HHS Public Access

Author manuscript

J Subst Abuse Treat. Author manuscript; available in PMC 2016 December 01.

Published in final edited form as:

J Subst Abuse Treat. 2015 December ; 59: 99–103. doi:10.1016/j.jsat.2015.07.002.

Preferences for Aftercare Among Persons Seeking Short-term Opioid Detoxification

Michael D. Stein, M.D.[1,2], **Bradley J. Anderson, PhD**[1], and **Genie L. Bailey, M.D.**[2,3]

[1]General Medicine Research Unit, Butler Hospital, Providence, RI, 02906

[2]Warren Alpert Medical School of Brown University, Providence, RI, 02912

[3]Stanley Street Treatment and Resources, Inc., Fall River, Massachusetts 02720

Abstract

Without aftercare treatment, the period following discharge from short-term inpatient detoxification for opioid dependence presents a high risk of relapse. Yet the role of patient preference in treatment selection is rarely discussed in the substance-abuse literature. We surveyed 485 persons initiating inpatient opioid detoxification who were predominantly male (71.3%) and had detoxed in the past (73.2%). When asked to choose the one treatment that would work best for them after discharge, 43% of participants selected medication assisted treatment (MAT), 29% preferred residential, 12% selected drug-free counseling, 12% NA/AA meetings only, and 4% preferred no additional treatment. Residential treatment preference was significantly associated with homelessness, having been in a detox program within the past year, and having pending legal problems, indicating that there is a distinct profile of detox patients who prefer residential treatment despite its limited availability. Detox program staff should work with patients to understand reasons for treatment preferences to optimize aftercare services.

Keywords

Opioid; detoxification; residential treatment; aftercare

1.0 INTRODUCTION

In 2012, 2.1 million people in the U.S. met criteria for past-year abuse or dependence of prescription pain relievers, and half a million people met criteria for heroin use disorders (Substance Abuse and Mental Health Services Administration, 2013). State and local legislation and interventions have targeted prescription drug abuse (Franklin, et al., 2012; Reifler, et al., 2012), yet opioid use disorder is now the largest illicit-drug related contributor

Corresponding Author: Michael D. Stein, M.D., Professor of Medicine, Health Services, Policy & Practice, Alpert School of Medicine at Brown University, Butler Hospital, 345 Blackstone Blvd., Providence, RI 02906, Telephone: (401) 455-6646, FAX: (401) 455-6618, Michael_Stein@brown.edu.

Trial registered at clinicaltrials.gov; Clinical Trial # NCT01751789.

to the global burden of disease, related to accidental or purposeful overdoses (Degenhardt, et al., 2011), and, when injected, the increased risk for HIV and hepatitis C transmission (Degenhardt, et al., 2013). Opioid dependence is believed to cause long-term changes in dopaminergic, opioidergic, and stress responsive pathways in the brain that persist long after cessation of use, suggesting the need for prolonged treatment to prevent relapse (Bart, 2012; World Health Organization, 2009).

Inpatient detoxification programs, or managed withdrawal, offers a short-term environment where abstinence can begin for persons with opioid dependence (Carrier, et al., 2011; Mark, Dilonardo, Chalk, & Coffey, 2002; Substance Abuse and Mental Health Services Administration, 2004). However, there is consensus that detoxification alone is insufficient (World Health Organization, 2009), with most patients relapsing following detoxification (Amato, et al., 2013; Teesson, Havard, Ross, & Darke, 2006). Studies have shown only 20–30% of patients remain abstinent from heroin in the month after detoxification (Broers, Giner, Dumont, & Mino, 2000; Chutuape, Jasinski, Fingerhood, & Stitzer, 2001; Mark, Dilonardo, Chalk, & Coffey, 2003; Smyth, Barry, Keenan, & Ducray, 2010). To prevent relapse, inpatient detoxification programs recommend referral to extended substance use treatment (Bart, 2012; Tuten, Jones, Lertch, & Stitzer, 2007). Options for the next phase of treatment include medication-assisted treatments (MAT) including methadone, buprenorphine, and naltrexone (all of which often include supplementary 12-step meetings or outpatient counseling), intensive supportive counseling, and residential treatment, which may or may not include medication provision (Volkow, Frieden, Hyde, & Cha, 2014).

One study reported that 63% of opioid dependent persons wanted medication-assisted treatment (MAT) after detoxification and this desire increased with higher perceived relapse risk (Bailey, Herman, & Stein, 2013). Three other studies have looked at patients' treatment preferences in other opioid dependent populations. In a study of 104 opioid dependent patients, only 34% believed that treatment maintenance with oral methadone, buprenorphine, or drug-free rehabilitation would be superior to detoxification alone in preventing heroin use (Luty, 2004). In a second study, patient preference for buprenorphine or methadone among outpatients seeking pharmacotherapy correlated with actual receipt of those medications (Ridge, Gossop, Lintzeris, Witton, & Strang, 2009). Finally, when patients were permitted to choose between in-home versus office-based induction of buprenorphine, outcomes improved (Cunningham, et al., 2011; Sohler, et al., 2010). None of these studies evaluated patients during inpatient detoxification, when aftercare planning is critical, and all were performed before injectable naltrexone was widely available.

Better understanding of patient preference can help guide treatment providers to appropriate plan of care recommendations, and to anticipate the obstacles patients face when they attempt to follow through with treatment options they report preferring. The purpose of this study was to investigate factors that influence detox patients' perceptions of the best aftercare option. We hypothesized that greater prior experience with detox and homelessness would predict a preference for residential treatment, while higher perception of relapse risk would be associated with MAT preference.

2.0 METHODS

2.1 Recruitment

Between December 2013 and August 2014, consecutive persons seeking opioid detoxification were approached within the first 24 hours of admission to Stanley Street Treatment Addiction and Recovery, Inc. (SSTAR) in Fall River, Massachusetts [a community that is 87% non-Latino White, 23% below the poverty level, twice the state average (U.S. Census Bureau, 2013)] to participate in a survey research study. SSTAR's program, one of the largest in Southeastern New England, has 38 beds and is a 24-hour medically supervised treatment facility that provides evaluation and withdrawal management with a mean length-of-stay of 5.9 days using a methadone taper protocol (as well as individual and group counseling and case management).

Of 613 patients admitted to SSTAR during the recruitment period, 98 sought alcohol detoxification and were not eligible for this study; 515 were opioid users who were 18 years or older, English-speaking, and able to provide verbal informed consent as approved by the Butler Hospital Institutional Review Board. Thirty refused study participation or were discharged before staff could interview them. The remaining 485 persons completed a face-to-face interview and were not incentivized. All surveys were administered by non-treating research staff and required approximately 15 minutes.

2.2 Measures

We dichotomized the self-reported primary drug for which the participant sought detoxification as heroin use vs. prescription opioids. Other sample descriptors included age, gender, race/ethnicity, health insurance (none vs. public or private) employment (part or full-time vs. unemployed), homelessness (any nights on street or in a shelter in the prior 90 days), years of education, and interview time of year (May through August vs. other). We assessed "What is your legal status?" with response options: none, on probation, on parole, on pretrial release. Regarding previous experience with opioid treatment, we asked if participants had ever been in opioid detox in the past, and if so, when they had ever had methadone or buprenorphine MAT. Recent cocaine and benzodiazepine use was assessed with the question, "In the last 30 days ago, how many days did you use cocaine/benzodiazepines?" Alcohol use was assessed by "In the last 30 days ago, how many days did you drink alcohol?" and "On the days that you drank alcohol, how many drinks did you have?" Hazardous drinking was defined as > 7 drinks/week for females or > 14 drinks/week for males (National Institute on Alcohol Abuse and Alcoholism, 2005). Psychiatric distress was measured with the 6-item validated version of the Symptom Checklist 90 [SCL-90 (Rosen, et al., 2000)]. Participants were asked if they had attended an outpatient primary care visit in the past year. Finally, participants were asked about their perceived risk of relapse with the question, "What is the chance that you will return to drug use in the next week on a scale from zero (no chance) to 100 (will definitely use)?" (Bailey, et al., 2013).

To assess aftercare treatment preference, we asked participants, "If you had unlimited treatment options, and all were free, which one would work best for you when you leave here?" Response options included: "I'm not interested in more treatment after I leave

detox," "Residential treatment," "Sober house or halfway house," "Buprenorphine," "Methadone," "Vivitrol shots," "Outpatient counseling by a mental health or substance abuse counselor which has no medication," "NA/AA meetings only." We defined residential treatment as selecting either "Residential treatment," or "Sober house or halfway house."

2.3 Analytical Methods

We present descriptive statistics to summarize the sample characteristics and to describe differences based on treatment preferences. F-tests and χ^2-tests are reported as omnibus tests for between group differences. We used the Holm-Bonferroni method (Holm, 1979) to perform pairwise comparisons between residential, medical, and outpatient treatment preference groups. This method uses a sequential procedure to control the family-wise error rate. With a familywise error rate of .05, the p-values for rejecting the null hypothesis for 3 comparisons are .017, .025, and .05. This method is less conservative than the Bonferroni and preserves the family-wise error rate even when the omnibus test is not significant. The p-values were estimated by multinomial logistic regression for comparisons across categorical variables.

3.0 RESULTS

Participants averaged 32.1 (± 8.7) years of age, 323 (66.6%) were male, 407 (83.9%) were non-Latino White, 12 (2.5%) were African American, 45 (9.3%) were Latino, and 21 (4.3%) were of other racial or ethnic origins (Table 1) Ethnicity was dichotomized to contrast non-Latino Whites to all other ethnic groups in statistical comparisons. Mean years of education was 11.8 (± 1.8), 60 (12.4%) were employed either part- or full-time, and 54 (11.1%) were homeless, and 180 (37.1%) of interviews were conducted during May through August. About 84.5% reported that heroin was the drug from which they were currently detoxing; 207 (42.7%) reported recent (past 30-days) use of benzodiazepines, 189 (39.0%) had used cocaine, and 108 (22.3%) reported hazardous use of alcohol. Two hundred-twenty participants (45.4%) had prior buprenorphine treatment and 38.1% reported prior methadone maintenance treatment. On a scale of 0% to 100%, participants said their mean chance of relapse within the first week of release from detox was 62.6% (± 37.9). One hundred forty (28.9%) reported a preference for residential treatment, 206 (42.5%) for opiate agonist treatment, and 139 (28.7%) for outpatient treatment. Descriptive statistics for other variables used in statistical comparisons are also reported in Table 1.

Based on the Holm-Bonferroni corrected p-values for multiple comparisons, persons who preferred residential treatment (19.3%) were significantly more likely to be homeless than those preferring either opiate agonist (7.8%) or outpatient (7.9%) treatment (Table 1). Persons preferring either medical (30.6%) or outpatient (32.4%) treatment were significantly more likely to report no prior detox experience. Those preferring residential treatment (52.4%) were more likely than those preferring medical treatment (38.8%) to report recent detox experience; though differences were not statistically significant those preferring outpatient treatment (33.1%) had the lowest observed rates of recent detox. Compared to persons preferring medical treatment (90.3%), those who preferred residential treatment (81.4%) were significantly less likely to have health insurance. Legal problems were significantly more prevalent among persons preferring residential treatment (47.1%) than

those preferring either medical (22.3%) or outpatient (24.5%) treatment. The prevalence of hazardous alcohol use was also significantly higher among those preferring residential treatment (30.0%) than among those preferring medical treatment (18.5%). Persons preferring residential 68.6 (± 68.6) and medical 64.0 (± 35.9) had significantly higher mean perceived relapse risk than those preferring outpatient 54.5 (± 39.8) treatment. Positing that the association between homelessness and preference may reflect seasonal variation in weather, we conducted an auxiliary analysis testing the season by homeless interaction and found no evidence that the association between being homeless and treatment preference varied by season (p=.58).

4.0 DISCUSSION

Inpatient detoxification is the initial step to sustained abstinence for many opioid dependent persons. Care following detoxification depends on patient preferences for further treatment. We found that the vast majority of patients were interested in additional treatment following detox. When asked, in the first days of detox, to select the single treatment they believed would be best for them following discharge, only 43% selected medication-assisted treatment, the treatment with the most evidence in the literature to support its efficacy (Amato, Minozzi, Davoli, & Vecchi, 2011; Bart, 2012; Krupitsky, et al., 2011; Mattick, Breen, Kimber, & Davoli, 2014). Nearly 30% of participants were interested in entering a long-term residential facility after discharge, and approximately 30% were interested only in counseling, either formal, or informal, via 12 step group participation. Our finding that different types of patients have different preferences for different types of treatment after short-term detox has clinical implications for post-discharge planning.

At 43%, medication treatment was the most popular aftercare option. Such treatment has the greatest empirical support and may be attractive to opioid users who prefer to continue to live at home, in the community, and maintain employment. These results confirm our finding in an earlier paper (Bailey, et al., 2013), which indicated that higher perceived risk of relapse was associated with a treatment preference for MAT over counseling alone. Similarly, in this study, higher perceived relapse risk was also associated with a residential treatment preference over outpatient treatment.

Our results suggest that the group that prefers residential treatment has the most distinct characteristics, reflecting a high need of social services. Our sample had high rates of ongoing legal issues (30%), recent homelessness (11%), and lack of medical insurance (19%), which were associated with a preference for residential treatment. These findings are consistent with reports from programs in the Clinical Trial Network's diverse treatment organization network where long-term residential treatment programs (often defined as 30 days or longer) reported the highest rates of these same co-occurring conditions among their participants compared to outpatient treatment options (McCarty, et al., 2008). Residential facilities are heterogeneous, with differences in counselor staffing and resources, the degree of supervision, the availability of skills and vocational training, the provision of medication assistance, 12-step facilitation group presence, and the theoretical approach offered. Because of the heterogeneity in services, and our belief that any residential setting may at least in part mitigate the ready availability of drugs and exposure to drug cues that contribute to relapse

(McKay, Rutherford, Alterman, Cacciola, & Kaplan, 1995; Orford, 2001; Simpson, Joe, & Brown, 1997; Wang, et al., 1999), we combined “residential treatment” and “halfway or sober house” in our analysis. We are aware that there may be a subgroup of opioid dependent respondents who perceive the need for the major rehabilitative effort that therapeutic communities can provide, and another subgroup that may simply want the protected living situation of less structured residential settings. There is no evidence, however, that residential treatment is better than safe housing without treatment.

There is limited data regarding the efficacy of residential long-term treatment programs using experimental study designs. A single 3-arm, randomized trial of 12 weeks of recovery housing (RH) plus reinforcement-based treatment (RBT) vs. RH alone vs. usual care following opioid detoxification found that abstinence rates from cocaine and opioids at 3 months was highest for RH + RBT (50%), followed by RH (37%) and usual care (13%), suggesting that in the short term, recovery housing is superior to usual care (Tuten, Defulio, Jones, & Stitzer, 2012). We are unaware of any randomized clinical trials comparing long-term residential drug treatment program to other treatment options, such as MAT. The prospective observational studies that compare these two options have conflicting results, with some finding no differences in abstinence rates [e.g., (Teesson, Ross, et al., 2006)], and some finding the MAT to be superior (Conner, Hampton, Hunter, & Urada, 2011). Both American and British national outcome studies have provided evidence of important clinical improvements among clients treated in residential programs (Gossop, Marsden, Stewart, & Rolfe, 1999; Hubbard, et al., 1989; Simpson & Sells, 1982). Hubbard et al., (Hubbard, Craddock, & Anderson, 2003), using DATOS data of opioid dependent persons, demonstrated that long term residential had better odds for reducing cocaine use and illegal activity, and increasing employment compared to outpatient drug free or outpatient methadone over a 5 year follow-up.

Detox counselors, in the context of individual and group treatment, may influence client interest in a particular type of aftercare treatment, but as our study interview was performed on the first day of detox, patient preferences were unlikely to be informed by any therapeutic alliance or social desirability bias, nor would responses to this survey influence detox treatment. However, those participants who recently completed another short-term detox (41% had in the past year) also preferred residential treatment; the current re-admission might have interested them in longer, stable treatment options. In other countries, residential treatment has tended to be reserved for individuals who have tried but have been unsuccessful in the community, or whose problems are too complex or too severe to be safely managed in the community (Gossop, 1995). Multiple recent admissions to detox suggest a high present risk of relapse, suggesting the difficulties of linking detoxification to long-term treatment (Haley, Dugosh, & Lynch, 2011; Mattick & Hall, 1996). The principle of ‘stepped care’, which refers to the strategy of offering the least intensive level of care that meets treatment objectives (Mee-Lee & Shulman, 2009; National Collaborating Centre for Mental Health, 2008) has had only modest empirical support, and accepted criteria for such a systematic matching are lacking (Ghodse, 2010). Some literature on placement matching suggests interaction between setting, addiction severity, and treatment outcome, such that individuals with higher severity would have better outcomes when treated in a residential rather than in a community program (Drummond, 2009; Tiet, Ilgen, Byrnes, Harris, &

Finney, 2007). Even if residential treatment was found to be more effective than outpatient care for those with high problem severity, it may be less cost-effective (French, et al., 2000). With its fading economic viability, and requirement of state funding, residential treatment's availability for our study participants is limited.

Our study had limitations. First, we relied on self-report of treatment histories, and we did not have data on whether participants had been in residential treatment in the past. Second, our sample was limited to individuals seeking short-term inpatient opioid detoxification. Although detox is necessary to be considered for residential treatment in most communities (Specka, Buchholz, Kuhlmann, Rist, & Scherbaum, 2011), and thus a short-term inpatient stay may be sought by patients as the means to get a residential treatment bed, individuals who prefer MAT may enter directly into methadone or buprenorphine maintenance programs from the community, and therefore our reported percentage of opioid dependent persons who prefer residential treatment is not generalizable to all opioid dependent persons. Nonetheless, the majority of participants had past experience with medication-assisted treatments, so there is clearly movement across treatment modalities. Third, we recruited participants from only one location and our sample was primarily Non-Latino White (Wu, et al., 2010). Fourth, treatment preferences were enunciated in the first 24 hours of detox, and preferences might change later in treatment. Fifth, we do not have qualitative data to understand what exactly participants had in mind when stating a preference for "residential treatment" and what they believe that treatment entails. Do they believe this is simply a form of stable housing (Kertesz, Crouch, Milby, Cusimano, & Schumacher, 2009), or do they believe intensive support is provided? Sixth, the treatment preference question -- "If you had unlimited treatment options, and all were free, which one would work best for you when you leave here?" – purposely did not take into account the issue of treatment access; residential beds are scarce in most communities and treatment may not be covered by insurance (French, et al., 2000). We did not evaluate cost, previous treatment experiences, provider availability, and transportation, factors that can influence treatment preference. Our treatment preference question was based on a forced choice of a best option, but there is notable overlap between some treatments. For instance, NA/AA participation is not necessarily mutually exclusive with either residential treatment or MAT (although perhaps less philosophically compatible with MAT). Finally, we do not know if persons in fact entered their preferred treatment after detox discharge and capacity limits within our treatment system, not to mention other societal constraints (affordable housing, access to medical care, etc.) affect treatment entry.

5.0 CONCLUSIONS

The "revolving door" of serial detoxification admissions results in part from the ineffective linkage of patients to aftercare (Amato, Davoli, Ferri, Gowing, & Perucci, 2004; Mark, et al., 2003), often due to patient decision-making about the perceived need for additional therapy, and in part due to the limited availability of some treatment services and the overall capacity of the treatment system (Carrier, et al., 2011; Lundgren, Sullivan, & Amodeo, 2006; U.S. Department of Health and Human Services, 1995). In some instances, short-term opioid detoxification has been fully integrated into the first phase of long-term residential treatment (Collins, Horton, Reinke, Amass, & Nunes, 2007), eliminating the need for

linkage from a free-standing detox facility, but in most cases maintenance treatment remains a matter of self-selection for persons leaving detoxification.

There is a growing interest in involving patients with chronic diseases in all aspects of their treatment (Battersby, et al., 2010; Coleman, Austin, Brach, & Wagner, 2009), and disease management models have been described in the treatment of hypertension, diabetes, depression (Coleman, et al., 2009), and alcoholism (Watkins, Pincus, Tanielian, & Lloyd, 2003). Enlisting opioid dependent individuals who seek detox in aftercare planning begins with emphasizing the chronic course of addiction, providing data regarding the full array of therapeutic options, and making clear that a patient's first treatment preference may not always be available but that alternative strategies may be beneficial. We know from other work that opioid users entering detox are concerned most about their drug use, but also have other serious life concerns related to economics, relationship problems, and mental health issues (Stein, Anderson, Thurmond, & Bailey, 2015). Finding an acceptable treatment option and transitioning each patient seamlessly to aftercare remains the immediate clinical concern of detox staff given the extremely high rate of relapse in this population. Expanding the treatment system is one way to combat the epidemic of opioid abuse and the burdens of overdose, HIV, and HCV.

Acknowledgments

This study was funded by the National Institute on Drug Abuse (RO1 DA034261). Dr. Stein is a recipient of a NIDA Mid-Career Investigator Award (K24 DA00512).

7.0 REFERENCES

Amato L, Davoli M, Ferri M, Gowing L, Perucci CA. Effectiveness of interventions on opiate withdrawal treatment: an overview of systematic reviews. Drug and Alcohol Dependence. 2004; 73(3):219–226.10.1016/j.drugalcdep.2003.11.002 [PubMed: 15036544]

Amato L, Davoli M, Minozzi S, Ferroni E, Ali R, Ferri M. Methadone at tapered doses for the management of opioid withdrawal. Cochrane Database Syst Rev. 2013; 2:CD003409.10.1002/14651858.CD003409.pub4 [PubMed: 23450540]

Amato L, Minozzi S, Davoli M, Vecchi S. Psychosocial combined with agonist maintenance treatments versus agonist maintenance treatments alone for treatment of opioid dependence. Cochrane Database Syst Rev. 2011; (10):CD004147.10.1002/14651858.CD004147.pub4 [PubMed: 21975742]

Bailey GL, Herman DS, Stein MD. Perceived relapse risk and desire for medication assisted treatment among persons seeking inpatient opiate detoxification. J Subst Abuse Treat. 2013; 45(3):302–305.10.1016/j.jsat.2013.04.002 [PubMed: 23786852]

Bart G. Maintenance medication for opiate addiction: the foundation of recovery. J Addict Dis. 2012; 31(3):207–225.10.1080/10550887.2012.694598 [PubMed: 22873183]

Battersby M, Von Korff M, Schaefer J, Davis C, Ludman E, Greene SM, et al. Twelve evidence-based principles for implementing self-management support in primary care. Jt Comm J Qual Patient Saf. 2010; 36(12):561–570. [PubMed: 21222358]

Broers B, Giner F, Dumont P, Mino A. Inpatient opiate detoxification in Geneva: follow-up at 1 and 6 months. Drug and Alcohol Dependence. 2000; 58(1–2):85–92. [PubMed: 10669058]

Carrier E, McNeely J, Lobach I, Tay S, Gourevitch MN, Raven MC. Factors associated with frequent utilization of crisis substance use detoxification services. Journal of Addictive Diseases. 2011; 30(2):116–122. 936254277 [pii]. 10.1080/10550887.2011.554776 [PubMed: 21491293]

Chutuape MA, Jasinski DR, Fingerhood MI, Stitzer ML. One-, three-, and six-month outcomes after brief inpatient opioid detoxification. Am J Drug Alcohol Abuse. 2001; 27(1):19–44. [PubMed: 11373035]

Coleman K, Austin BT, Brach C, Wagner EH. Evidence on the Chronic Care Model in the new millennium. Health Aff (Millwood). 2009; 28(1):75–85.10.1377/hlthaff.28.1.75 [PubMed: 19124857]

Collins ED, Horton T, Reinke K, Amass L, Nunes EV. Using buprenorphine to facilitate entry into residential therapeutic community rehabilitation. J Subst Abuse Treat. 2007; 32(2):167–175.10.1016/j.jsat.2006.03.018 [PubMed: 17306725]

Conner BT, Hampton AS, Hunter J, Urada D. Treating opioid use under California's Proposition 36: differential outcomes by treatment modality. J Psychoactive Drugs, Suppl. 2011; 7:77–83.

Cunningham CO, Giovanniello A, Li X, Kunins HV, Roose RJ, Sohler NL. A comparison of buprenorphine induction strategies: patient-centered home-based inductions versus standard-of-care office-based inductions. Journal of Substance Abuse Treatment. 2011; 40(4):349–356.10.1016/j.jsat.2010.12.002 [PubMed: 21310583]

Degenhardt L, Bucello C, Mathers B, Briegleb C, Ali H, Hickman M, et al. Mortality among regular or dependent users of heroin and other opioids: a systematic review and meta-analysis of cohort studies. Addiction. 2011; 106(1):32–51.10.1111/j.1360-0443.2010.03140.x [PubMed: 21054613]

Degenhardt L, Whiteford HA, Ferrari AJ, Baxter AJ, Charlson FJ, Hall WD, et al. Global burden of disease attributable to illicit drug use and dependence: findings from the Global Burden of Disease Study 2010. Lancet. 2013; 382(9904):1564–1574.10.1016/S0140-6736(13)61530-5 [PubMed: 23993281]

Drummond, DC. Treatment services for alcohol use disorders. In: Gelder, M.; Lopez-Ibor, J.; Andreason, N.; Geddes, J., editors. Oxford Textbooks of Psychiatry. 2. Oxford: Oxford University Press; 2009.

Franklin GM, Mai J, Turner J, Sullivan M, Wickizer T, Fulton-Kehoe D. Bending the prescription opioid dosing and mortality curves: impact of the Washington State opioid dosing guideline. Am J Ind Med. 2012; 55(4):325–331.10.1002/ajim.21998 [PubMed: 22213274]

French MT, Salome HJ, Krupski A, McKay JR, Donovan DM, McLellan AT, et al. Benefit-cost analysis of residential and outpatient addiction treatment in the State of Washington. Eval Rev. 2000; 24(6):609–634. [PubMed: 11151519]

Ghodse, H. Ghodse's Drugs and Addictive Behaviour: A Guide to Treatment. 4. Cambridge (UK): Cambridge University Press; 2010.

Gossop M. The treatment mapping survey; a descriptive study of drug and alcohol treatment responses in 23 countries. Drug Alcohol Depend. 1995; 39(1):7–14. [PubMed: 7587978]

Gossop M, Marsden J, Stewart D, Rolfe A. Treatment retention and 1 year outcomes for residential programmes in England. Drug Alcohol Depend. 1999; 57(2):89–98. [PubMed: 10617094]

Haley SJ, Dugosh KL, Lynch KG. Performance contracting to engage detoxification-only patients into continued rehabilitation. J Subst Abuse Treat. 2011; 40(2):123–131.10.1016/j.jsat.2010.09.001 [PubMed: 21094591]

Holm S. A simple sequentially rejective multiple test procedure. Scand J Statist. 1979; 6:65–70.

Hubbard RL, Craddock SG, Anderson J. Overview of 5-year followup outcomes in the drug abuse treatment outcome studies (DATOS). J Subst Abuse Treat. 2003; 25(3):125–134. [PubMed: 14670518]

Hubbard, RL.; Marsden, ME.; Rachal, JV.; Harwood, HJ.; Cavanaugh, ER.; Ginzburg, HM. Drug abuse treatment: a national study of effectiveness. Chapel Hill, NC: The University of North Carolina Press; 1989.

Kertesz SG, Crouch K, Milby JB, Cusimano RE, Schumacher JE. Housing first for homeless persons with active addiction: are we overreaching? Milbank Q. 2009; 87(2):495–534.10.1111/j.1468-0009.2009.00565.x [PubMed: 19523126]

Krupitsky E, Nunes EV, Ling W, Illeperuma A, Gastfriend DR, Silverman BL. Injectable extended-release naltrexone for opioid dependence: a double-blind, placebo-controlled, multicentre randomised trial. Lancet. 2011; 377(9776):1506–1513.10.1016/S0140-6736(11)60358-9 [PubMed: 21529928]

Lundgren LM, Sullivan L, Amodeo M. How do treatment repeaters use the drug treatment system? An analysis of injection drug users in Massachusetts. J Subst Abuse Treat. 2006; 30(2):121–128.10.1016/j.jsat.2005.10.007 [PubMed: 16490675]

Luty J. Treatment preferences of opiate-dependent patients. Psychiatric Bulletin. 2004; 28(2):47–50.10.1192/pb.28.2.47

Mark TL, Dilonardo JD, Chalk M, Coffey R. Factors associated with the receipt of treatment following detoxification. J Subst Abuse Treat. 2003; 24(4):299–304. S0740547203000394 [pii]. [PubMed: 12867203]

Mark TL, Dilonardo JD, Chalk M, Coffey RM. Trends in inpatient detoxification services, 1992–1997. Journal of Substance Abuse Treatment. 2002; 23(4):253–260. S0740547202002714 [pii]. [PubMed: 12495787]

Mattick RP, Breen C, Kimber J, Davoli M. Buprenorphine maintenance versus placebo or methadone maintenance for opioid dependence. Cochrane Database Syst Rev. 2014; 2:CD002207.10.1002/14651858.CD002207.pub4 [PubMed: 24500948]

Mattick RP, Hall W. Are detoxification programmes effective? Lancet. 1996; 347(8994):97–100. [PubMed: 8538351]

McCarty D, Fuller B, Kaskutas LA, Wendt WW, Nunes EV, Miller M, et al. Treatment programs in the National Drug Abuse Treatment Clinical Trials Network. Drug Alcohol Depend. 2008; 92(1–3):200–207.10.1016/j.drugalcdep.2007.08.004 [PubMed: 17875368]

McKay JR, Rutherford MJ, Alterman AI, Cacciola JS, Kaplan MR. An examination of the cocaine relapse process. Drug Alcohol Depend. 1995; 38(1):35–43. [PubMed: 7648995]

Mee-Lee, D.; Shulman, G. The ASAM placement criteria and matching patients to treatment. Chapter 27, Section 4, Overview of Addiction Treatment. In: Ries, RK.; Miller, S.; Fiellin, DA.; Saitz, R., editors. Principles of Addiction Medicine. Philadelphia, PA: Lippincott William & Wilkins; 2009. p. 387-399.

National Collaborating Centre for Mental Health. Drug Misuse: Opioid Detoxification, NICE Guideline. Leicester (UK): National Institute for Health & Clinical Excellence; 2008.

National Institute on Alcohol Abuse and Alcoholism. Helping Patients Who Drink Too Much: A Clinician's Guide. U.S. Department of Health and Human Services; 2005.

Orford J. Addiction as excessive appetite. Addiction. 2001; 96(1):15–31.10.1080/09652140020016932 [PubMed: 11177517]

Reifler LM, Droz D, Bailey JE, Schnoll SH, Fant R, Dart RC, et al. Do prescription monitoring programs impact state trends in opioid abuse/misuse? Pain Med. 2012; 13(3):434–442.10.1111/j.1526-4637.2012.01327.x [PubMed: 22299725]

Ridge G, Gossop M, Lintzeris N, Witton J, Strang J. Factors associated with the prescribing of buprenorphine or methadone for treatment of opiate dependence. Journal of Substance Abuse Treatment. 2009; 37(1):95–100.10.1016/j.jsat.2008.09.007 [PubMed: 19004598]

Rosen CS, Drescher KD, Moos RH, Finney JW, Murphy RT, Gusman F. Six- and ten-item indexes of psychological distress based on the Symptom Checklist-90. Assessment. 2000; 7(2):103–111. [PubMed: 10868247]

Simpson DD, Joe GW, Brown BS. Treatment retention and follow-up outcomes in the Drug Abuse Treatment Outcome Study (DATOS). Psychology of Addictive Behaviors. 1997; 11(4):294–307.10.1037/0893-164X.11.4.294

Simpson DD, Sells SB. Effectiveness of treatment for drug abuse: An overview of the DARP research program. Advances in Alcohol & Substance Abuse. 1982; 2(1):7–29.10.1300/J251v02n01_02

Smyth BP, Barry J, Keenan E, Ducray K. Lapse and relapse following inpatient treatment of opiate dependence. Ir Med J. 2010; 103(6):176–179. [PubMed: 20669601]

Sohler NL, Li X, Kunins HV, Sacajiu G, Giovanniello A, Whitley S, et al. Home-versus office-based buprenorphine inductions for opioid-dependent patients. Journal of Substance Abuse Treatment. 2010; 38(2):153–159.10.1016/j.jsat.2009.08.001 [PubMed: 19801178]

Specka M, Buchholz A, Kuhlmann T, Rist F, Scherbaum N. Prediction of the outcome of inpatient opiate detoxification treatment: results from a multicenter study. Eur Addict Res. 2011; 17(4):178–184.10.1159/000324873 [PubMed: 21494045]

Stein MD, Anderson BJ, Thurmond P, Bailey GL. Comparing the life concerns of prescription opioid and heroin users. J Subst Abuse Treat. 2015; 48(1):43–48.10.1016/j.jsat.2014.07.001 [PubMed: 25171955]

Substance Abuse and Mental Health Services Administration. The DASIS Report: Admissions for detoxification, 2001. Rockville, MD: Office of Applied Studies; 2004.

Substance Abuse and Mental Health Services Administration. Results from the 2012 National Survey on Drug Use and Health: Summary of National Findings. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2013.

Teesson M, Havard A, Ross J, Darke S. Outcomes after detoxification for heroin dependence: findings from the Australian Treatment Outcome Study (ATOS). Drug Alcohol Rev. 2006; 25(3):241–247.10.1080/09595230600657733 [PubMed: 16753648]

Teesson M, Ross J, Darke S, Lynskey M, Ali R, Ritter A, et al. One year outcomes for heroin dependence: findings from the Australian Treatment Outcome Study (ATOS). Drug Alcohol Depend. 2006; 83(2):174–180.10.1016/j.drugalcdep.2005.11.009 [PubMed: 16343809]

Tiet QQ, Ilgen MA, Byrnes HF, Harris AH, Finney JW. Treatment setting and baseline substance use severity interact to predict patients' outcomes. Addiction. 2007; 102(3):432–440.10.1111/j.1360-0443.2006.01717.x [PubMed: 17298651]

Tuten M, Defulio A, Jones HE, Stitzer M. Abstinence-contingent recovery housing and reinforcement-based treatment following opioid detoxification. Addiction. 2012; 107(5):973–982.10.1111/j.1360-0443.2011.03750.x [PubMed: 22151478]

Tuten M, Jones HE, Lertch EW, Stitzer ML. Aftercare plans of inpatients undergoing detoxification. Am J Drug Alcohol Abuse. 2007; 33(4):547–555.10.1080/00952990701407454 [PubMed: 17668340]

U.S. Census Bureau. [Accessed April, 2015] State and County QuickFacts. 2013. http://quickfacts.census.gov/qfd/states/25/2523000.html

U.S. Department of Health and Human Services. Detoxification From Alcohol and Other Drugs: Treatment Improvement Protocol (TIP) Series 19. Rockville, MD: Substance Abuse and Mental Health Services Administration; 1995. (DHHS Publication No. (SMA) 95-3046)

Volkow ND, Frieden TR, Hyde PS, Cha SS. Medication-assisted therapies--tackling the opioid-overdose epidemic. N Engl J Med. 2014; 370(22):2063–2066.10.1056/NEJMp1402780 [PubMed: 24758595]

Wang GJ, Volkow ND, Fowler JS, Cervany P, Hitzemann RJ, Pappas NR, et al. Regional brain metabolic activation during craving elicited by recall of previous drug experiences. Life Sci. 1999; 64(9):775–784. [PubMed: 10075110]

Watkins K, Pincus HA, Tanielian TL, Lloyd J. Using the chronic care model to improve treatment of alcohol use disorders in primary care settings. Journal of Studies on Alcohol. 2003; 64(2):209–218. [PubMed: 12713194]

World Health Organization. Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence. Geneva, Switzerland: World Health Organization; 2009.

Wu LT, Ling W, Burchett B, Blazer DG, Shostak J, Woody GE. Gender and racial/ethnic differences in addiction severity, HIV risk, and quality of life among adults in opioid detoxification: results from the National Drug Abuse Treatment Clinical Trials Network. Subst Abuse Rehabil. 2010; 2010(1):13–22.10.2147/SAR.S15151 [PubMed: 21709734]

HIGHLIGHTS

- In opioid detoxification patients, 96% desired some form of aftercare treatment
- 43% selected medication-assisted treatment and 29% selected residential
- Residential preference associated with homelessness, past year detox, legal problems

J Subst Abuse Treat. Author manuscript; available in PMC 2016 December 01.

Table 1

Background Characteristics, Prior Treatment Experiences, Substance Use, and Perceived Relapse Risk by Preferred Treatment Type.

	Total (n = 485)	Residential (n = 140)	Medical (n = 206)	Outpatient/AA (n = 139)	F or χ^2 (p =)
Age	32.1 (±8.7)	32.8 (± 9.2)	31.1 (±8.5)	32.9 (± 8.4)	2.54 (.080)
Gender (Male)	323 (66.6%)	102 (72.9%)	128 (62.1%)	93 (66.9%)	4.32 (.116)
Non-Latino Caucasian (Yes)	407 (83.9%)	124 (88.6%)	166 (80.6%)	117 (84.2%)	3.95 (.139)
Education	11.8 (±1.8)	11.9 (± 1.6)	11.6 (±1.8)	11.9 (± 1.9)	1.73 (.178)
Employed Part or Full-Time (Yes)	60 (12.4%)	13 (9.3%)	27 (13.1%)	20 (14.4%)	1.85 (.396)
Homeless (Yes)	54 (11.1%)	27 (19.3%)[ab]	16 (7.8%)	11 (7.9%)	13.22 (.001)
Time of Year (Summer)	180 (37.1%)	53 (37.9%)	75 (36.4%)	52 (37.4%)	0.08 (.960)
Detox Experience					
Never	130 (26.8%)	22 (15.7%)[ab]	63 (30.6%)	45 (32.4%)	15.63 (.004)[‡]
Recent (Past Year)	198 (40.8%)	72 (51.4%)[a]	80 (38.8%)	46 (33.1%)	
> 12 Months Ago	157 (32.4%)	46 (32.9%)	63 (30.6%)	48 (34.5%)	
Any Health Insurance (Yes)	417 (86.0%)	114 (81.4%)[a]	186 (90.3%)	117 (84.2%)	5.96 (.051)
Seen Primary Care Physician (Yes)	238 (49.1%)	66 (47.1%)	95 (46.1%)	77 (55.4%)	3.15 (.207)
Legal Problems (Yes)	146 (30.1%)	66 (47.1%)[ab]	46 (22.3%)	34 (24.5%)	27.33 (<.001)
Heroin User (Yes)	410 (84.5%)	118 (84.3%)	177 (85.9%)	115 (82.7%)	0.65 (.721)
Any Benzodiazepine Use (Yes)	207 (42.7%)	67 (47.9%)	91 (44.2%)	49 (35.3%)	4.86 (.088)
Any Cocaine Use (Yes)	189 (39.0%)	61 (43.6%)	81 (39.3%)	47 (33.8%)	2.81 (.245)
Hazardous Use of Alcohol (Yes)	108 (22.3%)	42 (30.0%)[a]	38 (18.5%)	28 (20.1%)	6.94 (.031)
Ever in Suboxone TX (Yes)	220 (45.4%)	56 (40.0%)	102 (49.5%)	62 (44.6%)	3.09 (.213)
Ever in Methadone TX (Yes)	185 (38.1%)	53 (37.9%)	83 (40.3%)	49 (35.3%)	0.90 (.638)
Psychological Distress	1.51 (±1.00)	1.49 (± 0.88)	1.52 (±1.07)	1.54 (± 1.02)	0.10 (.908)
Perceived Relapse Risk (0–100%)	62.6 (±37.9)	68.6 (±68.6)[a]	64.0 (±35.9)[c]	54.5 (± 39.8)	5.12 (.006)

[‡]Pearson chi-square test of independence with 4 degrees of freedom testing the association between categorical indicators.

[a]Residential significantly different than medical based on Holm-Bonferroni corrected p-value.

[b]Residential significantly different than outpatient based on Holm-Bonferroni corrected p-value.

[c]Medical significantly different than outpatient based on Holm-Bonferroni corrected p-value.