RESEARCH REPORT

IS THERE A ROLE FOR EXTENDED-RELEASE NALTREXONE IN DRUG COURTS? RESULTS OF A PILOT STUDY

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[4] Effect of Extended-Release Naltrexone in Drug Courts—*Alcohol-dependent participants receiving monthly naltrexone injections in two Drug Courts had significantly lower rearrest rates than matched participants who did not receive naltrexone.*

[5] Cost Benefits of Extended-Release Naltrexone in Drug Court—*Providing extended-release naltrexone in Drug Court was estimated to yield $4,000 to $12,000 in cost offsets per participant over two years.*

ALCOHOL USE DISORDER, both abuse and dependence, is a major public health problem in the United States affecting 6% to 9% of adults (Grant et al., 2004; Kessler et al., 2008). Alcohol abuse and dependence contributes to the high crime rates and incarceration in the U.S. In 2009, state and federal correctional authorities had jurisdiction over 1,613,656 prisoners (West, 2010). In a 2004 survey of inmates, an estimated 37% of state prisoners and 21% of federal prisoners serving time for a violent offense said they were under the influence of alcohol at the time of the offense (West, 2010). Alcohol was involved in nonviolent crimes committed by 29% of state prisoners and 18% of federal prisoners. In a 2002 survey, 33% of inmates in local jails throughout the U.S. reported using alcohol at the time of their offense (Rand et al., 2010). This excluded approximately 35,000 people who were convicted of driving while intoxicated (DWI). Another national survey found 48% of convicted inmates had an alcohol use disorder (25% for abuse, 23% for dependence; Kerridge et al.,

2008). This prevalence was approximately six times the rate in the general population (Grant et al., 2004; Kerridge et al., 2008).

The human and economic toll of DWI is especially steep. Motor vehicle accidents are the leading cause of death for persons under the age of forty-five (Heron et al., 2009). In 2008, 11,773 alcohol-impaired driving fatalities were reported, representing 32% of all motor vehicle fatalities (Century Council, 2008). From 1982 to 2008, the rate of alcohol-impaired driving fatalities declined by 57% from 9.1 persons to 3.9 persons per 100,000 (Century Council, 2008). Nonetheless, the number of alcohol-related motor vehicle fatalities remains unacceptably high.

The prevalence of offenders with alcohol and substance abuse issues in the criminal justice system was the primary impetus for the formation of Drug Courts. Many studies support that Drug Courts are effective and reduce recidivism rates (Carey et al., 2012; Finigan et al., 2007; Galloway & Drapela, 2006; Gottfredson et al., 2003; Roman et al., 2003; Ronan et al., 2009). Although one of the key elements in Drug Court programs is addiction treatment, a recent national survey (Matusow et al., 2013) revealed that medication for addiction treatment was substantially underused. In two-thirds of U.S. Drug Courts, agonist medication therapy (methadone and buprenorphine) was not available to participants who could potentially benefit from it. Agonists are drugs that mimic the effects of neurotransmitters on the brain by binding to and activating opioid receptors, blocking other drugs that would bind with these receptor sites. The key barriers to using agonists in treatment appeared to be court policies and cost. Fewer than half of responding Drug Court personnel believed that agonists reduced or blocked the effects of heroin. Other barriers to use of medication in treatment included court prohibition, lack of availability from drug treatment providers, and concerns about diversion.

Extended-release naltrexone is an opioid antagonist. Like an agonist, an antagonist will bind with and block an opioid receptor site but without triggering the receptor, thus preventing the reinforcing effects of alcohol and opioids. Studies showed that extended-release naltrexone treated alcohol dependence effectively (Garbutt et al., 2005) and prevented long-term relapse to opioid dependence following detoxifi-

cation (Krupitsky et al., 2011; Krupitsky et al., 2013). The U.S. Food and Drug Administration approved it for use in both alcohol and opioid dependence disorders.

A health professional can easily administer extended-release naltrexone by giving participants a monthly intramuscular injection. The binding medication (Medisorb) gradually releases the active ingredient, naltrexone, into the bloodstream. When naltrexone reaches the brain, it binds to and blocks the endorphin, or opioid, receptor but does not produce euphoria, reward, or an aversive reaction should the individual drink. In alcohol-dependent participants who were recently abstinent (e.g., for four days), treatment with extended-release naltrexone combined with psychosocial support was associated with the following:

- A 300% increase in abstinence at six months
- A 90% reduction in the median number of drinking days per month
- A 95% reduction in the number of heavy drinking days
- An over 900% delay in the median time to the first heavy drinking day—more than 180 days versus 20 days (O'Malley et al., 2007)

Our study examined the results of a pilot program using extended-release naltrexone treatment for alcohol-dependent participants in selected Drug Courts in Missouri and Michigan. The goal of the study was to obtain preliminary data on the effectiveness of extended-release naltrexone in reducing rearrest rates and maintaining abstinence and compliance in alcohol-dependent Drug Court participants. Following the study results, this report addresses implementation, including how to address practical aspects such as barriers to adoption, cost, access, and dissemination.

METHODS AND RESEARCH DESIGN

For this study, we conducted a retrospective analysis of anonymized administrative records from random Drug Court participants (i.e., not persons seeking to enter a research trial). We compared rearrest rates and other near-term outcomes at approximately the one year

benchmark between a naltrexone group and a comparison group. The naltrexone group comprised alcohol-dependent Drug Court participants referred for treatment with extended-release naltrexone where both researchers and participants knew participants were getting the drug (i.e., open label), whereas the comparison group comprised participants who received standard Drug Court care.

Study participants were male and female adult participants in Drug Court programs who were charged with DWIs and other offenses and who were diagnosed with co-occurring alcohol dependence disorder. Judges provided referrals to treatment programs that offered longitudinal outpatient care with extended-release naltrexone. The decision to recommend the medication for a given participant lay with the evaluating physician, but accepting the medication was the prerogative of the participant. In addition to being diagnosed with alcohol dependence, Drug Court participants selected for the study tested positive for alcohol use multiple times, had problems complying with the demands of Drug Court, and continued to drink after all other interventions had been tried (e.g., daily Alcoholics Anonymous meetings and inpatient and outpatient treatments). Extended-release naltrexone is indicated for Drug Court participants with alcohol dependence who are not currently drinking, are able to maintain abstinence on an outpatient basis long enough to detoxify (seven to ten days), and have psychosocial support.

Candidates for the study meeting the above criteria were excluded if they had any medical condition that was incompatible with extended-release naltrexone (e.g., acute liver disease or pain condition requiring opioids) or were currently using any opioid agonist drug (e.g., heroin, methadone, or narcotic analgesics) since extended-release naltrexone's opioid blockade can trigger abrupt opioid withdrawal. A history of violence or an arrest for a violent offense such as assault also was grounds for exclusion. All candidates who met all criteria were included in the study.

After the naltrexone group was established, an equal number of Drug Court participants were selected for the comparison group in order to achieve a 1:1 ratio of study participants between the two groups. The comparison group comprised the first-available, eligible

participants from within each Drug Court. They were all diagnosed with alcohol dependence and had been arrested for similar offenses as those in the naltrexone group during the twelve months prior to the availability of extended-release naltrexone. Participants from the comparison group were matched post hoc but prior to analysis on five baseline demographic variables: age, gender, race, diagnosis, and criminal history.

Treatment

The three Drug Courts in this study provided the comparison group with standard care, which comprised the following:

- Attendance at group sessions (four times per week for the first month and two times per week thereafter)
- Attendance at individual treatment sessions (once per week for the first month at least)
- Attendance at Drug Court hearings (once per week for the first month, once every two weeks for the next three months, and once per month thereafter)
- Attendance at 12-step self-help meetings (once per week)
- Breath alcohol or urine drug tests (four times per week for the first month, two per week for the next three months, and one per week thereafter)

The naltrexone group received standard Drug Court care and intramuscular injections of extended-release naltrexone (380 mg) every four weeks, though actual timing of doses sometimes varied by a week or two. Participants in this group received a mean of 4.33 injections with about a third receiving six or more injections.

Drug Court Procedures

Once a defendant was arraigned and entered a voluntary plea agreeing to participate in an alcohol intervention program, the probation officer used *Diagnostic and Statistical Manual (DSM-IV)* criteria to determine whether the participant had a substance abuse diagnosis and the appropriate level of care based on the patient placement criteria of the American Society of Addiction Medicine (Mee-Lee et al.,

2001). As part of the Drug Court program, participants were required to attend review hearings, report to their Drug Court case manager, submit to random alcohol and drug testing, attend self-help groups, and attend substance abuse treatment. Drug Court participants who were candidates for using extended-release naltrexone were referred for medical screening to determine whether they had any medical contraindications that would exclude them from participating in the extended-release naltrexone treatment.

Outcomes

Data collection from the Michigan courts were based on the statewide Drug Court Case Management Information System (DCCMIS) and supplemented where needed by a review of paper records. Data from the Missouri court were collected from paper records. Four outcome measures were assessed as follows:

- Compliance was measured based on the number of missed Drug Court appearances per month.
- Abstinence was measured based on the number of positive alcohol and drug tests per month.
- Persistent return to drinking was measured as the proportion of participants with more than 25% of their alcohol and drug tests returned positive.
- Rearrest was measured as the number of new arrests per month for participants in the naltrexone group contrasted with the comparison group. It was the primary outcome variable because any combination of failures with the three above variables could contribute to the bottom-line outcome of rearrest. Because the mean duration of treatment was longer for participants in the naltrexone group (thirteen months) than for the comparison group (eleven months), the new arrest data were annualized.

We analyzed baseline demographic characteristics and statistics on compliance, abstinence outcomes, and rearrest rates. Baseline criminal history data were only available from two of the three sites. We first calculated the *absolute risk reduction* for each measure by determining the difference between the naltrexone group's event rates versus those of the comparison group. We then calculated the *relative*

risk reduction achieved through extended-release naltrexone treatment by dividing the absolute risk reduction by the event rate in the comparison group.

In this retrospective analysis, we used only administrative data from the Drug Courts. NPC Research has a general approval from its IRB (institutional review board) to conduct these kinds of administrative, data-only research studies without specific approval for each study. All data were anonymized, reported only in the aggregate, and kept under strict confidentiality and security. All NPC Research staff are required to complete the National Institutes of Health (NIH) confidentiality training and maintain NIH-compliant standards of confidentiality.

RESULTS

The 32 participants in the naltrexone group, treated with extended-release naltrexone between June 2008 and December 2009, were matched with the 32 participants in the comparison group. The naltrexone and comparison groups were similar on key demographic variables at baseline (see Table 1). The mean number of prior convictions was relatively higher in the naltrexone group (3.20 versus 2.44,

TABLE 1	BASELINE CHARACTERISTICS OF TREATMENT SAMPLE		
Variable	**Naltrexone Group using XR-NTX* (n = 32)**	**Comparison Group (n = 32)**	**Significance**
Female, %	24%	21%	NS†
Non-Caucasian, %	40%	43%	NS
Age (mean)	33	33	NS
No. of prior criminal convictions§ (mean)	3.20	2.44	NS

*Extended-release naltrexone
†Not significant
§Prior criminal conviction data were available from two of the three sites.

p = NS), although this difference was not statistically significant. To evaluate whether the Drug Courts treated the naltrexone group differently from comparison groups, we analyzed the ratio of sanctions to incentives-plus-sanctions for each group. The ratios were similar (0.5 for the naltrexone group versus 0.47 for the comparison group, p = NS), suggesting that the Drug Courts treated the two groups similarly.

Missed Drug Court Appearances Outcome Measure

To evaluate compliance with the demands and expectations of the Drug Courts, we analyzed the number of missed court appearances. The mean number of missed court appearances per month was low for both groups, and was not significantly more frequent for the comparison group as compared with the naltrexone group (0.07 versus 0.03, p = NS). This represented a relative risk reduction of 57% for extended-release naltrexone treatment (see Table 2).

TABLE 2	OUTCOME RESULTS		
Outcome	**Naltrexone Group**	**Comparison Group**	**Relative Risk Reduction**
Compliance Mean no. of missed Drug Court sessions per month	.03	.07	57%
Drinking Episodes Mean % of positive alcohol or drug tests per month	11%	17%	35%
Persistent Drinking Offenders with >25% positive tests for alcohol or drugs	18%	27%	33%
Rearrest* Offenders with new arrests (annualized)	8%	26%	69%

*p < .05

Abstinence Outcome Measure

To evaluate abstinence, a crucial outcome measure in Drug Court, we calculated the proportion of positive alcohol or drug tests per month for each group. The mean proportion of positive alcohol or drug tests per month was slightly higher for the comparison group than for the naltrexone group (17% versus 11%, p = NS); however, this difference was not statistically significant. The reduced number of positive tests represented a relative risk reduction of 35% for those being treated with extended-release naltrexone (see Table 2).

Persistent Return to Drinking Outcome Measure

We also calculated the proportion of participants whose alcohol or drug tests were positive more than 25% of the time as a way of indexing persistent return to drinking. The comparison group had relatively more participants with more than 25% positive tests compared with the naltrexone group (27% versus 18%, p = NS); however, this difference was not statistically significant. Extended-release naltrexone treatment provided a 33% relative risk reduction for a persistent return to drinking among Drug Court participants in the naltrexone group (see Table 2).

Rearrest Outcome Measure

Participants in the comparison group were significantly more likely to be rearrested within a year than those in the naltrexone group (26% versus 8%, $p < .05$). This represented a relative reduction of 69% for participants being treated with extended-release naltrexone in the annual risk of having a new arrest while engaged with Drug Court (see Table 2).

CONCLUSIONS

Standard care in the Drug Court setting, which includes psychosocial intervention with drug and alcohol monitoring, has proved to be effective and to reduce recidivism (Carey et al., 2012; Finigan et al., 2007; Galloway & Drapela, 2006; Gottfredson et al., 2003; Roman et al., 2003; Ronan et al., 2009). In this study, adding treatment

with extended-release naltrexone proved promising for alcohol-dependent participants by promoting relatively greater success in the measured outcomes of complying with Drug Court appearances, abstaining from alcohol use, avoiding persistent drinking habits, and avoiding rearrest; however, several of these trends were not statistically significant. The absence of statistical significance on some of the outcome measures may be attributable to the small sample size for the study ($n = 32$ per group). For mathematical reasons, small samples make it difficult for researchers to detect statistical significance, even when improvements are clinically noteworthy.

Treatment with extended-release naltrexone correlated with increased compliance with regular, court-mandated appearances. Study participants who received the extended-release naltrexone abstained more from alcohol, returning 35% fewer positive alcohol or drug tests, and were 33% more likely to avoid returning to drinking than participants treated with standard care alone. Participants treated with extended-release naltrexone also had a 69% reduction in rearrest rates (the primary outcome measure) at twelve months. In interviews and Drug Court records, judges observed that the study participants treated with extended-release naltrexone had noticeably improved focus in the courtroom and in the overall Drug Court program.

Despite the beneficial effects of extended-release naltrexone treatment on compliance, abstinence, and rearrest rates, treatment for the majority of the naltrexone group's participants was brief. They received a mean of 4.33 injections with one-third receiving 6 or more. Reasons for this duration of treatment are unknown. Loss of funding was not among them since medication was provided by the state. Discontinuation could have occurred because of side effects, nonadherence, or successful treatment completion. Whether more consistent and prolonged use of extended-release naltrexone might have been needed or might have yielded even greater benefits remains untested.

One important point to note is that a selection bias may have reduced the magnitude of the treatment effect of extended-release naltrexone compared with outcomes previously reported for standard care interventions within Drug Courts (Galloway & Drapela, 2006; Gottfredson et al., 2003; Roman et al., 2003; Ronan et al., 2009). Be-

cause this was a pilot study of the use of extended-release naltrexone, individuals who participated were recidivists at the more severe end of the client spectrum and typically had served jail time, were alumni of residential treatment programs, or both. Furthermore, because this was a retrospective case-controlled study, participants were not randomly assigned to extended-release naltrexone versus standard care. The higher mean rate of prior convictions in the extended-release naltrexone treatment group (3.20 versus 2.44) suggests that even an attempt to correct for this difference by post hoc matching was not wholly successful.

The results of this pilot study were consistent with a recently reported case series conducted in a DWI court (Lapham et al., 2011). In that study, ten repeat offenders with a diagnosis of alcohol dependence who were treated, open-label, with extended-release naltrexone reported significant reduction in mean drinks per day ($p < .01$), mean number of drinks per drinking day ($p = .04$), and an increase in number of abstinent days ($p = .02$). Furthermore, treatment with extended-release naltrexone correlated with reduced detection of alcohol-related biomarkers and a nonsignificant reduction (from 3% to 1.29%) in study participants' failures to start their alcohol-interlock-equipped vehicles as a result of elevated breath alcohol (Lapham & McMillan, 2010).

Treatment with extended-release naltrexone has also demonstrated efficacy in other situations where the risk of relapse to drinking was high. For example, in a post hoc analysis of a double-blind, placebo-controlled trial, treatment with extended-release naltrexone combined with psychosocial intervention resulted in a reduction to zero in the median number of drinking days during high risk holidays such as New Year's Eve, Labor Day, Fourth of July, and Super Bowl Sunday (Lapham et al., 2009).

Because extended-release naltrexone is relatively costly, Drug Courts will need to determine whether the cost is offset by the gains and advantages of treating Drug Court participants with it. Cost benefits have already been established in retrospective health economic studies (Baser, Chalk, Fiellin, & Gastfriend, 2011; Baser, Chalk, Rawson, & Gastfriend, 2011; Mark et al., 2010), including in studies

independently conducted by the health insurance industry (Jan et al., 2011; Bryson et al., 2011). In one national retrospective health economic analysis of insurance data, the average cost per patient for an average of two months of treatment was $2,842 for extended-release naltrexone, $398 for oral naltrexone, $1,297 for buprenorphine, and $211 for methadone, not including the costs of administration and monitoring. When total health care costs (including inpatient, outpatient, other pharmacy costs, and the cost of the specific medication) were calculated over six months, however, the cost relationships were quite different. Extended-release naltrexone becomes the least expensive at a cost of $8,582, whereas oral naltrexone cost $8,903, buprenorphine cost $10,049, and methadone cost $16,752—a significantly greater total cost than with extended-release naltrexone ($p < .001$). Treatment without medication was also significantly more costly than treatment with medication in both alcohol dependence (Baser, Chalk, Fiellin, & Gastfriend, 2011; Bryson et al., 2011; Mark et al., 2010) and opioid dependence (Baser, Chalk, Rawson, & Gastfriend, 2011).

Criminal justice costs, being much greater than those in health care, offer potentially greater cost savings. National studies find that the cost of a single arrest approaches $7,000 per offender (Zarkin et al., 2012), and annual costs of incarceration average $29,000 per inmate (Pew Center on the States, 2009). A preliminary estimate of criminal justice costs as they related to this study was obtained using data from a previous Michigan DWI court study (not involving extended-release naltrexone) and from other Drug Court cost studies (Carey, et al., 2006; Carey et al. 2012; Marchand, et al., 2006). Based on the 69% reduction in rearrest rates as found in this study, we estimated that treatment with extended-release naltrexone might offer a cost offset advantage to the taxpayers of $4,000 to $12,000 per person over the two years following the initial arrest. These findings were consistent with cost estimates by two of this study's authors (Sullivan and Kandrevas) who report that the cost of DWI confinement in the Missouri system was approximately $16,800 per year. If confirmed in a formal cost analysis on a larger, prospective-controlled sample, the policy implications would be of interest to Drug Courts nationwide.

Our findings of a more than two-thirds reduction in rearrest rates suggest that courts and communities have at least as much opportunity to benefit from cost savings in criminal justice as in health care, if not more so. Pilot evaluations of extended-release naltrexone could, for example, compare costs associated with Drug Court participants treated with extended-release naltrexone with the historical costs associated with Drug Court participants not treated with it. Such demonstrations are under way in many jurisdictions.

Implementation Considerations

Certain considerations need to be addressed before selecting naltrexone as a treatment for a Drug Court participant. The participant needs to be opioid-free for seven to ten days, have a willingness to be drug- and alcohol-free, and engage in psychosocial treatment. Among other things, naltrexone is not for use by participants concerned with liver disease or who have ongoing pain that might require opioid medication. If the participant has previously shown extended success with drug-free counseling alone, this may be considered; however, a national health economic retrospective study found that patients receiving only psychosocial treatment had worse outcomes than patients receiving medication-assisted treatment (Baser, Chalk, Fiellin, & Gastfriend, 2011). In light of this finding, agonist therapy should be considered if the participant is not willing to undergo the detoxification prerequisite for extended-release naltrexone. The manufacturer provides a Web-based tool to locate health care professionals who are willing to administer, evaluate, and counsel patients interested in the treatment (see www.vivitrol.com).

The potential benefits are too great to ignore. A 69% reduction in rearrest rates suggests that the criminal justice system could potentially realize large cost savings. The potential for savings is similarly great for health care costs. These potential savings are worthy of more investigation and given that the mean number of injections per naltrexone group participant was 4.33 with a third receiving six or more, a future study should include setting a minimum treatment duration for extended-release naltrexone.

The decision to discontinue the extended-release naltrexone treatment was an individual clinical consideration for each participant in the naltrexone group. The Drug Court team evaluated whether participants had achieved a full acceptance of the disease, understood potential risk factors, acquired healthy coping skills, established recovery lifestyles and supports, and had sufficient time in treatment to experience and appropriately manage both negative and positive stressors. In addition, counselors and physicians communicated with Drug Court personnel to ensure collective awareness of each participant's Drug Court status, compliance, and any pertinent circumstances.

Medicaid in a majority of the states and 80% to 90% of commercial insurers currently reimburse for the use of extended-release naltrexone. Health care reform is likely to make this treatment available to an increasing number of Drug Court participants. Costs are being subsidized through bulk purchasing by county or state agencies, including in Los Angeles County, Maryland, Missouri, Ohio, and Florida. Small pilot programs in many of these locales provided the first data, which subsequently led to budget allotments through departments of public or mental health, legislative initiatives, or governors' offices. The U.S. Substance Abuse and Mental Health Administration (SAMHSA) also sponsors funding initiatives specific to Drug Courts that provide for adoption and coverage of extended-release naltrexone (SAMHSA, 2013a; SAMHSA, 2013b).

Although extended-release naltrexone is an antagonist opioid blocker with no intrinsic opioid-like effects (which have been cited as source of resistance to adoption of agonists; Matusow et al. 2013), Drug Courts have been slow to adopt it, perceiving the use of extended-release naltrexone as a treatment of last resort for repeat offenders after all else had failed. In the Missouri and Michigan programs used for this study, accrual of Drug Court participants into the extended-release naltrexone treatment group was slow and the overall sample size was small in spite of training and policy explicitly supporting use of these medications in these early adoption Drug Courts. This reticence occurred even though naltrexone is used for alcohol dependence by 28% of U.S. Drug Courts (Matusow et al., 2013).

Similar resistance to treatment was reported statewide in Missouri, where all certified substance abuse treatment programs that receive state and federal funds (including Medicaid) have been encouraged, and lately required, to include medication-assisted treatment in the services available to substance-involved Drug Court Participants for whom it is clinically appropriate. Even so, Medicaid stated in data from its fourth quarter in 2009 that only 4% of 6,976 persons with a diagnosis of alcohol use disorder (or a related mental condition) received medication treatment (Mark Stringer, personal communication). Approaches to improving adoption include judge-to-judge peer interactions and state contracting with a new model of treatment provider, the medically staffed injection center. If these data are replicated in other jurisdictions, the field will need educational initiatives to (1) disseminate the results, (2) promote sharing of implementation strategies and tactics, and (3) foster collaboration within regions on building mechanisms to provide ready access for offenders in need.

Alcohol dependence is a chronic disease with a high relapse rate and a highly negative impact on public safety (Greenfield, 1998). The introduction of Drug Courts was an evidence-based example of progressive jurisprudence at its best (Galloway & Drapela, 2006; Gottfredson et al., 2003; Nolan, 2001; Roman et al., 2003; Ronan et al., 2009). This pilot study suggests that the use of extended-release naltrexone to treat alcohol-dependent Drug Court participants at high risk for recidivism may represent a similar evidence-based advance.

In the 2013 national Drug Court survey, Matusow and colleagues noted that naltrexone was more widely used for alcohol dependence than opioid dependence, with one in four Drug Courts reporting having some participants receiving extended-release naltrexone for alcoholism. Although it is used less for opioid dependence, nevertheless

> 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 (Food and Drug Administration's)…approval of injectable, long-acting naltrexone…for treatment of opioid dependence, in-

vestigating attitudes, knowledge, and availability associated with its use in Drug Courts represents an important avenue for future research.

Such research into extended-release naltrexone has practical implications for Drug Courts across the United States and around the world. Nearly 60% of U.S. Drug Court personnel are uncertain or disagree with the scientific evidence that medication-assisted treatment reduces or blocks the effects of heroin (Matusow et al., 2013). Clearly, more education is needed about the overwhelming evidence base for pharmacotherapy in substance dependence. However, even in Drug Courts that are open to medication, as were those in the present study, implementation challenges persist—specifically, communication problems in coordinating with community addiction treatment providers. The implications are that even the world of Drug Courts has a shortfall of knowledge and attitudinal readiness for integrating psychosocial and medical treatment, which "underscores the critical need for a strong educational initiative to disseminate evidence about [medication-assisted therapy] efficacy…" (Matusow et al., 2013). As the Drug Court programs increasingly focus on highly addicted populations, Drug Courts need additional tools to prepare their addicted participants to actively participate and comply with Drug Court procedures. Extended-release naltrexone promises to be a useful tool to accomplish this.

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