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Long-term retention in Office Based Opioid Treatment with buprenorphine

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ABSTRACT

Background: Guidelines recommend long-term treatment for opioid use disorder with buprenorphine; however, little is known about patients in long-term treatment. The aim of this study is to examine the prevalence and patient characteristics of long-term treatment retention (≥1 year) in an Office Based Opioid Treatment (OBOT) program with buprenorphine.
Methods: This is a retrospective cohort study of adults on buprenorphine from January 2002 to February 2014 in a large urban safety-net primary care OBOT program. The primary outcome was retention in OBOT for at least one continuous year. Potential predictors included age, race, psychiatric diagnoses, hepatitis C, employment, prior buprenorphine, ever heroin use, current cocaine, benzodiazepine and alcohol use on enrollment. Factors associated with ≥1 year OBOT retention were identified using generalized estimating equation logistic regression models. Patients who re-enrolled in the program contributed repeated observations.
Results: There were 1605 OBOT treatment periods among 1237 patients in this study. Almost half, 45% (717/1605), of all treatment periods were ≥1 year and a majority, 53.7% (664/1237), of patients had at least one ≥1 year period. In adjusted analyses, female gender (Adjusted Odds Ratio [AOR] 1.55, 95% CI [1.20, 2.00]) psychiatric diagnosis (AOR 1.75 [1.35, 2.27]) and age (AOR 1.19 per 10 year increase [1.05, 1.34]) were associated with greater odds of ≥1 year retention. Unemployment (AOR 0.72 [0.56, 0.92]), Hepatitis C (AOR 0.59 [0.45, 0.76]), black race/ethnicity (AOR 0.53 [0.36, 0.78]) and Hispanic race/ethnicity (AOR 0.66 [0.48, 0.92]) were associated with lower odds of ≥1 year retention.
Conclusions: Over half of patients who presented to Office Based Opioid Treatment with buprenorphine were ultimately successfully retained for ≥1 year. However, significant disparities in one-year treatment retention were observed, including poorer retention for patients who were younger, black, Hispanic, unemployed, or with hepatitis C.

1. Introduction

Buprenorphine is an effective treatment for opioid use disorder (OUD) but short-term medication alone is not sufficient for long-term recovery. (Kraus et al., 2011; Weiss et al., 2015) According to the American Society of Addiction Medicine the standard of care for patients with OUD is "long-term or even lifetime medication use." (Kraus et al., 2011) However, in most studies less than two-thirds of patients who enroll in Office Based Opioid Treatment (OBOT) with buprenorphine stay in treatment for greater than six months. (Alford et al., 2011; Gryczynski et al., 2014; Kakko, Svanborg, Kreek, & Heilig, 2003)

Previous research delineated patient-specific factors associated with early (six months) disengagement from OBOT, including a patient's inability to adhere to clinic structure (Gryczynski et al., 2014; Tkacz, Severt, Cacciola, & Ruetsch, 2012) and continued substance use.

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(Fareed et al., 2014; Ferri, Finlayson, Wang, & Martin, 2014; Hser et al., 2014) Illicit buprenorphine use at OBOT enrollment is associated with increased short-term retention in buprenorphine treatment. (Alford et al., 2011; Cunningham, Roose, Starrels, Giovanniello, & Sohler, 2013) Once enrolled in OBOT, illicit benzodiazepine (Ferri et al., 2014) and illicit opioid (Fiellin et al., 2008; Stein, Cioe, & Friedmann, 2005) use early in treatment are both predictive of short-term disengagement. Cocaine use has also been associated with short-term disengagement (Gryczynski et al., 2014; Sullivan et al., 2010) although not consistently. (Schottenfeld, Pakes, Oliveto, Ziedonis, & Kosten, 1997)

However, little is known about those who leave treatment after more than a year. Patients in long-term (≥1 year) treatment may be distinct from those retained short-term. For example, in one such small study of buprenorphine patients (n = 53) in treatment for over 2 years, 91% of urine samples had no evidence of illicit opioid use. (Fiellin et al., 2008) Such data suggests that long-term OBOT patients may be at reduced risk for opioid relapse. Despite possible differences between long-term and new patients, guidelines do not differ for managing patients based on program tenure. (Kraus et al., 2011; Substance Abuse and Mental Health Services Administration, 2005) As buprenorphine treatment is growing, from 48,000 prescriptions in 2003 (Mark, Kassed, Vandivort-Warren, Levit, & Kranzler, 2009) to 9.3 million prescriptions in 2012,(Office of Diversion Control, Drug & Chemical Evaluation Section, Drug Enforcement Administration, 2013) understanding long-term treatment retention and risk factors for disengagement will facilitate more effective OUD treatment. To pursue this objective, we examined a large cohort of patients treated with buprenorphine within a twelve-year period.

2. Materials and methods

This retrospective cohort study (DROP [Disenrollment and Re-engagement in an OBOT Program]) examines patients treated with buprenorphine at Boston Medical Center's OBOT Program from January 1, 2002 to February 28, 2014. The primary study aim was to describe patient characteristics associated with OBOT treatment retention for at least one year. In additional exploratory analyses, we describe reasons for disengagement.

2.1. Study setting

This OBOT program, established in 2002 at a large urban safety-net hospital, uses a nurse care manager to promote collaborative care, (Alford et al., 2011) a model which has been disseminated to community health centers and is known as the Massachusetts Model. (LaBelle, Han, Bergeron, & Samet, 2016; Substance Abuse and Mental Health Services Administration, 2014) Patients enrolled in the OBOT program receive primary care and buprenorphine treatment integrated within the Primary Care Clinic. Patients are typically seen weekly by a nurse care manager for the first month and every 3 months by their buprenorphine prescriber, with intervals based on clinical stability. Weekly substance use counseling is required, but the majority of patients receive counseling outside of Boston Medical Center. Patients in the OBOT program during some of the study period (years 2012 to 2014) did have enhanced access to psychiatry services within the primary care clinic, however this was a limited resource, and the majority of patients received psychiatric care elsewhere. Utilization and location of behavioral health services was not consistently documented and so these variables were not examined in this study.

2.2. Study population

This study included all men and women age 18 or older who entered treatment in the OBOT clinic prior to February 28, 2013, allowing at least one year follow up for all participants. This clinic does not include pregnant patients. All patients completed the standard clinical intake process and successfully completed buprenorphine induction. (Alford et al., 2011)

2.3. Data sources and collection

Data, included basic demographics, medical diagnoses and laboratory tests, were initially abstracted from the Electronic Medical Record (EMR) at with the assistance of the hospital's Clinical Data Warehouse. (S. Murphy, 2009) Race/ethnicity was categorized as white, black, Hispanic or other, during patient registration based on patient self-report in pre-specified categories as required by state law. (Jorgensen, Thorlby, Weinick, & Ayanian, 2010) When data were incomplete or lacked sufficient detail, two trained reviewers (D.H. and H.K.) and a physician (Z.W.) manually reviewed de-identified clinic notes. Manual chart review was required to obtain more complete details regarding substance use history, prior OUD treatment, and reasons for disengaging from OBOT.

2.4. Outcome

The primary outcome was at least one year of continuous OBOT with buprenorphine. Patients were allowed to have multiple engagement periods with the OBOT program. The start of the treatment period was the date of completion of buprenorphine induction as documented by receipt of the first buprenorphine prescription. Disengagement was designated as when the patient 1) had no active buprenorphine prescription for 60 days and 2) did not make any clinic contact for 60 consecutive days. The disengagement date was the last day of an active prescription or clinic contact, whichever was later.

One continuous year of treatment was defined as a period in which the individual was in treatment for at least 365 days, as long as any gap in care was <60 days. A new treatment period began with a new buprenorphine induction prescription. Treatment periods of at least one continuous year were designated "≥1 year retention" and patients with such retention were designated "OBOT veterans".

Additional exploratory analyses were performed looking at factors associated with a ≥ 2 year treatment period. For the ≥2 year treatment period analyses we further restricted our inclusion criteria to only include patients who entered treatment in the OBOT clinic prior to February 28, 2012 to allow for at least 2 years of follow-up.

2.5. Reasons for disengagement

After the disengagement date was identified, the research associates (H.K., D.H.) and primary investigator (Z.W.) reviewed the three de-identified OBOT or Primary Care clinic notes immediately prior to the disengagement date and the three de-identified notes immediately after the disengagement date, if available, to elucidate the reason treatment ended. Reasons for disengagement were coded into at least one of the eleven possible categories, with multiple reasons allowed for a single treatment period. The final eleven categories were iteratively refined by the research team. Reasons were coded based on content analysis, using existing theory from prior work, (Alford et al., 2011; Fingerhood, King, Brooner, & Rastegar, 2014; Gryczynski et al., 2014) clinical knowledge of the research team and reasons listed for termination of treatment traditionally reported to the state Department of Public Health's Bureau of Substance Abuse Services. (Bureau of Substance Abuse Services, 2012) (Table 3)

2.6. Statistical analyses

2.6.1. Descriptive statistics

Descriptive statistics were obtained of patient characteristics using proportions for categorical variables and means (standard deviation) or medians (interquartile range) for continuous variables, as appropriate. Proportions and 95% confidence intervals were calculated for the