. The most straightforward explanation for these results relates to options generally exercised for addressing program non-adherence in drug treatment court vs. those utilized in probationer populations. Drug treatment courts have a larger menu of conventionally used options to address program violations. Increased frequencies of urine drug testing and/or court appearances, participation in community service, and enhancement of treatment services are frequently instituted measures in drug court, whereas incarceration is a more traditional strategy for addressing program violations by typical probationers. Whether these differences in re-incarceration may be associated with improvements or decrements in downstream outcomes is not fully understood. Reductions in incarceration would be expected, however, to reduce system costs presented by drug treatment court participants due to the significant incremental costs of jail or prison as opposed to community supervision.<sup>64–68</sup> An exception may be the significant additional costs of service provision to those who suffer from co-morbid mental illness requiring significant additional specialist resources.<sup>69</sup> Selection of appropriate participants and matching to appropriate supervisory conditions based upon client history and needs is an important issue requiring further investigation.

The results of quasi-experimental and other observational studies reviewed suffer from serious potential for selection bias. Individuals ineligible for drug court participation do not provide an ideal comparison group due to the high likelihood of confounding factors leading to their decrements in criminal justice outcomes (e.g. history of or current violent felony offense, the presence or increased severity of co-morbid mental illness). Comparison of drug court graduates to non-graduates suffers from similar concerns.

Randomized effectiveness studies are very limited in number.<sup>23–25, 43, 45</sup> Additional issues such as variations between studies in sampling and target population and differences in the drug court intervention clearly indicate that further investigations of this sort are warranted. Difficulties presented by conducting community-based research in the context of a complicated criminal justice system represent a barrier to overcome. Additionally, results in the extant literature indicating potential benefit to DTC programming may create ethical concerns surrounding randomization.

Measures of independent and dependent variables are inconsistent between studies. Recidivism, the most frequently assessed outcome, may be measured in a variety of ways, and consistency has not yet been achieved in the literature. Recidivism has alternatively been

operationalized as rearrest, formal charging, or conviction, with the relative timing of such events depending heavily upon systems or structural issues independent of individual offender behaviors or predisposing factors. Since re-arrest depends the least upon downstream systems factors and the most upon individual criminal behavior, this outcome may be the most logical to address in the context of short-term prospective studies. This outcome presents its own difficulties, as well. If formal charges are not filed, arrests may be missed in traditionally used public databases.

Drug use data is infrequently collected or reported centrally in a way that allows for a rigorous synthesis of ongoing drug use for drug court participants or comparison groups post-release from supervision. When examined, urine drug testing results are most frequently presented in aggregate (i.e. total number positive vs. total number collected.) Additionally, a relatively regimented protocol tends to exist for urine testing in DTC populations, as opposed to typical probation, where urine drug testing tends to be triggered by program violations. This would potentially be expected to result in a greater likelihood of positive test results in probationer populations when compared to DTC participants.

Systematic examination of time-dependent internal and external factors of importance have not been systematically undertaken; such as change in judge, changes in local statutes or law enforcement practices, changes in eligibility requirements (which have been broadening in recent years to include felons), treatment providers, or the structure of other drug court program components. These remain important areas for more detailed investigation in DTC and other community supervision programs.

Finally, post-participation follow-up has rarely been conducted. Longer term studies are clearly needed. Whether drug court participants post-release continue to demonstrate reductions in criminal behavior and substance use, and whether improvements are achieved by this group in other critical areas such as employment or educational attainment remains debatable.

## Abbreviations

DTC      drug treatment court

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**Table 1**

Demographic characteristics of representative county drug treatment courts. (NR = not reported)

	Barry Co, MI	Buffalo, NY	Butte, CA	LA Central, CA	San Diego, CA	Los Angeles El Monte	Monterrey, CA
Age, mean	35	33	35	37	37	32	34
<b>Race</b>							
White	96	31	91	24	83	28	37
Minority	4	69	9	76	17	72	63
Black	NR	58	36	1	4	2	9
Hispanic	NR	9	5	34	5	68	41
Asian	NR	0	NR	NR	NR	NR	NR
Other	NR	2	1	7	9	2	13
Gender	72	66	64	84	59	75	69
Primary Drug	NR	NR	NR	NR	NR	NR	NR
Marijuana	25						
Cocaine		49		66		49	30
Meth					74	33	24
Opiates		13				6	18
Alcohol	42	27				8	
Unemployment	NR	NR	5	7	6	4	11
	<b>Harford, MD</b>	<b>Kalamazoo, MI</b>	<b>Delaware</b>	<b>Bronx, NY</b>	<b>Malheur, OR</b>	<b>Marion, OR</b>	<b>Folk, IA</b>
Age, mean	23	32	29	32	29	30	28
<b>Race</b>							
White	84	68	44	5	66	84	78
Minority	16	32	56	95	34	16	22
Black	NR	NR	NR	47		7	19
Hispanic	NR	NR	NR	44	31	7	0
Asian	NR	NR	NR	0	0	1	1
Other	NR	NR	NR	4	3	1	2
Gender	84	69		73	61	52	51%
Primary Drug							
Marijuana		33		22		25	6
Cocaine				46			31
Meth					50	62	60
Opiates				24			<1

Brown

	Barry Co, MI	Buffalo, NY	Butte, CA	LA Central, CA	San Diego, CA	Los Angeles El Monte	Monterrey, CA
Alcohol				8	30		
Unemployment	NR	NR	NR	NR	NR	NR	71% 13
Age							Cecil, MD
>25 (%)			68	44	62		
<25 (%)			32	56	38		
Age, mean	33	32	NR	NR	NR	33	31
Race							
White	83	43	35	34	52	80	91
Minority	17	57	65	66	48	20	9
Black	2	8	49	65	29	3	9
Hispanic	13	45	14	1	19	16	
Asian	NR	NR				NR	
Other	2	4				1	
Male	68	71	71	77	79	66	72
Primary Drug			NR	NR	NR	NR	NR
Marijuana						11	
Cocaine	14	26					
Meth	50	38				76	
Opiates	20	26				6	
Alcohol							
Unemployment	4	8	NR	NR	NR	13	NR

experimental studies of drug treatment court vs. comparison group. (NR = not reported; NS = not statistically significant).

**Table 2**

	Goldkamp 93	Miethe et al	Wolfe et al	Spohn et al	Fielding et al	Granfield et al	Listwan et al	Brewster et al	Carey 05	Peters et al	Stageberg 01
<b>Comparison</b>	293	301	618	285	285	100 randomly selected cases from DTC	224 refusers	51 probationers	62	112 DTC grads	124
	302 historical controls (drug felonies)	301 controls matched on charge and drug of choice	75 historical controls	194 drug felons 'as usual' treatment	251 probationers	200 historical controls	224 refusers	51 probationers	62 historical controls	114 DTC nongrads	188 refusers, 124 historical controls
<b>Follow-up</b>	18 mo	12 mo	24 mo	12 mo	12 mo	18 mo	mean 419d	18 mo	24 mo	30 mo	655 days
<b>Stat</b>	NR	p < 0.05	NS	p < 0.05	p < 0.001	NS	NS	p < 0.01	NS	p < 0.001	NR
<b>DTC</b>	33	26	39	42	24	53	31	5.4	13	37	48
<b>Comparison</b>	48	16	37	61	51	58	37	22	27	75	74 hx, 55 ref



Table 3

Studies examining associations between participant factors and drug court completion. Odds ratios and results of significance testing presented where available.

Factor	Marchand 2006-Barry	Fabelo	Barton--Harford	Marchand 2006-Kalamazoo	Dannerbeck 2006-MO	Gray 2005-DE	Carey 2005
<b>Ethnicity</b>	No	Yes	No	No	Yes--* cocaine (OR 0.47, CI 0.32, 0.70)	Yes (OR 2.18, beta 0.78, SE 0.25)	No
<b>Age</b>	No	Yes	Yes	Yes	Yes--(age > 25, OR 2.0, CI 1.3, 3.1)	No	No
<b>Gender</b>	No	No	No	No	Yes (OR female 1.77, CI 1.1, 2.7)	No	Yes (fem less likely -0.53, p<0.01)
<b>Employment</b>	No	NR	NR	No	Yes (OR employed 3.4, CI 2.3, 5.2)	NR	No
<b>Education (HS or more v No)</b>	No	Yes	NR	No	No	Yes (p<0.001, mean yrs)	No
<b>Income</b>	No	NR	NR	No	NR	NR	NR
<b>Substance use history/severity</b>	Yes (positive hx OR 6.7, CI 1.22-36.43)	NR	Yes (younger age 1st use, OR 1.16 for each decrease by 1 year)	Marijuana use more predictive of failure	Yes--see ethnicity	Yes (p < 0.001, mean days last 30)	Yes (meth, NR)
<b>Alcohol use</b>	No	NR	NR	NR	NR	NR	NR
<b>Marital status</b>	No	NR	NR	No	Yes (married OR 2.0, CI 1.1, 3.7)	NR	No
<b>Dependents at home</b>	No	NR	NR	No	NR	NR	Trend more dependents, less likely
<b>Mental health</b>	No	NR	NR	No	NR	NR	NR
<b>Criminal history</b>	NR	NR	NR	NR	NR	Yes (p < 0.001, mean arrests)	No

Characteristics of randomized-controlled studies involving a drug treatment court and a traditional adjudication condition. (NS = not statistically significant; UDS = urine drug screen; OR = odds ratio; tx = treatment/drug court condition; NR = not reported)

**Table 4**

	<b>Deschenes(47)</b>	<b>Gottfredson(27)</b>	<b>Harrell(45)</b>
<b>Subjects Conditions</b>	630 drug offenders, Maricopa Co., AZ Drug court (176) v standard probation (454)	235 drug offenders, Baltimore, MD Drug court (139) v court as usual (76)	1022 drug offenders, Wash DC 346 tx, 365 sanction, 311 standard
<b>Follow-up Outcomes</b>	12 mo Rearrest Employment Treatment retention Substance use	12 mo Rearrest	12 mo post-sentence Drug testing pre-sentence Drug use after sentencing (1 Yr) Any arrest Drug arrest
<b>Results</b>	NS for rearrest NS for employment 90 vs 38 percent treatment participation (p NR) Reduction in percent positive for cocaine (25 v 15%) NS—UDS positive for any substance	Fewer rearrests for drug court (2.3) v probation (3.4), $p < 0.05$ 78% v 88% rearrested DTC v usual court $p < 0.05$	11% positive (tx) vs 22% positive (standard) urine screens 34% (tx) vs 47% (standard reported drug use) NS—re-arrest OR 0.43 (tx vs standard) for specifically drug arrest