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Brief articles

Buprenorphine from detox and beyond: preliminary evaluation of a pilot program to increase heroin dependent individuals' engagement in a full continuum of care

Dennis M. Donovan, Ph.D. [a,b,*], Patricia C. Knox, Ph.D. [c], Jenny A.F. Skytta, B.A. [c], Jessica A. Blayney, B.A. [d], Jessica DiCenzo, M.S.W. [e]

[a] Alcohol and Drug Abuse Institute, University of Washington, Seattle, WA 98105, USA
[b] Department of Psychiatry and Behavioral Sciences, University of Washington School of Medicine, Seattle, WA 98195, USA
[c] Recovery Centers of King County, Seattle, WA 98144, USA
[d] University of Washington, Seattle, WA 98195, USA
[e] San Francisco General Hospital, San Francisco, CA 94110, USA

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ABSTRACT

Absence of successful transition to post-detoxification treatment leads to high rates of relapse among detoxified heroin users. The present study evaluated a pilot buprenorphine treatment program (BTP). Heroin dependent individuals were inducted onto buprenorphine/naloxone in detox, maintained while transitioning through an intensive inpatient program (IIP), and gradually tapered off medication over 5 months of outpatient (OP) treatment. Compared to programmatic indicators of treatment engagement in the year prior to BTP implementation, referrals from detox to IIP, entry into and completion of IIP and subsequent OP, and days in OP treatment increased substantially. BTP completers, compared to non-completers, viewed abstinence as more difficult and as requiring more assistance to achieve, were less likely to be current cocaine and alcohol users or to have relapsed during the course of treatment. Although preliminary and in need of replication, initial adjunctive use of buprenorphine in an abstinence-based continuum of care may improve post-detoxification treatment entry, engagement, and completion.

1. Introduction

Nearly 20% of all substance abuse treatment admissions in the United States in 2007 were for primary opiate abuse or dependence (Substance Abuse and Mental Health Services Administration, 2009). While there has been increased focus on prescription opiate abuse (Woolf & Hashmi, 2004), heroin use continues to be a major concern and is associated with high costs on personal and societal levels (Mark, Woody, Juday, & Kleber, 2001). Over the past decade, heroin has been the leading primary illicit drug of abuse and has accounted for the majority of treatment admissions (Substance Abuse and Mental Health Services Administraion, 2003). Individuals being admitted to treatment for heroin dependence, compared to other opiates, are much more likely to have had multiple prior treatment episodes, with a nearly three times greater likelihood of having had five or more prior admissions (Substance Abuse and Mental Health Services Administration, 2009).

Opiate substitution treatment, including methadone maintenance, has accounted for 30 to 40% of treatment admissions for opiate dependent individuals and has evidenced a decrease from 55 to 31% of planned admissions for injection heroin users from 1995 to 2005 (Substance Abuse and Mental Health Services Administraion, 2003, 2007). The majority of opiate dependent individuals are admitted into drug-free (non-medication assisted) treatment programs (Ducharme, Knudsen, & Roman, 2006), with the proportion of primary heroin abusers admitted to residential programs for detoxification and/or treatment having increased over this same 10 year time period (Substance Abuse and Mental Health Services Administration, 2007).

Getting heroin dependent individuals to enter and engage in drug-free treatment is problematic. Primary heroin users, compared to other drug users, are significantly less likely to enter the drug-free treatment programs to which they are referred and are less likely to complete residential programs that they do enter (Downey, Rosengren, Jackson, & Donovan, 2003). Injection opiate users are at high risk for leaving detoxification against medical advice, failing to avail themselves to treatment and having multiple subsequent readmissions for detoxification (Kenne, Boros, & Fischbein, 2010). Further, there are high rates of relapse following inpatient detoxification and drug-free treatment among opiate dependent individuals, often occurring shortly after discharge (Broers, Giner, Dumont, & Mino, 2000; Smyth, Barry, Keenan, & Ducray, 2010; Smyth et al., 2005). Those opiate dependent individuals who have abstinence as a goal (e.g., neither using opiates nor on methadone maintenance) are much more likely to achieve and maintain abstinence and delay a relapse, if

* Correspoding author. Alcohol and Drug Abuse Institute, 1107 NE 45th Street, Suite 120, Seattle, WA 98105–4631, USA. Tel.: +1 206 543 0937; fax: +1 206 543 5473.
E-mail address: ddonovan@u.washington.edu (D.M. Donovan).

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it does occur, if they have completed an inpatient treatment program followed by involvement in an aftercare program (Smyth et al., 2005; Smyth et al., 2010). Thus, it is important to explore methods to increase the likelihood of post-detoxification inpatient treatment entry, engagement, and completion, as well as to enhance the transition to aftercare services for opiate dependent individuals who have abstinence as their goal (Downey et al., 2003; Smyth et al., 2005; Smyth et al., 2010).

Inpatient medication-assisted detoxification, typically the first step in the treatment of opiate dependence, represents the point in the continuum of care at which such recommendations might be initiated. A recent retrospective chart review study compared opiate dependent individuals who, during an admission to an inpatient detoxification unit, were either inducted onto buprenorphine/naloxone (Bup/Nx) as the initial step of an office-based maintenance treatment program or were detoxified through a medication taper protocol (Caldiero, Parran, Adelman, & Piche, 2006). Both groups were referred to the same treatment program for intensive outpatient treatment and subsequent aftercare following their discharge from the detoxification unit. Those in the Bup/Nx induction and maintenance group were significantly more likely to enter into and had significantly longer stays in the intensive outpatient treatment and aftercare. The authors suggested that buprenorphine induction in and maintenance beyond detox may represent an effective way of facilitating entry and retention of opiate dependent individuals in more comprehensive treatment (Caldiero et al., 2006).

1.1. The present study

The present report is based on a program evaluation of a feasibility/demonstration project that inducted individuals onto Bup/Nx while in residential detox and maintained them while transitioning into and through intensive inpatient treatment, with a gradual taper over the course of 5 months of subsequent outpatient aftercare treatment. The buprenorphine treatment program (BTP) was conducted at Recovery Centers of King County (RCKC) in Seattle, which provides a continuum of care including detox, intensive inpatient (IIP), outpatient (OP) treatment, and step-down aftercare treatment. The objectives of the program evaluation were to: (1) evaluate the impact of buprenorphine induction during detox on post-detoxification referrals to, admission into, and completion of IIP, on OP treatment retention following IIP, and on repeat detoxification admissions by comparing referral, retention, and readmission rates of BTP participants to RCKC historical program norms; and (2) explore variables that might differentiate BTP completers from non-completers.

2. Methods

2.1. Background

Although approximately one third of RCKC's annual admissions to detox are primary heroin users, only a few typically have been admitted to or complete subsequent treatment. Fig. 1 provides a diagram of the flow of heroin dependent individuals admitted to detox between 3/1/2008 through 2/28/2009, which is the 1 year period prior to implementation of the BTP. In order to be admitted from detox into IIP, the individual needed to express interest in subsequent treatment upon entry to detox; be assessed as sufficiently motivated; not leave prematurely and successfully complete detox, which utilized clonidine as the primary pharmacological detox medication; have appropriate funding for treatment; and be able to wait for a bed to be available. As can be seen, less than 10% of the heroin dependent patients met these conditions, and less than half of these entered IIP. Transition from IIP to OP was similarly low, with only 12 patients making this transition and only one of whom completed the OP program. The program staff felt strongly that if patients had buprenorphine/naloxone available

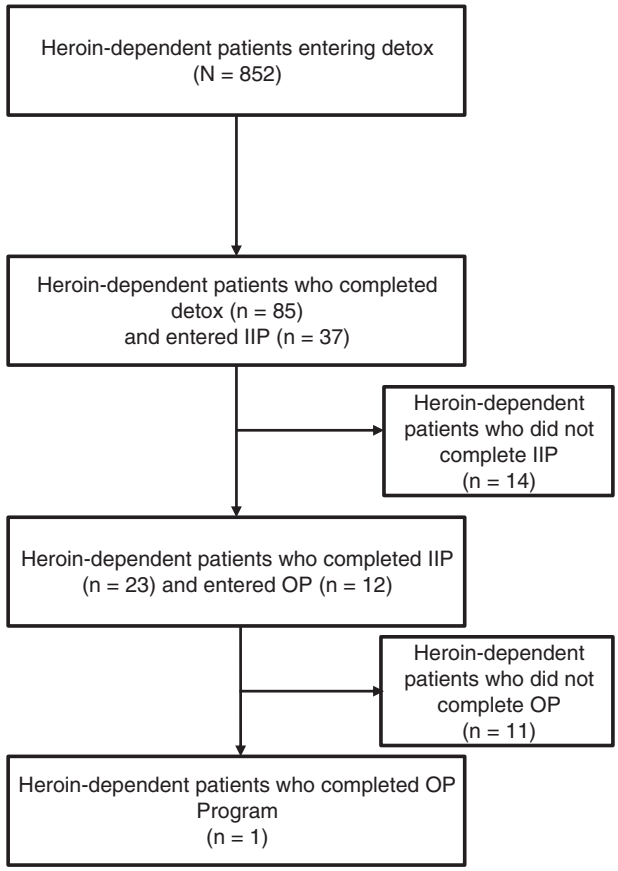

Fig. 1. Diagram of patient flow across phases of the continuum of care for heroin dependent individuals admitted to detox between 3/1/2008 and 2/28/2009, the 1 year period prior to implementation of the BTP.

adjunctively to support their efforts to complete treatment and become abstinent from drugs that the program would be much more successful in its efforts to treat this population.

On March 1, 2009, RCKC initiated a pilot feasibility/demonstration buprenorphine treatment program, with support from the King County Mental Health Chemical Abuse and Dependency Services Division (MHCADSD). This report summarizes the results from that date through December 31, 2011.

2.2. Description of the BTP

The BTP design is unique because treating patients with Bup/Nx while they are in inpatient treatment and continuing in outpatient treatment within the context of an abstinence-based program is not a treatment model currently being utilized, thus providing an alternative or additional option to office-based Bup/Nx treatment (Sullivan & Fiellin, 2008). However, the high rates of homelessness and social instability in RCKC's population might preclude many of them from such office-based buprenorphine programs (Alford et al., 2007; Center for Substance Abuse Treatment, 2004). Further, the provision of stabilization services to substance abusers, including those dependent on heroin, following detoxification is associated with reduced relapse rates among homeless, but not among non-homeless, individuals (Kertesz, Horton, Friedmann, Saitz, & Samet, 2003; Fig. 2).

The BTP was designed as an initial prolonged stabilization with a relatively slow tapering off Bup/Nx over the course of approximately 6 months from detox through outpatient involvement; it was not intended to be a long-term maintenance program. The program's goal is abstinence, not maintenance; buprenorphine is viewed as an adjunctive medication to behavioral treatment. RCKC staff felt that if

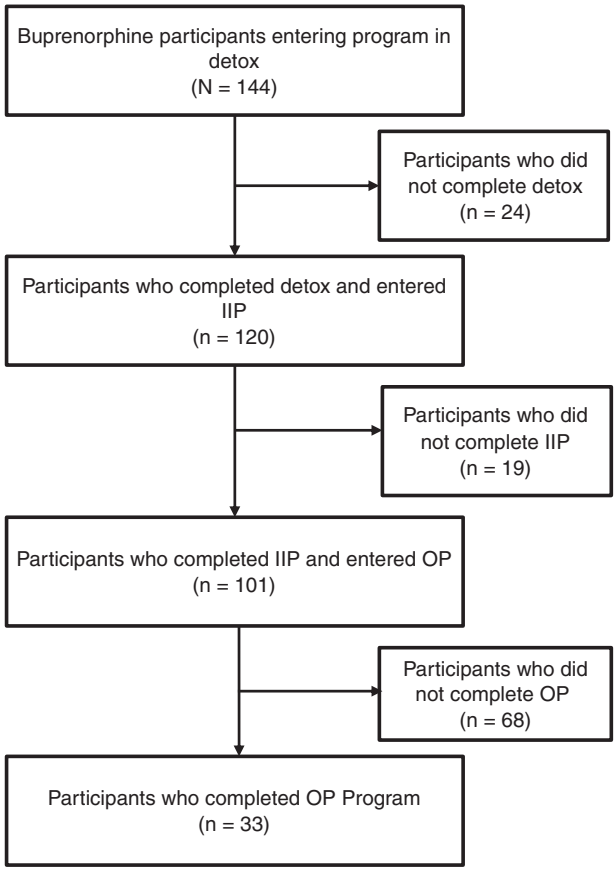

Fig. 2. Diagram of BTP participant flow across phases of the continuum of care.

patients were able to learn abstinence skills in inpatient treatment, followed by outpatient continuing care with the adjunctive therapy of Bup/Nx and while surrounded by other patients striving for the same goal of abstinence and engaging in the recovery community, they might be able to achieve and maintain abstinence for longer periods of time. Patients who choose to enroll in the program have abstinence as a stated goal and are clear from the outset that medication is limited to 6 months, which also coincides with the time frame for which Medicaid would provide reimbursement.

The program facilitates a full continuum of care over the course of 24 weeks, from acute detoxification, through IIP, followed by OP treatment. The BTP was offered to eligible heroin dependent individuals admitted to RCKC's inpatient detoxification program. There are three phases of the BTP. Phase 1 consists of the detoxification/stabilization stage. Patients are inducted onto Bup/Nx when admitted into detox. During detox, they receive a medication protocol of Bup/Nx (maximum daily dose of 16 mg) until they feel comfortable and are not in physical withdrawal. The length of stay in detox is approximately 5–6 days depending on their last use. Phase 2 occurs after the final day of the patient's detox, when they are transferred to a pre-arranged inpatient bed where they complete a 28-day IIP. During this phase, the medication dosage is adjusted as needed for further stabilization. In Phase 3, after completion of IIP, patients are transferred and admitted to a continuing care program for 5 months. During this time, patients' Bup/Nx dosage is tapered slowly while they build behavioral skills to facilitate their recovery. Patients are also encouraged to attend 12-step self-help support groups in the community.

The medication taper was structured throughout the program. It has been suggested that a gradual tapering in an outpatient setting, combined with additional treatment options, might lead to better outcomes than a taper of shorter duration (Becker, Strain, Bigelow, Stitzer, & Johnson, 2001); this is consistent with findings of a recent literature review that found a significant association between taper duration and subsequent opiate abstinence (Dunn, Sigmon, Strain, Heil, & Higgins, 2011). Participants were typically started at 16 mg of Bup/Nx, but they had an option of lowering their initial dose at the beginning to 14, 12 or 10 mg. Very few participants adjusted their initial dose; the average starting dose of those entering the OP phase was 15 mg, with a median of 16 mg. Any adjustments to the Bup/Nx dose were stabilized by the 10th week in the program. At week 10, which corresponded to the beginning of the sixth week in the OP program, the dosage began to be tapered by a decrease of 2 mg. Every 2 weeks thereafter, the dose was decreased by an additional 2 mg until it reached a daily dose of 2 mg in week 22; it was then tapered to a final 1 mg dose in week 24. After the 1 mg taper, participants were no longer prescribed the Bup/Nx.

The ultimate goal of the BTP is to taper patients off buprenorphine over the 6 months and for them to maintain abstinence. A more proximal intermediate goal is to increase engagement in post-detoxification treatment as reflected in the rate of admission from detox into and completion of the IIP, and successful transition from IIP into and completion of OP treatment.

2.3. BTP participant recruitment

The population consisted of heroin dependent individuals who were presenting for detoxification at RCKC's inpatient detoxification unit. Referrals to the BTP were received from (a) community treatment providers, the majority of which came from the Needle Exchange Program; (b) self-referrals, through word-of-mouth or having learned about the program while in detox and asked for information; and (c) referrals from the RCKC outpatient program. Referrals were screened in person or by telephone by detox admissions staff, who also reviewed the program with potential patients. Admissions staff also checked on the individual's funding status. A screening form was reviewed by nursing staff for major medical concerns. A copy of a recent chemical dependence assessment was requested and provided to RCKC's inpatient placement department for review and inpatient bed scheduling. If accepted, the individual was scheduled for admission to detox and buprenorphine induction.

2.4. Inclusion/exclusion criteria

The eligibility requirements for BTP involvement were ages between 18 and 44; a heroin user meeting *DSM-IV* criteria for opioid dependence, exhibiting symptoms and signs of acute opioid withdrawal at detox admission, and agreeing to enter IIP treatment and OP treatment at RCKC for a minimum of 5 months post-IIP discharge; and ability to provide informed consent. In addition, participants agreed to provide urine samples for urinalysis at program entry and every week during OP treatment, to have RCKC staff follow up with them after program completion, and to complete various surveys during their time in the program. Individuals were excluded from consideration if they were unable to give informed consent, unwilling to enter treatment and/or follow protocol, had diastolic blood pressure less than 70 mm Hg, heart rate less than 60, were pregnant, had known allergy or sensitivity to buprenorphine, or had a medical condition that would make participation hazardous (e.g., acute hepatitis, unstable cardiovascular status, liver or renal disease).

Since the program's inception in March 2009, through December 2011, 144 patients completed the initial program intake process and 120 enrolled into the program. There were a variety of reasons why patients were not enrolled, including funding issues and ineligibility due to recent drug use. A small percentage of opiate dependent patients participating in the initial intake process who were not enrolled into the program indicated that they were not ready for long-term treatment or for the changes necessary to attain abstinence from drugs. If the patient had no funding, they were informed by RCKC

admission staff to seek appropriate funding for alcohol and drug treatment through their local Department of Social and Health Services office; patients could then request referral to RCKC for treatment.

A diagram of the cohort of enrolled participants' flow across the phases of the continuum of care is found in Fig. 2. As can be seen, 144 patients enrolled into the BTP while in detox, of which 120 (83.3%) completed detox and entered IIP. Of the 120 patients entering IIP from detox, 101 (84.2% of those entering IIP; 70.1% of those originally enrolled in detox) completed IIP. Of the 101 patients completing IIP and entering OP care, 33 completed the entire OP program (32.7%; 27.5% of those who entered IIP; 22.9% of those originally enrolled in detox).

2.5. BTP patient characteristics

The patient group included in the present report consists of 91 individuals who participated in BTP from its inception in March 2009 through December 2011 and for whom program completion status was known. RCKC, as an agency, serves primarily low income and indigent clients. The participants included in the BTP were consistent with this profile. BTP participants were primarily Caucasian (78%), males (68%), in their mid-30s (mean age = 36.3, SD = 11.3), with a mean of 11.5 years of education (SD = 2.7). Only a very small percentage of patients had any type of employment; 2% reported working full time, 2% part-time, and 2% working on-call whether in temporary positions or intermittently. In comparison, 59% were unemployed and not seeking employment, 13% unemployed due to disability, and 22% unemployed but seeking employment. Mean monthly income was $276 (SD = $271; median = $339). Over half (52%) of patients reported public assistance as their primary income source, while 14% received disability income, and 27% reported no primary source of income. The sample was also quite indigent: 44% were homeless and an additional 18% had no stable living arrangement, while 28% had a personal residence, 2% were living in a familial residence, and 8% were in a controlled environment.

The mean age of first drug use was 15.5 years old (SD = 6.6), with 68% of patients having started using alcohol or drugs between the ages of 13 and 17. The most common first substances used were alcohol (27.5%), tobacco (22.0%), marijuana (12.1%), heroin (9.9%), and cocaine (8.8%). Age of first opiate use was, on average, 23.3 years old (SD = 8.1). A number of other drugs in addition to opiates were being used concurrently, with cocaine (58.6%), marijuana (51.2%), and stimulants (33.7%) the most commonly used illicit drugs. In addition, 45.3% reported alcohol use and 90.6% reported tobacco use. The mean lifetime number of drugs used was 3.63 (SD = 3.10). Nearly all patients (90.9%) strongly agreed that their drug problem was serious and 93.8% stated that their goal was to achieve and maintain total abstinence. Only 15.4% had prior use of prescribed opiate substitution treatment (e.g., methadone maintenance).

2.6. Measures

In addition to demographic information, the program's intake assessment included a number of other measures. The domains assessed included: (1) attitudes toward methadone and buprenorphine as treatments for opiate dependence, including perceptions of their potential helpfulness, supports to rehabilitation and aids to behavior change, negative physical and cognitive effects and potential health hazards associated with them, and the perceived purpose of their administration (Kelly et al., 2012; Schwartz et al., 2008); (2) level of confidence (self-efficacy) in one's ability to resist/avoid drug use in a number of high-risk drug use situations (Martin, Pollock, Cornelius, Lynch, & Martin, 1995); (3) desired goal over the next 3 months (e.g., total abstinence, abstinence for a period of time, controlled substance use, no particular goal), and the degree of confidence, desire, anticipated difficulty, and amount of help needed to remain abstinent/drug-free (Goldbeck, Myatt, & Aitchison, 1997); (4) the degree of readiness to cut down or quit each of a number of drugs and alcohol (Hesse, 2006); and (5) prior experiences with, expectations about, ambivalence concerning, and readiness to engage in 12-step self-help activities (Kingree et al., 2006).

2.7. Data analyses

Two sets of analyses were conducted. First, administrative data of historical programmatic indicators of treatment engagement (e.g., the number of heroin detox referrals, heroin patients admitted to intensive inpatient from detox, and patients completing IIP and discharged to outpatient continuing care; length of outpatient stay; and the average number of admissions to detox) from the aggregate of heroin dependent patients seen during the 12-months prior to the BTP's implementation were compared to the same indicators for a subset of BTP patients. Second, chi-square and analyses of variance (ANOVA) were used to compare the subset of the 91 BTP patients for whom completion status was known who either completed or did not complete the BTP, attempting to identify potential client characteristics that differentiated the two groups.

3. Results

3.1. Transition from detox to IIP

Table 1 presents pre- and post-implementation indicators of treatment engagement. In comparing the 12 months prior to the initiation of the BTP, the percentage of heroin dependent patients being referred from detox to IIP increased by 55.6% during the first post-implementation year and an additional 32.1% the second year. In the 10 months reported for the third post-implementation year, there were 29 referrals to IIP from detox, which was on track with the previous year. The percentage of heroin-dependent patients admitted into RCKC's IIP increased by 79.6% during the first year. The second year saw an additional 4.5% increase in admissions and in the 10 months included for the third year, IIP admissions increased an additional by 4.3%. Eighty-three percent (83%) of heroin-dependent patients in the BTP completed IIP; 66.5% of heroin-dependent patients completed IIP in the year prior to the BTP implementation.

Table 1
Comparison of indicators of treatment engagement in the 12 months pre-BTP implementation and post-implementation periods.

Program engagement indicators	Pre-period	Post-implementation periods		
	12 months pre-BTP	3/1/09–2/28/10	3/1/10–2/28/11	3/1/11–12/31/11
Heroin referrals from detox to IIP[a]				
n	18	28	37	29
% increase from pre		55.6%	105.6%	61.1% (35) (94.4%)[b]
Heroin patients admitted to IIP[a]				
n	49	88	92	96
% increase from pre		79.6%	87.8%	95.9% (115) (134.7%)[b]
IIP discharge destination outpatient aftercare				
n	33	82	84	63
% increase from pre		148.5%	154.5%	100% (76) (130.3%)[b]
Mean outpatient length of stay	72 days	103	114	115
% increase from pre		43.1%	58.3%	59.7%
Mean times admitted to detox	1.3	1.1		
% decrease from pre		−15.4%		

[a] IIP = intensive inpatient program.
[b] Estimated 12-month *ns* and % increases projected from referrals and admissions from first 10 months of this period.

3.2. Transition from intensive inpatient to outpatient treatment

During the year prior to the BTP implementation the percentage of heroin dependent patients entering OP treatment after completing IIP was 67%. With respect to actual numbers of patients making this transition, only 33 patients made this transition in the year prior to the BTP. In the first two complete years of the BTP, 92% of the heroin dependent patients entered OP following the completion of IIP. The numbers of BTP patients making this transition from IIP to OP in these 2 years were 82 and 84, respectively; this represents an increase of approximately 150% in the number of heroin patients each year transitioning from IIP to OP compared to the number in the year prior to the BTP implementation.

3.3. Length of stay and completion of outpatient treatment

During the year preceding the start of the BTP, heroin dependent patients stayed in OP treatment for an average of 72 days. During the 3 years of operation of the BTP the length of stay (LOS) for the same population in OP treatment increased 54.2% to an average of 111 days (SD = 27.6). When evaluating all heroin patients who completed IIP and were admitted into OP treatment at RCKC between 03/01/2009 and 12/31/2011, the mean LOS for patients in the BTP was 99 days (SD = 21.2) compared to 69 (SD = 14.1) days for heroin patients who were not in the BTP. A standard metric used by RCKC in the evaluation of its OP programs, and one of the benchmarks available in the pre-implementation period against which the BTP participants could be compared, is the percent of patients who complete 90 days of outpatient treatment. Historically, relatively few heroin patients reached this LOS criterion; only 18.9% of heroin-dependent patients stayed in OP for 90 days or more during the pre-implementation period. However, nearly half (48.8%) of the BTP patients stayed in OP treatment for 90 days or more. Overall, 31.9% of those heroin-dependent patients who began the BTP in detox completed the entire continuum of care, including detox, intensive inpatient, and the entire 5-month outpatient continuing care program.

3.4. Repeat detox admissions

Prior to the BTP, patients who reported their primary drug of choice as heroin were admitted to detox an average of 1.3 times in one calendar year, which was slightly less than the average of 1.4 admissions that BTP participants had in the calendar year prior to their index admission and involvement in the BTP. The BTP patients decreased their average number of admissions from 1.4 in the year prior to their BTP involvement to 1.1 admissions in the year following BTP involvement, a reduction of 21.4%. Eighty-nine percent of patients admitted to the BTP have not returned to detox since their involvement in the program.

It should be noted that six BTP participants entered detox not because of a relapse but to complete their taper. They chose to do so not because of the physiological effects of withdrawal but to ease their fear and anxiety about the final step in the tapering process. This option was made available to patients because it helped allay their anxiety. They also reported back to their outpatient group that they were not experiencing continued withdrawal symptoms off of the medication.

3.5. Factors associated with BTP completion

Of the 91 patients who participated in BTP from its inception (3/1/2009–12/31/2012) and for whom program completion status was known, 29 (31.9%) completed the entire continuum of care from detox through the outpatient phase while 62 (68.1%) did not. Analyses of variance were conducted, comparing those BTP patients who completed the entire program with those who did not on a number of continuous measures, including demographic characteristics and questionnaire scores. Chi-square analyses were used to compare the groups on categorical variables. Given the exploratory nature of these analyses, no adjustments were made for multiple comparisons and an alpha level of .10 or less was considered as reflecting trends or significant differences between groups.

As shown in Table 2, a small set of variables was related to successful completion of the entire continuum of care. Compared to those who did not complete the entire program, those who completed through the OP treatment component had a significantly lower monthly income, anticipated that they would need a greater amount of help in remaining abstinent/drug free over the next 3 months, were less likely to be current cocaine users at admission, and were less likely to have relapsed during the course of their program involvement. There were also trends ($p<.10$) for completers to be younger, to have used more different drugs in their lifetime, to anticipate a greater degree of difficulty in remaining abstinent/drug-free over the next 3 months, and to be less likely to use alcohol currently.

No differences or trends were found between BTP completers and non-completers with respect to gender, race/ethnicity, educational level, age of first drug use, age of first opiate use, prior involvement with prescribed opiate substitution, total number of legal charges overall or drug-related violations, prior experience of having attended 12-step self-help group or readiness to engage in 12-step programs, drug avoidance self-efficacy, or attitudes toward buprenorphine or methadone in general or as perceived aids to behavior change. While program completers and non-completers differed with respect to their reported use of cocaine and alcohol, these groups did not differ in their readiness to change their use of these substances or to change opiate use at treatment entry.

Table 2
Variables differentiating between BTP completers and non-completers at a significant or trend level.

Continuous variables	Non-completers $n=62$	Completers $n=29$	F	p
	Mean (SD)	Mean (SD)		
Age	37.7 (12.3)	33.28 (8.3)	3.05	.084
Monthly income	$315.77 (296.8)	$191.41 (180.4)	4.33	.040
Total number of lifetime drugs used	3.23 (1.17)	4.48 (5.19)	3.32	.072
Difficulty remaining abstinent/drug free over next 3 months[a]	3.79 (1.89)	3.10 (1.45)	3.00	.087
Amount of help needed to remain abstinent/ drug free over next 3 months[b]	3.13 (1.82)	2.21 (1.18)	6.25	.014
Dichotomous variables	%	%	χ^2	p
Alcohol user	52.6%	31.0%	3.62	.057
Cocaine user	67.2%,	41.4%	5.33	.021
Relapsed	83.3%	45.8%	7.38	.007

[a] Difficulty remaining abstinent: 1 = very difficult, 7 = not at all difficult.
[b] Amount of help needed to remain abstinent: 1 = a lot of help, 7 = no help at all.

3.6. Staff and patient perceptions

Demand for BTP admission has been high since its inception and RCKC continues to receive several calls a week expressing interest in the program. The BTP has had tremendous acceptance among patients and staff. Patients in IIP and outpatient treatment who are not in the BTP have rarely expressed concern that these patients are taking buprenorphine/naloxone adjunctively in the context of an abstinence-based program. The positive impression of the program participants was expressed well by one of the patients in a treatment group: "I don't know where I would be without suboxone. I've tried everything, including methadone which was really bad. It made me feel out of it. Now that I'm on suboxone, I feel so much better and I'm able to resume a normal life which I couldn't do on methadone. I love this program."

4. Discussion

Treatment of heroin dependent patients is a difficult undertaking, especially for individuals who hold abstinence as their ultimate goal and in the context of drug-free treatment programs (Downey et al., 2003). The rates of opiate dependent individuals, particularly heroin users, leaving detoxification against medical advice are high (Kenne et al., 2010); relapse following detoxification is often rapid and the overall rates of relapse are high (Broers et al., 2000; Smyth et al., 2005; Smyth et al., 2010); and the likelihood of entrance into and completion of abstinence-based residential treatment is low (Smyth et al., 2005; Smyth et al., 2010). It was recommended that methods be explored to increase the likelihood of transition of opiate dependent individuals from detoxification into and completion of treatment and subsequent aftercare. The work of Caldiero et al. (2006) suggested that induction of opiate dependent patients onto Bup/Nx while in detox rather than tapering them off opiates was a method that increased both subsequent entry into and longer stays in intensive outpatient treatment.

The evaluation of the pilot BTP conducted by RCKC, which, unlike the study by Caldiero et al. (2006), had abstinence rather than office-based maintenance as its ultimate goal, provides support for the potential viability of such an approach to facilitate treatment entry and engagement. In comparison to the year prior to its implementation, the BTP was associated with an increase in the referral of patients from the detox unit to IIP, increased rates of IIP completion and of referral from IIP to OP treatment, and increased overall lengths of stay. Nearly a third of the patients completed the entire continuum of care from detox through a 5-month outpatient aftercare. There was also a reduction in detox readmissions for the BTP participants in comparison to both the historical rates and their own rate of admissions in the year prior to their BTP involvement. These findings are particularly noteworthy in light of the extremely low levels of employment and monthly income and the high rates of disability, homelessness and indigence of the heroin dependent participants.

Individuals who successfully completed the entire program anticipated the prospect of achieving abstinence over the next 3 months following admission as more difficult and as requiring more assistance than those who did not complete, suggesting the likelihood of their perceiving more potential benefit from remaining engaged in the BTP. They also were less likely to be current cocaine and alcohol users, both of which increase the risk of relapse; consistent with this, program completers were significantly less likely to relapse during the course of treatment than were non-completers.

While clearly improving treatment engagement relative to the pre-implementation period, the BTP leaves considerable room for improvement. Given the pattern of these latter findings, and the high rates of homelessness in the population treated, a number of specific components might be considered to augment the outpatient program into which patients like the BTP patients transition. Although office-based buprenorphine maintenance programs have been shown to be feasible with indigent and homeless opiate dependent individuals (Alford et al., 2007), social stability, as reflected by a stable living situation, is a recommended clinical guideline for entry into such programs (Center for Substance Abuse Treatment, 2004). First, as such, clean and sober living situations would seem to be essential to program success. At the outset of the project King County had numerous clean and sober housing options for patients. However, during the last year of the project stipends to patients for such housing were reduced and subsequently eliminated. Many of the patients in the BTP remained homeless and subsequently dropped out of treatment. Second, given the higher percentage of relapse among individuals who do not complete compared to those who did complete the entire BTP, the importance of more fully integrating relapse prevention skills into the outpatient phase for these patients is critical. Third, attention should be focused on outside self-help support groups to help maintain abstinence during and following treatment. Greater frequency of attending Narcotics Anonymous and Alcoholics Anonymous groups following residential treatment is associated with a greater likelihood of abstinence from opiates out as far as 5-years post-discharge (Gossop, Stewart, & Marsden, 2008). Fourth, despite their stated goal of abstinence, some participants, such as those who are unable to discontinue buprenorphine despite the gradual taper or who resume opiate use, might reconsider this goal and choose to enroll in an opiate substitution maintenance treatment program.

While the King County Mental Health, Chemical Abuse and Dependency Services Division provided support for the present pilot project, an issue of concern is its sustainability. There are considerable ongoing expenses associated with buprenorphine/naloxone and its administration over the prolonged period involved in the BTP for RCKC, a non-profit, public sector treatment program. This issue is similar to the one encountered by Caldiero et al. (2006) in their study of the use of buprenorphine/naloxone to facilitate the transition from detox to more comprehensive treatment. Much like them, it is hoped that the positive effects on treatment entry, engagement and retention of this difficult-to-treat population demonstrated in this pilot study, although preliminary and in need of replication and extension, might lead to a reexamination of how public funds for addictions treatment are allocated.

There are a number of limitations to the present report. First and foremost, the program was developed as a pilot/demonstration project rather than a research study. Thus the program evaluation nature of the project and its methodology are not as rigorous as would be found in efficacy or effectiveness trials. It is based on a relatively small sample, which was not determined on the basis of power analysis but rather on patient enrollment. Patients were not randomly assigned to BTP or standard care. Rather participants voluntarily enrolled in the program and were compared descriptively in aggregate to a historical comparison group of heroin dependent patients admitted to the detox unit in the year prior to BTP implementation.

Despite these limitations, the present results, in conjunction with those of Caldiero et al. (2006), suggest that inducting heroin dependent patients onto buprenorphine/naloxone in detox and maintaining them on it while in IIP and subsequent OP with gradual taper to a drug-free status warrants further study as a method to facilitate treatment entry, engagement, and retention of this difficult client population. The BTP has provided the benefit of additional treatment post-detoxification for heroin dependent patients outside of the traditional realm of abstinence-based treatment and methadone maintenance. It offers a treatment approach to patients who are historically difficult to engage and retain in treatment, contributing to sustained abstinence for a longer period than detoxification alone.

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