

Treating Substance Use Disorders in the Criminal Justice System

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Abstract The large number of individuals with substance use disorders involved in the nation's criminal justice system (CJS) represents a unique opportunity, as well as challenges, in addressing the dual concerns of public safety and public health. Unfortunately, a low proportion of those who could benefit from treatment actually receive it while involved in the CJS. This article presents a review of recent research on the effectiveness of major substance abuse treatment interventions used at different possible linkage points during criminal justice case processing, including diversion, jail, prison, and community supervision. This is followed by a discussion of key research and practice issues, including low rates of treatment access and under-utilization of medication-assisted treatment. Concluding comments discuss principles of effective treatment for offenders and identify key gaps in research and practice that need to be addressed to improve and expand provision of effective treatment for offenders.

Keywords Criminal justice · Drug treatment · Substance abuse · Offenders · Implementation · Psychiatry

Introduction

The number of individuals involved in the US criminal justice system (CJS) is among the highest in the developed world. In 2011, there were an estimated 12.4 million arrests, including 1.5 million for drug offenses (possession or sale) [1]. Nearly 4 million adults are under probation supervision (one out of

every 60 adults in the USA) and 854,000 on parole [2]. There were 11.6 million persons admitted to jails during a recent 12-month period [3]. At the end of 2012, there were about 2.3 million incarcerated adults, including 736,000 in local jails (on an average day), 1,382,418 in state prisons, and 216,362 in federal prisons (48 % of the latter were convicted of drug crimes) [4].

Most individuals entering the CJS are using illegal drugs at the time of their arrest and/or have substance abuse problems [5, 6, 7]. Further, many commit property crimes to obtain money to buy drugs, and participation in drug-dealing organizations often places individuals in situations where other crimes are likely to occur. Stimulants, such as cocaine or methamphetamine, have psychopharmacological effects that can increase the likelihood of engaging in violent crime [8]. More than 80 % of state prison and local jail inmates have used an illegal drug—about 55 % in the month before their arrest [4, 5, 9]—with high lifetime usage of cocaine (42 %), crack (24 %), methamphetamine (23 %), or heroin (19 %). Based on Diagnostic and Statistical Manual of Mental Disorders IV criteria, 53.4 % of inmates meet the criteria for drug abuse or dependence, compared with an estimated 13.0 % of men and 5.5 % of women in community populations aged 18 years or older [4, 10]. Among offenders on probation, 69 % reported ever using illegal drugs, including 32 % using in the month before their current offense [11]. In addition, 32 % of state prison inmates were under the influence of drugs at the time of the offense, and 16.5 % reported committing their crime to get money to buy drugs [4].

Illegal drug use increases the likelihood of continued involvement in criminal activity, with high rates of relapse and recidivism found among drug-involved offenders; 68 % of drug offenders are rearrested within 3 years of release from prison [12]. Because there are effective treatment models for offenders [13, 14], expanding access to these is likely to help break the links between drug use and crime. This article,

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therefore, reviews current knowledge about treatment access and effectiveness at each stage of the criminal justice process, and key issues for improving access to effective treatment.

Treatment Linkage Points in the CJS

There are several stages in criminal case processing at which linkages to treatment are possible. Following arrest and filing of formal charges by the prosecutor based on sufficient evidence of a crime, the defendant has an initial hearing at which the charges are formally presented and the judge decides whether to detain the defendant in the local jail pending trial, or release him or her with or without bail. After one or more procedural or evidentiary hearings, the defendant may plead guilty, or a trial will occur in the misdemeanor or felony court. If the defendant is convicted (which occurs by plea for the vast majority of cases), the judge sentences the defendant to options ranging from a fine or community service, incarceration in the local city or county jail (for less than a year on a misdemeanor conviction) or state prison (sentence of longer than 1 year for a felony conviction), or probation. Once an inmate has completed a minimum term in a state prison, many inmates are released to parole supervision until the full sentence is completed.

Models for linking offenders to treatment have been implemented and tested at all of the stages of CJS processing. Shortly after arrest, a defendant might receive a screening, brief intervention and referral to treatment [15], or be diverted to community treatment under pretrial supervision conditions [16, 17], or as an alternative to an incarceration sentence [18, 19]. Many jurisdictions have special drug treatment courts into which offenders may be diverted prior to trial or placed in following conviction [20–22]. After the sentence, treatment access may be available in jails [23], prisons [24, 25], or under probation or parole supervision [26, 27]. For the latter linkage points, treatment is often mandated as a condition of the individuals' sentence.

Depending on the state, treatment at any of these stages may be offered through local public health systems, contracted providers, or referred through a brokerage model in which services are offered by various providers, usually through referral by a case manager. Options include outpatient, intensive outpatient, residential, and medication-assisted treatment (MAT). In state prisons, the typical residential treatment is in a modified therapeutic community (TC); TCs are much less common in local jails because these inmates are usually incarcerated for brief periods. TCs provide an intensive, highly structured pro-social environment in which treatment staff and peers interact to influence attitudes, perceptions, and behaviors associated with drug use [28]. Nonresidential or outpatient treatment in correctional settings is less intensive and usually involves a combination of

individual and group counseling, several times per week. Finally, despite its well-established evidence base, MAT is rarely used in the CJS, as discussed later in this article.

Even with these numerous potential linkage points, relatively few offenders with substance abuse problems receive drug treatment [5, 26]. Among new arrestees, between 7 and 26 % have ever been in outpatient treatment and 13–32 % residential or inpatient treatment, but only 2–9 % had been in outpatient and 3–11 % residential or inpatient in the 12 months prior to their arrest, suggesting high rates of treatment failure because the individuals have been arrested again [7]. Only about 10 % of state and 6 % of jail inmates reported receiving any clinical treatment [9]. Only 25 % of probationers with histories of drug use, and 17 % overall, receive treatment [11], and treatment linkages that do occur tend to be sporadic, inappropriate, and poorly monitored [6, 11, 29, 30]. Finally, despite their popularity, drug courts are estimated to serve only about 5 % of offenders with drug problems [31, 32].

CJS Models

Diversion to Treatment

In the typical model, new arrestees are offered an opportunity to have their cases put on hold while they attend drug treatment. Successful completion of treatment typically results in the original criminal charges being dismissed (for pre-plea models), the withdrawal of the guilty plea and dismissal of the charges or plea to lower charges (post-plea model), or a reduction in the sentence from incarceration to probation (in the post-plea, post-sentencing model). With the exception of drug courts, diversion programs are nearly always operated and controlled by the district attorney, who has overall responsibility for screening cases for eligibility and monitoring individuals' treatment progress.

Treatment Accountability for Safer Communities (TASC) was one of the earliest treatment diversion models [17], and 220 TASC programs currently operate in the USA [33]. TASC integrates treatment into the CJS, providing assessment, treatment referral, case management, and monitoring. A multisite national evaluation of TASC was conducted in five states in the late 1990s [34], using both experimental (two sites) and quasi-experimental designs (three sites). Relative to control/comparison groups, TASC participants received significantly more treatment in four out of five sites. Compared with control conditions, drug use significantly declined from baseline to follow-up in three sites, as did recidivism in two of the sites.

The Drug Treatment Alternative-to-Prison program (DTAP) was established by the Kings County (NY) District Attorney in 1990 to divert offenders into long-term residential treatment [19]. Although most prosecutorial diversion

programs opt for the politically safe strategy of accepting only low-risk offenders, DTAP targets high-risk felony drug sellers who also have drug problems and are facing mandatory prison sentences. DTAP participants have their sentence deferred and are placed in community-based residential TC treatment for 18–24 months. Program completers have their sentence vacated, guilty plea withdrawn, and original charges dismissed; dropouts are brought back to court for sentencing on the original charges. From the beginning of the program through October 2012, DTAP had admitted 3,022 participants, of whom 1,377 successfully completed the program; the average one-year retention rate is 76 %, far higher than typically found in residential treatment [18, 19].

A prospective quasi-experimental evaluation of DTAP found positive impacts on retention, recidivism, and CJS economic benefits compared with a matched sample of sentenced inmates [35]. Over 4-year follow-up, significantly fewer DTAP participants were rearrested (57 % versus 75 % for the comparison sample), reconvicted (34 % for DTAP, 62 % for comparisons), or reincarcerated (7 % of DTAP versus 18 % of comparisons received a new prison sentence, 30 % versus 51 % received a new jail sentence) [35]. DTAP decreased the rearrest odds by 42 %, after controlling for other factors. The cumulative 6-year CJS economic benefits per DTAP participant were \$88,554, with a benefit–cost ratio of 2.17, adjusting for treatment costs [36].

California's Proposition 36 (Substance Abuse and Crime Prevention Act; SACPA), was enacted in 2001 to reduce jail and prison crowding by diverting all non-violent drug offenders from incarceration to community-based supervision and treatment. It marked a major paradigm shift from crime control to the implementation of a public health model [37, 38]. During 2006 and 2007, nearly 44,000 offenders entered treatment under Proposition 36 [39]. Overall, SACPA resulted in significant decreases in drug use and criminality from baseline to 12-month follow-up [37]; the more treatment received, the better the outcomes [40]. However, offenders with a more serious criminal history and parolees (relative to probationers) showed poorer outcomes, perhaps attributable to a mismatch between need severity and level of treatment [41, 42].

Jail-based Treatment

Given their high admission volume, jails represent a significant potential treatment intervention point in the CJS. With rapid turnover and short average stays, however, there are challenges for providing treatment in jails [3, 23, 43]. Treatment options such as long-term residential or intensive outpatient treatment, needed by many offenders [5], are not viable in jail settings, and Screening, Brief Intervention, and Referral to Treatment (SBIRT) interventions may be more appropriate [6•].

Recent studies suggest promising models for engaging jail inmates in treatment. The Jail In-Reach Intervention was

recently tested in a randomized controlled trial (RCT) with female jail inmates [44]. Implementing an SBIRT model, this intervention uses evidence-based screening tools to identify those with a serious substance abuse problem. Following randomization, women in the intervention group completed a motivational interview with feedback on their drug use, and a timeline follow-back interview. Women in both intervention and control groups also received a resource folder with information about community-based treatment. The intervention group had significantly lower alcohol and drug use at a 12-month follow-up. Women who used the resource folder, regardless of study condition, were three times more likely to seek community-based treatment [45].

Building on the Transtheoretical Model of Change and Motivational Enhancement Therapy, interactive journaling was tested in a jail [46]. This approach has been tested in other settings and could be well-suited for jails because it is time-efficient and requires few resources. Inmates were randomly assigned to complete a journal, designed to help the individual recognize the problems caused by substance abuse, to understand their motivations for using drugs, and to introduce them to drug treatment resources. Compared with the control condition, the interactive journaling group had significantly lower recidivism. The study did not assess whether the intervention increased engagement in community treatment after release.

The importance of linking jail inmates to continuing care after release has received increasing attention. One recent study found that community-based drug treatment following release from jail reduced recidivism [47]. The Recovery Management Check-ups (RMC) intervention was tested in a RCT with female inmates in the Cook County (IL) jail [48]. For the first 3 months following release, women in the RMC had monthly contact from a “linkage manager” who, using motivational interviewing, discussed recent substance abuse, motivation to change, and barriers to entering treatment. The linkage manager also made appointments and accompanied the women to the treatment admission process. RMC participation resulted in a higher proportion of women seeking community-based treatment, faster treatment access, and an increased likelihood to abstain from drug use during follow up [48].

Prison-based Treatment

Research on prison TCs, including several meta-analyses, suggests that these interventions can reduce post-prison recidivism and relapse when combined with aftercare treatment following release. A systematic review examined 26 published and unpublished studies of prison drug treatment in North America or Western Europe since 1979, including counseling and drug education programs, in addition to TCs [13•]. Three-quarters of the studies had outcomes that favored the treatment group

over the comparison group, with an overall mean odds ratio of 1.25 (equivalent to a modest reduction in recidivism from 50 % to 44.5 %). TC programs showed the strongest overall effect (mean odds ratio = 1.47).¹

Several recent single-site evaluations of prison TCs indicated positive effects for prison TCs, especially when aftercare is completed. A quasi-experimental study of Delaware's Key-Crest program (in-prison TC, following by a TC-based work-release program and outpatient aftercare) found significantly lower recidivism rates among those who completed a work-release TC [25]. Those who attended outpatient aftercare had the best outcomes (69 % arrest-free after 3 years, 35 % drug free); only 17 % of those completing just the in-prison TC remained arrest-free and only 5 % of the untreated comparison group remained drug free. Another quasi-experimental study in Pennsylvania examined post-release outcomes for inmates who participated in TCs compared with a matched sample of inmates who were TC-eligible, but participated in less intensive treatment (e.g., short-term drug education or outpatient treatment) [49]. Over a post-release follow-up up to 26 months, TCs significantly reduced reincarceration (30 % versus 41 % for the comparison sample) and rearrest (24 % versus 33 %), but not drug relapse (35 % versus 39 %) [49]. Finally, a retrospective propensity score matched study of prison releasees in Minnesota found that prison TC participation reduced the hazard ratio of rearrest by 17 % and reincarceration by 25 % over the 3–4 year follow-up period [50].

However, multiple reviews have noted that many prison TC studies have methodological weaknesses that suggest caution for drawing causal inferences about prison TC impacts [13, 51–53]. Mitchell et al. [13] noted that only three studies (9 %) had the highest quality (randomized experimental designs), and eight (25 %) were rated in the second highest quality category (rigorous quasi-experimental designs). Threats to internal validity in prison TC research include self-selection and/or attrition bias, lack of full randomization, lack of detailed descriptions of the treatment delivered, and concerns about treatment implementation. One exception was a study of federal prison residential treatment, that controlled for selection bias, but still found a significant reduction in post-release rearrest after 6 months (3.1 % of treated inmates rearrested, 16.7 % of untreated inmates) and reduced drug or alcohol use (20.5 % of treated inmates using drugs or alcohol compared with 36.7 % of untreated inmates) [54]. A systematic review of prison treatment aftercare research could not draw definitive conclusions about the effectiveness of aftercare owing to inconsistent definitions and methodological weaknesses [51].

¹ The effectiveness of non-TC prison drug treatment remains largely unknown [13, 52]. An earlier systematic review of prison programs reviewed seven studies of prison-based outpatient or group counseling programs [107]. Methodological weaknesses were present in most of these studies, but the authors concluded that group counseling programs were not effective in reducing recidivism [107].

Treatment in Community-based Corrections

In a national probability survey of community-based corrections (i.e., probation and parole), it was found that the most common approach to addressing substance abuse was drug and alcohol education (53.1 % of jurisdictions) [26]. Substance abuse counseling of up to 4 hours per week was provided in just over half (47.0 %) of jurisdictions, and 21.2 % offered 5–25 hours of treatment per week. Only 3.7 % of jurisdictions offering segregated TCs and 3.4 % offering non-segregated TCs. Similar to other studies, treatment was accessed by only a small percentage; between 1 and 9 % are in any type of program on a given day [26].

Research on the comparative effectiveness of different treatment modalities or treatment delivery models for offenders under community-based correctional supervision is limited. Only one meta-analysis compared substance abuse treatment outcomes for offenders in prisons or jails with those under community supervision [55]. This study found that both types of programs were almost equally effective; however, this study was limited to European programs. A quasi-experimental study of a 6-month modified TC for offenders on probation examined program retention and recidivism [27, 56]. More serious criminal history, higher hostility and risk-taking, and cannabis dependence were related to higher dropout rates; greater social conformity and employment were associated with lower likelihood of dropout [56]. Age and the number of lifetime arrests were the only significant predictors of reincarceration after 2 years. However, TC treatment did not reduce recidivism over a 2-year follow-up relative to the comparison sample [27].

The Serious and Violent Offenders Reentry Initiative (SVORI) for parolees in ten states found that between 32 and 34 % of adult men surveyed expressed some health service needs (including substance abuse) [57]. However, in recent analyses of the SVORI data we found that only 25.5 % of adult male parolees reported receiving any type of substance abuse treatment in the first 3 months after release.

Drug Courts

Drug courts have received much attention and expanded rapidly over the last 20 years [20, 22, 58, 59]; 1,317 adult drug courts were in operation at the end of 2009 in the USA [60]. Core components of the drug court include linkage to long-term substance abuse treatment under close judicial supervision; case management and team decision-making; and use of sanctions and incentives to enforce drug court requirements [21, 61]. Depending on the drug court, offenders may be diverted before conviction (with charges dismissed upon successful completion), or placed in the drug court after pleading guilty or being sentenced (with dismissal of charges or reduction in the sentence after successful program completion).

Substantial research over the last 15 years, including several RCTs and meta-analyses, indicates that adult drug courts reduce drug use and criminal behavior during program participation, and reduce post-program recidivism [59, 62, 63, 64, 65]. A meta-analysis of 55 studies found a mean recidivism reduction of 26 % in adult drug courts [65]. A recent updated meta-analysis found on average that drug courts reduced recidivism from 50 % to 38 % [64].

However, the evidence base for the drug court model should be interpreted with some caution. Many studies used relatively non-rigorous evaluations, or had small sample sizes, inconsistent measures, short follow-up periods, or inappropriate comparison samples [58, 66]. Little is known about the long-term post-program impacts of drug courts on recidivism, drug use, or other outcomes [59, 66]. Aside from the broad guidelines codified in the consensus-driven *Ten Key Components* of drug courts [21, 61], the drug court model is not well-defined nor have the specific effective components been determined through adequately controlled studies.

Key Issues in Research and Practice

Lack of Treatment Penetration into the Target Population

Despite the evidence summarized above, penetration of effective treatment models into the target population of drug-involved offenders is low [5, 26, 32, 67, 68]. Findings from national surveys demonstrate that non-treatment approaches to substance abuse, such as drug education, are the most common form of service provided for substance abusing offenders [5, 26]. The second most common form of treatment within prisons, jails, and probation services is low intensity counseling, which has a minimal evidence base. Although group counseling can be effective [13, 69], longer and more intensive programs tend to be more effective for offender populations [14]. Despite some evidence base for prison TCs [13], these programs are relatively expensive and treatment slots are scarce both in prison facilities, as well as the community. MAT, with a fairly strong evidence base, is rarely used in the CJS [26, 70, 71].

Although guidelines for integrating evidence-based practices (EBPs) into the CJS are available [6, 14, 72], numerous barriers exist for implementing such treatment programs [53, 68, 73, 74]. These include knowledge gaps among criminal justice staff, as well as their beliefs and attitudes about treatment and specific EBPs. Skepticism toward treatment effectiveness in general has been noted among police and prosecutors, which might undermine efforts to place individuals into diversion programs [38]. Many CJS officials and staff may also not be comfortable with the concept of addiction as a brain disease, viewing it as more of a behavioral problem over which offenders have some control [6].

Significant communication and collaboration problems, both within and between criminal justice and community-based treatment and health agencies, can thwart implementation of high quality services [73]. Resource constraints make the adoption of “expensive” EBPs unattractive and unlikely [70, 71, 73]. Criminal justice organizational cultures also can be highly resistant to change. And, finally, organizational changes and high rates of staff turnover make it difficult to begin new and maintain existing treatment services [75–77].

Under-utilization of MAT

An illustration of the failure to expand use of EBPs for drug-involved offenders is the relatively limited use of MAT. Evidence supporting the efficacy and effectiveness MAT is based largely on studies of methadone, although recent studies with buprenorphine and naltrexone have shown some promise [78–81]. Recent systematic reviews of MAT with offenders have concluded that methadone maintenance and naltrexone reduce reoffending and relapse [55, 82]. For example, in a RCT with inmates it was found that those assigned to maintenance treatment during incarceration were less likely to drop out from treatment and less likely to test positive for illicit drugs after release than those in non-MAT during incarceration or those who were only transferred onto methadone maintenance after release [83]. Post-release drug use was reduced for inmates receiving counseling plus methadone, but MAT had no significant effect on recidivism. In a companion study, it was found that inmates randomly assigned to methadone maintenance in prison were most likely to enter treatment, followed by those transferred to methadone maintenance after release and then counseling only [84]. Maintenance patients were also most likely to complete prison treatment and counseling only the least likely.

MAT begun during jail can improve community-based MAT treatment engagement and outcomes. A recent study randomly assigned opioid-dependent inmates in a large urban jail to either buprenorphine or methadone [85]. In-jail treatment completion rates were similar, but the buprenorphine group was significantly more likely to continue medication treatment in the community; groups had similar rates of self-reported criminal involvement and substance use at 3-month follow-up [85]. Higher doses of methadone in jail were found to significantly increase linkage to continuing care in community-based treatment following release [86].

A preliminary retrospective evaluation of extended release naltrexone (Vivitrol) with alcohol-dependent clients in three drug courts found that volunteers for Vivitrol had significantly lower rearrest likelihood than matched controls (8 % versus 26 %) [87]. Studies of California’s Proposition 36 found that opioid-dependent offenders who received MAT showed better outcomes than those who received only outpatient or residential care [88]. Injectable sustained release naltrexone has also

shown positive effects on retention in community treatment [89].

Many staff hold negative views toward methadone maintenance treatment for opioid dependence, viewing it as substituting one addiction for another [70, 90]. A recent national survey of corrections staff in 14 states found very limited use of MAT [70]. Although 83 % of prisons and 83 % of jails offered some type of MAT; most of this was limited to detoxification, and typically only for pregnant women. Only 37.5 % of drug courts and 17 % of probation or parole agencies offered MAT. Methadone maintenance, when offered, was usually limited to pregnant women, or, occasionally, for individuals previously on methadone maintenance at the time of their incarceration or arrest. The lack of uptake of MAT in the CJS reflects state and local regulations, security concerns, institutional philosophy (i.e., belief in abstinence-based treatment), and availability and resources (financial and staffing) [70]. In a recent national survey of 103 drug courts, 56 % reported having some type of MAT available (although the percentage of drug clients receiving such treatment was not reported) [71]. About half of the drug courts have a specific policy against use of MAT. Lack of funding, treatment program resistance, and risk of diversion were other common reasons cited for the limited use of MAT.

Principles of Effective Treatment for Offenders

The delivery of effective drug treatment in the CJS can be much more challenging than in standard community settings. In response, consensus and research-driven efforts have established a set of principles for providing effective treatment for offenders [14, 91]. Such principles incorporate the unique characteristics of the offender populations that can greatly complicate treatment delivery. These include high rates of psychological conditions and personality disorders, such as low impulse control, cognitive deficits, risk-taking, and criminal thinking patterns. Treatment for offenders that incorporates the risk-needs-responsivity (RNR) principle has been shown to be more effective [30, 92]. Under the RNR framework, evidence-based principles for effective treatment should incorporate 1) comprehensive actuarial assessment of static and dynamic risk factors with periodic reassessment; 2) prioritizing treatment resources for higher-risk offenders; 3) targeting interventions for criminogenic needs, such as criminal thinking and errors in judgment; and 4) provide treatment that is responsive to an offender's temperament, learning style, motivation, culture, and gender [68, 93].

The National Institute on Drug Abuse (NIDA) has developed a monograph summarizing key principles for effective treatment in the CJS. Building on the original set of NIDA treatment principles [94], this guide is based on a review of the research literature and consensus from experts in addiction research and

practice. Most of the principles reflect what the field considers to be evidence-based *practice* or *principles*, rather than specific programs. In addition to the principles noted above, NIDA recommends that treatment for offender populations should 1) be of sufficient length, especially for those with co-occurring mental health disorders and other social and health problems; 2) increase motivation and build skills for resisting drug use and criminal behavior; 3) include on-going monitoring through urine testing, and use of structured rewards and sanctions to manage behavior; 4) involve collaboration and communication between treatment clinicians and CJS staff to monitor client progress; 5) provide continuity of care as offenders move through the CJS and back to the community; 6) integrate treatment for offenders with co-occurring mental health disorders; and 7) use MAT where clinically appropriate, with careful attention to monitoring adherence [14].

Conclusion

Several conclusions can be drawn from this brief review. First, drug use disorders and related problems are quite common among offenders throughout the CJS, indicating a need to integrate and expand effective treatment linkages. Second, a number of potentially effective models exist for linking offenders to treatment both within correctional institutions and in the community, at all points in the process from arrest through sentencing. Diversion models such as TASC, DTAP, and SACPA have been shown to reduce drug use and recidivism, and diversion-model drug courts have also shown to be effective for reducing recidivism, especially when higher-risk offenders are targeted. Legally mandated treatment can improve retention [18], and treatment outcomes can be similar to outcomes in non-mandated treatment for offenders.

For local jail inmates, brief psychosocial interventions to increase self-awareness and treatment motivation, treatment referral monitoring, and in-jail initiation of and/or referral to community-based MAT can link jail inmates to community treatment and improving post-release outcomes. SBIRT models may be well-suited for the highly transitory jail setting, where short stays preclude implementing longer-term drug treatment programs. Longer-term programs in jails can, however, be suitable for offenders sentenced to jail terms of 3 months or longer.

A number of prison TC studies show positive impacts on recidivism and relapse when combined with continuing community care, but caution is needed in drawing conclusions owing to methodological problems with some of the research, and the relatively low proportion of inmates who access aftercare following release. More research, using stronger designs and controlling for selection bias, is needed on the types and length of aftercare that are most effective for reducing relapse and recidivism [51]. There has been relatively little

research on the impact of other types of prison treatment. Recent pilot studies suggest that MAT (included extended release naltrexone) may have promise for improving outcomes for offenders with opioid dependence. There has been very little research on effective treatment models or modalities for offenders on probation or parole, despite the fact that a majority of offenders are under such supervision.

Given this demonstrated treatment need, and numerous linkage points, the challenge for researchers and clinicians is to increase knowledge about how best to integrate treatment into the criminal justice process at all stages, and reduce the substantial existing gap in treatment access. Although offenders (especially those charged with felonies) are under the supervision of the CJS for a relatively long time [95], the fragmented nature of the CJ process presents difficulties in implementing integrated treatment that provides continuity of care and regular, evidence-based assessment. The importance of a continuum of care, and the crucial need to link jail and prison inmates to community treatment after release has been amply noted in the literature [29, 51, 96]. Resources to support increased treatment capacity for offenders are needed, as well as mechanisms for reducing gaps in Medicaid insurance coverage when offenders are incarcerated.

New research on staff, organizations, and systems is needed to understand the barriers to treatment access, and to develop and test strategies for increasing implementation and sustainment of EBP for offender drug treatment [68, 97]. Taxman and Belenko [68] have argued that criminal justice services should act as a part of a “seamless service delivery system,” wherein offenders with substance abuse problems are treated within the CJS or linked to service providers offering evidence-based treatment. The limited penetration of treatment services into the CJS is all the more problematic given that a number of economic studies, in multiple criminal justice areas (community treatment [98], prison TCs with after care [99], other prison-based treatment [100] and drug courts [101, 102]), have demonstrated that criminal justice-based drug treatment is cost effective and provides net economic benefits for the CJS, primarily from reduced incarceration and victimization.

Organizational and implementation studies are needed to understand how best to increase the adoption, implementation, and sustainability of evidence-based treatment for offenders [68]. The emerging field of implementation science seeks to understand how programs and practices are implemented into organizations, and new theories and conceptual frameworks are being developed to identify the key factors that drive successful implementation and sustainability of EBP, helping to guide new research on these processes [97, 103, 104].

Matching service needs and the level and type of service provided is another important consideration [105]; the RNR principle suggests that improving such alignment, addressing criminogenic factors, and matching treatment to the cognitive abilities of offenders, will improve outcomes. Offenders also tend

to have a high likelihood of economic and social disadvantage, and other comorbid health problems; this raises the importance of delivering treatment to offenders, and increases the challenges of implementing appropriate and effective treatment [6].

There is also limited knowledge about the comparative effectiveness of different treatment modalities or linkage models for different types of offenders at each stage of the criminal justice process. More research, using strong designs and measures to facilitate causal inferences, can help elucidate the optimal and most cost-effective interventions in terms of length and intensity of treatment, modalities, types of services, and supervision models [106]. For existing interventions with some evidence of effectiveness, such as drug courts, diversion programs, and prison TCs, new research is needed on the effective operational components of these programs to improve replication and monitoring of fidelity.

A new research, practice, and policy agenda can provide the impetus to build on the existing evidence and clinical practice base to expand access to effective drug treatment for offenders. Given the enormous need to address substance abuse problems among offenders, the potential for improving both public health and public safety is substantial.

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Compliance with Ethics Guidelines

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References

Papers of particular interest, published recently, have been highlighted as:

- Of importance

1. Federal Bureau of Investigation. Crime in the United States, 2011. Washington, DC: Federal Bureau of Investigation; 2013.
2. Maruschak LM, Parks E. Probation and Parole in the United States, 2011. Bureau of Justice Statistics Bulletin. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics; 2012.
3. Minton TD. Jail inmates at mid-year 2012: Statistical tables (NCJ Publication No. 241264). Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics; 2012.
4. Mumola C, Karberg J. Drug use and dependence, state and federal prisoners, 2004. NCJ 213530. Washington, DC: Bureau of Justice Statistics; 2006.

5. Belenko S, Peugh J. Estimating drug treatment needs among state prison inmates. *Drug Alcohol Depend.* 2005;77:269–81.
6. • Chandler RK, Fletcher BW, Volkow ND. Treating drug abuse and addiction in the criminal justice system: improving public health and safety. *JAMA.* 2009;301:183–90. *This article summarizes key issues related to treatment drug use disorders for offenders, documenting both the substantial need for treatment and the limited access to treatment. Using the perspective of addiction as a brain disease causing neurochemical changes in the brain, Chandler et al. propose that incorporating the brain disease model for criminal justice treatment will substantially enhance treatment effectiveness for offenders. With effective existing treatment models and principles, it is argued that improving collaboration and coordination the criminal justice and treatment systems can come together to increase access to effective treatment for offenders.*
7. Office of National Drug Control Policy. ADAM II: 2012 annual report. Washington, DC: The White House; 2013.
8. Cartier J, Farabee D, Prendergast ML. Methamphetamine use, self-reported violent crime, and recidivism among offenders in California who abuse substances. *J Interper Violence.* 2006;21:435–45.
9. Karberg JC, James DJ. Substance dependence, abuse, and treatment of jail inmates, 2002 (NCJ Publication No. 209588). Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics; 2005.
10. Abuse S, Administration MHS. Results from the 2011 National Survey on Drug Use and Health: Summary of national findings. NSDUH Series H-44, HHS Publication No. (SMA) 12-4713. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2012.
11. Bonczar TP, Mumola CJ. Substance abuse and treatment of adults on probation, 1995 (Publication No. NCJ-166611). Washington, DC: Bureau of Justice Statistics; 1998.
12. Langan PA, Levin DJ. Recidivism of prisoners released in 1994. Washington, DC: Bureau of Justice Statistics, U.S. Department of Justice; 2002.
13. • Mitchell O, Wilson DB, MacKenzie DL. Does incarceration-based drug treatment reduce recidivism? A meta-analytic synthesis of the research. *J Exp Criminol.* 2007;3:353–75. *Mitchell et al. examined published and unpublished studies of prison drug treatment in North America or western Europe since 1979 (n= 26 yielding 32 effect sizes). Seventeen outcomes were calculated from TC programs; ten from counseling or drug education programs (including 12-step programs); three from boot camp programs; and two from a jail-based methadone maintenance program. Eleven of the studies used randomized experimental or rigorous quasi-experimental designs. Three-quarters of the studies had outcomes that favored the treatment group over the comparison group, with an overall mean odds ratio of 1.25 (roughly equivalent to a modest reduction in recidivism from 50% to 44.5%). TC programs produced the strongest overall effect (mean odds ratio = 1.47).*
14. • National Institute on Drug Abuse. Principles of drug abuse treatment for criminal justice populations: A research-based guide (4th rev). Rockville, MD: National Institute on Drug Abuse. 2012. http://www.drugabuse.gov/sites/default/files/podat_cj_2012.pdf. Accessed 12 Jul 2013. *Recognizing that the delivery of effective addiction treatment in the criminal justice system can be much more challenging than in standard community settings, NIDA's monograph summarizes 13 key principles for effective treatment in the CJS. Building on the original set of NIDA addiction treatment principles, this guide is based on a review of the research literature and consensus from experts in addiction research and practice. As with NIDA's general treatment principles, some have a substantial research base, as well as being derived from what is considered effective clinical practice, but others have not been rigorously tested empirically. There is much overlap between NIDA's general set of principles and the principles for criminal justice populations. Treatment principles unique for criminal justice populations include 1) tailoring services to fit the needs of the individual; 2) targeting criminogenic factors associated with criminal behavior; 3) incorporating treatment planning into criminal justice supervision and being sure that treatment providers are aware of correctional supervision requirements; 4) providing continuity of care for drug abusers re-entering the community from prison or jail; 5) providing a balance of rewards and sanctions to encourage prosocial behavior and treatment participation; and 6) using an integrated treatment approach for offenders with co-occurring drug abuse and mental health disorders.*
15. Babor TF, McRee BG, Kassebaum PA, Grimaldi PL, Ahmed KB, Bray J. Screening, brief intervention, and referral to treatment (SBIRT): toward a public health approach to the management of substance abuse. *Subst Abuse.* 2007;28:7–30.
16. Belenko S. The challenges of integrating drug treatment into the criminal justice process. *Albany Law Rev.* 2000;63:833–76.
17. Peyton E. TASC in the 21st century: A guide for practitioners and policymakers. Washington, DC: National TASC; 2001.
18. Belenko S, Sung H-E, Swern A, Donhauser C. Prosecutors and treatment diversion: The Brooklyn (NY) DTAP Program. In: Worrall JL, Nugent ME (eds). *The changing role of the American prosecutor.* Albany, NY: State University of New York Press; 2008.
19. Hynes C, Swern A. Drug Treatment Alternative-to-Prison: Twenty-second annual report. Brooklyn, NY: Office of the Kings County District Attorney; 2013.
20. Belenko S. Drug courts. In: Leukefeld CG, Tims F, Farabee D, editors. *Treatment of drug offenders: Policies and issues.* New York: Springer; 2002. p. 301–18.
21. Hiller ML, Belenko S, Taxman F, Young D, Perdoni M, Saum C. Measuring drug court structure and operations: Key components and beyond. *Crim Justice Behav.* 2010;37:933–50.
22. Marlowe DB. Integrating substance abuse treatment and criminal justice supervision. *Sci Pract Perspect.* 2003; August; 2:4–14.
23. Peters RH, Kearns WD, Murrin MR, Dolente AS, May RL. Examining the effectiveness of in-jail substance abuse treatment. *J Offender Rehabil.* 1993;19:1–39.
24. Prendergast ML, Hall EA, Wexler HK, Melnick G, Cao Y. Amity prison-based therapeutic community: 5-year outcomes. *Prison J.* 2004;84:36–60.
25. Inciardi JA, Martin SS, Butzin CA. Five-year outcomes of therapeutic community treatment of drug-involved offenders after release from prison. *Crime Delinq.* 2004;50:88–107.
26. • Taxman FS, Perdoni ML, Harrison LD. Drug treatment services for adult offenders: the state of the state. *J Subst Abuse Treat.* 2007;32:239–54. *As part of NIDA's Criminal Justice Drug Abuse Treatment Studies cooperative agreement, a nationally representative survey of administrators of prisons, jails, and community corrections officials was conducted. One focus of the survey was on the types of drug treatment services available for offenders and the utilization of services. Other survey questions addressed the use of evidence-based practices. To date, this has been the only national survey of treatment practices and services access in correctional facilities and systems. Taxman et al. found that there was relatively limited access to clinical treatment in prisons, jails, and community corrections agencies. For example, in prison facilities a range of 4–19 % of the inmate population was involved in various types of treatment services. For jails the range of involvement was 3–11 %, and for community corrections less than 10% participated in any type of drug treatment intervention.*
27. Hiller ML, Knight K, Simpson DD. Recidivism following mandated residential substance abuse treatment for felony probationers. *Prison J.* 2006;86:230–41.
28. De Leon G. *The therapeutic community: Theory, model and method.* New York: Springer-Verlag; 2000.

29. Taxman FS. No illusion, offender and organizational change in Maryland's proactive community supervision model. *Criminol Public Policy*. 2008;7:275–302.
30. Taxman FS, Thanner M. Risk, need, & responsivity: It all depends. *Crime Delinq*. 2006;52:28–52.
31. Belenko S, Fabrikant N, Wolff N. The long road to treatment: models of screening and admission into drug courts. *Crim Justice Behav*. 2011;38:1222–43.
32. Bhati A, Roman J. Treating drug involved offenders: simulated evidence on the prospects of going to scale. *J Exp Criminol*. 2010;6:1–33.
33. National TASC. About National TASC. <http://www.nationaltasc.org/about/>. Accessed 10 Aug 2013.
34. Anglin MD, Longshore D, Turner S. Treatment alternatives to street crime: an evaluation of five programs. *Crim Justice Behav*. 1999;26:168–95.
35. Belenko S, Foltz C, Lang MA, Sung H-E. Recidivism among high-risk drug felons: a longitudinal analysis following residential treatment. *J Offender Rehabil*. 2004;40:105–32.
36. Zarkin GA, Dunlap LJ, Belenko S, Dynia PAA. Benefit-cost analysis of the Kings County District Attorney's Office Drug Treatment Alternative to prison (DTAP) Program. *Justice Res Policy*. 2005;7:1–25.
37. Evans E, Jaffe A, Urada D, Anglin MD. Differential outcomes of court-supervised substance abuse treatment among California parolees and probationers. *Int J Offender Ther Comp Criminol*. 2012;56:539–56.
38. Gardiner C. "An absolute revolving door": an evaluation of police perception and response to proposition 36. *Criminal Justice Policy Rev*. 2012;23:275–303.
39. Evans E, Longshore D. Evaluation of the Substance Abuse and Crime Prevention Act: treatment clients and program types during the first year of implementation. *J Psychoactive Drugs SARC Suppl*. 2004;2:165–74.
40. Evans E, Longshore D, Prendergast M, Urada D. Evaluation of the Substance Abuse and Crime Prevention Act: client characteristics, treatment completion, and re-offending three years after implementation. *J Psychoactive Drugs SARC Suppl*. 2006;3:357–67.
41. Farabee D, Hser Y, Anglin MD, Huang D. Recidivism among an early cohort of California's Proposition 36 offenders. *Criminol Public Policy*. 2004;3:563–84.
42. Evans E, Huang D, Hser Y. High-risk offenders participating in court-supervised substance abuse treatment: characteristics, treatment received, and factors associated with recidivism. *J Behav Health Serv Res*. 2011;38:510–25.
43. Krebs CP, Brady T, Laird G. Jail-based substance user treatment: an analysis of retention. *Subst Use Misuse*. 2003;38:1227–58.
44. Begun AL, Rose SJ, LeBel TP. How jail partnerships can help women address substance abuse problems in preparing for community reentry. In: Stojkovic S, editor. *Managing special populations in jail and prisons*. Kingston, NJ: Civic Research Institute; 2010. p. 1–29.
45. Begun AL, Rose SJ, LeBel TP. Intervening with women in jail around alcohol and other substance abuse during preparation for community reentry. *Alcohol Treat Q*. 2011;29:453–78.
46. Proctor SL, Hoffmann NG, Allison S. The effectiveness of interactive journaling in reducing recidivism among substance-dependent jail inmates. *Int J Offender Ther Comp Criminol*. 2012;56:317–32.
47. Staton-Tindall M, McNeese E, Leukefeld C, Walker R, Oser C, Duvall J, et al. Treatment utilization among metropolitan and nonmetropolitan participants of corrections-based substance abuse programs reentering the community. *J Soc Serv Res*. 2011;37:379–89.
48. Scott CK, Dennis ML. The first 90 days following release from jail: findings from the Recovery Management Checkups for Women Offenders (RMCWO) experiment. *Drug Alcohol Depend*. 2012;125:110–8.
49. Welsh WN. A multi-site evaluation of prison-based TC drug treatment. *Crim Justice Behav*. 2007;34:1481–98.
50. Duwe G. Prison-based chemical dependency treatment in Minnesota: an outcome evaluation. *J Exp Criminol*. 2007;6:57–81.
51. Pelissier B, Jones N, Cadigan T. Drug treatment aftercare in the criminal justice system: a systematic review. *J Subst Abuse Treat*. 2007;32:311–20.
52. Gaes GG, Flanagan TJ, Motiuk LL, Stewart L. Adult correctional treatment. In: Tonry M, Petersilia J, editors. *Prisons. Crime and justice, a review of research*, vol. 26. Chicago: University of Chicago Press; 1999. p. 361–426.
53. Belenko S, Houser K, Welsh W. Understanding the impact of drug treatment in correctional settings. In: Petersilia J, Reitz KR, editors. *The Oxford handbook of sentencing and corrections*. Oxford: Oxford University Press; 2012. p. 463–91.
54. Pelissier B, Wallace S, O'Neil JA, Gaes GG, Camp S, Rhodes W, et al. Federal prison residential drug treatment reduces substance use and arrests after release. *Am J Drug Alcohol Abuse*. 2001;27:315–37.
55. Koehler JA, Humphreys DK, Akoensi TD, Sánchez de Ribera O, Lösel FA. A systematic review and meta-analysis of European drug treatment programs on reoffending. *Psychol Crime Law*. 2013. doi: 10.1080/1068316X.2013.804921
56. Hiller M, Knight K, Saum C, Simpson DD. Social functioning, treatment dropout, and recidivism of probationers mandated to a modified Therapeutic Community. *Crim Justice Behav*. 2006;33:738–59.
57. Lattimore PK, Visher CA. *The Multi-site Evaluation of SVORI: Summary and Synthesis*. Research Triangle Park, NC: RTI International & The Urban Institute; 2009.
58. Goldkamp J. Construct validity: The importance of understanding the nature of the intervention under study. In: Piquero A, Weisburd D, editors. *Handbook of quantitative criminology*. New York: Springer; 2010. p. 455–80.
59. Government Accountability Office. *Adult Drug Courts: Evidence indicates recidivism reductions and mixed results for other outcomes* (GAO Publication No.05-219). Washington, DC: U.S. Government Printing Office; 2005.
60. Huddleston W, Marlowe DB. *Painting the current picture: A national report on drug courts and other problem solving courts in the United States*. Alexandria, VA: National Drug Court Institute; 2011.
61. Office of Justice Programs. *Defining drug courts: The key components* (National Criminal Justice Reference No. NCJ 205621). Washington, DC: Office of Justice Programs; 2004.
62. Belenko S. *Research on drug courts: A critical review*. 2001 update. New York: The National Center on Addiction and Substance Abuse at Columbia University; 2001.
63. Lowenkamp CT, Holsinger AM, Latessa EJ. Are drug courts effective: a metaanalytic review. *J Community Correct*. 2006;15:5–11.
64. Mitchell O, Wilson D, Eggers A, MacKenzie D. Drug court's effects on criminal offending for juveniles and adults. *Campbell Systematic Reviews* 2012;8. *This meta-analysis updated several previous studies examining the effects of drug courts on recidivism. Mitchell et al. included 154 independent published and unpublished evaluations, of which 92 were conducted in adult drug courts. The authors concluded that adult drug courts reduce general and drug-related recidivism, and the effects remain after 3 years. The mean random effects odds ratios were 1.66 for overall recidivism and 1.70 for drug crime recidivism (both statistically significant). The average effect on overall recidivism was equivalent to a reduction from 50 % for offenders not in the drug court to 38 % for drug court participants.*
65. Wilson DB, Mitchell O, MacKenzie DL. A systematic review of drug court effects on recidivism. *J Exp Criminol*. 2006;2:459–87.
66. Belenko S. The challenges of conducting research in drug treatment court settings. *Subst Use Misuse*. 2002;37:1635–64.
67. Friedmann PD, Taxman FS, Henderson CE. Evidence-based treatment practices for drug-involved adults in the criminal justice system. *J Subst Abuse Treat*. 2007;32:267–77.

68. Taxman FS, Belenko S. Implementing evidence-based practices in community corrections and addiction treatment. New York: Springer; 2012.
69. Bennett TH, Holloway K, Farrington DP. The statistical association between drug misuse and crime: a meta-analysis. *Aggress Violent Behav.* 2008;13:107–18.
70. Friedmann PD, Hoskinson Jr R, Gordon M, Schwartz R, et al. Medication-Assisted Treatment in criminal justice agencies affiliated with the Criminal Justice-drug Abuse Treatment Studies (CJ-DATS): availability, barriers and intentions. *Subst Abuse.* 2012;33:9–18.
71. Matusow H, Dickman S, Rish J, Fong C, Dumont D, Hardin C, et al. Medication-assisted treatment in US drug courts: results from a nationwide survey of availability, barriers, and attitudes. *J Subst Abuse Treat.* 2013;44:473–80.
72. • Pearson FS, Prendergast ML, Podus D, Vazan P, Greenwell L, Hamilton Z. Meta-analyses of seven of the National Institute on Drug Abuse's principles of drug addiction treatment. *J Subst Abuse Treat.* 2012;43:1–11. *This meta-analysis sought to determine the evidence base for a subset of NIDA's Principles of Drug Addiction Treatment, first published in 1999 and updated in 2009. Pearson et al. reviewed studies addressing seven of the 13 NIDA principles, and found that five of them were supported by the research literature. These included 1) matching treatment to client needs; 2) addressing multiple client needs; 3) behavioral counseling interventions; 4) reassessment of treatment plans; and 5) HIV risk reduction counseling. Adequate treatment length and drug testing were not supported by the evidence.*
73. Burdon WM, Farabee D, Prendergast ML, Messina NP, Cartier J. Prison-based therapeutic community substance abuse programs—Implementation and operational issues. *Fed Probat.* 2003;66:3–8.
74. Farabee D, Prendergast M, Cartier J, Wexler H, Knight K, Anglin MD. Barriers to implementing effective correctional drug treatment programs. *Prison J.* 1999;79:150–62.
75. Knudsen HK, Abraham AJ, Johnson JA, Roman PM. Buprenorphine adoption in the National Drug Abuse Treatment Clinical Trials Network. *J Subst Abuse Treat.* 2009;37:307–12.
76. Bartholomew NG, Joe GW, Rowan-Szal GA, Simpson DD. Counselor assessments of training and adoption barriers. *J Subst Abuse Treat.* 2007;33:193–9.
77. Saum CA, O'Connell DJ, Martin SS, Hiller ML, Bacon GA, Simpson DD. Tempest in a TC: Changing treatment providers for in-prison therapeutic communities. *Crim Justice Behav.* 2007;34:1168–78.
78. Amato L, Davoli M, Perucci CA, Ferriq M, Faggiano F, Mattick RP. An overview of systematic reviews of the effectiveness of opiate maintenance therapies: available evidence to inform clinical practice and research. *J Subst Abuse Treat.* 2005;28:321–9.
79. Coviello DM, Cornishm JW, Lynch KG, Boney TY, Clark CA, Lee JD, et al. A multisite pilot study of extended-release injectable naltrexone treatment for previously opioid-dependent parolees and probationers. *Subst Abuse.* 2012;33:48–59.
80. Gryczynski J, Kinlock TW, Kelly SM, O'Grady KE, Gordon MS, Schwartz RP. Opioid agonist maintenance for probationers: patient-level predictors of treatment retention, drug use, and crime. *Subst Abuse.* 2012;33:30–9.
81. Mattick RP, Breen C, Kimber J, Davoli M. Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence. *Cochrane Database Syst Rev.* 2009;3.
82. Egli N, Pina M, Skovbo Christensen, P, Aebi M, Killias M. Effects of drug substitution programs on offending among drug addicts. *Campbell Systematic Reviews* 2009;3.
83. • Kinlock T, Gordon M, Schwartz R, Fitzgerald T, O'Grady K. A randomized clinical trial of methadone maintenance for prisoners: results at 12 months post-release. *J Subst Abuse Treat.* 2009;37:277–85. *This article reports findings from the first RCT of the efficacy of methadone maintenance for prison inmates. Male inmates (n= 204) were randomly assigned to 1) counseling in prison with referral to community treatment at release; 2) counseling in prison and upon release with transfer to methadone maintenance upon release; and 3) counseling and methadone maintenance in prison, continued in the community after release. Inmates receiving counseling plus methadone in and after prison had significantly more days in community treatment were less likely to test positive for opiates or cocaine 12 months after release (although self-reported drug use was not significantly different among the three groups. There were no significant effects on recidivism, however. This initial trial demonstrated the feasibility of providing methadone maintenance in prisons, with some evidence of efficacy in several outcome measures, and suggested the importance for further testing of use of methadone and other MAT in prisons in the USA.*
84. Gordon M, Kinlock T, Couvillion K, Schwartz R, O'Grady K. A randomized clinical trial of methadone maintenance for prisoners: prediction of treatment entry and completion in prison. *J Offender Rehabil.* 2012;51:222–38.
85. Magura S, Lee JD, Hershberger J, Joseph H, Marsch L, Shropshire C, et al. Buprenorphine and methadone maintenance in jail and post-release: a randomized clinical trial. *Drug Alcohol Depend.* 2009;99:222–30.
86. Harris A, Selling D, Luther C, Hershberger J, Brittain J, Dickman S, et al. Rates of community methadone treatment reporting at jail reentry following a methadone increased dose quality improvement effort. *Subst Abuse.* 2012;33:70–5.
87. Finigan M, Perkins T, Zold-Kilburn P, Parks J, Stringer M. Preliminary evaluation of extended-release naltrexone in Michigan and Missouri drug courts. *J Subst Abuse Treat.* 2011;41:288–93.
88. Conner BT, Hampton AS, Hunter J, Urada D. Treating opioid use under California's Proposition 36: differential outcomes by treatment modality. *J Psychoactive Drugs, SARC Suppl.* 2011;7:77–83.
89. Comer SD, Sullivan MA, Yu E, Rothenberg JL, Kleber HD, Kampman K, et al. Injectable, sustained-release Naltrexone for the treatment of opioid dependence: a randomized, placebo-controlled trial. *Arch Gen Psychiatry.* 2006;63:210–8.
90. McMillan GP, Lapham SC. Staff perspectives on methadone maintenance therapy (MMT) in a large southwestern jail. *Addict Res Theory.* 2005;13:53–63.
91. Andrews DA, Bonta J. The psychology of criminal conduct. 2nd ed. Cincinnati, OH: Anderson; 2010.
92. Smith P, Gendreau P, Swartz K. Validating the principles of effective intervention: a systematic review of the contributions of meta-analysis in the field of corrections. *Vict Offender.* 2009;4:148–69.
93. Crime and Justice Institute at Community Resources for Justice. Implementing Evidence-Based Policy and Practice in Community Corrections (2nd edition). Washington, DC: National Institute of Corrections; 2009.
94. National Institute on Drug Abuse. Principles of effective drug abuse treatment. Rockville, MD: National Institute of Drug Abuse; 1999.
95. Cohen TH, Kyckelhahn T. Felony defendants in large urban counties, 2006.(NCJ Publication No. 228944). Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics; 2010.
96. • McKay JR. Continuing care research: what we've learned and where we're going. *J Subst Abuse Treat.* 2009;36:131–45. *This review of research on continuing care includes a full range of interventions through detoxification and post-treatment recovery monitoring. Studies reviewed include 10 RCTs of clients with drug dependence problems. McKay concludes that continuing care models were more effective than acute care models, although some studies did not find significant effects and there was variation in patient responses to continuing care interventions. More effective interventions were those with longer duration of clinical contact or that made greater efforts to adapt the treatment to patient needs.*

97. Aarons GA, Hurlbert M, Horwitz SM. Advancing a conceptual model of evidence-based practice implementation in public service sectors. *Adm Policy Ment Health*. 2011;38:3–23.
98. Salomé HJ, French MT, Miller M, McLellan AT. Estimating the client costs of addiction treatment: first findings from the client drug abuse cost analysis program (Client DATCAP). *Drug Alcohol Depend*. 2003;71:195–206.
99. McCollister KE, French MT, Prendergast M, Hall E, Sacks S. Long-term cost effectiveness of addiction treatment for criminal offenders. *Justice Q*. 2004;21:659–79.
100. Daley M, Love CT, Shepard DS, Petersen CB, White KL, Hall FB. Cost effectiveness of Connecticut's in-prison substance abuse treatment. *J Offender Rehabil*. 2004;39:69–92.
101. Barnoski R, Aos S. Washington State's drug courts for adult defendants: Outcome evaluation and cost-benefit analysis. Olympia, WA: Washington State Institute for Public Policy; 2003.
102. Logan TK, Hoyt WH, McCollister KE, French MT, Leukefeld C, Minton L. Economic evaluation of drug court: methodology, results, and policy implications. *Eval Program Plan*. 2004;27:381–96.
103. Damschroder L, Aron D, Keith R, Kirsh S, Alexander J, Lowery J. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci*. 2009;4:50.
104. Proctor E, Landsverk J, Aarons G, Chambers D, Glisson C, Mittman B. Implementation research in mental health services: an emerging science with conceptual, methodological, and training challenges. *Adm Policy Ment Health*. 2009;36:24–34.
105. Taxman FS, Perdoni ML, Caudy M. The plight of providing appropriate substance abuse treatment services to offenders: modeling the gaps in service delivery. *Vict Offenders Int J Evid -Based Res Policy Pract*. 2013;8:70–93.
106. Belenko S. Assessing released inmates for substance-abuse related service needs. *Crime Delinq*. 2006;52:94–113.
107. Pearson FS, Lipton DS. A meta-analytic review of the effectiveness of corrections-based treatment for drug abuse. *Prison J*. 1999;79:384–410.