



Medication assisted treatment in US drug courts: Results from a nationwide survey of availability, barriers and attitudes

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ABSTRACT

Drug treatment courts are an increasingly important tool in reducing the census of those incarcerated for non-violent drug offenses; medication assisted treatment (MAT) is proven to be an effective treatment for opioid addiction. However, little is known about the availability of and barriers to MAT provision for opioid-addicted people under drug court jurisdiction. Using an online survey, we assessed availability, barriers, and need for MAT (especially agonist medication) for opioid addiction in drug courts. Ninety-eight percent reported opioid-addicted participants, and 47% offered agonist medication (56% for all MAT including naltrexone). Barriers included cost and court policy. Responses revealed significant uncertainty, especially among non-MAT providing courts. Political, judicial and administrative opposition appear to affect MAT's inconsistent use and availability in drug court settings. These data suggest that a substantial, targeted educational initiative is needed to increase awareness of the treatment and criminal justice benefits of MAT in the drug courts.

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1. Introduction

Prescription and non-prescription opioids are among the most commonly misused illicit drugs in the United States, second only to marijuana. The number of people in the United States who used heroin increased from 214,000 in 2002 to 359,000 in 2010 (SAMHSA, 2010). Prescription opioid abuse has also escalated; overdoses due to prescription opioids now outnumber those due to cocaine and heroin combined (MMWR, 2012). Over the past three decades an unprecedented number of drug users have entered the U.S. criminal justice system (Glaze, 2011). A 2004 Department of Justice survey reported that 53% of state and 45% of federal prisoners met *DSM-IV* criteria for a drug use disorder (Mumola & Karberg, 2006). Approximately one-third of inmates resume substance abuse within the first 2 months of their release, and 95% of those incarcerated for drug crimes return to

drug use within 3 years of their release (Marlowe, 2003). An estimated 20% of prison inmates have a history of injection drug use, and approximately 24–36% of all heroin addicts, or over 200,000 individuals, pass through the U.S. criminal justice system each year (Rich et al., 2005).

Methadone is a μ -opioid agonist that has been used for more than 50 years to treat opioid dependence. Federal regulations stipulate that methadone maintenance treatment for opioid dependence must be administered in certified treatment centers in directly observed settings, thereby limiting its availability. Buprenorphine is a partial opioid agonist (often co-formulated with naloxone, an opioid antagonist that precipitates withdrawal if injected) that has also been used to treat opioid dependence. Both buprenorphine and methadone are examples of medication-assisted treatment (MAT) for opioid abuse, and both are effective in reducing heroin and prescription opioid abuse as well as criminal behavior, HIV risk behaviors, and overdose deaths associated with opioid abuse (Nunn et al., 2009; Rich et al., 2005; Zaller, Bazazi, Velazquez, & Rich, 2009).

Methadone has a long history and is recognized as one of the most effective treatments for chronic opioid dependence (Marsch, 1998; NIH, 1997). Despite the demonstrated benefits of agonist therapy (and virtual absence of evidence for the efficacy of stand-alone

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behavioral interventions), concerns persist. Among these concerns are diversion, risk of overdose, the extended duration of the treatment, and limited progress patients may make in achieving other treatment goals such as cessation from non-opioid substance abuse and obtaining gainful employment (Blankertz et al., 2004; Bourgois, 2000; De Maeyer et al., 2011; Richardson, Wood, Montaner, & Kerr, 2012). Several of these concerns are addressed in maintenance therapy where the protocol for titration has been proven to be safe and effective, access to medication is tightly regulated (at least for methadone maintenance) and drug counseling and ancillary services are often made available. That methadone treatment is associated with a daily visit to a methadone clinic is cause for concern for those who argue that daily interaction with other addicted individuals—some of whom may continue to abuse drugs—and may exert a range of negative social influences (Herman Joseph, personal communication, August 22, 2012). It has been well-documented that prescription opioid drugs are abused and diverted and that among these drugs are sublingual buprenorphine and methadone (Dasgupta et al., 2010; Johanson, Arfken, di Menza, & Schuster, 2012; Varenbut et al., 2007). Sublingual buprenorphine is typically prescribed in office-based practices for the treatment of opioid dependence. Methadone can be legally prescribed for the treatment of chronic pain or for opioid dependence. When methadone is used for pain it can be prescribed by an office-based physician (just like other Schedule II prescription opioids such as extended-release oxycodone) and prescriptions are dispensed at a pharmacy. When methadone is used to treat opioid dependence it can only be dispensed at a licensed opioid treatment program (OTP) where much more stringent dispensing restrictions apply. Most diverted methadone is believed to come from pharmacies, not from OTPs (Dasgupta et al., 2010).

A formidable obstacle to the acceptance of agonist therapy (mostly documented with methadone maintenance) is the stigma that has been attached to it. This stigma is pervasive in the community, among drug treatment professionals, and among drug users (Forman, Bovasso, & Woody, 2001; Kang, Magura, Nwakeze, & Demsky, 1997; Rosenblum, Magura, & Joseph, 1991). The stigma derives from concerns associated with diversion, negative beliefs that methadone generates an array of unwanted side effects, and opinions that its use prevents patients from achieving full recovery (e.g., keeps them addicted to an opioid). Many of these beliefs are based on a misunderstanding of how methadone functions or a philosophical bias against maintenance medication in favor of interventions that do not use medications (Gerra et al., 2009; Kleber, 2007; White, 2009). Research has indicated that bias or misinformation about the benefits and risks associated with methadone results in poorer treatment outcomes (Kang et al., 1997), plays a role in limiting expansion of this treatment, and leads to counter-therapeutic rules on methadone treatment such as imposing a ceiling dose or limiting duration of treatment (D'Aunno & Pollack, 2002; Joseph, Stancliff, & Langrod, 2000; Magura & Rosenblum, 2001). It is unclear to what extent negative attitudes toward methadone have extended to buprenorphine treatment. See White (2009) for a comprehensive review on stigma attached to medication treatment for addiction.

Naltrexone, another medication used in the treatment of opioid dependence, is an opioid antagonist (blocks the effects of opioid agonists) and has few if any psychoactive effects. Although historically used in the treatment of alcohol dependence, it has been used to treat opioid dependence especially with the recent FDA approval of an extended-release injectable formulation (Vivitrol®). Because of its antagonist properties, naltrexone is not a medication likely to be abused or diverted. More studies are needed, however, to better understand its efficacy compared with agonist medications for the treatment of opioid dependence.

In the United States, drug treatment courts (drug courts), have become increasingly popular as a means of diverting non-violent drug offenders away from jails and prisons into more treatment-oriented

settings (Brown, 2010; Chandler, Fletcher, & Volkow, 2009; Kushel, Hahn, Evans, Bangsberg, & Moss, 2005; Marlowe, 2003). People who have drug problems and have been arrested for either a drug-related (or in some cases an unrelated) offense may be eligible to enter a drug court program, which typically follows the individual for 12 to 18 months. During this time, the drug court participant has regular hearings in front of the presiding judge and must adhere to a treatment and monitoring protocol which varies by program but often includes random drug testing and mandatory attendance at drug treatment programs.

The National Drug Court Institute (NDCI) estimates that in 2009 over 116,000 criminal offenders were served by a drug court program (Huddleston & Marlowe, 2011). The effectiveness of drug court programs varies by court location, but aggregated data suggest drug courts help reduce crime and illicit drug use (Aos, Miller, & Drake, 2006; Lowenkamp, Holsinger, & Latessa, 2005; Shaffer, 2006, 2011). Recidivism among drug court participants is estimated to be 8 to 26% lower than for other criminal justice dispositions (Carey, Finigan, & Pukstas, 2008), and is achieved both by decreasing drug use and increasing time until re-arrest (Brown, 2010; Marlowe, 2003). While earlier research was cautious in reporting recidivism improvements among drug court participants (Wilson, Mitchell, & MacKenzie, 2006), in a recent meta-analysis, investigators identified 92 evaluations (experimental or quasi-experimental design) of adult drug courts and found a sizeable, statistically robust reduction in recidivism, the effects of which were maintained for at least 3 years post-program (Mitchell, Wilson, Eggers, & MacKenzie, 2012). Ongoing drug court participation is linked to measurable improvements in quality of life issues such as family functionality and more consistent use of needed services (Kralstein, 2010; Rempel & Green, 2009; Rossman, Green, & Rempel, 2009). Although a recent study suggests that some quality of life improvements associated with drug courts are more modest than previously thought, family conflict was significantly reduced among drug court participants (Green & Rempel, 2012). Other coercive approaches such as “boot camp” and probation, even with intensive supervision, have been proven less effective (Marlowe, DeMatteo, & Festinger, 2003). A review of almost 100 drug courts found that 60% of drug court participants remained in treatment 12 or more months (Marlowe et al., 2003), suggesting that the combination of treatment and court-based coercion is somewhat effective in maintaining participation in drug treatment. However, some legal scholars believe that problem-solving courts are neither effective nor judicially rational. For a contrasting perspective on therapeutic jurisprudence see Hoffman (2011).

Following the national trend of increasing opioid misuse, the number of people in drug courts with opioid problems has increased over the past decade. This increase has been especially notable in rural drug courts, where opioids were the misused drug of choice for 19% of drug court participants in 2008, compared with 6% in 2005 (Huddleston & Marlowe, 2011; Huddleston, Marlowe, & Casebolt, 2008).

Inclusion of MAT as part of opioid abuse treatment in drug courts is recommended by the NDCI and the National Association of State Alcohol and Drug Abuse Directors (NDCI 2002). Some state and federal prisons permit MAT for opioid-dependent prisoners, but the U.S. criminal justice system has generally been reluctant to accept MAT (Magura et al., 2009; McMillan & Lapham, 2005; Nunn et al., 2009; Rich et al., 2005; Westermeyer, 2000). In 1999, a 202-court survey found that 39% of drug courts made methadone available to participants (Peyton & Gossweiler, 2001). Trends in drug use, the number of drug courts, and medications available for opioid treatment have changed substantially since 1999, yet little is known about the current availability of MAT for opioid misusers under drug court jurisdiction. We conducted a nationwide survey of urban, suburban, and rural drug courts in 50 U.S. states to assess the attitudes and knowledge of drug court personnel toward agonist therapy, its prevalence among opioid-addicted participants, and the impediments to its use in the nation's adult drug courts.

Because extended-release naltrexone was recently approved for the treatment of opioid dependence, this study examined only prevalence of naltrexone use in the courts, but not attitudes and barriers associated with its provision.

2. Methods

2.1. Survey design

We developed a brief, confidential online survey exploring attitudes and practices of drug courts regarding MAT for opioid dependence. The survey was designed with input from drug court professionals and was based in part on previous studies on MAT prescribing and referral practices in U.S. prison systems (Nunn et al., 2009) as well as from scales that assessed counselor attitudes toward MAT (Caglehorn, Hartel, & Irwig, 1997; Kang et al., 1997). Prior to launching the survey it was piloted with 10 drug courts. In order to compare attitudes and knowledge among courts, the investigators constructed two separate scales for methadone and buprenorphine (Table 6). Items 3, 4, and 7 were reverse coded. Survey questions addressed MAT provision within the drug court setting, attitudes about its utility, and barriers to its use. In addition to multiple-choice questions, an open-ended question allowed respondents to provide additional insight about MAT concerns and acceptance within drug courts. Respondents were asked to provide information about the demand for opioid dependence treatment among drug court participants, circumstances under which MAT was permitted, the number of drug court participants enrolled in the drug court program during calendar year 2010, and barriers to increasing MAT services.

2.2. Sampling strategy

As of June 30, 2010, there were 1372 adult drug courts operating in the United States, of which 365 were hybrid courts for both DWI (driving while impaired) and drug offenses. In order to insure that the survey was both nationally representative and need-based, we utilized a methodology that targeted a national sample of drug courts according to three categories: by state, by proportion of drug court participants who used illicit opioids, and by major metropolitan cities. Previous studies have found both regional and population density differences in MAT attitudes and use (e.g. Huddleston & Marlowe, 2011; Nunn et al., 2009; Peyton & Gossweiler, 2001), and in the use of heroin and illicit prescription opioids (Rosenblum et al., 2007). In order to examine attitudinal differences both within state and within urbanicity, three drug courts were selected from each state (150 total), stratified so that for each state, one urban, one suburban, and one rural court were randomly chosen. Population density characteristics were determined by the Beale urbanicity code for the zip code reported by the court (Economic Research Service, U.S.D.o.A., 2004). Drug courts in Washington DC and Puerto Rico were also surveyed. We oversampled drug courts in regions of 15 states where internal NDCI survey data showed that heroin or prescription opioids were the most or second-most common drug of choice among drug court participants. For each region identified, three additional courts were randomly selected. In order to collect data from courts where the census of opioid using participants was highest, every drug court in the 20 largest cities (by population) in the United States was invited to participate. After accounting for duplicate drug courts and missing contact information in online databases, we identified a desired sample of 194 drug courts.

Based on NDCI data, 55% of all U.S. drug courts were in regions identified as rural, 18% suburban, and 27% urban. To better account for over or underrepresentation in sampling by urbanicity, we employed a weighting procedure that assigned a multiplier to each region based on the total number of drug courts in that urbanicity. Urban courts were assigned a weight of .27, suburban, .18, and rural, .55. Weighting

was invoked prior to all analyses, and all percentages reported are weighted percentages.

Contact information of these courts was sent to the senior director of the NDCI (CH), who sought consent from the state drug court coordinator in each state to survey their courts. With the exception of one state, all state drug court coordinators granted permission to survey their courts. The eight courts from the state that declined to participate were removed from the sample. The remaining 186 drug courts represented 77 urban, 57 suburban, and 52 rural drug courts. An e-mail was sent from NDCI's senior director to each state drug court coordinator, who was asked to forward a survey invitation to the courts that had been selected in that state. The survey invitation explained the study and served as an informed consent document. Survey recipients were given the option both to participate in the survey and to receive a \$20 online gift certificate for doing so. Selected drug court coordinators were given the option to decline to participate or to complete the survey. The research protocols for this study were approved by the institutional review boards of both The Miriam Hospital and the National Development and Research Institutes. After all data were collected in the online database, responses were downloaded and analyzed in SPSS Version 6.14 (SPSS).

The survey was e-mailed in three waves to courts in 49 states plus Washington DC and Puerto Rico. Forty-one percent of the surveys were e-mailed to courts in urban areas, 31% to suburban, and 28% to rural areas. Initially, the survey was sent to all selected courts directly from the NDCI Senior Director (CH). Two weeks and 4 weeks afterward, the study's Project Director (HM) e-mailed another round of surveys to all courts thanking those that had already completed the survey and reminding those that had not to please do so. The electronic survey was designed to accept only one survey per participant. One week after the last round of e-mails, HM and DD called all non-respondents for which a telephone number was available inviting them to complete the survey.

3. Results

Among the 186 surveys that were distributed we received 103 responses (55%). Most survey questions were answered by 93 courts (50%), and 86 (46%) completed the survey. Forty-seven states plus Washington DC, and Puerto Rico were represented. Thirty-two percent of all consenting drug courts surveyed were in urban areas, 37% were suburban, and 31% were in rural areas.

3.1. Respondent demographics

As shown in Table 1, the majority of respondents identified themselves as drug court coordinators or administrators (84%), had worked for >5 years in drug courts (58%), and identified their professional discipline as clinician—social worker, counselor, or drug treatment professional; 84%.

3.2. Characteristics of drug court participants and MAT

Drug courts' current census varied in size from fewer than 10 (9%) to greater than 100 (26%). Virtually all drug courts (98%) reported that at least some of their participants were opioid-dependent in 2010 (Table 2). Prescription opioids were more frequently cited as the primary opioid problem than heroin (66 versus 26%). This trend is particularly apparent in less densely populated areas: prescription versus heroin rates across the three population areas were: rural (76 versus 12%), suburban (67 versus 33%), and urban (38 versus 50%); $p < .01$. Almost half (48%) of the drug courts estimated that more than 20% of their participants were opioid-dependent; 20% of drug courts estimated 10–20% of their participants were addicted to opioids, and 28% of drug courts estimated that 1–10% of their participants were addicted to opioids; 2% answered, “none,” and 2% reported “don't

Table 1
Respondent characteristics (N=93).

	n (%) [*]
Professional role in the drug court	
Coordinator	62 (66)
Administrator	17 (18)
Probation	5 (6)
Treatment	4 (6)
Judge	4 (4)
Other	1 (1)
Years of experience in drug courts	
0–5 years	40 (42)
5–10 years	35 (39)
10–20 years	18 (19)
Professional discipline (N=93)	
Drug treatment professional	36 (43)
Social worker	28 (27)
Counselor	11 (14)
Other	8 (8)
Lawyer	6 (4)
Judge	4 (4)
Highest academic degree attained	
GED, HS Diploma, or associates	9 (15)
Bachelor's degree	35 (35)
Master's degree	37 (40)
JD or PhD	11 (10)

* All percentages weighted to account for over/underrepresentation of courts in rural, suburban, and urban regions.

know." As shown in Table 3, 56% of drug courts reported at least some of their opioid dependent participants were receiving some type of MAT, 76% of urban courts, 58% of suburban, and 45% of rural courts ($p<.01$). Overall, 47% report that agonist medications are available under certain conditions (62% of urban courts, 48% of suburban courts, 40% of rural courts), and 18% report that naltrexone—oral or long-acting injectable—is available for the treatment of opioid dependence. Buprenorphine maintenance was more likely to be reported than methadone maintenance, 40 versus 26%, respectively. Fifty percent of drug courts also reported that at least some of their participants with an alcohol disorder were receiving MAT for alcoholism: oral naltrexone (40%), extended-release naltrexone (28%); disulfiram (43%), acamprosate (30%).

3.3. Conditions under which agonist therapy is available

Circumstances under which buprenorphine or methadone were available varied widely (Table 4). Fifty percent of drug courts reported

Table 2
Characteristics of drug court participants (N=93).

	n (%) [*]
Drug court participants at time survey was completed	
0–10	6 (9)
11–25	21 (24)
26–50	25 (30)
51–100	13 (11)
101–200	17 (16)
>200	10 (10)
Participants with opioid dependence prior to entering drug court	
None	1 (2)
1 to 5%	17 (18)
5 to 10%	11 (10)
10 to 20%	19 (20)
>20%	42 (48)
Don't know	3 (2)
Primary opioid problem seen among drug court participants	
Prescription opioids	57 (66)
Heroin	30 (26)
Don't know	6 (8)

All responses on this table are mutually exclusive.

* All percentages weighted to account for over/underrepresentation of courts in rural, suburban, and urban regions.

Table 3
Medication assisted treatment (MAT) among drug courts in 2010 (N=93).

	n (%) [*]
Any MAT (for opioid dependence)	60 (56)
Agonist MAT	45 (47)
Methadone maintenance	26 (26)
Buprenorphine maintenance	37 (40)
Any naltrexone (for opioid dependence)	17 (18)
Naltrexone as a pill	12 (13)
Naltrexone as a monthly injection (Vivitrol)	7 (8)
Counseling	87 (92)
Opioid detox services (with or without use of medications)	51 (56)

* All percentages weighted to account for over/underrepresentation of courts in rural, suburban, and urban regions.

that agonist medication was not available to participants with opioid dependence under any circumstances. Only one third (34%) reported that agonist therapy was permitted for drug court participants who had been using illicit opioids; 40% reported that continued maintenance was permitted for participants who were already receiving agonist therapy. For pregnant participants MAT was more restricted. Twenty six percent of courts permit agonist therapy for pregnant participants using illicit opioids and 28% for those already in agonist maintenance. In all categories methadone was more restricted than buprenorphine.

3.4. Reasons for limited or no availability of agonist therapy in drug courts

Drug court respondents were also asked to identify reasons for limited or no availability of agonist therapy for their drug court participants (Table 5). The four most frequent reasons buprenorphine was not available in a drug court were cost (43%), participants are detoxed before they enter supervision (42%), lack of local providers (41%), and court does not permit it (40%). Among rural courts, however, lack of local providers was endorsed as the main reason by 74% of respondents ($p<.01$). The most frequent reason methadone was not offered was court does not permit it, endorsed by 52% of courts (rural courts 50%, suburban courts 67%, and urban courts 69%) followed by drug treatment provider does not recommend or provide it (49%), participants detoxed before they enter supervision (45%), and risk of diversion (36%). As seen in Table 5, percentages may actually be higher because a sizable percentage of the drug court respondents endorsed "don't know." "Don't know" responses were even higher among drug courts where agonist medication is

Table 4
Conditions under which agonist treatment is available (n=90).

	Methadone n (%) [*]	Buprenorphine n (%) [*]	Any agonist n (%) [*]
Tapered detox for participants currently receiving methadone or buprenorphine	26 (28)	32 (33)	38 (40)
For all participants who are currently receiving methadone or buprenorphine	20 (22)	29 (31)	36 (40)
For induction and maintenance for participants who have been using illicit opioids	16 (17)	27 (30)	31 (34)
For pregnant participants currently receiving methadone or buprenorphine	16 (19)	22 (24)	25 (28)
For pregnant participants who have been using illicit opioids.	13 (14)	20 (22)	23 (26)
Other circumstances	3 (2)	3 (2)	3 (2)
Not permitted under any circumstances	42 (45)	38 (43)	45 (50)

* All percentages weighted to account for over/underrepresentation of courts in rural, suburban, and urban regions.

Table 5
Reasons for limited or no provision of agonist medication for drug court participants.

	Buprenorphine n = 90			Methadone n = 88		
	Yes	No	Don't know	Yes	No	Don't know
	n (%)*	n (%)*	n (%)*	n (%)*	n (%)*	n (%)*
Cost is prohibitive/insufficient funding	39 (43)	19 (20)	32 (37)	24 (29)	35 (37)	29 (34)
Risk of diversion	26 (33)	27 (28)	37 (39)	32 (36)	26 (27)	30 (37)
Drug court policy not to permit its use	34 (40)	42 (46)	14 (14)	49 (52)	30 (37)	9 (11)
Drug treatment provider does not recommend or provide it	29 (33)	41 (43)	20 (24)	46 (49)	29 (33)	13 (18)
Clients are detoxed before they enter supervision	36 (42)	44 (47)	10 (11)	38 (45)	44 (48)	6 (7)
Not beneficial to clients	13 (16)	41 (43)	36 (41)	20 (21)	36 (40)	32 (39)
Opposition from prosecutor	19 (20)	39 (44)	32 (36)	26 (29)	35 (40)	27 (31)
Opposition from judge	19 (21)	48 (50)	23 (29)	28 (31)	39 (44)	21 (25)
Opposition from state/county/municipal government	5 (6)	48 (55)	37 (39)	13 (12)	42 (49)	33 (39)
Lack of local providers	30 (41)	31 (29)	29 (30)	25 (35)	48 (48)	15 (17)
Opioid addiction is not a common problem among drug court clients	15 (15)	65 (74)	10 (11)	11 (11)	69 (78)	8 (11)

* All percentages weighted to account for over/underrepresentation of courts in rural, suburban, and urban regions.

unavailable. For example, in courts where buprenorphine is not offered, “don’t know” was endorsed by 47% of courts in response to “risk of diversion” compared with 21% “don’t know” responses among courts that provide buprenorphine ($p < .01$). Among courts that permit methadone, 7% endorsed “don’t know” to “drug treatment provider does not recommend or provide methadone,” compared with 21% “don’t know” among courts that do not permit methadone ($p < .05$).

3.5. Knowledge and attitudes

Internal validity was strong ($\alpha = .85$) for both the buprenorphine and methadone knowledge/attitude scales. Survey respondents were

generally more likely to endorse favorable views toward MAT than to disagree with such views (Table 6). Nevertheless, the most widely selected choice for the large majority of attitudinal questions—more so for buprenorphine than for methadone—was “uncertain.” For example, while 16% of respondents agreed that buprenorphine is more effective than non-pharmacological approaches in retaining patients in treatment, 58% endorsed “uncertain”. Thirteen percent agreed that methadone, given in a stable dose, interferes with the ability to drive a car; 63% were uncertain. Twenty-two percent and 10% of respondents agreed that the use of methadone and buprenorphine, respectively, “rewards criminals for being drug users”; respondents appeared to have stronger negative attitudes toward methadone than to buprenorphine: more than a third (38%) agreed that methadone prolongs addiction; and endorsement rate for buprenorphine was 21%.

3.5.1. Comparing courts based on MAT availability and respondents' characteristics

Among the 46 drug courts where no participants were receiving agonist medication, negative attitudes toward and incorrect information about buprenorphine and methadone were even more pronounced. For example, of courts in which buprenorphine is not available, only 5% agree that its use is more effective than non-pharmacological treatments for opioid addiction compared with 32% in courts where buprenorphine is available ($p < .01$). Similarly, 60% of courts that permit methadone agree with the statement “opioid-addicted drug court participants should have the opportunity to be maintained on methadone while in the program,” compared with 11% agreement in courts that do not provide methadone ($p < .01$). A similar pattern was observed for views on the ability of both medications to reduce relapse. Sixty percent of courts in which agonist treatment is available, but 26% of those in which it is not, indicated they believe that methadone effectively reduces relapse to illicit opioid use ($p < .01$). We examined professional and demographic differences in MAT knowledge and attitudes. No significant associations were found for educational level, professional role in the court, professional discipline, or years of experience. The most significant differences in knowledge and attitudes about MAT were between courts that permit MAT and those that do not.

3.5.2. Introduction/expansion of agonist treatment

To gauge drug courts' receptivity toward agonist medication we asked respondents if it would be possible to introduce or expand the

Table 6
Respondents' attitudes about agonist medication.

	Buprenorphine n = 90			Methadone n = 88		
	Agree	Uncertain	Disagree	Agree	Uncertain	Disagree
	n (%)*	n (%)*	n (%)*	n (%)*	n (%)*	n (%)*
Reduces relapse	42 (45)	43 (48)	5 (7)	39 (44)	31 (36)	18 (20)
Helps reduce crime and re-incarceration	37 (41)	46 (50)	7 (9)	36 (41)	35 (40)	17 (19)
Rewards criminals for being drug users	8 (10)	36 (42)	46 (48)	15 (22)	28 (31)	45 (47)
Prolongs addiction	20 (21)	43 (49)	27 (30)	32 (38)	36 (38)	20 (24)
Should be used to maintain clients [drug court participants] who are already opioid addicted.	30 (31)	40 (47)	20 (22)	26 (26)	30 (40)	32 (34)
More effective than non-pharmacological approaches in retaining patients in treatment	16 (16)	54 (58)	20 (26)	11 (11)	49 (54)	28 (35)
Interferes with the ability to drive a car	4 (4)	55 (61)	31 (34)	11 (13)	54 (63)	23 (24)
Reduces or blocks the effects of heroin	39 (41)	48 (56)	3 (3)	41 (42)	36 (45)	11 (13)

* All percentages weighted to account for over/underrepresentation of courts in rural, suburban, and urban regions.

use of agonist medication in their courts “if evidence were available that methadone or buprenorphine improved outcomes for drug court participants.” Endorsement rates were 59% “yes”, 12% “no” and 29% “don’t know.” Among courts where MAT is available 70% of courts said that MAT could be expanded. Among courts where MAT is not available 49% said it could be introduced.

3.5.3. Verbatim reports about MAT

In addition to closed-ended items, the survey included an open-ended question that asked for additional perspectives on MAT in drug courts. Some respondents were firmly opposed to MAT for treating opioid addiction, addressing perceived diversion and misuse of methadone and buprenorphine in the community:

We have had serious problems with participants abusing methadone and buprenorphine. Rather than using it for the intended purpose they abuse it like any other drug, and when they can't get it from a provider, they buy it off the street.

Opposition to maintaining court participants on MAT also stemmed from the perception that methadone and buprenorphine merely substitute one addiction with another:

Our drug court team feels that allowing our participants to take medication in order to “detox” from one substance could result in new addiction to another substance. When these drugs are used people are substituting one high for another. There is currently no policy regarding the use of methadone or buprenorphine. It is this writer's experience [that] buprenorphine, when utilized as a chemical bridge can be very beneficial. Sadly, many consumers choose to remain on methadone and buprenorphine for far too long and it then becomes yet another substance they must detox from and learn to live without. If it were introduced as a facet of SDTC [State Drug Treatment Court], it would need to be done with specific parameters on tapering and no long term use.

Other open-ended responses, however, indicated potential receptiveness to using MAT if concerns about misuse were addressed:

Our program is not sold on methadone or buprenorphine maintenance. A lot of our participants use these substances to get high and as a result continue to use them. We think that with appropriate monitoring of these meds, it is possible to use these meds as tools to recovery for our participants. But right now, we are not sold on either medication.

4. Discussion

To our knowledge, this is the second nationwide survey to quantify the availability of methadone for opioid abuse in U.S. drug courts, and the first nationwide study to examine buprenorphine availability, attitudes and barriers associated with agonist MAT, and the extent of naltrexone use in the drug courts. We found that nearly all drug courts surveyed reported that at least some participants were addicted to opioids upon entering the program, but that in two-thirds of the courts agonist therapy is not available to drug court participants who were using illicit opioids at the time of their drug court initiation. For pregnant drug court participants, agonist availability appears even more restricted. Pregnant drug court participants who enter a U.S. drug court program using illicit opioids face sobering odds: only one in four courts (26%) permit agonist therapy for this group. Buprenorphine was available to participants in 40% of courts, and methadone in 26%, with a total MAT (including naltrexone) availability of 56%. Courts that make agonist medications available to their participants are likely to also permit naltrexone (OR = 4.73; CI 1.88 to 11.89), suggesting that the decision to use medications in

treatment does not hinge on type of medication (agonist versus antagonist) as much as it does on provision of MAT generally.

A variety of reasons were offered as to why agonist therapy was not available to drug court participants. Forty-five and 42% of courts respectively indicated that methadone and buprenorphine were not available because clients are detoxed before admission to the program. In light of the ample evidence demonstrating high relapse rates following opioid detoxification, a policy mandating medical withdrawal appears to be contrary to best practices as defined by medical evidence and the consensus of addiction experts (Kreek, 2000; NIH 1997) and may represent an infringement of rights as set forth in the Americans with Disabilities Act (Legal Action Center, 2011).

A survey of 263 drug courts with an 81% response rate conducted in 1999 (before buprenorphine was widely used for treating opioid dependence) found that methadone was provided in 39% of drug courts (Peyton & Gossweiler, 2001). While it is possible that our finding that 47% of drug courts offer either methadone or buprenorphine reflects a trend toward greater acceptance of MAT, comparisons across this time span (during which the number of drug courts increased dramatically) should be interpreted with caution. Nevertheless, it appears that the recommendations by major professional organizations to expand MAT use in drug courts may be having some effect, at least with regard to the introduction of buprenorphine. Expansion may be limited however, because only 59% of drug courts surveyed said it would be possible to introduce or expand the use of MAT if evidence were available that agonist MAT improved outcomes for their participants. Moreover those that indicated a willingness to expand or introduce MAT are largely courts that already provide it. Open-ended responses indicated, however, that systemic changes, including appropriate monitoring of medications might increase willingness to introduce MAT as part of a drug court program.

Although drug courts were originally conceived as a more treatment-based and less punitive approach to substance abuse than incarceration, we found that many drug courts have not adopted policies that reflect the view (supported by a large body of research) that MAT compared with non-pharmacological interventions is an effective treatment for opioid dependence. Our survey findings reflected a lack of familiarity and comfort with the potential benefits of MAT treatment, especially among courts that report that none of their opioid dependent participants are receiving agonist therapy. For example, although the concept of narcotic blockade has been repeatedly documented since Vincent Dole's work with methadone in the 1960s (Dole, Nyswander, & Kreek, 1966; Kleber, 2007; Tetrault & Fiellin, 2012), less than half of respondents agreed, and 45–56% were uncertain, that agonist medication reduces or blocks the effects of heroin. These responses are consistent with previous findings both in other criminal justice dispensations (Friedmann et al., 2012; Nunn et al., 2009) and among community treatment providers (Kang et al., 1997; Kayman, Goldstein, Deren, & Rosenblum, 2006) and serve as a disquieting reminder that the stigma and uncertainty with which the public regards MAT stubbornly prevails even among experienced drug court professionals.

Numerous reasons were cited for why agonist medication was either not available or had limited availability to opioid-dependent drug court participants. Frequently cited barriers for both agonist medications were court prohibition, drug treatment provider does not provide it, and participants already detoxed. Cost was a frequently cited barrier for buprenorphine; diversion was perceived to be a substantial risk in implementing methadone MAT. Among rural courts, lack of availability of providers emerged as the major barrier to buprenorphine provision. Court prohibition against agonist medication may be attributed to ambivalence about its effectiveness (as underscored by responses to the attitudinal items) as well as concerns about diversion. This perspective is further reinforced by the verbatim responses. Several respondents said they believe methadone

or buprenorphine maintenance therapies simply substitute one addiction for another. Although copious medical and scientific research has established that for many opioid-addicted people, the need for prolonged, sometimes lifetime medication assisted treatment is necessary to prevent relapse to illicit opioid use (e.g. Hser, Hoffman, Grella, & Anglin, 2001; Magura & Rosenblum, 2001), a common criticism reported in the criminal justice system—and by the survey respondents—concerns the open-ended nature of agonist therapy. Among respondents, level of education and drug court role did not seem to be associated with agonist attitudes and knowledge. That limiting factors associated with buprenorphine provision are primarily practical, (cost and participants are detoxed prior to admission) and methadone's are attitudinal (court prohibition and not recommended by the treatment provider) suggests that while experience and education may help assuage doubts about the newer drug's benefits, the stigma associated with methadone use is entrenched more deeply. Improved education efforts directed at both drug court personnel and policy makers may help dispel some doubts about these evidence-based treatment approaches and the medical consensus on dosing and length of treatment (Hora, 2005).

Naltrexone use for alcohol addiction was considerably more widespread than for opioid treatment. Its appeal as an antagonist (blocking the effects of opioids) to a criminal justice constituency concerned about drug court participants' abuse or diversion of medication may increase its adoption and diffusion over time. With the FDA's recent (October 12, 2010) approval of injectable, long-acting naltrexone (Vivitrol) for treatment of opioid dependence, investigating attitudes, knowledge and availability associated with its use in drug courts represents an important avenue for future research.

Results of this study should be considered in light of its limitations. The response rate of 50% ($n=93$) and 46% ($n=86$ with complete data) may limit the generalizability of our findings. Response rate of courts located in urban areas (43%) was lower than that of suburban (62%) or rural (67%) courts. The weighting procedure used does not take into account urbanicity differences for non-response; non-respondent courts in one population density region may have a different MAT profile from non-respondent courts in another. Our survey relied on self-reported estimates from each drug court respondent, and we were unable to verify survey responses independently. It is therefore difficult to ascertain the exact number of drug court participants for whom MAT is currently permitted. Our survey was directed to the drug court contact identified by NDCl, which in most cases was the drug court coordinator. While it may be inferred that the coordinator's perspectives on, and assessments of MAT provision reflect the way the court sees and provides MAT, it is possible that an individual respondent's attitudes on MAT may differ from those of the drug court judge—whose views directly inform many drug courts' policies—and other court staff. Indeed, had the survey focused on differing professional perspectives among drug court personnel it is possible a more nuanced picture might have emerged. In seeking to collect data that represented the most candid opinions possible, we reassured participants that their confidentiality would be safeguarded. To that end, we did not collect demographic data on the respondents, a limitation that prevents any assessment of important sociodemographic associations between the court personnel and MAT attitudes and knowledge, information that would be useful in helping to target educational initiatives to the groups that might benefit the most. Finally, our study focused exclusively on adult drug courts, one type of problem solving court. Some opioid-addicted people involved with criminal justice are referred to other problem solving courts such as veterans' courts, family courts, DUI courts or hybrid courts, where little is known about barriers to MAT provision. Further research could focus upon gathering qualitative information from survey respondents on attitudes and decision-making practices in their courts, on the institutional or political barriers to MAT expansion, on drug court participants' attitudes

towards MAT, and on the availability of MAT in the broader community of problem solving courts.

Despite evidence of the safety and efficacy of methadone and buprenorphine to improve outcomes for opioid dependence, we found that MAT has limited penetration in drug courts. Lack of adoption of an effective treatment intervention is troubling in light of the increasing problem of opioid abuse in the United States, the large body of growing evidence demonstrating MAT's efficacy in treating it, and the high relapse rates that occur when patients are withdrawn from agonist therapy even when counseling (without MAT) is still available (Kakko, Svanborg, Kreek, & Heilig, 2003; Magura & Rosenblum, 2001; Weiss et al., 2011). Although more than 80% of survey respondents had a clinical background and had >5 years experience in the drug courts, the high degree of uncertainty expressed in all sections of the survey, as evidenced by an unsettling number of "don't know" responses, underscores the critical need for a strong educational initiative to disseminate evidence about MAT efficacy in treating opioid dependence.

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